THIS PAGE IS DECLASSIFIED IAW EO 13526

MAm n-p/MSS

503860 LIBRARY OF CONGRESS

REQUEST FOR OFFICIAL PHOTODUPLICATION

(Submit in Quadruplicate)

JAN 6 '95

Originating Division	Telephone Extension	Date
L.C. Photoduplication Service	X 7 5663	12/15/94
Date Required 1995 "Hap" Arnold Project	**Appropriation to be Charged** See Below	
Purpose to be Served Preservation shelf# MS 21124	**Requesting Office Order No.** MSS. Div.	

CHECK TYPE OF SERVICE TO BE ORDERED

- ☐ ELECTROSTATIC POSITIVE PRINTS (XEROX)
- ☐ PHOTOSTAT
- ☐ BLUE, BLACKLINE, MYLAR
- ☐ SPECIAL (Supplies, Methylene Blue Testing ...)
- ☐ PHOTOGRAPH
- ☐ MOUNTING
- ☐ _____
- ☐ MICROFILM
  - ☐ Negative
  - ☐ Positive
  - ☐ Spools and boxes
- ☐ PHOTOPRINTS FROM MICROFILM SIZE _____

Authorized by (Division)	Date	Approved by (Department)	Date

DESCRIPTION OF MATERIAL	Size, Finish Quantity, etc.	(1) 35mm Negative Microfilm	Positive
MSS. Div.			
General Henry "Hap" Arnold Coll.	Exp. at $	60,000	[redacted]
LINING DATA C.O. [redacted] AngloB RED. RT EXP.	2 positive copies [redacted] at $8,000		16,000
ORDER DATE [redacted] 4-6-95			
See Rick for finding aid	Exp. at $		
→ See Accounting for billing instructions. OK'd	Exp. at $		

Special Instructions:

Cost Share: Guggenheim Fund 43,000
Air Force 25,000
MSS. Div. 8,000
$ 76,000

Distribution: Master to LC
Por. to Air Force
Por to MSS. Div.

Special Charges		
Spools and boxes for Microfilm at $		
TOTAL COST		$ 76,000.00

Received by	Division Symbol	Date

LW 2-65 (rev 11/86)

SEE VERSO FOR INSTRUCTIONS

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

Library of Congress
Manuscript Division

The Papers of

Henry H. Arnold

Container 130

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir.

~~CONFIDENTIAL~~ DECLASSIFIED

AFATC/TAS/WCM/ash
8 February 1945

MEMORANDUM TO: Brig. General Patrick W. Timberlake
Deputy Chief of Air Staff

SUBJECT: Commander B. M. Baruch, Jr., USNR

1. Commander Baruch, who is scheduled to confer with you at 1500 hours today, is in Washington at the invitation of Chief of Staff, AAC and the undersigned, ostensibly for the purpose of attending an interrogation of the Captain of a BOAC B-24, who sighted an unidentified submarine Northeast of Bermuda on 15 January 1945. This interrogation will have taken place prior to Commander Baruch's appearance in your office.

2. Commander Baruch is presently assigned to duty with the Eastern Sea Frontier in New York and, although he is not now directly concerned with training matters, he is and has been intensely interested in surface and sub-surface craft identification and the universal adoption of the CINCLANT method of reporting sightings of such craft by airplanes engaged in intercontinental flights.

3. For your information, training in recognition and CINCLANT was started by AAC on 15 April 1944. At that time, the services of Commander Baruch, on a temporary basis, were requested by AAC to assist in establishing the program. The entire matter is under the supervision of Assistant Chief of Staff, Operations, Training Division, AAC and, briefly, the following principle steps have been taken:

a. Pertinent directives and syllabi, copies attached, establishing the program and outlining the duties of Recognition Training Officers have been issued. (Commander Baruch assisted and advised in the preparation of these from 15 April until approximately 17 May 1944.)

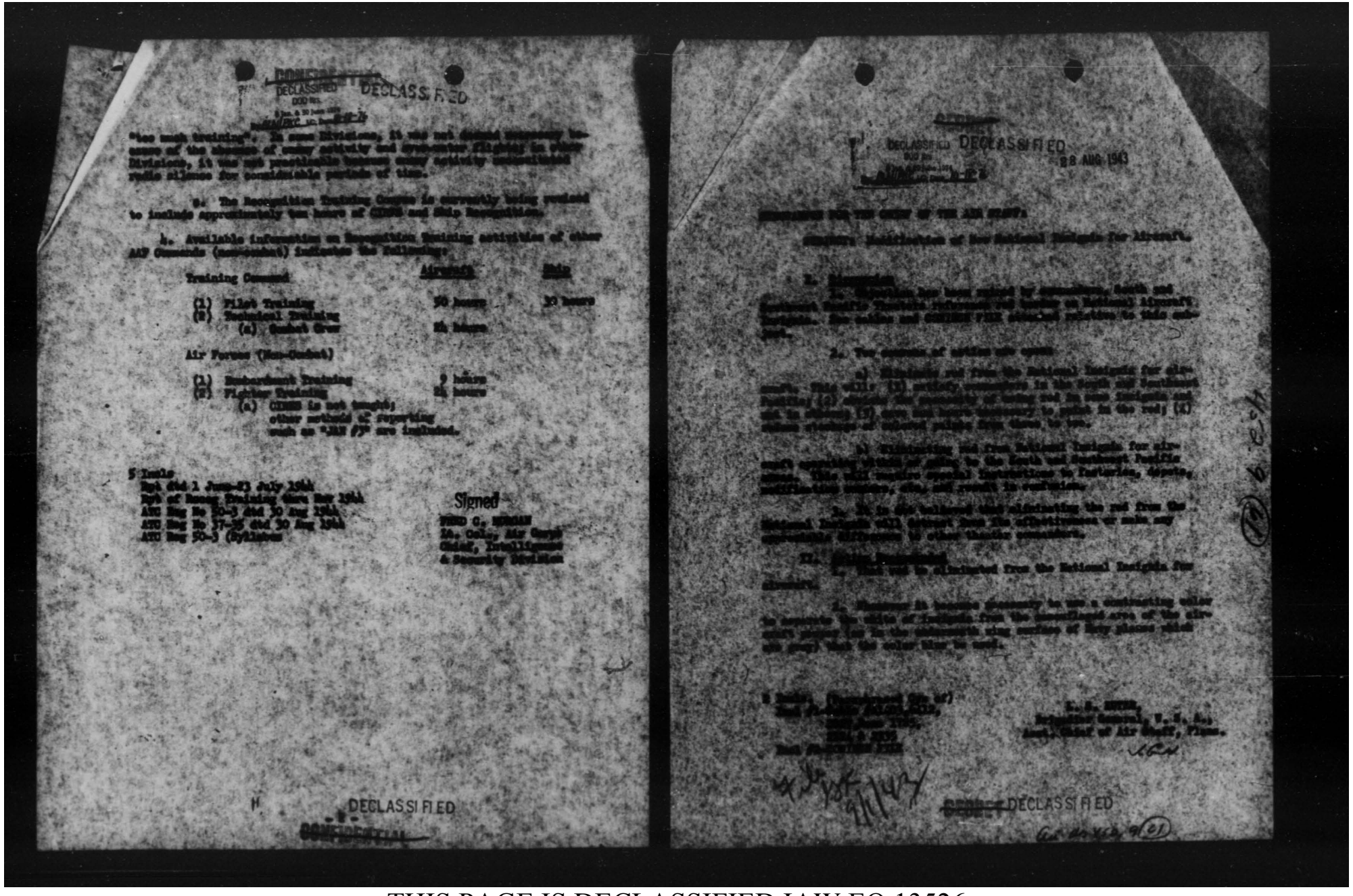
b. Sixteen Recognition Training Officers were procured, attended a refresher course and ultimately assigned; ten to the Ferrying Division and six to the Divisions conducting foreign contract carrier operations. Under these Officers, supervised by AAC-ORB, the program was initiated and is still continuing in the Ferrying, Alaskan, Caribbean, North Atlantic and Pacific Divisions. There are attached two progress reports, one for the period 1 June-23 July 1944, and the other 1 June-30 November 1944. As the reports indicate, the training program is not complete but is being carried out despite the objection frequently raised by the field that there is

~~CONFIDENTIAL~~ DECLASSIFIED

File
SAC 452.9 (2) 0a

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



"too much training". In some Divisions, it was not deemed necessary because of the absence of enemy activity and over-water flights; in other Divisions, it was not practicable because enemy activity necessitated radio silence for considerable periods of time.

b. The Recognition Training Course is currently being revised to include approximately two hours of GEARS and Ship Recognition.

4. Available information on Recognition Training activities of other AAF Commands (non-combat) indicates the following:

Training Command	Aircraft	Ship
(1) Pilot Training	50 hours	30 hours
(2) Technical Training		
(a) Combat Crew	24 hours	
Air Forces (Non-Combat)		
(1) Bombardment Training	9 hours	
(2) Fighter Training	24 hours	
(a) GEARS is not taught; other methods of reporting such as "ACK #3" are included.		

5 Incls
Rpt dtd 1 June-23 July 1944
Rpt of Recog Training dtd Nov 1944
AAF Reg No 50-3 dtd 30 Aug 1944
AAF Reg No 37-25 dtd 30 Aug 1944
AAF Reg 50-3 (Rybitwa)

Signed
FRED G. MINTON
Lt. Col., Air Corps
Chief, Intelligence & Security Division

DECLASSIFIED

DECLASSIFIED

28 AUG 1943

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

~~SECRET~~

DECLASSIFIED
DOD ltr's.
By ALN/PSC NLT, Date 10-19-76

17 AUG 1943

MEMORANDUM FOR THE CHIEF OF STAFF:

Subject: Fire by Friendly Troops on our Aircraft.

I. Discussion

1. Repeated efforts to establish a doctrine to avoid heavy losses of friendly aircraft from our own ground fire have not accomplished the desired results.

2. Under date of 2 June 1943 (Tab A) a request was made that our ground troops should be instilled with the belief that the unknown airplane is always one of ours. The reply to this request (Tab B) proposed "that a rule be adopted and applied in training to the effect that troops will not fire on any aircraft unless it either attacks with bombs or gunfire or demonstrates such an attack, or is clearly recognized as hostile by silhouette or markings." The reply further stated that "recognition training, as well as other air-ground training, has suffered from a shortage of aircraft."

3. The Army Air Forces have made repeated attempts to obtain additional units for air-ground training (Tab C), but commitments have prevented accomplishment. The Army Air Forces have organized a Demonstration Flight (Tab D) for furthering recognition training of ground units. Larger markings have been placed on our planes to aid in recognition. However, regardless of the amount of training in identification and recognition, the "itchy fingers" of troops in contact will result in aircraft losses by fire of friendly troops until all troops are thoroughly indoctrinated with the principle that the unidentified plane is friendly. An unlimited amount of recognition training will not accomplish the desired results, for it is a subject of indoctrination and not one of recognition. Our forces must be thoroughly instilled with the correct precept before we can expect them to cease firing on our own aircraft.

II. Action Recommended

1. That the Commanding General, Army Ground Forces, be informed that his expressed shortage of airplanes for air-ground training has been brought about by complying with directives of the War Department which placed the available aircraft where it has been most

OFFICE OF SIGNATURE

DECLASSIFIED

~~SECRET~~

Orig 452.9 (6-17-43)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET

DECLASSIFIED

Memorandum for the Chief of Staff (Continued)

would be the war effort, and that the requests by the Army Air Forces for additional aircraft for personnel training have been disapproved by OPD, the Operations Control Staff.

2. That the Army Ground Forces take the necessary action to [illegible] ground troops with the proper anti-aircraft weapons and ammunition, and [illegible] recommend that we apply to that anti-aircraft artillery weapons with highest priority and as thereof become [illegible] the anti-aircraft artillery as equipped will be provided by the division established for the use in unified air defense.

For the Commanding General:

Signed

BARNEY M. GILES,
Major General, U. S. Army,
Chief of the Air Staff.

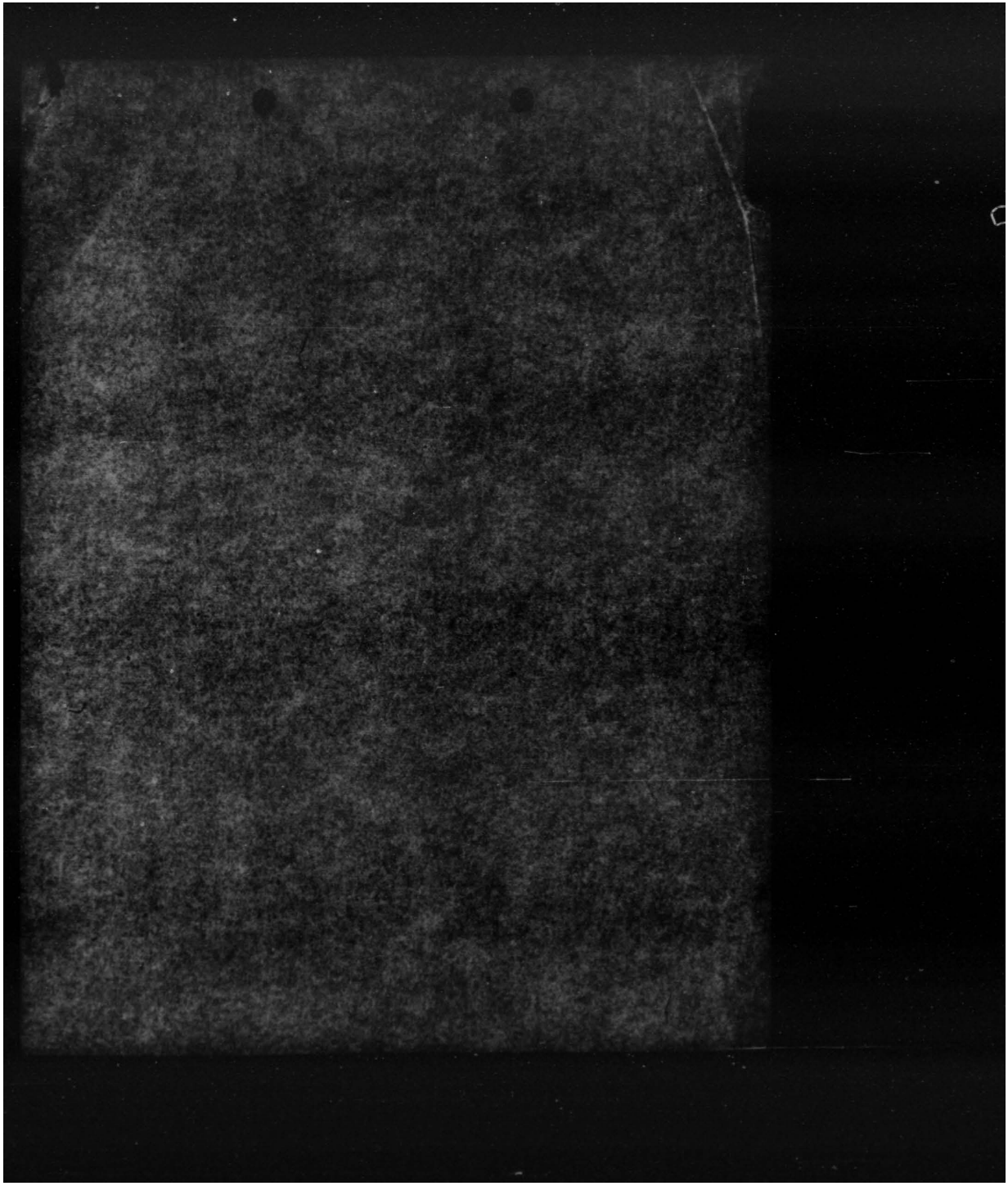
4 Incls:
Inc 1 - Ltr to CG AAF dtd. 2 Aug'43
Inc 2 - Ltr to CG AAF dtd. 10 Aug'43
Inc 3 - Mem (4 inclosures) subj: Par. Opn. to Participate in Army Maneuvers.
Inc 4 - Ltr. to CG AAF dtd. 2 Jul'43

Dispatched
17 AUG 1943
AAF

-2- SECRET DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

COPY

8 June 1943

Lieutenant General L. J. McNair,
Commanding General, Army Ground Forces,
Army War College,
Washington, D. C.

Dear McNair:

I have just learned that the problem of recognizing aircraft from the ground was never solved in Tunisia to the satisfaction of either our ground or our air commanders.

Early in the campaign our air losses to our own ground fire were heavy. In the fighting in the Kasserine Valley where low clouds and mountains required our aircraft to approach the enemy over our own ground troops, the air people believed that the great majority, if not all, of our losses were due to our own ground fire. As time progressed the situation did improve; however, in the last days of the campaign we were still losing aircraft to our own fire from the ground. Colonel A. G. Moffett, an experienced Army Air Forces old-timer, who was on the staff of the Tactical Air Force was shot down in flames in a P-40 by our Rafers some 30 miles behind our lines. All of the P-51's (which arrived late in the theater) which were shot down were destroyed by our own fire.

These items have not been forwarded to us in Washington for two reasons. It was feared that such reports might indicate rancor on the subject which, in fact, did not exist. Furthermore, the situation was of grave concern to all the commanders in the theater. Every action that could be suggested by either ground or air commander was put in effect immediately and vigorously. The order directing there be "no firing unless the target airplane is positively identified as an enemy type or unless it is actually committing a hostile act (shooting or bombing)" was a sound one and was enforced.

Silhouettes were studied and airplane recognition training was pressed. That subject is hard to handle under any circumstances and particularly in the battle area when new types (P-51's for instance) may have silhouettes closely resembling hostile types.

With the same order in force no trouble was experienced by the Western Desert Air Force in flying over the 8th Army. The difference in the situation between the 8th Army and that in the 1st Army is believed

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

to be due to experience, training but primarily to the acceptance of our control of the air as a normal situation. Over the 8th Army, unknown airplanes were assumed to be friendly until they proved otherwise. On the other hand, over the 1st Army it appeared that airplanes were considered hostile until they acquitted themselves. It is obviously impossible for some aircraft, particularly those on tactical reconnaissance on the battle area, to acquit themselves if they are initially considered hostile.

I suggest that our American training might be improved in this regard, not only by drilling in recognition and the proper fire control but by instilling into our own troops the belief that the unknown airplane is always one of ours. That mental attitude should go far toward approaching the desirable situation obtained in the 8th Army. Anti-aircraft gunners should surely break all unknown or doubtful airplanes -- but they must do it with a smile. Such a frame of mind will relieve the 'itchy finger' menace and of still greater importance, reduce the hazards of the contagious ways of firing from nervous, tense or alarmed personnel in the vicinity of the 'itchy finger.'

I fully realize that the situation may be better if and when we have sufficient aircraft to permit normal, routine flying overhead during training. This will help the general situation but cannot fully meet the problem of new types or progressive changes in the contour of old types.

Please accept the foregoing as my suggestion with the knowledge that we are equally interested in this subject and with my appreciation for what you and your people have already accomplished toward the ends desired.

Very sincerely,

/s/
H. H. ARNOLD
General, U.S. Army
Commanding General, Army Air Forces

-2-

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET DECLASSIFIED

ARMY GROUND FORCES
OFFICE OF THE COMMANDING GENERAL
ARMY WAR COLLEGE
WASHINGTON, D. C.

DECLASSIFIED DOD Dir. 5200.9 June 27, 1971 By [illegible] Date 8-11-76

352/19(Air-Ground)(8)-GNDGC 15 June 1943.

General H. H. Arnold,
Commanding General, Army Air Forces,
The Pentagon, Washington, D. C.

Dear Arnold:

Reference is made to your letter of June 2, 1943, commenting on reports of heavy losses suffered by friendly aircraft in Tunisia from our own ground fire, and recommending certain corrective measures and policies.

Confirming the information in your possession, I have received many reports from observers in North Africa citing occasions on which troops have fired on friendly aircraft, and airplanes have attacked friendly ground troops. Such incidents occurred during the initial landing - on at least one occasion naval units fired on friendly planes - and subsequently throughout the entire Tunisian campaign. Copies of these reports are attached for your information (Incl. 1).

It appears that these attacks resulted from failure to establish satisfactory methods of mutual identification, inadequate recognition training, and, initially, to the lack of definite policies on firing at aircraft and on the matter of airplanes flying over friendly troops and areas. The mental "conditioning" caused by the fact that in the early stages of the campaign most of the airplanes seen by ground personnel were hostile was a contributing factor. Prompt measures taken by Allied Force Headquarters and subordinate commanders to improve recognition training and prescribe practical policies alleviated, but never entirely eliminated, these unfortunate incidents. No easy solution of the problem was reached.

Prevention of losses of this nature in future operations depends on proper indoctrination and training. It may be expected that aircraft will continue to attack friendly troops and troops will fire on friendly planes unless adequate recognition and identification training is obtained prior to combat. Training of this type cannot be improvised hastily, nor can rules or policies, no matter how stringent and strictly enforced, obviate its need.

Conditions observed in Tunisia are paralleled in training in this country. Though some progress has been made, there is still a general

DECLASSIFIED

DECLASSIFIED

lack of appreciation of the importance of recognition and identification training among air and ground units observed during maneuvers, and insufficient determination to prosecute this training to the fullest extent. Attached report of a recent visit to maneuvers in Louisiana (Incl. 2) outlines the present situation. I believe the most effective contribution that can be made towards solving the problem of reducing future losses from our own fire is to insure that prescribed air-ground training directives are implemented fully and the maximum amount of training is obtained.

We now have a constructive program of training which should go far towards eliminating future errors in recognition and identification. I refer to the recently published Air-Ground Training Tests.

Test No. 1 of these tests deals exclusively with the subject of aircraft recognition and places emphasis on recognition of a certain few important types of U. S. Army airplanes. This is believed to be sound practice. It is planned to test and grade every ground unit in this subject. It is suggested that this test be expanded to include a test of air units in the recognition of friendly ground troops and material.

Recognition training as well as other air-ground training has suffered from a shortage of aircraft. I am certain that many of the troops involved in reported incidents where ground fire destroyed friendly aircraft, never had had the opportunity to see, either on the ground or in flight, any of the common operational types of Army airplanes before leaving the United States. There is no substitute for this experience. I strongly recommend that Army Air Forces organize a flight composed of several different types of tactical airplanes (less heavy bombers) and such enemy airplanes as can be obtained and arrange to visit divisional posts and training centers throughout the country for the purpose of acquainting ground troops with the appearance of these planes in flight, at different levels, and from different viewpoints. While the drastic scarcity of operational aircraft is appreciated, I feel that demonstrations of this nature would pay large dividends. If this suggestion is considered feasible, this headquarters will cooperate with your staff in arranging necessary schedules and details.

Test No. III of Air-Ground Training Tests is concerned with establishment of mutual identifications. Ground and air units will be tested to determine their ability to obtain identifications, speedily and effectively, using all practicable means of visual signaling including colored smoke. The importance of a knowledge of such methods is obvious, and it is hoped that every air unit will be given the opportunity to participate in this test prior to departure overseas.

Your recommendation that our ground troops should be instilled with the belief that the unknown airplane is always one of ours is sound and practicable under conditions of overwhelming air supremacy such as attained in the last phases of the Tunisian campaign. However, it is believed

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET

DECLASSIFIED

that adoption of such a mental attitude would be extremely hazardous in situations where control of the air was in dispute and enemy aviation was engaged actively. As an alternative, it is suggested that a rule be adopted and applied in training to the effect that troops will not fire on any aircraft unless it either attacks with bombs or gunfire or threatens such an attack, or is clearly recognized as hostile by silhouette or markings. This rule obviously would not apply to AA gun units involved in area defense which are capable of recognizing enemy aircraft by IFF, radar, or similar methods.

Even well trained troops get "itchy fingers" when suddenly approached during combat by fast, low-flying airplanes. I am convinced that the adoption of definite policies with regard to airplanes flying over ground troops would do much towards eliminating air losses from ground fire and avoid delays to marching columns. The use of established routes, avoidance of friendly troop areas and columns, employment of prescribed recognition signals, and the maintenance of sufficient height to permit recognition when forced to fly over ground troops, are measures of proved effectiveness. The views of your headquarters as to Army Air Forces practice and policies in this matter were requested recently (Encl. 3).

The use of much larger markings on air and ground material has been recommended as a means of preventing errors in recognition. It is understood that plans already have been made to place more distinctive and more readily visible symbols on the fuselage and wings of tactical aircraft.

Further developments in radar may furnish the answer to the entire problem.

I can assure you of my intense interest in this subject and my desire to take every practicable measure to accomplish the desired result. I feel that much more can be done than is the past but believe the proposals contained herein are steps in the right direction. I should appreciate your comments on these suggestions so that they may be placed in operation without delay in the form recommended or with suitable modifications.

Sincerely,

/s/
L. J. McNAIR
Lt. Gen., U.S.A.,
Commanding

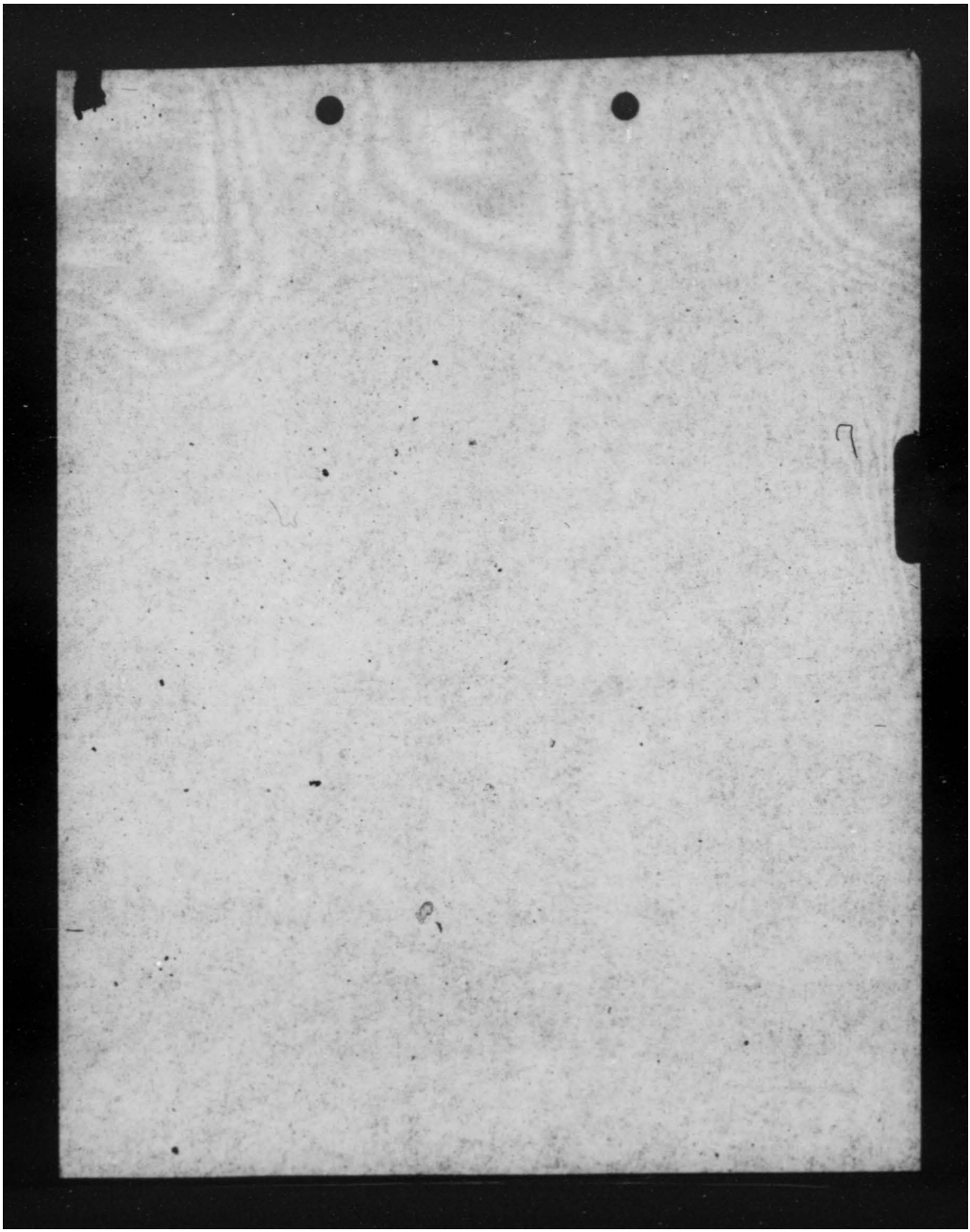
3 Encls (not furnished)

DECLASSIFIED

SECRET

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DECLASSIFIED
DOD Dir. 5 200 June 1972
By NNBC, HQ, Date 10-18-74

HEADQUARTERS ARMY AIR FORCES
Routing and Record Sheet

SUBJECT: Fighter Groups to Participate in Army Maneuvers

TO: Asst. C/AS, Operations, Commitments and Requirements DATE: April 8, 1943

FROM: Unit Trng. Div., Asst. C/AS, Training COMMENT NO. 1
AAF/Ops/72403

1. Second Army Maneuvers involving air support are scheduled as follows:

Second Army No. 1 — 26 April - 20 June, 1943
Second Army No. 2 — 5 July - 28 Aug., 1943

2. It is desired that fighter groups participate in this joint training.

3. Advised the following fighter groups will complete OTU at such times as to take part in these exercises, provided their commitment can be delayed:

Groups	Base	Complete OTU	Participate	Delay in OTU date (days)
[illegible]	P-47	1 June	1 June to 20 June	25 (Note A)
[illegible]	P-47	1 July	5 July to 21 July	45 (Note A)
[illegible]	P-47	1 July	5 July to 21 July	45 (Note B)
[illegible]	P-47	1 Aug.	1 Aug. to 28 Aug.	45 (Note A)

Note A: - 15 days following participation allowed before commitment.

Note B: - Participation of either [illegible]th or [illegible]th intended, not both.

4. Item 6 to AAA, subject, "Air Support of Corps Maneuvers," dated 11/20/42, file 354.2, is quoted in connection with this request:

"1. The present extreme requirements for fighter groups be present in active theaters upon completion of training, and the tie-up of aircraft which would result from even a short delay for participation in corps maneuvers, precludes the planned participation of any fighter groups prior to April 1943.

"2. A study is being conducted at this time to determine the availability of fighter groups for the maneuvers beginning April 15 and those thereafter. It is hereby possible that production circumstances and the tactical situation will warrant the temporary diversion of fighters by that time, and it is suggested that subject request be re-submitted accordingly.

"/s/ [illegible] V. HARPER
Colonel, G.S.C."

-1-

DECLASSIFIED (over)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET

DECLASSIFIED

Fighter Groups to Participate in Army Maneuvers

TO: Asst, C/AS, Operations, Commitments, and Requirements — April 2, 1943

FROM: Asst. C/AS, Training (Unit Training Division) — Comment No. 1 (continued)

5. Reference is invited to 2nd, subject, "Air Support for 1943 Corps Maneuvers," dated January 4, 1943, together with Comment No. 2, dated January 6, 1943, and Comment No. 3 dated February 9, 1943, attached hereto marked Incl. #1.

6. Reference made in Paragraph 2, Comment No. 2, dated February 9, 1943, to "Secret" Disposition Form, subject, "Combined Air-Ground Training," dated February 2, 1943, copy attached marked Incl. #2.

7. Allocations and Programs Division (Col. O. P. Weyland) has stated that approval of a delay in commitment of the fighter groups will make it possible to allocate the necessary planes for use in these maneuvers.

8. Your comments and recommendations are requested as to the desirability and possibility of delaying the commitment of the units as listed in paragraph 2, above.

2 Incls: (not furnished)

RAINEY V. HARPER
Brig. Gen., U. S. A.,
Asst. C/AS, Training

TO: Assistant Chief of Air Staff, Plans — April 17, 1943

FROM: AC/AS, OPNS, Allocations and Programs Division, Theater Branch — Comment No. 2 [illegible]

It is requested that you indicate below your reaction to the proposal contained in the appended enclosures.

O. P. WEYLAND
Colonel, Air Corps

SECRET DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

~~SECRET~~

DECLASSIFIED

Fighter Groups to Participate in Army Maneuvers

TO: Asst. C A S, OCAC, Allocations and Programs Division — May 4, 1942
Theater Branch

FROM: Asst. C A S, Plans — Comment No. 3
PM/Lay/71169

1. This office accepts in principal the desirability of joint air-ground training conducted during maneuver periods and utilizing such close support aviation as may be made available contingent on the current needs of active combat theaters.

2. To insure maximum benefit both during the maneuver training period, and in the cooperative and support missions of actual combat, the Air Force units designated for this training should be troop carrier, light bombardment and reconnaissance. The delay in complement necessitated by the use of medium bombers or fighter units for air-ground training is not justified.

3 incls n/c

G. A. ARMSTRONG
Brigadier General, U.S.A.

TO: AC/AS, Unit Training Division — May 4, 1942

FROM: AC/AS, OCAC, Theater Branch — Comment No. 4
[illegible]

1. Attention is invited to paragraph 2, Comment No. 3 above.

2. OPD, WDGS has indicated that delay in overseas shipment of medium bombardment or fighter units for air-ground training is not justified at this time.

3. Units listed in paragraph 2, Comment No. 1 above are committed for overseas movement as follows:

[illegible] Fighter Group — June 1
[illegible] Fighter Group — August 1
[illegible] Fighter Group — September 1
[illegible] Fighter Group — September 1

4. In some instances, units will have completed their GHQ training considerably in advance of the date that they receive their full complement of airplanes. It is not believed that any difficulty would be encountered if the "surplus" of time thereby gained were to be used in maneuver training.

[illegible]
Colonel, Air Corps

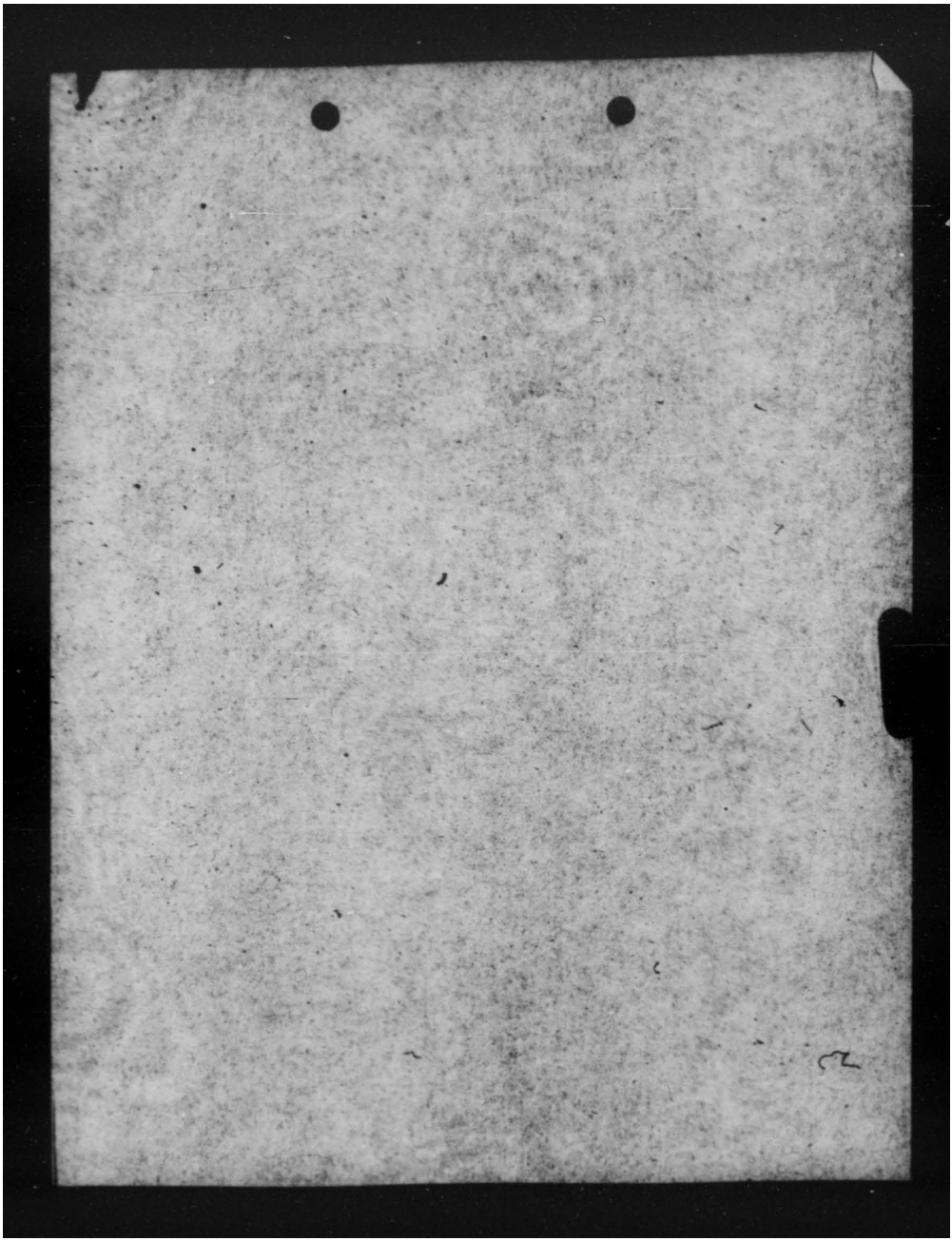
Incls. n/c

DECLASSIFIED

~~SECRET~~

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

WAR DEPARTMENT
HEADQUARTERS ARMY AIR FORCES
WASHINGTON

AFDPT-4

AAF 353.01

8 July 1943.

SUBJECT: Turning Instructional Flight and Demonstration

TO : Commanding General, Third Air Force, Tampa, Florida

1. The Commanding General, Army Air Forces, has agreed to cooperate with the Army Ground Forces in acquainting ground troops with the appearance of operational airplanes.

2. It is desired that you take the necessary action to organize a demonstration flight composed of the different types of our tactical airplanes (less heavy bombers) and such enemy airplanes as are obtainable for this purpose.

3. This flight will be prepared to visit divisional posts and training centers throughout the country.

4. The demonstrations by this flight should be arranged to show, and explain to, the ground troops the appearance of airplanes in flight, at different levels, and from different approaches.

5. It is desired that you furnish these headquarters, not later than 20 July 1943, the detailed plans for organization of the flight and the demonstration. These details will include such information as:

a. Synopsis of demonstration.

b. Types of aircraft.

c. Personnel involved - commissioned and enlisted.

d. Equipment required, if any, to be provided locally at place of demonstration.

6. At the proper time authority will be granted to communicate directly with the Ground Forces concerned.

By command of General ARNOLD:

/s/
ROBERT W. HARPER
Brigadier General, U.S. Army
Assistant Chief of Air Staff, Training

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DECLASSIFIED

To: Asst. Chief of the Air Staff, Plans

From: Asst. Chief of A/S, Training

In compliance with Request No. 1, above, a suggested Memorandum for the Chief of Staff, subject as above, is attached hereto.

1 Incl.
Sug. Memo to Chief of Staff

M.

DECLASSIFIED
SECRET

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET

DECLASSIFIED

DECLASSIFIED
DOD Dir

Friendly
Fire by [redacted] Troops on our Aircraft [redacted]

To: Chief of the Air Staff.

From: Asst. Chief of the Air Staff, Training

18 August 1943

Memorandum No. A.
[illegible]
[illegible]

1. Herewith enclosed is a suggested rewrite which omits Paragraph 2, Section II, of the action recommended in the first paper.

2. Paragraph 2, Section II, of original suggested memorandum has been changed to Paragraph 1, Section II of the rewrite. It now further adds that efforts were made by the Army Air Forces, but said efforts did not produce additional aircraft due to actions taken by CCS, 170.

[redacted]
Brigadier General, U.S.A.
Assistant Chief of Air Staff, Training

Orig. 1cy. w/4
Mar Asst. (Interim) added.

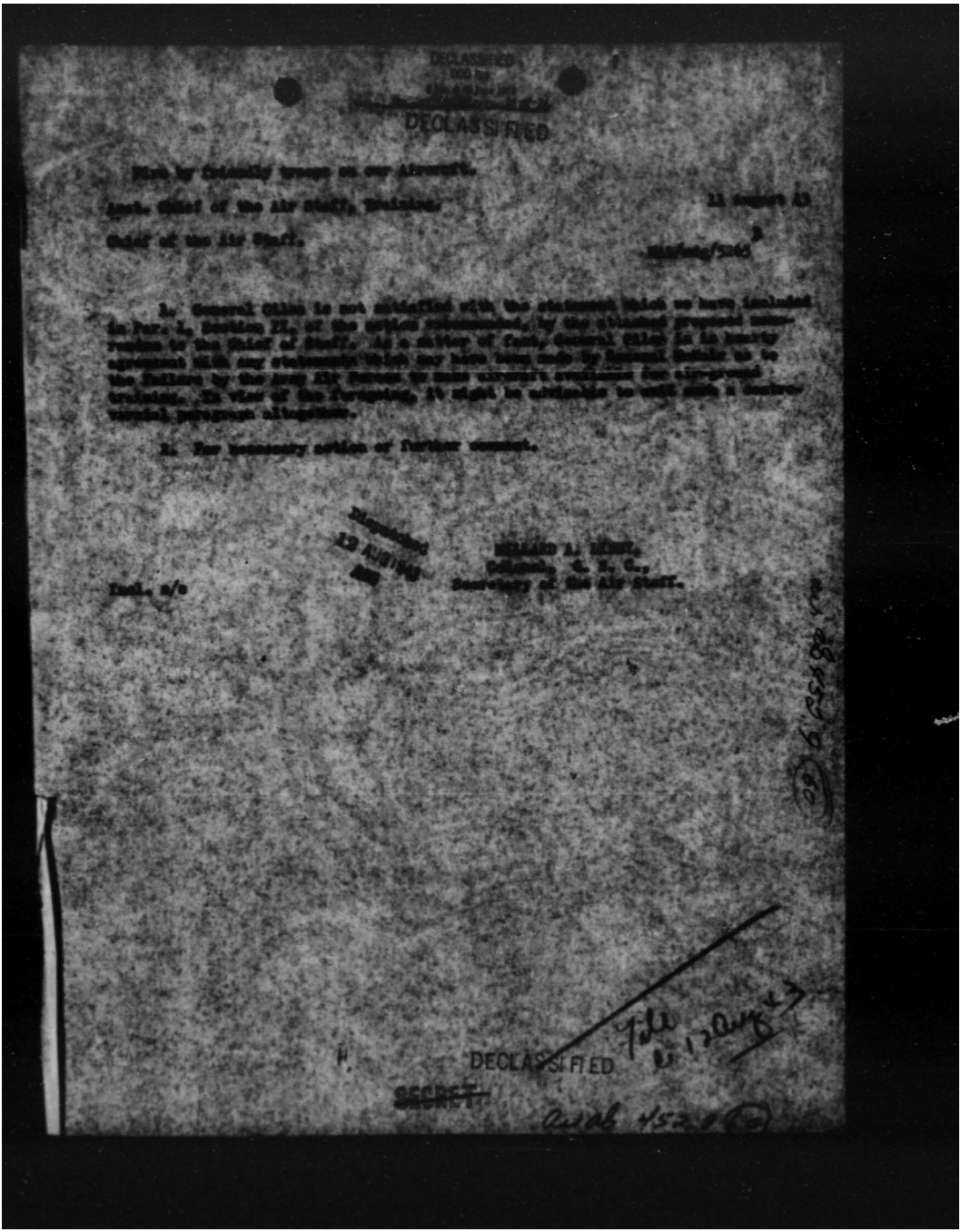
H

DECLASSIFIED

SECRET

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



DECLASSIFIED

Risk by friendly troops on our Aircraft.

Asst. Chief of the Air Staff, Intelligence

11 August 43

Chief of the Air Staff.

AFHQ/5245

2. General Giles is not satisfied with the statement which we have included in Par. 1, Section II, of the agreed memorandum, by the Combined proposed subproblem to the Chief of Staff. As a matter of fact, General Giles is in hearty agreement with any statements which may have been made by General Eaker to the Soviets by the Army Air Corps, or some aircraft, concerned for safeguard training. In view of the foregoing, it might be advisable to omit such a footnote paragraph altogether.

2. For necessary action or further comment.

Incl. n/c

WILLIAM L. ELLIS,
Colonel, A. A. C.,
Secretary of the Air Staff.

DECLASSIFIED

SECRET

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET
DECLASSIFIED
DECLASSIFIED
DOD Dir.

1 JUL 1943

Lieut. General Carl A. Spaatz,
Commanding General,
Northwest African Air Forces.

Dear Tooey:

Upon receipt of your radiogram A-2195 of June 7, 1943, telling of the trouble you were having with the identification of aircraft insignia, we had General Gardner at Eglin Field get busy and he made some very interesting tests. As a result of them we radioed you today stating that a new insignia was being sent you which improved visibility sixty percent and eliminates the possibility of mistaken identity.

The idea of yellow in our aircraft marking was more than I could take.

Attached hereto is a color drawing of the new insignia done to the scale with detailed instructions concerning the method of adapting the present star insignia by adding the identification bars to the right and left.

The very interesting tests made at Eglin Field show that our present white star on a blue field, the German insignia, and the Japanese insignia all resolve into invisibility at the same point and as they come closer they all do so in the form of a dot because all angular figures take the form of a dot at great distances. This applies to the AAF white star in the present blue field because the points of the star disappear and the color jumps over the points to form the dot mentioned above. Oddly enough as all three of the insignia approach they become identifiable at the same point.

Tests made with this new insignia show that it is visible at sixty percent greater range than the three insignia mentioned above but at a great distance it always maintains the shape of a long, narrow bar because the circular part in the center becomes flattened and blends into the rectangular bar shape.

4-3-4

DECLASSIFIED
SECRET

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET

DECLASSIFIED
DECLASSIFIED
DOD Dir. 5 Nov. & 30 June 1972
By NNDC, Date 10-12-76

Therefore there can be no mistaking of identity at even great distances because the German insignia will appear as a dot whereas this new AAF insignia will appear as a long, narrow bar.

For your information the Navy has accepted this same insignia and this data is being sent to you in advance of a directive which is being issued standardizing on this new insignia for both Army and Navy.

Sincerely,

Sgd. H. H. Arnold

H. H. ARNOLD,
General, U. S. Army,
Commanding General, Army Air Forces.

Incl.
Colored sketch &
Specification Sheet.

Dispatched
1 JUL 1943
AAG

File
SK
7/1/43

DECLASSIFIED

SECRET

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

The following changes in the design and size of national insignia for military aircraft are effective immediately:

(A) These changes consist of adding the following identification markings to the eighteen national star insignia as follows: on the wing the straight line formed by the top edges of the two white points perpendicular to the normal line of flight or on the fuselage parallel to the normal line of flight is continued for a distance equal to one radius of the blue circle out from each side thereof. Two rectangles, each one radius long and one-half radius wide, the inner ends of which remain contiguous to conform to the circle, are blocked in solid on each side of the blue circle with insignia white using the extended line referred to above as the top edge of the rectangles. The entire design is outlined with an insignia red border one-eighth radius wide.

(B) Size of the circumscribed blue circle on the fuselage remains unchanged. Size of wing blue circle shall be 75% of the distance between the leading edge of the wing and the aileron cutout except that these circles shall not be greater than sixty nor less than thirty inches in diameter.

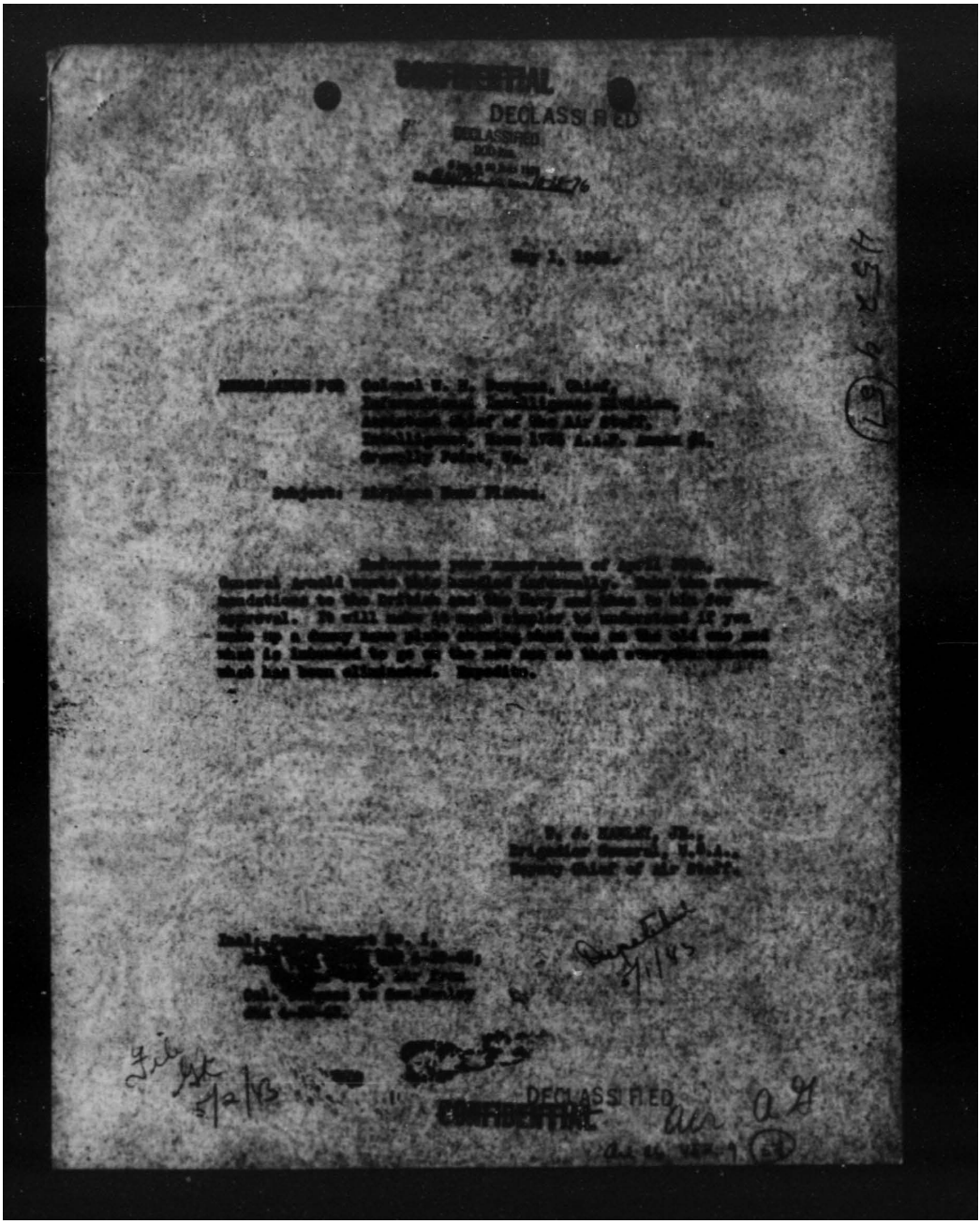
(C) The Navy has accepted the same insignia except that on the upper wing surfaces they will use a light gray instead of white.

Applicable specifications have been changed to incorporate the foregoing.

Air 49 1920 1 (85)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



CONFIDENTIAL

DECLASSIFIED

May 1, 1943

MEMORANDUM FOR: Colonel E. P. Burgess, Chief,
Intermediate Intelligence Division,
Assistant Chief of Air Staff,
Intelligence, Room 1D429 A.A.F. Annex #1,
Orwigsburg Police, Va.

Subject: Airplane Book Plates.

Reference your memorandum of April 30th.
General Arnold wants this matter taken up with the proper
authorities on the British and the Navy and then to him for
approval. It will make it much simpler to understand if you
make up a dummy book plate showing what you do want and
what is intended to go on the book and on which organization
that has been eliminated. Thanks.

H. H. ARNOLD, Jr.,
Brigadier General, U.S.A.,
Deputy Chief of Air Staff.

5/1/43

5/2/43

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL DECLASSIFIED

DECLASSIFIED DOD Dir.

SPECIAL SUB-COMMITTEE ON AIRPLANE NAME PLATES

JOINT AIRCRAFT COMMITTEE

Washington, D. C.

April 30, 1943

MEMORANDUM FOR THE COMMANDING GENERAL, ARMY AIR FORCES

Attention: Deputy Chief of the Air Staff

Subject: Final Proceedings of Special Sub-Committee on Aircraft Name Plates.

1. Submitted herewith, as requested in memorandum to the undersigned, dated April 23, 1943, are five (5) copies of the final proceedings and report of the subject Sub-Committee to the Joint Aircraft Committee.

2. Inquiry of the Recorder, Joint Aircraft Committee, disclosed that General Arnold was not to be present at yesterday's meeting of the Joint Aircraft Committee, and that it was not desired to bring up this case in his absence. Sufficient copies of these proceedings have been submitted to the Recorder, Joint Aircraft Committee, to afford ample dissemination and orientation of those concerned prior to meeting next Thursday.

W. M. BURGESS
Colonel, Air Corps
Chairman, Special
Sub-Committee on
Airplane Name Plates

Inclosures
5 cys Confidential
Proceedings indicated
in subject.
1 cy of Confidential
memo referenced in par 1
above.

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

Address Reply to
Commanding General of the Army Air Forces
for Requirements
Washington, D.C.

DECLASSIFIED

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
Washington,

April 23, 1943

MEMORANDUM FOR: Colonel W. M. Burgess, Chairman,
Special Sub-Committee on Airplane
Name Plates.

Subject: Elimination of Unnecessary Informa-
tion Data for U. S. Airplanes and
Component Parts.

The attached report has been shown to General Arnold who questioned the delay. Expedite final proceedings and submit to me.

By command of General ARNOLD:

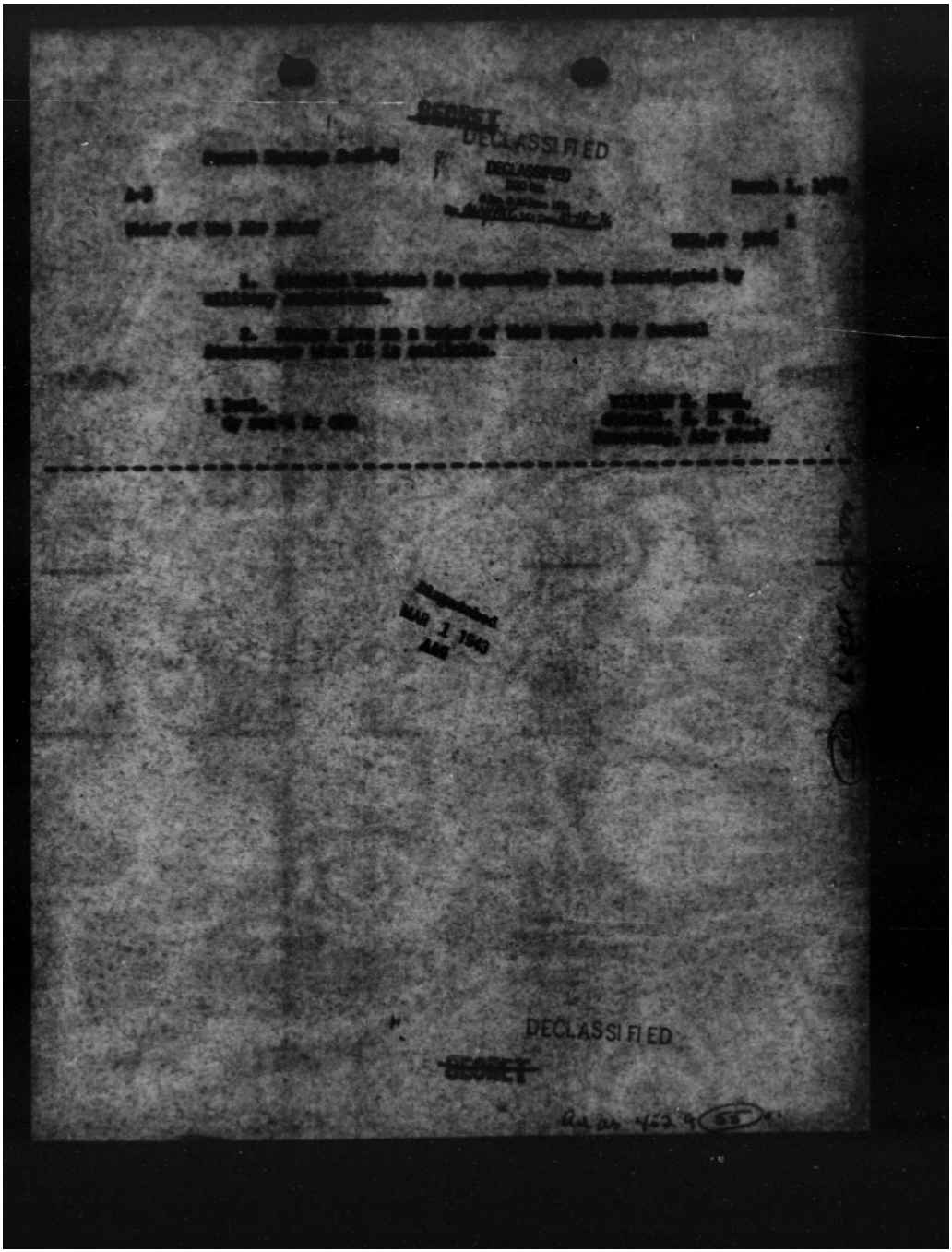
/s/ T. J. Hanley, Jr.,
T. J. HANLEY, JR.,
Brigadier General, U.S.A.,
Deputy Chief of Air Staff.

Encl: Conf.Memo dtd 4-22-43,
subject as above, w/incl:
Minutes of Meeting held
4-20-43.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

Prepared by Advisory Council

DECLASSIFIED

March 22, 1943

MEMORANDUM TO: Joint Aircraft Committee

Subject: Airplane Dash Pistons

1. I am not satisfied that everything that can be done to bring about:

a. To reduce the drag now incident on our airplane cowl pistons, and elsewhere on our aircraft and engine parts, to the minimum consistent with production and operational requirements, and

b. To provide such data as is given, to the extent necessary to protect the enemy from deriving from this data information which will be of value to him.

2. I propose that:

a. A special subcommittee be appointed by the Joint Aircraft Committee consisting of: a representative of the Assistant Chief of Air Staff, A-2, a representative of the Office of Naval Intelligence, and two representatives of the Joint Aircraft Committee, either chairmanship of the representatives of A-2.

b. This subcommittee be directed

(1) to make a comprehensive study of the problem of eliminating all unnecessary drag shown on our airplane cowl pistons and elsewhere on our aircraft and engine parts, and the problem of revising the necessary data, - taking into account security requirements, on the one hand, and production and operational needs, on the other hand;

(2) to submit to the Joint Aircraft Committee a report with specific recommendations in this matter.

Dispatched
MAR 23 1943
AAG

3/24/43

H. H. ARNOLD
Lt. General, U.S.Army,
Commanding General, Army Air Forces.

COPY FOR AAG

1

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET

DECLASSIFIED

Training of Air Support Troops in Identification of Ground Forces.

Hdqrs. GHQ

1. AFDAS AFRAS 1942 12/22

1. A recent letter from General Scobie to General Arnold mentioned two instances in which our Air Forces attacked our own tanks and one in which tanks fired on our Air Forces destroying two planes.

2. It is most important that all air support troops be trained in identification of tanks and ground forces, and that all ground forces be trained to recognize our airplanes and to differentiate between them and enemy planes. I know that this is a part of our instruction, but special emphasis should be placed upon it at this time because this report indicates that the instruction has not been satisfactory.

3. Please coordinate with such other Directors as are interested, particularly Individual Training.

Disposition
DEC 23 1942
AAG

T. J. HANLEY, JR.,
Brigadier General, U.S.A.,
Deputy Chief of Air Staff.

DECLASSIFIED

SECRET

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

HEADQUARTERS ARMY AIR FORCES
ROUTING AND RECORD SHEET

SECRET

DECLASSIFIED

SUBJECT: Surface Craft Identification (Ltr. frm. AFCAS to A-2 dated 5/16/42)

NO.	FROM	TO	DATE	COMMENTS
1	AFTSC (TS-1)	AFABI	1942 5/22	They have been advised not to approach merchant vessels closer than 1500 yards; that allied merchant vessels will display name boards, if equipped with them. (Information has been received that in some instances identification of surface craft is accomplished by use of signal flags). 3. A representative of the Directorate of Communications has visited the Caribbean Defense Command for the purpose of clarifying and coordinating matters pertaining to recognition, and reports that cooperation between the 15th naval district and the 6th Air Force is very satisfactory and that the slight differences that existed upon his arrival have been properly clarified and eliminated. A. W. [illegible] Dir/ Comm 1 Incl. Subject Ltr.
2.	AFABI	Col. Curtis Ass't. Sec'y, Air Staff	5/28	AFABI CPS:lh 1. Attention is invited to Comment #1. 2. It is to be noted that all such matters come under the jurisdiction of the Director of Communications. H. A. L.W. C/S-2 1 Incl. n/c Noted - file [illegible]

Hq. Army Air Forces
MAY 30 1942
AAG Received

(Do not use reverse side)

Page No. 2 DECLASSIFIED

SECRET

SECRET

DECLASSIFIED

SUBJECT: Surface Craft Identification. (Ltr. frm. AFCAS to A-2 Dated 5/16/42)

NO.	FROM	TO	DATE	COMMENTS
1	AFTSC (TS-1)	AFABI	1942 5/22	1. With reference to request in paragraph 2 of basic memorandum the following is a list of Key memoranda and publications which have been supplied the Caribbean Defense Command for Recognition and Identification purposes: Key Memoranda. 20 each SP 02292K " " SP 02293K " " SP 02292L " " SP 02293L " " SP 02292M " " SP 02293M Secret Documents 20 each SD 158 (1A) US Navy Reprint of British SD 158 (1A) " " SD 158 (1B) US Navy Reprint of British SD 158 (1B) " " SD 158 (1A) British print " " SD 158 (1B) British print " " C.I.R.P. (Current Instructions Registered Publications) AAF. Recognition Signal Lamps: Records of the Air Service Command show that 180 C-3 Signal Lamps have been shipped to the Panama Air Depot to equip all planes. 2. The above memoranda and documents are used by the United States aircraft and vessels as well as British aircraft and vessels. Surface vessel recognition procedure instructions promulgated by this Headquarters have been discussed with proper naval authorities and are parallel to instructions disseminated by the Navy to their units. Complete information concerning recognition of merchant vessels has been dispatched to the Caribbean Defense Command and they have been directed to contact the local naval authorities with reference to "scrambles" in effect or to become effective.

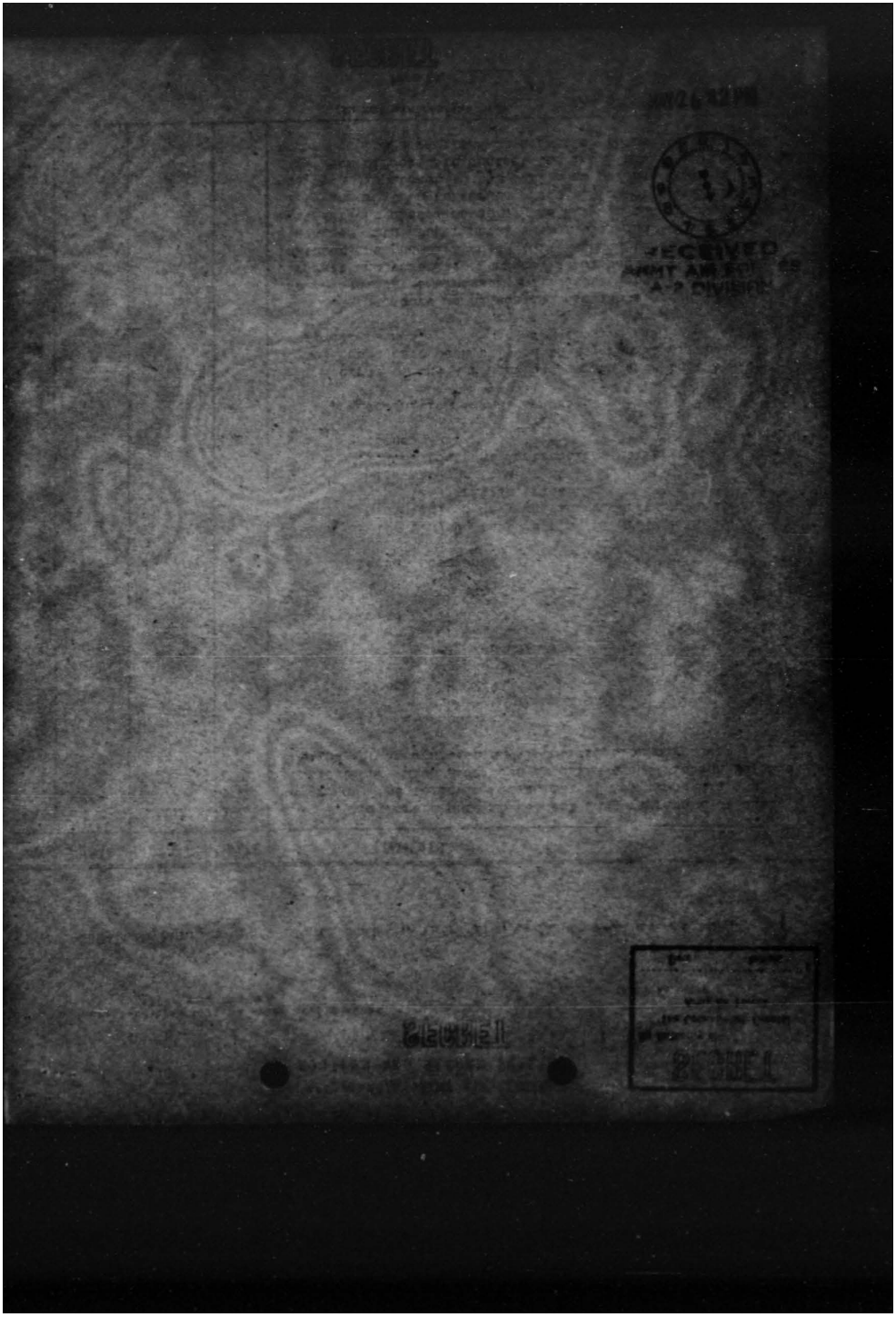
(Do not use reverse side)

Page No. 1 DECLASSIFIED

SECRET

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET

WAR DEPARTMENT

HEADQUARTERS OF THE ARMY AIR FORCES

WASHINGTON

DECLASSIFIED
DOD Dir.

SECRET
By Authority of
The Commanding General
Army Air Forces

SUBJECT: Surface Craft Identification.

TO: A-2.

1. A recent inspection of Air activities in the Caribbean Area indicates a continued lack of coordination between the Army Air Forces and the Navy as applied to mutual identification of surface craft and aircraft. Unless satisfactory procedure is agreed upon and proper equipment furnished immediately irreparable damage may be caused by lack of effectiveness of Air patrol. For example, at the present time aircraft in the Panama Area are restricted to such a distance from surface craft as to make identification practically impossible.

2. It is therefore directed that immediate action be taken to arrive at a plan for mutual identification of surface craft and aircraft and that the necessary equipment for effecting this plan be obtained and furnished to pertinent units with the least practicable delay.

By command of Lieutenant General Arnold:

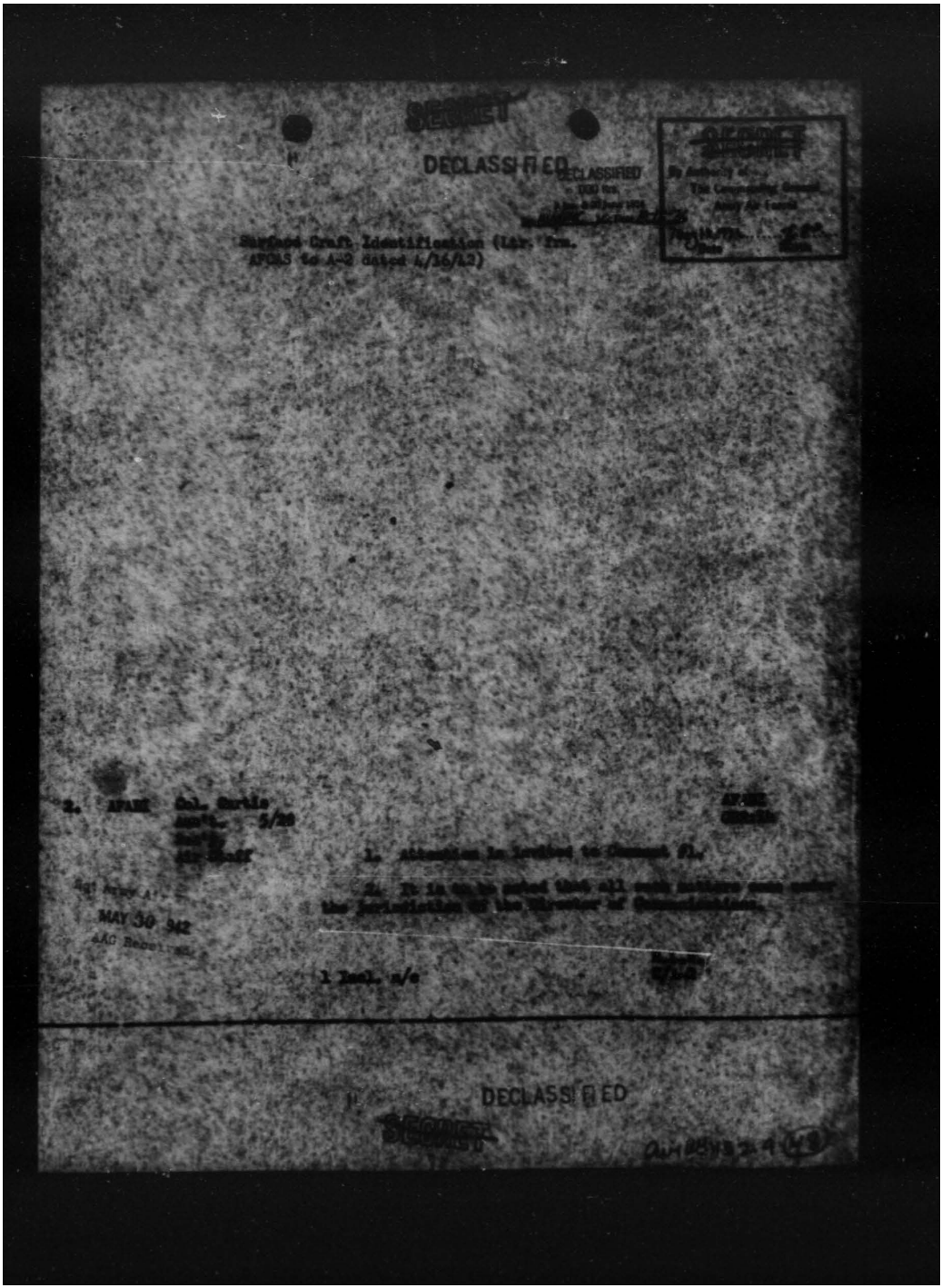
K. P. CURTIN
Lt. Colonel, Air Corps,
Assistant Secretary of the Air Staff

DECLASSIFIED

SECRET

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECTION AND RECORD SHEET

Note — A line will be drawn across sheet after each comment.

File No. _____

Tally No. _____

SUBJECT: Silhouettes and Identification of Airplanes.

NO.	FROM	TO	DATE	COMMENTS
1.	AFAGE	AFDAS	1942 8/14	1. Major R. C. Locke in charge of the Foster Unit in the Air Adjutant General's office has brought to the attention of A-3, that sixteen (16) various agencies are working on the identification of airplanes, and that no single control point has been set up which will lead to correct and standard identification and silhouettes. 2. It is suggested that the Intelligence Service which operates under the control of A-2, and to whom the necessary data is routed, be designated to prepare, disseminate, and maintain all visual charts and descriptions of aircraft of the United States and foreign powers. 3. Attached is a Pursuit Silhouette Chart, of which 85,000 have been printed and distributed, which shows the "Spitfire" with clipped wing tips instead of rounded wing tips. Clipped wing tips are the primary means of identifying the Messerschmitt 109E. Also attached is the list of the sixteen (16) agencies now engaged in preparing this type of data. 4. Both the Navy and the British use the NEFT (wing, engine, fuselage, tail) thereafter. It would seem sensible for us to adopt this system in the interests of standard procedure. H. H. V. D/AFAGE Incls: Chart - Scale Silhouettes, Pursuit Airplanes. List of agencies.

U.S. Army Air Forces
MAR 15 1942
AAG Received

File

(Do not use reverse side)

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

[redacted] OF THE VARIOUS AGENCIES WORKING ON IDENTIFICATION OF AIRPLANES, LEADING TO DIFFERENT IDEAS, DUPLICATION, AND CONFUSION MATERIAL + RECORD A CONTROL POINT? A-2 [redacted]

1. Poster & Insignia Unit, AAG, Washington, D. C.
2. 3rd Air Force, Tampa, Fla.
3. Material Command, Wright Field, O.
4. Public Relations, AAF.
5. Kelly-Randolph Fields, Tex.
6. West Coast Training Center
7. G-2, General Staff.
8. Map Section, A-2, outside purchase (recognition books)
9. Flying Training Command, AAF, Washington, D. C.
10. Directorate of Air Defense
11. Individual intelligence offices in various AAF stations
12. Armored Force
13. Caribbean Defense Command
14. Navy has different system - should be coordinated
15. Anti-Aircraft Command
16. Army Ground Forces

Major Edward Locke
Room - 3a36
Tel - 4878

DECLASSIFIED
DOD DIR

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

AFFRO
JHB

DECLASSIFIED

DECLASSIFIED
DOD 5200
By AUSAFAC, NC, Date 12-12-76

April 28, 1942.

[redacted] Mr. Lieutenant General H. H. Arnold,
Commanding General, Army Air Forces.

[redacted] Squadron Insignia for Aircraft Marking.

1. In connection with the attached letter to Mr. Ralph of Fawcett Publications, Inc., the following notice is being circulated to all Army Air Forces Commanding Officers in the [redacted]:

"[redacted]. . . Designs which might be utilized as distinctive squadron insignia for aircraft markings are being submitted to Headquarters AAF. Several sketches of the cookie-duty hero, 'Captain Marvel', have been made available for use as squadron insignia by the Fawcett Publications, Inc. . . .

"It is still the desire of Headquarters, whenever possible, to have insignia choices originate with the squadrons. However, any squadron interested in utilizing the 'Captain Marvel' design is asked to so inform the Public Relations Division, Headquarters AAF, as soon as practicable, in order that necessary action may be taken.

"Squadron insignias of this type should not be confused with group insignias authorized for wear on the shoulder loop."

452.1 (45)

2. The proposed regulations referred to in the attached letter originated with the Office of Management Control. Up to this time, the policy governing squadron insignia for aircraft marking has not been clarified and such insignia have often been confused with the insignia for the shoulder loop, closely controlled by the Adjutant General's Office.

3. The attached letter has been coordinated with Major Aston and Mr. Ellicott of the Office of Management Control.

Dispatched [redacted]
MAY 1 1942
AAG

Title ii 5/4/42

JHBicew

HEADQUARTERS ARMY AIR FORCES — COORDINATION

Chief of Staff	Sec'y Air Staff	A.A.G.	A-1	A-2	A-[redacted]	[redacted]	[redacted]	[redacted]	Budget	Statistics
	WDF			[redacted]						

CSW

AAF-30

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

General Arnold's Files

April 28, 1942.

Mr. Ralph Ingersoll, Editorial Director,
Marvel Publications Incorporated,
1501 Broadway,
New York, N.Y.

Dear Ralph:

I was pleased to receive your recent letter regarding the use of special insignia designs for Army Air Forces combat squadrons. Thank you very much for your congratulations on my assignment.

Your sketches of "Captain Marvel" have been examined with a great deal of interest and I have just received a report on your proposal that "Captain Marvel" might be utilized in a squadron insignia.

It has been the policy that distinctive insignia for aircraft markings originate with the organizations desiring them. In this connection, you might be interested to know that the Walt Disney designs you referred to were in each case requested by squadrons themselves and that only two or three Disney designs have been officially adopted out of the many submitted for each use.

Most squadron insignias symbolize individual squadron ideals and traditions, and the use of distinctive insignias has been governed to a great degree by pertinent Army regulations and rules of military heraldry.

There is evidence, however, that squadrons desire more leeway in the selection of insignias for aircraft marking. A study on this subject has just been completed. Regulations are now being processed to permit the approval by headquarters of squadron insignias which may be of caricature design for use on squadron planes.

While squadrons will still be left to choose their own insignias, I feel that the men in the field may appreciate knowing what is available for use. I have asked that squadrons be informed that "Captain Marvel" is available. A notice to this effect is now being circulated throughout the Air Forces. I have also instructed that any squadrons desiring insignia be informed that you have submitted "Captain Marvel" for use. You can be assured that you will be contacted immediately if action results. JM:ccv

I certainly appreciate your interest in this matter. It may well be that "Captain Marvel" will join the Air Forces.

Sincerely,

Dispatched
MAY 3 1942
AAD

H. H. ARNOLD,
Lieutenant General, U. S. A.,
Commanding General, Army Air Forces.

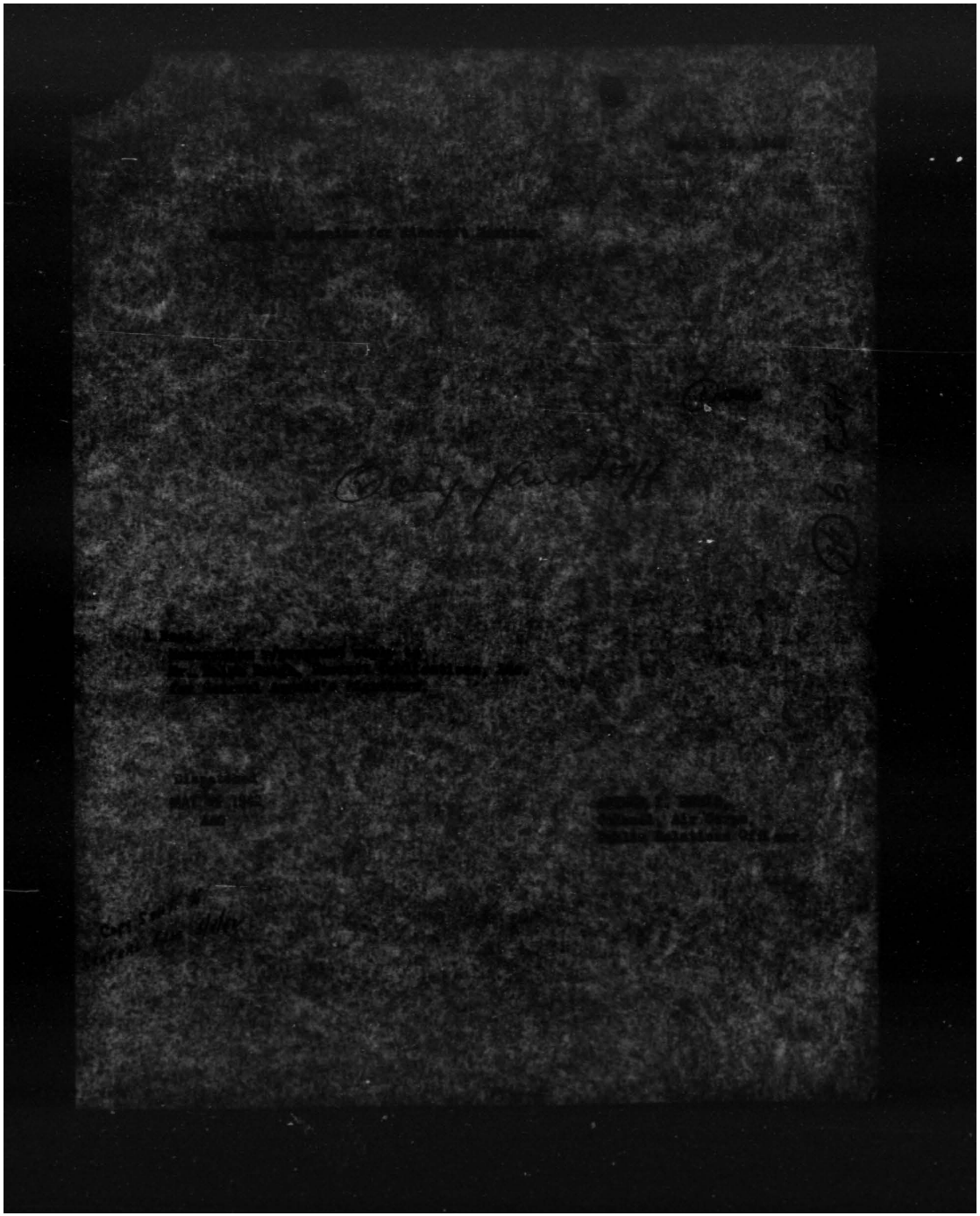
CMH

For General Arnold's Files

452.9 (45)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

DECLASSIFIED
DOD Dir. 5 200.9 (Sec. II) June 1971
By NARA, Date 10-12-76

MEMORANDUM TO: The Chief of the Air Staff

SUBJECT: Aircraft Insignia

1. This Division was directed to study the question of insignia on United States Army aircraft, in view of the fact that in the Australian area American planes have been occasionally mistaken for Japanese, especially by ground troops. The Commanding General in the Australian area has ordered the red center of the present insignia eliminated by painting it over with white.

2. No instances of confusion of insignia have been reported from the Indian-Burma area, although General Stilwell has advised that he approves the recommendation of General Brereton that the red center be painted out.

3. A number of possible alterations have been considered. A change in the present basic design of a star on a circular field would place an additional burden on the maintenance personnel of operational units, which would not be justified by the benefits resulting from a change. The present design is simple and distinctive. Therefore, the present basic design of a star on a circular field should not be altered.

4. For morale and sentimental reasons, the national colors of red, white, and blue should be retained, if possible. For similar reasons, and to minimize the labor involved in any alteration, the white star and blue background should remain unchanged.

5. Since the prominence of the color red is apparently what is causing confusion in identification in Australia, any alteration must greatly reduce or eliminate the red color. The most satisfactory design which reduces the red color is shown in Figure 1 of the attached

Air AG 452.9 (8-2-42)

DECLASSIFIED
CONFIDENTIAL

CONFIDENTIAL
DECLASSIFIED

cards. The outer red band should be a bare line outlining the blue circle. The other solution is the elimination of the red color by overpainting the center circle with white, as has been done in Australia. This is shown in Figure 2 of the attached cards.

6. A very undesirable feature in either alteration set out in paragraph 5 is that the white area is greatly increased, and would glow in the light of searchlights.

7. The British have apparently experienced little, if any, difficulty in distinguishing between their planes and the Japanese. The British insignia also has a red center circle.

8. The U. S. Navy likewise does not report any confusion in identification because of the insignia. However, they advise informally that they will paint out the red center circle if the Army adopts this change, but prefer no other alteration.

9. The present insignia is distinctive, well known, and actually unlike that of any other nation. Apparently ground troops, who were probably not well trained in aircraft identification, are the main ones who have experienced any appreciable difficulty with it. The most suitable alterations possess disadvantages which it is believed offset their advantages. Alteration at this time of the present insignia is therefore not recommended.

10. This matter has been referred to the Air Corps Proving Ground Command for test and report.

11. While this Division does not concur in the change in the insignia made in Australia and the Far East, and believes that the insignia of United States aircraft should be the same in all areas, it is recommended that final decision on this matter should not be made pending receipt of the report from the Proving Ground.

James F. Clive, Jr.
Lt. Colonel, A.C.
Acting Ass't. Chief of the Air Staff, A-2

2 Incls.
Incls. 1-2
Cards as Descr. in Par. 5 above.

See Bulky Pkg

DECLASSIFIED
CONFIDENTIAL
Air AG 452.9 (8-2-42)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

Note—A line will be drawn across sheet after each comment.

SECRET

File No.

DECLASSIFIED
DECLASSIFIED
DOD Dir. 5200.9 and AR 380-5 Sec. III Para 1-401
By [illegible] NCD Date 10-18-76

Tally No. AAE

SUBJECT: Aircraft Insignia

NO.	FROM	TO	DATE	COMMENTS
1.	AFCAS	AFABI R-2063	1942 4-13	1. General MacArthur reports that due to outer red circle on our National aircraft insignia, that our planes are occasionally mistaken for Japanese. For this reason all American planes in Australia have the outer red circle painted out with white. This brings up the question as to what action should be taken in other Theaters, including India and the Far East. 2. Have this study made in coordination with British Representatives. 3. Coordinate this with War Plans Division, General Staff, and see me before definite action is taken. M.F.H. AFCAS
2.	AFABI	AFCAS	1942 4/27	1. Report on the above matter has been forwarded to the Chief of the Air Staff. 2. The matter of insignia has been referred to the Air Forces Proving Ground for test, and it is recommended that there be no change in the present aircraft insignia until the report is received from the Proving Ground. H.A.W. C/A-2

Hq. Army Air Forces
APR 29 1942
AAG Received

File
SPY File per Col Hartle
4/30/42

(Do not use reverse side)

Page No. DECLASSIFIED

SECRET

By NCD, Date 10-18-76

AAG 23527

Drawer 452-9 (41)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

RESTRICTED

DECLASSIFIED
DECLASSIFIED
DOD Dir.
8 Jan. & 20 June 1974
By: ALWEST, NC, Date 12-11-76

AAF/A-3
RWB:dah
written 2/28/42

MEMORANDUM FOR THE ASSISTANT CHIEF OF STAFF, G-2.

Subject: Aids in Training in Identification of Aircraft, Naval Vessels, and Tanks.

1. This Headquarters concurs in the plan to limit the use of models for training in identification of aircraft, tanks, and naval vessels provided the limitations (1) and (2) do not apply to Army Air Forces Personnel.

2. It is believed that the wording of the Action Recommended should be clarified to read substantially as follows:

"That except for the training of Army Air Forces Personnel, the procurement and use of models for training in identification of aircraft, tanks, and naval vessels be limited to:

(1) Those models which lend themselves to production within the facilities and funds available to the local Commander.

(2) Fixed training establishments such as schools where, in the discretion of the responsible Commander, a particular model is determined as a necessary aid to training, and existing funds for the procurement of the models from commercial sources are available to the local Commander.

Hq. Army A
MAR 2 1942
AAG Received

Dispatched
Mar 4 1942
AAG

For the Chief of the Air Staff

452.9 (32)

HEADQUARTERS ARMY AIR FORCES												
Chief of Staff	Sec'y Air Staff	A.A.G.	A-1	A-2	A-3	A-4						
	Encls. Memo fr G/S. dated 2/[illegible]. w/Encls 1 & 2 & 3.				for Gen							
					Gen							

AAF-39

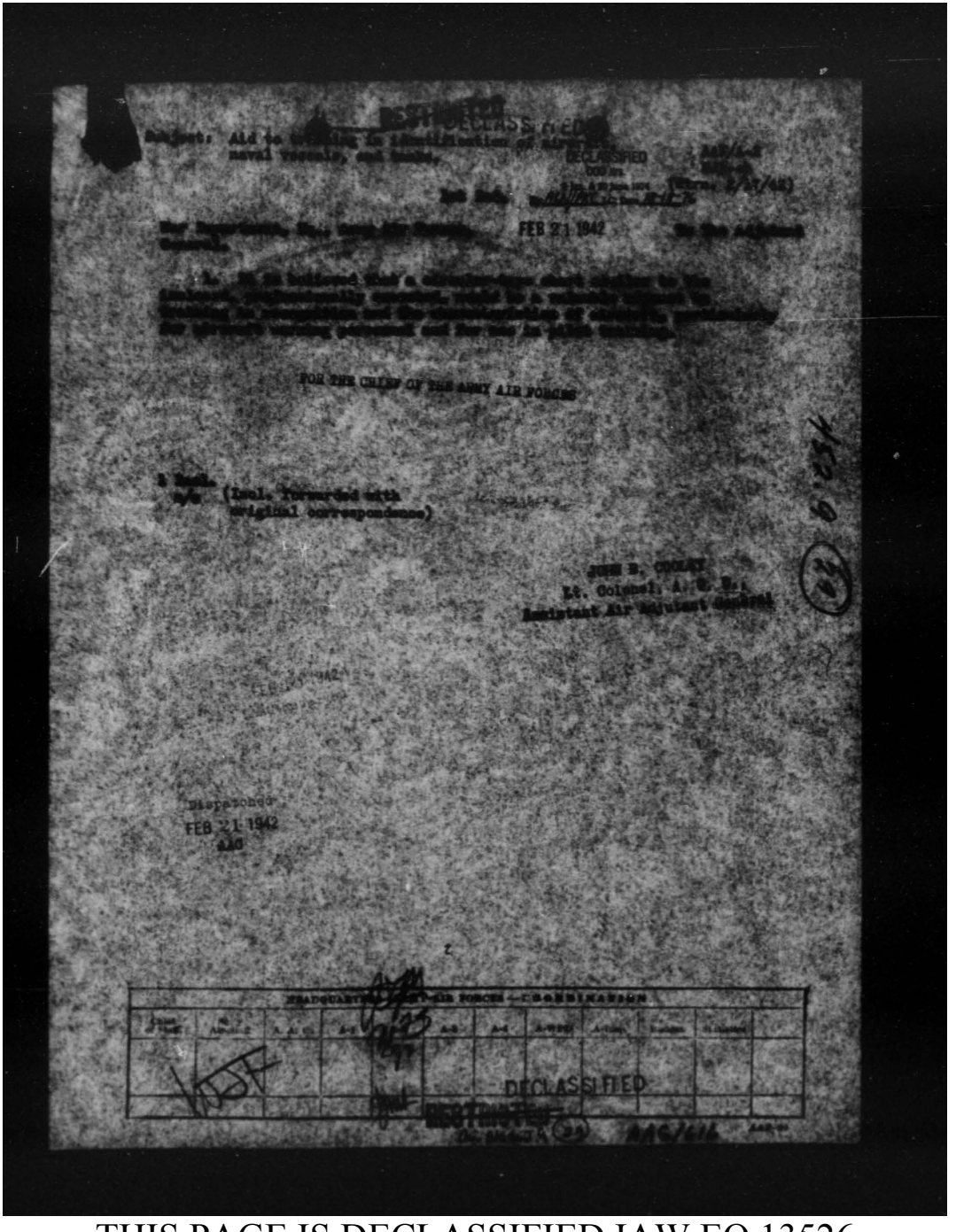
DECLASSIFIED

RESTRICTED

Auth: 452.9 (32)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

[redacted] DECLASSIFIED [redacted]

In reply refer to AG 311.6 (2-12-42)MSC-C

The Adjutant General's Office
Washington

WAR DEPARTMENT

[redacted]

[redacted]

February 12, 1942.

SUBJECT: Aid to training in identification of aircraft, naval vessels, and tanks.

TO: Chief of the Army Air Forces.

1. There is inclosed one copy of a training device which is in use at the United States Military Academy for training in identification of aircraft. Similar devices could be constructed for use in training in identification of tanks and naval vessels.

2. Your comments are requested as to the value of a device based on this principle in training for which you are responsible. Based on large production, these devices could be produced in a durable water-repellent form for about five cents (5¢) per copy.

By order of the Secretary of War:

/s/ E. S. Adams
Adjutant General

1 Incl.
Device for training in identification of aircraft.

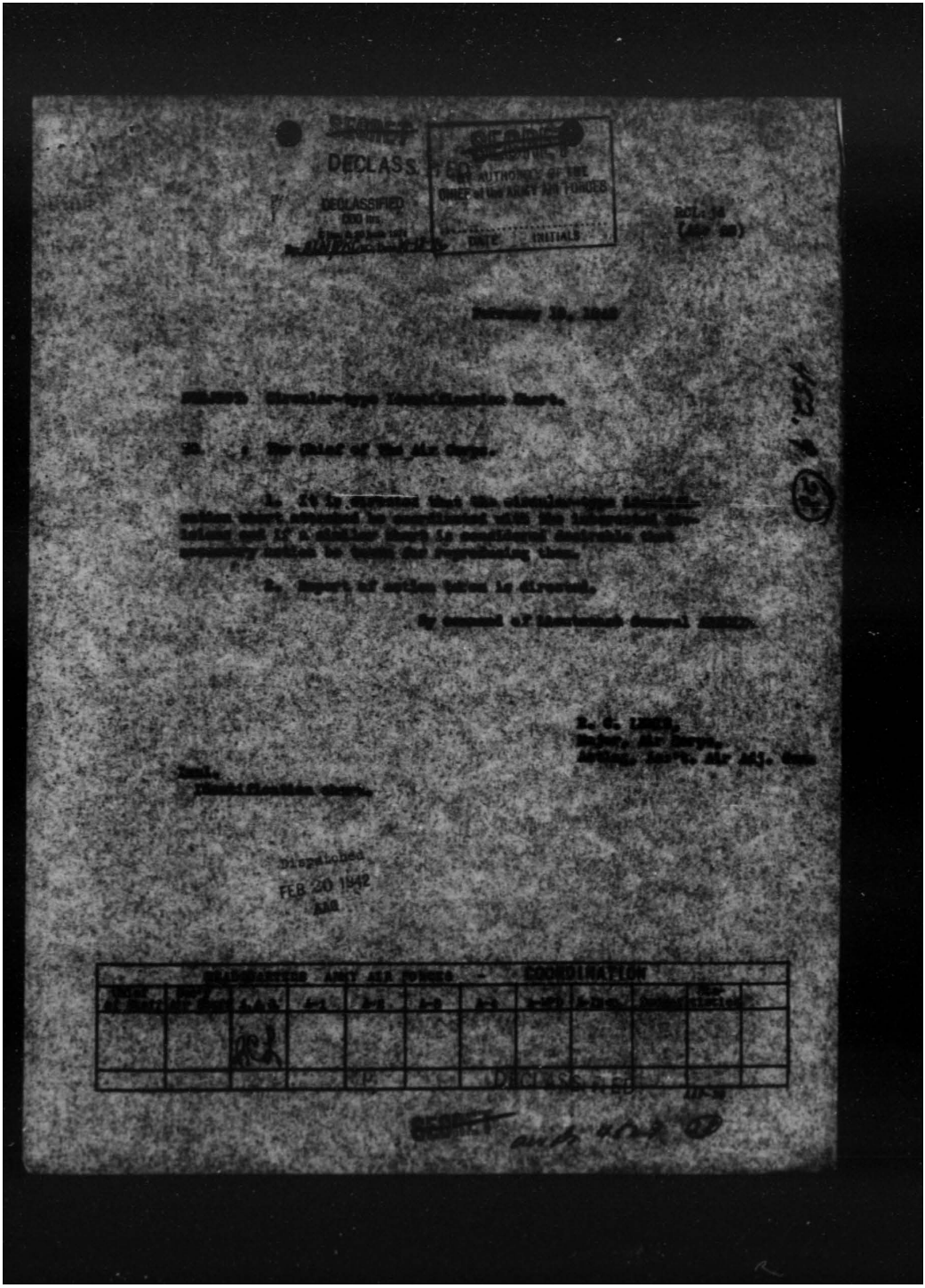
DECLASSIFIED

[redacted]

AAG/410

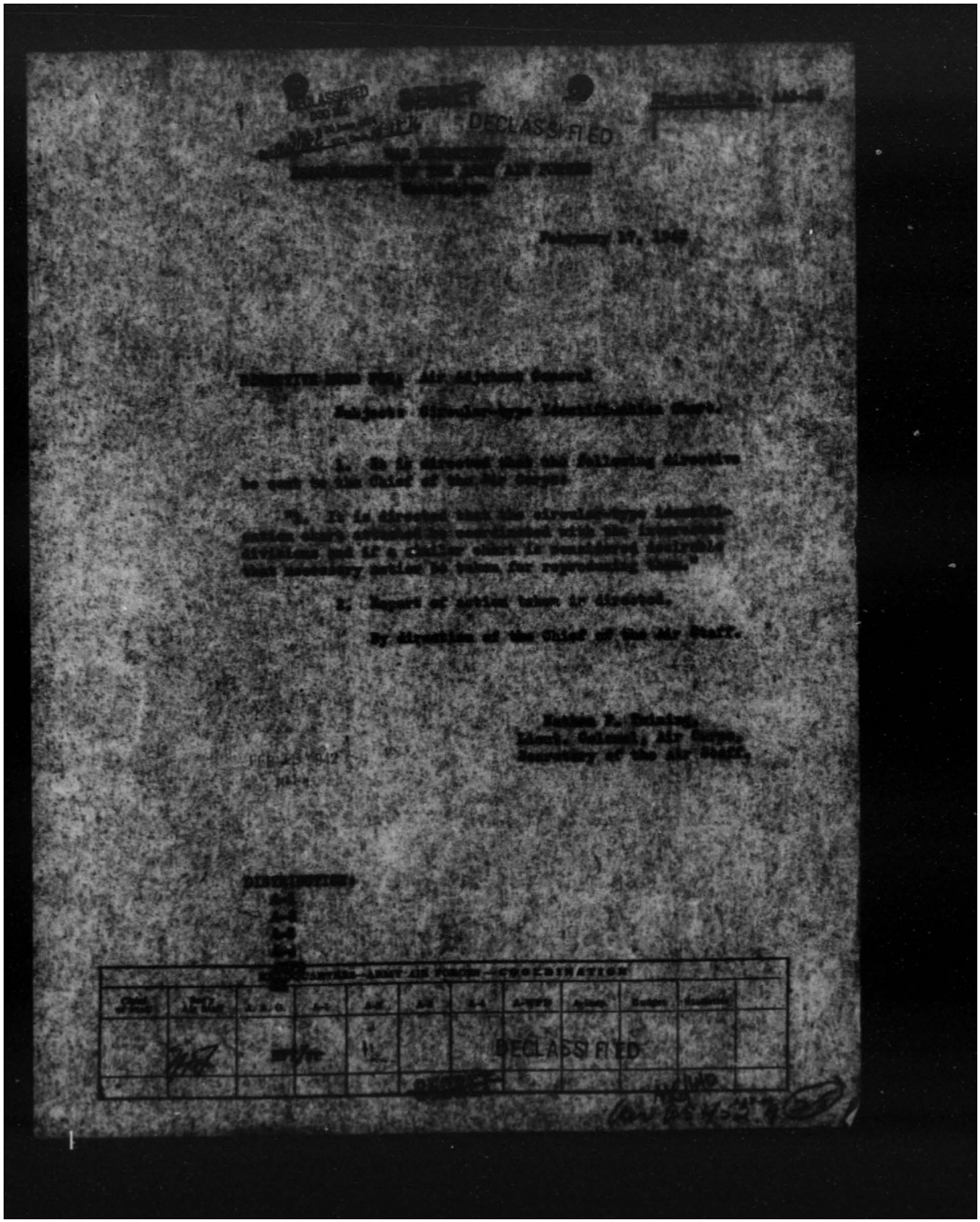
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



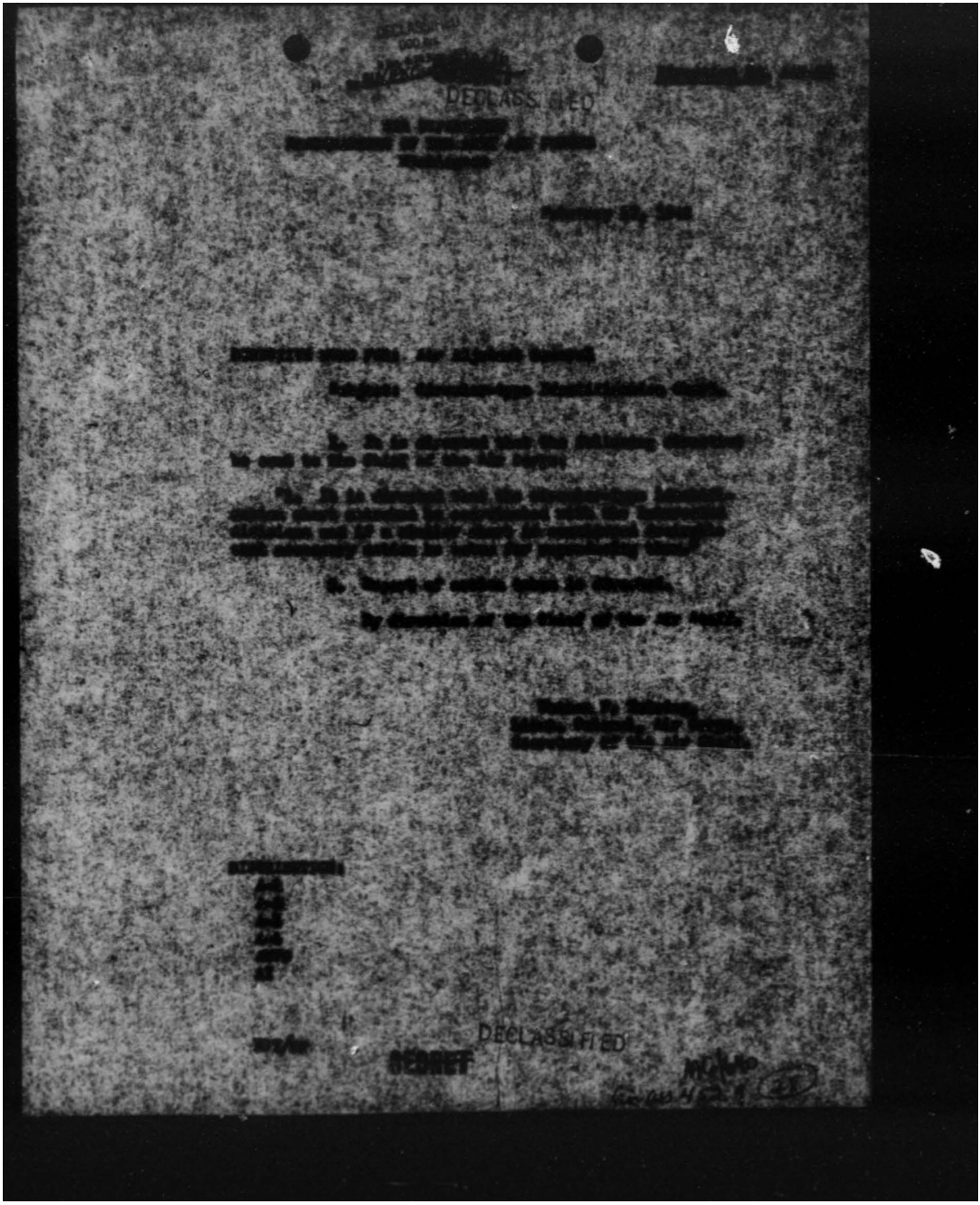
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

~~SECRET~~

DECLASSIFIED
DECLASSIFIED
DOD Dir.
E.O. 12958 Sec. 3.6
By [illegible] NARA, Date 12-18-96

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

FEB 11 1942

MEMORANDUM FOR: The Chief of the Air Staff.

Subject: Circular-type Identification Chart.

1. In compliance with Directive No. 2-11, above subject, dated January 29, 1942, the following report is submitted concerning circular-type chart and accompanying sheet inclosed herewith.

2. This matter has been coordinated informally with A-3, the Director of Air Defense, G-2 of the Air Force Combat Command, and the Training Division, office Chief of the Air Corps. It is the consensus of opinion that a circular-type chart similar to this would prove a valuable adjunct to training in recognition and the characteristics of aircraft. It is believed that it would be less valuable in the actual process of "spotting" than is indicated in statements 1 and 2 of the inclosed sheet, although it would be helpful. It is believed, therefore, that similar charts, professionally executed, should be issued to aircraft warning personnel and for use in pilot training.

3. This matter has also been coordinated informally with G-2 and G-3 of the War Department General Staff. A similar chart was received informally by the Plans and Training Section, G-2, and referred to the Tactical Doctrine Branch, G-3. The latter has submitted the chart to the Government Printing office for estimates on costs of printing in large quantities. When such estimates are obtained G-3 intends to initiate action for funds to reproduce similar charts.

4. It is recommended that the circular-type chart be referred for further coordination and necessary action to the Training Division, office Chief of the Air Corps, in which division there is established, by recent direction of the Air Staff, an agency for developing and handling all recognition materials, silhouettes, and allied matters.

Martin F. Scanlon

MARTIN F. SCANLON
Brigadier General, U. S. Army
Assistant Chief of the Air Staff, A-2

Incls.
Circular-type chart
and attached sheet.

DECLASSIFIED
NCNO A-1-96

Air AG 452.9 (2-11-42)

~~SECRET~~

THIS PAGE IS DECLASSIFIED IAW EO 13526

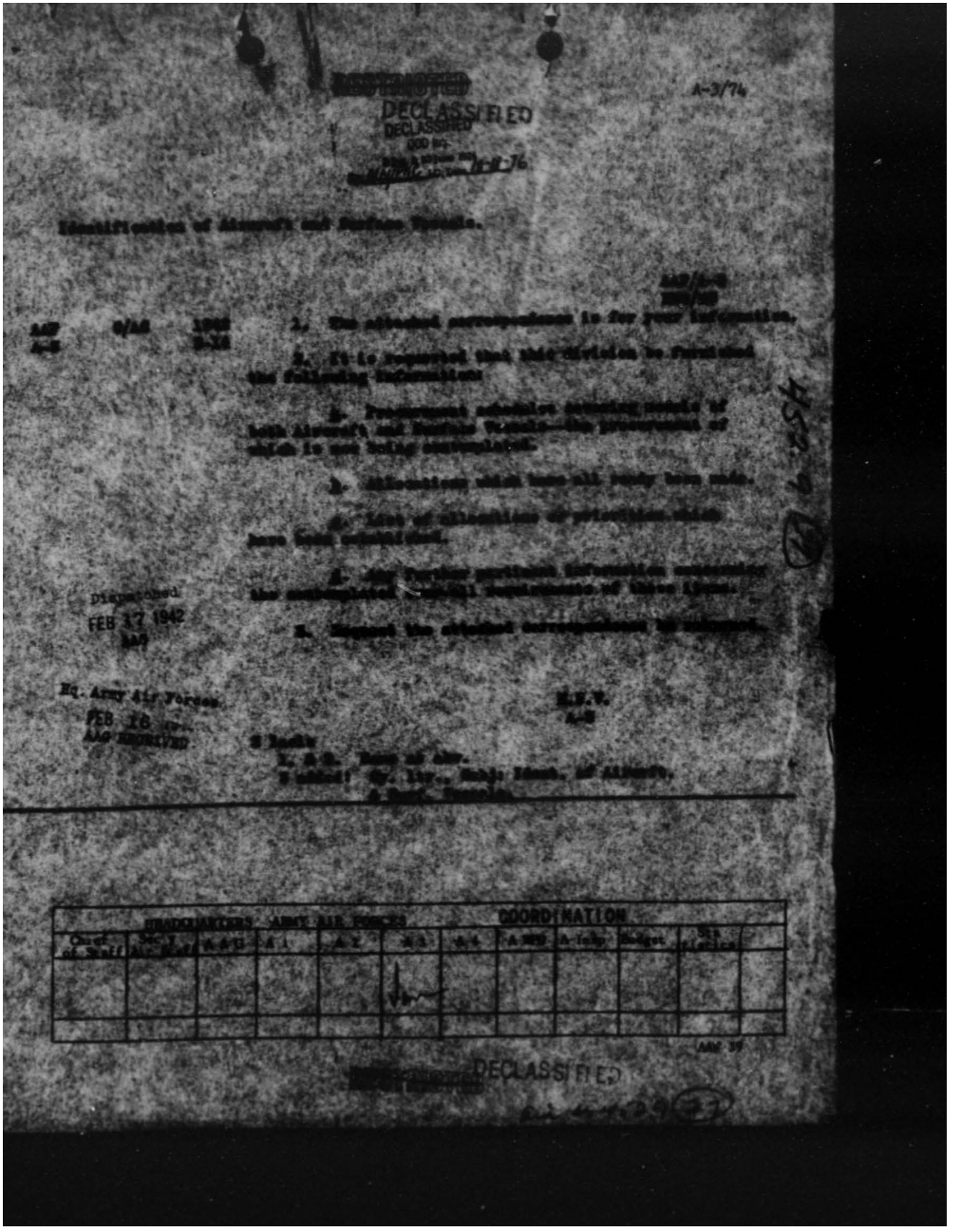
THIS PAGE IS DECLASSIFIED IAW EO 13526

The advantages of this circular-type identification chart over the conventional book-type are readily apparent. Briefly they are:

1. Great facility and minimum of time necessary in confirming the identity of a plane sighted. This will allow the spotter to make several comparisons of plane and sketch while the plane remains in view.
2. The simultaneous presentation of all sketches before the eyes of the spotter, thus allowing him to readily compare any two planes which at first glance might to the inexperienced eye seem identical; such as the A-20 A and the B-25.
3. The concise arrangement of data in such a simplified form that the average civilian can thoroughly understand it and be encouraged to learn the distinguishing characteristics of friendly and enemy planes.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



RESTRICTED

DECLASSIFIED
DECLASSIFIED
DOD Dir

A-3/74

Identification of Aircraft and Station Vessels.

AAF 6/AS 1942 2. The attached correspondence is for your information.
A-2 S-328

3. It is requested that this division be furnished the following information:

a. Permanent schedules covering visits of both Aircraft and Station Vessels, the performance of which is now being contemplated.

b. Alterations which have all ready been made.

c. Lists of alterations or projections which have been submitted.

d. Any further pertinent information concerning the contemplated overhaul requirements of these items.

4. Request the attached correspondence be returned.

Dispatched
FEB 17 1942
AAF

Hq. Army Air Forces.
FEB 16
AAG RECEIVED

H.H.A.
A-2

2 Inclds
1. A.G. Memo of Adv.
2 Inclds 1. Ltr., Subj: Ident. of Aircraft.
2. Ltr., Subj: Ident. of Station Vessels.

ORGANIZATIONS, ARMY AIR FORCES							COORDINATION				
Chief of Staff	Sec. of Staff	A-A-G	A-1	A-2	A-3	A-4	A-War Pl	A-Info	Budget	Air Liaison	

AAF 39

DECLASSIFIED

RESTRICTED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

DECLASSIFIED AAF/A-2 DEC-OSW 2/20/42

FEB 23 1942

MEMORANDUM FOR THE CHIEF OF THE [illegible], WAR DEPARTMENT, Washington, D. C.

Subject: Identification Markings on Patrol Planes.

In reference to your memorandum [illegible] (WPD), subject as above, dated February 4, 1942, the recommendation to enlarge identification markings on patrol planes is not believed practical.

Present specifications, outlined in U. S. Army Specification No. [illegible] and amendment #1 dated February 9, 1939 state that "The minor diameter of the circumscribed circle shall be 1/6 of the available chord length at the location specified." The smaller rudder is also covered with stripes.

It is intended therefore, that the size of the identification markings vary with the size of the airplane and be of maximum size commensurate with the space available.

For the Chief of the Army Air Forces:

Dispatched
FEB 23 1942
AAG

H. H. ARNOLD,
Maj. Gen., U.S. Army,
Acting Deputy, Air Adjutant General.

Incls.1 Memo to G-2 (WPD) and
A-2 (AF, Sp. Req. Dec,
DEC, Com. 2/21/42
2 Memo to (AAF from (WPD)
2/4/42
3 M. & R. [illegible]

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

~~CONFIDENTIAL~~

HEADQUARTERS CARIBBEAN DEFENSE COMMAND
OFFICE OF THE ASSISTANT CHIEF OF STAFF G2(wca/e)
FOR MILITARY INTELLIGENCE

QUARRY HEIGHTS, CANAL ZONE

January 21, 1942.

MEMORANDUM FOR: A-2, GHQ.
A-2, GAF.

SUBJECT: Identification Markings on Patrol Planes.

The following information received thru G-2, PCD transmitted herewith for your information and such action as may be deemed necessary:

"Captain Stanley, Master of SS CHAS GRANDISON, reported during a visit made by a Naval Intelligence Officer, that the markings on the U. S. patrol planes were too small to be properly identified beyond a distance of three-quarters of a mile and therefore were running a risk of being fired upon by British ships who have received orders to fire on any planes coming within range of their guns unless their proper identity is ascertained. Captain Stanley suggested that the present markings on U. S. planes be enlarged twice their present size to make them equal the size of the British, which can be seen at a distance of three miles."

JAN 23 42 PM

RECEIVED
OFFICE A-2 G-2 G-2, GHQ

[signature]
ROBERT C. RICHARDSON,
Colonel, General Staff Corps,
Assistant Chief of Staff, G-2.

DECLASSIFIED
~~CONFIDENTIAL~~

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

GENERAL HEADQUARTERS, U. S. ARMY
ARMY WAR COLLEGE
WASHINGTON, D. C.

In reply refer to: WPD (CDC)

February 4, 1942

MEMORANDUM TO CHIEF OF THE ARMY AIR FORCES:

Subject: Identification Markings on Patrol Planes.

1. The recommendations contained in the attached memorandum from the Headquarters, Caribbean Defense Command, to enlarge the identification markings on patrol planes, are concurred in by this headquarters.

2. It is requested that this headquarters be informed of action taken.

For the COMMANDING GENERAL:

L. DUENNWEG
1st Lt., A.G.D.
Asst. Adjutant General

1 Incl.
Memo Hq CDC dated Jan. 21, 1942, subject as above.

Pg. Army Air Forces
FEB 3 1942
AAG Records

DEFENSE BUY

CONFIDENTIAL
DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

HEADQUARTERS ARMY AIR FORCES
ROUTING AND RECORD SHEET

DECLASSIFIED

Note.— A line will be drawn across sheet after each comment.

File No. . . . . .

Tally No. AAF . . . . . .

SUBJECT: Identification Markings on Patrol Planes.

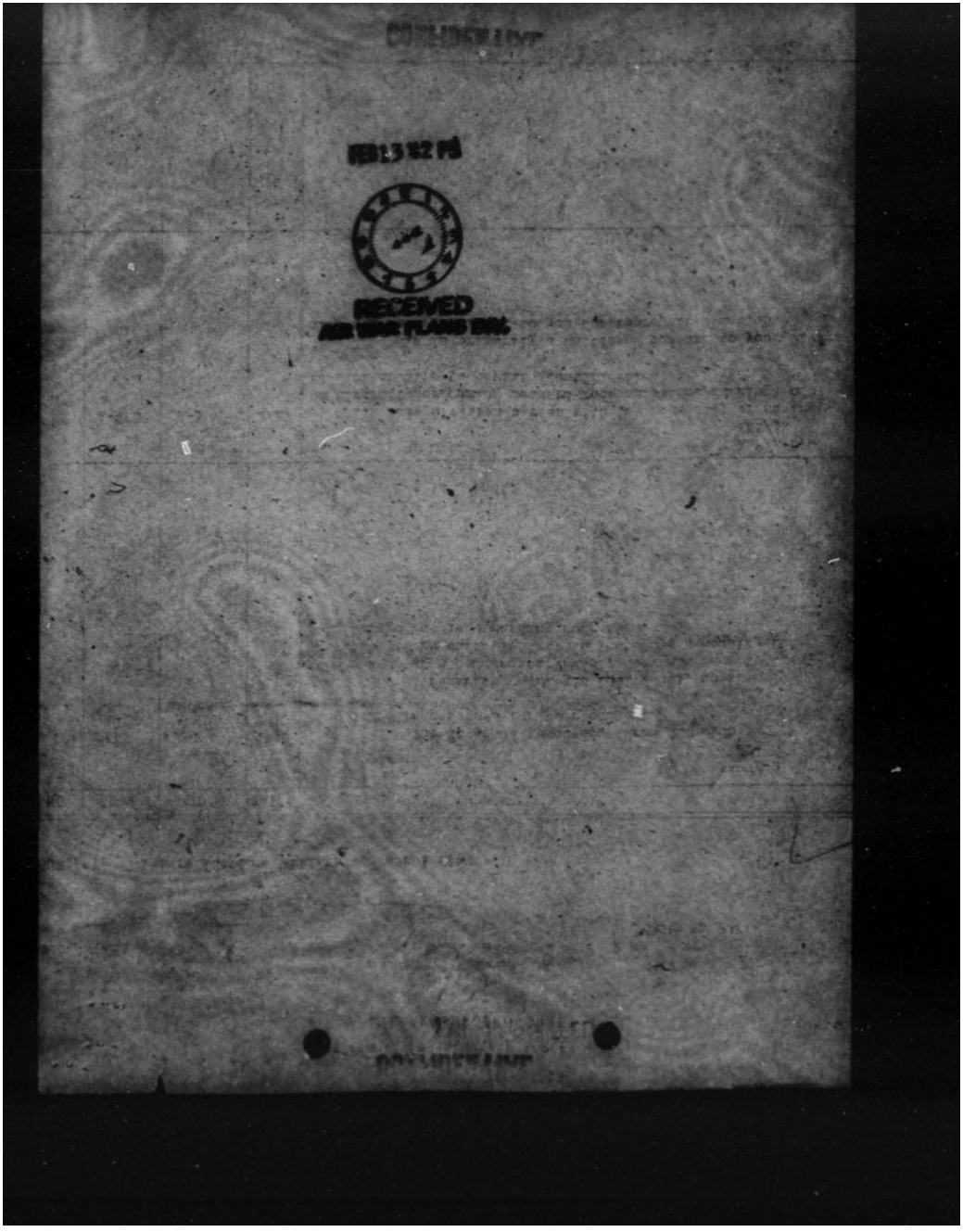
NO.	FROM	TO	DATE	COMMENTS
1	AAF A-2	AAF A-WPD	1942 2/13	AAF/A-2 WPT-eh 1. The attached memorandum from GHQ with inclosure is referred for your comment. 2. A remark by a single individual, apparently the master of a commercial vessel, does not seem to this Division to be sufficient to indicate the necessity for the change in plane marking suggested. MFS : C/A-2 1 Incl. Memo fr GHQ to C/AAF, 2/4/42 w/incl.
2	A-WPD	A-3	2/17	AAF/A-WPD KMH/jk 1. This Division agrees with the necessity of having on aircraft performing seaward reconnaissance, markings of sufficient size to permit identification. 2. This is primarily a matter of concern to your Division and is transmitted to you for appropriate action. H. L. G. C/A-WPD 1 Incl. n/c

DECLASSIFIED

CONFIDENTIAL

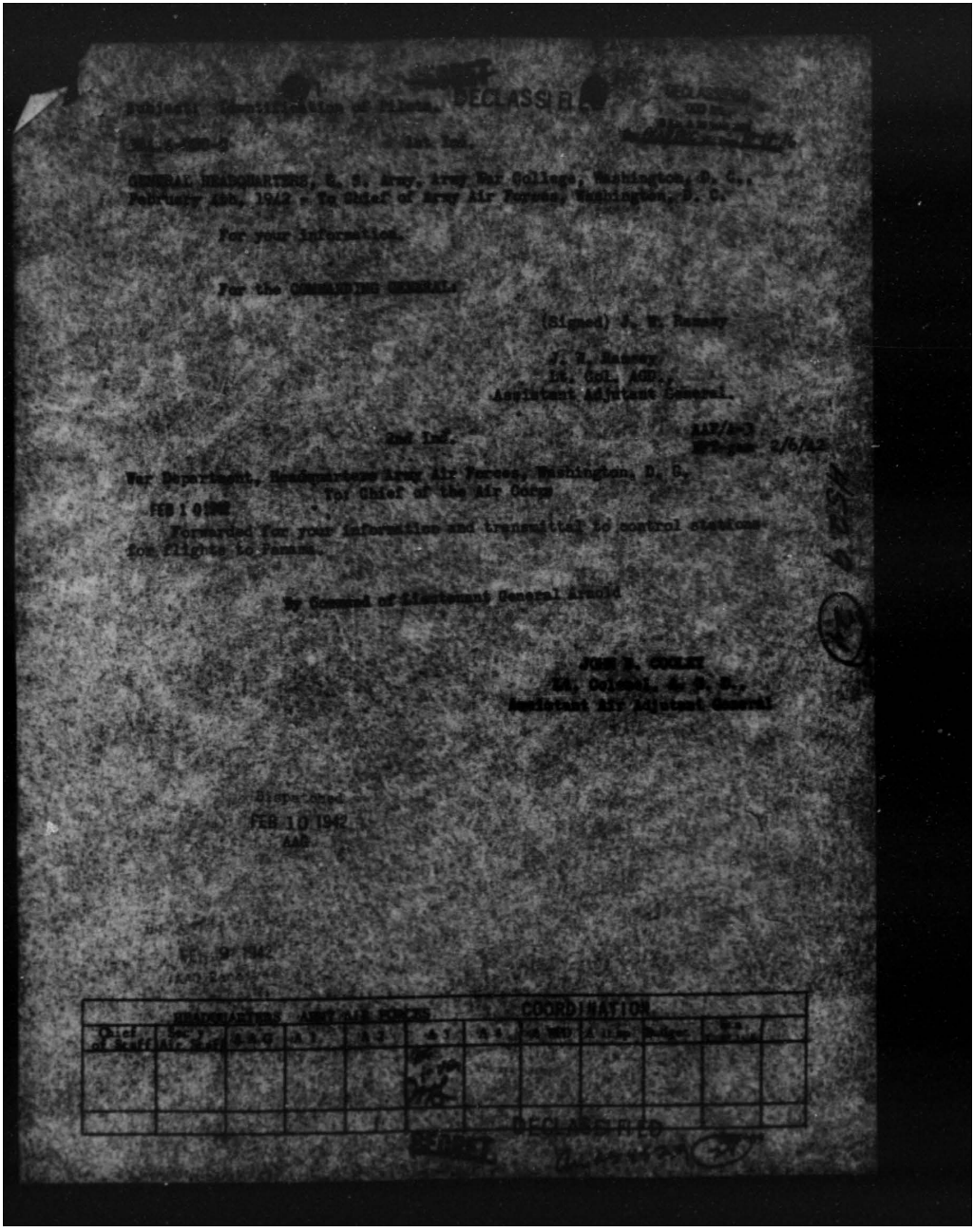
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



Subject: Identification of Planes. DECLASSIFIED

WDGS-2-3000-2 1st Ind.

GENERAL HEADQUARTERS, U. S. Army, Army War College, Washington, D. C., February 4th, 1942 - To Chief of Army Air Forces, Washington, D. C.

For your information.

For the COMMANDING GENERAL:

(Signed) J. W. Ramsey

J. W. Ramsey
Lt. Col. AGD,
Assistant Adjutant General.

2nd Ind. AAF/A-3
WPB-gmh 2/6/42

War Department, Headquarters Army Air Forces, Washington, D. C.
To: Chief of the Air Corps

FEB 1 0 1942

Forwarded for your information and transmitted to control stations for flights to Panama.

By Command of Lieutenant General Arnold

JOHN E. CONLEY
Lt. Colonel, A. G. D.,
Assistant Air Adjutant General

Dispatched
FEB 10 1942
AAF

COORDINATION

Chief of Staff	Sec. of War	G-2	G-3	A-1	A-2	A-3	A-4	A-5	Budget	Air Corps

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

TELEGRAM

FROM: CG - GHQ

TO : GHQ

January 27, 1942

PARAPHRASE

GHQ 1562

1. Replying to GHQ radio #69 1539, January 25th reference airplane identification over El Salvador, all U. S. Army pilots are being notified to identify themselves as follows:

a. When flying direct between Guatemala City and the Gulf of Fonseca, and the reverse, airplanes will head toward ZACAPAMO airport. When one mile from the airport the plane will make a turn of 90 degrees to the left, and then fly for 30 seconds, then turn 90 degrees right and fly for 30 seconds, then the plane will turn approximately 90 degrees left on course for destinations.

b. Airplanes landing at ZACAPAMO will approach the airdrome with wheels down, clear of the city.

c. Air Corps Insignia and Pan American Airways insignia will identify the planes at low altitude when coming in to land at field.

d. The planes which fly along coast need not identify themselves if they are flying offshore.

2. Colombia is the only other republic with which identification arrangements have been made. These arrangements are identical with the San Salvador plan.

(Signed) Andrews.

Paraphrased by: William G. Walker,
Colonel, G. S. C.

Copies to: WPD (Col. Barker)
A/C, GHQ
G-2
G-3
AWS
AG

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET

DECLASSIFIED

DECLASSIFIED

January 28, 1948

SUBJECT: Circular-type Identification Chart.

1. There is attached herewith circular-type identification chart together with a statement of use of the chart. It is directed that you coordinate this with all interested parties and make recommendations regarding the use and distribution of this chart.

By direction of the Chief of the Air Staff.

John K. Isch, Jr.,
Colonel, Air Corps,
Secretary of the Air Staff.

Attachment.

HEADQUARTERS ARMY AIR FORCES - COORDINATION

Chief of Staff	Deputy Chief of Staff	A-1	A-2	A-3	A-4	A-5	A-6	Comptroller	Surgeon	Secretary

SECRET

DECLASSIFIED AAF-3a

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

HEADQUARTERS ARMY AIR FORCES
ROUTING AND RECORD SHEET

SECRET DECLASSIFIED
DECLASSIFIED
DOD Dir. 5 200.10 and 200.9
By [illegible] NLC, Date 8-18-76

File No. . . . . .

Note.— A line will be drawn across sheet after each comment.

Tally No. AAF A/3-34. . .

SUBJECT: Identification of Aircraft, Iceland.
Short Title INDAIR 4.

NO.	FROM	TO	DATE	COMMENTS
1.	AAF A-3	AAF/ Comm.Sec. Att:Col. Henry	1942 2-6	AAF/A-3 WOCarle 1. Referred to you as a matter of primary interest. It is believed that the information in attached communication should also be referred to Operations, OCAC, in connection with recent Directive establishing clearing stations for flights from the United States. 2. Your attention is invited to the fact that part of attached papers, as marked, are borrowed from the files of the Air Adjutant General's office. Incls: 1-Ltr to C/AAF frm Hq.Iceland BC 1/1/42 re: Indair 4. 2-Ltr to C/AAF -12/24/41 above subj. w/incls. 3-R&R/AAG 11-28-41 w/incls.
		Operations		2. Distribution of necessary Key Memoranda SK, referred to in attached correspondence, is being effected by this Headquarters. A. W. M[illegible] Dir.Comm. Incls: n/c

DECLASSIFIED

(Do not use reverse side) W-4071, AC. Rev. 8/14/41

Page No. _____ Air Obs 452.9

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET

OFFICE OF THE [illegible] DECLASSIFIED

ROUTING AND RECORD SHEET

Note.--A line will be drawn across sheet after each comment.

File No. .....

Tally No. .....

Subject: Identification of Aircraft, Iceland.
Short Title IDFAIR 4.

NO.	FROM	TO	DATE	COMMENTS
3	WDAM	Air Adj. Gen.	1942 3/10	(15-B6)LT 1. Attention is invited to attached correspond with reference to clearance procedures for flights to Ice 2. Necessary instructions have been issued to control airports at Bangor, Presque Isle and Houlton, Me 3. All activities concerned have been advised, of these instructions. 4. Commanding General, Iceland has been advise of action taken and papers herewith are returned in compli with previous instructions. However, in view of the fact that WDAM will be charged with this matter in the future, it is requested that pertinent correspondence be retained for such use as may be expedient. Incls. n/c O.S.F. Col., A.C., Dir., WDAM.

3-11-43

[illegible]

DIR/COMM

1. Do not use rubber stamps. DECLASSIFIED

SECRET

W-1071, AC, Rev. 8/1/

5-17 Aug 43 452.9 (3-4

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir. 5200.9 Sec. 3 (d) (June 1977)
By [illegible] NARS, Date 12-22-76
DECLASSIFIED

HEADQUARTERS ICELAND BASE COMMAND
A. P. O. 610 Iceland

24 December 1941.

In reply refer to:
Short Title INDAIR 4

Subject: Identification of Aircraft, Iceland.
Short Title INDAIR 4

To: The Chief of the Army Air Forces, Washington, D.C.

1. Reference is made to:

a. Secret letter from Deputy Chief of Staff, General Headquarters to Chief of the Army Air Forces, Washington. D.C., Subject: "Identification of Aircraft, Iceland", (452.1 - Indigo, Avn., 11-3-41).

b. Secret letter from Deputy Chief of Staff, General Headquarters to Commanding General, United States Army Forces in Iceland dated November 3, 1941, Subject: "Identification of Aircraft, Iceland", (452.1 - Indigo, Avn., 11-3-41).

2. The following procedure in the identification and control of aircraft approaching Iceland has been established by the Commanding General, United States Army Forces in Iceland with the concurrence of the Royal Air Force, Royal Navy, British Army Forces in Iceland and the United States Navy Forces in Iceland.

(1) a. The Commanding General, United States Army Forces in Iceland is to be notified 24 hours in advance by the control airdrome of the origin of contemplated arrival in Iceland of United States aircraft originating outside Iceland. In the case of United States Naval aviation, this information will be dispatched through naval communication channels. The notification will include:

Item - 1 - Estimated time of arrival, in Greenwich Mean Time (followed by letters "GMT").

Item - 2 - Number and type of aircraft.
Item - 3 - Expected direction of approach.
Item - 4 - Radio call sign.

Hq. Army Air Forces
JAN 26 1942
AAG Received

SECRET
DECLASSIFIED

Incl #1 air 452.9 (24-A)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir.
By [illegible], NARS, Date 10-17-78

(a) b. Incoming flights must establish radio contact with Royal Air Force, Iceland before reaching position within one hundred miles of Iceland or as soon thereafter as practicable using CW telegraphy. The call sign of the Royal Air Force Station in Iceland to be contacted is [illegible] and the frequency to be used from 0900 hours to 1700 hours Greenwich Mean Time is 6666 kilocycles and from 1700 hours to 0900 hours is 3925 kilocycles. These frequencies are for both transmitting and receiving. The order of message is as follows:

3 UN

Call sign of Royal Air Force Station in Iceland.
Call sign of Aircraft.
Total number of Aircraft in flight.
Long dash of fifteen seconds.
Call sign of aircraft.

3 UN

Example:- [illegible] VZT 43 long dash of fifteen seconds ZT four", where A 8 is the call sign of the Royal Air Force Station, V means "from", ZT 4 is call sign of flight and three airplanes are in the flight. It is to be noted that the call sign of the flight is used only once following the long dash.

(b) c. For visual recognition by lights and signal rockets the current key memorandum (British) number 2K, Short Title SPO2292K must be used, if equipped to do so. When challenged by blinker light from shore batteries, or installations, airplanes will identify themselves by replying with the letter of the day given in the above key memorandum.

(f) d. DF bearings reference to Reykjavik Airdrome will be furnished on request made to the Royal Air Force Station Iceland, using civil procedure employing Q code.

(g) e. No maneuvers will be executed for recognition purposes.

(h) f. Approach must not be made over Naval Base at Hvalfjord, or over any surface craft enroute.

g. You will be notified of any change in:

Call sign.
Frequencies.
Visual recognition signals.

h. The following agencies have been notified of this procedure; by mail, messenger or radio.

[illegible] General, United States Field Forces.
[illegible] Commanding Officer, Greenland Base Command.

DECLASSIFIED

Encl #1 -2-

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir. 5200.9 & 10 June 1971
By NARS, Date 10-12-76

~~SECRET~~ DECLASSIFIED

Ltr. Hq. IBC 12/24/41 Short Title INDAIR-4, cont'd,

Commanding General, Newfoundland Base Command.
Senior United States Navy Officer Present Afloat in Iceland.
Royal Air Force, Iceland.
British Army Forces In Iceland.
Royal Navy, Iceland.
Admiral Commanding, U. S. Naval Operating Base, Iceland.

4. It is imperative that the procedure, established as indicated above, be observed. Aircraft approaching Iceland and not identified will be subject to anti-aircraft fire and pursuit attack.

5. The Senior United States Naval Officer Present Afloat (SOPA) in Iceland and the Admiral Commanding, Naval Operating Base, Iceland have been informed of this action and they have been requested to secure the necessary co-operation and co-ordination of United States Naval Forces operating in the Iceland area, to insure compliance of Naval pilots with the requirements of the control and identification system.

6. Every effort will be made to accomplish direct radio communication with control airports and naval aircraft control ships as follows:

(1) a. Newfoundland Airport (Gander Lake, N.F.)
(2) b. Stephensville, N.F.
(3) c. Narsarssuak, Greenland.
(4) d. Naval Aircraft control ship, Iceland, through Admiral Commanding, Naval Operating Base, Iceland.

(1) At present direct radio communication is possible only with the Naval aircraft control ship, Iceland.

8. It is requested that you issue the necessary instructions to require all Army Air Force pilots, flying to Iceland, to secure identification instructions from control airports indicated, and to obtain clearance from one of these airports before flying to Iceland.

9. Acknowledgement by radio or mail is requested.

C. H. Bonesteel

C. H. BONESTEEL,
Major General, U. S. Army,
Commanding.

~~SECRET~~ DECLASSIFIED

Incl #1 - 3 -

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
GOD Ltr.

~~SECRET~~ DECLASSIFIED

HEADQUARTERS ICELAND BASE COMMAND
A.P.O. 810 Iceland

January 1, 1942.

In reply refer to:
Short Title ICEAIR A.

Subject: Change Number 1, ICEAIR A.

To: The Chief of the Army Air Forces,
Washington, D. C.

1. Refer to my Secret Letter, ICEAIR 4, dated December 24, 1941 to The Chief of the Army Air Forces, Washington, D.C.

2. The call sign of the Royal Air Force Station in Iceland indicated in paragraph 2 h, page 2 as SA S, is changed effective January 1, 1942 to 3 UN.

3. Request acknowledgement.

Hq. Army Air Forces
JAN 26 1942
AAG Received

C. H. BONESTEEL,
Major General, Commanding
United States Army Forces In Iceland.

~~SECRET~~ DECLASSIFIED

Incl 2

AG 381.9 (22)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

In reply refer to
(11-3-41)

WAR DEPARTMENT
Washington, D. C.,
November 3, 1941.

Subject: Identification of Aircraft, Iceland.

To: Commanding General, U.S. Army Forces in Iceland.

1. Reference is made to your radiogram dated October 8, 1941, on the above subject.

2. In order to assist your headquarters in operating a system of identification and control of aircraft approaching Iceland, this headquarters has requested the Chief of the Army Air Forces to issue instructions to all pilots of Army aircraft to Iceland, to be cleared from control Airports at Newfoundland Airport (Gander Lake), Stephensville, Newfoundland and Narsarssuaq, Greenland.

3. The Naval Liaison Officer at this headquarters has been requested to contact the Navy Department, with a view to arranging with the Navy Department to instruct aircraft pilots, flying in this area, to conform with identification and control procedure established by you. The Naval Liaison Officer states that the Senior U.S. Naval Officer Present Afloat (S.O.P.A.) in Iceland, will be instructed to conform to procedure established by your headquarters, and make the necessary notifications to Naval flight personnel. It is assumed that the British authorities will take the necessary action to conform to the procedure established, in conjunction with the Commander of the British Forces in Iceland.

4. Direct communication between your headquarters, Commanding General, Newfoundland Base Command, and the Commanding Officers of control airports indicated is authorized for this purpose.

For the CHIEF OF STAFF:

/s/ HARRY J. MALONY,
Brig. Gen., G. S. C.,
Deputy Chief of Staff.

5 Incls:
Incl #1 - Copy of Memo to Naval Liaison Off, GHQ, 11-3-41, subj as above.
Incl #2 - Copy ltr CO, Greenland Base Command, 11-3-41, subj as above.
Incl #3 - Copy ltr CO, Newfoundland Base Command, 11-3-41, subj as above.
Incl #4 - Copy ltr Chief of Army Air Forces, 11-3-41, subj as above.
Incl #5 - Copy ltr Ch Signal Officer, 11-3-41, subj as above.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

~~SECRET~~

DECLASSIFIED
DECLASSIFIED
DOD Dir.
E.O. 11652, Sec. 3(E) and 5(D) or (E)
By NARS, Date 10-12-76

Modification of Aircraft, Iceland

2 Air AG 040 1941 1. Pilots flying to Iceland will receive identification
AFPD 12-NOV information that the proper Iceland Airport point to
departure for Iceland. The following are designated as
Iceland Airports:

Reykjavik Airport (Reykjavik Area, Southwest Coast)
Kaldadarnes, Iceland (The use of Kaldadarnes Airport is
designated as such by the Royal Air Force and
the U.S. Navy Control)
Reykjavik, Iceland.

452.9 (6)

Dispatched
NOV 20 1941
AAG

WILLIAM W. EDDY
Lt. Col., A.G.D.
Air Adjutant General

HEADQUARTERS ARMY AIR FORCES								COORDINATION				
Chief of Staff	Sec'y Air Staff	A.A.G.	A-1	A-2	A-3	A-4	A-WPD	A-Inspr	Budget			

~~SECRET~~ DECLASSIFIED

Incl #1

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET

DECLASSIFIED

AG 1-Bolling - Am
(11-5-41)

Subject: Identification of Aircraft, Iceland.

To: Chief of the Army Air Forces, Washington, D. C.

1. The Commanding General, U. S. Army Forces in Iceland, in accordance with the British Forces operating in Iceland, has been made responsible for the defense of Iceland. To assist in preventing pointless hostile air attacks, he has established a procedure with the British Forces for the identification of friendly aircraft. The procedure established consists of:

a. Mutual exchange of descriptions of all types of friendly aircraft likely to be seen in Iceland permitting recognition by shape and appearance.

b. System of prearranged signals established including lights, signal rockets, and searchlights.

c. Special routing, outside of local flights and assigned aerials furnished British and American control.

d. Radio notification from approaching aircraft and verification of signals.

e. All unidentified aircraft considered unfriendly until identity is established.

2. This information was forwarded to the Admiralty Council with request that the Navy Department and the Chief of the Army Air Corps be informed thereof, and that these agencies be requested to direct that aircraft under their control be required to conform to the procedure outlined in par. 1. This recommendation was supported by information which stated that the action requested fell within the responsibility of this headquarters and that necessary arrangements should be made by contact with the interested agencies.

3. In order to insure that all friendly aircraft approaching Iceland may be promptly indicated as to identification procedure, this headquarters is issuing instructions as follows to establish a system of control and identification of all aircraft flying into Iceland.

DECLASSIFIED

-1- SECRET

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET

DECLASSIFIED

SECRET

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET

DECLASSIFIED

5. It is requested that the Chief of the Army Air Forces issue the necessary instructions to require all Army Air Force pilots, flying to Iceland, to receive identification instructions from control airports indicated, and to obtain clearance from one of these airports before flying to Iceland.

For the CHIEF OF STAFF:

(Signed) Harry A. Halsey

HARRY A. HALSEY,
Major General, U.S.A.,
Deputy Chief of Staff.

1st Ind. (Air AG)

WD, AC, ARMY AIR FORCES, Washington, D. C. December 20, 1941.
To: Chief of Staff, General Headquarters, U.S.Army, Army War College, Washington, D. C.

In compliance with request contained in paragraph 5 of basic communication, instructions have been issued to the Commanding General, Air Force Combat Command, and to the Chief of the Air Corps as follows:

Pilots flying to Iceland will receive identification instructions from the proper Control Airport prior to departure for Iceland. The following are designated as Control Airports:

Newfoundland Airport (Gander Lake, Newfoundland)
Presque Isle, Me. (Air use of Ferrying Command if designated as such by the Royal Air Force and the U. S. Ferrying Command)
Narsarssuak, Greenland.

For the Chief of the Army Air Forces:

WILLIAM E. BEIS
Lt. Col., A.G.D.
Air Adjutant General.

-3-

DECLASSIFIED

SECRET

Incl #1

AG 381 (12-20-41) (2)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

DECLASSIFIED DOD Dir. 5200.9 Sec. II Par. F-76 DOD Dir. 5200.1 Par. ____ File No. .....
SECRET Security No. ..... Copy No. ..... Copy No. AAF .....

Note.--A line will be drawn across sheet after each comment.

DECLASSIFIED

SUBJECT: Identification of Aircraft, Iceland

NO.	FROM	TO	DATE	COMMENTS
1	AAF C/AS	AAF/ AAG	1941 11/24	AAF/A-3 JHastie In compliance with request in paragraph 5 attached communication, it is desired that instructions be issued substantially as follows to: Commanding General, Air Force Combat Command and Chief of Air Corps: "Pilots flying to Iceland will receive identification instructions from the proper Control Airport prior to departure for Iceland. The following are designated as Control Airports: "Newfoundland Airport (Gander Lake, Newfoundland) Stephenville, N.F. (for use of Ferrying Command if designated as such by the Royal Air Force and the U.S. Ferrying Command.) Narsarssuak, Greenland." The above instructions to be marked Secret. Incl. Memo to C/AAF 11/3/41 C.S. C/AS

451.96

DECLASSIFIED

SECRET (Do not use reverse side) Page No. _____

W-6071, AC, Rev. 2/10/41

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

AAF/A-3
FARadak

DECLASSIFIED

Subject: Installation of [redacted]

[redacted]

The Assistant Chief of the Air Corps, Washington, D. C., [redacted] 1-16-[redacted] the Commanding Officer, Air Corps, Langley Field, Virginia.

1. There has been transmitted to Headquarters 8th Naval District, Naval Operating Base, Norfolk, Virginia, a radiogram [redacted] dated Nov. 27, 1941, Filed A15-77, Radiogram, Navy and Associate Powers for the Establishment Naturally Flying over or adjacent to vital positions of the United States Army.

2. A copy of the first indorsement is inclosed herewith for your information and guidance.

3 Incls.
As above.

By command of Lieutenant General ARNOLD:

JOHN D. COOLEY
Lieutenant Colonel, A.G.C.
Assistant Air Adjutant General

Received 2WY
2PM 6 [illegible]

Dispatched
[illegible] 30 1941
ABC

WASHINGTON, ARMY AIR FORCES								COORDINATION				
Chief of Staff	Air Staff	A.A.G.	A-1	A-2	A-3	A-4	A-5	A-6	A-7	A-8	A-9	

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

AIR BASE HEADQUARTERS
LANGLEY FIELD, VIRGINIA

DECLASSIFIED DOD Dir. 5200.9 ... By NARS, Date 12-17-75

413.77

DECLASSIFIED

December 23, 1941

SUBJECT: Identification of Friendly Aircraft.

TO : Commanding General, Air Force Combat Command, Washington, D. C.

1. Reference is made to letter from Headquarters, Fifth Naval District, file A-21/ND Ser.No.5051 (Confidential) dated December 13, 1941.

2. It is noted that a copy of the proceedings of the committee has been referred to this headquarters for consideration prior to adoption. This headquarters does not feel that it has the authority to approve action of such far-reaching consequences and is, therefore, referring same to you for further consideration.

3. It is axiomatic that the defense of both Army and Navy activities in and around Hampton Roads is a function of the Army. In accomplishing this it is believed that the action of the committee was intended to be of assistance to the Army and approval, in general, is indicated. It is felt, however, that the method by which it is proposed to accomplish this is definitely one which would impose a severe handicap upon Air Force Units charged with the defense of the area.

4. In support of this statement the following is submitted:

a. A total of three Pursuit units will be stationed in the area proper, operating in conjunction with the air warning service and in close cooperation with antiaircraft units stations in this area for the defense. Any restriction upon the activities of these Pursuit units, particularly a restriction which would forbid them the possibility of a quick climb in the area itself, is certainly impracticable.

b. It is noted that the area practically bisects Langley Field. It is impossible for 4-engine bombers to fly at 1,000 feet in a circle for landing purposes in such a congested area. The present circle at Langley Field embraces the Town of Fox Hill on one side of the area and extends almost to Harpersville on the other side. Airplanes in this landing area fly in counter-clockwise directions around Langley Field prior to effecting landing. The size of these airplanes and the straight-away approach required renders it impracticable for them to "peel off" in a manner similar to Pursuit or Naval formations. The restriction of the area would, therefore, impose a decided handicap upon activities at Langley Field.

c. The identification of friendly aircraft is, as stated, a function of Army command and should also be a function of Navy command. In other words personnel of the Army and Navy, other than the flying personnel, should receive instruction in identification from photographs and by visual means of all friendly aircraft. Photographs and silhouettes are available for this purpose.

1.

CONFIDENTIAL DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL DECLASSIFIED

d. The barring of commercial aircraft in the area is not concurred in, in view of the fact that the Commercial Airport at Norfolk, which is a station at which is based Army Pursuit, is also a terminal point for the Penn Central Airlines, the use of which for commercial purposes is vital to both the Army and Navy. It is noted that the proposed area practically bisects the Municipal Airport at Norfolk.

5. Suggested changes in the rules proposed by the local Army Navy Joint Planning Committee of December 10, 1941, are as follows:

a. Rule 4 (1) to be changed to read 2000 feet or less instead of 1000 feet or less - the 2000 feet altitude being necessary for large bombers to have sufficient altitude in which to maneuver for a Landing.

Rule 4 (3) to be eliminated because this procedure is not practicable in view of our experience at this Base.

Rule 4 (6) to be eliminated since such a rule would prevent the airliners from furnishing air transportation to Norfolk or Langley.

b. That the area be enlarged to include the towns of Kempsville, Pentress, Fox Hill, Seaside, Harpersville, Morrison. This will include the area of the Norfolk Municipal Airports, the Langley Field radio tower and the Langley Field traffic circle.

6. This headquarters is in full agreement with the basic idea expressed by the committee, namely, that of providing ready and immediate means to distinguish enemy aircraft, but believes that this should be accomplished after a conference at which the views of the Air Force Combat Command are presented. Therefore, this headquarters recommends that no action be taken with respect to having this area declared an airspace reservation by Presidential Proclamation until such a conference attended by higher headquarters can be concluded.

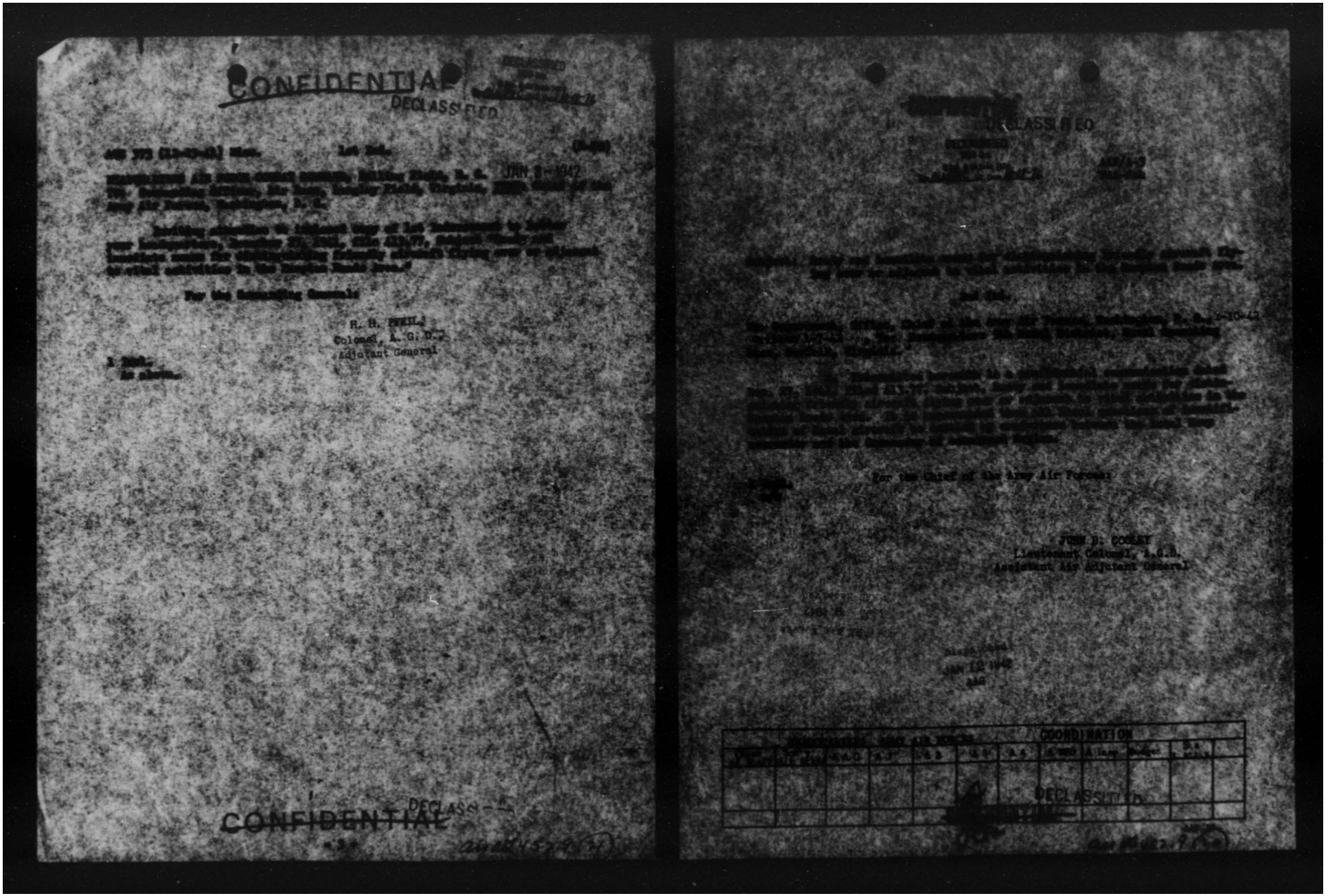
For the Commanding Officer:

IVOR MASSEY,
Lieut. Colonel, Air Corps,
Assistant Executive.

CONFIDENTIAL DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



CONFIDENTIAL

DECLASSIFIED

JAN 8 1942

H. H. PEHL
Colonel, A.G.D.
Adjutant General

DECLASSIFIED

For the Chief of the Army Air Forces

JOHN B. COOLEY
Lieutenant Colonel, A.G.D.
Assistant Air Adjutant General

JAN 12 1942

COORDINATION

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

~~CONFIDENTIAL~~

DECLASSIFIED
DOD Dir. 5 200.9 and 30 June 1974
By RUSfile SC, Date 10-11-76

AGC 413.77 (12-27-41) 1st End. (R-70)

HEADQUARTERS AIR FORCE COMBAT COMMAND, Bolling Field, D. C. JAN 3 - 1942
TO: Chief of the Army Air Forces, Washington, D. C.

1. The generally uniform procedure for identification of aircraft established by the interceptor commands in the United States should not be materially changed. In the subject case the 1st Interceptor Command, through the Norfolk Region, is cooperating with the Civil Aeronautics Administration, and other concerned agencies, in having all friendly flights in the vicinity appear on the operations board at the Norfolk Information Center. Flight plans of Navy aircraft are cleared at the Information Center. It is believed that the details of handling local Naval and Army flights can best be handled by the Region Commander with the assistance of the Navy, Antiaircraft Artillery, and other concerned liaison officers at the Norfolk Information Center. It is the understanding of this headquarters that the Commanding General of the Eastern Theater of Operations has delegated the operational control of antiaircraft artillery to the 1st Interceptor Command, and that the Controller at the Norfolk Information Center exercises this control over the antiaircraft

DECLASSIFIED

~~CONFIDENTIAL~~

-1-

an 452.1 (12)

~~CONFIDENTIAL~~

DECLASSIFIED

AGC 413.77 (12-27-41) 1st End. (Cont'd.) JAN 3 - 1942

artillery in the area under discussion. Operational control includes the authority to restrict or release the fire or operation of antiaircraft artillery.

2. It is recommended this communication be referred to the Navy Department with the request that all local questions of identification of Naval aircraft be settled by conference between the local Navy commanders and the Commander of concerned Region.

For the Commanding General:

H. H. PFEIL,
Colonel, A. G. D.,
Adjutant General

1 Encl.
n/c

DECLASSIFIED

~~CONFIDENTIAL~~

-2-

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Ltr.
E.O. 11652, Sec. 5 (E) June 1971
By NARS, Date 12-12-76

AIR BASE HEADQUARTERS
Langley Field, Virginia

DECLASSIFIED December 27, 1941.

413.77

Subject: Ready and immediate means for distinguishing friendly aircraft flying over or adjacent to vital activities in the Hampton Roads Area.

To : Commanding General, Air Force Combat Command, Bolling Field, D. C.

Reference telephone conversation of December 26, 1941, with G-2 of your Headquarters, there is forwarded herewith letter, Headquarters Fifth Naval District, Norfolk, Virginia, dated December 13, 1941, File A21/WD5 Ser. No. 5051, with two enclosures.

For the Commanding Officer:

IVOR MASSEY,
Lt. Colonel, A.G.,
Asst. Executive.

1 Incl.-
Ltr. Hq 5th Nav. Dist., 12/13/41,
w/ 2 encls.

AGC 413.77 (12-27-41) 1st Ind. (R-70)

HEADQUARTERS AIR FORCE COMBAT COMMAND, Bolling Field, D. C. Jan. 3, 1942
TO: Chief of the Army Air Forces, Washington, D. C.

1. The generally uniform procedure for identification of aircraft established by the interceptor commands in the United States should not be materially changed. In the subject case the 1st Interceptor Command, through the Norfolk Region, is cooperating with the Civil Aeronautics Administration, and other concerned agencies, in having all friendly flights in the vicinity appear on the operations board at the Norfolk Information Center. Flight plans of Navy aircraft are cleared at the Information Center. It is believed that the details of handling local Naval and Army flights can best be handled by the Region Commander with the assistance of the Navy, Antiaircraft Artillery, and other concerned liaison officers at the Norfolk Information Center. It is the understanding of this headquarters that the Commanding General of the Eastern Theater of Operations has delegated the operational control of antiaircraft artillery to the 1st Interceptor Command, and that the Controller at the Norfolk Information Center exercises this control over the antiaircraft artillery in the area under discussion. Operational control includes the authority to restrict or release the fire or operation of antiairerfat artillery.

2. It is recommended that communication be referred to the Navy Department with the request that all local questions of identification of Naval aircraft be settled by conference between the local Navy commanders and the Commander of concerned Region.

For the Commanding General:

DECLASSIFIED
CONFIDENTIAL

H. H. Pfeil,
Colonel, A. G. D.
Adjutant General

1 Incl.
n/c

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

DECLASSIFIED
DECLASSIFIED
EO 12...
By ... NLC, Date 10-11-76

AAF/A-2
FAA-dah

JAN 3 1942

Brig. General Donald H. Connolly,
Administrator of Civil Aeronautics,
Department of Commerce,
Washington, D. C.

Dear General Connolly:

The following is a directive furnished the Office Chief of Air Corps and is being submitted for your information and such action as you deem necessary.

1. In respect to flight originating off shore in areas where the responsible tactical commander cannot forward the flight plan because of lack of facilities or for reasons of security, the aircraft commander will report identification and flight plan by radio from the airplane at the earliest opportunity.

2. In an air defense zone, the Army Interceptor Commander or his designated representative in each Air Corps Information Center must have available to his knowledge of all friendly aircraft flying in a given region, in order that intelligence of friendly aircraft may be sorted out from that of hostile aircraft. To accomplish this, flight plans are necessary for all friendly aircraft in the zone excepting only tactical aircraft whose positions and movements are known to liaison officers in the Information Center who can thus claim any aircraft reported by the Aircraft Warning Service which conform to these positions and movements. Only by this process of elimination can hostile aircraft be identified prior to visual contact. Also, for safety purposes, the CAA representative in the Information Center must have access to information of the position and movements of such military and naval aircraft in the region as might imperil air traffic, whether civil or military, on the airways before he approves a flight plan for any but contact flight. The CAA airways system, including air traffic control towers, airport operators, and the aircraft reporting, radio ranges and communications systems, renders a very substantial aid to military as well as civil air traffic. When radio silence or visual blackout is ordered for any part of the airway system, accurate knowledge of aircraft in and approaching that part of the airway is necessary in order that

HEADQUARTERS ARMY AIR FORCES							COORDINATION				
Chief of Staff	Sec'y Air Staff	A-4 & 6	A-1	A-2	A-3	A-4	A-WPD	A-Insp	Budget	[illegible]	

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

DECLASSIFIED

safety measures may be applied to enable such aircraft to land, to turn back, or to proceed safely. The CAA representative in such cases advises the Pursuit Controller in the Information Center concerning such navigation aids as must be released from blackout or radio silence long enough to serve endangered air traffic, and advises as to the possible consequences if such assistance is not permitted.

3. Violations of the procedure herein discussed have serious consequences in organized air defense areas. Reports of unidentified aircraft cause unnecessary air raid warnings, blackouts, radio silences, and disruption of communications systems, utilities and safety services over wide areas. Further, frequent cries of "wolf" will inevitably result in disregard of air raid alarms by entire communities with consequent increase in vulnerability to real air raids when they materialize. Disruption of communications services involve not only danger to air and ground traffic, but deprive both civil and military agencies of needed services.

Sincerely yours,

R. P. Curtis,
Major, Air Corps.
Secretary of the Air Staff.

Dispatched
JAN 4 1942
AAG

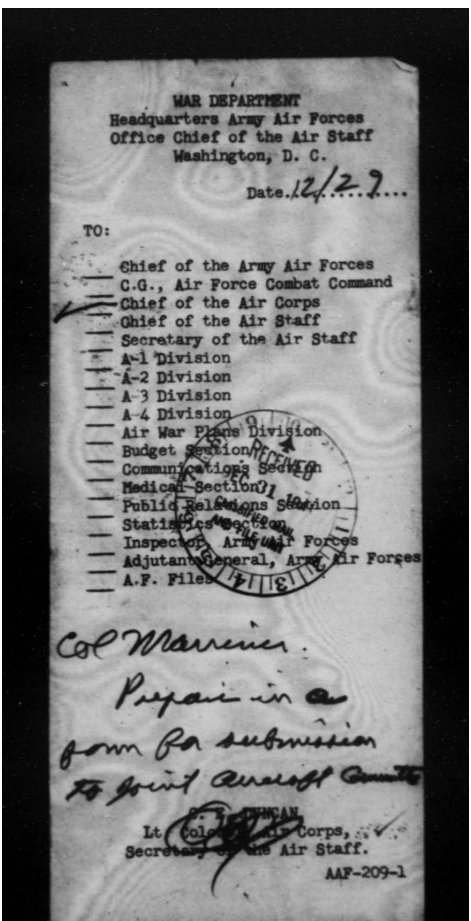
HEADQUARTERS ARMY AIR FORCES						COORDINATION					
Chief of Staff	Asst. Chief of Air Staff	A.A.G.	A-1	A-2	A-3	A-4	A-WPD	A Insp	Budget	Sig.	
						DECLASSIFIED					

CONFIDENTIAL

AAF 19
Air AA 452.9 (R)

THIS PAGE IS DECLASSIFIED IAW EO 13526

AGE IS DECLASSIFIED IAW E



WAR DEPARTMENT
Headquarters Army Air Forces
Office Chief of the Air Staff
Washington, D. C.

Date. 12/27...

TO:

- Chief of the Army Air Forces
- C.G., Air Force Combat Command
- Chief of the Air Corps
- Chief of the Air Staff
- Secretary of the Air Staff
- A-1 Division
- A-2 Division
- A-3 Division
- A-4 Division
- Air War Plans Division
- Budget Section
- Communications Section
- Medical Section
- Public Relations Section
- Statistics Section
- Inspector, Army Air Forces
- Adjutant General, Army Air Forces
- A.F. Files

Col Warriner.
Prepare in a
form for submission
to Joint Aircraft Committee

[illegible] DUNCAN
Lt. Colonel, Air Corps,
Secretary, Air Staff.

AAF-209-1

AGE IS DECLASSIFIED IAW E

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

AAF/Comm

DECLASSIFIED
DOD Dir.
NARS, Date 12-16-74

January 13, 1942

MEMORANDUM FOR THE DIRECTOR OF JOINT AIRCRAFT COMMITTEE:

Subject: Aircraft Identification and Recognition.

1. Attached hereto is a [illegible] relative to the adoption of a universal identification system for use of the British, United States Army and Navy. This letter was prepared at the request of a verbal direction from General Arnold.

2. It is requested that this study be continued by the Joint Aircraft Committee with the view of [illegible].

For the Chief of the Army Air Forces

1 Encl.

JOHN B. GRIGGS
Lt. Col., A.G.D.
Assistant Air Adjutant General.

Registered
JAN 10 1942
AAG

DECLASSIFIED

HEADQUARTERS ARMY AIR FORCES												COORDINATION
Chief of Staff	Sec'y Air Staff	A.A.G.	A-1	A-2	A-3	A-4	A-M&D	A-Inspr.	Budget	Ex. Planning		
	GAF											

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET

DECLASSIFIED
DECLASSIFIED
000 pp.
Auth: E.O. 12958, as amended
By: [illegible], NARA Date: 12-17-09

AAF/Plans
3CD/ppc

January 9, 1940

MEMORANDUM FOR THE SECRETARY OF JOINT AIRCRAFT COMMITTEE:

SUBJECT: Aircraft Identification and Recognition

1. Attached hereto is a paper relative to the standardization of a universal identification system for use of the British, United States Army and Navy, and this paper was prepared as a result of a verbal directive given me by General Arnold.

2. It is requested that this study be reviewed by the Joint Aircraft Committee with the view of standardization.

1 Incl.

HEADQUARTERS ARMY AIR FORCES							COORDINATION				
Chief of Staff	Sec'y Air Staff	AAG	A-1	A-2	A-3	A-4	[illegible]	[illegible]	[illegible]	[illegible]	

SECRET

DECLASSIFIED
Auth: E.O. 12958, as amended
By: [illegible], NARA Date: 12-17-09

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET

DECLASSIFIED

AAF/Gnmo.
JKD/pmm

January 5, 1943

MEMORANDUM FOR THE CHAIRMAN OF JOINT AIRCRAFT COMMITTEE

SUBJECT: Aircraft Identification and Recognition

1. Discussion.

1. Directive requires that the Army Air Forces must be able to work into an identification system by which United States Army, Navy and British aircraft may be identified by each or all of the services involved.

2. The new American system employing the SCR-535 in aircraft and the SCR-537 and SCR-577 on the ground or aboard United States Naval vessels will permit United States Aircraft to be identified by United States Naval vessels or United States units on the ground.

3. The American system will not permit identification of British Aircraft and the British system will not permit identification of American Aircraft.

4. The British and American systems are similar in basic principles but very undesirably. The United States Army and Navy are not free for consideration to the new American System in change to a system which is standard for the three services involved.

5. [illegible] establishment of a universal standard system, [illegible] approved that the American system can be used by the United States Army and Navy in Areas where close cooperation between United States and British Units is not envisaged in the immediate future.

6. The Joint Aircraft Committee approved the findings of the Special Radio Sub-Committee of the Joint Aircraft Committee on standardization which in general provides for Aircraft installations of both British and American airborne equipment if necessary.

HEADQUARTERS, ARMY AIR FORCES							COORDINATION				
Chief of Staff	Asst. Chief of Staff	A.A.G.	A-1	A-2	A-3	A-4	A-5 WPD	A-Surp.	Budget	Sec.	

SECRET DECLASSIFIED Auth: E.O. 12958 NND 970229

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET

DECLASSIFIED

This places a terrific burden on aircraft manufacturers and installation units; is a constant check, and also requires the maintenance of both British and American Airforce squadrons which will merely duplicate each other, complicate the supply problem and will result in delays as far as identification is concerned.

7. There being no standard identification system for the services involved, it is now necessary for the Air Corps to provide suitable and install modified British IFF Mark II sets in Airplanes to work into our SCR-520, SCR-578 and SCR-695 detectors. These modified devices will work into the British IFF equipment, and several hundred five (100) of which are being ordered, will serve jointly suited for the purpose.

8. The Airborne Equipment developed by the British for their Universal Mark III equipment is completely interchangeable with the modified British equipment we are now installing, except for minimum changes, and through these interrogators will work into any and all of our detectors.

9. Preparations, including engineering and drafting, looking forward to the manufacture of British Mark III equipment (both air and ground) in this country is underway, with indications that initial articles should be delivered June 1943.

II. Conclusions

1. We must adopt an identification system, as quickly as possible, which is common to the United States Air Forces, the United States Navy and the British.

2. The adoption by all services of either the British or the American system will accomplish this.

3. The British system is so deeply imbedded in the British services that any change introduced would create tremendous confusion and delay to the British.

III. Recommended Action

1. Immediate standardization of the British Mark III system as the Universal Identification and recognition system for the United States Army, United States Navy and the British. (This will require approval of the Joint Aircraft Committee).

HEADQUARTERS ARMY AIR FORCES							COORDINATION				
Chief of Staff	Sec'y Air Staff	A-G	A-1	A-2	A-3	A-4	A-MID	A Insp.	Budget	A-5	

SECRET DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

~~SECRET~~ DECLASSIFIED

2. Continue development and production of the American system to achieve an early system for every gun undoubtedly desirable and a more improved system than any of the British systems hitherto experienced.

3. Continue where necessary, installations of modified British XIV Mark II sets in Army Aircraft until the British Mark III system is available.

~~SECRET~~ DECLASSIFIED

HEADQUARTERS ARMY AIR FORCES — COORDINATION

Chief of Staff	Dep. Chief of Staff	A.A.G.	A-1	A-2	A-3	A-4	A-MED	A-Insp	Budget	Sec. Legislative	
	6 Dec										

AAF 39

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

~~SECRET~~

DECLASSIFIED

SECRET
By Authority of
The Chief of the Air Corps
Date

WAR DEPARTMENT
OFFICE OF THE CHIEF OF THE AIR CORPS
WASHINGTON

December 27, 1941

DECLASSIFIED
DOD Dir.
E.O. 12356, Sec. 3.3
NND 760033, By NARA, Date 12-31-76

452.1

MEMORANDUM FOR THE CHIEF OF STAFF:

SUBJECT: Aircraft Identification and Recognition

Attached hereto is a paper relative to the standardization of a universal identification system for use of the British, United States Army and Navy, and this paper was prepared as a result of a verbal directive given me by General Arnold.

A. W. Marriner,
Lieut. Colonel, Air Corps,
Chief, Communications Division.

DECLASSIFIED

~~SECRET~~

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir.
By Authority of the Chief of the Air Corps
Date

~~SECRET~~

DECLASSIFIED

~~SECRET~~
CHIEF OF THE AIR CORPS
By Authority of the Chief of the Air Corps
Date

WAR DEPARTMENT
OFFICE OF THE CHIEF OF THE AIR CORPS
WASHINGTON

December 27, 1941

MEMORANDUM FOR THE CHIEF OF STAFF:

SUBJECT: Aircraft Identification and Recognition

I. Discussion

1. Directives require that the Army Air Forces must be able to work into an identification system by which United States Army, Navy and British Aircraft may be identified by each or all of the services involved.

2. The new American system employing the SCR-515 in Aircraft and the SCR-533 and SCR-532 on the ground or aboard United States Naval vessels will permit United States Aircraft to be identified by United States Naval vessels or United States Units on the ground.

3. The American system will not permit identification of British Aircraft and the British system will not permit identification of American Aircraft.

4. The British and American systems are similar in basic principles but vary technically. The United States Army and Navy are not too far committed to the new American System to change to a system which is standard for the three services involved.

5. Pending establishment of a universal standard system, equipment now being procured for the American system can be used by the United States Army and Navy in Areas where close cooperation between United States and British Units is not envisaged in the immediate future.

6. The Joint Aircraft Committee approved the findings of the special Radio Sub-Committee of the Joint Aircraft Committee on standardization which in general provides for Aircraft installations of both British and American airborne equipment if necessary.

~~SECRET~~ DECLASSIFIED

~~SECRET~~ DECLASSIFIED

This places a terrific burden on Aircraft Manufacturers and installation units; is a needless cost, and also requires the manufacture of both British and American Airborne apparatus which will create duplicate stock piles, complicate the supply problem and will result in chaos as far as identification is concerned.

7. There being no standard identification system for the services involved, it is now necessary for the Air Corps to provide makeshifts and install modified British IFF Mark II sets in Aircraft to work into our SCR-268, SCR-270 and SCR-271 detectors. These modified devices will work into the British GCI equipment, one hundred and five (105) of which are being ordered, but are poorly suited for the purpose.

8. The Airborne Equipment developed by the British for their Universal Mark III equipment is completely interchangeable with the modified British equipment we now are installing, except for Antennae changes, and through their interrogators will work into any or all of our detectors.

9. Preparations, including engineering and tooling, looking forward to the manufacture of British Mark III equipment (both air and ground) in this country is underway, with indications that initial articles should be delivered June 1942.

II. Conclusion

1. We must adopt an identification system, as quickly as possible, which is common to the United States Air Forces, the United States Navy and the British.

2. The adoption by all services of either the British or the American system will accomplish this.

3. The British system is so deeply imbedded in the British services that any change introduced would cause tremendous confusion and delay to the British.

III. Recommended Action

1. Immediate standardization of the British Mark III system as the Universal identification and recognition system for the United States Army, United States Navy and the British. (This will require approval of the Joint Aircraft Committee).

~~SECRET~~ DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

~~SECRET~~

DECLASSIFIED

2. Continue development and production of the American system to assure an early system for areas now exclusively American and a new universal system when and if the British system becomes compromised.

3. Continue where necessary, installations of modified British IFF Mark II sets in Army Aircraft until new British Mark III System is available.

12-27/8-S

A. W. Marriner,
Lieut. Colonel, Air Corps,
Chief, Communications Division.

~~SECRET~~

DECLASSIFIED

-3-

NND 0453.9(18)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

DECLASSIFIED
DECLASSIFIED
DOD Dir. 5 Nov. & 30 June 1974
By AIA/DEXC, HQ. Date 10-12-76

AAF-A-3
FAA-dah

De[illegible]19.1

SUBJECT: IDENTIFICATION OF FRIENDLY AIRCRAFT.

TO: CHIEF OF NAVAL OPERATIONS

The following is a directive furnished the Office Chief of Air Corps and is being submitted for your information and such action as you deem necessary.

1. In respect to flight originating off shore in cases where the responsible tactical commander cannot forward the flight plan because of lack of facilities or for reasons of security, the aircraft commander will report identification and flight plan by radio from the airplane at the earliest opportunity.

2. In an air defense zone, the Army Interceptor Commander or his designated representative in each Air Corps Information Center must have available to him knowledge of all friendly aircraft flying in a given region, in order that intelligence of friendly aircraft may be sorted out from that of hostile aircraft. To accomplish this, flight plans are necessary for all friendly aircraft in the zone excepting only tactical aircraft whose positions and movements are known to liaison officers in the Information Center who can thus claim any aircraft reported by the Aircraft Warning Service which conform to these positions and movements. Only by this process of elimination can hostile aircraft be identified prior to visual contact. Also, for safety reasons, the CAA representative in the Information Center must have access to information of the position and movements of such military and naval aircraft in the region as might imperil air traffic, whether civil or military, on the airways before he approves a flight plan for any but contact flights. The CAA airways system, including air traffic control towers, airport operators, and the airways lighting, radio ranges and communications systems, render a very material aid to military as well as civil air traffic. When radio silence or visual blackout is ordered for any part of the airway system, accurate knowledge of aircraft in and approaching that part of the airway is necessary in order that safety measures may be applied to enable such aircraft to land, to change course, or to proceed safely. The CAA representative [illegible] Officer of the Regular Controller in the Information Center concerning such navigation aids as must be relocated from blackout or radio silence areas in order to serve unmarked air traffic, and advises as to the possible consequences if such assistance is not permitted.

CONFIDENTIAL DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

3. Violations of the provisions herein discussed have serious consequences in organized air defense zones. Reports of unidentified aircraft cause unnecessary air raid warnings, blackouts, radio silence, and disruption of communications systems, utilities and public services over wide areas. Further, frequent cries of "wolf" will inevitably result in disregard of the raid signal by entire communities with consequent impairment in vulnerability to real air raids when they materialize. Disruption of communications services involves not only danger to air and ground traffic, but deprives both civil and military agencies of needed services.

For the Chief of the Army Air Forces:

EDWARD P. CURTIS,
Major, Air Corps,
Secretary of the Air Staff

HEADQUARTERS ARMY AIR FORCES — COORDINATION

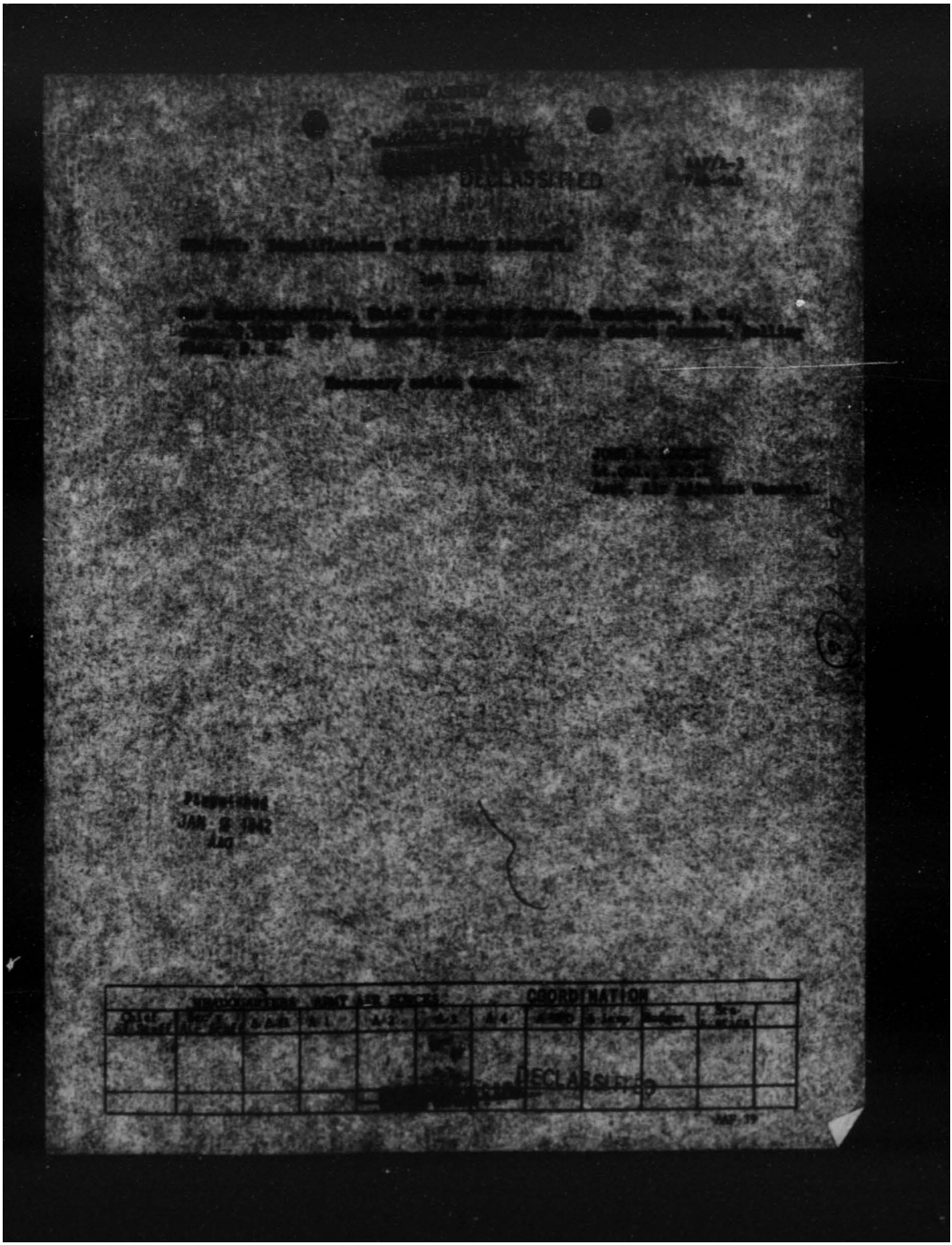
Chief of Staff	Navy Air Staff	A. A. G.	A-1	A-2	A-3	A-4	A-5	Admin.	Budget	Statistics	
	EPC				10/5 7/24						

CONFIDENTIAL

DECLASSIFIED
Auth: NN 45319 18 6

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED
DECLASSIFIED
DOD Dir. 5 200.9 & 30 June 1974
By NSA/CSSC 10, Date 10-18-76

DEC 26 1941

AGO 573

Identification of Friendly Aircraft.

Chief of Army Air Forces, Washington, D. C.

1. In reference to unclassified letters of December 10, 1941 and December 24, 1941, same subject, to Chief of Army Air Forces, it is suggested that Army and Navy activities concerned be advised regarding the necessity for reporting to Information Centers all flights, other than local, in organized air defense zones, either through Civil Aeronautics Administration agencies, or through appropriate liaison officers, or by direct message, for reasons discussed below.

2. In respect to flights originating off shore paragraphs 4 and 5 of the letter of December 10th should be modified as follows: "In those where the responsible tactical commander cannot forward the flight plan because of lack of facilities or for reasons of security, the aircraft commander will report identification and flight plan by radio from the airplane at the earliest opportunity.

3. In an air defense zone, the Army Interceptor Commander or his designated representative in each Air Corps Information Center must have available to him knowledge of all friendly aircraft flying in a given region, in order that intelligence of friendly aircraft may be sorted out from that of hostile aircraft. To accomplish this, flight plans are necessary for all friendly aircraft in the zone excepting only tactical aircraft whose positions and movements are known to liaison officers in the Information Center who can then claim any aircraft reported by the Aircraft Warning Service which conform to these positions and movements. Only by this process of elimination can hostile aircraft be identified prior to visual contact. Also, for safety purposes, the CAA representative in the Information Center must have access to information of the position and movements of such military and naval aircraft in the region of flight imperil air traffic, whether civil or military, as the airport before he approves a flight plan for any but contact flights. The CAA airways system, including air traffic control towers, airport approaches, and the airways lighting, radio ranges and communications systems, whether a very material aid to military as well as civil air traffic. When radio silence or visual blackout is ordered for any part of the airway system, accurate knowledge of aircraft in and approaching that part of the airway is necessary in order that safety measures may be applied to enable such aircraft to land,

DECLASSIFIED
CONFIDENTIAL
- 1 -

CONFIDENTIAL
DECLASSIFIED

AGO 573 Hq. AFOC, Gen'l. DEC 26 1941

to keep them, or to prevent safety. The CAA representative in each zone advises the Operation Controller in the Information Center concerning such navigation aids as must be released from blackout or radio silence long enough to serve subsequent air traffic, and advises as to the possible consequences if such restraint is not permitted.

4. Violations of the procedure herein discussed have serious consequences in organized air defense zones. Reports of unidentified aircraft cause unnecessary air raid warnings, blackouts, radio silence, and disruption of communications systems, utilities and safety services over wide areas. Further, frequent cases of "false" will inevitably result in disregard of air raid alarms by entire communities with consequent increase in vulnerability to real air raids when they materialize. Disruption of communications services involves not only danger to air and ground traffic, but deprives both civil and military agencies of needed services.

5. It is recommended that the contents of this letter be brought to the attention of Army, Navy, and civil authorities concerned.

By the Commanding General:

Hq. Army Air Forces
DEC 27 1941

C. W. [illegible]
Brigadier General, U.S.C.
Chief of Staff

DECLASSIFIED
CONFIDENTIAL
- 2 -

auth DOD 5200.9 (16)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir.
8 Jan. & 30 June 1971
By NLN/BAD, NC, Date 10-18-76

SECRET

DECLASSIFIED

JAN 6 - 1942

Identification of Aircraft-Iceland

Sec. G/S

Draft of reply attached

AAF/A-3
Mbride

For the Chief of the Air Staff:

E. P. Curtis,
Lt. Col., Air Corps,
Secretary of Air Staff.

Encls: (1) Draft of ltr to C/Nav. Opr. w copy
pergolense msg. OPD No. 25, 14 Dec. 41.
(2) Memo frm. OPD 452.1 - Iceland
(3) Ltr to C/S from C/Nav. Opr. Op-20-T/mew
(SS) A-3 Serial 0187920

MEMORANDUM FOR RECORD: Letter from Chief of Naval Operations, December 7, 1941, Subject: Identification of Aircraft, Iceland. Referred to A-3 Section for preparation of reply for signature C/S; required to consult with WPD. Responsible from A-3, OPD attached. Consulted with WPD, Major Fisher, U-2 Section and Major Knapp, Communications Section, OCAC. Reply required attaching pergolense copy OPD communication No. 25, 14 Dec. 41, above subject.

Comeback
Copy for: Gen. Arnold.

SECRET

DECLASSIFIED

0-3/21224-135

AAF/A-3
Trin 1/1/42.

SECRET

DECLASSIFIED
DOD Dir.
8 Jan. & 30 June 1971
By NLN/BAD, NC, Date 10-18-76

MEMORANDUM FOR THE CHIEF OF NAVAL OPERATIONS:

Subject: Identification of Aircraft-Iceland

1. Reference is made to your letter of December 7th, CF - 20 - V/mm, Serial 0187920, above subject.

2. The system for identifying aircraft operating, or flying in the vicinity of, Iceland was coordinated by the Commanding General, U. S. Army Forces in Iceland with the British forces operating from Reykjavik.

3. Plan No. 245, approved by the Joint Aircraft Committee on ~~meeting~~ October 20, 1941, provided for "Identification of Hostile and Unauthorized Recognition Devices".

4. It is explained that in order to eliminate confusion and misunderstanding of identification signals for both Army and Naval aircraft, the system for identifying all types of British and American aircraft operating in the vicinity of Iceland, should be identical.

5. Attached is pergolense copy of message sent out December 14, 1941 which should clarify this matter.

6. Should the system now in use by the U. S. Army aircraft operating in the Iceland area differ from the system that is in use by both British and United States Naval aircraft operating in that locality, information will be appreciated as to how the two systems differ and suggestions for complete coordination.

(Signed) R. C. MOORE

Encl. Copy pergolense msg.
OPD No. 25, 14 Dec. 41.

Deputy Chief of Staff.

JAN - 9 1942

OUT OUT

OFFICE OF CHIEF OF STAFF

ORIGINAL DISPATCHED FROM
OFFICE CHIEF OF STAFF

Comeback
Copy for: General Arnold.

SECRET

DECLASSIFIED

0-3/21224-135

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir. 5 Jan. & 30 June 1974
By NLAFRC, JC, Date 10-12-76

JAN 6 - 1942

SECRET DECLASSIFIED

Identification of Aircraft-Iceland

Sec. G/S

Draft of reply attached

AAF/A-3
MDJ/rlc

Incls: (1) Draft of ltr to C/Nav. Opr. w copy
paraphrase msg. (GHQ No. 25, 14 Dec. 41.
(2) Memo from. GHQ 452.1 - Indigo-AG
(3) Ltr to C/S from C/Nav. Opr. Op-20-V/nav
(20) AG-3 Serial 0163920

For the Chief of Air Staff:

E. P. Curtis,
Lt. Col., Air Corps,
Secretary of Air Staff

MEMORANDUM FOR RECORD: Letter from Chief of Naval Operations, December 7, 1941, Subject: Identification of Aircraft, Iceland. Referred to A-3 Section for preparation of reply for signature C/S; required to consult with WPD. Memorandum from AG, GHQ attached. Consulted with WPD, Major Potter, G-2 Section and Major Kemp, Communications Section, GCAS. Reply prepared attaching paraphrase copy GHQ communication No. 25, 14 Dec. 41, above subject.

HEADQUARTERS ARMY AIR FORCES — COORDINATION												
Chief of Staff	Sec'y Air Staff	A.A.G.	A-1	A-2	A-3	A-4	A-WPD	A-Insp.	Budget	Statistics		
JAN 6 1942 AAG												

SECRET DECLASSIFIED

AAF 39

an 2945 2-9-15

AAF/A-3
MDJ
Trtn 1/1/42.

SECRET

DECLASSIFIED
DECLASSIFIED
DOD Dir. 5 Jan. & 30 June 1974
By NLAFRC, JC, Date 10-12-76

MEMORANDUM FOR THE CHIEF OF NAVAL OPERATIONS:

Subject: Identification of Aircraft-Iceland

1. Reference is made to your letter of December 7th, OP - 20 - V/nav, Serial unknown, above subject.

2. The system for identifying aircraft approaching, or flying in the vicinity of, Iceland was established by the Commanding General, U. S. Army Forces in Iceland with the British Direct operating from Reykjavik.

3. Some time ago, approved by the Joint Aircraft Committee at meeting October 28, 1941, provided for "Identification of Neutral and Operational Recognition Markings".

4. It is realized that in order to eliminate confusion and misunderstanding of identification signals for both Army and Naval aircraft, the system for identifying all types of British and American aircraft operating in the vicinity of Iceland, should be identical.

5. Attached is paraphrase copy of message sent out December 14, 1941 which should clarify this matter.

6. Should the system now in use by the U. S. Army aircraft operating in the Iceland area differ from the system that is in use by both British and United States Naval aircraft operating in that locality, information will be appreciated as to how the two systems differ and suggestions for complete correlation.

Incl. Copy paraphrase msg. GHQ No. 25, 14 Dec. 41.

Chief of Staff.

rlc.

HEADQUARTERS ARMY AIR FORCES — COORDINATION												
Chief of Staff	Sec'y Air Staff	A.A.G.	A-1	A-2	A-3	A-4	A-WPD	A-Insp.	Budget	Statistics		
							DECLASSIFIED					

SECRET

AAF 39

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

DECLASSIFIED

Memorandum
No. 25
14 Dec. 41

CG V.I.C.
V.A.C.
I.I.C.
G.H.C.
E.A.C.
D.A.C.

When Army aircraft fly at sea in joint operation with the Navy or by themselves they should have proper recognition signals prescribed for naval vessels and planes. If a vessel should not signal or reply properly to a recognition signal this should not be accepted as conclusive proof that it is a hostile craft. U.S. merchantmen and neutral merchant craft have no Navy identifying signals. Neutral warships also have none.

Responsibility of establishing identity of a hostile vessel or aircraft is on pilots and observers of all U.S. combat planes. Before starting on any mission, Army Air Corps personnel should be told of friendly Navy ships and planes which may be seen during the mission. Intimate liaison should be maintained between AFCO units and Navy Districts on the movements of naval forces.

Navy has sent these instructions to all their Districts and Coastal Frontiers.

Marshall

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET

DECLASSIFIED

GENERAL HEADQUARTERS, U. S. ARMY

DECLASSIFIED

ARMY WAR COLLEGE

WASHINGTON, D.C.

452.1-Indigo-AG

December 2, 1941.

MEMORANDUM FOR SECRETARY, GENERAL STAFF, WAR DEPARTMENT

Subject: Identification of aircraft, Iceland.

Inclosed is draft of reply to the Chief of Naval Operations.

For the COMMANDING GENERAL:

CLYDE L. HISSONG
Lt. Col., A.G.D.,
Adjutant General.

2 Incls.
#1-WD Disp. Slip
w/ltr 12/7/41 fr
Navy Dept-Op-20 C/now
(SC) A6-3 Serial 0183920
#2-draft of reply to
above ltr.

DECLASSIFIED

SECRET

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET

DECLASSIFIED

NAVY DEPARTMENT

Office of the Chief of Naval Operations

WASHINGTON

Dec. 7, 1941

Op-20-V/mcw
(SC) A6-9
Serial 0183920

SECRET

From: Chief of Naval Operations.
To: Chief of Staff, United States Army.

SUBJECT: Identification of Aircraft, Iceland.

Reference: (a) Chief of Staff secret ltr. 352.1 - Indigo, Aug. 11-1941) addressed to Commanding General, U.S. Army Forces in Iceland.
(b) Opnav secret serial 0133712 of Nov. 18, 1941.
(c) Cinclant Secret serial 00238 of Nov. 24, 1941.

1. Reference (a) deals with procedure for identification and control of aircraft in Iceland, which is to be established by the Commanding General, U.S. Army Forces, Iceland. Copy of reference (a) furnished this office was forwarded by reference (b) to the Commander-in-Chief, U.S. Atlantic Fleet, together with the request that he ensure effective identification of naval aircraft approaching Iceland.

2. By reference (c), the Commander-in-Chief, U.S. Atlantic Fleet states that adequate identification of both British and United States Naval Aircraft has already been established and operating in the Iceland area. It is emphasized that the establishment of an additional system, unless based upon and building the current identification signals, would serve to complicate a situation already complex due to the necessity of using partial U.S. and partial British systems.

3. It is therefore requested that the system to be established in Iceland be based upon the signals currently in use by British and U.S. Naval Aircraft in that area.

/s/ H. R. STARK

Copy to: Cinclant

SECRET

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

DECLASSIFIED

DECLASSIFIED
DOD Dir.
By [illegible] NLC, Date 10-17-76

AAF/A-4
309/end.

DEC 23 1941

452.9 (H)

MEMORANDUM FOR THE ASSISTANT CHIEF OF STAFF, G-4:

Subject: Standardization of Electrical and Pyrotechnical Recognition Devices.

1. In accordance with recommendations contained in Item No. 309 approved by the Joint Aircraft Committee on October 30, 1941, British signaling devices and cartridges are approved for standardization. However, it was recommended that until such time as production facilities were sufficient to meet all requirements, present standard Air Corps equipment was to continue in use with the proviso that signal pyrotechnical equivalent to the colors now in use by the British were to be provided by the Ordnance Department for the present standard 25 pyrotechnic pistol.

2. It is therefore requested that the Chief of Ordnance be requested to take immediate steps to procure for the present standard 25 pistol cartridge equivalent to British cartridge, namely:

Cartridges; 2 star;
Red-white
Red-green
Green-yellow
Cartridges; 4 star;
Red-red
White-yellow
Green-green
Cartridges; 1 star;
Red
Yellow
Green

3. Equal quantities of each type should be procured and a quantity sufficient to cover the time interval that will elapse until the new equipment becomes available.

HEADQUARTERS ARMY AIR FORCES - COORDINATION											
Chief of Staff	Sec'y Air Staff	A.A.G.	A-1	A-2	A-3	A-4	A-WPD	A-Insp.	Budget	Communications	

Hq Army Air Forces
24 341
AAG Received

AF-39

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

DECLASSIFIED

4. Copy of letter from the Adjutant General to the Chief of Ordnance requesting that the necessary action be taken to carry out the agreement reached in Item No. 248, as approved, is inclosed.

For the Chief of the Air Staff:

Incl:
As inc 1st to c/Ord.
11/12/41.

[redacted],
Colonel, Air Corps,
Assistant Chief of the Air Staff, A-4.

HEADQUARTERS ARMY AIR FORCES - COORDINATION											
Chief of Staff	Deputy Air Staff	A.A.G.	A-1	A-2	A-3	A-4	A-WPD	A-Insp.	Budget	Statistics	
					- 8 -						

AAF-39

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
NND No.
By NARA, Date 12/31/75

AG 413.77 (11-19-41)MS

DECLASSIFIED

November 19, 1941

SUBJECT: Joint Aircraft Committee Case No. 948, Standardization of Electrical and Pyrotechnical Recognition Devices.

TO: Chief of Ordnance

1. It is desired that you take the necessary action to carry out the agreements reached by the Army, Navy, and the British Air Commission, as outlined in Case No. 948, "Standardization of Electrical and Pyrotechnical Recognition Devices."

2. Copy No. 948 was approved at a meeting of the Joint Aircraft Committee on October 20, 1941. A copy of that portion of the minutes of the meeting which pertains to the subject is inclosed.

By order of the Secretary of War:

/s/

EARL MCFARLAND

Adjutant General.

1 Incl.
Excerpt from Minutes of Meeting of the Joint Aircraft Committee, 10-20-41, w/1 incl., Case No. 948, Copy No. 38.

CONFIDENTIAL DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

HEADQUARTERS ARMY AIR FORCES

DECLASSIFIED

ROUTING AND RECORD SHEET

DECLASSIFIED
[illegible]

File No.

Note.--A line will be drawn across sheet after each comment.

Tally No. AAF

SUBJECT: Signal System.

NO.	FROM	TO	DATE	COMMENTS
1	AAF A-2	Ch/AS	1941 12-21	AAF/A-2 MPE/af 1. The following message was telephoned from G-2,GHQ, at 10:25, December 21: "From C.G.,C.D.C., Quarry Heights, C.Z., 3:54 p.m., Dec. 20: Publication on key signal system on identification and recognition of naval ships, U. S. and British, issued to all units who have contact with Navy. Signed Andrews." M.F.S. M.P.E. Ch/A-2

DECLASSIFIED

(Do not use reverse side) S-2071, AG, Rev. 8/14/41

Page No.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET

DECLASSIFIED BY AUTHORITY OF A. G. OF [illegible] WPD
DECLASSIFIED
GOO Rec. ..... Date .....
By NARS, Date 10-12-76

December 28, 1941.

MEMORANDUM FOR THE ADJUTANT GENERAL:

Subject: Aircraft Attacks on Friendly and Neutral Ships.

The Secretary of War directs that a secret priority message as follows, be dispatched to the Commanding General, Northeast Defense Command, and the Commanding General, Southeast Defense Command:

THE FOLLOWING PARAPHRASED NAVAL MESSAGE IS FURNISHED FOR NECESSARY ACTION QUOTE TO PREVENT ATTACKS ON FRIENDLY AND NEUTRAL SHIPS, IT IS ESSENTIAL THAT ARMY AND NAVY AIRCRAFT OPERATE IN SUCH A MANNER AS WILL EFFECTIVELY ACCOMPLISH THIS PURPOSE EXCEPT IN AREAS WHERE UNDISTINGUISHED AIR ATTACK ON ENEMY SHIPPING HAS BEEN SPECIFICALLY ORDERED MERCHANT SHIPS SHOULD NOT BE ATTACKED BY AIRCRAFT UNTIL THEIR NATION MARKINGS HAVE BEEN DETERMINED, THEIR POSITION AND ACTIVITIES REPORTED TO AND SPECIFIC ORDERS RECEIVED FROM THE APPROPRIATE COMMANDER AFLOAT OR ASHORE PERIOD EXCEPT IN AREAS WHERE ENEMY FORCES ARE KNOWN BEYOND DOUBT KNOWN TO BE OPERATING COMBATANT SURFACE VESSELS SHOULD NOT BE ATTACKED UNLESS POSITIVE IDENTIFICATION OF CHARACTER AS ARMED ENEMY SHIPS HAS BEEN MADE PERIOD SUBMARINES OF FLEETS TASK FORCES AND NAVAL COASTAL FRONTIERS ARE DIRECTED TO ENTER

SECRET DECLASSIFIED
Extra Copy

CM [illegible] CAAF. A-1 1/31
Auth: GH 452.9 (12)

SECRET

DECLASSIFIED

[illegible] IN CONFORMANCE WITH THE FOREGOING AMPLIFIED TO MEET LOCAL CONDITIONS WITHIN THEIR RESPECTIVE PERIOD SINCE POSITIVE IDENTIFICATION OF SUBMARINES IS IMPRACTICABLE IT IS MANDATORY THAT INFORMATION CONCERNING FRIENDLY SUBMARINES BE THOROUGHLY DISSEMINATED TO ALL NAVAL AND AIR FORCES CONCERNED PERIOD SIMILAR INSTRUCTIONS ARE BEING ISSUED BY THE CHIEF OF STAFF UNITED STATES ARMY END QUOTE END

L. T. GEROW,
Brigadier General,
Acting Assistant Chief of Staff.

SECRET

DECLASSIFIED

-2-

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

SECRET

DECLASSIFIED

AAF/1-2
7/Comm
(War 1/12/42)

SUBJECT: Identification Requirements
Panama Canal Department.

1st Ind.

War Department, Headquarters Army Air Forces, Washington, D. C.
January 14, 1942. The Chief Signal Officer, Washington, D.C.

1. With reference to paragraphs 2 and 3, basic letter, the following information is submitted:

a. The U.S. Navy and Army have agreed to adopt in principle the British system of recognition, routing, and identification of aircraft. This is published in a document known as "Routing, Recognition, and Identification of Aircraft (RRIA)."

b. Necessary instructions have been issued to all commanders to effect the recognition procedure as laid down in RRIA. The necessary tables of pyro-technics and flashing light signals have either been distributed direct or instructions issued to prepare them from the nearest Naval unit.

c. The Assistant Chief of the Air Staff, A-2 has been directed to prepare maps and instructions necessary for routing of aircraft over U.S. areas or bases.

d. The subject of identification which differs from recognition in that it pertains to aircraft outside visual range is being considered by the Joint Aircraft Committee. The following recommendations have been submitted to this Committee for consideration:

"1. Immediate standardization of the British Mark III system as the universal identification and recognition system for the United States Army, United States Navy and the British.

"2. Continue development and production of the American system to secure an early system for ships now exclusively American and a new universal system when and if the British system becomes compromised.

"3. Continue where necessary, installations of modified British IFF Mark II sets in Army aircraft until the British Mark III system is available."

18 1942

AAG Received

Dispatched

JAN 24 1942

The Chief of the Army Air Forces:

AAG	HEADQUARTERS ARMY AIR FORCES - COORDINATION										
Chief of Staff	Air Staff	A.A.F.	A-1	[illegible]	A-2	A-4	A- [illegible]	A Insp.	Budget	Pictures	
							JOHN B. COOLEY, Lieutenant Colonel, A.G.D., Assistant Air Adjutant General.				

SECRET

DECLASSIFIED

Auth: [illegible]

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
NND
By NARA, Date 12/31/01

~~SECRET~~ DECLASSIFIED

Copy
By authority of the
Chief Signal Officer
12/18/41 MS

Office of the Chief Signal Officer
Washington

December 14, 1941

Subject: Conference on Communications Requirements Panama Canal Department.

To: Chief of the Army Air Forces.

1. Attached hereto is a digest of the proceedings of a conference between Assistant Secretary of War Lovett and Assistant Secretary of Navy Bullitt, with reference to immediate communication needs in the Panama Canal Department, which was furnished this office by Mr. Lovett for action. There is also attached copy of the preliminary report thereon made on December 13, 1941, to the Assistant Secretary of War by the Acting Chief Signal Officer.

2. Attention is invited to paragraphs 3 and 7 of the report referred to above (which have reference to paragraphs 3 and 6 respectively of the digest) as a matter coming under the jurisdiction of the Chief of the Army Air Forces.

3. In order that a final report may be made to the Assistant Secretary of War, it is recommended that this office be advised of the action taken in connection with the matter of placing in effect a standard recognition system.

/s/ Roger B. Colton
Roger B. Colton,
Colonel, Signal Corps,
Acting Chief Signal Officer.

3 Inclosures.

~~SECRET~~ DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

COPY

~~SECRET~~

DECLASSIFIED

SITUATION

Mr. Bofley, Assistant Secretary of War, reported that at a conference with Assistant Secretary of the Navy Ribbetoe the following report concerning the Panama contamination was made immediate attention.

1. The Navy Trans-Isthmian teletype is unreliable and telephone practically impossible, especially during rains.

2. The Army Interceptor Control Center at Albrook Field often loses radio contact with its own pursuit planes after they cross to the Atlantic side. The Army Trans-Isthmian cable which will control the advanced radio station is not yet installed.

3. No recognition signals are in effect for aircraft. The local Interceptor commander expressed grave concern over the probability that pursuit ships would shoot down Navy planes if they arrived unexpectedly, because no recognition system was in effect.

4. There are blind spots due to mountains for the SCR-271's, two of which are installed, one on the Pacific and one on the Atlantic. No satisfactory calibration has been accomplished owing to continuous operation since installation. The Army fears a serious breakdown due to continuous operations, as there are no major spares. Three other sets are being installed.

5. Little experience has been gained on the SCR-268 sets and only about three-quarters of the allowance has been delivered. The personnel is not well trained.

6. Adequate and reliable communication channels between the Naval Air Stations, Naval District Headquarters, and Army Interceptor Control and Filter Room, main Army fields and other primary naval units are not provided and the present facilities are utterly inadequate.

7. A joint plan must be adopted for definite communications for Army and Navy action.

8. Put in effect the standard aircraft recognition system and practice it.

Encl. # 1

DECLASSIFIED

~~SECRET~~

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED DOD DIR. 5200.9 Sec. 4 Par. A-2 or B-2 DECLASSIFIED

~~SECRET~~ COPY

December 16, 1941.

MEMORANDUM TO: Mr. Mc Cloy,
Assistant Secretary of War.

The situation concerning communications in Panama covers other activities than those of the Signal Corps, however, these services have been contacted in part and the following report is submitted:

1. Originally the Panama Canal Zone Cable, under the jurisdiction of the Canal Zone, supplied the communications referred to as "The Navy Trans-Isthmian Teletype", and was known to be unreliable, especially during rain. Now because of the war it is under Army jurisdiction but still is under the direction of the Governor of the Panama Canal. The project for a complete Army Trans-Isthmian cable system has been urgently recommended by the Signal Corps for more than 15 years.

2. The Army Trans-Isthmian Cable is proceeding according to schedule and the present lay is to be furnished by all from the 276th Construction Company which has been shipped to Panama and is now working on the project with all its equipment for the purpose of constructing these telephone lines. When this cable link is supplied the Albrook Radio Station can be controlled from Albrook Field and contact with pursuit ships can be maintained.

3. The difficulty of recognition signals insofar as Army and Navy are concerned results in the fact that the Navy have adopted the British recognition signals while the Army are maintaining their own. This matter will be taken up with the Air Staff.

4. Ten trunk loads of spare parts were furnished for the SCR 271 in addition to spare receivers and oscilloscopes. Additional spare parts are being shipped on a transport due to leave New Orleans December 20. A radiogram was dispatched suggesting that radio requisitions be submitted to cover needs of spare parts for these sets. Scheduled to leave December 20, are 10 officers, 220 men and 4 SCR 270's which is the mobile set corresponding to the SCR 271.

5. The Coast Artillery has since February operated a training school at Fort Monroe for officers and enlisted men of the Coast Artillery in connection with the operation and maintenance of the radio set SCR 268. Some officers and men from this school are now in Panama. The Chief of Coast Artillery states that intensive school training has been initiated in Panama.

Incl. # 2

~~SECRET~~ DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET DECLASSIFIED

6. The matter of Joint Army and Navy radio and wire communication is covered by Section 2 Joint Action Army and Navy. The deficiencies requested will be brought to the attention of the War Department General Staff.

7. The reconnaissance system is a matter for Air Staff action and will be brought to the attention of the War Department Air Staff.

8. Reference to your directions the following action has been taken:

a. General Olmstead was contacted by telephone at Puerto Rico at 8:30 P.M. this date, but as he is not returning to Panama the substance of this report was communicated to the Signal Officer, Caribbean Defense Command by radio.

b. Colonel Spitler of the Operations Branch contacted Admiral Noyes in reference to the above matters. Admiral Noyes is already familiar with the contents of this report and has agreed to coordination of the communication matters with the Signal Corps.

Further report will be made as action by the War Department General Staff, The Air Staff, the Coast Artillery and the Navy Department is effected.

Roger B. Colton,
Colonel, Signal Corps,
Acting Chief, Signal Officer

SECRET DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

AAF/Comm

~~SECRET~~ DECLASSIFIED

DECLASSIFIED DOD Dir. 5 Nov. 5 and letter 1954 By Chief, Records Br. Date 10-11-74

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

January 6, 1942

MEMORANDUM FOR THE ASSISTANT CHIEF OF STAFF, A-2
(Attention: Colonel T. J. Koenig)

Subject: Conference on Communications Requirements Panama Canal Departments

1. Reference Paragraphs two and three, of attached letter from the Chief Signal Officer to Chief of the Army Air Forces, the following information is submitted.

a. The U. S. Navy and Army have agreed to adopt in principle the British system of recognition, routing, and identification of aircraft. This is published in a document known as "Routing, Recognition, and Identification of Aircraft (SD158)."

b. Necessary instructions have been issued to all commanders to effect the recognition procedure as laid down in SD158. The necessary tables of pyro-technics and flashing light signals have either been distributed direct or instructions issued to procure them from the nearest Naval unit.

c. In order to prepare the necessary Maps and instructions for routing of aircraft over U. S. areas or bases, request has been made on A-2 that A-3 be directed to prepare maps and instructions necessary.

d. The subject of identification which differs from recognition in that it pertains to aircraft outside visual range is being considered by the Joint Aircraft Committee. The following recommendations have been submitted to this Committee for consideration.

"1. Immediate standardization of the British Mark III system as the Universal identification and recognition system for the United States Army, United States Navy and the British.

~~SECRET~~ DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

~~SECRET~~ DECLASSIFIED AAF/Comm

2. Continue development and production of the American system to assure an early system for areas now exclusively American and a new universal system when and if the British system becomes compromised.

3. Continue where necessary, installations of modified British IFF Mark II sets in Army Aircraft until new British Mark III system is available."

For the Chief of the Army Air Forces:

A. W. MARRINER
Lt. Colonel, Air Corps
Chief, Communications Section

~~SECRET~~ DECLASSIFIED

Air 12 4072.9

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

~~SECRET~~

DECLASSIFIED DECLASSIFIED

December 16, 1941.

Conference on Communications Requirements,
Panama Canal Department.

Chief of the Army Air Forces.

1. Attached hereto is a digest of the proceedings of a conference between Assistant Secretary of the Navy and Assistant Secretary of War Bisiker, with reference to immediate communication needs in the Panama Canal Department, which was furnished this office by Mr. Bisiker for action. There is also attached copy of the preliminary report thereon made on December 10, 1941, to the Assistant Secretary of War by the Acting Chief Signal Officer.

2. Attention is invited to paragraphs 2 and 7 of the report pertinent to which (which have reference to paragraphs 2 and 3 respectively of the digest) as a matter coming under the jurisdiction of the Chief of the Army Air Forces.

3. In order that a final report may be made to the Assistant Secretary of War, it is recommended that this office be advised of the action taken in connection with the matter of placing in effect a standard Navy-Army system.

Roger B. Colton,
Colonel, Signal Corps,
Acting Chief Signal Officer.

2 Inclosures.

DECLASSIFIED

~~SECRET~~

A-539

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

December 16, 1941.

Conference on Communications Requirements
Panama Canal Department.

Chief of the Army Air Forces.

1. Attached hereto is a digest of the proceedings of a conference between Assistant Secretary of War McCloy and Assistant Secretary of Navy Bullitt, with reference to immediate communication needs in the Panama Canal Department, which was furnished this office by Mr. McCloy for action. There is also attached copy of the preliminary report thereon made on December 13, 1941, to the Assistant Secretary of War by the Acting Chief Signal Officer.

2. Attention is invited to paragraphs 3 and 7 of the report referred to above (which have reference to paragraphs 3 and 8 respectively of the digest) as a matter coming under the jurisdiction of the Chief of the Army Air Forces.

3. In order that a final report may be made to the Assistant Secretary of War, it is recommended that this office be advised of the action taken in connection with the matter of placing in effect a standard recognition system.

Roger B. Colton,
Colonel, Signal Corps,
Acting Chief Signal Officer.

2 Inclosures

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD 5...
By ALW/PRC Date 10-18-76

~~SECRET~~ DECLASSIFIED

SITUATION

Mr. Bradley, Assistant Secretary of War, reported that at a conference with Assistant Secretary of the Navy Bilstes that the following report concerning the Panama communications needs immediate attention:

1. The Navy Trans-Isthmian teletype is unreliable and telephone practically impossible especially during rains.

2. The Army Interceptor Control Center at Albrook Field often loses radio contact with its own night pursuit planes after they cross to the Atlantic side. The Army Trans-Isthmian cable which will control the advanced radio station is not yet installed.

3. No recognition signals are in effect for aircraft. The local interceptor commander expressed grave concern over the probability that pursuit ships would shoot down Navy planes if they arrived unexpectedly because no recognition system was in effect.

4. There are blind spots due to mountains for the SCR-271's, two of which are installed, one on the Pacific and one on the Atlantic. No satisfactory calibration has been accomplished owing to continuous operation since installation. The Army fears a serious breakdown due to continuous operations, as there are no major spares. Three other sets are being installed.

5. Little experience has been gained on the SCR-268 sets and only about three-quarters of the allowance has been delivered. The personnel is not well trained.

6. Adequate and reliable communication channels between the Naval Air Station, Naval District Headquarters, and Army Interceptor Control and Filter Room, main Army fields and other primary naval units are not provided and the present facilities are utterly inadequate.

7. A joint plan must be adopted for definite communications for Army and Navy action.

8. Put in effect the standard aircraft recognition system and practice it.

~~SECRET~~ DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

COPY

~~SECRET~~

DECLASSIFIED
DOD 5200
By NARS, Date 10-16-76

~~SECRET~~

DECLASSIFIED

December 13, 1941

MEMORANDUM TO: Mr. McCloy,
Assistant Secretary of War.

The situation concerning communications in Panama covers other activities than those of the Signal Corps, however, these services have been contacted in part and the following report is submitted:

1. Originally the Panama Canal Zone Cable, under the jurisdiction of the Canal Zone, supplied the communications referred to as "The Navy Trans-Isthmian Teletype", and was known to be unreliable, especially during rain. Now because of the war iy is under Army jurisdiction but still is under the direction of the Governor of the Panama Canal. The project for a complete Army Trans-Isthmian cable system has been urgently recommended by the Signal Corps for more than 12 years.

2. The Army Trans-Isthmian Cable is proceeding according to schedule and the present gap is to be furnished by aid from the 27th Construction Company which has been shipped to Panama and is now working on the project with all its equipment for the purpose of constructing these telephone lines. When this cable link is supplied the Advance Radio Station can be controlled from Albrook Field and contact with pursuit ships can be maintained.

3. The difficulty of recognition signals insofar as Army and Navy are concerned results in the fact that the Navy have adopted the British recognition signals while the Army are maintaining their own. This matter will be taken up with the Air Staff.

4. Ten trunk loads of spare parts were furnished for the SCR-271 in addition to spare receivers and oscilliscopes. Additional spare parts are being shipped on a transport due to leave New Orleans December 20. A radiogram was dispatched suggesting that radio requisitions be submitted to cover needs of spare parts for these sets. Scheduled to leave December 20, are 10 officer, 220 men and 4 SCR 270's which is the mobile set corresponding to the SCR 271.

5. The Coast Artillery has since February operated a training school at Fort Monroe for officers ad enlisted men of the Coast Artillery in connection with the operation and maintenance of the radio set SCR 268. Some officer and men from this school are now in Panama. The Chief of Coast Artillery states that intensive school training has been initiated in Panama.

DECLASSIFIED

~~SECRET~~

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

6. The matter of Joint Army and Navy radio and wire communication is covered by Section 2 Joint Action Army and Navy. The deficiencies reported will be brought to the attention of the War Department General Staff.

7. The recognition system is a matter for Air Staff action and will be brought to the attention of the War Department Air Staff.

8. Reference to your directions the following action has been taken:

a. General Olmstead was contacted by telephone at Puerto Rico at 3:50 P. M. this date, but as he is not returning to Panama the substance of this report was communicated to the Signal Officer, Caribbean Defense Command by radio.

b. Colonel Sadtler of the Operations Branch contacted Admiral Noyes in reference to the above matters. Admiral Noyes is already familiar with the contents of this report and has agreed to coordination of the communication matters with the Signal Corps.

Further report will be made as action by the War Department General Staff, the Air Staff, the Coast Artillery and the Navy Department is effected.

Roger B. Colton,
Colonel, Signal Corps,
Acting Chief Signal Officer.

SECRET DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

AGE IS DECLASSIFIED IAW E

WAR DEPARTMENT
Headquarters Army Air Forces
Office of the Air Adjutant General

Date Aff 1 7 1941

TO:

___Chief of the Army Air Forces.
___C.G., Air Force Combat Command.
___Chief of the Air Corps.
___Chief of the Air Staff.
___Secretary of the Air Staff.
___A-1 Division.
___A-2 Division.
✓ A-3 Division.
___A-4 Division.
___Air War Plans Division.
___Budget Section.
___Statistics Section.
___Air Inspector
___A.F. Files

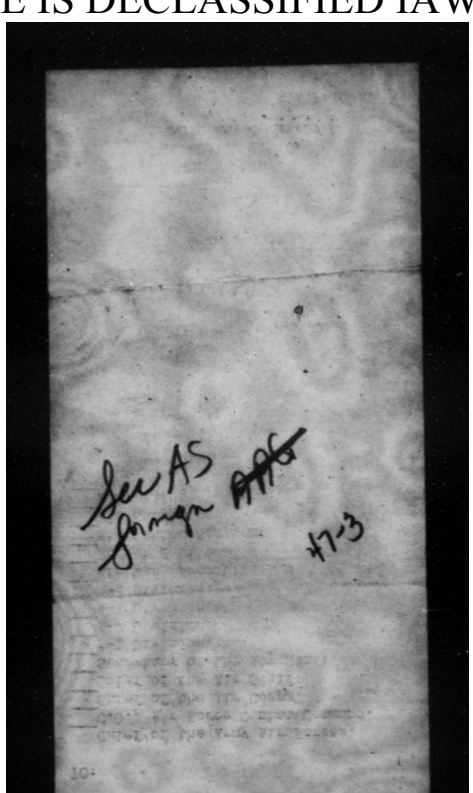
Inviting attention to notation of Gen. Arnold.

WM. W. DICK,
Lt. Col., A.G.C.
Air Adjutant General.

A.A.F-10-A.
12/18

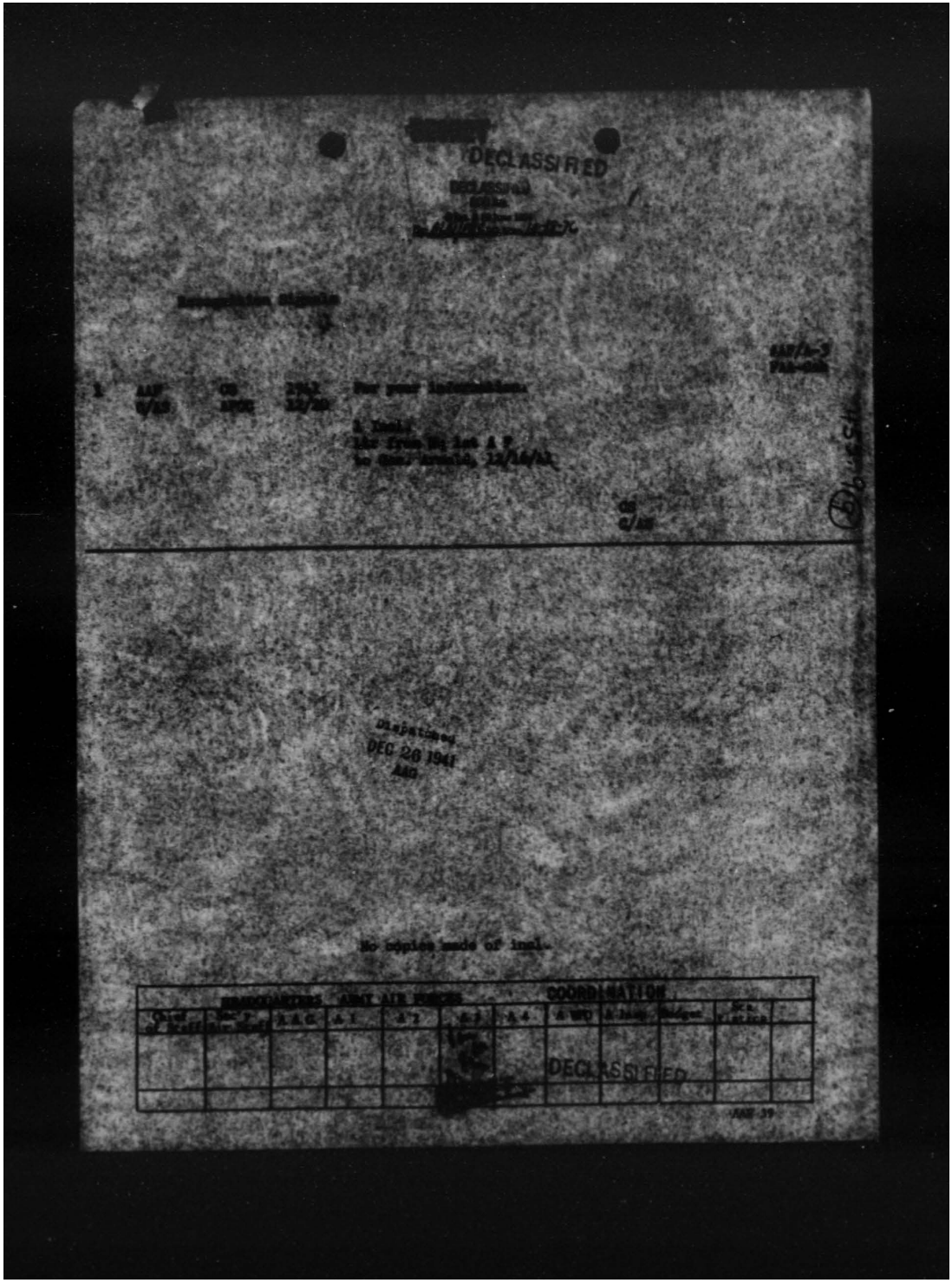
AGE IS DECLASSIFIED IAW E

AGE IS DECLASSIFIED IAW E



AGE IS DECLASSIFIED IAW E

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

AGE IS DECLASSIFIED IAW E

WAR DEPARTMENT
HEADQUARTERS ARMY AIR FORCES
Washington

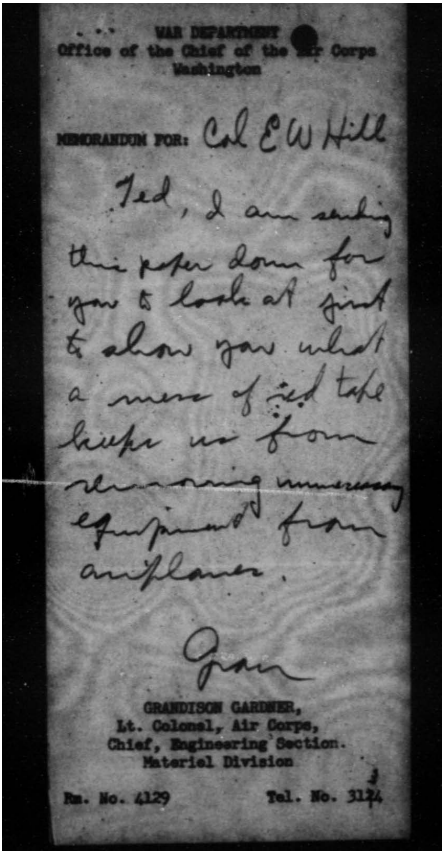
MEMORANDUM for:

Col Schneider, A-4 Sec.
It is not believed that "red tape" should deter the Air Staff in its efforts to conserve materials, work and consequent expense however annoying it may prove.

EDMUND W. HILL,
Colonel, Air Corps,
The Air Inspector.
AAF-98

AGE IS DECLASSIFIED IAW E

GE IS DECLASSIFIED IAW E



WAR DEPARTMENT
Office of the Chief of the Air Corps
Washington

MEMORANDUM FOR: Col E W Hill

Ted, I am sending this paper down for you to look at first to show you what a mess of red tape keeps us from removing unnecessary equipment from airplanes.

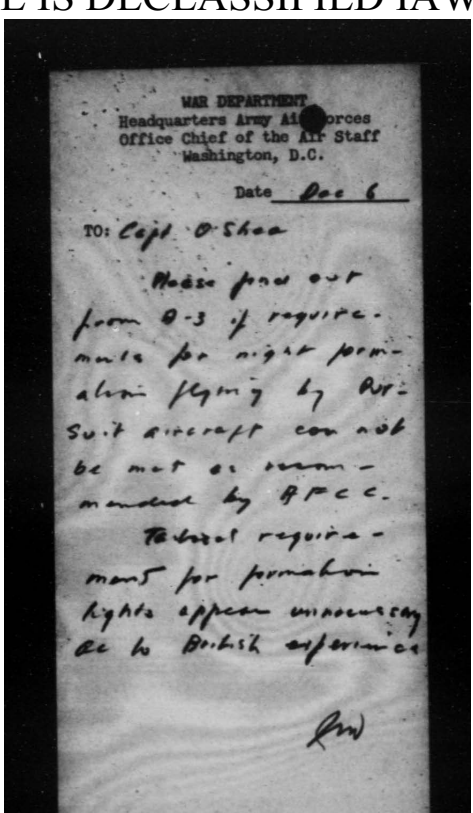
Jran

GRANDISON GARDNER,
Lt. Colonel, Air Corps,
Chief, Engineering Section.
Materiel Division

Rm. No. 4129 Tel. No. 3124

GE IS DECLASSIFIED IAW E

AGE IS DECLASSIFIED IAW E



WAR DEPARTMENT
Headquarters Army Air Forces
Office Chief of the Air Staff
Washington, D.C.

Date Dec 6

TO: Capt O'Shea

Please pass out from O-3 if requirements for night formation flying by Pursuit aircraft can not be met as recommended by AFCC.

Tactical requirements for formation lights appear unnecessary as to British experience

A-4 DIVISION

X-225-D, A.C.

AGE IS DECLASSIFIED IAW E

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

DECLASSIFIED
E.O. 12...
By ... Date 12-12-76

Subject: Formation Lights on Pursuit Type Airplanes.

H524 (8)

Dispatched
DEC 14 1941
AAG

No copies made by Ords

AAF/A-3

3 AAF Ord 12/13 1. A-3 Division recommends that formation lights for pursuit ... indicated and provision for installation of standard ... lights be made.

2. These changes must not delay delivery of production.

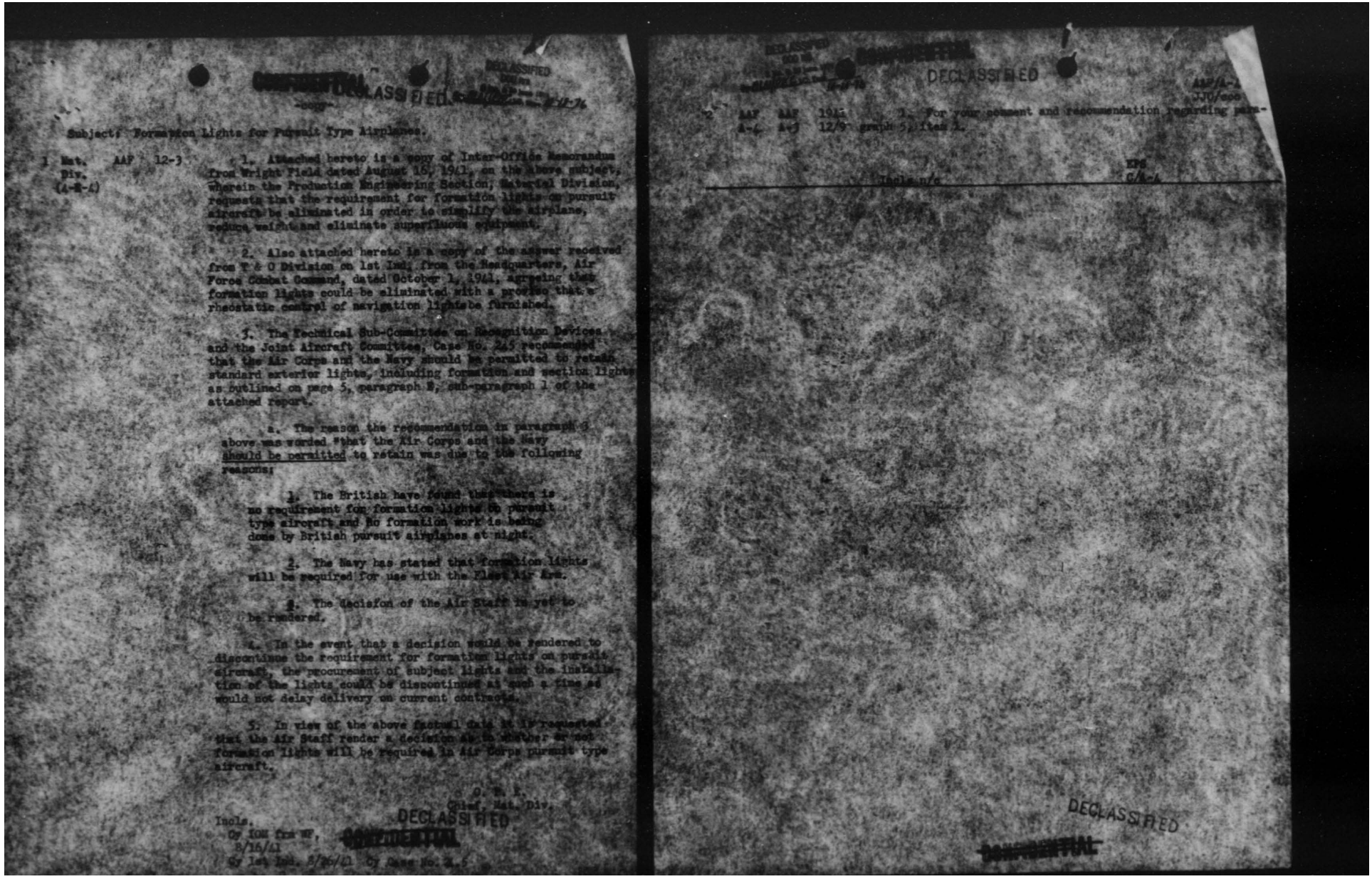
HEADQUARTERS ARMY AIR FORCES - COORDINATION											
Chief of Staff	Chief of Air Staff	A.A.G.	[illegible]	[illegible]	A-3	A-4	A-WPD	A-[illegible]	[illegible]	[illegible]	

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



-copy-

Subject: Formation Lights for Pursuit Type Airplanes.

1 Mat. Div. (4-R-4) AAF 12-3

1. Attached hereto is a copy of Inter-Office Memorandum from Wright Field dated August 16, 1941, on the above subject, wherein the Production Engineering Section, Material Division, requests that the requirement for formation lights on pursuit aircraft be eliminated in order to simplify the airplane, reduce weight and eliminate superfluous equipment.

2. Also attached hereto is a copy of the answer received from T & O Division on 1st Ind. from the Headquarters, Air Forces Combat Command, dated October 1, 1941, agreeing that formation lights could be eliminated with a proviso that a rheostatic control of navigation lights be furnished.

3. The Technical Sub-Committee on Recognition Devices and the Joint Aircraft Committee, Case No. 245 recommended that the Air Corps and the Navy should be permitted to retain standard exterior lights, including formation and section lights as outlined on page 5, paragraph B, sub-paragraph 1 of the attached report.

a. The reason the recommendation in paragraph 3 above was worded "that the Air Corps and the Navy should be permitted to retain was due to the following reasons:

1. The British have found that there is no requirement for formation lights on pursuit type aircraft and no formation work is being done by British pursuit airplanes at night.

2. The Navy has stated that formation lights will be required for use with the Fleet Air Arm.

3. The decision of the Air Staff is yet to be rendered.

4. In the event that a decision would be rendered to discontinue the requirement for formation lights on pursuit aircraft, the procurement of subject lights and the installation of the lights could be discontinued at such a time as would not delay delivery on current contracts.

5. In view of the above factual data it is requested that the Air Staff render a decision as to whether or not formation lights will be required in Air Corps pursuit type aircraft.

O. M. I.
Chief, Mat. Div.

Incls.
Cy 10M frm WF, 8/16/41
Cy 1st Ind. 9/26/41

DECLASSIFIED

DECLASSIFIED

2 AAF A-4 AAF A-4 1941 12/9

2. For your comment and recommendation regarding paragraph 5, item 2.

EPS
C/A-4

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

AAF/A-WPD
PGC/alm
12/10/41.

SECRET

DECLASSIFIED
DECLASSIFIED
DOD Dir.
5 Nov. & 20 June 1974
By RNJ/NARS, Date 10-15-76

DEC 12 1941

[redacted] for the Chief of Staff - [redacted]

Subject: Distribution of Radio Field Manuals SIG-33 and SIG-35.

1. Reference is made to the [redacted] dated December 6, 1941, regarding the above subject.

2. Further reference is made to the Paragraph 4 of the original copy of Memorandum from the Chief of Staff, U.S., dated November 26, 1941.

3. In view of the serious importance of placing this operating information in the hands of the forward operating Pursuit, it is suggested that the Commanding General, [redacted], be furnished the information that these manuals have not been delivered for the present shipment.

4. Three sets of these subject manuals are enclosed with shipments. It is suggested that the Commanding General, [redacted], be supplied with these for distribution when an opportunity to transmit itself.

5. It is considered highly probable that communication will after long delivery by airplane, whereas navigation will remain almost between the Philippines and the [redacted] for some [redacted]

For the Chief of the Army Air Forces:

EDWARD P. CURTIS,
Major, Air Corps,
Secretary of The Air Staff

3 [redacted]

HEAD[redacted] AIR FORCES - COORDINATION

Chief of Staff	Secy Air Staff	A-[redacted]	[redacted]	[redacted]	[redacted]	A- WPD	A. Insp.	Budget	Statistics	

Memo for O/C, Sec. II, 8/[redacted]
Subj: Aircraft Identification
Date, fr G/AAF.

AAF-30

SECRET DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

~~SECRET~~

DECLASSIFIED
DOD Dir. 5200.9 June 1974
NARS, Date 10-15-76

452.1 - GSG-G

November 26, 1941.

MEMORANDUM FOR CHIEF OF THE ARMY AIR FORCES.

Subject: Distribution of Basic Field Manuals Containing Aircraft Identification Data.

1. Reference is made to your memorandum of November 8, 1941 subject: "Aircraft Identification Data", which contains information concerning the inability of government agencies in Greenland to effect the delivery to outlying stations of Basic Field Manuals 30-31 and 30-35.

2. For your information this headquarters had directed the Commanding Officer U. S. Forces in Greenland to render assistance, within available means, to the Governor to complete the distribution of these manuals.

3. a. The following is a paraphrase of a radiogram dispatched by this headquarters to the Commanding Officer, U. S. Forces in Greenland on November 17, 1941:

"Information received from State Department indicates certain Field Manuals dealing with identification of aircraft are in hands of Governor Brun who reported September 19th that he was unable to deliver them to outlying stations. Request you contact Governor Brun to determine if manuals have been delivered to date and if not render all possible assistance in effecting delivery. Keep GSG informed of progress made."

b. The following is a paraphrase of a radiogram received from the Commanding Officer, Greenland on November 24, 1941:

"Information has been received from Governor Brun that the field manual referred to your radiogram 95 was distributed to the west coast stations north to include Holsteinsborg. Nine were distributed to east coast stations. The istuation of the eastern mail; delivery of the manuals to stations north of Holsteinsborg and to east coast stations improbable."

4. There are no practicable means, other than those now available to the Commanding Officer, U. S. Forces in Greenland, to effect additional distribution of these manuals at this time.

For the CHIEF OF STAFF:

J. V. BARNEY,
Major, A.G.D.,
Acting Adjutant General.

DECLASSIFIED

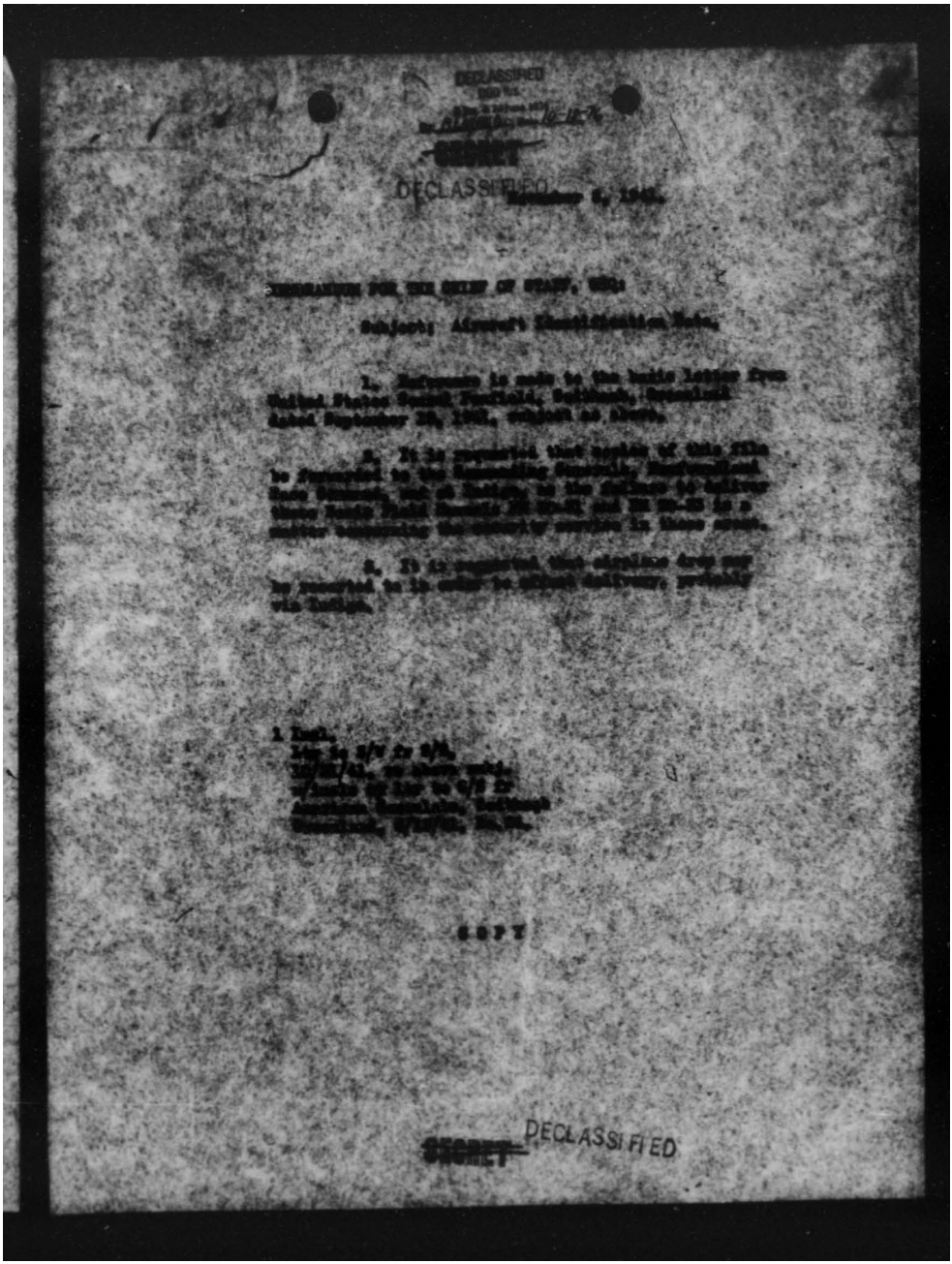
~~SECRET~~

SIY

AG 452.9 (5)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



DECLASSIFIED

SECRET

DECLASSIFIED

SECRET

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET

DECLASSIFIED
DECLASSIFIED
DOD Dir. 5 200.10 and 200 Series
By AU/ACSC, I.G. Date 10-16-96

DEC 1 2 1941

[redacted]

For the Chief of the Army Air Forces

EDWARD P. CURTIS,
Major, Air Corps,
Secretary of The Air Staff

[redacted]

DECLASSIFIED
AFHRA 04529 (5)

SECRET

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DECLASSIFIED
DOD DIR.

NOV 8 1941

For the Chief of the Army Air Forces

EDWARD P. CURTIS,
Major, Air Corps,
Secretary of the Air Staff

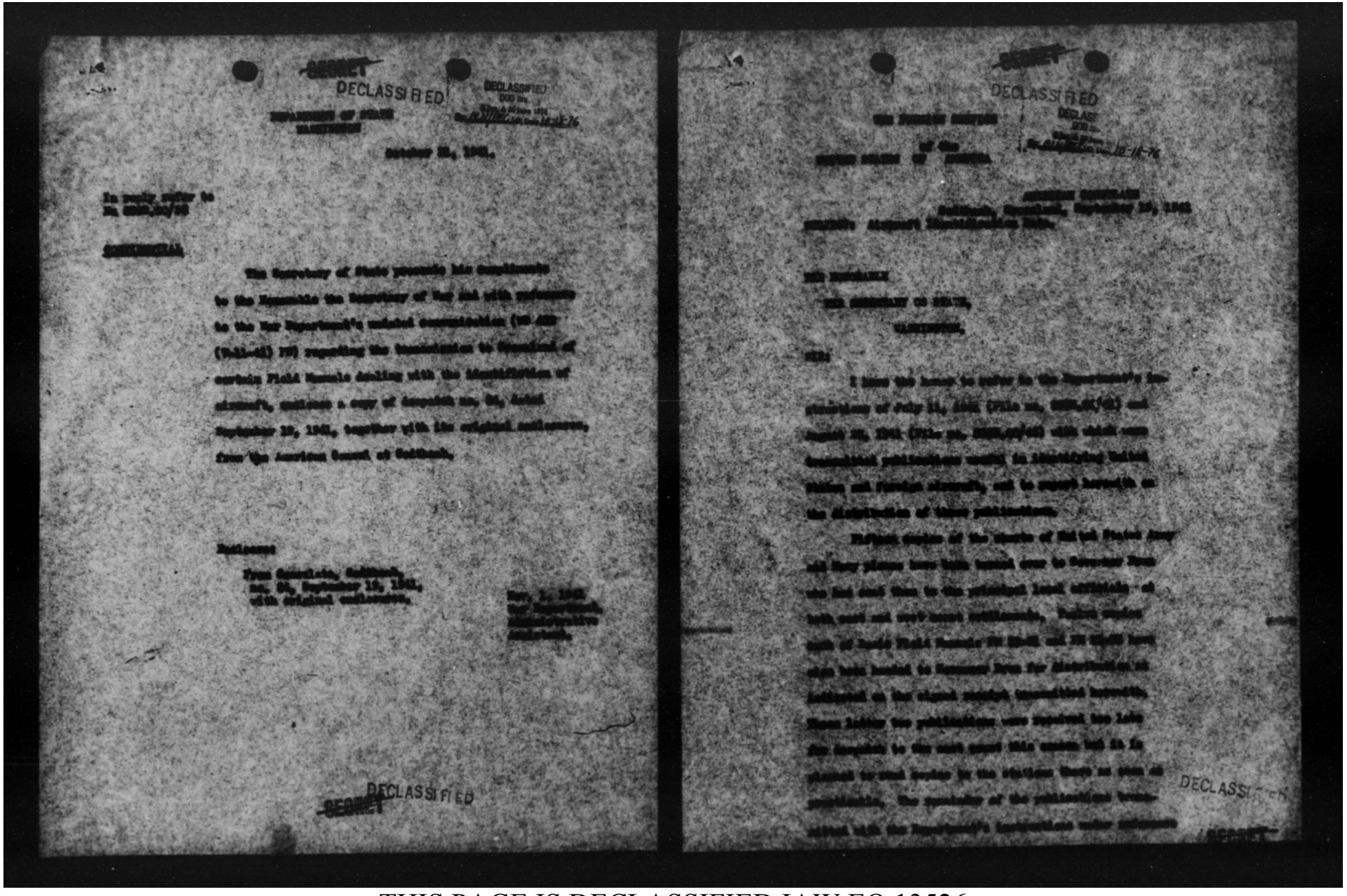
Dispatched
NOV 10 1941
AAG

HEADQUARTERS ARMY AIR FORCES - COORDINATION											
Chief of Staff	Asst Chief of Air Staff	A.A.G.	A-1	A-2	A-3	A-4	A-5	A-Comp.	Budget	Re-vision	

SECRET DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



SECRET

DECLASSIFIED

DECLASSIFIED
DOD Dir. 5200.9
Sept. 27, 1972
NLE-14-76

DEPARTMENT OF STATE
WASHINGTON

October 24, 1941.

In reply refer to
No. 800.20/98

CONFIDENTIAL

The Secretary of State presents his compliments to the Honorable the Secretary of War and with reference to the War Department's related communication (WD AGO (9-11-41) 77) regarding the transmission to Ambassador of certain Field Manuals dealing with the identification of aircraft, encloses a copy of despatch No. 84, dated September 19, 1941, together with its original enclosures, from the American Consul at Caldwell.

Enclosure:

From Caldwell, Caldwell,
No. 84, September 19, 1941,
with original enclosures.

Nov. 1, 1941
War Department
Intelligence
Division.

SECRET

DECLASSIFIED

SECRET

DECLASSIFIED

the American Consulate
of the
United States of America,

Caldwell, Wyoming, September 19, 1941.

Airport Identification Data.

The Honorable
The Secretary of State,
Washington, D.C.

Sir:

I have the honor to refer to the Department's two circulars of July 11, 1941 (File no. 800.20/97) and August 25, 1941 (File no. 800.20/97-A) with which were transmitted publications useful in identifying United States and foreign aircraft, and to report herewith on the distribution of these publications.

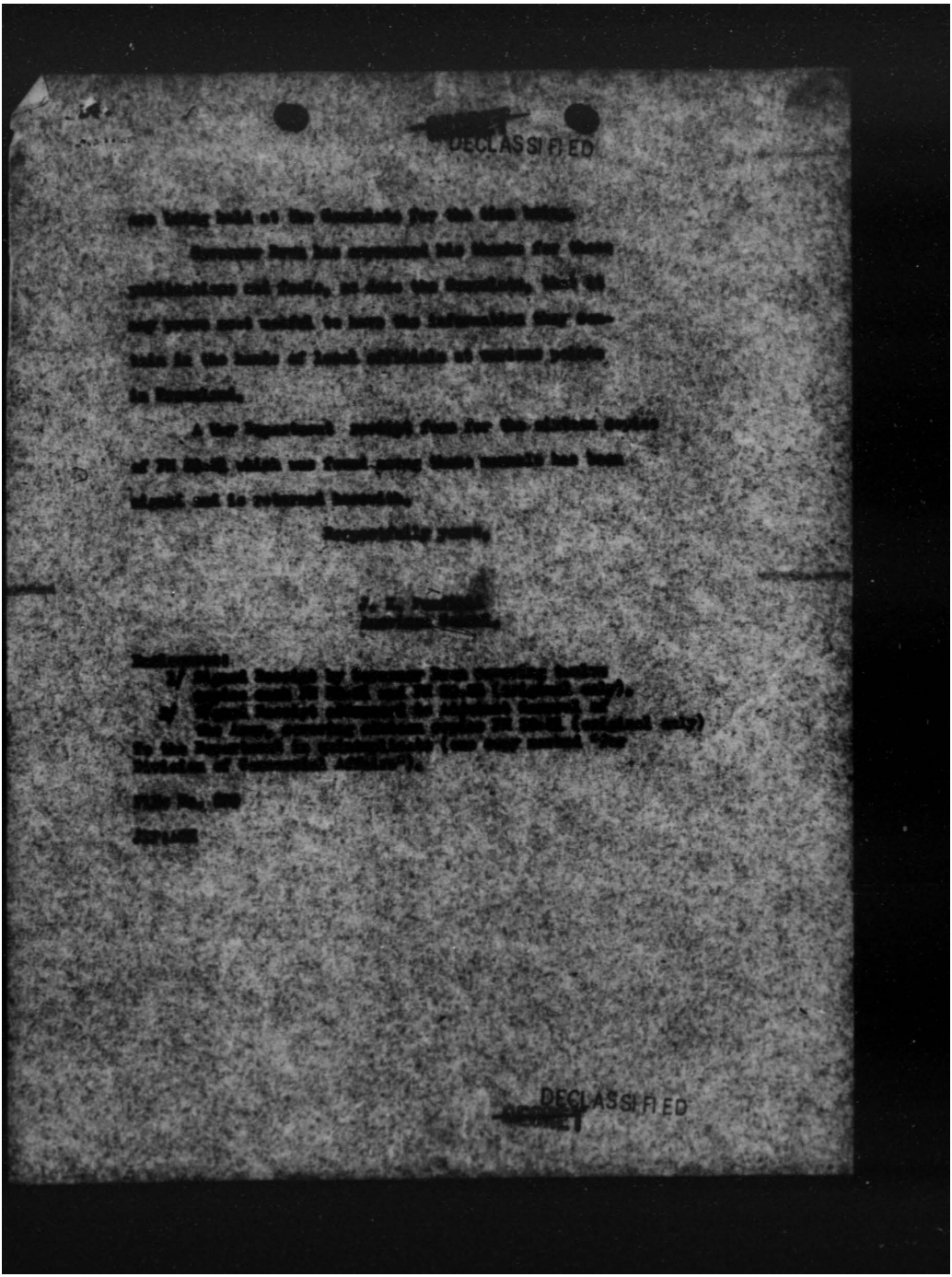
Eighty copies of the charts of United States Army and Navy planes were duly turned over to Governor Jones who has sent them to the principal local officials - of both civil and war-time communities. Twelve copies each of Aerial Photos No. 10-A and 10-B have also been handed to Governor Jones for distribution as indicated on the check receipt transmitted herewith. Where either two publications were required, two sets for despatch to the main depot this course has been planned to send copies to the stations there as soon as practicable. The remainder of the publications were retained with the Department's instructions under reference

DECLASSIFIED

SECRET

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

AGE IS DECLASSIFIED IAW E

WAR DEPARTMENT
Headquarters Army [redacted] Forces
Office of the Air Adjutant General
Washington, D.C.

Date _____

TO:

___ Chief of the Army Air Forces.
___ C.G., Air Force Combat Command.
___ Chief of the Air Corps.
___ Chief of the Air Staff.
___ Secretary of the Air Staff.
___ A-1 Division.
___ A-2 Division.
✓ A-3 Division. 3/22/41 ECK
___ A-4 Division.
✓ ~~Air War Plans Division.~~
___ Budget Section.
___ Statistics Section.
___ Air Inspector
___ A.F. Files

Information copy also sent to A-2, A-3, Gen. Arnold and Intel. Div.

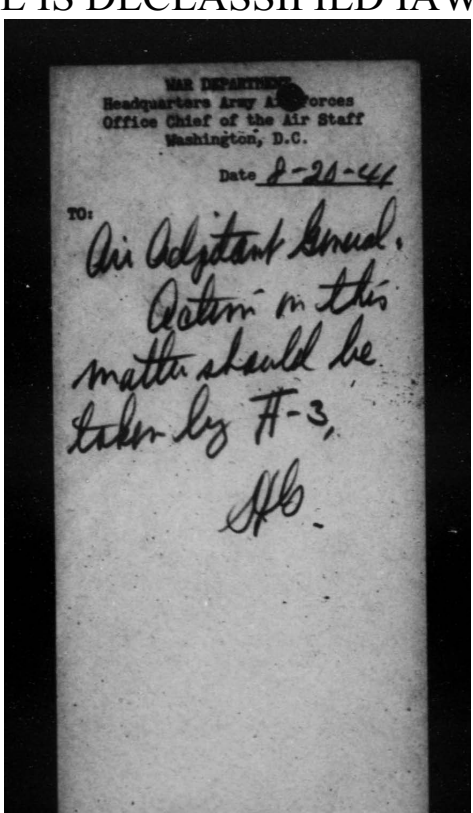
WMD

WM. W. DICK,
Lt. Col., A.G.O.
Air Adjutant General.

A.A.F-10-A.

AGE IS DECLASSIFIED IAW E

AGE IS DECLASSIFIED IAW E



WAR DEPARTMENT
Headquarters Army Air Forces
Office Chief of the Air Staff
Washington, D.C.

Date 8-21-44

TO:

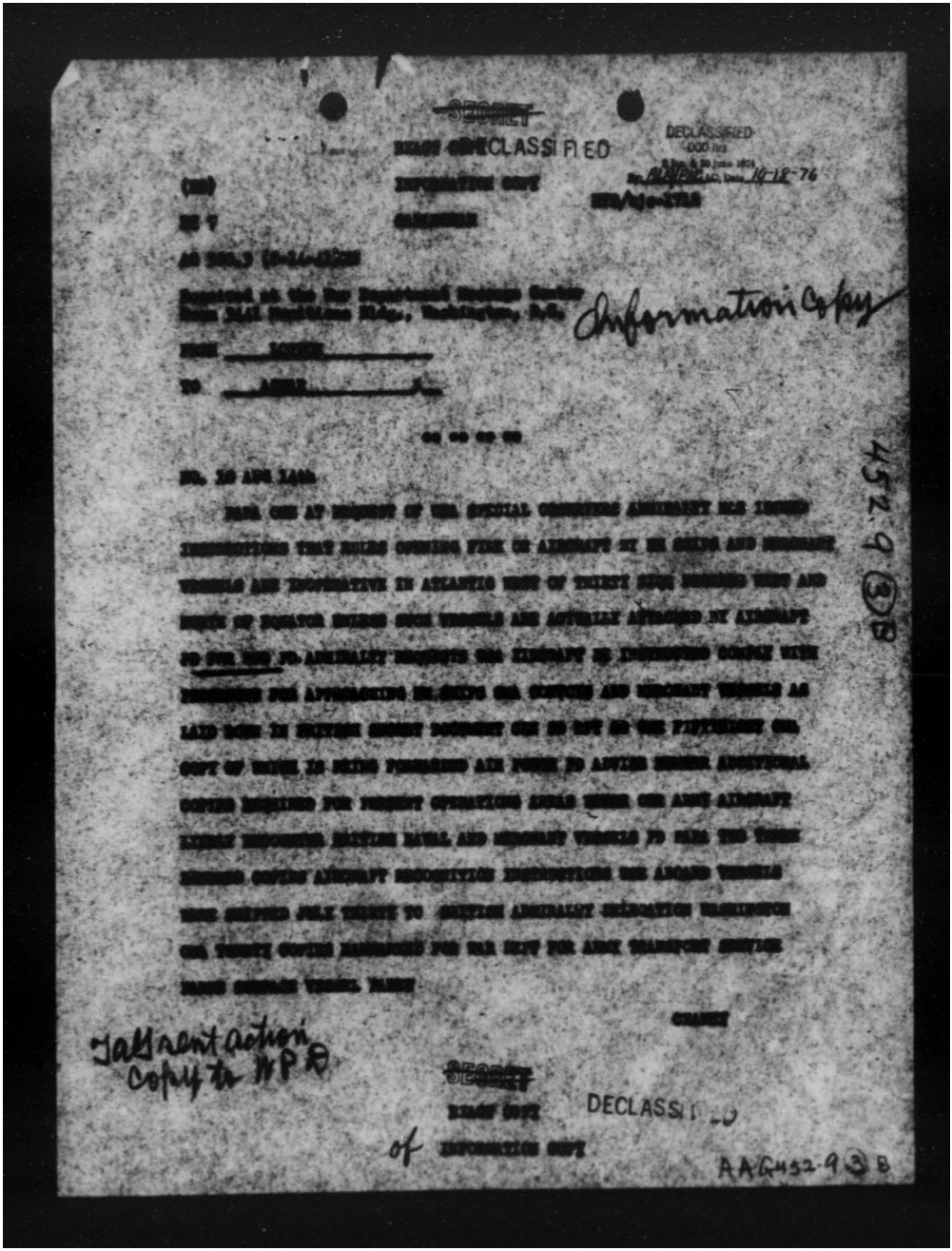
Air Adjutant General.
Action in this
matter should be
taken by A-3.

A-W.P. DIVISION

X-225-E, A.C.

AGE IS DECLASSIFIED IAW E

THIS PAGE IS DECLASSIFIED IAW EO 13526



SECRET

DECLASSIFIED
DOD Dir 5200.9 Sept. 27, 1979
By NARS, Date 10-18-76

(DD)
RR Y

INFORMATION COPY

RESTRICTED

AA 2nd/3 (9-24-42)CM

Received in the War Department Message Center
from [illegible], Washington, D.C.

Information Copy

FROM [illegible]

TO [illegible]

452-9 (3) B

WD SS SS SS

NR. 20 APR 1444

[illegible] AT REQUEST OF THE SPECIAL OPERATIONS EXECUTIVE HAS ISSUED INSTRUCTIONS THAT ALLIED COMBINED FIRE OR AIRCRAFT AT NO GREEK AND NEUTRAL VESSELS AND INSTRUCTIVE IN ATLANTIC WEST OF TWENTY FIVE DEGREES WEST AND NORTH OF EQUATOR UNLESS SUCH VESSELS ARE ACTUALLY ATTACKED BY AIRCRAFT OR FIRE. THE ADMIRALTY REQUESTS THE AIRCRAFT BE INSTRUCTED CONFLICT WITH INSTRUCTIONS FOR APPROACHING BELLIGERENT AND NEUTRAL VESSELS AS LAID DOWN IN BRITISH AIRCRAFT DOCUMENT CAP 30 BUT AS THE FIFTEENMILE ZONE OUT OF WHICH IS BEING PERMITTED AIR POWER TO ATTACK UNLESS ADDITIONAL COVERS REQUIRED FOR PRESENT OPERATIONS AREAS WHERE ONLY ARMY AIRCRAFT LIKELY ENCOUNTERED, NEITHER NAVAL AND NEUTRAL VESSELS TO WHOM THIS THREE MILES COVERS AIRCRAFT RECOGNITION INSTRUCTIONS ARE ISSUED VESSELS WHO SHIPPED ONLY TWENTY TO BRITISH ADMIRALTY DESIGNATED TERRITORIAL OR THREE COVERS ENDORSED FOR WAR HOME FOR ARMY TRANSPORT SERVICE THREE GREEKS VESSEL TAKEN

CHANEY

Follow-up action
Copy to WPD

SECRET

RESTRICTED

of INFORMATION COPY

DECLASSIFIED

AAG 452-9 (3) B

THIS PAGE IS DECLASSIFIED IAW EO 13526

AGE IS DECLASSIFIED IAW EO

WAR DEPARTMENT
Headquarters Army Air Forces
Office of the Air Adjutant General
Washington, D.C.

Date Aug. 20/41

TO:

(2) ✓ Chief of the Army Air Forces.
___ C.G., Air Force Combat Command.
___ Chief of the Air Corps.
___ Chief of the Air Staff.
(1) ✓ Secretary of the Air Staff.
___ A-1 Division.
___ A-2 Division.
___ A-3 Division.
___ A-4 Division.
___ Air War Plans Division.
___ Budget Section.
___ Statistics Section.
___ Air Inspector
___ A.F. Files

File

(1) note and forward
Action copy was sent to WPD, GS.
Information copy also sent to A-2, A-3, A-WPD and to Intel. Div., OC of A.C.
Ferry command also

noted

WM. W. DICK,
Lt. Col., A.G.O.
Air Adjutant General.

A.A.F-10-A.

AGE IS DECLASSIFIED IAW EO

THIS PAGE IS DECLASSIFIED IAW EO 13526

~~SECRET~~

DECLASSIFIED DOD Dir. 5 Dec. & 20 June 1974 By NARS, Date 10-18-76

EXACT COPY

DECLASSIFIED

(HC

INFORMATION COPY

MTB/bjs-1712

DI/7

CABLEGRAM

AG 380.3 (8-14-41)MC

Received at the War Department Message Center
Room 3441 Munitions Bldg., Washington, D.C.

Information copy

FROM LONDON

TO ACMAR

** ** ** **

NO. 10 AUG 14th

PARA ONE AT REQUEST OF USA SPECIAL OBSERVERS ADMIRALTY HAS ISSUED INSTRUCTIONS THAT RULES OPENING FIRE ON AIRCRAFT BY HM SHIPS AND MERCHANT VESSELS ARE INOPERATIVE IN ATLANTIC WEST OF THIRTY SIXX DEGREES WEST AND NORTH OF EQUATOR UNLESS SUCH VESSELS ARE ACTUALLY ATTACKED BY AIRCRAFT PD FOR WPD PD ADMIRALTY REQUESTS USA AIRCRAFT BE INSTRUCTED COMPLY WITH PROCEDURE FOR APPROACHING HM SHIPS CMA CONVOYS AND MERCHANT VESSELS AS LAID DOWN IN BRITISH SECRET DOCUMENT CLN SD RPT SD ONE FIFTYEIGHT CMA COPY OF WHICH IS BEING FORWARDED AIR POUCH PD ADVISE NUMBER ADDITIONAL COPIES REQUIRED FOR PRESENT OPERATIONS AREAS WHERE OUR ARMY AIRCRAFT LIKELY ENCOUNTER BRITISH NAVAL AND MERCHANT VESSELS PD PARA TWO THREE HUNDRED COPIES AIRCRAFT RECOGNITION INSTRUCTIONS USE ABOARD VESSELS WERE SHIPPED JULY THIRTY TO BRITISH ADMIRALTY DELEGATION WASHINGTON CMA TWENTY COPIES EARMARKED FOR WAR DEPT FOR ARMY TRANSPORT SERVICE PAREN SURFACE VESSEL PAREN

CHANEY

~~SECRET~~ DECLASSIFIED

EXACT COPY

of INFORMATION COPY

AAG 452.9 (8) B

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET

DECLASSIFIED

On Paraphrase of Cablegram from London to ASWAR, August 14, 1941.

SUBJECT: British Procedure Regarding Attack on Unidentified Aircraft.

AG 380.5 (8-14-41)MC-E 1st Ind. LFL/amh - 1712.

War Department, A.G.O., August 18, 1941. - To: Chief of the Army Air Forces.

The basic paraphrase of cablegram is referred to you as a matter of primary interest.

By order of the Secretary of War:

Jas. H. Robinson
Adjutant General.

DECLASSIFIED

- 2 -

SECRET

Air AG 432.9 (3) a

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET

DECLASSIFIED
DECLASSIFIED

INFORMATION ONLY

AG 380.5 (8-14-41)MS LFL/emh - 1712.

Received at the War Department, August 14, 1941.

TO: AGWAR

FROM: LONDON

NO. 10 AUG 14th

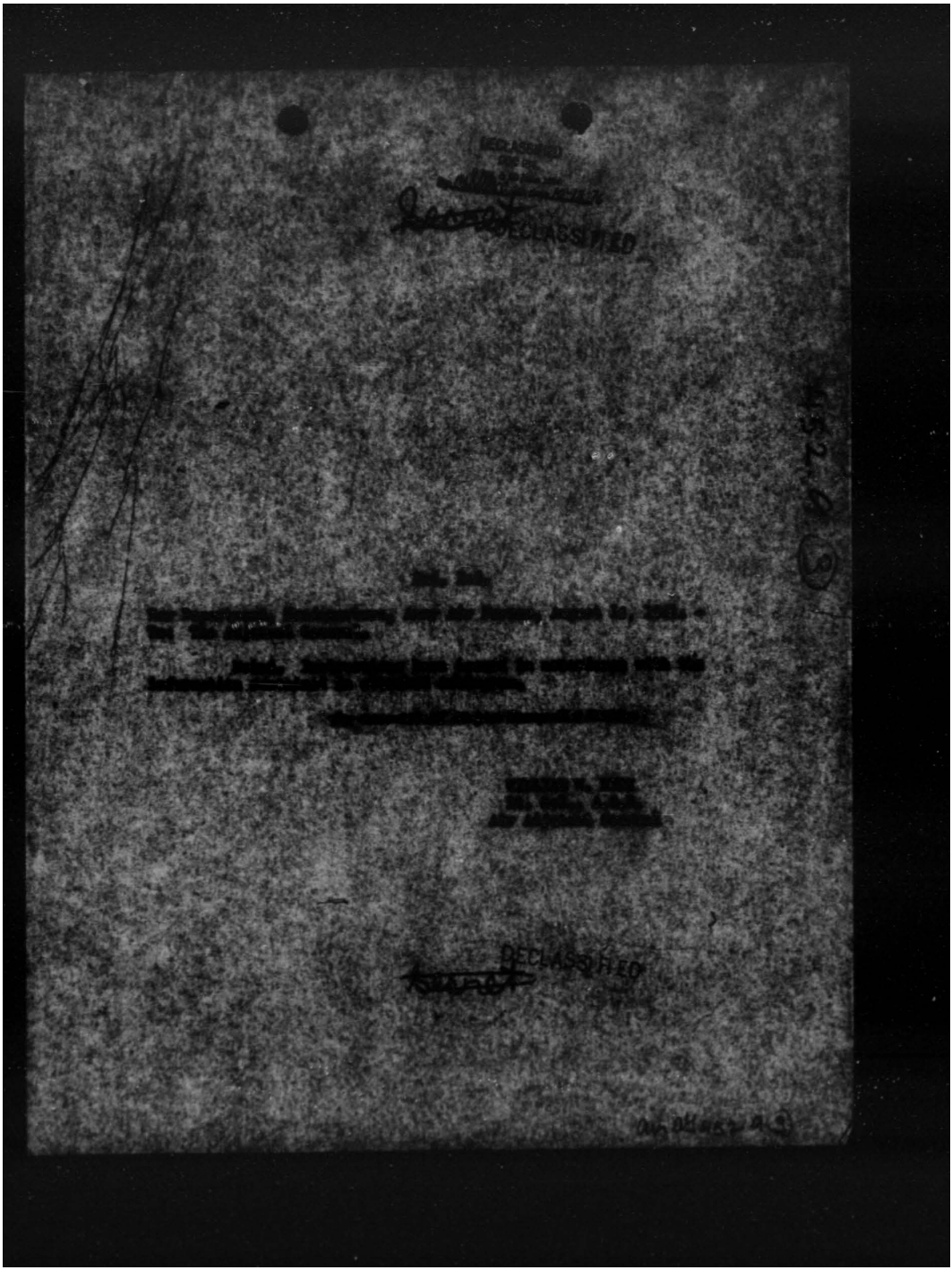
FIRST PARAGRAPH. INSTRUCTIONS HAVE BEEN ISSUED BY ADMIRALTY AT REQUEST OF USA SPECIAL OBSERVERS THAT UNLESS SUCH VESSELS ARE ACTUALLY ATTACKED BY AIRCRAFT RULES OPENING FIRE ON AIRCRAFT BY HM SHIPS AND MERCHANT VESSELS ARE INOPERATIVE IN AREA 10° WEST OF 36 DEGREES WEST AND NORTH OF EQUATOR. THIS FOR WPD. REQUESTED BY ADMIRALTY THAT USA AIRCRAFT BE INSTRUCTED TO COMPLY, AS LAID DOWN IN BRITISH SECRET DOCUMENT SD 158, COPY OF WHICH IS BEING FORWARDED AIR POUCH, WITH PROCEDURE FOR APPROACHING HM SHIPS, CONVOYS AND MERCHANT VESSELS. FOR PRESENT OPERATIONS AREAS WHERE OUR ARMY AIRCRAFT LIKELY TO ENCOUNTER BRITISH NAVAL AND MERCHANT VESSELS ADVISE NUMBER OF ADDITIONAL COPIES REQUIRED. SECOND PARAGRAPH. ON JULY THIRTIETH SHIPMENT WAS MADE OF 300 COPIES AIRCRAFT RECOGNITION INSTRUCTIONS FOR USE ABOARD VESSELS, 20 COPIES REMARKED FOR WAR DEPT FOR ARMY TRANSPORT SERVICE (SURFACE VESSEL), TO BRITISH ADMIRALTY DELEGATION WASHINGTON.

DECLASSIFIED

SECRET

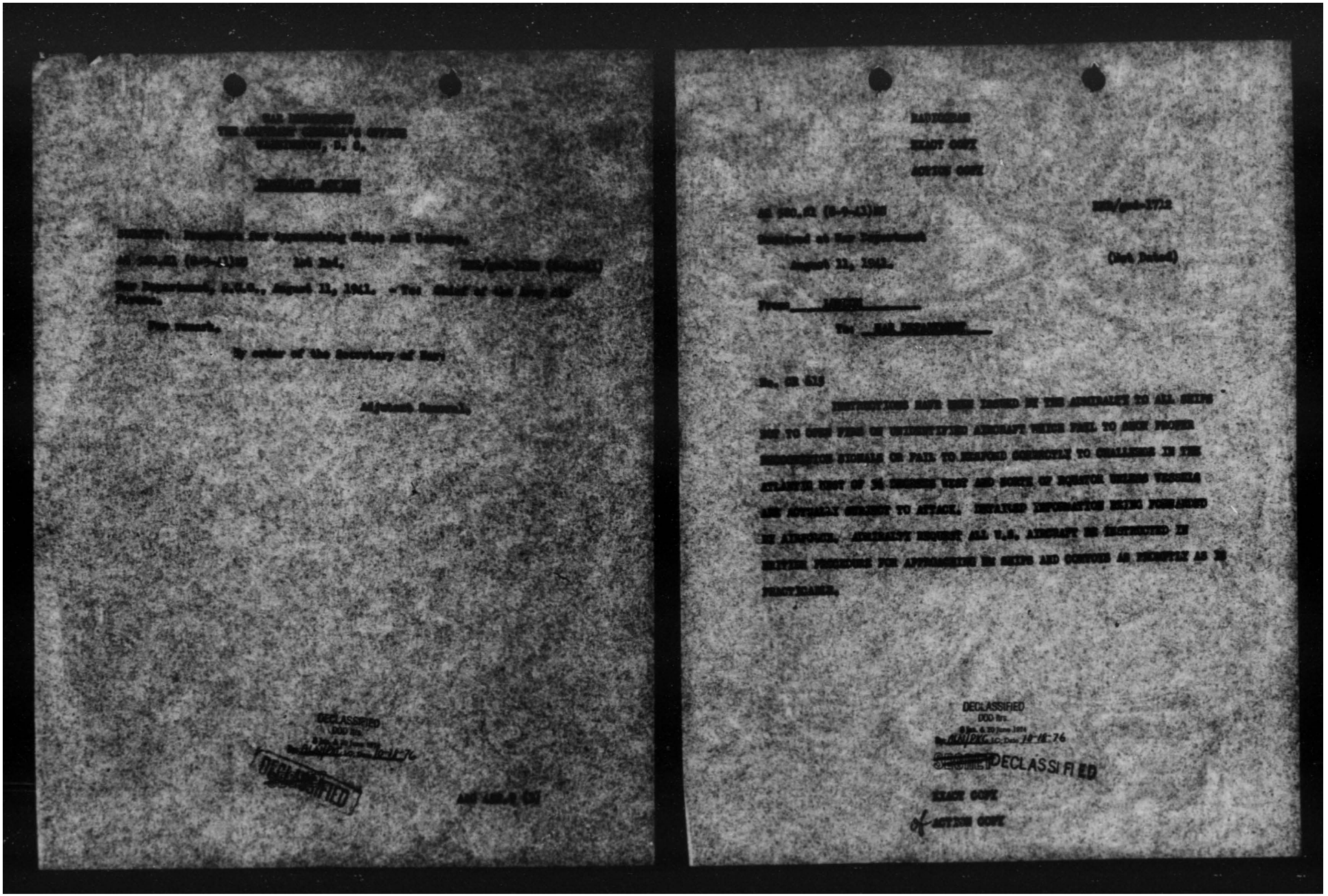
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

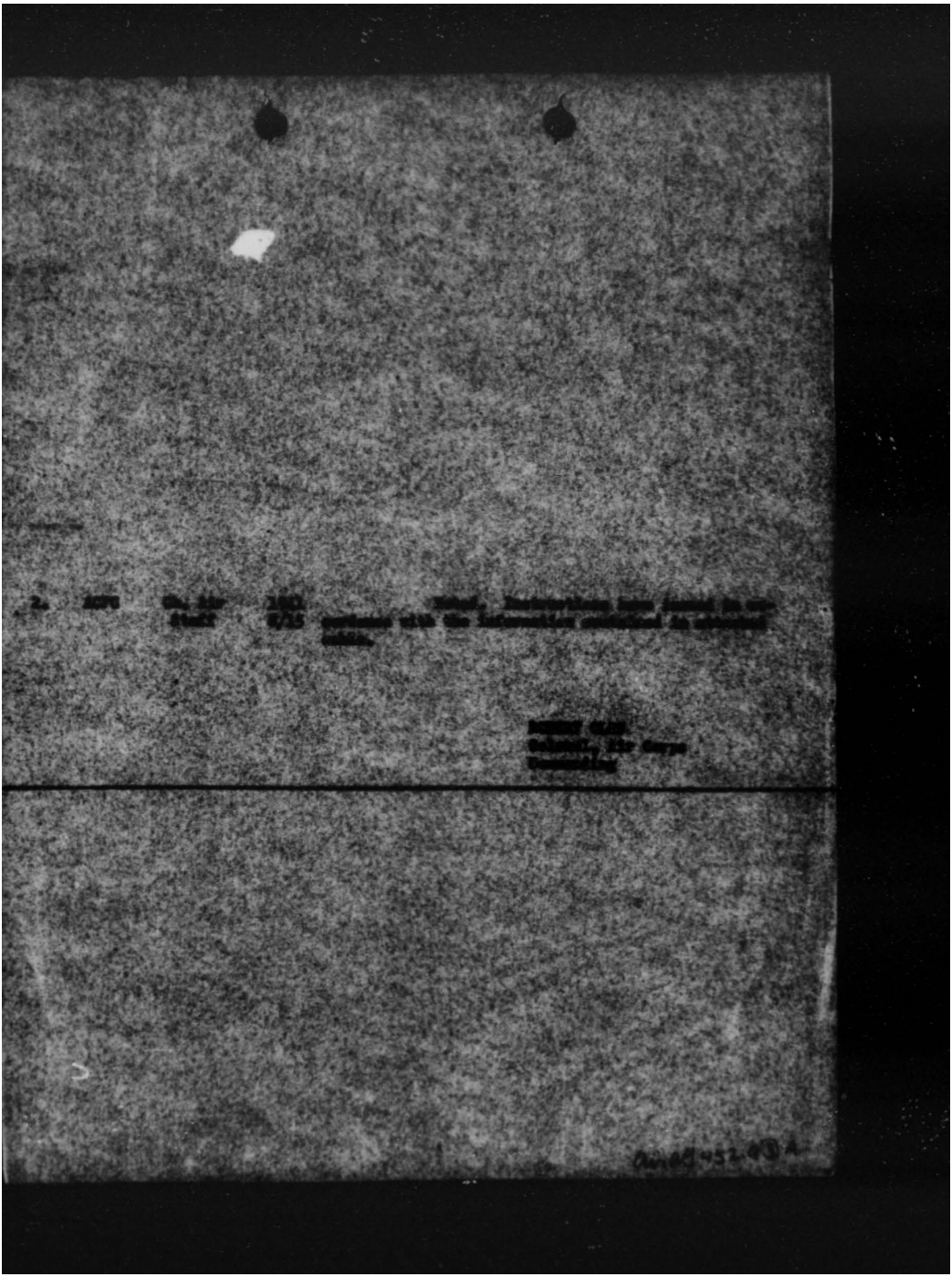


[redacted]

[redacted]

[redacted]

THIS PAGE IS DECLASSIFIED IAW EO 13526

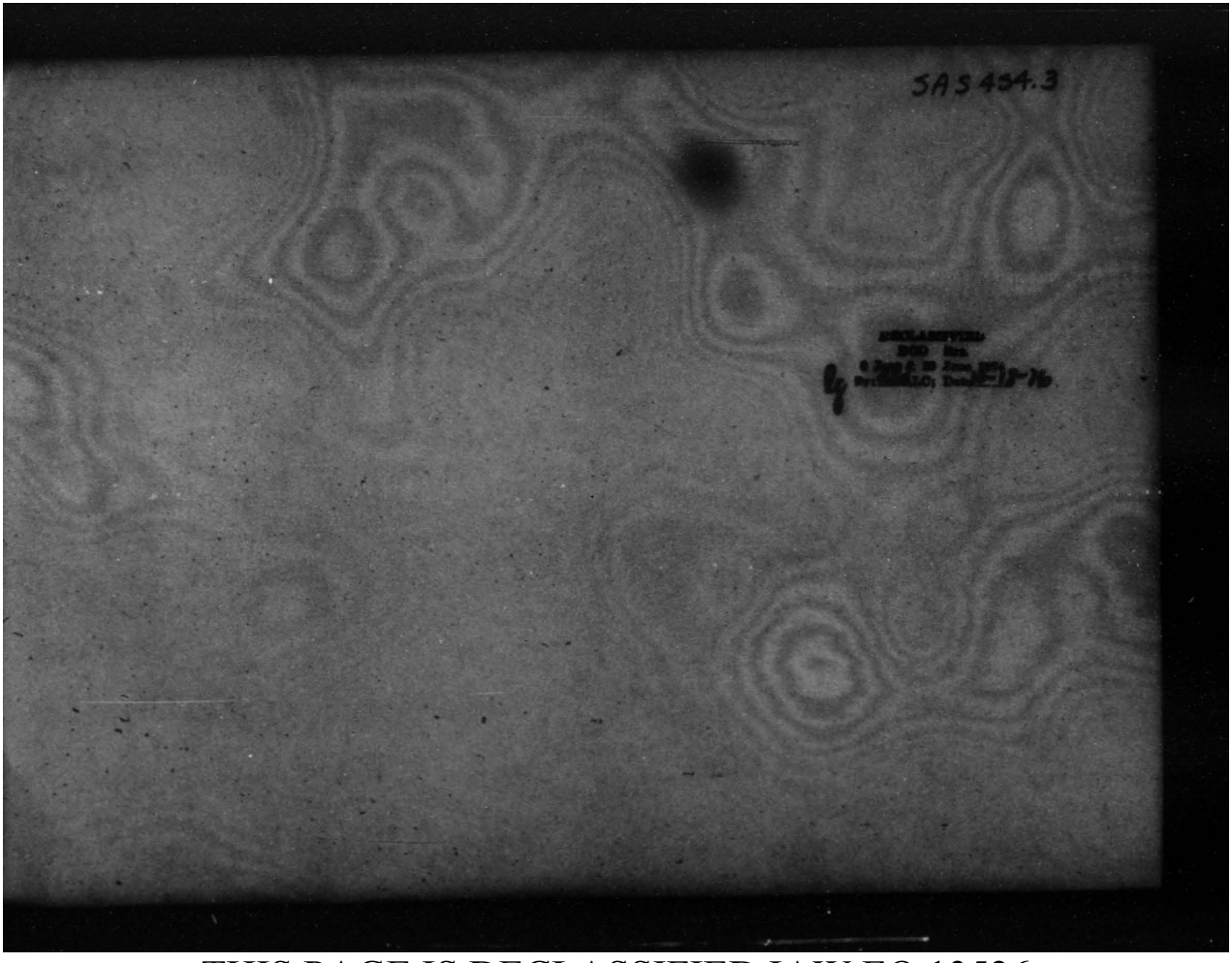


THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

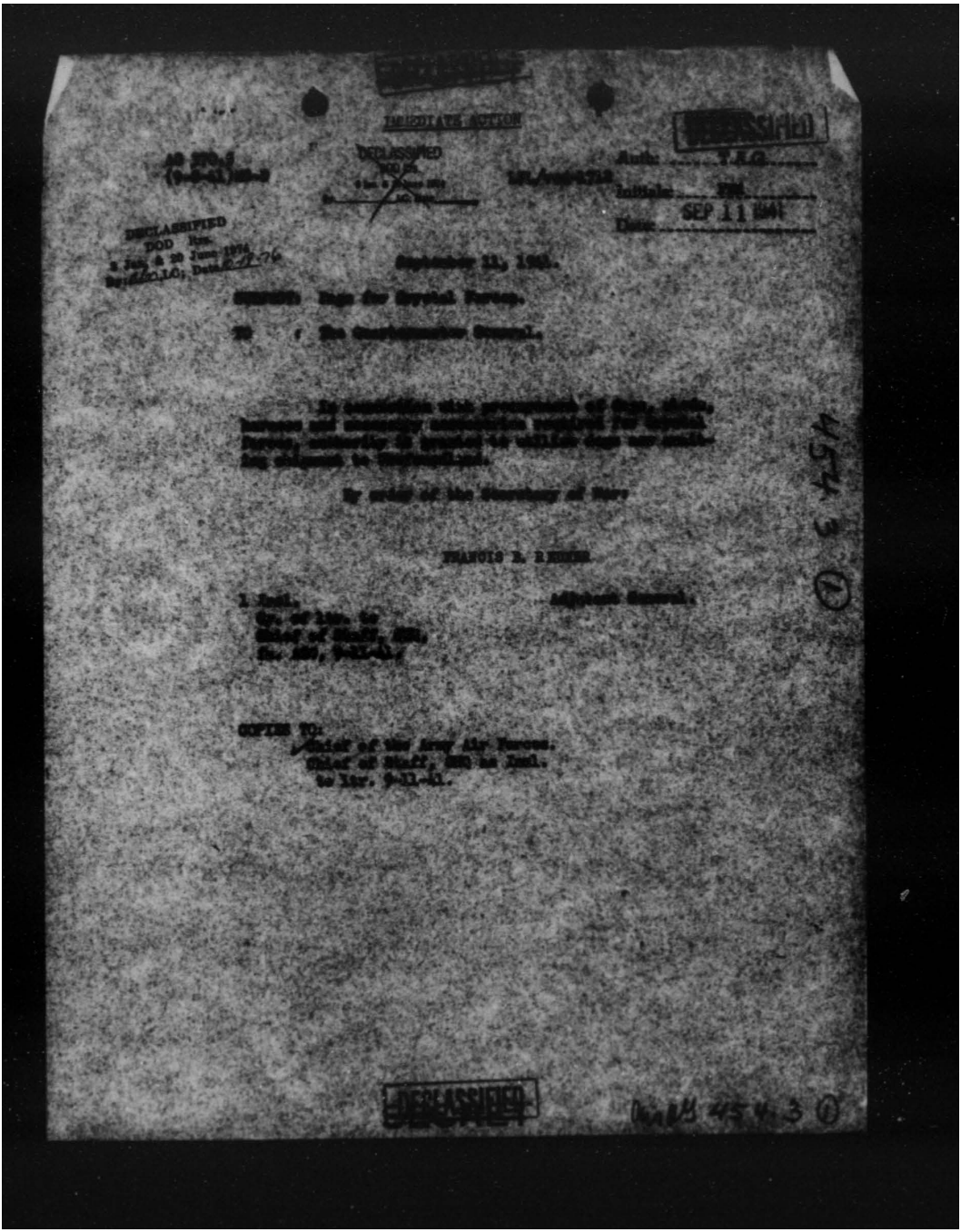
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



IMMEDIATE ACTION

DECLASSIFIED DOD Rev. 3 Jan & 30 June 1954 By: Ltr 16; Date: 2-7-76

Date: SEP 11 1941

September 11, 1941.

By resolution this government of ships, planes, bombers and necessary auxiliaries required for Naval Forces, authority is granted to utilize them war emergency is declared.

By order of the Secretary of War

FRANCIS B. BIDDLE.

1 Encl.
Dir. of Plans, for
Chief of Staff, USA,
Ltr. Sec. 9-11-41.

COPIES TO:
Chief of the Army Air Forces.
Chief of Staff, USA w Encl.
Sec Ltr. 9-11-41.

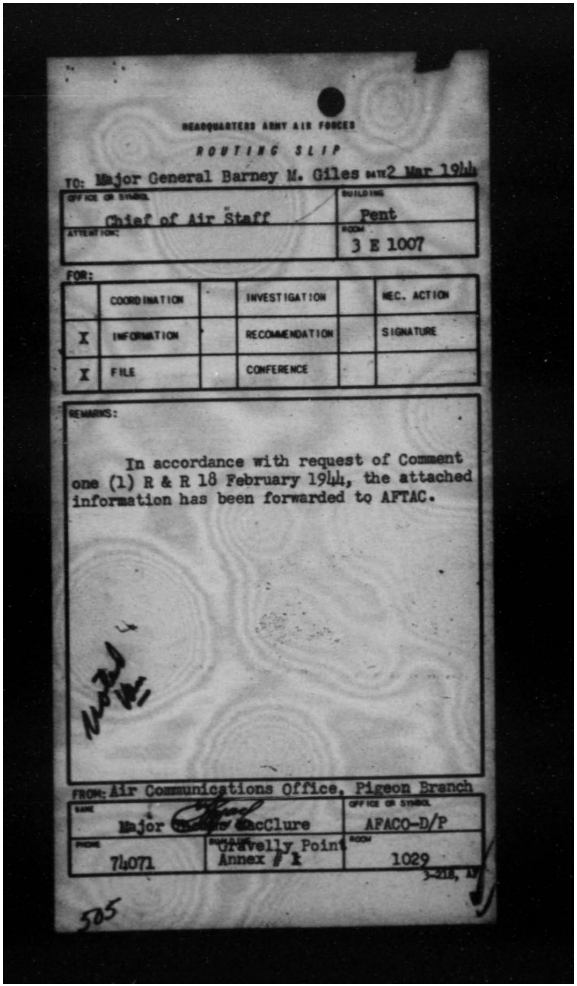
DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

S PAGE IS DECLASSIFIED IAW EO 1



HEADQUARTERS ARMY AIR FORCES

ROUTING SLIP

TO: Major General Barney M. Giles DATE 2 Mar 1944

OFFICE OR SYMBOL	BUILDING
Chief of Air Staff	Pent
ATTENTION:	ROOM 3 E 1007

FOR:

	COORDINATION		INVESTIGATION		REC. ACTION
X	INFORMATION		RECOMMENDATION		SIGNATURE
X	FILE		CONFERENCE		

REMARKS:

In accordance with request of Comment one (1) R & R 18 February 1944, the attached information has been forwarded to AFTAC.

Noted

FROM: Air Communications Office, Pigeon Branch

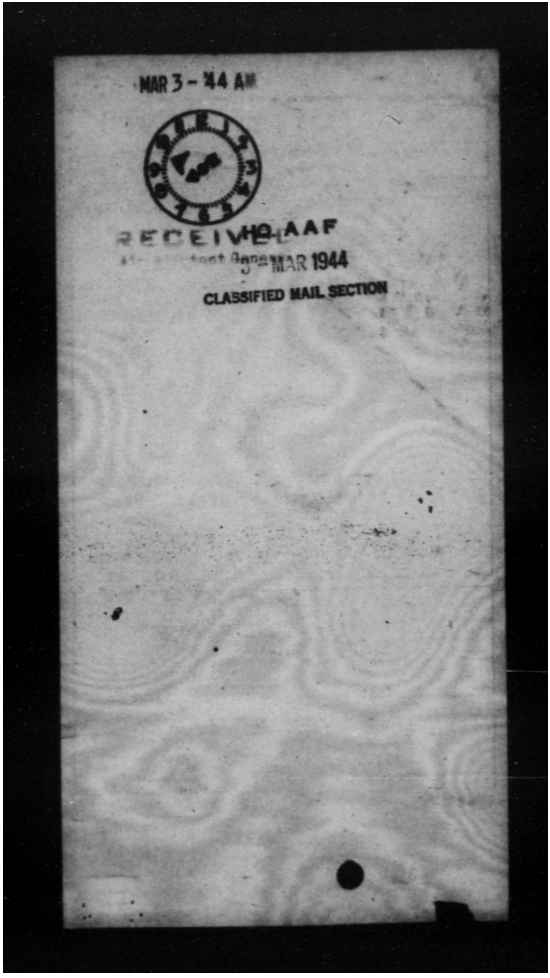
NAME	OFFICE OR SYMBOL
Major [illegible] MacClure	AFACO-D/P
PHONE: 74071	BUILDING: Gravelly Point Annex # 1 ROOM: 1029

3-218, AF

505

S PAGE IS DECLASSIFIED IAW EO 1

PAGE IS DECLASSIFIED IAW EO



PAGE IS DECLASSIFIED IAW EO

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET
DECLASSIFIED
DOD Dir.
Auth. 5 & 30 June 1972
By DLS/ISE Date 10/12/76

(9)

AFACO-S/P-1

25, D. C.

2 March 1944

Present and Recommended Future Uses of Homing Pigeons in Army Air Forces.

Commanding General, Army Air Forces Tactical Center, Orlando, Florida

1. In compliance with a directive received from Major General, Barney M. Giles, Chief of Air Staff, herewith is submitted information concerning the use of Homing Pigeons and their various potentialities in the Army Air Forces. (See Inclosure # 1)

2. Army Air Forces Pigeons are now being used overseas with each Wing of the Troop Carrier Command and in the Caribbean Wing of the Air Transport Command. (See Inclosure # 2)

3. In the Caribbean Wing, the Pigeon Communications System employs two (2) officers, fifty (50) enlisted men, and seven thousand (7,000) pigeons, and consists of seven (7) detachments located at the following stations:

Morrison Field, Florida
36th Street Airport, Miami, Florida
Homestead, Florida
Borinquen Field, Puerto Rico
Waller Field, Trinidad
Atkinson Field, British Guiana
Belem Field, Belem, Brazil

(2)

This Airway communications system, by pigeon, covers a network of approximately twelve thousand (12,000) miles and is operated as a "Round Robin." Upwards of one hundred (100) planes are serviced daily with pigeons for communication, safety, and emergency purposes.

a. All Transport, Cargo, and Tactical planes leaving the first three fields listed above on overseas flights to the Zones of Operation, carry four (4) birds each, for example:

(1) All two motored planes, leaving Morrison Field for Borinquen Field, carry two birds from Morrison Field and two birds from Borinquen Field. Should the occasion arise for release of the pigeons before the halfway point is reached, both Morrison Field birds would be liberated. If the halfway point was passed, the Borinquen Field birds would be liberated.

(2) All four motored planes, leaving Morrison Field and by-passing Borinquen Field, landing at Waller Field, carry one Morrison

DECLASSIFIED

SECRET

SECRET
DECLASSIFIED

Field bird, two Borinquen Field birds, and one Waller Field bird. Should the occasion arise for the release of the pigeons in the northern zone, one Morrison Field and one Borinquen Field pigeon would be liberated. If in the central zone, both Borinquen Field birds would be liberated, and in the southern zone, one Borinquen Field and one Waller Field bird would be liberated.

(3) All planes leaving Borinquen Field, by-passing Waller Field and landing at Atkinson Field, carry one Borinquen Field bird, two Waller Field birds, and one Atkinson Field bird. Should the occasion arise for the release of the pigeons in the northern zone, one Borinquen Field bird and one Waller Field bird would be liberated. In the central zone, both Waller Field birds would be liberated. If in the southern zone, one Waller Field and one Atkinson Field bird would be liberated.

(4) All planes leaving Borinquen Field for Waller Field carry two Borinquen Field birds and two Waller Field birds. Should the occasion arise to release the pigeons in the northern zone, the two Borinquen Field birds would be liberated, and, if in the southern zone, the two Waller Field birds would be liberated.

The network continues in this manner all the way to Belem, Brazil.

4. This service is a new establishment being completed and in full operation 15 January 1944. It is believed that this same system can be applied to all other Air Transport Command flights throughout the entire world and that pigeons can be used for communication and safety purposes in nearly all types of planes in the combat zones. Pigeon detachments are now located at various stations throughout the continental United States for the purpose of instructing pilots and plane crews in the use of pigeons.

5. Pigeons are now making regular training flights over water up to three and four hundred miles. On Monday, 28 February 1944, a report was received from the West Palm Beach Air Transport Command, stating that a pigeon released from a plane in the vicinity of Waller Field returned to Morrison Field, a distance of 1700 miles. Birds have also been received from planes during the night, as they are trained to fly both during the day and night as well as two way.

SECRET

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

~~SECRET~~
DECLASSIFIED

4. Pigeon units within Army Air Forces are setup so that they can be detached to operate as a small individual unit of two or three men. The necessity of a large Headquarters Company organization supporting them not exist due to the fact that these small detachments can be scattered throughout airfields covering several thousand miles of territory and form an unbroken chain of communication. Under this system, only a Headquarters Replacement Company, within the continental United States, from which replacements for these detachments can be supplied, is necessary.

7. As the Army Air Forces Pigeon Service is practically a new organization, the training of the personnel has just been completed, and the capabilities and possibilities of the Homing Pigeon have not as yet been published to the Commanding Generals and Staffs in the various Theatres of Operations. It is believed that as soon as this information is properly distributed that the demand for the Homing Pigeon with combat units will greatly increase.

8. It is therefore recommended that action be taken immediately to advise the Commanding Generals of all Air Forces as to the existence of this service.

By command of General ARNOLD:

WILBER T. MILTON
Lt Col, Air Corps
Chief, Communications Systems Division
Office of Air Communications Officer

9 Incls:
Incl 1 Use of Pigeons with Aircraft.
Incl 2 Flight Chart Caribbean Wing.
Incl 3 Army Air Forces Pigeons.
Incl 4 Extract copy of Ltr fr 8Oth Sig Serv Bn Post.
Incl 5 Handling and Releasing of Homing Pigeons fr Aircraft in Flight.
Incl 6 Release of Pigeons fr Aircraft.
Incl 7 Release of Pigeons fr Aircraft.
Incl 8 AAF Uses Pigeons to Aid in Rescue.
Incl 9 Copy of Ltr fr 13lOth Sig Pgn Co, Salem, Oregon to CO AAF, WDGS, D.C. 12 Feb 19th.

1

~~SECRET~~ DECLASSIFIED

-3-

Ans ab 484.8(2)

~~SECRET~~ DECLASSIFIED

DECLASSIFIED
000 Ltr
Ltr, A-30 June 1975
By OPD, AG, Date 12/13/76

USE OF PIGEONS WITH AIRCRAFT

Type of Plane	Kind of Mission
1. Fighters - including	Fighter and Night Fighter
Pursuit	Pursuit } - Night Birds
Escort	Escort } available
2. Bombardment - including	
Light	Bombing Mission - any distance
Medium	or altitude up to 25,000 feet
Heavy	
3. Carriers - including	
Cargo Transport	Transport of -
Troop Transport	
Airborne	Personnel Photographic
Paratroops	Cargo Ferrying flights
Reconnaissance	Intelligence

The average training flight mileage of a pigeon squadron is 350,000 miles per month.

USES OF BIRD

1. For all communications, safety and emergency purposes.
2. Saving lives of plane crews.
3. Saving planes.
4. Transmission of message, by pigeon, practically impossible to intercept.
5. Independent missions.
6. Reconnaissance missions, or Combat flights over enemy territory.
7. Crowded planes.
8. Silent planes.
9. Shielded planes.
10. With Troop Transport, point to point.
11. Air Transport.
12. Anti-Submarine Patrol.
13. Sea Rescue.
14. When Radio frequency is jammed by enemy action.
15. When impossible to use radio for message transmission.
16. When Geological, Mineralogical, or Meteorological conditions interfere.
17. From field to field.
18. Dropped to plane while in trouble.
19. While passing over enemy territory.

Incl 1

~~SECRET~~ DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

Use of Pigeons with Aircraft (Cont'd).

20. Crew planes forced down in enemy territory.
21. In isolated forces.
22. Delivery of messages to friendly groups in enemy territory.
23. Night flights.
24. When radio silence is essential.
25. When radio messages can be intercepted.

1. In case of ditching, a plane correctly damaged may glide for considerable distance before striking the water. During this gliding period, one pigeon should be released with a message attached giving the following information:

a. Identification of plane
b. Location of release
c. Estimated location of ditching point
d. Time
e. Condition of plane
f. Condition of crew and other pertinent information

2. The other birds being removed from the plane to the dinghy by a member of the crew (Radio Operator) especially designated for this duty. Retain these birds in the dinghy for some time before making a second release so as to allow the first bird sufficient time to reach its home loft and time for the dispatched rescue mission to reach the ditched plane. A rescue plane may fail to sight the dinghy, yet the dinghy crew may sight the plane. When this occurs, the second bird should then be released giving the exact location of the dinghy and also the approximate location where the rescue plane was sighted.

Pigeons can be used to carry messages, map-overlay or other information regarding the condition of a plane and crew members when it has been forced to make an emergency or crash landing. The plane's radio may be out of commission, the crew members severely injured being in such condition that they are unable to move from the spot. The location of the crash may be one (1) or several hundred miles from transportation in jungle, desert, mountain, or prairie. A rescue mission can then be sent to the exact location and if conditions do not permit immediate rescue, parachute equipment which is available can be dropped with additional pigeons, medical supplies, food or small repair parts. Through the use of the additional pigeons, the crew can keep in constant contact with their base until rescued.

Isolated forces can communicate with their headquarters and be kept supplied with additional pigeons, food, medical supplies by the use of parachute pigeon equipment. The additional supply of pigeons will enable the isolated forces to keep in contact with their headquarters advancing their chances of rescue.

DECLASSIFIED

DECLASSIFIED

Use of Pigeons with Aircraft (Cont'd).

Should a plane become badly damaged while in combat, on a routine or reconnaissance flight and the radio put out of commission, pigeons can be utilized as a means of communication between the plane and its base to give information concerning it and if abandoned by the crew, carry the necessary map-overlay to show where they may be found.

1. Interception of messages, transmitted by planes, is practically impossible. Efficient and dependable communication can be maintained between the plane crews on Reconnaissance or Combat flights and their headquarters when:

a. Radio communication is jammed by enemy interference
b. Radio silence is essential
c. Radio messages can be intercepted
d. It is impossible to use radio for message transmission
e. Flying over enemy territory
f. Meteorological, or Meteorological conditions interfere.
g. Normal night flights.
h. Delivery of message and small medical supplies

Pigeons can be used to form a complete television chain of communication between the main base and mobile flights. The two-way birds (carrying messages both ways) can be used for daily purposes at least up to a distance of seventy-five (75) miles. (This distance is being extended.)

Army ferried and isolated territory the one-way birds can be used for inter-communication, such as: Crew inbound to inland in the South Pacific or Alaska can air base to contact crew enemy territory.

In the Northern and South Atlantic, across the Mediterranean and in the South Pacific, etc., pigeons can be used to great advantage to keep the planes in direct contact with their takeoff point, as the birds can be released at periodic intervals as the plane progresses on its mission. In a non flight, with intermediate stops, pigeons are carried on each plane whose home loft is at either end of the route, for example:

A plane taking off from Miami, Florida, and landing at Puerto Rico on the first leg of its trip, will carry aboard two (2) pigeons from Miami and two (2) pigeons from Puerto Rico. The birds from Miami should be released at intervals up to mid-distance; the birds from Puerto Rico would be used from that point on, up to mid-distance; the birds from Puerto Rico would be used from that point on, until Puerto Rico is reached. This same procedure is used throughout the entire

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

Use of Pigeons with Aircraft (Cont'd).

flight, regardless of the distance covered or point of final destination. The same methods can be used over land or water at any geographical location.

The arrival of these birds at their lofts will signal the safe passage of the ship over the designated point and procedure beyond it, eliminating search effort within this distance. Special conditions warrant different signals and are easily devised, arranged, and effected by operations and communications in the theater.

ANTI-SUBMARINE AND SEA SEARCH

Pigeons can be used in a highly efficient manner for use with the Anti-Submarine, Sea Search and Coastal Patrols. On many of these missions it is inadvisable to use radio communication, especially when enemy subs or other craft are known to be in or near the vicinity. When enemy craft is sighted, the pigeons can be used to advise the base operations as to its location and to request the necessary number of planes be sent to the aid of the sighting plane.

While on these missions it is unnecessary to attach a message to the pigeon where a plane's patrol area is known or while periodically reporting its position to the base. In case of emergency the pigeon can be released from the plane and upon arrival at its home loft the plane from which it was released can be identified by the band number on the pigeon's leg. The time of the last location given, wind velocity, and the speed of the pigeon can be calculated so that rescue planes can be sent to the area of the plane in distress.

DELIVERY OF MESSAGES TO FRIENDLY GROUPS IN ENEMY TERRITORY

The pigeon parachute container equipment which is now available, can be used to deliver pigeons, messages or information to friendly groups (civilian or military) within enemy occupied territories. This equipment can be burned to obliterate any evidence, after the pigeons are delivered. These pigeons can be used by the above groups to transmit messages from within enemy territory to the bird's home base. Distance up to and including six hundred (600) miles can be covered in this manner.

FIGHTER PLANES

Pilots of Fighter Plane can use the new combination Army-Lastex-Navy, Airtight, Waterlight, Lifebelt Container, together with the Sea Anchor as described in Paragraph 15 of Inclosure No. 1. When forced to abandon plane and in parachuting from the plane the container strap is attached to the parachute webbing and carried along, free, with the parachutist. Upon landing on the ground the pigeons can be released to give location and other emergency information. Should the pilot land in the water, the container when clamped shut, will allow the two (2) pigeons to live within, without additional air for one (1) hour. After pigeon has been released, the container can again be clamped shut and used as a life belt by the pilot by attaching the available strap to his body.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

NOTE:

1. Troop Carrier Command

a. The Troop Carrier Command is now using pigeons with every Wing.

2. The Anti-Submarine Command

a. The Anti-Submarine Command have left established at all Anti-Submarine Bases covering the entire coast line of the United States.

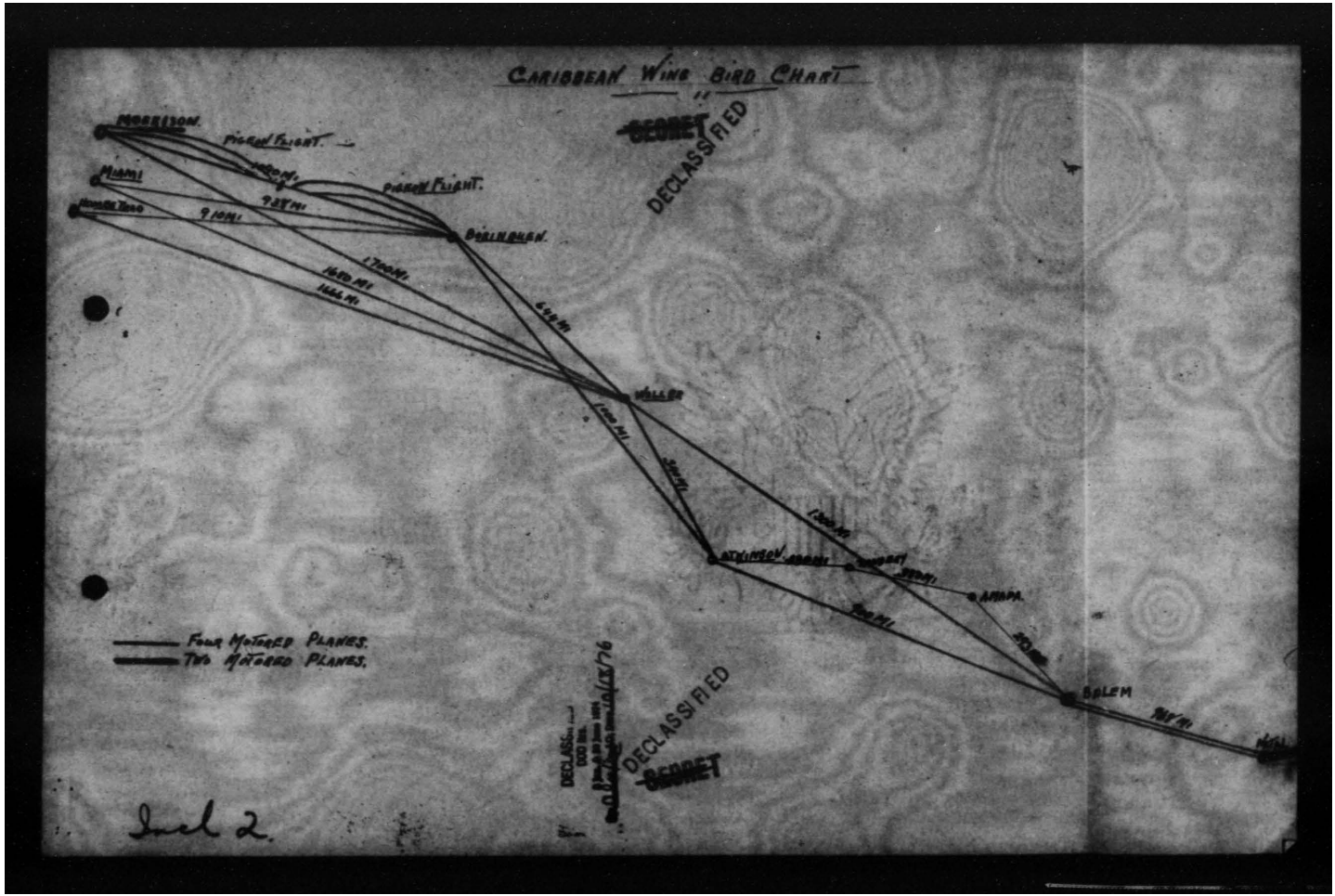
3. TO ALL COMMANDS

a. It is requested that when requesting Pigeon Squadrons, Flights or Detachments, priority rating be sent along with the official request so that shipment of these units will not be delayed but will be shipped immediately.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

~~SECRET~~

DECLASSIFIED

HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON, D. C.

DECLASSIFIED
DOD Dir.
By [illegible] Date 10/15/76

SUBJECT: Army Air Forces Pigeons

1. Pigeon Units are now available in the Army Air Forces for communications, emergency and safety purposes.

2. Reports indicate that in all zones and theaters under actual combat conditions, the pigeon has firmly and definitely established itself as a medium of proven worth, capable of forming a positive unbroken chain of communication that is dependable, practicable, silent and rapid and as an invaluable adjunct to all other methods of message transmission.

3. Data from United Kingdom show [redacted] [redacted] [redacted]

95% of all pigeon messages dispatched by ditched plane crews were delivered.

90% failures, investigation disclosed, were wholly or partially incapacitated prior to release either by immersion or enemy action (one case gasoline fumes).

91% of all pigeon messages sent out by ditched, airborne, forced landed or diverted crews were delivered.

100% of all pigeons released, fit and dry within 500 miles of their base, made delivery.

600-mile over-water messages were delivered in quick time.

Several messages were relayed from ships, upon which pigeons on long flights had landed, and rescue of the crew effected.

4. The potentialities of the homing pigeon are practically unlimited. They can be released at full plane speed at any altitude up to 35,000 feet without the use of artificial oxygen. 90° below zero over sea and land, and temperatures as high as 120° above zero, returning to their lofts in safety time with accuracy and infinitesimal loss.

In darkness pigeons released at 8,000 feet, 200 mph, 25 miles in one, made delivery in a few minutes.

Night birds fly a 110-mile trip in total darkness in two (2) hours, fifty-five (55) minutes.

Day-way birds fly a seventy-five (75) mile round trip in three (3) hours, two (2) minutes.

Incl 3

DECLASSIFIED

~~SECRET~~

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

Six hundred (600) mile non-stop flights in eleven (11) hours are common.

Sixty (60) miles per hour and over are usual speeds.

Pigeons even when badly wounded "come through."

High altitude, low temperature or great speeds do not impair their homing instinct nor affect their orientative sensibilities.

5. If released 1,000 miles at sea, the bird will orient itself and head in the direction of its home loft, fly several hundred miles, and then, tired, will find a ship, alight to rest, drink drinking water and if unmolested will again take off for home. Under these circumstances the pigeon can be easily picked up, its message removed and relayed as conditions require.

6. Where planes have crashed and members of the crew injured, pigeons can be used as messengers to give their location and to bring first aid and supplies until rescue can be effected.

7. They function efficiently and will make continuous flight for hundreds of miles over the storm swept, turbulent northern, central or southern oceans, for pigeons equally well in the hot, arid equatorial regions, from island to island, ship to shore, over land, desert, mountain, jungle, or any other type of terrain, under combat or adverse atmospheric conditions.

8. The heterogeneous topographical features encountered in the zones of combat, the vast expanses and great distance to be traversed over uncharted areas make efficient communication by mechanical means a most serious problem. Breakdowns, and the time factor involved in the obtaining of mechanical replacement parts, greatly increase these difficulties.

9. Release from plane is possible without the use of any protective device and may be made from any section of the plane through any aperture large enough to permit the passage of the pigeon. Such releases can be made at any speed or altitude without ill effect to the pigeon, and with infinitesimal failures to return. Reference is made to proper method of release as illustrated in Restricted S.O. 61-1-130.

10. Pigeon units are streamlined, capable of rapid mobility, great flexibility and operating elasticity.

11. All equipment is compact, light, and portable.

12. A pigeon squadron consists of nine (9) Officers and one hundred seventy (170) Enlisted Men, 4,000 pigeons complete with lofts and all motor equipment, nine other automobiles. A pigeon squadron consists of Headquarters, three (3) Combat Flights of: 8 Officers, 20 Enlisted Men, 1,000 Pigeons, Motor Vehicles and Lofts.

13. It is recommended that a flight be utilized as the smallest operational unit to be requested for overseas duty. Each flight, in turn, can be disrupted and broken down into small individual operational units, composing

DECLASSIFIED
SECRET

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

~~SECRET~~

DECLASSIFIED

Subject: Army Air Forces Pigeons (Cont'd)

of three (3) enlisted men, four (4) small mobile-portable lofts (air transportable), 100 to 150 pigeons and one (1) 1/4-ton 4 x 4 truck. Each of these units is capable of supplying the average landing field with efficient pigeon communication, and can be consecutively linked together to form any size detachment essential to meet existing conditions. Detachable movement units are now available for overseas duty.

14. From two (2) to four (4) birds are carried in each plane in small compact containers. Combination, compact four (4) and eight (8) bird Parachute Air-Land-Water Containers are available for delivery of pigeons, medical supplies, food, etc., to disabled planes on land or water, or to isolated troop positions.

15. An Aero-water, Airtight-Waterright, two (2) Bird Container, Combination Pigeon Carrier Lifebelt and One Another for over-water and ditched planes is now under process of tests.

16. The pigeons are trained by experienced pigeon personnel and are delivered in the various containers to the plane crews at each base.

17. No trained pigeoneers accompany the plane crew.

18. The only function of the plane crew is to liberate the birds from the plane whenever necessary for communication purposes.

19. The pigeons do not require water nor food for forty-eight (48) hours and if unused for communication purposes, are returned intact to the base where they will be picked up by the pigeon personnel.

20. Resettling and training the birds to a new location can be accomplished in a matter of a few days, for example:

a. One record of young birds trained in ten (10) days delivered thirty-two (32) messages from a distance of one hundred twenty-nine (129) miles.

THOMAS MacCRUER
Major, Air Corps
Chief, Pigeon Branch
Communications Systems Division
Office of Air Communications Officer

~~SECRET~~

DECLASSIFIED

- 8 -

~~SECRET~~

DECLASSIFIED

COPY

Date 1 September 1943

Organization Pigeon Platoon, 832 Sig Serv Bn Post, Camp, or Station, North Africa

* * * * * * * * * * * * *

Birds from loft stationed at Tunis, have been used by the 17th Group Operations in their raids on Italy. On 13 August birds were released on a test, from the [redacted] 100 miles north of Rome; the first birds were back to their loft in Tunis in slightly over 5 hours—distance: approximately 300 miles. Results — very good. The air corps personnel are very well pleased with this showing, and are asking for more lofts and birds as soon as they can be supplied from our stock. Three messages have been carried to the loft in Tunis telling of planes forced down on way and coming from bombing mission; this has enabled crews to be picked up, or supplies delivered to them.

/s/ Winton T. Prater
WINTON T. PRATER
1st Lt., Sig C.
Commanding

COPY

DECLASSIFIED

~~SECRET~~

Incl 4

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET

DECLASSIFIED DOD Dir. 5200.9 DECLASSIFIED

T. O. NO. 01-1-120

HANDLING AND RELEASING HOMING PIGEONS FROM AIRCRAFT IN FLIGHT

NOTICE: This document contains information affecting the National Defense of the United States within the meaning of the Espionage Act, 50 U. S. C., 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

AUGUST 1, 1943

The Dreny Ptg. Co. 7-30-43—12M

SECRET DECLASSIFIED

Incl 5.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
T. O. No. 01-1-1

Published by the authority of
the Commanding General,
Army Air Forces.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET
T.O. 00-25-3 DECLASSIFIED

THIS PUBLICATION MAY BE USED BY PERSONNEL RENDERING SERVICE TO THE UNITED STATES OR ITS ALLIES

Paragraph 5.d. of Army Regulation 380-5 relative to the handling of "restricted" printed matter is quoted below.

"d. Dissemination of restricted matter.—The information contained in restricted documents and the essential characteristics of restricted matter may be given to any persons known *to be in the service of the United States and to persons of undoubted loyalty and discretion who are cooperating in Government work*, but will not be communicated to the public or to the press except by authorized military public relations agencies."

This permits the issue of "restricted" publications to civilian contract and other accredited schools engaged in training personnel for Government work, to civilian factories manufacturing for overhaul and repair of aircraft or aircraft accessories, and to similar commercial organizations.

ADDITIONAL COPIES

Additional copies of this Technical Order may be secured on Requisition, AAF Form 104, as prescribed in AAF Regulation 15-102. Submit requisitions to: Commanding General, Air Service Command, Patterson Field, Fairfield, Ohio. Also, see T. O. No. 00-25-3 for details on distribution of Technical Orders.

SECRET
DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

DECLASSIFIED

SECRET
DECLASSIFIED

T. O. No. 01-1-120

SECTION 1
Introduction

1. The nature of the homing pigeon is such that when it is removed from its home loft and released, it will try to return thereto. This instinct has been augmented by systematic training to develop reliability and speed, and the homing pigeon used by the Army today in pigeon communication is the result of several centuries of intelligent crossbreeding of the most perfect specimens in various strains derived originally from the rock pigeon.

2. The term "homing pigeon" is correct, although the bird frequently and erroneously may be referred to as the "carrier pigeon." The wild carrier pigeon, formerly so abundant in America, is now extinct, and the domestic carrier pigeon is an entirely distinct species from the homing pigeon.

3. The homing pigeon long has held a unique place in the transmission of military information in time of war. Regardless of the development of the telegraph and radio, the services of the homing pigeon are irreplaceable under certain conditions. Paired with the airplane, the homing pigeon today is performing valiant service in the present war, and has proved to be a vital link in the communications system of the Army Air Forces.

4. This Technical Order has been prepared to acquaint Air Force personnel with the proper technique for the handling and release of homing pigeons during the flight of an airplane, to the end that the message may have the maximum chance of achieving its purpose.

SECTION 2
Containers for Pigeons

1. Homing pigeons are delivered directly from the pigeon loft to airplanes, in containers having space for two, four, or more birds. Each container is provided with a top section in which a message book, map overlays, message holders, pencil, and a sufficient amount of feed for the birds for several days are provided.

RESTRICTED
SECRET
DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

2. The container (figure 1) should be placed in the airplane in an upright position and kept in that position, near the Radio Operator. It should never be placed on its side.

Figure 1 - Composite Photograph of Typical Pigeon Container

SECTION 3
Preparing the Message

1. Write the message on the special paper provided in the top of the bird's container, giving the date, the location, the time, the destination and the name of the sender, and including a marked map overlay when a map is required.

NOTE The message holder is capable of holding a map overlay on paper 8 by 8 inches and 1/1000 inch thick, a duplicate of a previous message, and the original of the present message. The length of the message holder is 1-1/2 inches, and the opening for inserting the message is 7/16 inch.

2. Fold the message and map (figure 2), roll as tightly as necessary to fit into the holder, insert into the holder (figure 3), and screw the cover of the holder on tightly.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET
DECLASSIFIED

Figure 2 - Folding and Rolling Message

Figure 3 - Insertion in Holder

SECTION 4
Preparing the Bag

1. The use of a No. 12 manila paper bag is the safest, quickest, simplest, and most dependable method of releasing a pigeon from a plane in motion. The bag forms a protective covering against cyclonic air currents when the pigeon is committed to the air.

2. It is preferable that bags be furnished ripped or slit along one edge at the loft before being sent out. If this has not been done, place the bag flat on the knee, and, starting at the open end, rip the bag along one side, stopping at a point a few inches from the bottom of the bag, as shown in figure 4. This forms a U-shaped covering into which the pigeon readily can be placed for release, with its head facing the bottom of the bag. Another method of preparing the bag is to tear a narrow sliver from the folded edge, as in figure 4, but not tearing any closer to the bottom of the bag than is indicated.

Figure 4 - Tearing Paper Bag

SECTION 5
Handling the Pigeon

1. Great care should be exercised to avoid frightening, disturbing, or irritating the birds, for when they are upset, their effectiveness is reduced.

2. When removing a bird from a container, grasp it firmly but not too tightly with the hand over both shoulders, to prevent the pigeon from spreading its wings during the removal process. See figures 5 and 6.

3. Should the tail of the bird be toward the door of the container, grasp the bird with one hand placed directly over the outer flight feathers and sufficiently forward on the body so that the thumb and first finger may be placed around the legs of the bird when it is withdrawn from the container.

CAUTION Never pull the bird by the tail.

RESTRICTED
SECRET
DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

Figure 5 - Extracting Pigeon From Container

Figure 6 - Extracting Pigeon From Container

4. As the bird is brought out of the container, grasp it with other hand also, making sure that the wings are naturally folded about the body. (See figure 6.) Use of both hands reduces the likelihood of escape.

5. If the pigeon should escape within the airplane, grasp and recapture it according to the method illustrated in figure 7.

Figure 7 - Proper Method of Grasping and Recapturing an Escaped Pidgeon

SECTION 6
Attaching the Message

1. Fasten the holder containing the message to the metal band around the pigeon's leg by means of a 1/2-inch, nonshrinkable tape strap with "lite-fit" snap fastener, as in figure 8. The strap should be directly around the leg band, so that it does not touch, and thus cannot cut, the leg. If the cover is screwed firmly to the holder, the holder cannot come apart during the bird's flight. Be sure that the holder is fastened in front of the bird's leg. The holder will thus hang beneath the leg, during the bird's flight, as in figure 9. If the holder is on the back of the leg, it will interfere with the bird while walking, and when its legs are tucked under the tail during flight.

2. If it is more convenient not to insert the message as described in section III, paragraph 2., prior to attaching the holder to the leg, it may be inserted after the holder has been attached to the leg.

3. If desirable, the alternative method of attaching the message holder to the leg of the pigeon before removing the bird from the container may be used, as in figure 10. To do this, open the side door of the container, grasp the pigeon's foot firmly but gently between thumb and first finger, and, making sure that any pulling action of the leg on the pigeon's body is straight back and not sidewise, attach the holder containing the message as indicated in the preceding paragraphs in this section. Lift the door and remove the bird gently. The advantage of this method is that the message is already attached to the pigeon in case it escapes after removal from the container.

DECLASSIFIED

DECLASSIFIED

Figure 8 - Securing Holder to Leg

Figure 9 - Holder Properly Attached to Leg

CAUTION POSITIVELY NEVER pull the leg sidewise since it will break easily if so handled. ALWAYS PULL THE LEG STRAIGHT BACK.

4. In emergencies, wherein there is no time to write a message, the bird may be released without it. Upon arrival, the bird can be identified by the code numbers on the aluminum band around the leg. Code numbers for each bird are recorded at the loft and are assigned to definite airplanes. Thus the plane dispatching the pigeon can be identified and appropriate measures taken.

Figure 10 - Alternative Method of Securing Holder to Leg Before Removing Pigeon From Container

SECTION 7
Releasing the Bird

1. PREPARATION.

a. To release the bird from a moving aircraft, first insert the pigeon in the bag prepared as in section IV, placing the head of the bird toward the closed end, as in figures 11 and 12.

b. Fold the sides of the bag carefully over the pigeon's head, back, and wings, as in figure 13.

c. When releasing the bird from the ground, the bag method should not be used.

2. RELEASE.

a. When releasing the pigeon from a moving aircraft, grasp the bag firmly at the spot where the pigeon's shoulders are located, and, with the bird's head toward the nose of the airplane, and the open end of the bag toward the rear, release the bag through any opening back of the propellers, as in figure 14. In releasing the bag, extend the arm full length outward and downward, and drop the bag with an outward and downward motion so that the pigeon will clear the fuselage and tail surfaces. The pigeon will fall into the slip stream from the propellers, which will carry it back a distance of a hundred feet or more. As the pigeon falls away from the plane, the force of the propeller slip stream lessens to a point where the pressure of the upper current of air forces the bag clear, allowing the bird free flight.

b. In emergency, pigeons can be released from aircraft in flight without use of the bag or other device. When thus committing a free pigeon to the air, with the hand grasp it gently but firmly around the body at the shoulders, with the bird's wings naturally folded against its body, to prevent flapping before release. Release the bird just as the bag is released (paragraph 2.a.), with the head pointed toward the front of the airplane. The pressure on all sides of the slip stream of the propellers is equal, and the bird, when dropped into it, immediately contracts its muscles, holding the wings tightly against the body, and retains this position as long as the slip-stream pressure continues.

c. Should a forced landing seem imminent, on either land or sea, several pigeons should be retained for release after landing. Attach the holder containing the message, and release the pigeon by tossing it high in the air with both hands. Obviously, no bag should be used.

DECLASSI

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET DECLASSIFIED
RESTRICTED
T. O. No. 01-1-130

Figure 11 - Placing Pigeon in Bag

Figure 12 - Placing Pigeon in Bag

Figure 13 - Folding Bag About Pigeon

Figure 14 - Holding Bag Preparatory to Release From Aircraft

SECTION 3
At Sea

1. Regardless of the distance from land, in case of emergency, release pigeons one at a time and at varied intervals. The pigeons will attempt to fly to the nearest land. Should this distance be too great or weather conditions be too bad, the pigeon will land on the first ship encountered. This ship may be in the immediate vicinity or may radio your position to other ships or airplanes.

2. Should a pigeon land on the rigging of a ship, it will not stay there long because of high wind pressures, but will descend to lower levels. Those aboard should place a pan of fresh water on the deck, close to the pigeon, for after flight a pigeon will seek to quench its thirst. If the pigeon cannot be caught alive, it should be shot, or killed by any other method, so that its message may be obtained.

SECTION 4
Altitudes and Speeds

1. Pigeons can be released by the bag method at any rate of speed and at any altitude up to 25,000 feet. No oxygen is required at these altitudes except for long, sustained flight.

RESTRICTED
SECRET DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET COPY DECLASSIFIED DOD Dir. 5200.9 Sec. 4 & 5 Para. 1954 DECLASS'FIED 10E 8/15/76

RELEASE OF PIGEONS FROM AIRCRAFT

Tests were conducted on January 10th, 11th, 14th, and 17th, 1943, at MacDill Field, Florida, in compliance with request contained in 3d Indorsement, paragraph 4, dated October 16, 1942, to determine the feasibility, possibility and practicability of releasing homing pigeons from aircraft for use by the Air Forces for communication and safety purposes at altitudes above 10,000 feet and at speeds greater than 295 miles per hour, and to supplement tests already conducted at Langley Field, Virginia, and MacDill Field, Florida, July 13, 1942, to July 31, 1942, which consisted of 587 tests in the release of pigeons from airplanes up to and including altitudes of 10,000 feet and speeds up to 295 miles per hour.

The object of these tests was to eliminate if possible, and as far as practicable, all complicated devices, to ascertain at what altitude pigeons could be released Free or in a No. 12 paper bag without physical injury or impairment to their orientative possibilities as well as to discover the ultimate altitude in the stratosphere at which pigeons could survive under natural conditions and return safely to their loft without the artificial application of forced oxygen.

During these tests 38 homing pigeons were released at various altitudes and speeds. One bird was lost. 29 releases were made from 11,000 feet to 25,100 feet altitude and at rates of speed varying from 190 miles per hour to 305 miles per hour. (The bomber planes at MacDill Field were unable to develop in excess of this rate of speed per hour at these high altitudes.

The one bird which failed to return was released at 20,000 feet at 2:52 p.m. in a time bomb container, speed 150 miles per hour, temperature 41 degrees below zero. Cause for his non-return was possibly due to faulty mechanism in the container.

Six (6) pigeons were released in the darkness at 5,000 feet altitude, rate of speed 200 miles per hour. Each bird was released in a No. 12 paper bag. Time of release 5:01 p.m. to 6:03 p.m. The first bird arrived at loft in 8 minutes. All birds had returned in an elapsed time of 42 minutes.

Methods of release:
17 released Free with no protective device of any description.
17 released in No. 12 paper bags.
4 released by time bomb container.

The pigeons carried up to 25,000 feet altitude did not seem to be affected in any way by the rarefied atmospheric pressure encountered at the various heights of ascent. No perceivable, functional, or

SECRET COPY DECLASSIFIED

Incl 6

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET COPY

DECLASSIFIED

(Cont'd) Release of Pigeons From Aircraft.

physical impairments could be noted. However, the bird released at 25,100 feet did show slight loss of faculties and apparently was unable to control it's equilibrium, continuing to fall forward balancing it's weight on the frontal point of the breast, momentarily to regain it's balance and then again fall forward, eventually spreading to the right, using it's breast as the pivotal center. During these erratic movements the bird had complete control of all anatomical parts of the body - head, wings, and tail was constantly kept in proper alignment with exception of the gluteus maximus (upper thigh muscles). These parts seemed to be in a spasmodic relaxed condition, yet not convulsive, while the brain functions of the bird seemed to be perfect and not in any way affected. The gluteus maximus muscles did not seem to be able to react to the brain impulses. The eye remained clear and alert. Perfect control was retained of the orientative sensibilities. This is proven by the fact that when liberated from the plane at 25,100 feet altitude at a speed of 132 miles per hour, 59 degrees below zero, approximately 25 miles from it's home loft, this bird returned to the loft in unusually fast elapsed time of 78 minutes. Information at hand indicated that this is an all time altitude record for the release of pigeons.

Upon the return of the birds to their loft they were all carefully examined for injury, loss of feathers, or any other damage as the result of their release and descent. Inspection showed the birds to be in perfect physical condition, alert, and full of vigor. Not a feather was found to be missing, nor were they even disrupted.

Proof that pigeons released at high altitudes up to 25,000 feet are not affected by the speed of the airplane, atmospheric pressures, exceedingly low temperatures, nor long descent by the fact that two of these birds returned from three flights including one night flight. Nine made two flights, three of which flights included night releases. The twelve other birds made one flight each. None of these birds showed any ill effects. These pigeons were released through the side aperture and also through the flare chute in the bottom of the plane. When released ~~FROM~~ the pressure on all sides of the slip stream of the propeller being equal, the bird when dropped into it immediately contracts it's muscles, holding the wings tightly against the body. This position is retained as long as the slip stream pressure continues. It seems to vary from 500 to 1,000 feet. When released from the pressure the bird immediately starts it's long downward spiral. When released in a No. 12 paper bag the same pressure exists and the bag is automatically released at the confluence of the slip stream and the upward current of air.

~~SECRET~~

DECLASSIFIED

COPY 2 -

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

COPY SECRET DECLASSIFIED

PIGEONS RELEASED FROM AIRCRAFT AT MacDILL FIELD, FLORIDA

Flight Number 1.

January 10, 1943.

Altitude reached - 19,000 feet.
Type of plane used - B-26B (Twin Motor)
Plane fully equipped.
Crew - 7 men.
Rate of speed - 250 mph reduced to 135 mph.
Oxygen used from 13,000 feet by crew.
Weather - clear. Visibility - fair.
Distance from loft - over ocean approximately 25 miles circling.
Number of pigeons released - 17.
Methods of release:
11 - Free.
2 - Time Bomb Containers.
4 - No. 12 paper bags.

Height in Feet	Iden. Band No.	Time of Release	Arrival at Loft	Time Elapsed	Release Mechanism	Air Speed Temperature
5,000	Red Check	2:22 p.m.	3:10 p.m.	48 min.	Time Cont.	250 mph
6,000	Red Check	2:23	3:01	38	Free	250
11,000	5014	2:30	2:57	27	Free	
11,000	5023	2:32	3:16	44	Paper Bag	
13,000	3845	2:40	Darkness		Free	
14,000	3717	2:43	3:46	63	Paper Bag	
15,000	5019	2:44	Darkness		Free	
16,000	5028	2:46	3:30	44	Free	
17,000	5032	2:49	Darkness		Free	
18,000	3766	2:49	4:41	112	Paper Bag	165 mph
18,000	3676	2:50	3:25	35	Free	
19,000	5004	2:59	n.d.12:32		Free	
19,000	5009	3:00	n.d.11:45		Paper Bag	30 below zero
19,000	Blue Check	3:00	3:46	46	Free	
19,000	Dark Check	3:00	4:26	86	Time Container	
19,000	3768	3:01	4:26	35	Free	
19,000	2598	3:01	n.d.1:10		Free	135 mph

Flight Number 2.

January 11, 1943.

Altitude reached - 25,100 feet.
Type of plane used - B-26B. (Twin Motor)
Plane Stripped.
Crew - 4 men.
Rate of speed - 160 mph.
Oxygen used from 13,000 feet by crew
Distance from loft - over ocean approximately 25 miles.

SECRET DECLASSIFIED

COPY

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET COPY

DECLASSIFIED

Number of pigeons released - 10.
Methods of release:
4 - Free.
2 - Wire Container.
4 - No. 12 Paper bags.

Height in Feet	Ident. Red No.	Time of Release	Arrival at Loft	Time Elapsed	Release Mechanism	Air Speed Temperature
		2:30	n.d. 11:45		Paper Bag	150 mph
20,000	Red Check	2:32			Wire Cont.	150 mph 41 below
20,000	5039	2:32	4:31	97min.	Free	150 " " 41 " "
21,000	5032	2:34	n.d. 4:10		Free	150 " " 38 " "
21,000	5034	2:35	3:45	30	Paper bag	150 " " 38 " "
21,000	5035	2:35	6:00	185	Paper bag	150 " " 38 " "
21,000	5038	2:36	3:42	46	Free	150 " " 38 " "
22,000	5717	2:50	3:45	55	Free	145 " " 38 " "
23,400	Black Check	3:41	5:01	80	Container	145 " " 39 " "
25,200	5030	3:02	4:20	78	Paper bag	132 "

Flight Number 3.

January 14, 1943 - Night Flight

Altitude reached - 5,000 feet.
Type of plane used - B-26B. (Twin Motor)
Plane fully equipped.
Time - 7 min.
Rate of speed - 200 mph
No pigeon used by crew.
Distance from left - over ocean approximately 5 to 25 miles circling.
Number of pigeons released - 6.
Methods of release:
All released from paper bags.

5,000	5031	8:01 p.m.	8:30 p.m.	29 min.	Paper bag	200 mph
5,000	5033	8:01	8:32	31	Paper bag	
5,000	R.C.M.P.	8:02	8:15	13	Paper bag	
5,000	5036	8:02	8:18	16	Paper bag	
5,000	5718	8:03	8:11	8	Paper bag	
5,000	5037	8:03	8:45	42	Paper bag	

Flight Number 4.

January 17, 1943.

Altitude reached - 14,000 feet.
Type of plane used - B-24 (4 motor)
Pilot - Stripped.
Over 4 min.
Rate of speed - 200 mph.

SECRET

DECLASSIFIED

COPY

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET COPY

DECLASSIFIED

Oxygen used - 13,000 feet by crew.
Distance from loft- over ocean approximately 25 miles circling.
Number of pigeons released - 5.
Methods of release:
3 - Paper bags
2.- Free.

Height in Feet	Iden. Band No.	Time of Release	Arrival at Loft	Time Elapsed	Release Mechanism	Air Speed Impressions
16,000	6004	4:11 p.m.	6:18 p.m.	127 min.	Paper bag	(50 mi.) 200 mph
16,000	5028	3815	6:12	177	Paper bag	
16,000	B.C.W.F.	4:18	6:00	102	Paper bag	
16,000	3766	4:17	5:20	63	Free	
16,000	5041	4:19	6:23	124	Free	

No. Times Released	Iden. Band No.	Altitude in Feet	Altitude in Feet	Altitude - Night Flight in Feet
3	5011	11,000	19,000	5,000
3	5028	16,000	16,000	5,000
2	2598	19,000		5,000
2	5004	19,000		5,000
2	5024	21,000		5,000
2	B.C.W.F.	16,000		5,000
2	3717	14,000	22,000	
2	5019	15,000	20,000	
2	5032	17,000	21,000	
2	3696	18,000	21,000	
2	3766	16,000	18,000	
1	Dark Check	23,400		
1	5033	25,100		
1	5002	21,000		
1	5009	19,000		
1	3766	19,000		
1	Dark Check	19,000		
1	Blue Check	19,000		
1	6004	16,000		
1	5041	16,000		
1	5023	11,000		
1	Red Check	6,000		
1	Red Check	6,000		
1	Red Check	20,000 Lost		

SUMMARY:

1. Pigeon communication from aircraft is feasible, practical, safe, silent, efficient, and dependable.

SECRET

COPY

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

COPY SECRET
DECLASSIFIED

(Cont'd) Release of Pigeons From Aircraft.

2. Pigeons can be released [redacted] from high speed aircraft at speeds up to and including 305 miles per hour. It is also believed that by using a [redacted] PAPER BAG they can be released at any speed without physical injury.

3. Pigeons can be released at varying altitudes up to 25,000 feet without any protective device of any kind or description and without the application of forced oxygen. Birds released at this altitude and at approximately 25 miles at sea are capable of making this descent and flight in 78 minutes.

4. Pigeons can be released at 25,000 feet altitudes with infinitesimal loss.

5. Pigeons can be released at high altitudes through any opening which is large enough to permit their passage

6. Over water pigeons are dependable up to at least 200 miles under actual war conditions. (Record for over ocean flight 320 miles during war time.)

7. Pigeons can be used successfully up to 600 miles over land under favorable weather conditions and can complete this flight in a single day.

8. Pigeons can be carried in aircraft in small compact two or four bird containers.

9. Pigeons can be used over-sea, over-land, over-mountain, over-jungle, over-desert, and in conjunction with paratroopers and other isolated forces.

10. Pigeon lofts are already located at Langley Field, Virginia, and MacDill Field, Florida and others will be established for use of the Anti-Submarine Command at Westover Field, Mitchell Field, Dover Army Air Base, Langley Field, Jacksonville Municipal Airport, 36th Street Airport, Miami, Florida, Drew Field, and Galveston Municipal Airport. With the Troop Carrier Wing Headquarters at Bolling, Missouri, Bell Valle Air Base, Austin, Texas, Pope Field, North Carolina, and with the Air-borne Command at Bragg, North Carolina.

[redacted]:

It is recommended that:

a. The use of pigeons be adopted for communication purposes and safety measured with all type of aircraft.

SECRET DECLASSIFIED
COPY

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

b. Pigeon communication be adopted for use by Anti-Submarine Command, Anti-Aircraft Command, Troop-Carrier Command, Air-borne Command, Transport Command, etc., and on all heavy and medium bombers.

c. Pigeon lofts be installed at all air fields that all flight personnel may be thoroughly instructed in the use of pigeons for communication.

d. A No. 12 paper bag with side slit be adopted as the sole releasing device for releasing pigeons from aircraft at all altitudes and speeds.

Note:

The pigeons which produced these extraordinary results were not the best pigeons obtained in the Army lofts, but were birds of just medium caliber. The best birds were not used due to the fact that they were supposed to be destroyed during the tests.

THOMAS MacCLURE
Captain, Signal Corps,
Military Training Branch,
Pigeon Section.

SECRET

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD ltr.

SECRET

DECLASSIFIED

COPY

RELEASE OF PIGEONS FROM AIRCRAFT

Tests were made from July 13, 1942 to July 31, 1942 at Langley Field, Virginia and MacDill Field, Florida to determine the feasibility, possibility and practicability of releasing homing pigeons from airplanes for use by the Air Force for communication and safety purposes.

Five hundred eighty-seven (587) tests were made in which five hundred eighty-seven (587) pigeons were released in twenty (20) various types of individual devices. Five hundred eighty-six (586) of these tests were successful, only one pigeon being killed.

Tests positively demonstrated that pigeons can be released from airplanes with accuracy, without the use of complicated protective device at altitudes up to 10,000 feet, at speeds up to at least 295 miles per hour. It was also discovered that pigeons can be released without any device or protective covering whatsoever at above mentioned altitudes and rates of speed. One hundred ninety-four (194) birds were released by this method. Upon the return of these birds to their loft, they were given a thorough and minute inspection and were found to be in perfect physical condition showing no ill effects, nor did they appear to have lost a single feather.

The more complicated equipment was gradually eliminated. The object being to perfect a system by which the pigeon could be delivered from the plane in the quickest possible manner and without the necessity of any complicated and incumbering devices. Through this process of elimination the safest, simplest, quickest, and most dependable instrument was found to be a No. 12 paper bag. By merely placing the bag flat and lengthwise on the operator's knee, and by placing the thumb one-half inch from either edge, taking the other hand and ripping this section down one side the entire length of the bag, a U-shaped instrument is formed, into which the pigeon can be readily placed, head towards the bottom of the bag. The sides of the bag are folded over the pigeon's head, back and wings, thus forming a protective covering. The bag containing the pigeon is slipped over the side of the plane through any opening which may be available, care being taken to see that the bird does not strike the sides, wings or tail of the plane. One hundred sixty-one (161) pigeons were released in the No. 12 paper bags with precision and without any apparent discomfort to the bird.

Pigeons were released from the top, side, bottom, and tail of the aircraft used. When released the bird's head should always be turned toward the propellers. By an outward and downward motion, the bird is thrown into the back-wash of the propellers, which forces it back a distance of 200 to 1,000 feet. At this point the force of the back-wash gradually becomes lessened. The pressure of the upward current of air carries the paper bag upward and forces it clear of the bird, allowing the bird free flight. No violent shock is perceivable at the point of confluence of these two diversified currents of air.

Incl 7

SECRET DECLASSIFIED COPY

SECRET

DECLASSIFIED

COPY

A piece of cloth of medium weight, size 18"x18" was used efficiently. Fifty-six (56) birds were released in this manner. The same material in sizes 12"x12", 14"x14", 16"x16" was used for these tests, but was found unsatisfactory in that the bird was not afforded the proper needed protection. Aman's handkerchief, regular size 18"x18", can be used in lieu of a piece of cloth and it works perfectly.

Although 194 pigeons were released without any device or protective covering of any kind, it is not recommended that this method be generally employed for the release of pigeons from airplanes, and should be resorted to only in cases of emergency.

It has been conclusively proven that in cases of urgent necessity, pigeons can be released without any protective covering at altitudes up to 10,000 feet and at speeds varying anywhere from 100 to 295 miles per hour. For higher altitudes, the special self-opening, bomb-shaped container with timing device attached should be used. This device can be set to liberate the bird at from one to sixty seconds, thereby allowing the bird to descend to a lower altitude before being released from the device.

Tests were made carrying the pigeons out to sea, 75 miles from shore, and this did not in any way reduce their efficiency or effect their homing instinct.

TYPES OF PLANES USED:

a. Twin-Motored Bomber British
b. Flying Fortress, B-17, #12405
c. Flying Fortress, B-17, #11915
d. Twin-Motored Bomber, B-18, #7518
e. British Twin-Motored Bomber, AJ-183
f. Flying Fortress, B-17, #19138
g. Flying Fortress, B-17 #19134
h. B-26, #117619
i. B-26, #117620
j. B-26, #117631
k. B-26, #117628
l. #19134

TYPES OF EQUIPMENT USED:

a. One-bird container with parachute attached.
b. One-bird container with disk fin attached, - 3" diameter.
c. " " " " " " " " ; - 4" "
d. " " " " " " " " ; - 5" "
e. " " " " " " " " ; - 6" "
f. Timing device
   1. Timing device outside.
   2. " " inside.
g. Cheesecloth Strips - 6 inches wide by 6 ft long.
h. Paper Bags - #10, #12, #14, #16.

SECRET DECLASSIFIED COPY

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET DECLASSIFIED COPY

j. Squares of paper - 12"x12", 14"x14", 16"x16", 18"x18".

NUMBER OF BIRDS RELEASED

	Without protective covering	194
1.	Cheesecloth squares	5
2.	Timing device inside	4
3.	" " outside	4
4.	One-bird container with parachute attached	4
5.	One-bird container with disk fin attached, 3" dia	4
6.	" " " " " " , 4" dia	2
7.	" " " " " " , 5" dia	2
8.	" "" " " " " , 6" dia	4
	Cloth:	
9.	12"x12"	8
10.	14"x14"	8
11.	16"x16"	12
12.	18"x18"	56
	Paper squares:	
13.	12"x12"	8
14.	14"x14"	8
15.	16"x16"	7
16.	18"x18"	8
17.	Paper bags:	
17.	#10	28
18.	#12	161
19.	#14	26
20.	#16	34
	Total	587

RELEASES:

ALTITUDES Feet	SPEEDS Miles per Hour
200 to 1,000	190
800 to 2,000	150
1,000 to 3,000	180
1,000 to 2,000	150
1,000 to 2,000	140
1,000 to 3,000	160
1,000 to 3,000	150 to 200
1,000 to 3,500	200
1,500 to 2,500	175
1,000 to 5,000	150 to 250
1,000 to 8,000	190
1,000 to 10,000	280
3,000 to 5,000	220
3,000 to 5,000	295
3,000 to 6,000	275

SECRET DECLASSIFIED COPY

SECRET DECLASSIFIED COPY

FILMED ILLUSTRATIONS OFPIGEON AND PARACHUTE EQUIPMENT:

Langley Field, Virginia

Approximately 700 feet of movie film was taken of the different operations showing release of pigeons, 300 feet of which was taken in the interior of the plane at Langley Field, Virginia, showing different types of equipment used and methods of release. The balance being filmed from the tail of the same planes but by a different camera to show the aption of pigeons after their release.

MacDill Field, Florida.

Approximately 1,000 feet of film was taken at MacDill Field, Florida, by two planes carrying two cameras each. These films were taken in the interior of the plane and from the tail of the same plane to show the action of the birds upon their release. The accompanying plane carried cameras in various positions in order to film the action of the birds when released from the plane, and the operation of the parachute equipment.

PARACHUTE TESTS:

DROP TEST (Dummy Weights)	WIND VELOCITY Miles per hour
2 lbs.	
5 lbs.	
10 lbs.	10 to 20
15 lbs.	
25 lbs.	

The parachutes opened rapidly and immediately after release, with little apparent body shock and slight oscillation. The medium rate of descent was reached very quickly.

Parachutes were packed in cardboard, paper, canvas, and wood containers. All worked perfectly.

Several parachutes were refolded after the first use. The reused parachutes were tied with light twine into square packages without container, to which an 80 pound static cord was attached.

Six (6) ft. cotton parachutes were found to be too small to prevent severe ground shock to the pigeons upon landing.

Nine (9) ft cotton parachutes operated with weights up to 25 lbs., the degree of oscillation being slight and with no severe ground shock.

Pigeons and pigeon equipment can be released from bomber or transport planes with accuracy and dependability.

SECRET DECLASSIFIED COPY

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET DECLASSIFIED COPY

SUMMARY:

1. Pigeon communication from aircraft is feasible, practical, safe and dependable.

2. Pigeons can be released from high speed aircraft at speeds up to and including two hundred ninety-five (295) miles per hour.

3. Pigeons can be released up to an altitude of 10,000 feet without any protective device of any kind or description, and at rates of speed up to 295 miles per hour. It may be possible to release pigeons without any protective device at even greater speeds than 295 miles per hour.

4. Pigeons can be released with accuracy and dependability by the use of a No. 12 paper bag.

5. Pigeons can be released with accuracy and dependability by the use of a medium weight piece of cloth 18"x18" square.

6. Pigeons can be released with accuracy and dependability at altitudes above 10,000 feet and at any rate of speed by the use of a special self-opening, bomb-shaped container with release timing device attached.

7. Pigeons released at any altitude up to 10,000 feet and with or without protective devices, and at rates of speed up to and including 295 miles per hour suffer no physical injury and return to their loft in perfect physical condition, nor are their capabilities or homing instinct impaired.

8. Pigeons can be released from high speed aircraft with infinitesimal loss.

9. Pigeons can be carried in aircraft in small compact containers, PG-51.

10. Pigeons can be released from any section of the plane through any opening which is large enough to permit its passage.

11. Pigeons can be carried up to altitudes of 20,000 feet without the use of special protective devices and without any ill effects. (Tests made by R.A.F.)

12. Over-land pigeons are dependable up to 300 miles and can be used successfully up to 600 miles under favorable weather conditions.

13. Over-water, pigeons are reliable up to 150 miles under actual war conditions and tests were partially successful under favorable conditions to 320 miles. (Tests made by R.A.F.)

14. Pigeons can be dispatched from airplanes to paratroops or other isolated forces.

15. Information received from the British Delegation reveals

COPY

SECRET DECLASSIFIED

SECRET DECLASSIFIED COPY

that the RAF and the German Air Force are extensively using pigeons with all aircraft.

16. Equipment has already been developed in accordance with military characteristics for use with paratroops.

RECOMMENDATIONS:

It is recommended that:

a. The use of pigeons be adopted where they can be utilized for communication purposes and safety measures with all types of aircraft.

b. Pigeon communication be adopted for use by paratroops and other isolated forces, pigeons to be supplied to these forces by aircraft.

c. Pigeon lofts be installed at all heavy and medium bombing aircraft stations.

d. A No. 12 paper bag with side cut out, be adopted as the releasing device of pigeons from aircraft up to an altitude of 10,000 feet and speeds up to 300 miles per hour.

e. The self-opening, bomb-shaped container with release timing device attached be adopted for the release of pigeons from aircraft traveling at any rate of speed and at altitudes above 10,000 feet.

f. The motion picture showing the release of pigeons from aircraft be utilized in conjunction with the training of personnel who are responsible for the release of pigeons from aircraft.

Thomas MacClure
Capt, Signal Corps
Military Training Div
Pigeon Branch.

COPY

SECRET DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET CLASSIFIED
GENERAL TEXTILE MILLS, INC.
COPY
DECLASSIFIED DOD Ltr 8 Nov. & 30 June 1972 By [illegible] NSC, Date 12/18/76
NSE

NEW YORK TIMES
November 11, 1943

RAF USES PIGEONS TO AID IN RESCUES

"Birds Taken on all Bomber Flights to carry Messages in Plane Fails at Sea."

By Frederick Graham
(By cable to the New York Times)

AT AN RAF HEAVY BOMBER STATION, Britian, Nov 10- Every heavy bomber of the Royal Air Force that attacks targets in Germany from bases in Britian carries only one man who is rated as pilot, but there are always two other mighty fine fliers aboard the plane. They are homing pigeons who are taken along for communications in the event the plane is forced down at sea.

The modern well-kept pigeon loft at this base in which are kept from a score to a hundred of the best bred and best trained homing birds to be found on this island is a standard building on every RAF bomber station. And RAF personnel who have charge of the birds and buildings in many cases were pigeon fanciers in civilian life.

The birds are carried in small tin boxes that can be made watertight by tightening the lid and that will float if tossed into the water when the planes are forced down. Crew members, when possible, take the boxes into a dinghy when they abandon the plane, but if necessary the box can be tossed overboard and then picked up later.

Inside the box is a small message case and a special pencil for marking down the location of the "ditched ship." Bearing such a notation fastened to its leg, the pigeon is tossed into the air for the trip home.

Many crews forced down in the North Sea have been saved by these birds, that do not know how to get lost.

The National Pigeon Service, founded several years ago by the Government, asked all civilian pigeon fanciers to contribute their trained birds to the armed services. As an inducement the Government offered to give a special corn ration to the rest of the flocks.

For the last two years the RAF has been breeding its own birds. Only the best are kept and these are painstakingly trained. When big enough to fly they are put in regular boxes for hours at a time to accustom them to confinement. Then they are taken out short distances to every point of the compass and released. Finally they are taken far out to sea on air-sea rescue boats and up in planes. If they pass this test they are ready

COPY DECLASSIFIED
SECRET

Incl 8

SECRET CLASSIFIED
COPY

to go on what RAF airmen call "operational."

The crews say the pigeons believe well in all situations. Lack of oxygen does not seem to bother them at all. No matter how heavy the flack, they never give a sign of panic or try to get out of the box. The only sign of nervousness is popping the head out of the opening of the box now and again. Lack of food does not bother them either so long as they get water.

There are any number of pigeons that have done more than 100 operational flights. There are several that have been over Berlin three times as well as over North Italy and Ruhr targets. One called "Old Brandie" by the men of his station had nearly 200 operational flights to his credit. Another that did not even have a name but the boys think ought to have a decoration recently returned to "nest" after recovering from an injury to his beak by flak over Berlin.

DECLASSIFIED
SECRET COPY

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET

DECLASSIFIED
E.O. 12958
NLX/76
COPY

SUBJECT: Pigeon instruction to other organizations.

TO : Air Communications Officer, Equipment Division, Pigeon Branch, Room 5 D 244 Pentagon, Washington, 25, D. C.

1. At the invitation of the Commanding Officer, 119th Cavalry (mecz) two pigeoneers with pigeons carried in PG-60 containers accompanied that organization on an over-night bivouac to Silver Creek Falls, Oregon (approximately twenty-five miles East of Salem) for the purpose of demonstrating pigeon communication.

2. The normal means of signal communication used by this Cavalry unit is radio; and on 11 February 1944 they established contact with their message center and headquarters located at Salem Army Air Field. The day was overcast with showers, which should not have been considered a cause for too much radio interference, but would be considered unfavorable weather for pigeon flying. However, at 1100 the radio station received a message to transmitt, and at the same time a pigeon was liberated carrying a copy of the same communication. The pigeon message was received at the message center of 1311th and relayed to the 119th by runner. The Commanding Officer of the 119th reported that both the radio message and the pigeon message were received at their headquarters simultaneously at 1133.

3. This information is passed on to your headquarters as an example to show that at times even under ordinary circumstances pigeon communication can be compared with the more modern and expensive systems.

Certify this as
a True Copy

JEROME J. PRATT,
1st Lieut., Sig C.,
Commanding.

3/24/44

COPY
SECRET DECLASSIFIED

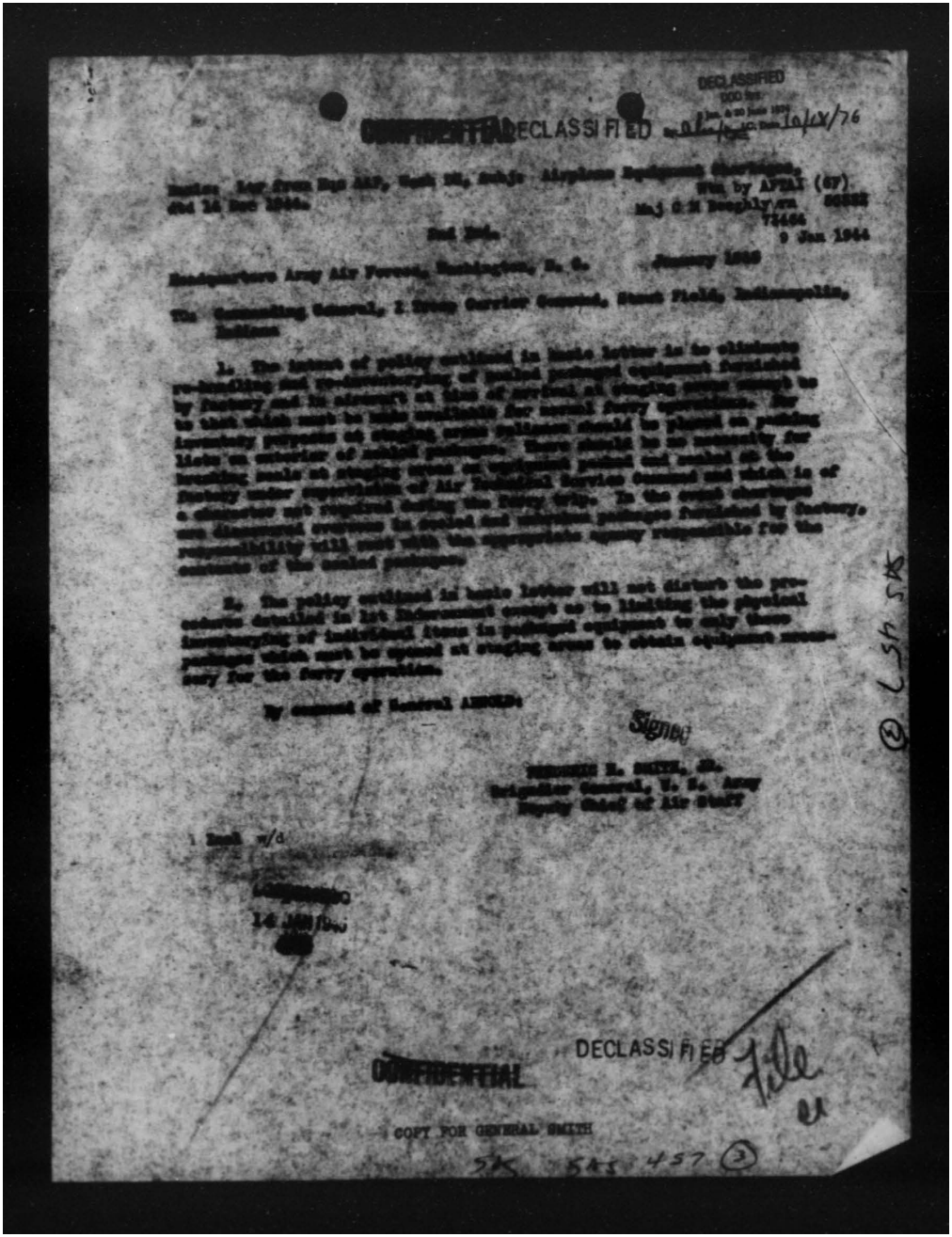
Incl 9

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



DECLASSIFIED
DOD Dir. 5200.9 Jan. 6 or June 1971
NSC Ltr. dtd 10/4/76

~~CONFIDENTIAL~~ DECLASSIFIED

Letter, Ltr from Hqs AAF, Wash DC, Subjs Airplane Equipment Shortages, dtd 14 Dec 1944.

Rtd by AFDAT (AT)
Maj G-2 Dooghly ltr 58822
72464
9 Jan 1944

2nd Ind.

Headquarters Army Air Forces, Washington, D. C. January 1945

The Commanding General, I Troop Carrier Command, Stout Fields Indianapolis, Indiana

1. The intent of policy outlined in basic letter is to eliminate re-handling and transhipping of unlike personal equipment furnished by factory and to transport at time of overseas movement only so much of such equipment as may be necessary to the individual for normal Army operations. The immediate purpose of staging areas outlined should be planned on providing ample accommodations for receiving, checking and segregating equipment and making adjustments. There should be no necessity for breaking bulk at staging areas or withdrawal packed and sealed at the factory under supervision of Air Technical Service Command and which is of a character not required during the Army cycle. In the event shortages are discovered overseas by packed and sealed packages furnished by factory, such discovered overseas by packed and sealed packages furnished by factory, such discovered overseas by packed and sealed packages furnished by factory, such

THIS PAGE IS DECLASSIFIED IAW EO 13526

[redacted] DECLASS

Basic Ltr from Headquarters, Army Air Forces, subj: "Airplane Equipment Shortages" dtd 14 December 1944.

1st Ind.

HEADQUARTERS, I Troop Carrier Command, Stout Field, Indianapolis 9, Indiana, 21 December 1944.

TO: Commanding General, Army Air Forces, Washington 25, D. C.

1. The policy and procedure of this Command of processing aircraft destined for overseas has been as follows for the past year and a half:

a. Upon arrival at the Troop Carrier Command staging area, Baer Field, Fort Wayne, Indiana, the station aircraft checkers check all equipment on board using the AAF Form 263-A, as a check list. It is pointed out that all such aircraft are delivered, new directly from the factory.

b. The aircraft checkers remove every box and other loose items, likely to be misplaced during maintenance processing, and deliver same to a supply processing section. This latter section opens every box, checks the contents against the packing lists to determine shortages or damaged items. There are many items in the sealed boxes delivered with the airplane which have to be removed and placed in the proper station of the airplane prior to departure for the Air Port of Embarkation. Examples of such items are the headsets and micro phones, special engine tools, drift meter, astrodome bracket, astro compass, technical orders, instruction books, etc. To place such items, which are needed for the flight to the Air Port of Embarkation, in their proper station the sealed boxes delivered from the factory must be opened.

c. After a thorough check of all loose equipment has been made the shortages, if any, are reported to the aircraft checkers in order to allow them to comply with AAF Regulation 15-263, 263-A and 263-B, and the missing items are immediately requisitioned on a "blue streak" requisition. If the missing items are not received prior to the departure of the airplane the shortage is reported by TWX to the Air Port of Embarkation.

d. The loose equipment is then boxed in a special AAF container or containers, strapped and sealed. Those items to be placed in certain stations of the airplane are left outside the container. The containers and other loose government furnished equipment are then delivered with a packing and check list to the aircraft loading section.

3. When the aircraft is delivered to flight test, upon completion of maintenance processing, the Weights and Balance Section calls on the aircraft loading section for the complete load, which includes all items shown on the approved loading directive, plus the loose government furnished equipment. As the items are loaded, they are checked against the loading directive. After the airplane is loaded, the aircraft checkers against place

CONFIDENTIAL DECLASSIFIED

- 2 -

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

DECLASSIFIED

a final check upon the aircraft, using the AAF Form 263-A, the loading directive, and the final station shortage list.

f. All papers are placed in a large envelope and delivered to the pilot for further delivery to the Air Port of Embarkation. The envelope is sealed when delivered to the pilot.

2. The above procedure has been highly successful in the past and it is requested it be given the approval of your Headquarters. All reports received in this headquarters stating certain aircraft which departed from Base Field arrived in the theatre with shortages of Government Furnished Equipment were thoroughly investigated and revealed that all equipment was on the aircraft at the time of departure, or the shortages were reported to the Air Port of Embarkation.

3. It is the opinion of this headquarters that the policy outlined in paragraph 2 of basic communication are being fully complied with, and have been by the staging area of this Command for the past 18 months. Every precaution has and will continue to be taken to make certain that all containers are strapped and sealed having a packing list, indicating the contents of the container, pasted on the outside as well as the inside of each container. During the briefing of the crews, the importance of preventing theft or loss of equipment is stressed. The pilot is made directly responsible for preventing loss [illegible] by means of his signature on each check list, which is delivered in a sealed envelope to the Air Port of Embarkation.

4. The concurrence or comment of your Headquarters with the foregoing policy is requested by indorsement hereon.

/s/ William D. Old

WILLIAM D. OLD,
Brigadier General, USA,
Commanding.

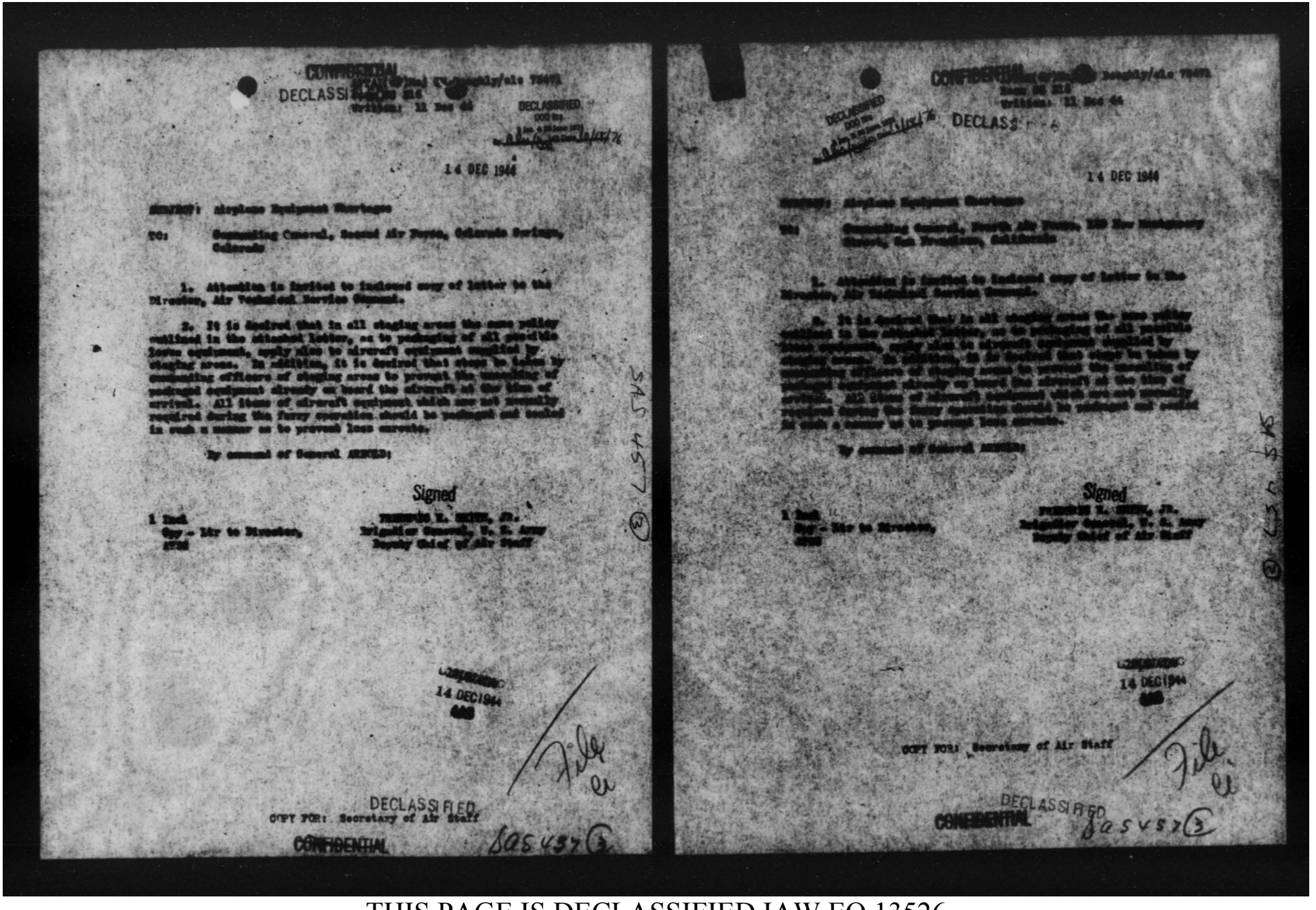
1 Incl n/c

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



14 DEC 1944

SUBJECT: Airplane Equipment Shortages

TO: Commanding General, Second Air Force, Colorado Springs, Colorado

1. Attention is invited to inclosed copy of letter to the Director, Air Technical Service Command.

2. It is desired that in all staging areas the same policy outlined in the attached letter, as to packaging of all possible items equipment, apply also to aircraft equipment supplied by staging areas. In addition, it is desired that steps be taken by commanding officers of staging areas to prevent the unloading of packaged equipment already on board the aircraft at the time of arrival. All items of aircraft equipment which are not normally required during the ferry operation should be packaged and sealed in such a manner as to prevent loss enroute.

By command of General ARNOLD:

Signed

1 Incl
Cpy - Ltr to Director, ATSC

FREDERICK L. ANDERSON, JR.
Brigadier General, U. S. Army
Deputy Chief of Air Staff

14 DEC 1944

COPY FOR: Secretary of Air Staff

DECLASSIFIED

CONFIDENTIAL

SAS 45757 (3)

14 DEC 1944

Signed

1 Incl
Cpy - Ltr to Director,

FREDERICK L. ANDERSON, JR.
Brigadier General, U. S. Army
Deputy Chief of Air Staff

14 DEC 1944

COPY FOR: Secretary of Air Staff

DECLASSIFIED

CONFIDENTIAL

SAS 45757 (3)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

DECLASSIFIED

DECLASSIFIED
DOD Dir. 5200.9
Auth: DOD Dir. 5200.10
By: [illegible] Date: 10/11/76

AFDRD-MM(M) 6 M Dec 44/alc 78471
Room BD 216
Wrisht: 9 December 1944

14 DEC 1944

SUBJECT: Airplane Equipment Shortages

TO: Director, Air Technical Service Command, Wright Field, Dayton, Ohio

1. Reports continue to be received by this Headquarters of many shortages in airplane equipment in airplanes ferried overseas. These shortages found during ATSC inspections should at overseas destinations are frequently items of loose equipment which, especially are lost or stolen enroute. The undermanning of such equipment during the extended ferry flights, with consequent steps of limited duration, is accepted by conditions difficult of control. To reduce or such of possible the hazards of theft or loss of items of loose equipment, it is believed that if all such [redacted] not necessary for normal ferry operation should be packaged and sealed the responsibility for loss would be unmistakably without and the safeguarding and control of remaining items made easier.

2. It is therefore directed that in collaboration with the Commanding General, Air Transport Command, you take the necessary action to develop a procedure for packaging and sealing of all items of loose aircraft equipment susceptible of theft or loss, which are not necessary to normal ferry operations.

By command of General ARNOLD:

Signed

[redacted]
Brigadier General, U. S. Army
Deputy Chief of Air Staff

[redacted]
14 DEC 1944

COPY FOR: Secretary of Air Staff

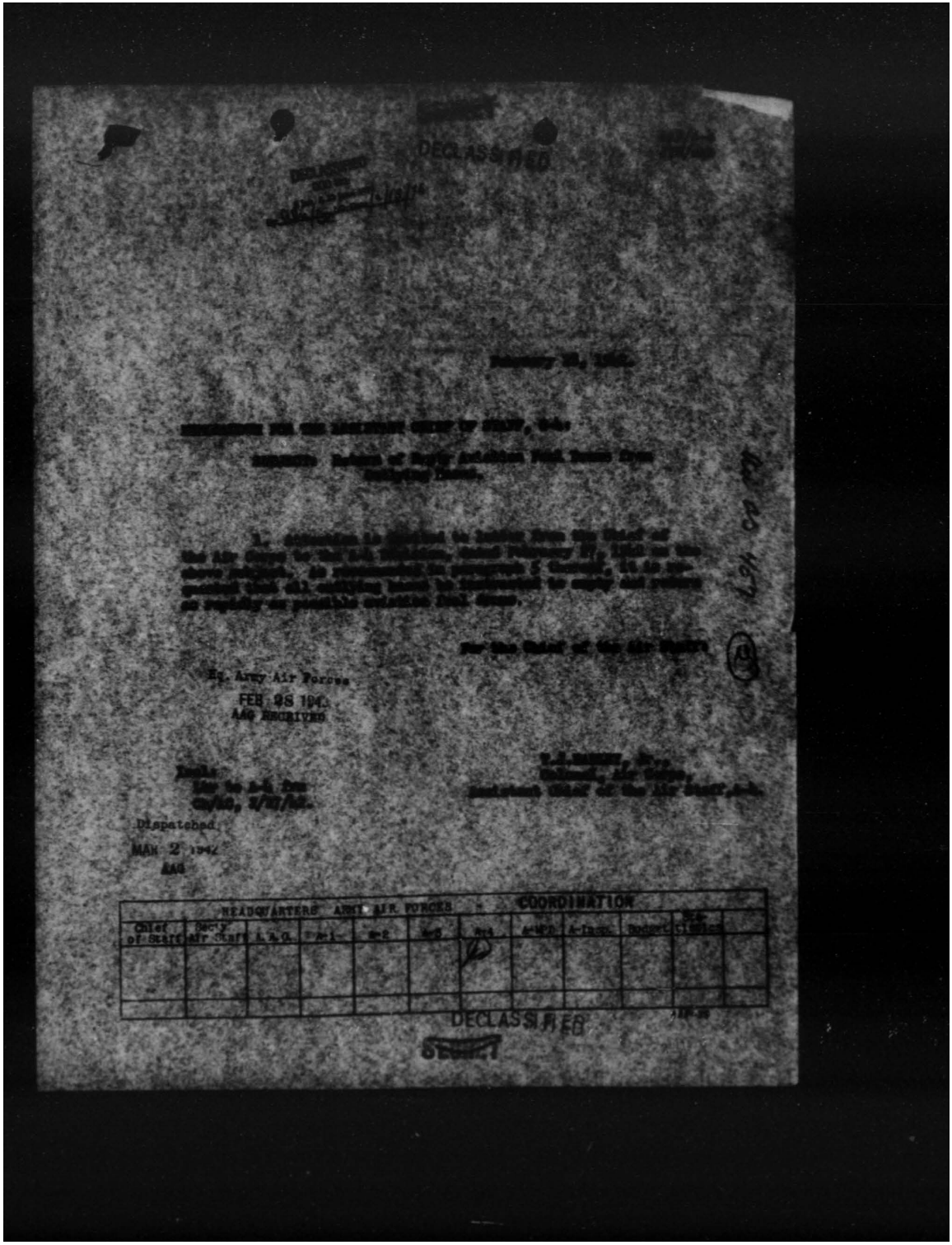
File

DECLASSIFIED
CONFIDENTIAL

AAS 457 (3)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



DECLASSIFIED

Eg. Army Air Forces
FEB 28 194
AAG RECEIVED

Dispatched
MAR 2 1942
AAG

HEADQUARTERS ARMY AIR FORCES							COORDINATION				
Chief of Staff	Dep. C. of S.	A.C. of S.	A-1	A-2	A-3	A-4	A-4(P)	A-Liaison	Budget	Sub-Division	

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir. 5200.9 & EO Exec. Order 11652
By [illegible] Date 9/10/76

~~SECRET~~

WAR DEPARTMENT
OFFICE OF THE CHIEF OF THE AIR CORPS
WASHINGTON

~~SECRET~~
By Authority of the Chief of the Air Corps
FEB 27 1942 130

FEB 27 1942

Return of Empty Aviation Fuel Drums from Outlying Bases.

Assistant Chief, Air Staff, A-4

1. During the past several months a considerable quantity of aviation fuel has been shipped to outlying bases in drums. The majority of this fuel has gone to South Pacific bases and Australia. It is believed that shipments of aviation fuel in drums during the next six months will be at a much greater rate, and difficulty will be experienced in securing drums for these shipments. It is therefore, essential that all available empty drums be returned to the United States.

2. It is realized that drums will be required for storage until underground tankage is installed, but when this tankage is completed, the drums should be emptied.

3. It is probable that many of the drums will not be in condition for reshipping aviation fuel without repairs. The necessary repairs can be made by Drum Fabricating Plants in vicinity of ports of embarkation. All drums that cannot be repaired can be disposed of as scrap.

4. It is the opinion of this office that cargo ships transporting supplies to the above mentioned areas are returning partially in ballast, the empty drums might serve an additional purpose in keeping them afloat in case of torpedoing or shelling.

5. It is recommended that all outlying bases be instructed to empty and return as rapidly as possible aviation fuel drums.

For the Chief of the Air Corps:

W. P. HEPLEY
Lt. Col., Air Corps.
Executive, Air Service Command

~~SECRET~~ DECLASSIFIED

Ops-5265

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

SEP 11 1941

4570B

1. Reference is made to your communication of August 25 which transmitted copy of Cable No. 1228 British Navy concerning the routing of aviation shipped to the Middle East.

2. In this connection, attention is invited to Subsection [illegible] Air Corps, Wright Field, Dayton, Ohio, [illegible] Section, Air Branch, Materiel Division, Wright Field, Dayton, Ohio, which [illegible] Section appears to [illegible] shipping data in connection with Defense Aid Organization supplies.

1 Encl.
Reference AAG Ltr.
Date, No. 580.21 9/5/41 (Forwarded with originals, see A-2 File for basic communication)

For the Chief of the Army Air Forces:

WILLIAM W. DICK
Lt. Col., A.G.D.
Air Adjutant Ge

Dispatched
SEP 11 1941
AAG

Air AU 45 70B

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

Classification changed to [redacted] by authority of: Sec. Gen. CC.AAF

[redacted] DECLASSIFIED

DECLASSIFIED DOD Dir. 5 200.9 and 10 June 1954 By [redacted] NARS, Date 10/13/76

Air-Sea Rescue Service in North Africa

TO: Director of Military Requirements — Feb. 26, 1943

From: Chief of the Air Staff — 1 — WDGS/37 5246

For comment.

1 Incl.
Memo fr Col. Schneider, 2-24-43

WILLIAM R. HALL
Col/usal, G. S. C.
Secretary, Air Staff

TO: Chief of Air Staff — DATE: [illegible]

FROM: Director of Military Requirements — COMMENT NO. 2 — WDGS/ops 4935

1. Attention is invited to attached incoming message number 1750, dated February 26th, 1943, from the Twelfth Air Force, which states that satisfactory arrangements have been made with R.A.F. for air-sea rescue in forward area.

2. Colonel Schneider has stated informally, since the receipt of the above message, that five (5) PBY type flying boats requested could be used in the rear areas of the North African theatre for rescue purposes, in connection with Anti-Submarine activities. However, since Anti-Submarine patrols are conducted in four-engined aircraft, the Anti-Submarine Command, it is not believed that a requirement exists for these boats in North Africa. It is therefore recommended that this request be disapproved.

2 Incls. Memo. 2/24 43 (G/Incl.)
Message No. 1750

E. E. ECHOLS,
Colonel, Air Corps

TO: Asst. Chief of Air Staff, A-3 — DATE 16 March 43

FROM: Deputy Chief of the Air Staff. — Dispatched MAR 16 1943 — COMMENT NO. 3 — WAL/mdc/5265

1. For consideration in next request for aircraft from Navy.

2. No further action will be taken re. the instant case.

1 Le 3/16/43

DECLASSIFIED

Incl. n/c

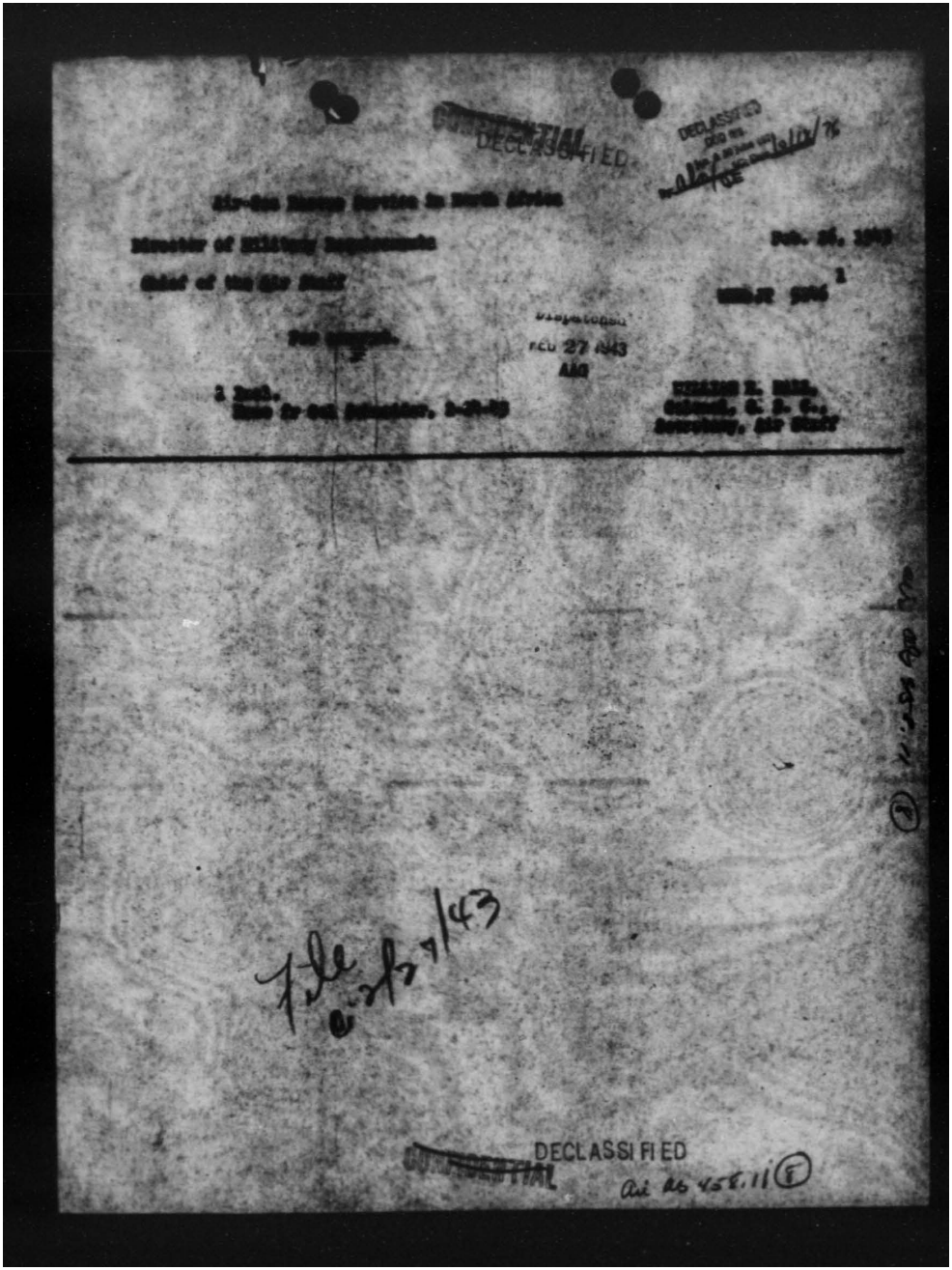
[redacted] SECRET

WILLARD A. LIMEY,
Lieut. Colonel, G.S.C.

NR dd 4/5/11

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

DECLASSIFIED
DOD Dir
E.O. 12958, as amended
6/12/96

Status of Life Raft Equipment.

Director of Military Requirements. 2-19-43

Deputy Chief of the Air Staff. MRL/mcd/5842 2

The Deputy Chief of the Air Staff desires that you review the attached and render your comments or further recommendations with the least practicable delay.

Dispatched
JAN 20 1943
AAG

MILLARD A. LINEY,
Lieut. Colonel, G. S. C.,

Incl. Memo to C/AS fm. Material Command, 1/18/43 w/atchs.

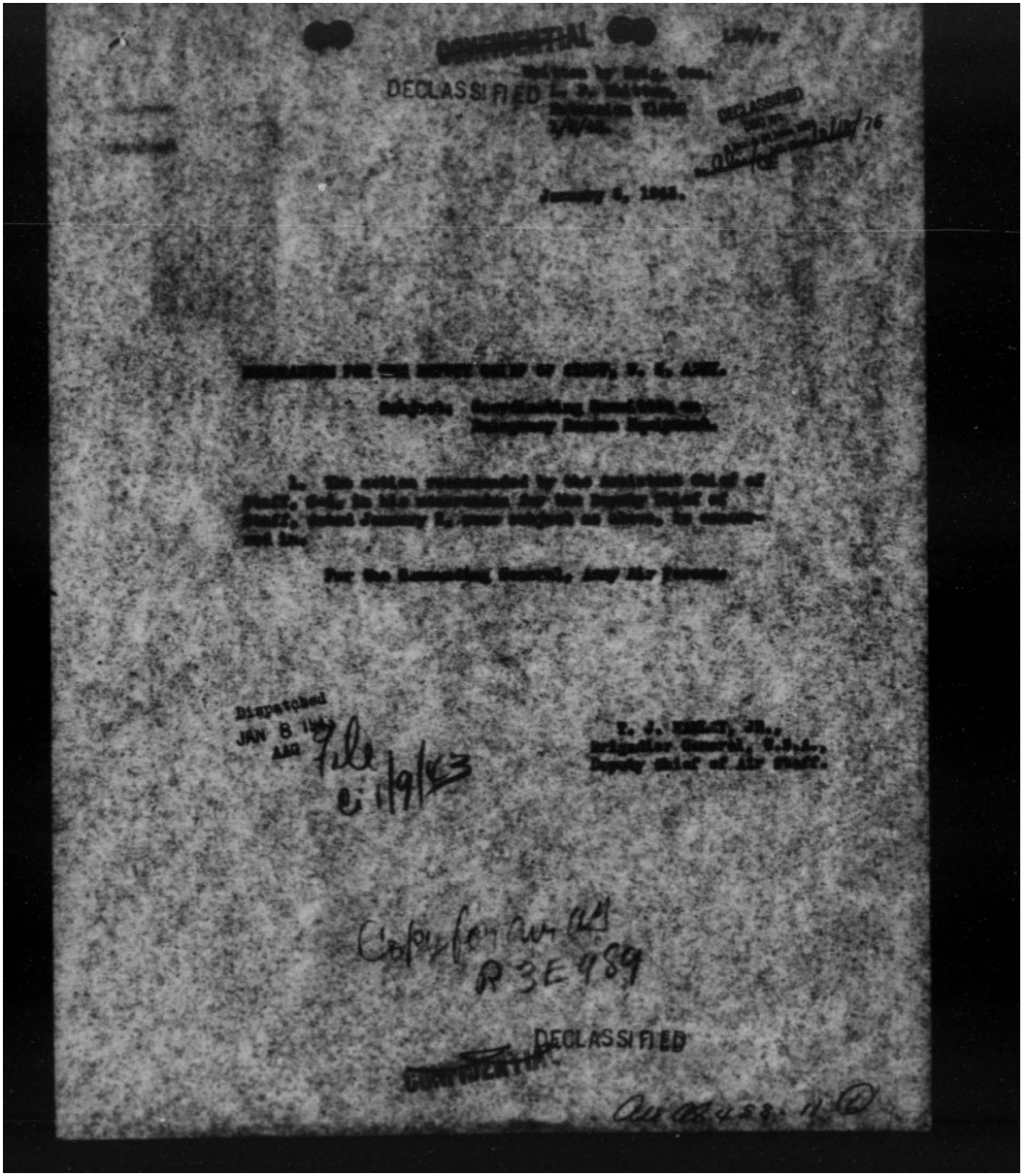
Orig. file

7 file 6/12/43

DECLASSIFIED
authority NSC memo 11-2-98

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

ROUTING AND RECORD SHEET

DECLASSIFIED

SUBJECT: Coordinating Committee on Emergency Rescue Equipment.

TO: Director of Military Requirements

DATE Jan. 5, 1943

FROM: Deputy Chief of the Air Staff.

COMMENT NO. 1
MAL/kmm 5205

1. General Hanley directs that the attached be reviewed in your Directorate and a memorandum for the Deputy Chief of Staff, U. S. Army, be prepared stating the position of the Army Air Forces reference the proposal.

2. It will be noted that a suspense date of January 8, 1943, has been placed on the reply from this Headquarters.

M. A. LIBBY,
Lt. Col., G.S.C.

Incls.
Memo for CG, AF fr C/S, dated 1/4/43
w/return date of Jan. 8,1943 for corresp.
Disp Slip to CG AAF fr Col. Schulgen, dated 1/4/43
Memo for Dep C/S fr General Moses, dated 1/2/43, above subject with 2 incls.,i.e.
Memo fr JCoS, 12/23/42 w/incl.
Cy Memo fr Adm. Horne, 12/30/42

TO: Deputy Chief of the Air Staff

Date: 1/6/43

FROM: Director of Military Requirements

Comment No. 2
MRR-1 LPH/rr 71802

1. Attached herewith is a proposed reply to the Deputy Chief of Staff, U. S. Army, stating that the AAF concurs in the proposal to establish a Coordinating Committee on Emergency Rescue Equipment and in the action recommended by the Assistant Chief of Staff, G-4 in his memorandum of January to the Deputy Chief of Staff.

Davenport Johnson,
Major General, U. S. Army,
Director of Military Requirements.

JAN 7-43 PM

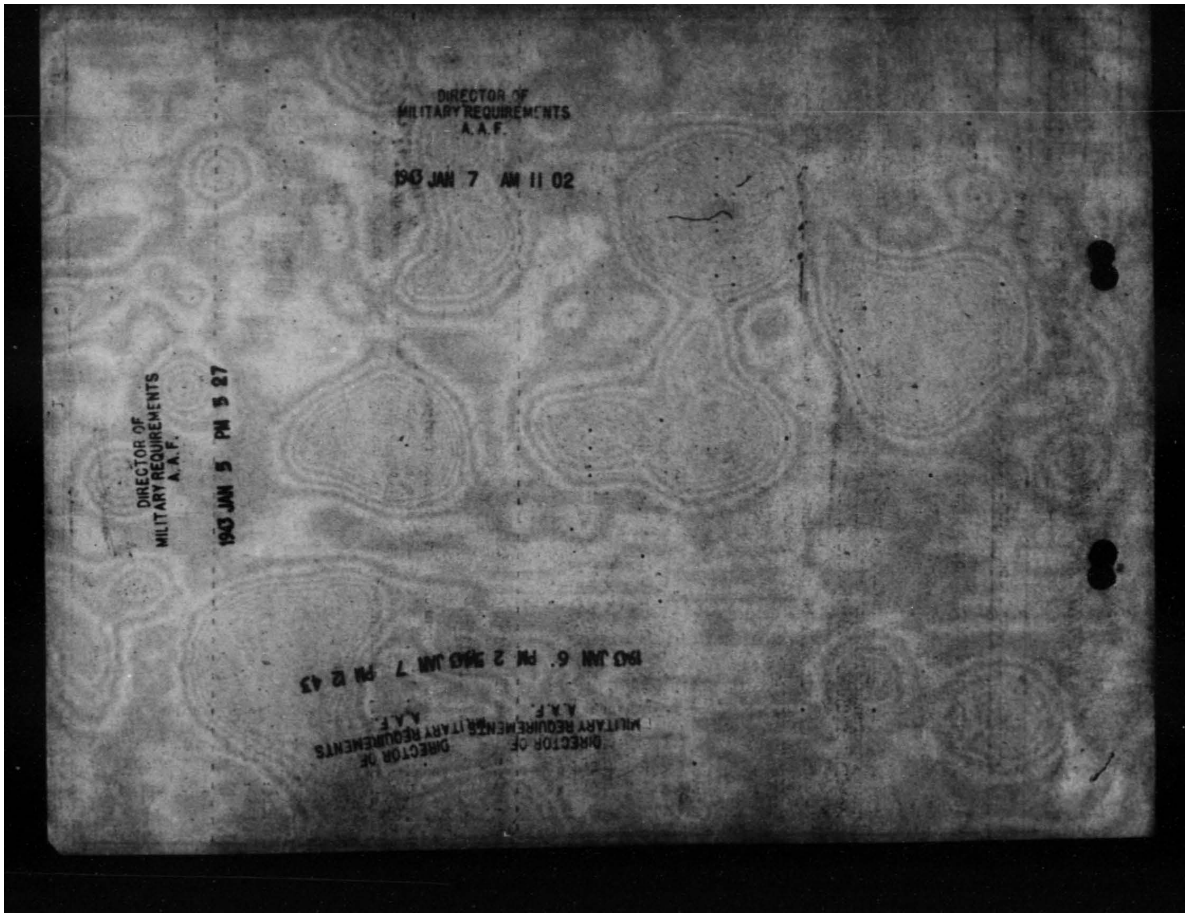
Incls: n/e
Added: Proposed Reply to DCS

RECEIVED
Air Adjutant General

DECLASSIFIED

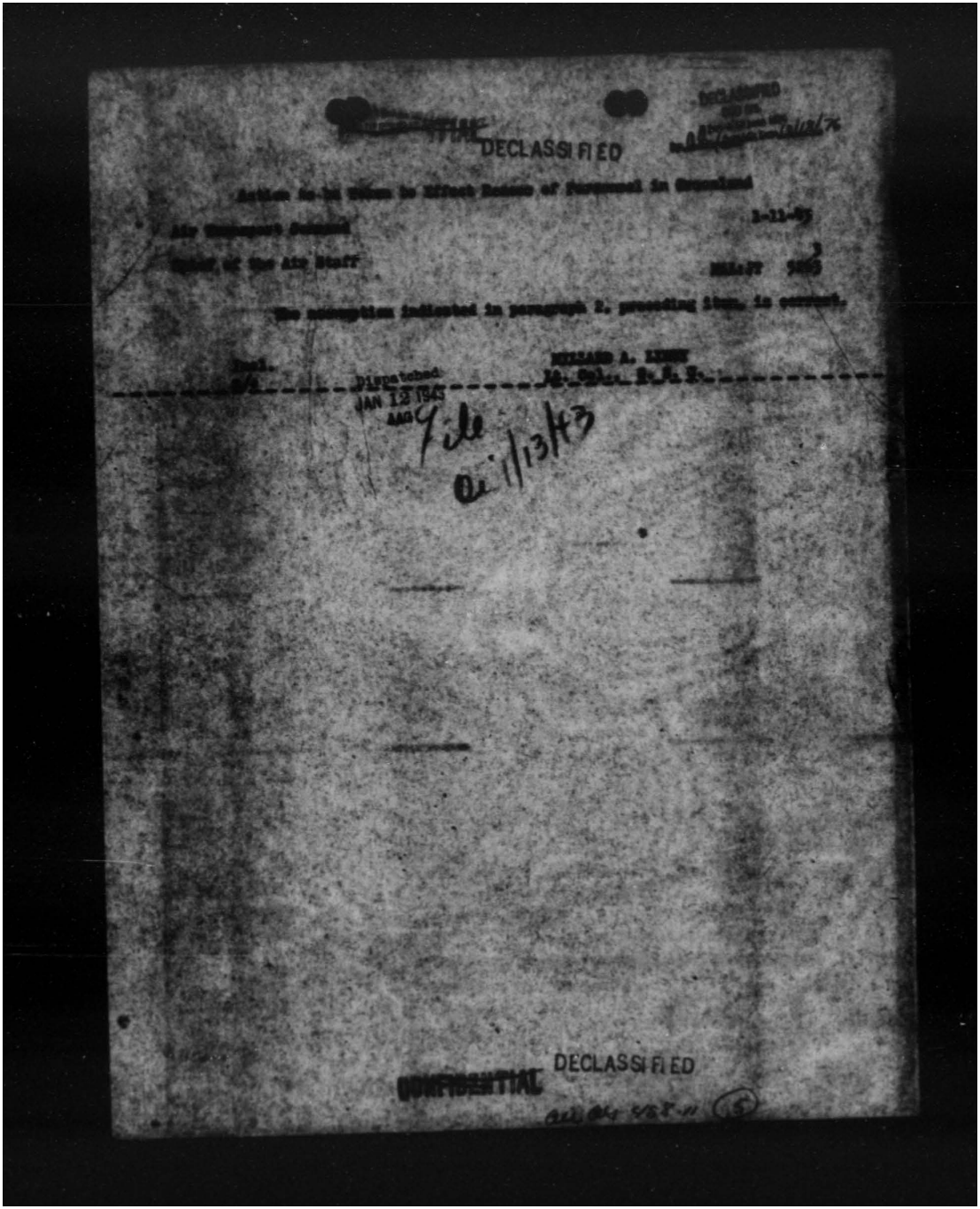
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

DECLASSIFIED

DECLASSIFIED DOD Dir. 5200.9 Sec. 1, Sec. 11/18/76 OSD

Action to be Taken to Effect Rescue of Personnel in Greenland.

Air Transport Command, ATTN: General George. 12/31/42

Chief of the Air Staff. AIR/ops/8571

1. Note the attached memorandum.

2. It is desired that the responsibility for the activities of the Navy Air Forces in connection with the rescue operations be assumed by the Air Transport Command, and that you issue the necessary directives to your Wing Commander to render all assistance possible in providing food, clothing, fuel and other necessities to the people still alive. Your Wing Commander should prescribe surveillance which is necessary and planes to drop supplies.

3. I am certain that Colonel Wilmott will cooperate. If he does not, I believe OPD will direct such action. I have just been informed that OPD is sending a telegram to Colonel Wilmott directing him to request the Senior Naval Officer present to make the request for the PBY through Admiral Brainard.

Encl: CONF.memo for Gen.Hanley frm Col.Harper (A-3) dtd 12/31/42, same subj.

T. J. HANLEY, JR.,
Brigadier General, U.S.A.,
Deputy Chief of Air Staff.

To: Chief of the Air Staff. Date 1/6/43

From: Air Transport Command, A-3 Comment No. 2. AIR/ops 72096

1. Necessary action has been taken and Commanding General of the North Atlantic Wing, Air Transport Command, has been advised in accordance with par. #2., Comment #1.

2. It is assumed that this Directive refers only to rescue operations being conducted in Greenland at the present time.

H. L. GEORGE,
Major General, U.S.A.,

Encl - n/c

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

~~CONFIDENTIAL~~ DECLASSIFIED

DECLASSIFIED
DOD Dir. 5200.9 and 5200.10
By Chief, Joint Data Div. 12/13/76

To: Chief of the Air Staff. Date: 1/16/43

From: Air Transport Command. Control No. Air
MAM/jmm 7-2265

1. It is understood by this office that new instructions have been issued by telegram from OPD to Colonel Hinsatt reassigning to him the responsibility for activities of the Army Air Forces in connection with the Russian operations in Greenland.

2. The ATC North Atlantic Wing Commander has been advised, and has also been directed to make all of his facilities available to Colonel Hinsatt in connection with such Russian work.

H. L. GEORGE,
Major General, U.S.A.

Incls: n/c

TO: Air Adjutant General. DATE 1/19/43

FROM: Deputy Chief of the Air Staff. CONSENT NO. 5
Mil/mlg/5265

1. Noted.

2. For files.

Incl. n/c

MILLARD R. LYNDE,
Lieut. Colonel, G. S. C.

~~CONFIDENTIAL~~ DECLASSIFIED

File 1/20/43

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

DECLASSIFIED

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

December 31, 1942

MEMORANDUM FOR GENERAL HANLEY

Subject: Action Taken to Affect Rescue of Personnel in Greenland.

1. Called Colonel Mosley at Edmington about pulling two (2) experienced pilots and one (1) C-64 (Noordyn Norseman) from Northwest Service Command operations on Alcon and Canol Projects. Colonel Mosley states that the pilots operating the C-64's are Canadian "Bush Pilots" and cannot fly by instruments and would be worthless in the rescue operations.

2. Called Presque Isle ATC (Operations Officer) and inquired as to status of Lieutenant Perkins. He is not a ski pilot. Presque Isle had a report from Colonel Balchen, December 30, stating that the C-64 at Bodkin was equipped with skis and was being tested. Colonel Balchen further stated that it does not have the range to fly to Optimist and return. That daylight (2 hours) will not permit rescues until after January 15, at which time he volunteers his services as pilot.

3. One ski pilot and one (1) AT-7, #42-43479, at Beechcraft Factory, in Kansas, winterized and equipped with long range tanks are assigned to Greenland Base Command for rescue purposes. It is scheduled to depart today for Montreal where it will pick up skis and proceed under control of ATC to Goose and then to Optimist. A second AT-7 similarly equipped is scheduled to leave January 3.

4. Colonel Wimsatt wired recommending the use of a PBY boat under control of the Navy for use in rescue work. Colonel Balchen will pilot the ship and hopes to set the hull down in the snow. The Senior Naval Officer present indicates his willingness to cooperate if the Navy Department will release the PBY for the rescue operations. Navy Department has replied that the Naval Officer should direct the request for the PBY through Admiral Brainard at Argentia, Newfoundland.

/s/ Robert W. Harper
ROBERT W. HARPER
Colonel, G.S.C.
Assistant Chief of the Air Staff, A-3

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

~~CONFIDENTIAL~~

DECLASSIFIED
DOD Dir. 5200.10 Dec. 19/18/76
DECLASSIFIED

Action to be Taken to Effect Rescue of Personnel in Greenland.

Air Transport Command; ATTN: General George. 12/31/42

Chief of the Air Staff. I

PJH/ovs/6371

1. Note the attached memorandum.

2. It is desired that the responsibility for the activities of the Army Air Forces in connection with the rescue operations be assumed by the Air Transport Command, and that you issue the necessary directives to your Wing Commander to render all assistance possible in providing food, clothing, fuel and other necessities to the people still alive. Your Wing Commander should prescribe surveillance which is necessary and planes to drop supplies.

3. I am certain that Colonel Wissmit will cooperate. If he does not, I believe OPD will direct such action. I have just been informed that OPD is sending a telegram to Colonel Wissmit directing him to request the Senior Naval Officer present to make the request for the PBY through Admiral Brainard.

Dispatched
JAN 1
AAG

Incls: Conf.memo for Gen.Hanley frm Col.Harper (A-3) dtd 12/31/42, same subj.

T. J. HANLEY, JR.,
Brigadier General, U.S.A.,
Deputy Chief of Air Staff.

DECLASSIFIED

~~CONFIDENTIAL~~

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

~~CONFIDENTIAL~~
DECLASSIFIED

DECLASSIFIED
DOD Dir
E.O. 12958 Sec. 3.6 (b)(1)
By [illegible] NARA, Date 10/12/76

December 31, 1942

MEMORANDUM FOR GENERAL HARLEY.

Subject: Action Taken to Affect Rescue of Personnel in Greenland.

1. Called Colonel Hurley at Edmonton about pulling two (2) experienced pilots and one (1) C-64 (Norseman) from Northwest Service Command operations on Alcan and Canol Projects. Colonel Hurley states that the pilots operating the C-64's are Canadian "Bush Pilots" and cannot fly by instruments and would be worthless in the rescue operations.

2. Called Sprague Hale ATC (Operations Officer) and inquired as to status of Lieutenant Perkins. He is not a ski pilot. Sprague Hale had a report from Colonel Baldwin, December 30, stating that the C-64 at Padkin was equipped with skis and was being tested. Colonel Baldwin further stated that it does not have the range to fly to Optimist and return. Short daylight (2 hours) will not permit rescues until after January 15, at which time he volunteers his services as pilot.

3. One ski pilot and one (1) AT-7, #42-43479, at Beechcraft Factory, in Kansas, winterized and equipped with long range tanks are assigned to Greenland Base Command for rescue purposes. It is scheduled to depart today for Montreal where it will pick up skis and proceed under control of ATC to Goose and then to Optimist. A second AT-7 similarly equipped is scheduled to leave January 3.

4. Colonel Vincent wired recommending the use of a PBY boat under control of the Navy for use in rescue work. Colonel Baldwin will pilot the ship and hopes to set the hull down in the water. The Senior Naval Officer present indicates his willingness to cooperate if the Navy Department will release the PBY for the rescue operations. Navy Department has replied that the Naval Officer should direct the request for the PBY through Admiral Brainard at Argentia, Newfoundland.

ROBERT W. HARPER
Colonel, G. S. C.
Assistant Chief of the Air Staff, A-3

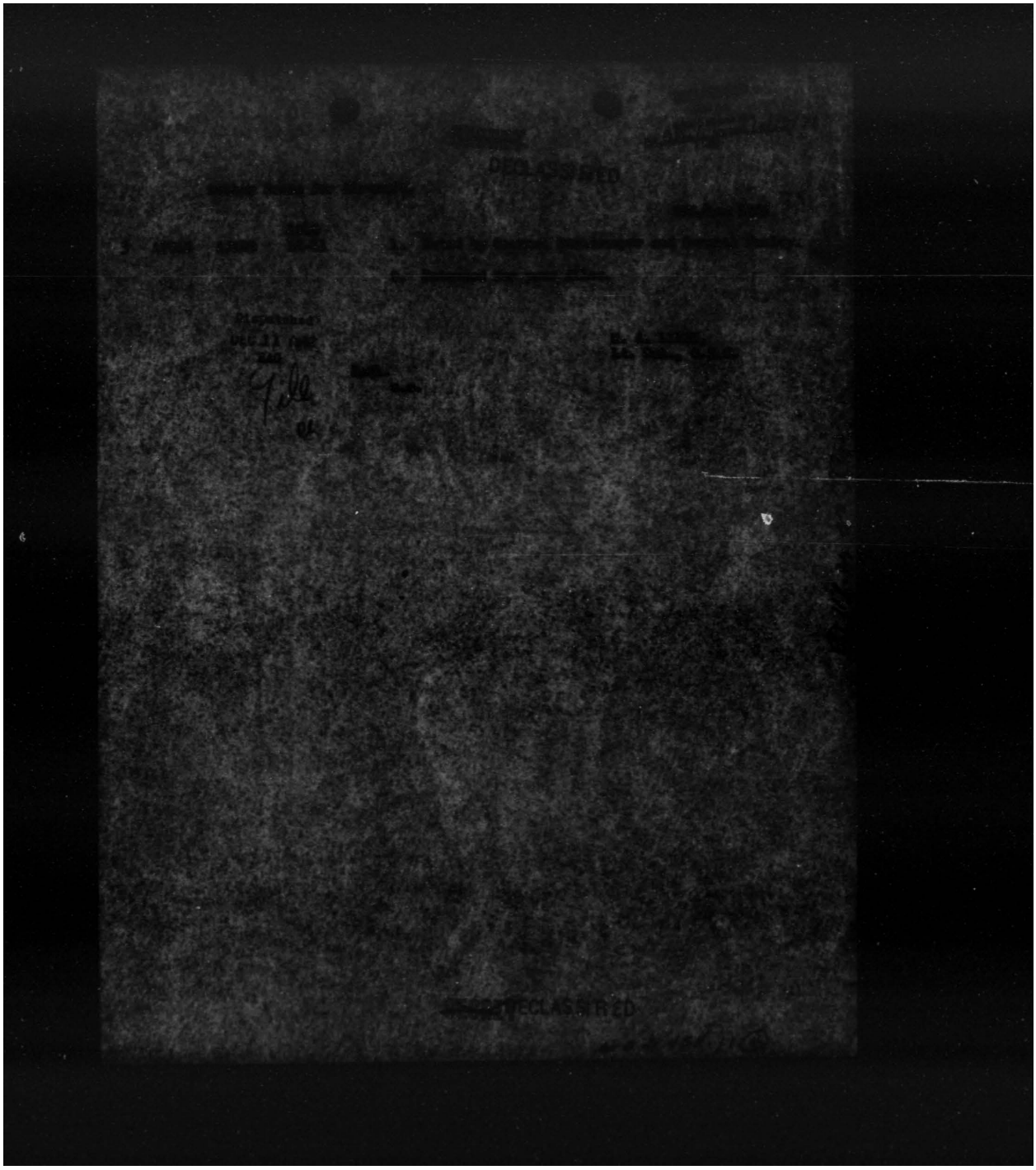
DECLASSIFIED

~~CONFIDENTIAL~~

AAG 452.11 (5)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir. 5200.9 Sec. 4A Date: 10/13/76
By OSD/WHS

HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

SUBJECT: Rubber Boats for Aircraft.

DECLASSIFIED

ITEM NO.	FROM	TO	DATE	COMMENTS
1	AFDAS	AFADS	1942 12-4	1. In connection with the supply of rubber boats f aircraft, it is desired that immediate action be taken and instructions issued to provide means of protecting rations and water from being spilled out of rubber boats when lowe ing them. Any simple device will serve as a temporary mea of doing this. The rations can be put in a package and buttoned or tied onto the boat. 2. The Navy ties a rope onto their boats and other essential articles so that if the airplane is sinking, the crew can pull on these ropes while swimming and pull out the boat's rations and other essential articles. 3. Do something about this quickly. T. J. HANLEY, JR., Brigadier General, U.S.A., Deputy Chief of Air Staff. AFDAS MAF/ceh 4849
2.	AFADS	DECLASSIFIED		1. Directive has been issued to Material Command to comply with the preceding item. It is understood that General Chidlaw is already investigating this matter. RECEIVED Air Adjutant General RICHARD H. BALLARD Colonel, G. S. C. Assistant Chief of the Air Staff, A-4.
3	AFDAS	AFMAG	12-8	FOR FILES. M. A. LIBBY, Lt. Col., O.S.C.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
[illegible] 10/28/76

~~SECRET~~ DECLASSIFIED

AFMSS MSP/mcb 1484

DEC 7 42 AM
2. AFMSS AFDAS 12-6

1. Directive has been issued to Material Command to comply with the preceding item. It is understood that General Gaidler is already investigating this matter.

RECEIVED
Air Adjutant General

[illegible]
Colonel, G. S. C.
Assistant Chief of the Air Staff, A-4.

~~SECRET~~ FOR FILES.
3 AFDAS AFMSS 12-6

DECLASSIFIED

W. A. LINEE,
Lt. Col., G.S.C.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir 5200.9
NSC 10/26/76

SECRET

DECLASSIFIED

Rubber Boats for Aircraft.

WDGAM-WFAIR 1942
15-4

1. In connection with the supply of rubber boats for aircraft, it is desired that immediate action be taken and instructions issued to provide means of protecting rations and water from being spilled out of rubber boats when inflating them. Any simple device will serve as a temporary means of doing this. The rations can be put in a package and buttoned or tied onto the boat.

2. The Navy ties a rope onto their boats and other essential articles so that if the airplane is sinking, the crew can pull on these ropes while swimming and pull out the boat's rations and other essential articles.

3. Do something about this quickly.

J. J. Ellery, Jr.
Brigadier General, U.S.A.,
Deputy Chief of Air Staff.

Dir Personnel

4 Dec 42

Dir Adm Mgt 4 Dec 42

DECLASSIFIED
Dir Adm Mgt 4 Dec 42

SECRET

Mr. Will

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DECLASSIFIED

2 AFCAS AFAEM 12-4

MAL/lmm 5965

1. Noted by General Stratemeyer.

2. Returned for your files.

Dispatched
DEC 4 1942

M. A. LIBBY,
Lt. Col., G.S.C.

File

Encl.
None.

DECLASSIFIED

G-2 452.11 (2)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED DOD Dir. 5200.9 [illegible]

ROUTING AND RECORD SHEET

Note — A line will be drawn across sheet after each comment.

File No. _____

Init. No. AAF _____

DECLASSIFIED Apr 2-13404

SUBJECT: Participation in British Air/Sea Rescue Service.

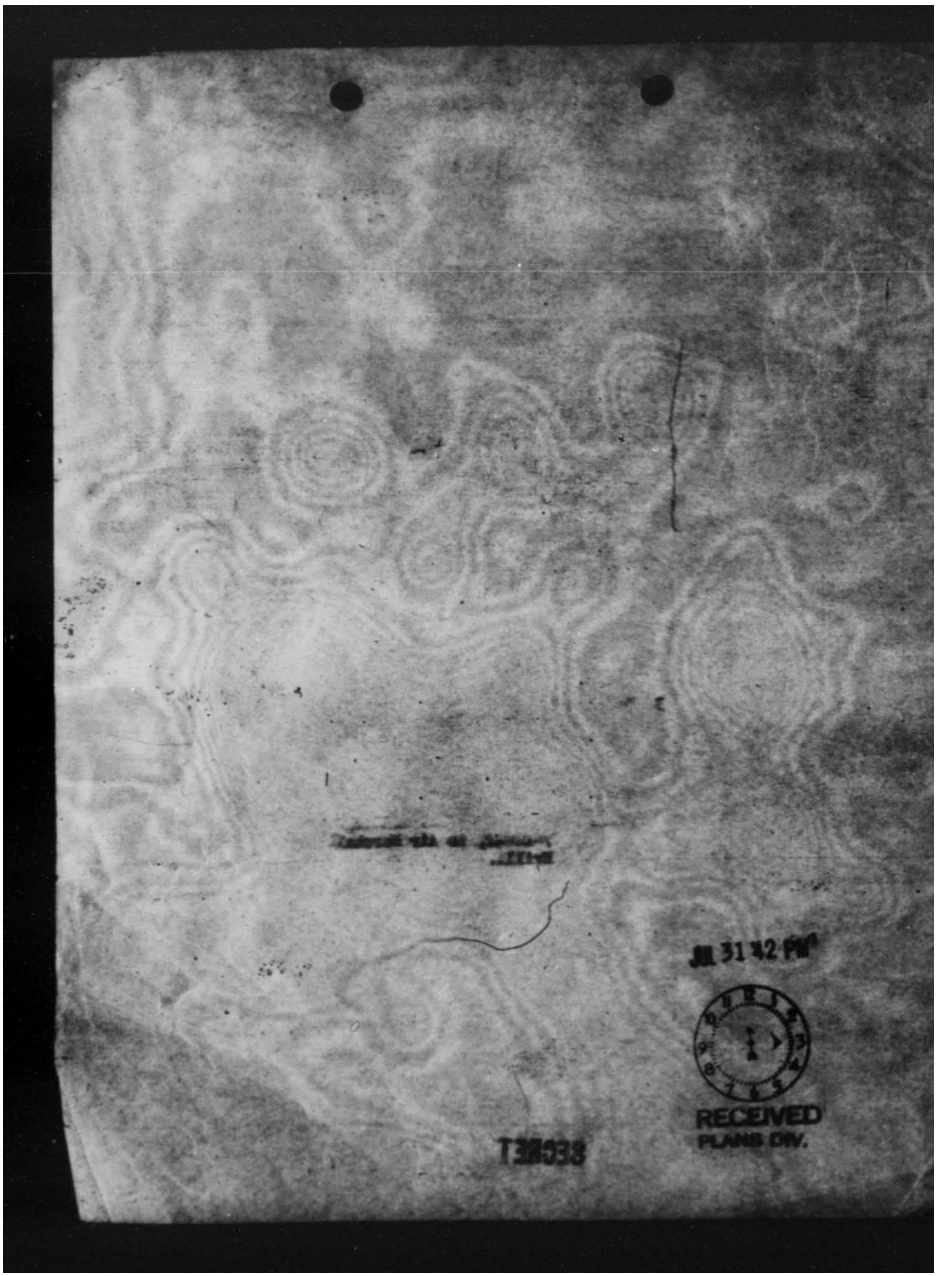
NO.	FROM	TO	DATE	COMMENTS
1	AFROM D-2 vmf	AFAEP	1942 7-31	1. The attached action copy of radiogram from General Spaatz reference providing of crews and airplanes for duty with British Air-Sea Rescue Service is forwarded for decision, inasmuch as it involves some change in policy. This radiogram is in response to a message prepared by this Directorate to General Spaatz requesting recommendations in connection with this subject. 2. Attached hereto is a copy of letter from Air Marshal D.C.S. Evill to General Arnold and also copy of letter to Air Marshal Evill in reply thereto. H. P. Brig.Gen., U.S.A., Dir/W O [illegible] 3 Incls. Incl. #1-Cy rad fr Gen. Spaatz, 7-27-42, to this Hq. Incl. #2-Cy ltr fr Air Marshal Evill, 7-8-42, to Gen. Arnold. Incl. #3-Cy ltr fr Gen. Arnold, 7-16-42, to Air Marshal Evill.
2.	AFAEP	AFACT	1942 8-3	AFAEP GTMcH-elf 1. For comment on the availability of A28 and A29, B34, or other suitable planes to fill this requirement. Incls: n/c for O. A. A. Kuter C/AFAEP

DECLASSIFIED

A: AD 458.11 DB

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

File No. _____

Note. -- A line will be drawn across sheet after each comment.

SECRET DECLASSIFIED Tally No. AAF _____

SUBJECT: Participation in British Air/Sea Rescue Service.

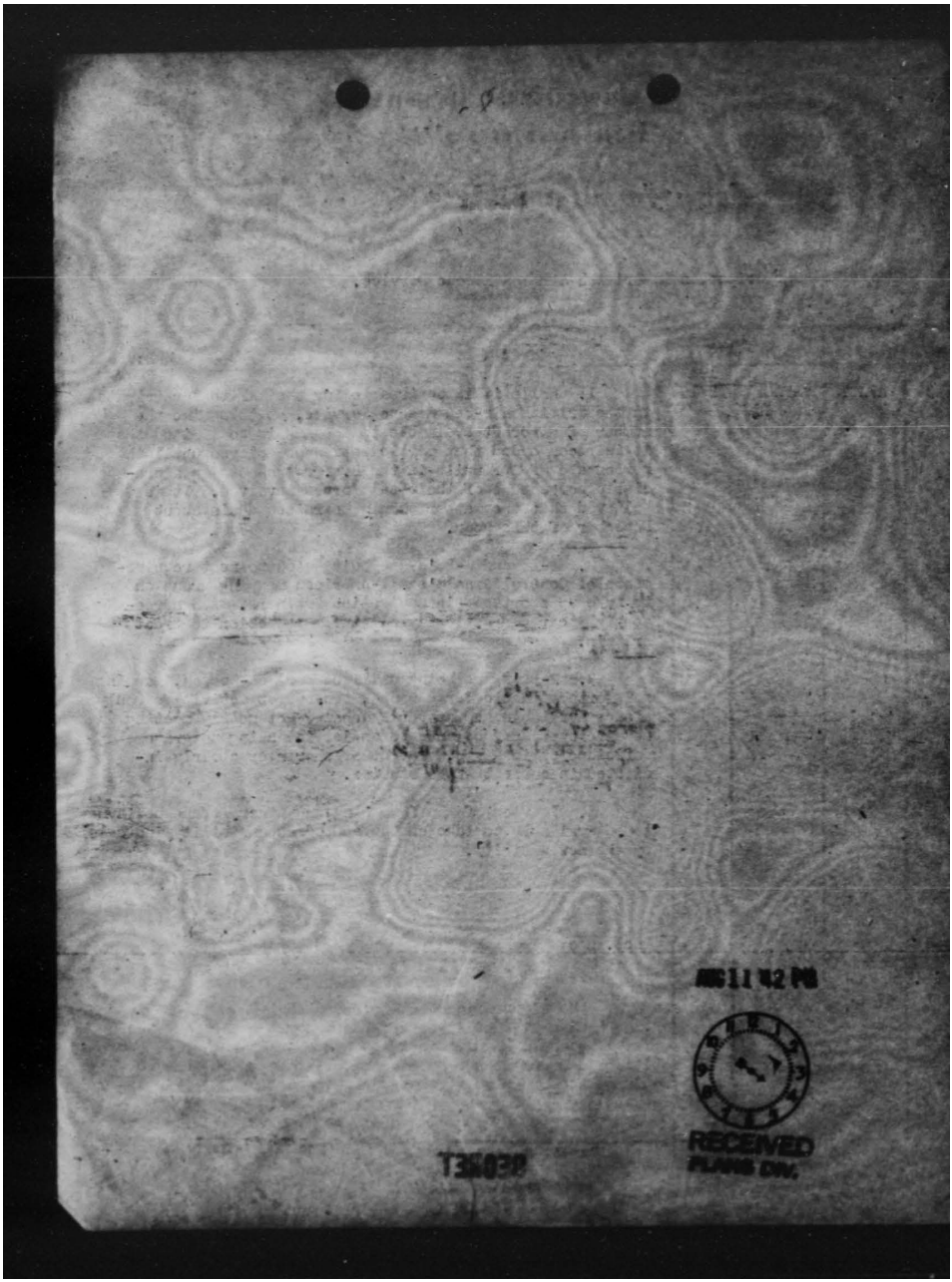
NO.	FROM	TO	DATE	COMMENTS
3	AFACT	AFAEP	1942 6/20	1. While it is desireable for the AAF to participate in the British Air-Sea Rescue Service, at this time the number of aircraft available to the AAF is so limited that it is recommended that participation be delayed until the percentage of AAF units in the U.K. represents an appreciable percentage of the total forces involved. It is believed that the matter should be raised again about December of this year. ##
				2. A-28 and A-29's are being used to meet requirements of General Arnold's all-American mapping group and to make up shortages in navigation trainers. ATS agreement allocated practically all this production to Great Britain. # #
				3. B-34's are being utilized for Sea-Search, mapping new North Atlantic ferry route, tow-target activities (only planes available and number allocated not nearly meeting requirements) and balance to assist in making up grave deficiencies in AFFTC, gravity of shortages clearly indicated in current AFDPU studies.
				4. In view of the foregoing, no aircraft are believed to be available to take on the added responsibility indicated by the new activity.
				R. W. H. Lee C/AFACT
				Encl. n/c
4	AFAEP	AFRDM	8/12	AFAEP GHcH/jn 1. The planes requested represent only a small fraction of the equipment facilities necessary for the Air/Sea Rescue work. The British maintain a network of radio-equipped shore stations and numerous rescue boats, besides the twenty ASV-equipped Hudsons used for sea-search. Duplicating this service is neither desirable nor practical.

(Do not use abbreviations) B-6071, AF, Rev. 8/14/41

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dirs. 5 Jan. & 30 June 1972
By [illegible] NARS, Date 10/18/76

HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

~~CONFIDENTIAL~~

~~SECRET~~ DECLASSIFIED

File No. .....

Tally No. AAF .....

Note.--A line will be drawn across sheet after each comment.

SUBJECT: Participation in British Air/Sea Rescue Service.

GTMcH/jn

NO.	FROM	TO	DATE	COMMENTS
4	AFAEP (continued)	AFRDM	8/12	2. The critical shortage of suitable type planes in the U. S. makes inadvisable our providing the aircraft requested at this time, but steps should be taken now in order to secure planes to maintain in operation four (4) rescue aircraft when feasible. 3. It is the opinion of the Plans Division that at such time as the AAF participates in sea rescue in the U. K., we should favor operation of American crews in accordance with the desires of the Commanding General, 8th Air Force.

[illegible] spared for rescue operations at this time. Until such time as our air operations reach a substantial proportion of the total air effort, it is recommended that all rescue service be provided by the British. When necessary for us to assume our proportionate share, airplanes, crews, and attrition replacements can probably be more easily spared.

2. Accordingly, it is recommended that a secret message, substantially as follows, be transmitted to the Commanding General, Eighth Air Force:

"HUDSONS TYPE AIRPLANES FOR AIR SEA RESCUE CANNOT BE SPARED AT THIS TIME PERIOD FROM AFRAS PERIOD REURAD EIGHT AFFIRM FOX YOKE ONE THREE THREE EAST JULY TWO SEVEN PERIOD RECOMMEND ARRANGEMENTS BE MADE WITH BRITISH FOR RESCUE OF UNITED STATES CREWS UNTIL OUR AIR OPERATIONS REACH A SUBSTANTIAL PROPORTION OF TOTAL AIR EFFORT"

3. Attached is a suggested letter of reply to Air

8/20/42
Gen. A.
Approves
Send wire
G.C.S.

(reverse side) F-4071, AF. Rev. 8/28/41

~~SECRET~~

Page No. - 3 - DECLASSIFIED

~~CONFIDENTIAL~~ A.G. AO 458.11 (8)

777.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

File No. _____

Note — A line will be drawn across sheet after each comment.

Tally No. AAF _____

[redacted] DECLASSIFIED

SUBJECT: Participation in British Air/Sea Rescue Service.

NO.	FROM	TO	DATE	COMMENTS
5.	[redacted]		1942 8/19	Marshal Evill's letter of July 8, 1942. Concurrences: AFACT [illegible] AFAEP [illegible] Hq. Army Air Forces AUG 21 1942 AAG RECEIVED Incls n/c HUGH PEARSON Brig. Gen., USA Dir., W.D.S. & P. WEH:JT 5265
6	AFCAS	(1) AFMAG (2) Cable Secretary	1942 8-26	(1) For dispatch of attached letter from General Arnold to Air Marshal Evill. (2) For preparation and dispatch of cable as suggested in paragraph 2, Item #5. Incls. n/c WILLIAM R. HALL Colonel, A. C. JTR:vmh
7	AFCAS (Cable Secy)	AFMAG	1942 8/27	1. There has been prepared and dispatched a cable set out in (2) of item 6 above. ROGER L. SHRAKER, Major, A. C., Cable Secretary. Incls. n/c
8	AFCAS	AFHQN	1942 8-31	WEH:JT 5265 1. Inviting attention to Items 6 and 7. Incls. n/c WILLIAM R. HALL Colonel, A. C.

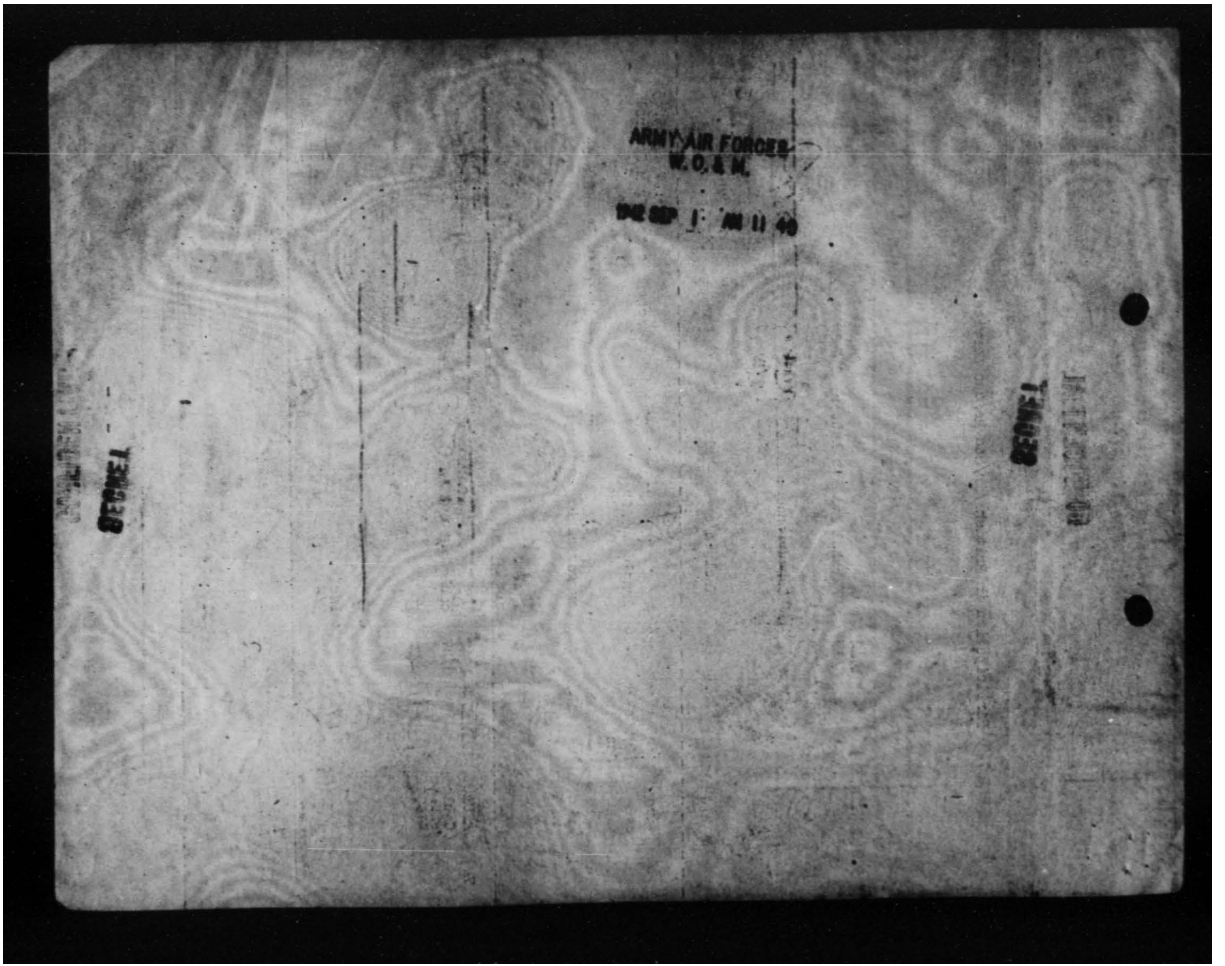
[redacted] DECLASSIFIED

1081 Colonel Hall

[redacted] E.O. 13526, Sec. 3.3 NND 958110

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

HEADQUARTERS ARMY AIR FORCES
ROUTING AND RECORD SHEET
~~CONFIDENTIAL~~

File No. _____

Note — A line will be drawn across sheet after each comment.

~~SECRET~~ DECLASSIFIED

Tally No. AAF _____

SUBJECT: Participation in British Air/Sea Rescue Service.

NO.	FROM	TO	DATE	COMMENTS
				CAH:dj 72449
9	AFROM	AFCAS	1942 9/5	Noted.
	Hq. Army Air Forces SEP 4 1942 AAG Received			Incl. n/c HUME PEABODY, Brig. Gen., U. S. Army, Dir. WOAM.
				WEH:JT 5265
10	AFCAS	File	1942 9-4	1. Noted. 2. This file has been reclassified due to the fact that the attached cable is Secret. Incls. n/c WILLIAM R. HALL Colonel, A. C.

File 9/5/42

DECLASSIFIED

(Do not use reverse side) F-4071, AF, Rev. 8/16/41

~~SECRET~~

12/5

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLA SECRET ACTION COPY

WAR DEPARTMENT
CLASSIFIED MESSAGE CENTER

2 MEN
Filed at 1755/27

INCOMING MESSAGE

CSWD
July 27, 1942
1608

DECLASSIFIED
DOD Dir.
By [illegible] Date 6/15/76

ANSWER OR ACKNOWLEDGEMENT DIRECTED WITHIN 24 HOURS. IF NO ANSWER REQUIRED, WRITTEN NOTICE WILL BE DELIVERED TO THE CABLE SECRETARY BY MESSENGER WITHIN 24 HOURS.
By Command of Lt. General ARNOLD:
Sgd. Wm. H. DICK

From: London

To: AGWAR

No. 8 AF Y 123 E, July 27, 1942

To facilitate air sea rescue the following recommendations are submitted. Eight AF X one three three E, signed Spaatz. Reference radiogram eighteenth instant subject air sea rescue Arnold, it is recommended that British air sea rescue service be provided with FIVE Hudsons and four crews from US, one additional airplane per month to be contributed to take care of wastage (for Arnold and AFDMR). Plan to station these airplanes on eight air force stations near coast and tie in with British air sea rescue service.

SPAATZ

July 18th radio is CM-OUT 4971 (7/18/42) CG AAF

ACTION: CG AAF

INFORMATION: OPD, G-2, A-3, TAG, FILE

CM-IN- 9498 7/27/42 1900Z

ACTION COPY

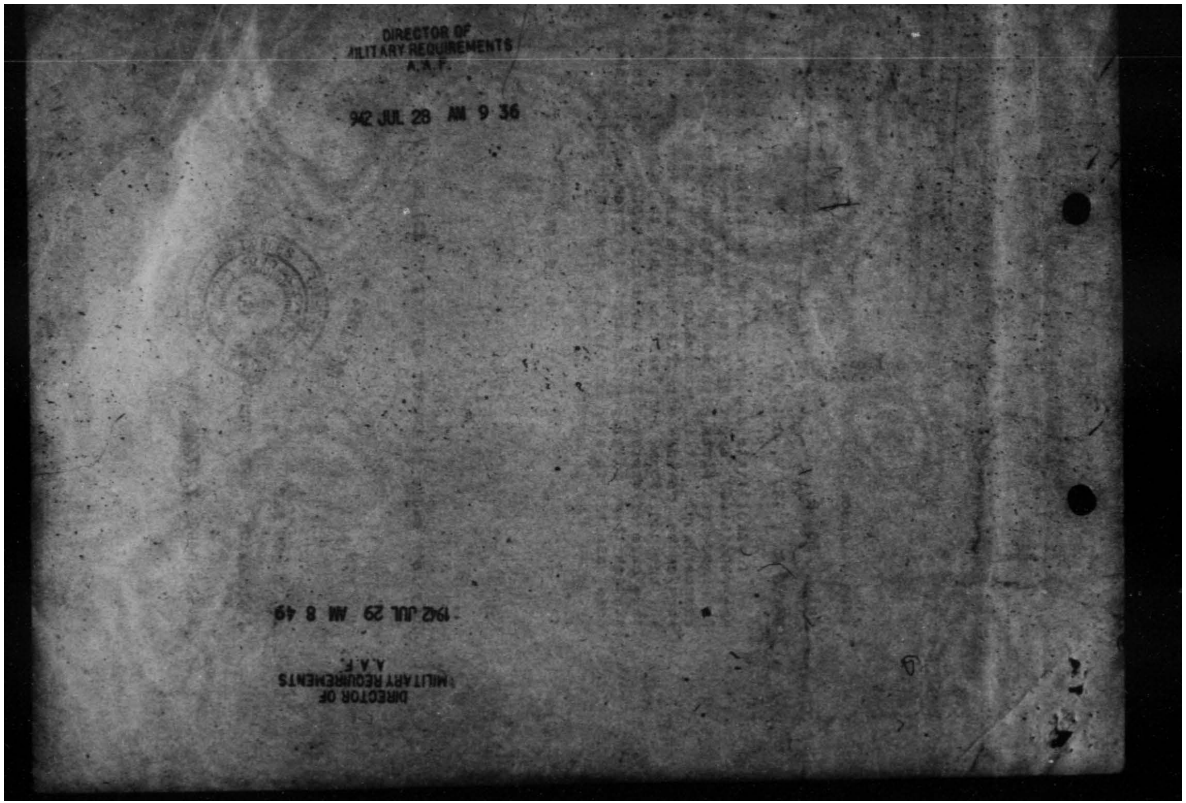
DECLASSIFIED

SECRET Copy No. 35

THE MAKING OF AN EXACT COPY OF THIS MESSAGE IS FORBIDDEN

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

~~CONFIDENTIAL~~ ~~SECRET~~ DECLASSIFIED

COPY

BRITISH JOINT STAFF MISSION
OFFICES OF THE COMBINED CHIEFS OF STAFF
WASHINGTON

AIR STAFF U. S. CONFIDENTIAL
BRITISH SECRET

8th July 1942.

DECLASSIFIED
JCS Memo
3 Jan. 1975
By alw, LC; Date 10-13-76

My dear Arnold,

Portal asks me to pass on to you the following message from himself:

Since we started offensive operations across the Channel and North Sea we have, as you probably know, built up a considerable organisation for rescuing crews of aircraft that come down in the sea. The Air/Sea Rescue Service has done magnificent work and has so far saved over 1,000 members of air crews. Its technique and equipment is constantly improving and it is obtaining better and better results. In June this year it rescued 56% of the personnel reported down in the sea, as compared with 27 per cent in June 1941. Besides saving valuable lives it has contributed greatly to the high morale of our crews who know that they stand a good chance of being picked up if they come down in the sea.

I do not know whether you have given consideration to your own requirements but I am convinced that you too will find an Air/Sea Rescue Service most valuable, indeed essential. It would clearly be extremely uneconomical for us to have two organisations side by side and I suggest that we should agree to meet our requirements from the same organisation. In my opinion the best plan if you agree would be for you to participate in the work of our organisation which is already in being and which has obtained valuable experience of the aircraft, equipment and organisation required.

Far and away the most suitable aircraft has been found to be the Hudson. It has good view and navigational facilities, reasonable range and endurance, and is designed for searches at sea and for flying continuously at low altitudes. It has been fitted with A.S.V. and the necessary wireless and direction-finding equipment, and the airborne lifeboat which is now in the experimental stage, has been designed to be carried in it. The aircraft has proved extremely reliable and it has been possible to maintain a high degree of serviceability.

We have this year established a squadron of these aircraft with a unit equipment of 20. It has already taken part in 89 incidents and rescued 60 persons from the sea. In fact the squadron is proving a great success. My suggestion is that you might like to arrange for the U. S. Army Air Corps to take a part in the operations of this squadron. If you agree to this I would suggest that you might provide 4 crews and a contribution towards the maintenance of the squadron in aircraft. Wastage is fortunately low, so that an allotment over and above what we are already getting from you of one aircraft per month should suffice.

Lieutenant General H. H. Arnold,
Commanding General,
U.S. Army Air Forces,
War Department
WASHINGTON, D.C.

- 1 - ~~SECRET~~ DECLASSIFIED

~~CONFIDENTIAL~~ dir AB 454, 11 (B)

Incl. #2

~~CONFIDENTIAL~~ ~~SECRET~~ DECLASSIFIED

Would you please give consideration to this suggestion and let me know what you think. I shall be only too pleased to consider any alternative suggestions that you may care to make."

If there are any points in the above on which you would like further information, I shall of course be delighted to provide this.

Yours Sincerely,

/s/ D.C.S. EVILL

D.C.S. EVILL
Air Marshal.

~~CONFIDENTIAL~~ DECLASSIFIED

- 2 - ~~SECRET~~

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

July 16, 1942

Air Marshal Sir C. J. Brill,
British Joint Staff Mission,
Offices of the Combined Chiefs of Staff,
Washington, D. C.

My dear Brill:

I have your offer for us to participate in the Air/Sea Rescue Service. I am readily aware of the importance of such an organization and realize we, too, must do something to provide such service.

Before reaching a decision in this matter, I would like to ascertain General Spaatz' views and whether or not he has initiated any plans along this line. As soon as I have received his reply, I will inform you further.

Thanking you for your offer, I am

Sincerely yours,

H. H. ARNOLD,
Lieutenant General, U.S. Army,
Commanding.

COPY/mf

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

DECLASSIFIED

Participation in British Air/Sea Rescue Service.

6 AFHAS (1) AFHAS 1942 (1) For dispatch of attached letter from General
(2) Cable 8-25 Arnold to Sir Marshal Brill.
Secretary

(2) For preparation and dispatch of cable as suggested in paragraph 2, Item #5.

Incls.
n/c

WILLIAM R. HAIL
Colonel, A. G.

7 AFHAS AFHAS 1942 1. There has been prepared and dispatched a
(Cable 8/27 cable set out in (2) of Item 6 above.
Sec)

ROBERT L. SCHAEFER,
Major, A. G.,
Cable Secretary.

Incls.
n/c

8 AFHAS AFHAS 1942 1. Inviting attention to Items 6 and 7.
8-31

Incls.
n/c

WILLIAM R. HAIL
Colonel, A. G.

Dispatched
AUG 31 1942
AAS

CONFIDENTIAL

DECLASS

NND 958458. 11 (1) E

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

DECLASSIFIED

DECLASSIFIED
DOD Dir
NND 760033 By [illegible] NARS, Date 12/8/76

July 16, 1942

Air Marshal Sir C. L. Sells,
British Joint Staff Mission,
Office of the Combined Chiefs of Staff,
Washington, D. C.

My dear Sells,

I have your letter for me to participate in the Pacific Ocean Service. I am greatly aware of the importance of this organization and realize we, too, must be contributing to provide such supplies.

Before reaching a decision on this matter, I would like to ascertain General Arnold's views and whether or not he has [illegible] any plans along this line. As soon as I have received his reply, I will inform you further.

Thanking you for your offer, I am

Sincerely yours,

Dispatched
JUL 18 1942
AAG

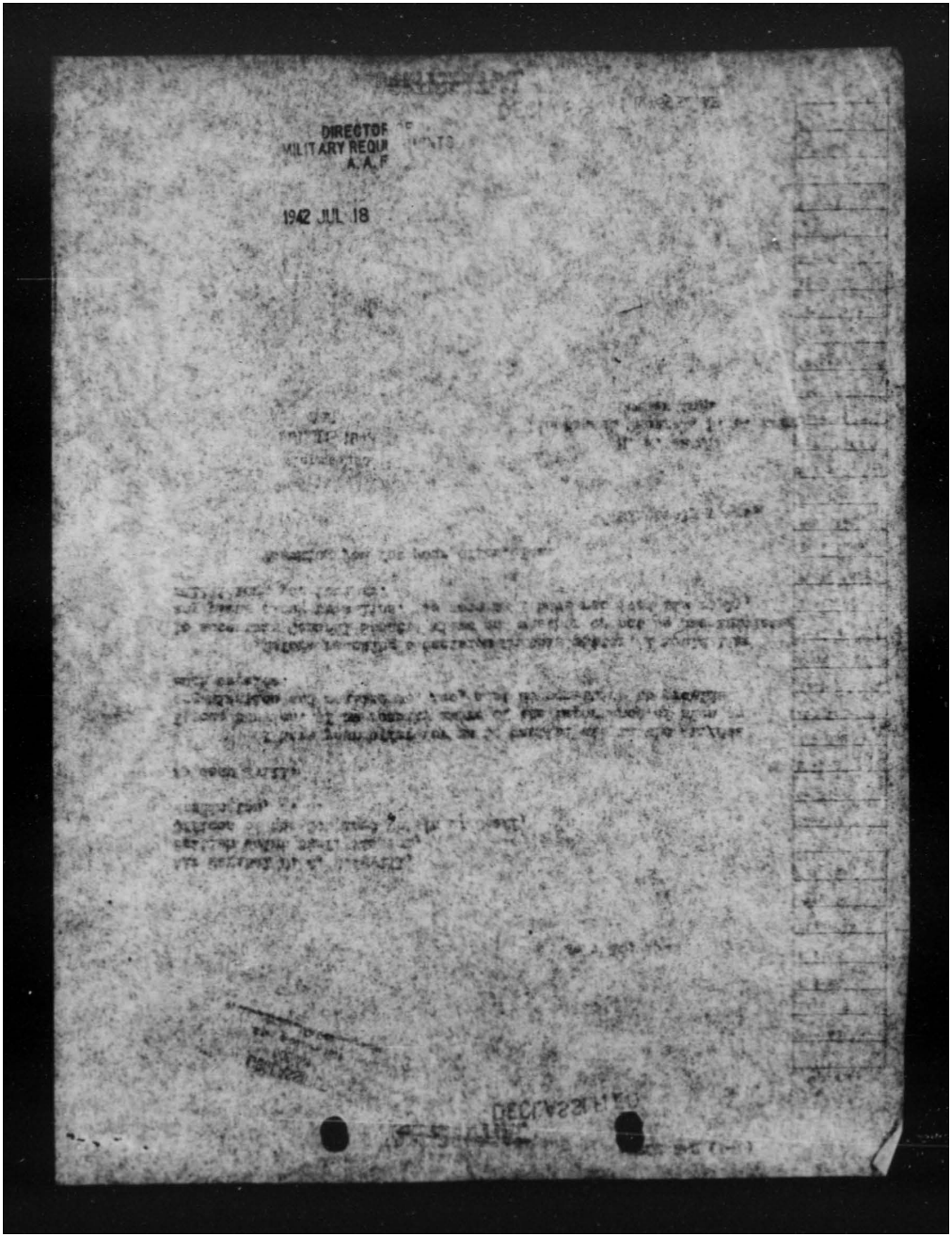
H. H. Arnold,
Lieutenant General, U. S. Army,
Commanding.

File CT 7/18/42

DECLASSIFIED
DOD Dir 5200.9
DECLASSIFIED-6934, AR
CONFIDENTIAL Auth OCS 452.11

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

BRITISH JOINT STAFF MISSION
OFFICES OF THE COMBINED CHIEFS OF STAFF
WASHINGTON

AIR STAFF ~~U.S. CONFIDENTIAL~~ ~~BRITISH SECRET~~

DECLASSIFIED
JCS Memo
5 Jan. 1976
By LMXO; Date 10-18-76

8th July 1942.

My dear Arnold,

Portal asks me to pass on to you the following message from himself:

Since we started offensive operations across the Channel and North Sea we have, as you probably know, built up a considerable organisation for rescuing crews of aircraft that come down in the sea. The Air/Sea Rescue Service has done magnificent work and has so far saved over 1,000 members of air crews. Its technique and equipment is constantly improving and it is obtaining better and better results. In June this year it rescued 56% of the personnel reported down in the sea, as compared with 27 per cent in June 1941. Besides saving valuable lives it has contributed greatly to the high morale of our crews who know that they stand a good chance of being picked up if they come down in the sea.

I do not know whether you have given consideration to your own requirements but I am convinced that you too will find an Air/Sea Rescue Service most valuable, indeed essential. It would clearly be extremely uneconomical for us to have two organisations side by side and I suggest that we should agree to meet our requirements from the same organisation. In my opinion the best plan if you agree would be for you to participate in the work of our organisation which is already in being and which has obtained valuable experience of the aircraft, equipment and organisation required.

Far and away the most suitable aircraft has been found to be the Hudson. It has good view and navigational facilities, reasonable range and endurance, and is designed for searches at sea and for flying continuously at low altitudes. It has been fitted with A.S.V. and the necessary wireless and direction-finding equipment, and the airborne lifeboat which is now in the experimental stage, has been designed to be carried in it. The aircraft has proved extremely reliable and it has been possible to maintain a high degree of serviceability.

We have this year established a squadron of these aircraft with a unit equipment of 20. It has already taken part in 89 incidents and rescued 60 persons from the sea. In fact the squadron is proving a great success. My suggestion is that you might like to arrange for the

/U.S. Army Air Corps ....

Gen. Fairchild
Reply-ehlp

Lieutenant General H.H. Arnold,
Commanding General,
U.S. Army Air Forces,
War Department,
WASHINGTON, D.C.

See other side

DECLASSIFIED

~~CONFIDENTIAL~~

NND 958110

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

U.S. Army Air Corps to take a part in the operations of this squadron. If you agree to this I would suggest that you might provide 4 crews and a contribution towards the maintenance of the squadron in aircraft. Wastage is fortunately low, so that an allotment over and above what we are already getting from you of one aircraft per month should suffice.

Would you please give consideration to this suggestion and let me know what you think. I shall be only too pleased to consider any alternative suggestions that you may care to make."

If there are any points in the above on which you would like further information, I shall, of course be delighted to provide this.

Yours sincerely,

D.C.S. EVILL
Air Marshal

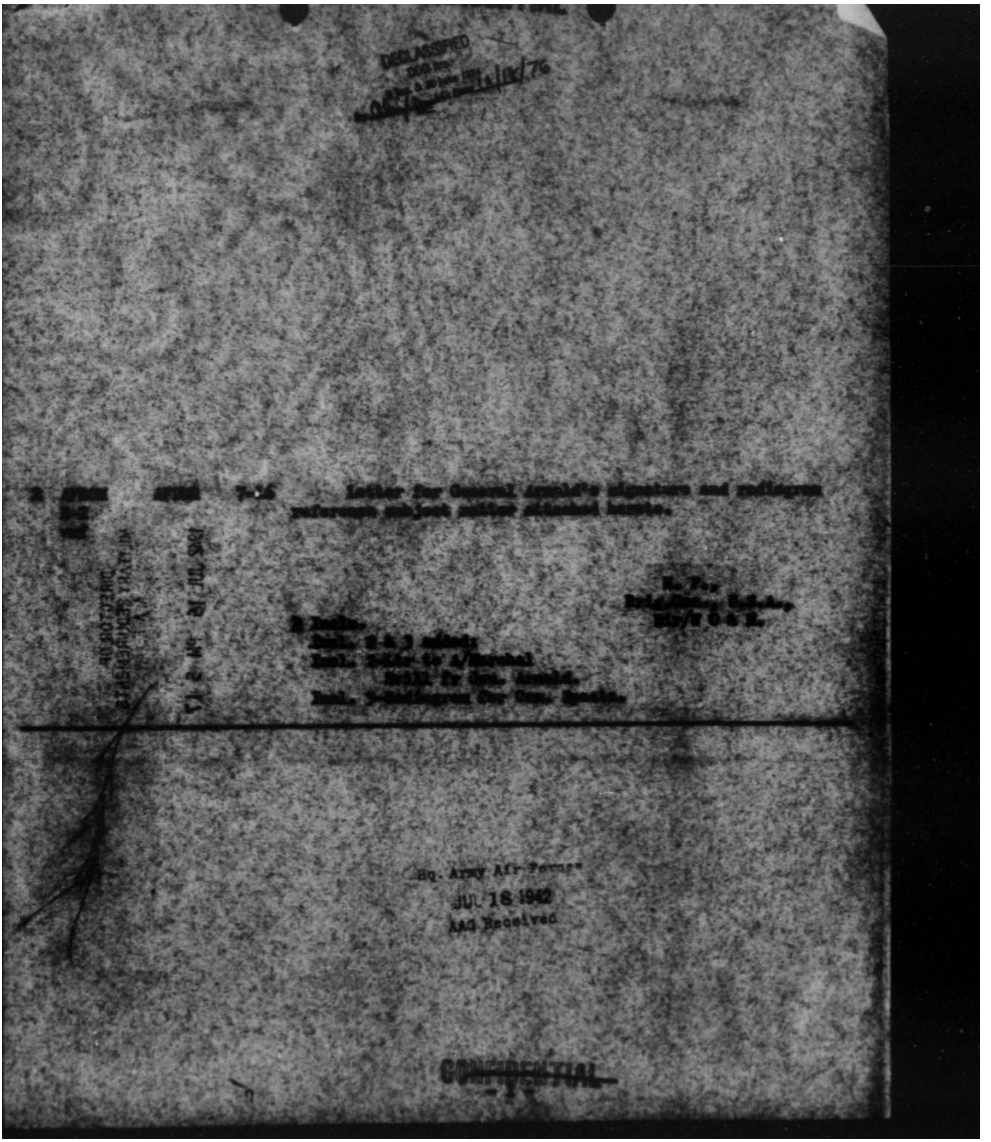
ARMY AIR FORCES
W.O. & M.
1942 JUL 14 PM 2 16

1942 JUL 13 PM 5 06
DIRECTOR OF
MILITARY REQUIREMENTS
A.A.F.

1942 JUL 14 PM 1 59
DIRECTOR OF
MILITARY REQUIREMENTS
A.A.F.

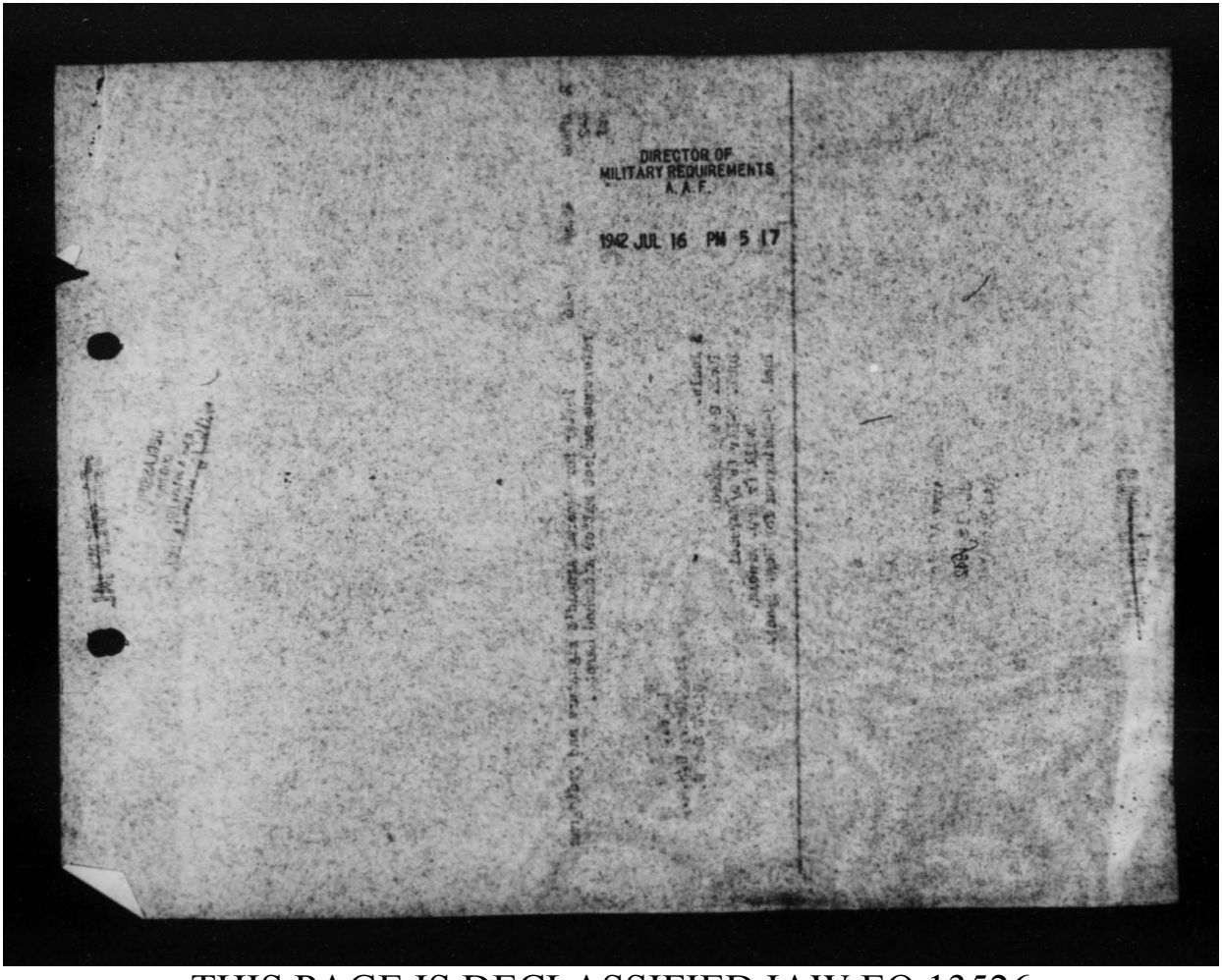
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



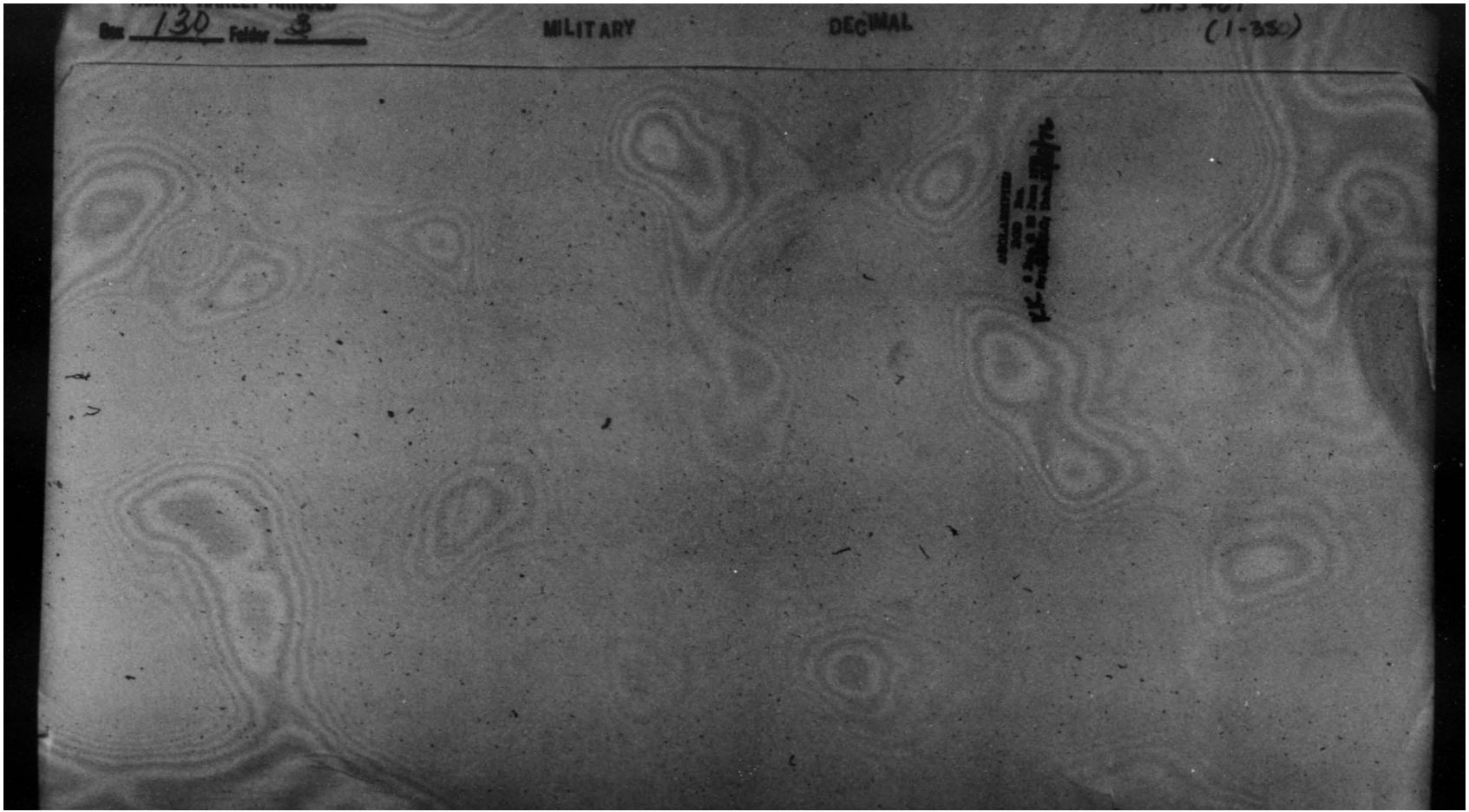
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



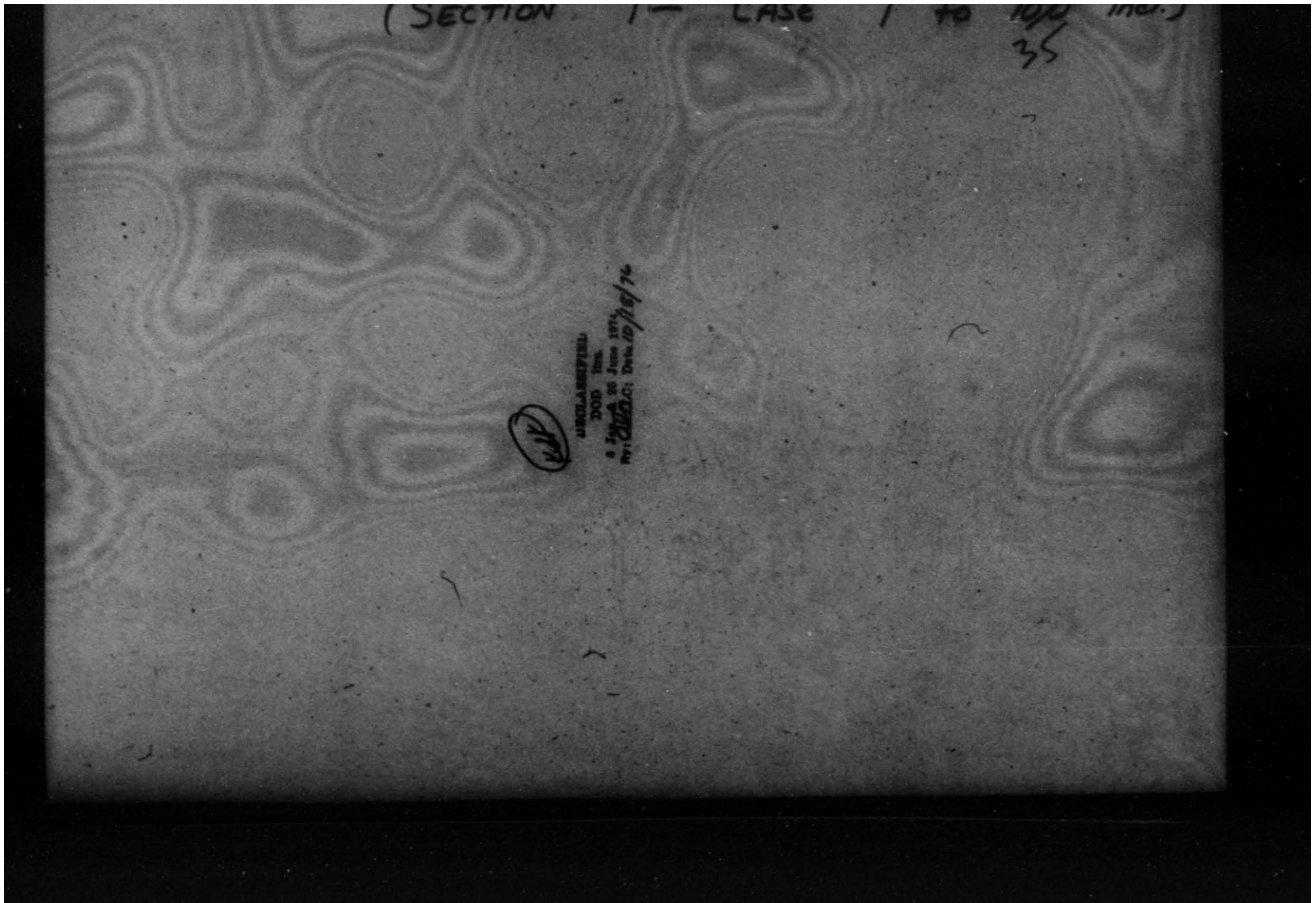
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

DECLASSIFIED

FEB 4 1942

SUBJECT: Provisional Air Route Guide - Cairo to Manila.

TO: Aerological Section,
Bureau of Aeronautics,
Navy Department.

1. Pursuant to your request of January 19 and subsequent telephone conversation with Lieut. Commander McDonald, twenty copies "Provisional Air Route Guide - Cairo to Manila" are enclosed for your use.

KEITH F. SCHERER,
Brigadier General, U. S. Army,
Assistant Chief of the Air Staff, A-2.

2 Incls.
Incl. 1-20 Air Route Guide-
Cairo to Manila.
(Letter 20 Incls mentioned above have been forwarded under separate cover).

FEB 6 1942

FEB 7 1942
AAG

HEADQUARTERS ARMY AIR FORCES - COORDINATION

Chief of Staff	Army Air Staff	A.A.G.	A-1	A-2	A-3	A-4	A-4 WPD	A-Insp.	Surgeon	Public Relations	

CONFIDENTIAL

Am 48461 (35)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

Aer-A-3-VAS
EW16/A10
H1-23

NAVY DEPARTMENT
BUREAU OF AERONAUTICS
WASHINGTON

C-1859
234-C

DECLASSIFIED
DOD Dir. 5200.9 June 1979
NSC Date 9/15/76

19 JAN 1942

C 0734

From: The Chief of the Bureau of Aeronautics
To: The Office of the Chief of the Air Corps, Intelligence Division, War Department, 1818 "H" Street, Washington, D. C.

SUBJECT: "Provisional Air Route Guide - Cairo to Manila", dated 1 September 1941 - Request for copies of

1. It is requested that the Bureau be supplied with thirty-five copies of the document "Provisional Air Route Guide - Cairo to Manila," prepared by the Intelligence Division, Office of the Chief of the Air Corps, War Department, dated 1 September 1941.

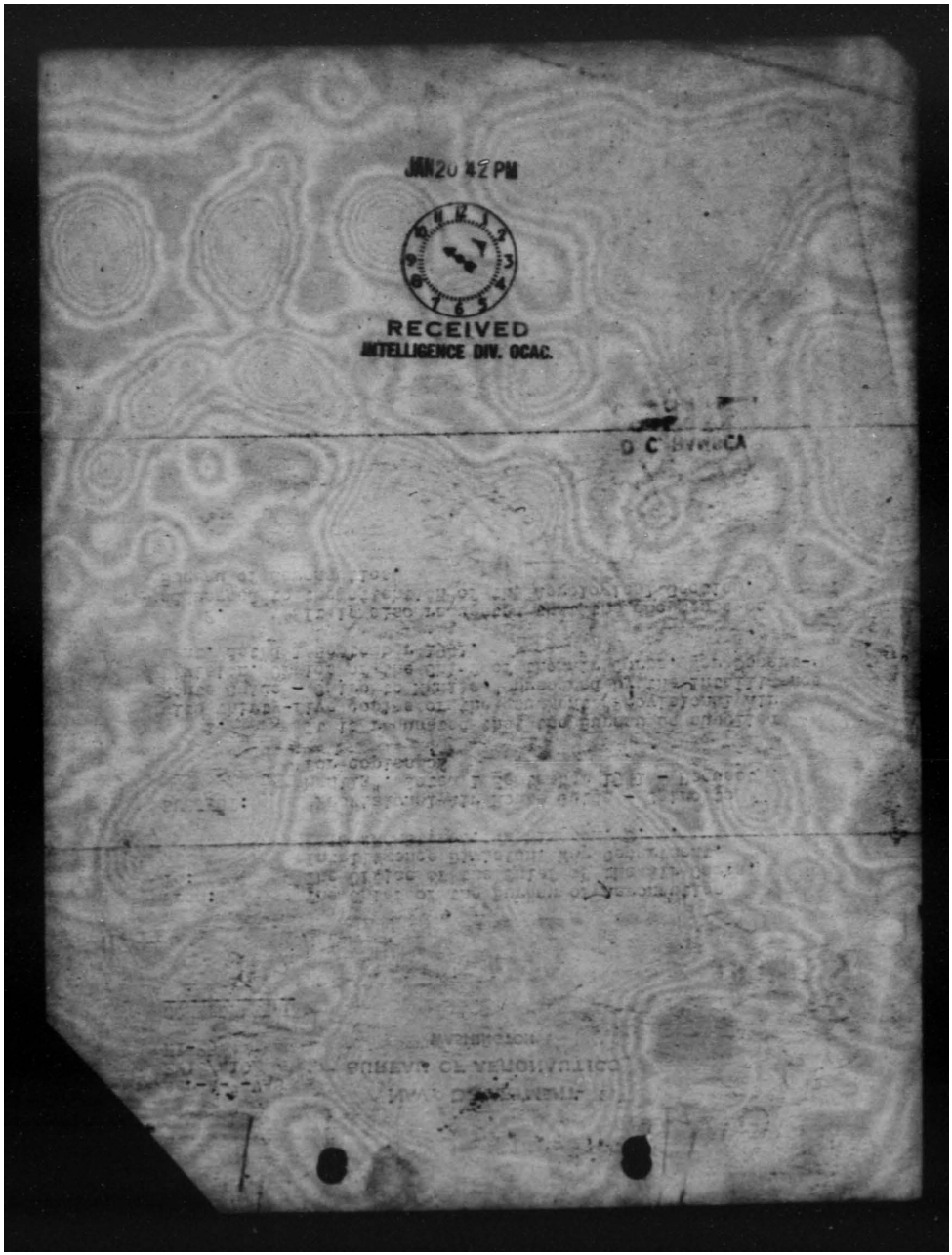
2. It is also requested that the documents be addressed to the attention of the Aerological Section, Bureau of Aeronautics.

D. C. RAMSEY
Captain, U.S.N.
Assistant Chief of Bureau

C-648 Vol 202.
RM-145794
1/22/41

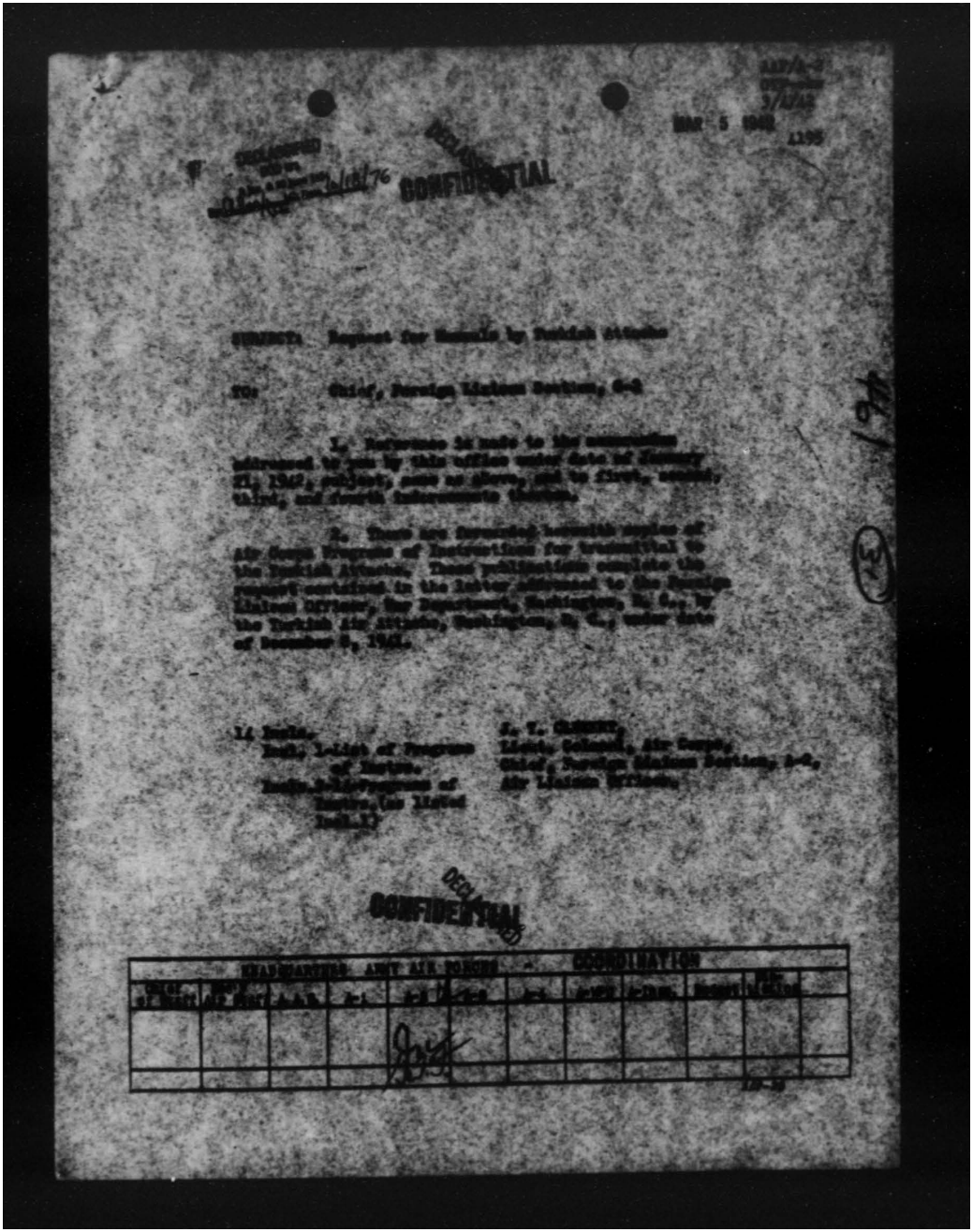
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



MAR 5 1943

CONFIDENTIAL

SUBJECT: Request for Manuals by Turkish Attache

TO: Chief, Foreign Liaison Section, A-2

1. Reference is made to the communication addressed to you by this office under date of January 21, 1943, subject, same as above, and to first, second, third, and fourth indorsements thereto.

2. There are forwarded herewith copies of Air Corps Standards of Instruction for Confidential to the Turkish Attache. These publications complete the request contained in the letter addressed to the Foreign Liaison Officer, War Department, Washington, D. C., by the Turkish Air Attache, Washington, D. C., under date of December 8, 1942.

1 Incls.
Incl: Letter of Transmittal of Manuals.

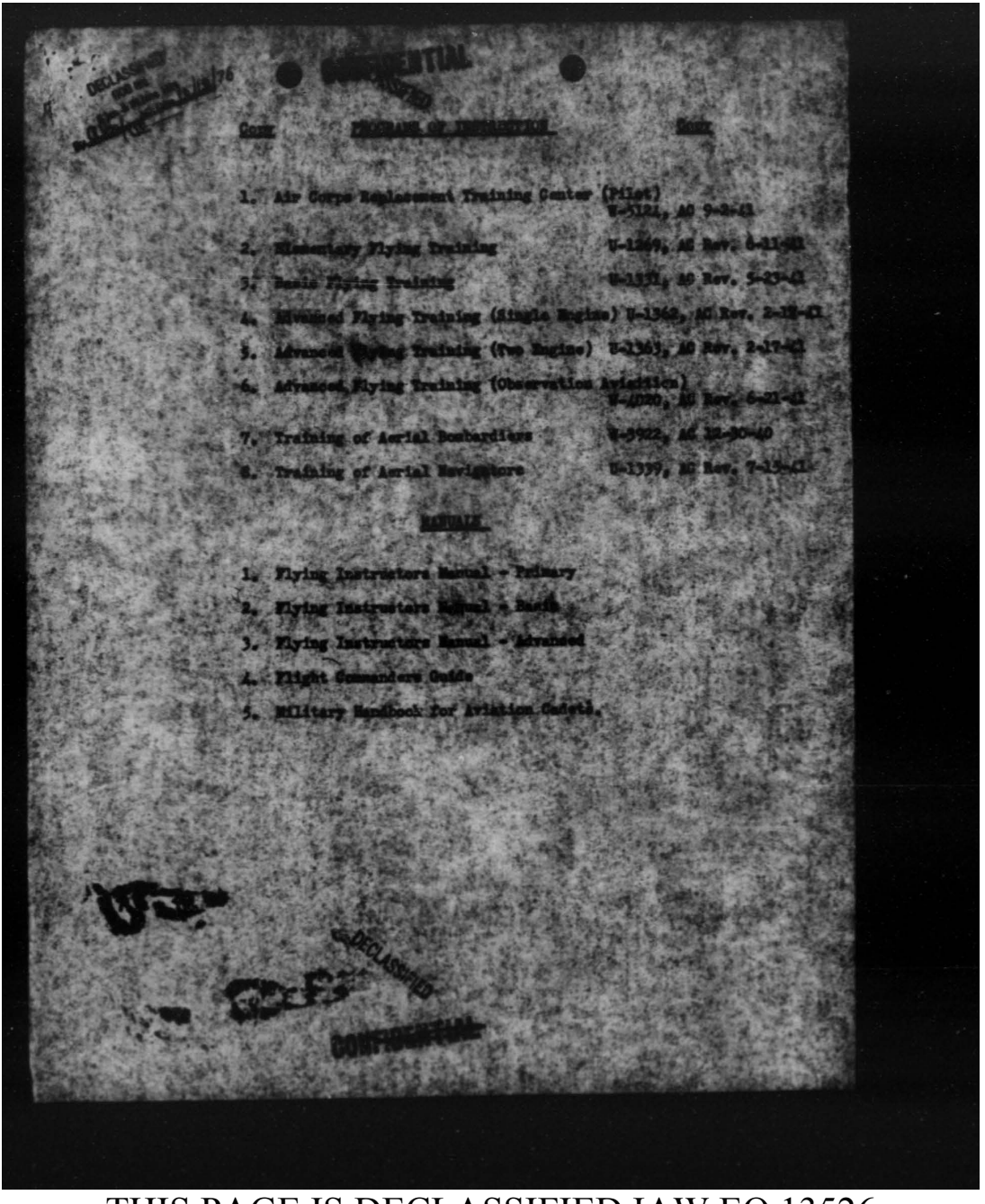
A. T. [illegible]
Lieut. Colonel, Air Corps,
Chief, Foreign Liaison Section, A-2,
Air Liaison Officer.

DECLASSIFIED

CONFIDENTIAL

| HEADQUARTERS ARMY AIR FORCES | | | | | | | | | | | | COORDINATION | | | | | | | | | | | |

THIS PAGE IS DECLASSIFIED IAW EO 13526



CONFIDENTIAL

Code	PROGRAMS OF INSTRUCTION	Code
1.	Air Corps Replacement Training Center (Pilot) W-5121, AG 9-2-41	
2.	Elementary Flying Training	U-1369, AG Rev. 6-11-41
3.	Basic Flying Training	U-1371, AG Rev. 5-23-41
4.	Advanced Flying Training (Single Engine)	U-1368, AG Rev. 2-18-41
5.	Advanced Flying Training (Two Engine)	U-1363, AG Rev. 2-17-41
6.	Advanced Flying Training (Observation Aviation) W-4020, AG Rev. 6-21-41	
7.	Training of Aerial Bombardiers	W-5922, AG 12-30-40
8.	Training of Aerial Navigators	U-1379, AG Rev. 7-15-41

MANUALS

1. Flying Instructors Manual - Primary
2. Flying Instructors Manual - Basic
3. Flying Instructors Manual - Advanced
4. Flight Commanders Guide
5. Military Handbook for Aviation Cadets.

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

FEB 20 1942

SUBJECT: Request for Manuals by Turkish Air Attache

TO: The Adjutant General
Office, Chief of the Air Corps

1. Reference is made to an R & R sheet addressed to the Administrative Division, Office, Chief of the Air Corps, by the Intelligence Division, Office, Chief of the Air Corps, under date of December 24, 1941, subject, same as above.

2. It is requested that one copy of each publication on the attached list, except FM 30-31 "Identification of British Aircraft", be forwarded to the Foreign Liaison Section, A-2, Headquarters, Army Air Forces for transmittal to the Turkish Air Attache.

For the Chief of the Air Staff:

for MARTIN F. SCANLON,
Brigadier General, U. S. A.,
Assistant Chief of the Air Staff, A-

1 Incl.
Lists of Tech.
& Field Manuals (3pages)

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir. 5200.9 Exp. 6 yrs from orig. dtd
Authority NND 945 Date 6/14/76

CONFIDENTIAL

DECLASSIFIED

4495

1st Ind

War Department, Office, Chief of the Air Corps, Washington, D. C. February 24, 1942. TO: Chief of the Army Air Forces.

With the exception of the publications listed below which are not in stock and not available from The Adjutant General's Office, the publications requested in basic communication were forwarded under separate cover, this date:

TM 1-413 "Aircraft Instrument"
TM 9-370 "90mm Antiaircraft Machine Gun Materiel M-1"

For the Chief of the Air Corps:

FEB 27 '42 AM

RECEIVED
FOR LIAISON SEC., OCAC.

Wm. F. PEARSON
Colonel, A. G. D.
Adjutant General

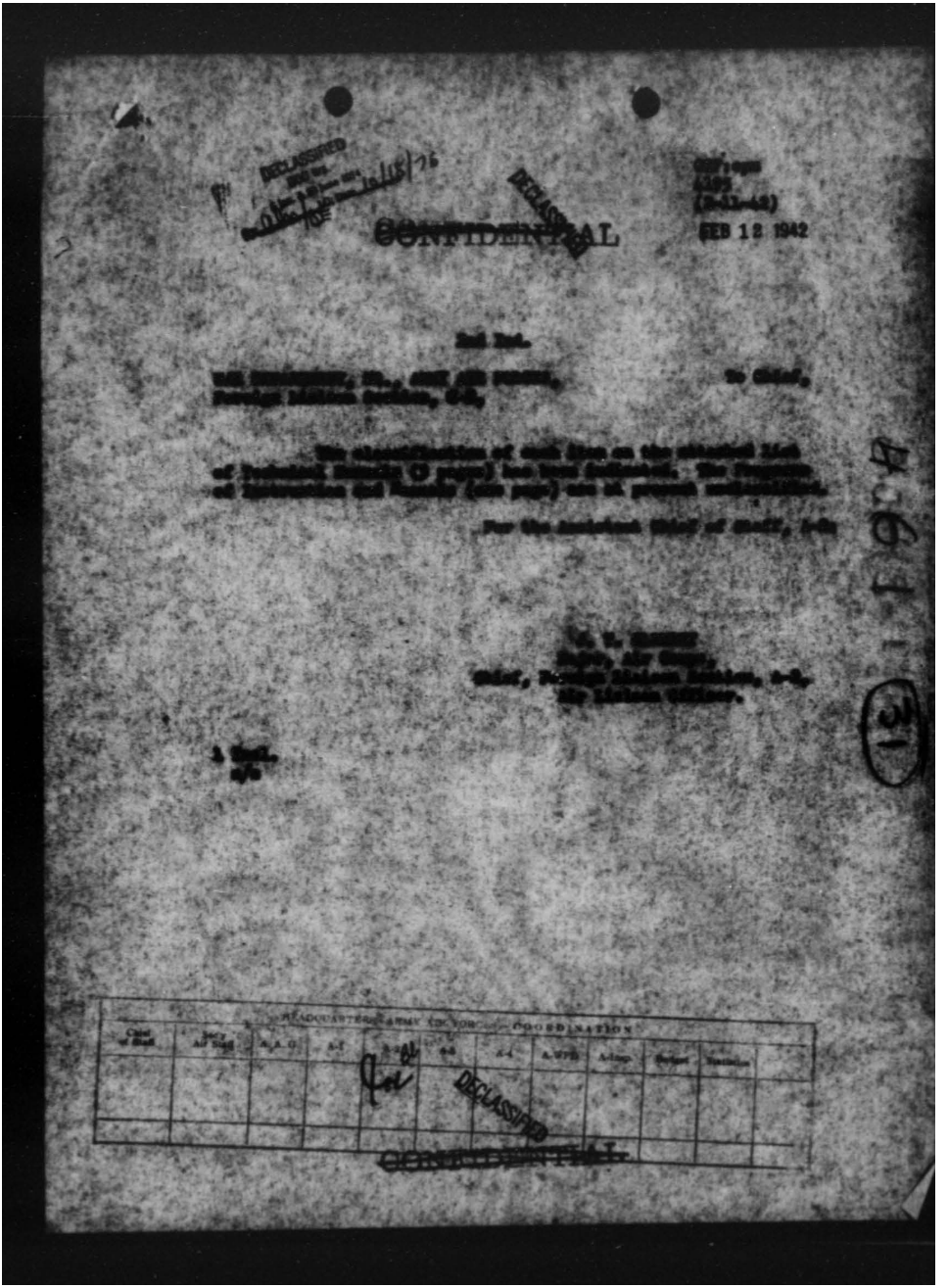
DECLASSIFIED

CONFIDENTIAL

Ao 00 461 (31) A-Jnl Memo

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

OFFICE OF THE CHIEF OF THE AIR CORPS

CONFIDENTIAL

ROUTING AND RECORD SHEET

Note: A line will be drawn across sheet after each comment.

File No. 337

Tolley No.

SUBJECT: Request for Manuals by Turkish Air Attache.

NO.	FROM	TO	DATE	COMMENTS
1.	OCAC Intel.	OCAC A.G.O. Pub. Div.	JAN 28 1942	(2-C-4) GTF:ek 1. Reference is made to R & R Sheet addressed to the Administrative Division by this office under date of December 24, 1941, subject, same as above, and to your comment Number 2 and attachment thereto. 2. The attachment referred to above, List of Field and Technical Manuals, is attached hereto. It is requested that the classification of each item be indicated, and the list be returned to this office. GTF C/OCAC Intel. 1 Incl. List, Field & Tech. Manuals. (3 pages).
2.	OCAC AG	OCAC Intel.	1/30	HCK:pdr 1. The classification of each item on the attached list of Field and Technical Manuals has been indicated. REFERENCE ONLY OCVC RECEIVED 1 Incl. List, Fields & Tech. Manuals (3 pages) H.C.K. Col., A.G.D. Adjutant General

AUG 1 1942 Record (Mail & Dist. Sec)

RECEIVED FOR HARRON SEC. OCAC

900935

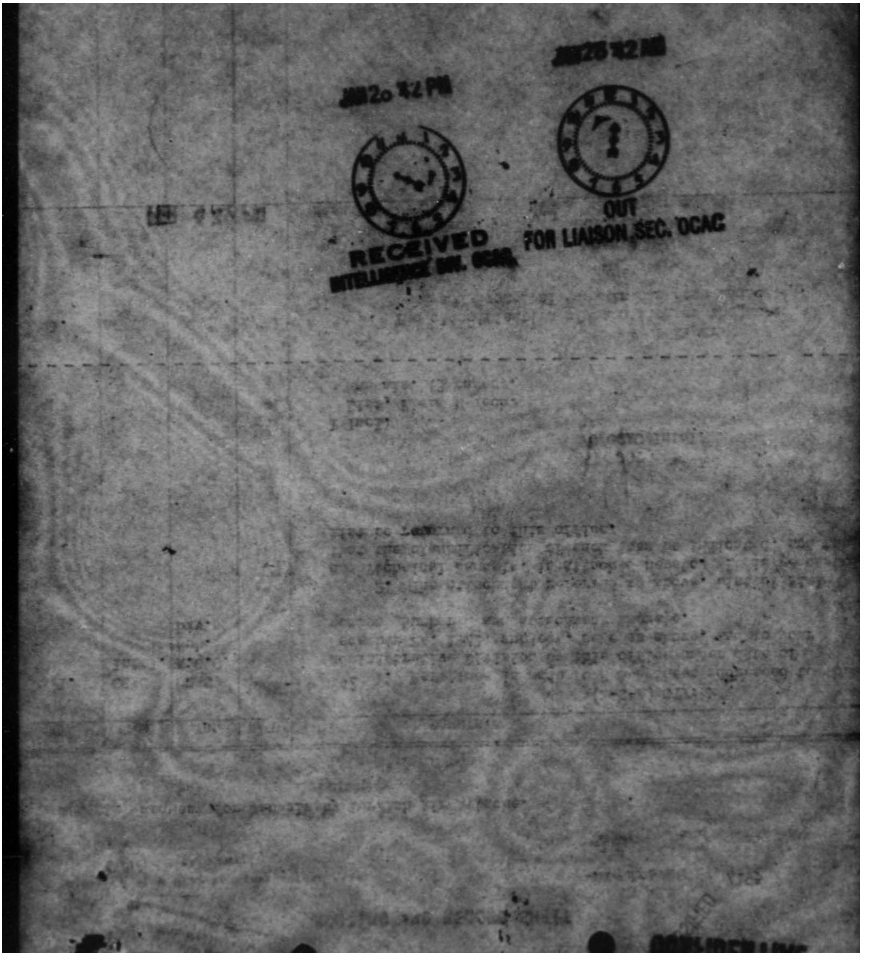
DECLASSIFIED

(Do not use reverse side)

PAGE NO. 2

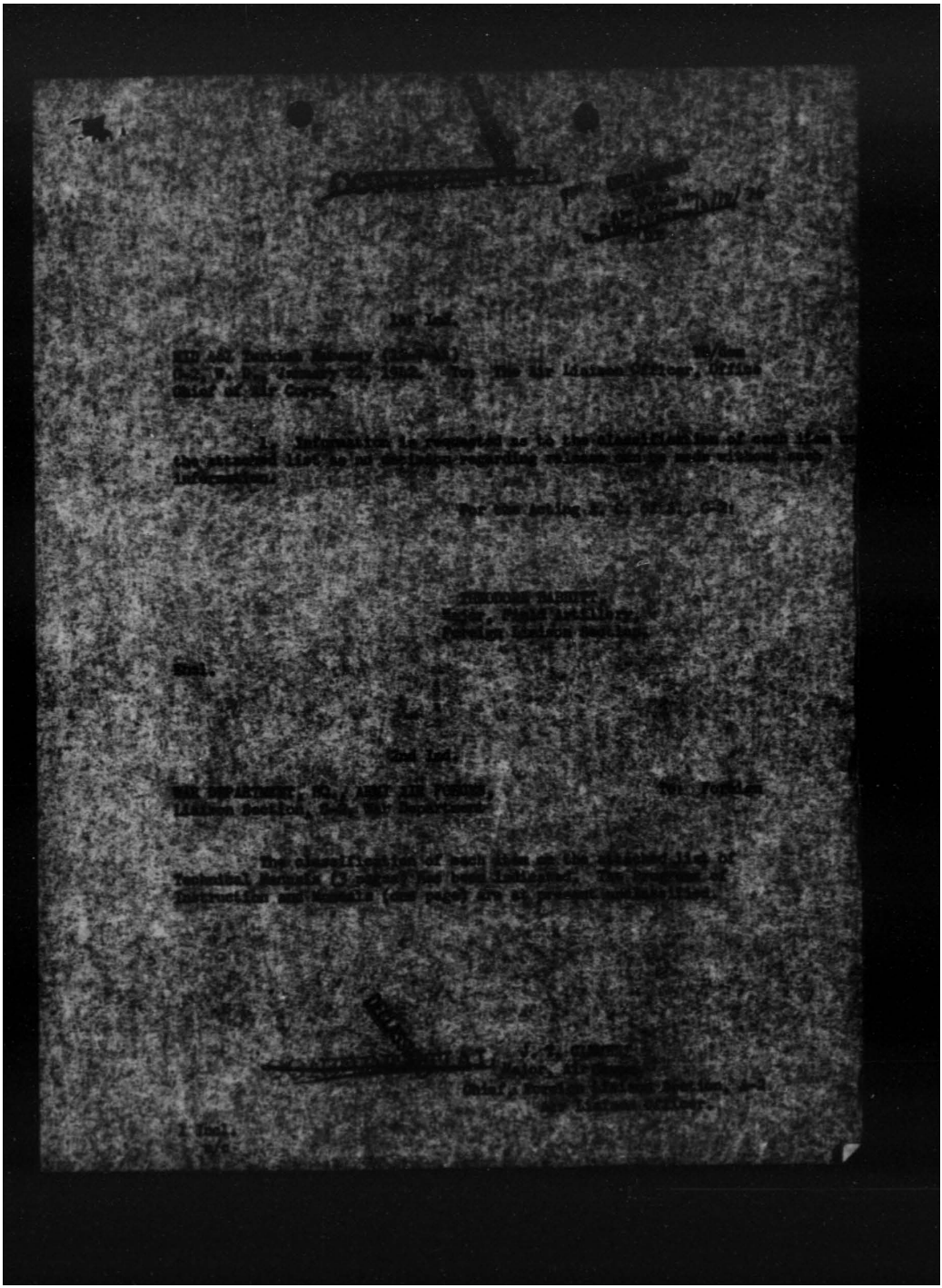
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



For Lee.

MID AAF Section Memorandum (No. [illegible]) WD/Sec
Dated Washington, January 21, 1943. To: The Air Liaison Officer, Office Chief of Air Corps.

1. Information is requested as to the classification of each item on the attached list as to its desirability regarding release and as much weight upon information.

For the Army, Air Co. [illegible]

[illegible]
Major, Field Artillery,
Foreign Liaison Section.

Encl.

2nd Ind.

WAR DEPARTMENT, WD, ARMY AIR FORCES, To: Foreign
Liaison Section, Room, War Department.

The classification of each item on the attached list of Technical Manuals (32 copies) and Field Manuals, Training Instruction and Manuals (one copy) are as [illegible]

[illegible]
Major, Air Corps,
Chief, Foreign Liaison Section, AAF
and Liaison Officer.

1 Encl.
WD

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

MEMORANDUM FOR: Chief, Foreign Liaison Section, G-2

SUBJECT: Request for Manuals by Turkish Air Attache.

1. Reference is made to letter addressed to Foreign Liaison Officer, Military Intelligence Division, War Department, Washington, D. C., by Turkish Air Attache, Washington, D. C., dated December 8, 1941, regarding United States Army Air Force Manuals, set of programs of the equivalent of our Air Corps tactical school and General Staff school.

2. Attached is four-page list of technical manuals, programs of instruction, and field manuals, which is being forwarded for the information and consideration of the Foreign Liaison Section, G-2, in connection with the request of the Turkish Air Attache.

3. Attention is invited to the fact that this list is confidential.

4. The Chief of the Intelligence Division, Office, Chief of Air Corps, Lieutenant Colonel. J. C. Taylor, and the Chief, Foreign Liaison Section, Intelligence Division, Office, Chief of Air Corps, Major J. T. Clement, have no objection as far as the Air Corps is concerned, to giving to the Turkish Air Attache the publications on the list.

5. For the information of all concerned, Turkey is a Lend-Lease country.

6. This office suggests that you review the attached list. If you wish that this list and the manuals be furnished the Turkish Air Attache, this office should be so instructed in writing, and we will obtain the publications immediately.

7. Attention is invited to the fact that this list does not include General Staff school publications and does not include information on the Air Corps tactical schools. This office will attempt to obtain some of these publications just as soon as we have had an expression from the Chief, Foreign Liaison Section, G-2, concerning giving the Turkish government the inferior documents listed.

For the Chief of the Air Corps:

J. C. TAYLOR
Lieutenant Colonel, Air Corps,
Chief, Intelligence Division.

1 Incl.
4-page list of Tech. Manuals.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

COPY

DECLASSIFIED

DECLASSIFIED
DOD Dir.
[illegible] 12/12/76

TECHNICAL MANUALS

1-325 "Air Navigation"

Restricted 1-326 "Celestial Air Navigation"

1-329 "Basic Photography"

1-330 "Aerial Photography"

Restricted 1-331 "Tables for Construction of Polyconic Projections for Aerial Photography"

1-332 "Gunner Manual for Pilots"

Restricted 1-333 "Precision Bombing Practice"

Restricted 1-334 "Handbook for Bombardiers"

Restricted 1-335 "Aerial Gunnery Practice and Record Firing"

1-336 "Theory of Ballooning"

1-345 "Hydrogen"

1-350 "Airship Aerodynamics"

1-355 "Aerostatics"

1-400 "Theory of Flight"

1-405 "Aircraft Engines"

1-406 "Aircraft Electrical Systems"

1-407 "Aircraft Induction, Fuel and Oil Systems"

1-408 "Aircraft Engine Operation and Test"

Restricted 1-409 "Aircraft Armament and Pyrotechnics"

1-410 "Airplane Structures"

1-411 "Airplane Hydraulic Systems and Miscellaneous Equipment"

1-412 "Aircraft Propellers"

1-415 "Aircraft Instruments"

1-415 "Airplane Inspection"

1-420 "Leather"

1-421 "Milling Machines, Shapers and Planers"

(continued)

CONFIDENTIAL
DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

(Continued from Page 1)

CONFIDENTIAL DECLASSIFIED

1-[illegible] "Printing Machines"

1-[illegible] "Welding"

1-[illegible] "Aircraft Sheet Metal Work"

1-[illegible] "Parachutes, Aircraft Fabrics, and Clothing"

1-[illegible] "Link, Trainer Operation and Training"

1-[illegible] "Electrical Fundamentals"

1-[illegible] "Radiotelephone Procedure, Air Corps"

1-[illegible] "Electrical Armament Controls"

Restricted 1-[illegible] "Aircraft Machine-gun Sights"

Restricted 1-[illegible] "Bomb Racks, Tow Target Equipment, and Flare Racks"

Restricted 1-[illegible] "Aircraft Cameras (Machine Gun)"

Restricted 1-[illegible] "Synchronizing"

1-[illegible] "Physiological Aspects of Flying and Maintenance of Physical Fitness"

1-[illegible] "Notes on Cardiology in Aviation Medicine"

1-[illegible] "Notes on Physiology in Aviation Medicine"

1-[illegible] "Notes on Psychology and Personality Studies in Aviation Medicine."

1-[illegible] "Outline of Neuropsychiatry in Aviation Medicine"

1-[illegible] "37-mm AA Gun Material M1A2"

1-[illegible] "37-mm Aircraft Gun Material M4"

1-[illegible] "3-Inch Antiaircraft Gun Material (Mobile)"

1-[illegible] "90-mm Antiaircraft Gun Material M1"

1-[illegible] "37-mm Antiaircraft Gun, M1A2, and Carriage, M3"

1-[illegible] "3-inch Antiaircraft Gun Material M3A2, M3A1, M1A2, M1A1, T1A2,

1-[illegible] "Sighting System, M2, with Telescope M7, for 37-mm Antiaircraft Gun"

11-[illegible] "Tables of Vertical and Horizontal Components of Distances of Pilot Balloons"

CONFIDENTIAL DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

FIELD MANUALS

CONFIDENTIAL

Restricted 1-5 "Employment of Aviation of the Army"

Restricted 1-10 "Tactics and Technique of Air Attack"

Restricted 1-15 "Tactics and Technique of Air Fighting"

Restricted 1-20 "Tactics and Technique of Air Reconnaissance and Observation"

1-25 "Air Navigation"

Restricted 1-30 "Aerial Photography"

Restricted 1-40 "Intelligence Procedure in Aviation Units"

Restricted 1-45 "Signal Communication"

1-50 "Reviews and Inspections"

4-105 "Organization and Tactics"

Restricted 4-110 "Summary, Fire Control and Position Finding Antiaircraft Guns."

4-111 Position Finding and Control Antiaircraft Searchlights.

4-112 "Summary, Fire Control, and Position Finding, Antiaircraft Automatic Antiaircraft Weapons"

4-115 "Operation of Material and Employment of Personnel Antiaircraft Searchlight Units"

4-120 "Formations, Inspections, Service and Care of Material"

4-125 "Sixth Antiaircraft Gun"

4-135 "Maintenance and Service of the Pieze-Antiaircraft Machine Gun"

4-140 [illegible] Antiaircraft Gun"

Restricted 30-31 "Role of Aerial Photography"

Restricted 30-80 "Military Intelligence-Gen. Identification of U. S. Government Aircraft"

Conf. 30-81 "Identification of British Aircraft"

Restricted 30-84 "Identification of Soviet-Russian Aircraft"

Restricted 30-85 "Identification of German Aircraft"

Restricted 30-88 "Identification of [illegible] Aircraft"

DECLASSIFIED CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

COPY

PROGRAMS OF INSTRUCTION

1. Air Corps Replacement Training Center (Pilot) W-8134, AC 9-3-41
2. Elementary Flying Training W-1369, AC Rev. 6-11-41
3. Basic Flying Training W-1331, AC Rev. 6-23-41
4. Advanced Flying Training (Single Engine) W-1362, AC Rev. 2-17-41
5. Advanced Flying Training (Two Engine) W-1363, AC Rev. 2-17-41
6. Advanced Flying Training (Observation Aviation) W-4029, AC Rev. 6-21-41
7. Training of Aerial Bombardiers W-3922, AC 12-30-40
8. Training of Aerial Navigators W-1339, AC Rev. 7-15-41

MANUALS

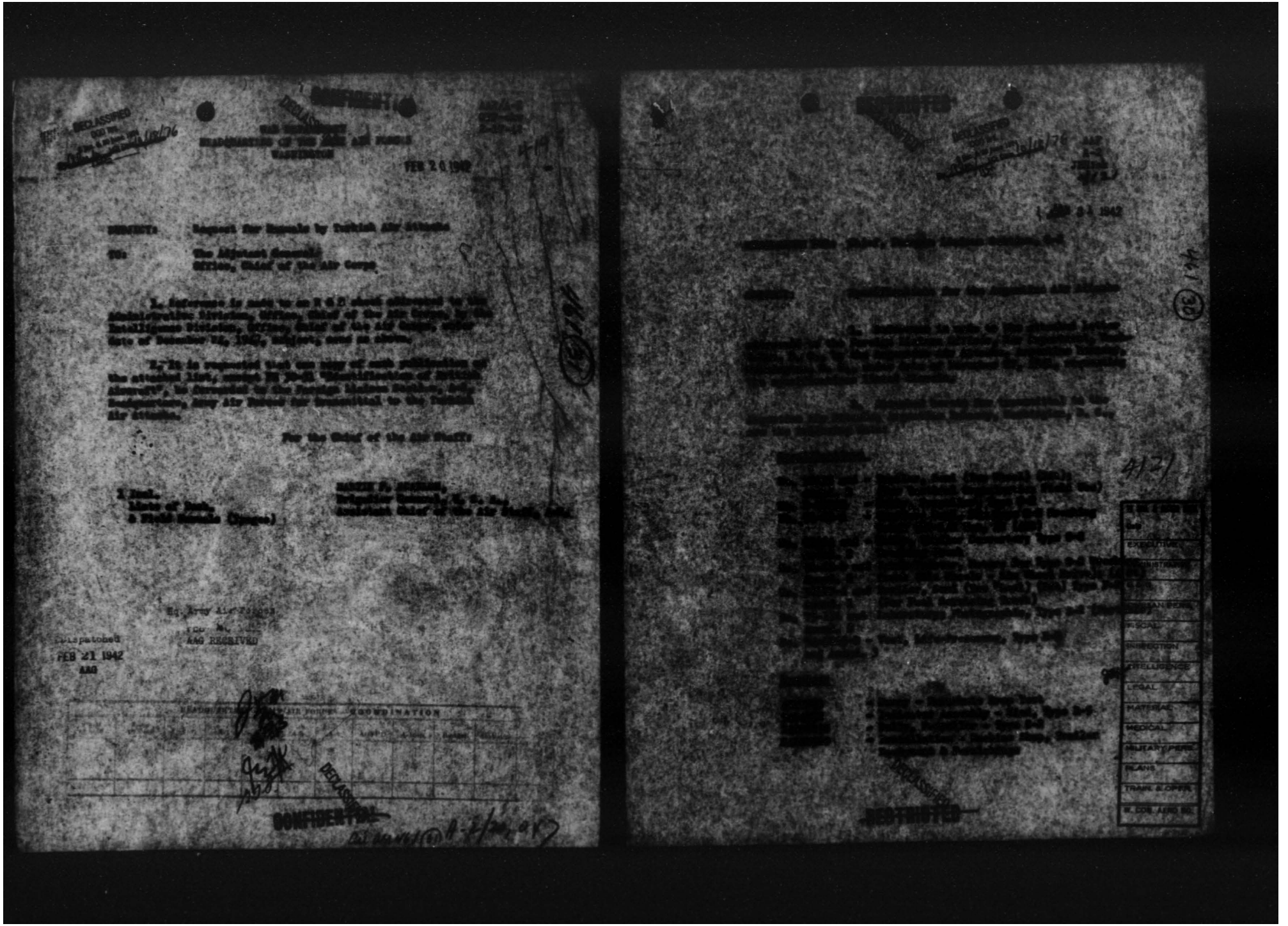
1. Flying Instructors Manual - Primary
2. Flying Instructors Manual - Basic
3. Flying Instructors Manual - Advanced
4. Flight Commanders Guide
5. Military Handbook for Aviation Cadets

DECLASSIFIED

CONFIDENTIAL

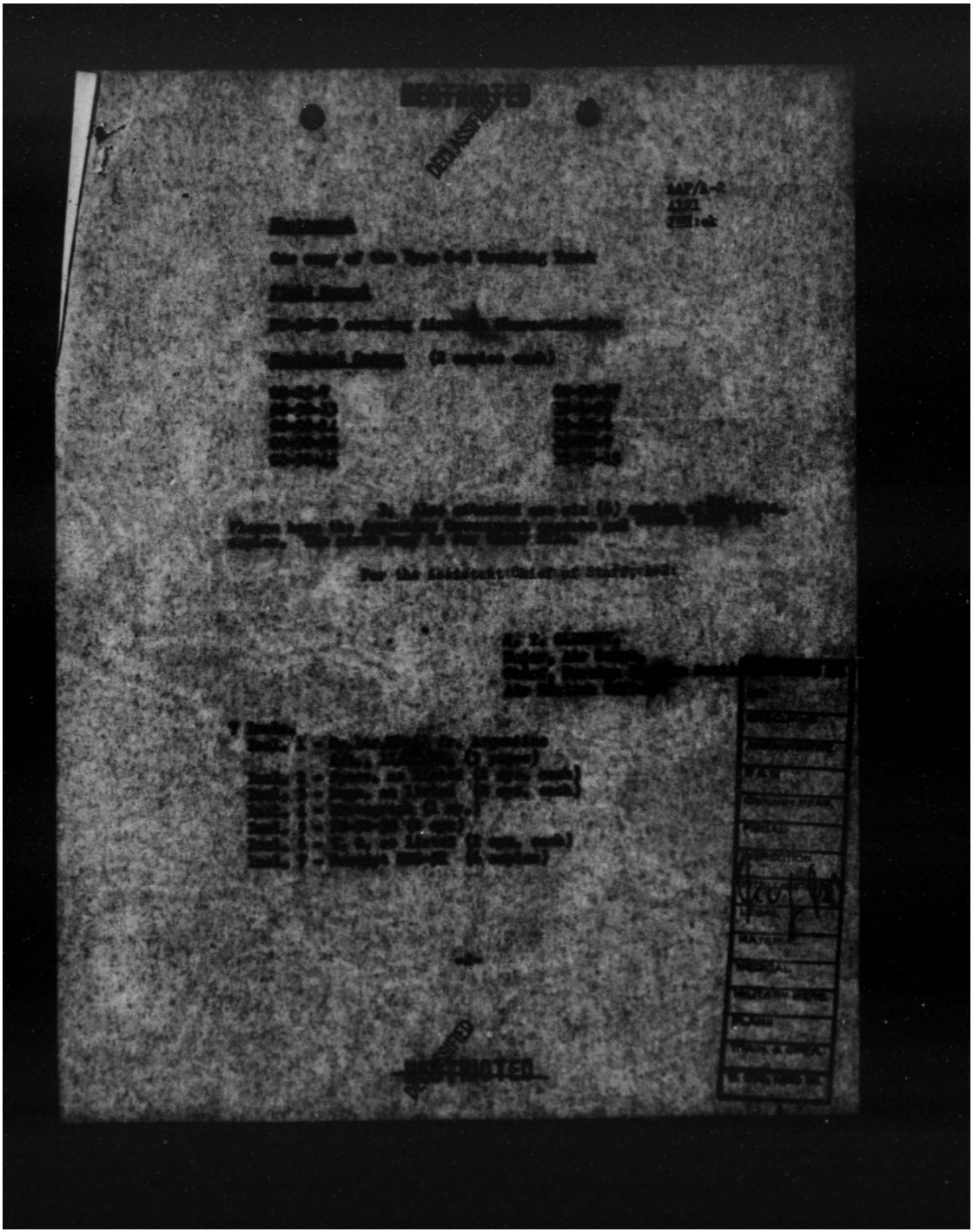
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

Ref: WD-61

New York, November 27, 1941.

The Foreign Liaison Officer,
War Department,
Room 2058, Munitions Building,
Washington, D. C.

Dear Sir:

During the recent visits authorized by the War Department to the following air fields:

Langley Field, Virginia
Mitchel Field, New York
Westover Field, Mass.
Maxwell Field, Alabama
Savannah Air Base, Ga.

the writer had the opportunity of seeing the operation of the different equipment, vehicles and technical apparatuses which, because of their importance and efficiency constitute a very adequate supplement to our own organizations, considering:

1. That our military planes and basic trainers in service in the Army are all of American manufacture.

2. That it is advisable, likewise, to have a U. S. Air Corps military mission to act as advisors to our own commanding units.

These considerations have moved the writer in his double capacity as Air Attache and Chief of the Aviation Division of the Argentine Army purchasing Commission, to inform my government of the advisability of purchasing this equipment and vehicles. For this reason I request two copies of the corresponding technical specifications mentioned below to be sent to my office at 1775 Broadway, Room 854, New York City:

Engineering:

U.S. Varidrive; Testmaster Model GTB, Type 15-30-300, manufactured by U. S. Electrical Motors Inc.

Dummy, Parachute Drop Test, Part No. 40 G 7393 Stock No. 83-199920.

Ordnance:

Truck bomb service M-1.

Trailer, bomb, M-5.

Truck bomb lift.

- 2 -

Armorer's Tool Chest No1
Spare parts and accessories
Cleaning and Preserving Material

Vehicles for Field Service in Combat
Shop vehicles for airplanes, engines and instruments:

(a) Trailer - 4ton 8-Wheel NDT
Specification 30138.
Complete with dolly converter.
Instrument Shop
Engineering Shop.
Technical supply.

Airplane wrech vehicles:

(a) Truck Tractor for G-2 Wrecking Truck, with 2 trailers of 25 Feet (7,6 m) and 40 Feet (12,2m).
(b) Dolly for Type G-2 Wrecking Truck TV-12 Dolly.
(c) Dolly Propeller Type G-2.

Armament Trucks and General Vehicles:

(a) Truck Automotive Repair
Truck Machine Shop
Truck Welding.
Truck Spare Parts.

Fire Extinguishing Vehicles:

Knuth Wagon Extinguisher Fire Truck. Class 100 JD, No. 3101, manufactured by Motor Transport Shop Relabird Q.M. Depot, Baltimore, My.

Gasoline Tank Trucks:

2 1/2-ton Truck 4x4, Autocar U-4044, Semi-trailer maximum gross weight 20,000 lbs. (9080) kg.).

Complete Technical Vehicles for meteorlogic, photographic, and Signal Corps Services.

Life Preserver B-3, Specif. 94-3065-B.

Regulations used by cadet personnel at Maxwell Field:

Books for Aircraft TM 9-960
Aircraft Characteristics TM-3490.

Technical Order No. 00-25-7 dated August 18, 1941; numbering and n

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

Marking of Airdrome Runways and Landing Strips.

Memorandum Order 19-1-39 September 22, 1938.
Drawing No. 34 0 4032 Flight T.

Artillery Manual OO Form.7224: "Classification of explosives for Storage."

Ammunition Dump Drawing, for storage of airplane bombs.

"Design of Airport Runways" dated January 1941.

Cordially yours.

S/ Alfredo M. Paladino
Lieut. Colonel
Air Attache
Argentine Embassy

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED DAIO 9 Jan 76

OFFICE OF THE CHIEF OF THE AIR CORPS

RESTRICTED

ROUTING AND RECORD SHEET

DECLASSIFIED

Note.—A line will be drawn across sheet after each comment.

File No. 4121

Tally No.

Subject: Request for Specifications - Argentine Air Attache

NO.	FROM	TO	DATE	COMMENTS
2.	OCAC OAPS (4-E-4)	OCAC Intel.	1-27 1942	1. Supplementing R & R dated January 17, 1942, from this office, attached herewith are the following data for transmittal to the Argentine Air Attache in response to his request of November 27, 1941: Specifications No. 30135 and Amend. 2 - Trailer, Semi (Two Wheel) (2dt); (For Tactical Organization Field Use) No. K-30130 - Dolly, Propeller, Type C-2 No. 91-63-A - Trailer; Semi, For Type C-2 Wrecking Truck (12-1/2 Ton, 4W (4dt)) No. 91-64 and Amend. 2 - Dolly, Trailer Converter; Type C-2 Wrecking Truck No. 91-65-B and Amend. 4 - Truck-Tractor, Motor; For Type C-2 Wrecking Truck (Six Wheels - Six Wheel Drive); (4dt) No. 30127-A and Amend. 1 - Trailer, Semi (Two Wheel) (2dt) Type F-2 (For Fuel Servicing Truck) No. 75-156 and Amend. 2 - Laboratory; Photographic, Type A-2 (Portable) No. 94-3065-B and Amend. 3 - Vest, Life-Preserver, Type B-3 Drawings 40G7393 - Dummy - Parachute Drop Test 3404032 - Indicator Assembly - Wind, Type B-5 X40M5158 - Dolly, Propeller - Type C-2 842M2560 - Installation - Machine Shop, Trailer Equipment & Furnishings Photograph One copy of the Type C-2 Wrecking Truck Field Manual FM-30-30 covering Aircraft Characteristics

DECLASSIFIED

(Do not remove RESTRICTED) 12503 JAN 27 42 8/1/41

Page No. 1

CENTRAL FILES SECTION A.A.F.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

OFFICE OF THE CHIEF OF THE AIR CORPS

RESTRICTED

ROUTING AND RECORD SHEET

DECLASSIFIED

Note.—A line will be drawn across sheet after each comment.

File No. _____

Tally No. _____

Subject: Request for Specifications - Argentine Air Attache

NO.	FROM	TO	DATE	COMMENTS
2. (Cont'd)	OCAC OAPS (4-E-4)	OCAC Intel.	1-27 1942	Technical Orders (2 copies each) 00-25-7 00-30-57 00-30-13 19-1-29 00-30-14 19-20-6 00-30-30 19-20-7 00-30-44 19-25-15 2. Receipt covering this transaction is attached in sextuple. O. P. E. Asst. for Procurement Services 7 Incls. Incl. 1 - Cy. ltr. WD-61 from Arg.A.A., 11/27/41 (3 pages) Incl. 2 - Specs. as listed (2 cys. each) Incl. 3 - Dwgs. as listed (2 cys. each) Incl. 4 - Photograph (1 cy.) Incl. 5 - Field Manual FM-30-30 (2 cys.) Incl. 6 - T. O.'s as listed (2 cys. each) Incl. 7 - Receipt CDB-51 (6 copies)

DECLASSIFIED

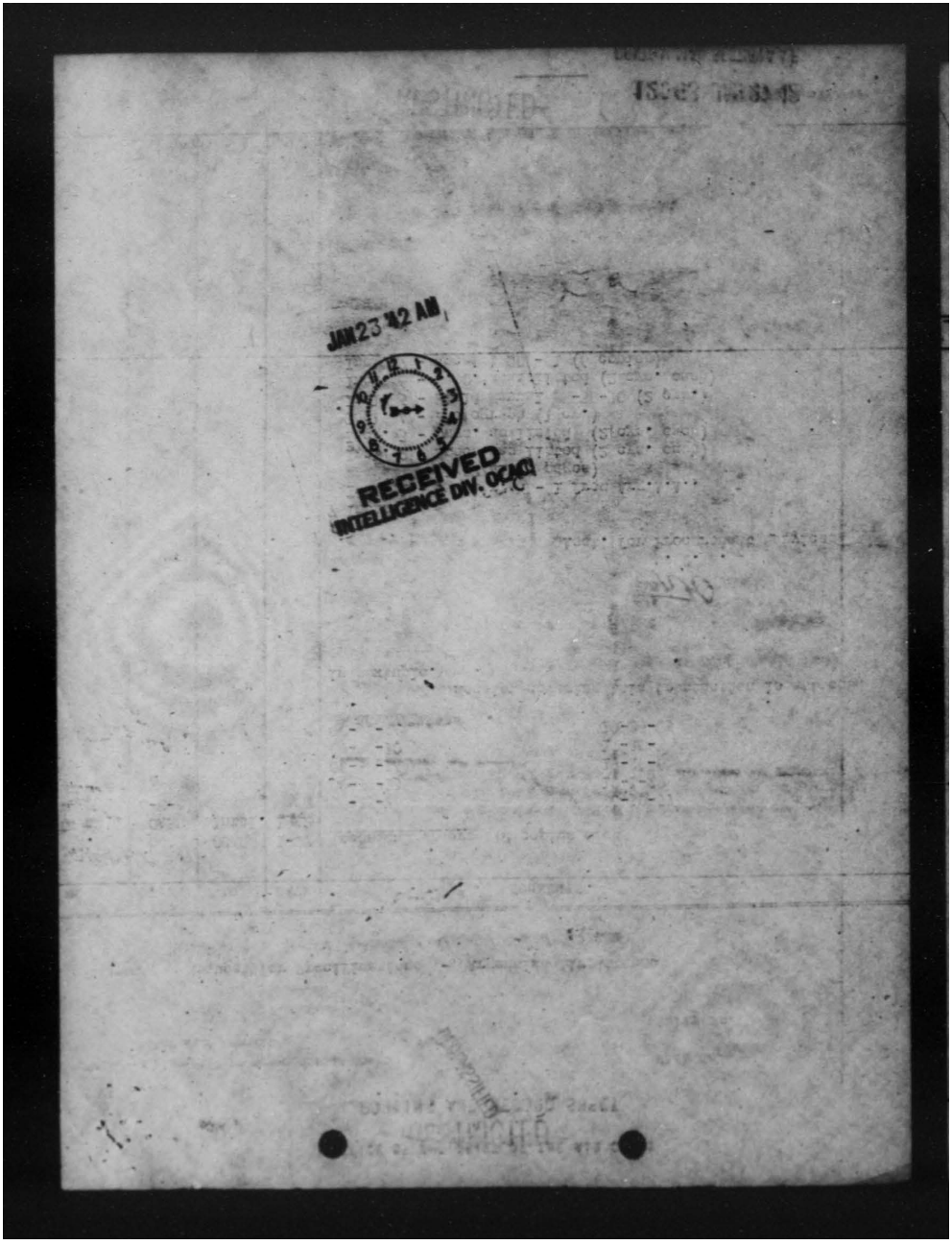
(Do not write below this line.) RESTRICTED Page No. _____

12563 JAN 27 1942 Rev. 8/1/41

CENTRAL MAIL SECTION A.A.F.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

OFFICE OF THE CHIEF OF THE AIR CORPS

ROUTING AND RECORD SHEET

Note.--A line will be drawn across sheet after each comment.

File No. 4121

Tally No. _____

Subject: Request for Specification by the Argentine Air Attache

NO.	FROM	TO	DATE	COMMENTS
				JHHiep (2-C-4)
1.	OCAC Intel.	OCAC Mobl.	DEC 9 1941	1. Attached is a copy of letter No. WD-61, addressed to the Foreign Liaison Officer, War Department, Washington, D. C., by the Argentine Air Attache, Argentine Embassy, Washington, D. C., under date of November 27, 1941, requesting certain specifications. 2. It is requested that this office be furnished with the specifications requested in the attached letter, for transmittal to the Argentine Air Attache, Washington, D. C. CHIEF C/OCAC, Intel. 1 Incl. Cy. ltr. WD-61 fr. Arg. A.A., 11/27/41. (3 pages)

(Do not use reverse side)

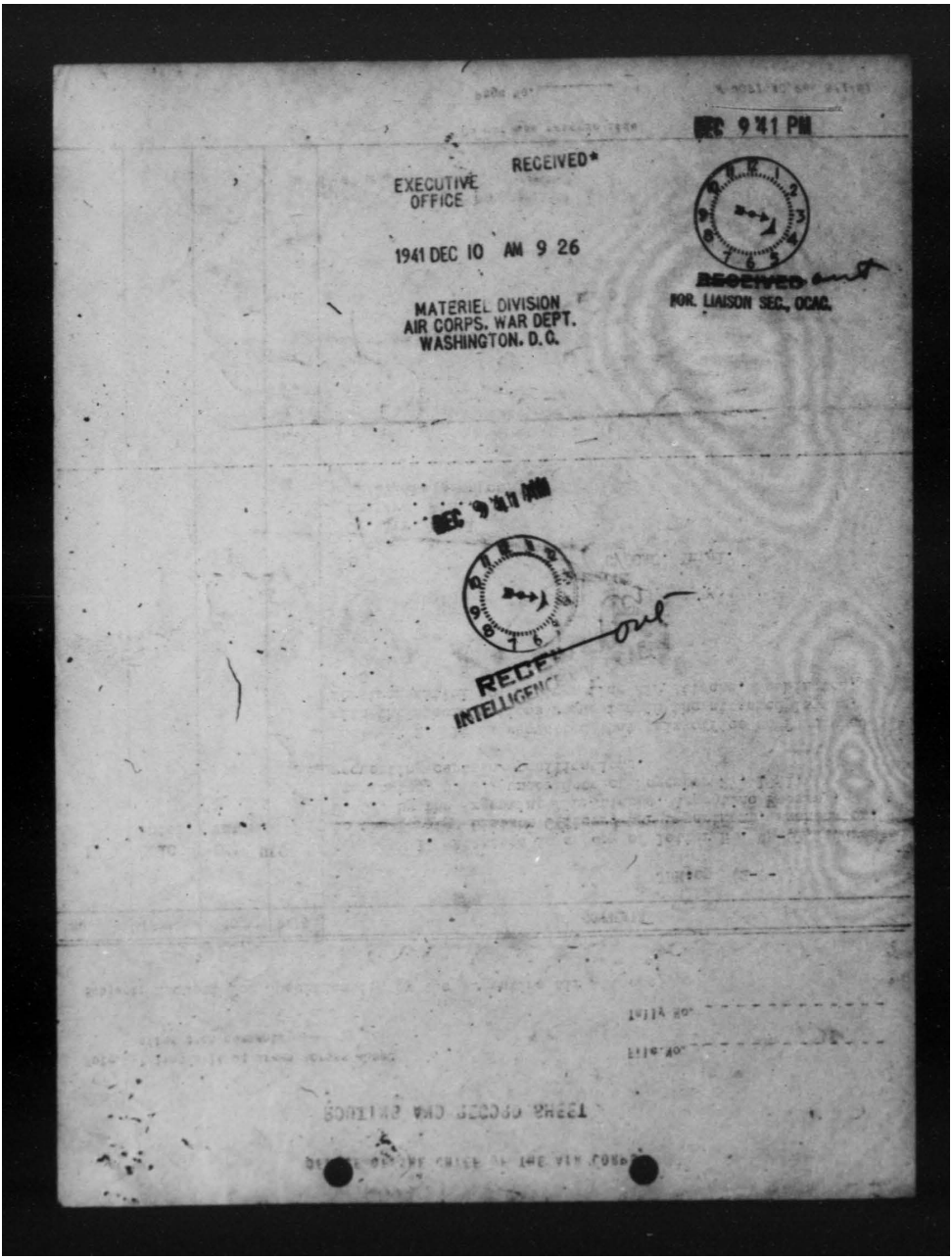
Page No. _____

W-4071, AC, Rev. 8/1/41

12/1 AD-670

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

OFFICE OF THE CHIEF OF THE AIR CORPS

Specifications

ROUTING AND RECORD SHEET

Note.— A line will be drawn across sheet after each comment.

FOLLOW-UP

File No. 4121

Tally No.

SUBJECT: Request for Specification by the Argentine Air Attache

NO.	FROM	TO	DATE	COMMENTS
				JBH:ep (20-4)
1.	OCAC Intel.	OCAC Mat.	1942 1/13	1. Reference is made to the attached copy of our R&R sent to your Division under date of December 9, 1941. 2. It is requested that this matter be expedited. J.H.T. C/OCAC, Intel. 1 Incl. R&R to Mat., 12/9/41, w. Incl. (Cy. ltr. WD-61 fr. Arg. AA., 11/27/41,3 pages)
2.	OCAC APS (4-M-4)	OCAC Intel.	1-17 1942	1. With reference to your follow-up R & R No. 4121, this is to advise you that it is anticipated that available Air Corps data for transmittal to the Argentine Air Attache will be forwarded your office within the next week. 2. The following publications requested in the letter dated November 27, 1941, from the Argentine Air Attache are not available from the Air Corps and may be obtained from the agencies as indicated below: a. Chief of Ordnance, Washington, D. C. Truck bomb service M-1 Trailer, bomb, M-5 Truck bomb lift Armor's Tool Chest M-1

JAN 19 1942 AM

RECEIVED

FOLLOW-UP

FOR LIAISON

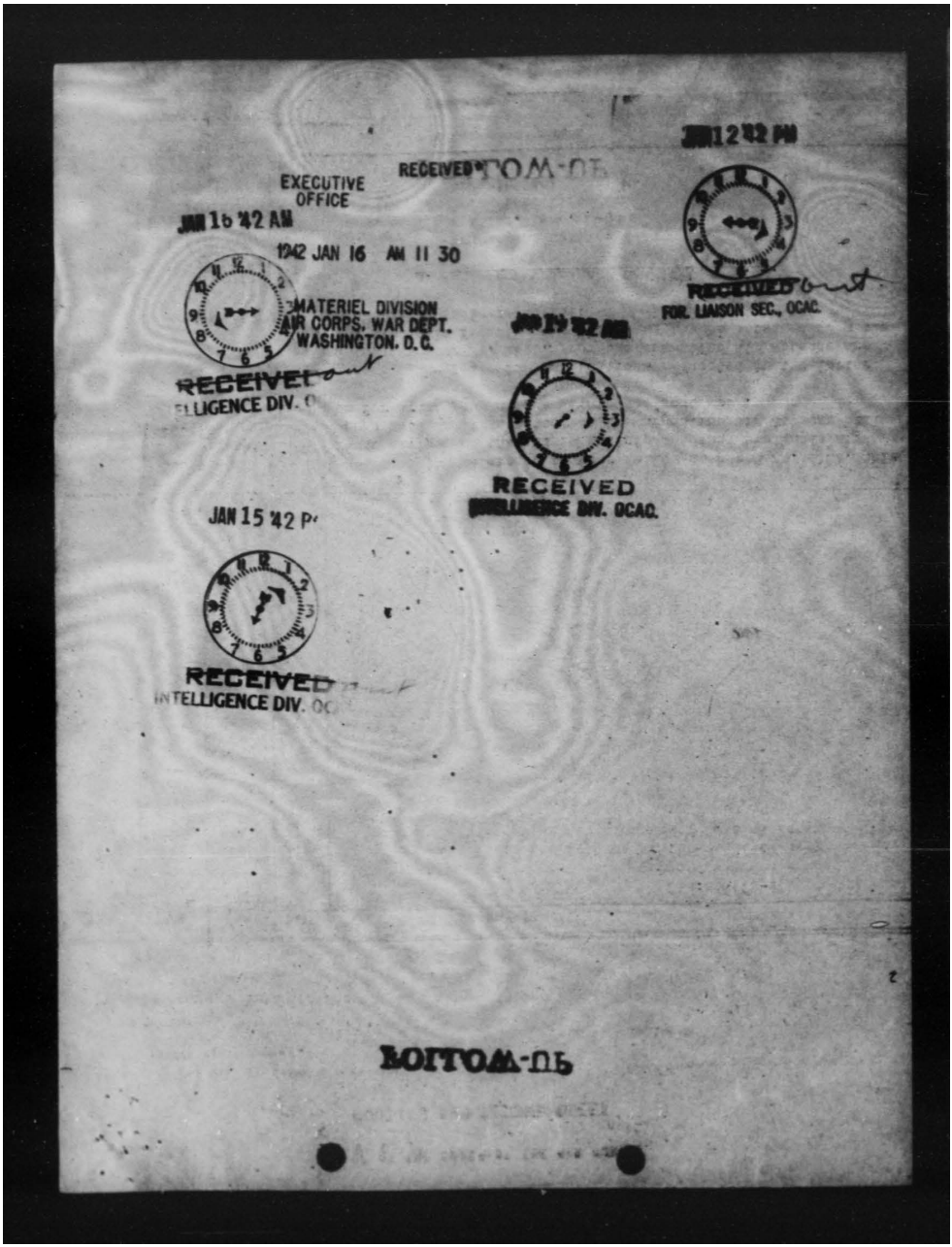
(Do not use reverse side)

PAGE NO. _____

P-4071, AC. Rev. 8/1/41

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

Spiegel

OFFICE OF THE CHIEF OF THE AIR CORPS

ROUTING AND RECORD SHEET

Note.--A line will be drawn across sheet after each comment.

File No. 41 Pe 1

Tally No. _____

FOLLOW-UP

Subject: Request for Specifications by the Argentine Air Attache

NO.	FROM	TO	DATE	COMMENTS
2. (Cont'd)	OCAC APS (4-2-4)	OCAC Intel.	1-17 1942	Spare Parts and Accessories Cleaning & Preserving Material Armament Trucks and General Vehicles: Truck Automotive Repair Truck Machine Shop Truck Welding Truck Spare Parts Bombs for Aircraft TM-9-980 Artillery Manual 00 Form.7224: "Classification of Explosions for Storage". Ammunition Dump Drawing, for storage of airplane bombs. h. U. S. Electrical Motors, Inc., 80-34th St., Brooklyn, N. Y. U. S. Varidrive; Testometer Model OTB, Type 15-30-300 i. Bureau of Aeronautics, Washington, D. C. "Design of Airport Runways" dated January, 1941 O. P. K. Asst. for Procurement Servs. Incl. 1 m/e

(Do not use reverse side)

Page No. 2

W-4071, AC, Rev. 8/1/41

THIS PAGE IS DECLASSIFIED IAW EO 13526

[redacted]

DECLASSIFIED
DOD Dir. 5200.9

Dispatched
FEB 1 1942
AAG

1st Ind. (Air AG)

WD HQ ARMY AIR FORCES, Washington, D.C. January 31, 1942
TO : Commanding General, Field Forces, G.H.Q., Army War College.

It is recommended that clearance be granted for the shipment referred to in paragraph one above.

For the Chief of the Army Air Forces:

[illegible]
Colonel, A.G.D.
Air Adjutant General.

HEADQUARTERS ARMY AIR FORCES - COORDINATION											
Chief of Staff	Sec'y Air Staff	A.A.G.	A-1	A-2	A-3	A-4	A-WPD	A-Insp.	Budget	Statistics	

AAF-39

DECLASSIFIED

SECRET

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

DECLASSIFIED
E.O. 12958
Authority NND 760030
By [illegible] NARA, Date 3/16/76

January 30, 1942.

SUBJECT: Transportation of Necessary Technical Material.

To: The Chief of the Army Air Forces.

1. Request that proper clearance be obtained from G-2, G-3, for shipment of additional orders, training, field and technical manuals to Bolling Command, AAFHQ.

2. Complete list of publications needed by this Command for preliminary training program has been submitted to the publication department and material can be shipped when proper clearance is secured.

For Brigadier General Ira C. Baker.

Charles E. Kirk,
Captain, Air Corps.

1st Ind. (AIr AG)

HQ AC of AS, AIR FORCES, Washington, D.C. January 31, 1942
TO: Commanding General, Field Forces, S.S.U., Army War College.

It is recommended that clearance be granted for the shipment referred to in paragraph one above.

For the Chief of the Army Air Forces.

WILLIAM E. BICE,
Colonel, A.G.D.,
Air Adjutant General.

DECLASSIFIED

SECRET

Doc AM 461 (A-9)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

HEADQUARTERS ARMY AIR FORCES

SECRET

ROUTING AND RECORD SHEET

Note.--A line will be drawn across sheet after each comment.

DECLASSIFIED DOD Dir. 5200.9 Sec. III, Par. 4 & 5 Letter dtd 10/18/76

DECLASSIFIED

File No. RIK

Tally No. AAF A-2/8

SUBJECT: Arctic Manual

NO.	FROM	TO	DATE	COMMENTS
				AAF/A-2 JTMC rwm
1	AAF A-2	AAF C/AS	1942 1/29	1. After investigation of the Arctic Manual, it is the opinion of this Division that it should not be placed in a classified status.
	Dispatched FEB 1 1942 AAG			2 Incl: Copy Directive memo 2-8, 1/17/42 MFS R&R 2 fr S/AS to A-2, 1/17/42 C/A-2

Noted by Gen Arnold - No further action 1/29/42 rwm

(17)

[redacted]

DECLASSIFIED

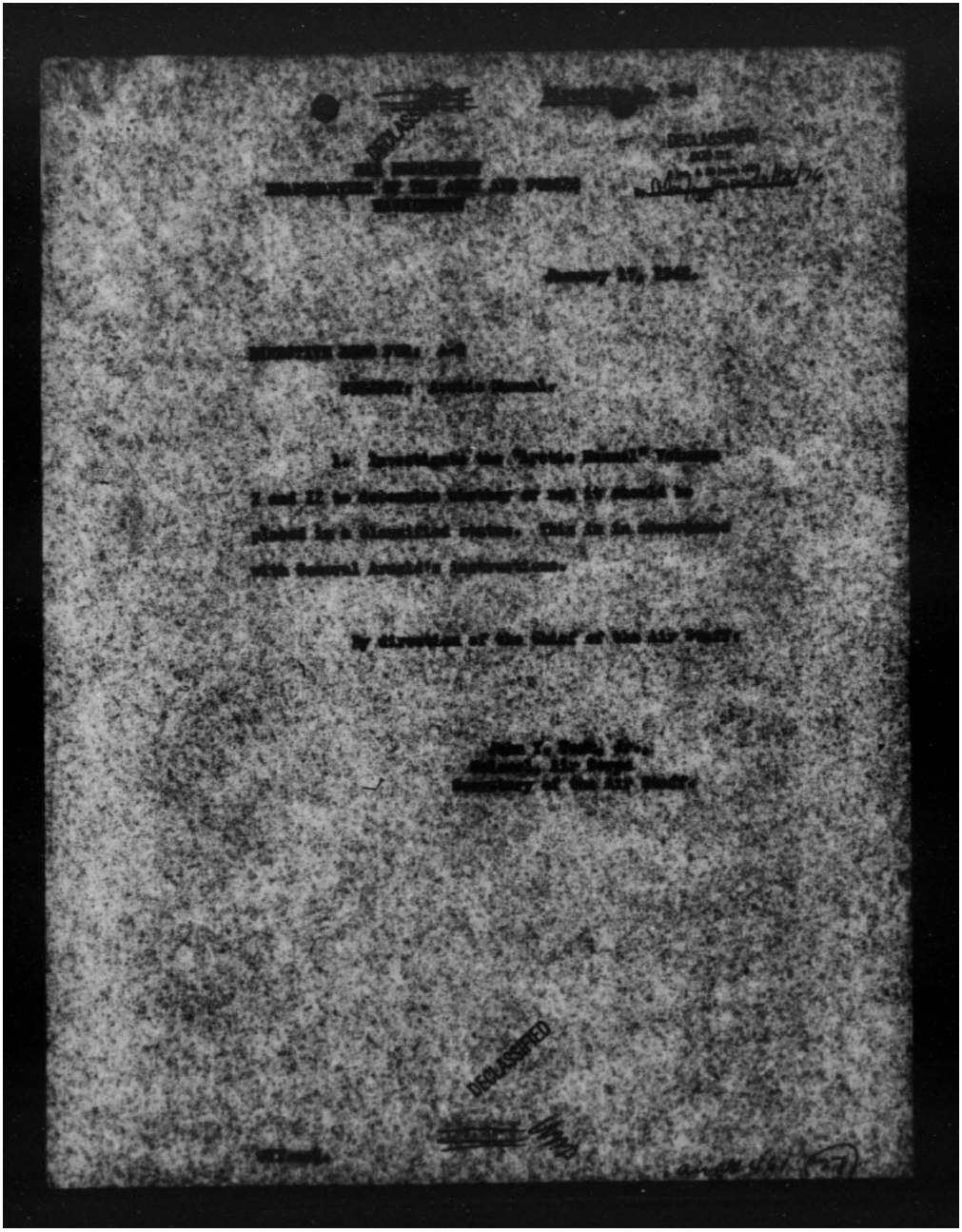
(Do not use reverse side)

Page No. ----------

AGO Form 8/26/41

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

HEADQUARTERS ARMY AIR [redacted]

ROUTING AND RECORD SHEET

DECLASSIFIED
DOD Dir. 5200.9 & EO June 1972
Auth: DOD Dir. 5200.10 Date: 12/10/76

File No.

Tally No. AAF

Note.--A line will be drawn across sheet after each comment.

SUBJECT: "Arctic Manual"

NO.	FROM	TO	DATE	COMMENTS
1	General Arnold	General Spaatz	1/16 1941	Have somebody in A-2 investigate the "Arctic Manual" Volumes I and II to determine whether or not it should be placed in a classified status. Let me know the results.
2	C/AS	A-2	1-17	For necessary action [illegible]

DECLASSIFIED

[redacted]

(Do not write on reverse side)

Page No.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

1st Ind.

War Department, Headquarters of the Air Forces, Washington, D. C.
FEB 4 1942 War Signal Service

1. Upon completion of preparation of TM 12-[illegible], it should be distributed on the basis of four (4) per each organization authorized, the issue of [illegible] Radio Code as indicated in T/BA No. 1, Air Corps, dated October 1, 1941, and one (1) per higher headquarters having such organizations under their control.

2. In addition to the above distribution fifty (50) copies of this manual should be furnished the Air Corps Technical School, Scott Field, Illinois.

FOR THE CHIEF OF THE ARMY AIR FORCES

JOHN B. COOLEY
Lt. Colonel, A. G. D.,
Assistant Air Adjutant General

Authenticated
FEB 4 1942
AAG

HEADQUARTERS ARMY AIR FORCES								COORDINATION				
Chief of Staff	Sec. to A.C. of S.	A.A.G.	A-1	A-2	A-3	A-4	A-WPD	A-[illegible]	[illegible]	[illegible]	[illegible]	Doc.
												70

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

RESTRICTED

Office of the Chief Signal Officer
Washington. January 27, 1942

Subject: TM 11-233, Radio Set SCR-188-A

To: Chief of Air Corps

1. The Chief Signal Officer is preparing TM 11-233, Radio Set SCR-188-A, for distribution by The Adjutant General.

2. Radio Set SCR-188-A is a large but transportable equipment intended primarily for land-fixed use inside buildings where commercial alternating-current power and suitable operating tables are available. Information is requested as to the distribution of the manual desired to units of the Air Corps.

For the Chief Signal Officer.

Edwin A. Robbins, Jr.
Major, Signal Corps.

RESTRICTED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

WAR DEPARTMENT

HEADQUARTERS OF THE ARMY AIR FORCES

WASHINGTON

DECLASSIFIED
NND 963
By NARS, Date 12-18-75
NLE 12/12/76

(Air AG)

JAN 24 1942

MEMORANDUM FOR THE ADJUTANT GENERAL.

Subject: Joint Action of the Army and Navy (1927 as revised).

461.22

1. It is requested that six (6) copies of "Joint Action of the Army and Navy" be furnished for the use of A-2 Division.

2. It is also requested that one (1) copy of page three (3) of change #1, register #400, be furnished.

JAN 26 42

For the Chief of the Army Air Forces:

John B. Cooley,

JOHN B. COOLEY,
Lieutenant Colonel, A.G.D.,
Assistant Air Adjutant General.

RECEIVED
PUBLICATION DIVISION
A. G. O.

PD(1-31-42)OAS:mtm

1st Ind.

War Department, A.G.O., January 31, 1942. To: The Air Adjutant General.

The supply of publication requested in paragraph 1 of basic communication is limited at present and two copies only were delivered to Room 2015 Munitions Building on January 28, together with the item requested in paragraph 2.

By order of the Secretary of War:

G. J. Grunert,
Adjutant General.

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET

DECLASSIFIED

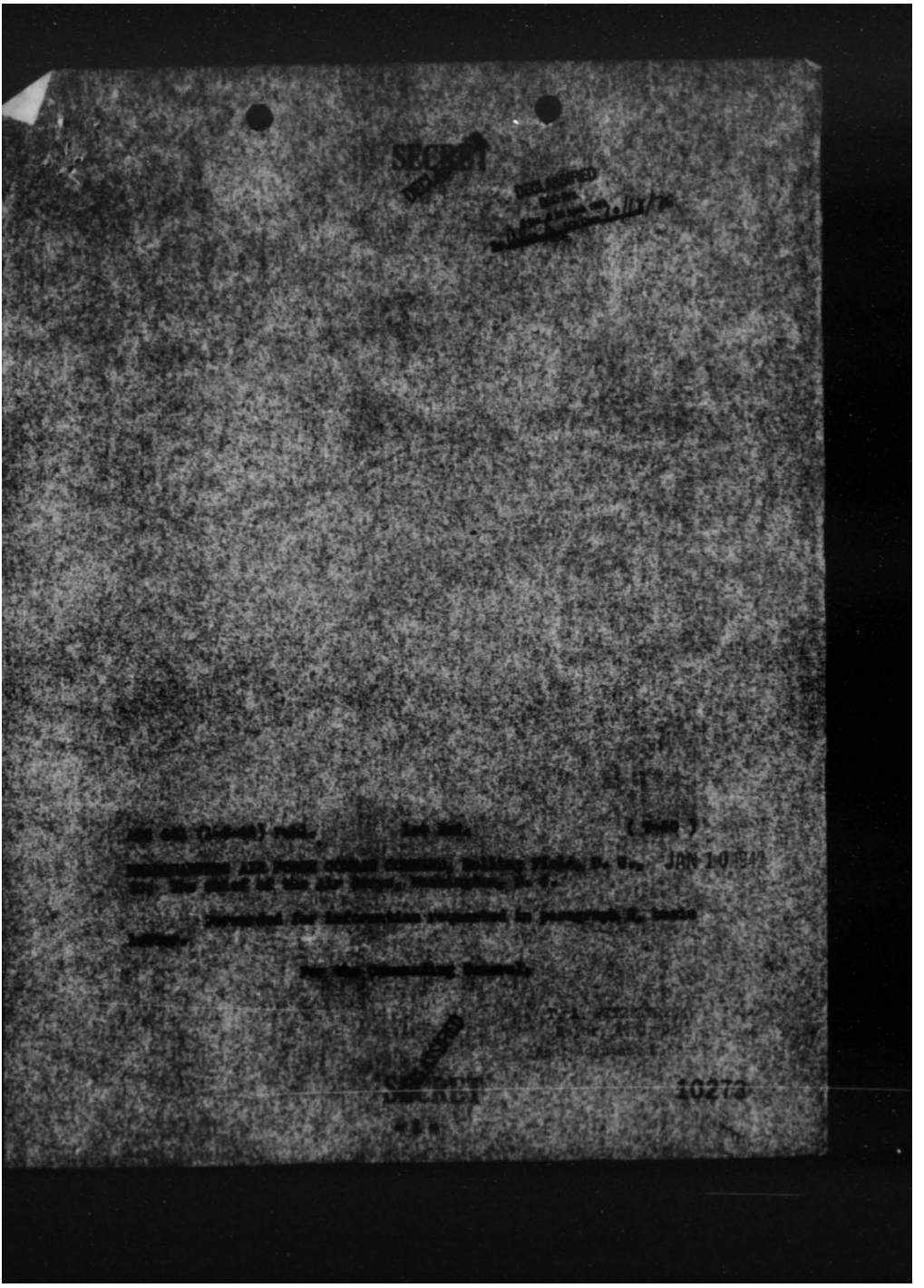
DECLASSIFIED

[redacted]

[redacted]

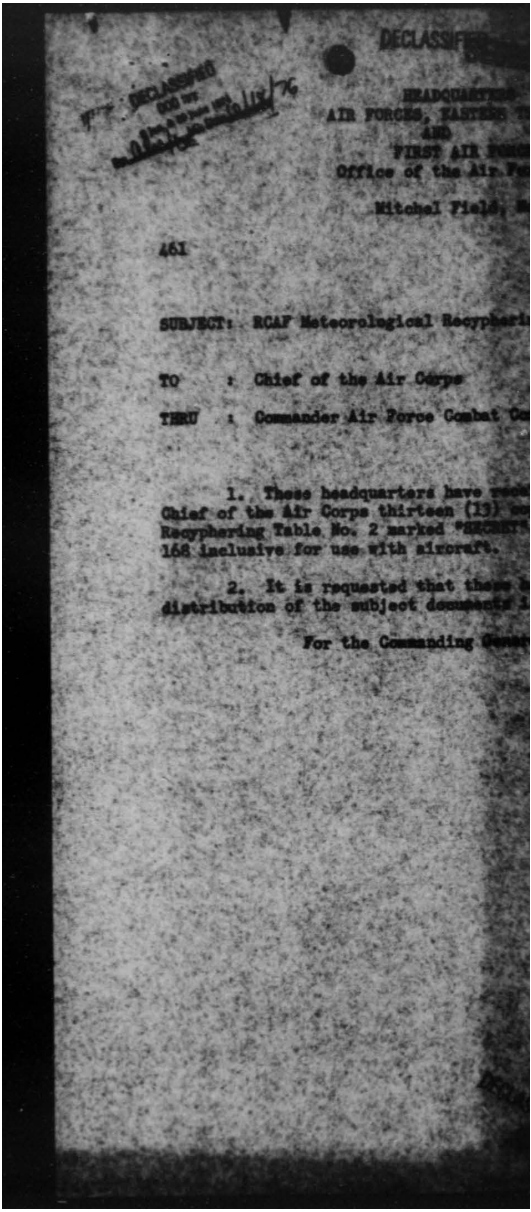
[redacted]

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

PAGE IS DECLASSIFIED IAW EO



DECLASSIFIED

HEADQUARTERS
AIR FORCES, EASTERN
AND
FIRST AIR FORCE
Office of the Air Force
Mitchel Field, N

461

SUBJECT: RCAF Meteorological Recypher

TO : Chief of the Air Corps

THRU : Commander Air Force Combat Co

1. These headquarters have rece
Chief of the Air Corps thirteen (13) co
Recyphering Table No. 2 marked "SECRET"
168 inclusive for use with aircraft.

2. It is requested that these
distribution of the subject documents

For the Commanding Gener

PAGE IS DECLASSIFIED IAW EO

THIS PAGE IS DECLASSIFIED IAW EO 13526

Office Chief of the Air.

DECLASSIFIED
DOD Dir. 5 200 June 1974
NLC Date 5/12/76
DECLASSIFIED

RESTRICTED

PANAMA INTERCEPTOR COMMAND
Office Of The Commander

Albrook Field, Canal Zone.
December 29, 1941.

SUBJECT: Manual of Headquarters Panama Interceptor Command

TO: All Concerned

1. The enclosed Manual covering the Mission, Organization and Operation of the Headquarters, Panama Interceptor Command is published for the information and guidance of all concerned.

A. H. GILKESON
Colonel, Air Corps,
Commanding.

1 Incl: Manual
Distribution: "B"
50 Copies S-3.

DECLASSIFIED

RESTRICTED

Air AG #61(29)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

RESTRICTED Dec. 29, 1941.

PANAMA INTERCEPTOR COMMAND

SECTION I

General: An Interceptor Command is a military organization designed to provide air defense for a designated area. It is a command whereby the direct means of air defense is vested in one military commander. There can be no division of his forces or facilities if complete air defense is to be achieved. The Interceptor Command is an operational unit set up to thwart the enemy by preventing hostile aviation from achieving its plans for air destruction within a designated area.

The Interceptor Command: The commanding officer is the officer who commands the interceptor aviation of the air force in any area.

Defense Forces: The defense forces and facilities of the Interceptor Command are classified as active forces and passive facilities. The active defense forces are: Interceptor and fighter pursuit aviation, antiaircraft artillery, and balloon barrage. The passive means are: Lighting control, control of navigational aids to the enemy, air raid warning, smoke, dummy installations, and other protective devices. It is obvious that some of the passive means of defense require no control but are highly effective.

Interceptor and Fighter Aviation: Because of its high mobility, pursuit aviation is alone capable of defending an area as a whole, and all other means of defense must be coordinated and operated in such a manner as to achieve maximum protection from destruction to installations in the area by hostile aviation. Pursuit aviation is the only active defense agency which can meet hostile aviation in its own realm and offer air defense by destruction of the hostile air forces.

Antiaircraft Artillery: Antiaircraft artillery offers a high degree of protection within their capabilities through destruction of hostile aircraft, disruption of hostile operations, and other active means of defense.

Balloon Barrage: Balloon barrage offers defense by destruction of all aircraft entering the area defended. Its capabilities though positive are quite limited.

DECLASSIFIED

RESTRICTED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

7. Passive Defenses: Passive defenses are those means of air defense operated by the Interceptor Command to achieve coordinated maximum protection. All means of passive defenses organized within an area should be operated under the control of the Interceptor Commander.

8. Aircraft Warning Service: In order that all the defense means, both active and passive, may be operated at maximum effectiveness and employed economically, an aircraft warning service is necessary. The maximum use of AWS can be achieved by the Interceptor Commander through the use of the information furnished for air defense means.

SECTION II

ORGANIZATION OF THE PANAMA INTERCEPTOR COMMAND

9. General: The Panama Interceptor Command is an organization designed to provide air defense to the Panama Canal and allied installations. In order that the command may operate in accordance with its mission, all the means of the air defense within the area should and must come under the command or the Operational Control of the Commanding Officer of the Panama Interceptor Command.

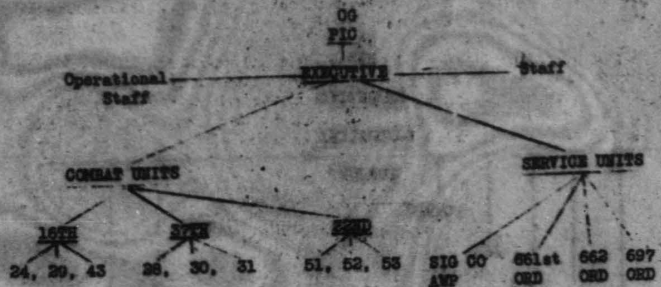
DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

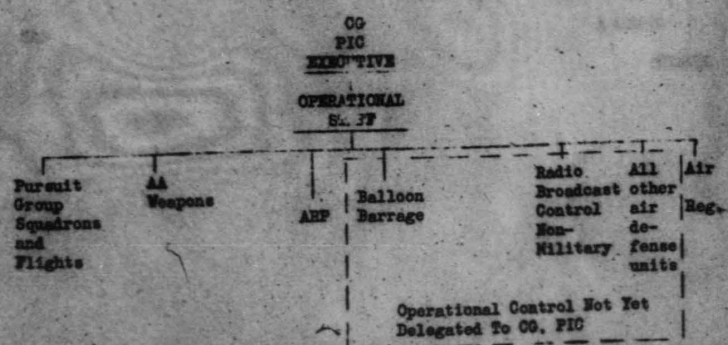
THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

10.a. COMMAND ORGANIZATION



b. ORGANIZATION FOR OPERATIONAL CONTROL IN COMBAT



* Operational Control of US Navy Fighter, AA Defenses of US Navy vessels when in harbor or in zone of tactical support, Balloon Barrage, U.S.N. and other active and passive air defenses.

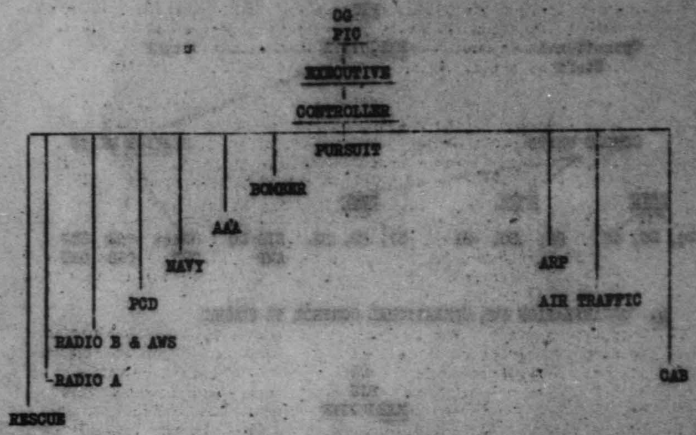
DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

RESTRICTED
DECLASSIFIED

(C) OPERATIONAL STAFF



RESTRICTED
DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

RESTRICTED

11. Operations: The Panama Interceptor Command operates in three phases, namely: First, the normal training of its command units; second, the combined training of all means of air defense; third, combat operations.

a. In order that pursuit units and the aircraft warning services are able to function effectively, continuous progressive training for their mission must be carried on. It is obvious that when combat operations begin, the period of intensive training closes.

b. Combined training of all the means of air defense within the Panama Region is the responsibility of the Region Commander. These combined training periods should, as much as possible, simulate actual combat conditions. These phases are in training for the third phase which is actual combat operations.

c. Combat operations involve the effective employment of all means of air defense when such air defense becomes necessary. The training received during previous periods of operation must be put into effect and changes made only to employ the defense unit more effectively.

12. Operational Staff: The Panama Interceptor Commander, in addition to actually operating the defenses, prepares plans for the maximum effectiveness of the defense forces as the situation requires. In actual operations the Interceptor Commander appoints a number of officers to operate the units in his place. The officers so appointed are called controllers and are charged by the Interceptor Commander with tactical control of all active air defense forces and operational control over passive air defense facilities. Only one controller is on duty at a time; and along with the controller works the operational staff, composed of the following officers:

a. Pursuit officer

b. Antiaircraft artillery officer

c. Bomber Command liaison officer

d. Navy Liaison officer

e. POD liaison officer

f. Radio B officer

g. Radio A officer

DECLASSIFIED
RESTRICTED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

h. Intercept officers

i. Rescue officer

j. CAB representative

k. ARP representative

l. Air traffic control officer

SECTION III

DUTIES OF THE OPERATIONAL STAFF

13. Controller: The controller is the Acting Tactical Commander of the Intercept Command. The active defense forces under his command are composed of assigned or attached interceptor or fighter aviation and the AWS. The controller exercises operational control of the operation of antiaircraft artillery, automatic weapons, searchlights, and balloon barrages. He further controls the operation of such passive defenses as are delegated to him in accordance with the special directive, Headquarters, Panama Interceptor Command (To Be Published). The operational control of antiaircraft artillery is accomplished only in accordance with the special directive, Headquarters, Panama Interceptor Command (To Be Published). The controller's staff consists of all the personnel on the control platform and the intercept officers.

The combat effectiveness of the active defense weapons is a function of the timeliness, accuracy, completeness, and continuity of intelligence of enemy air movements. This information comes from the AWS and is presented to the controller as a picture on the operations board. The Interceptor Command Signal Officer is charged with the operation of this service.

The original tactical disposition of the active defense forces in the region is made by the Interceptor Commander based upon the results of the air defense study and plan for Panama.

The controller has all the necessary elements of information to make his tactical decisions for the employment of the active forces. He is also provided with the means of issuing his orders to carry out the mission based upon his decision. The tactical decision is made by the controller after a brief review of the situation based on the enemy intelligence supplied by the AWS and other G-2 information of the enemy. This information is considered in the light of the assigned mission, the relative combat strength of his own and the enemy forces, the enemy's capabilities based on his disposition, of his strength, type of aircraft and the probable targets in the area.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

The possible plans of action open to the active forces of the air defense are considered, and the decision is made to use the plan most likely to succeed in the particular situation presented. The following is the suggested line of reasoning that the controller should use in making the above decision:

(1) First it must be decided if an interception is to be attempted. This will be governed by the availability of force, the advantages to be gained, and the possibility of being able to make the interception.

(2) Next, if the interception mission is to be attempted, how much force should be used? The answer to this will be formed by evaluating the size of the enemy formation and its defense capabilities, the type of aircraft that can be used, the approximate state of training of the crews to be used, and the airdrome from which this force can come. If there is only one airdrome from which the interception can be made, the problem is then limited to the force and type of equipment at that location; but it should be borne in mind that if it can be made from more than one airdrome, the above factors should be considered in making the decision. Due to the lack of suitable long-range altitude information, the amount of altitude to be searched for the target must be considered also. The controller is responsible that ample interceptor or fighter aviation is dispatched in order to search the proper altitude interval.

(3) Next, the present state of weather over the area of operation must be considered along with the possible changes that will occur in the weather over the area during the mission.

(4) It will be very strongly impressed on all commanding personnel that the bomber is the main objective of all intercept operations. Intercept forces will be instructed to avoid combat whenever possible with other types of enemy aircraft when bombers are the target. It is vitally important to do this, whenever possible, when the bombers of the target flight are being convoyed by fighters.

For other special duties, see the control office folder.

14. The Pursuit Officer: The pursuit officer is the assistant controller of the command, that is, second in acting tactical command. The Pursuit Officer will be able to perform all the functions of the Controller. In addition to the above, when the pursuit officer is functioning as pursuit officer, he is directly charged with the following duties:

(a) He will be continually informed as to the status of all the active forces in the command.

DECLASSIFIED

RESTRICTED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

(b) He will choose the unit or units from an airdrome that will be ordered on the mission after being directed to do so by the Controller. That is, the controller may say to the pursuit officer, "Intercept Target 5 with two flights from France, search vertical interval 10 to 20 thousand feet." The pursuit officer then chooses the two flights for the mission. The choice of the correct flights will be based on availability, readiness, and the number of missions already performed, and by the state of training of the flight commanders in the light of the mission to be performed.

(c) The Pursuit Officer is charged with making sure that the status board is correct and kept up to date.

(d) If, when a mission is decided upon, it is necessary to immediately order the intercepting force into the air, the Pursuit Officer will, before assigning the mission to an intercept board, order the unit to take off, give the direction in which the unit is to fly and the altitude to be gained. When this is done he then chooses an available intercept board and gives the mission to the Intercept Officer at that board. He also calls the Radio A Officer, advises him of the mission that is starting, and orders that the necessary ground radio channels be set up for use of the Intercept Officer. The Pursuit Officer also controls the state of status of the units at airdrome for, or on the order of, the Controller.

15. Anti-Aircraft Liaison Officer:

a. POST - On control platform in Interceptor Command Control Room.

b. COMMUNICATION FACILITIES -

(1) A direct telephone line to AAD Atlantic.

(2) A direct telephone line to AAD Pacific.

(3) A direct telephone line to Hq. P.C.A.C. is paralleled with the line to AAD Pacific in order that information transmitted to AAD Pacific is simultaneously transmitted to Hq. P.C.A.C. There is only a headset on the P.C.A.C. terminus of this line.

(4) A teletype machine in the Air Traffic Room is in a circuit containing AAD Atlantic and AAD Pacific.

c. DUTIES -

(1) Maintain a close observation of the tactical situation as plotted on the Operations Board and transmit to AAD Pacific and AAD Atlantic any pertinent information.

DECLASSIFIED
RESTRICTED

DECLASSIFIED

i. e. Location of target or targets.

Type of Target.

Direction of flight.

Successive positions of target.

(2) Notify AAD Atlantic and AAD Pacific immediately each time the Controller orders pursuit aircraft to take-off on a combat mission. (Patrol, identification, escort or interception).

(3) Notify AAD Atlantic and AAD Pacific immediately when the Controller decides that a threat or prospective threat no longer exists and the status of "All Clear" again becomes effective.

(4) Notify Controller when either or both AAD Atlantic and AAD Pacific are ordered completely manned for instantaneous action by the AAD Commanders concerned.

(5) Notify Controller when the Status described in d. above of either or both AAD Pacific and AAD Atlantic is terminated by the Commanders concerned.

(6) Notify Controller of any special operations of antiaircraft artillery.

Examples: a. Trail Shot Firing.
b. Searchlight Drill.

(7) Transmit to AAD Atlantic and AAD Pacific any intelligence or information available which is pertinent to antiaircraft artillery or harbor defense artillery operations.

Examples: a. Bona-fide reports of unidentified aircraft.
b. Bona-fide reports of unidentified or suspicious shipping.
c. Bona-fide reports of suspicious or threatening occurrences in vicinity of the Panama Area.

(8) Transmit immediately to the AAD Command post concerned any orders of the Controller reference "Cease Firing".

(9) Keep a Log of all telephone messages sent and received between the AAD command posts and the Interceptor Command.

d. Whenever the Outgoing AWS teletype net becomes inoperative, in whole or in part, the Antiaircraft Artillery Liaison Officer will transmit by telephone to the AAD command posts information of aircraft clearances, take-offs, approaches to the Defended Area, etc. This information will be obtained from the Air Traffic Board, the Navy Liaison Officer, the Ranger Liaison Officer and/or the Controller.

DECLASSIFIED
RESTRICTED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

g. If the direct telephone line to either or both AAD command posts becomes inoperative, important information reference - approach of targets, take-off of pursuit on combat missions, etc., will be transmitted on the Outgoing AWS teletype.

f. If both the Outgoing AWS teletype and the direct telephone lines to the AAD command posts become inoperative, vital information of approach of targets will be transmitted by the regular telephone system to the officer on duty at Hq. P.C.A.C. Telephone Quarry Heights 267.

16. Navy Liaison Officer:

a. The Navy Liaison on duty is located on the Control Platform. He is charged with the dissemination of all pertinent information to the Controller. This information will consist of all movements of naval aircraft and naval surface vessels.

b. He will keep the Controller advised as to the mission or missions of the various naval craft whenever practicable.

c. He will keep the watch officer 15th Naval District, and the watch officers of the Naval Air Station and Patrol Wing Three advised concerning the existence and movements of targets which have been sighted and the movements of army aircraft which are of concern to the Navy.

d. He will be furnished direct telephone communications between his station on the central platform, the 15th Naval District and Naval activities in Coco Solo. In the event of disruption of telephone communications, he will use the teletype as an auxiliary means of communication to Coco Solo.

e. He will keep himself informed as to any and all plans promulgated by the army concerning the manner of shifting control operations in an emergency.

f. He will assist the Controller in the identification of targets when so requested.

17. Radio "B" Officer:

The radio "B" Officer is located on the control platform. He is charged with the operation of all Radio "B" equipment. He will advise the Controller on the methods of operation of this equipment so that the Controller can receive the type of information needed at the time needed. He will take the necessary steps to have stations change areas of search whenever one or more stations become inoperative so that all approaches to the Canal Zone are covered. He will not cause any station to "track" a target without having been ordered to do so by the Controller. The Radio "B" Officer has communication to Stations 1 and 2 by telephone (through normal telephone channels or by telegraph from the Filter Room). He has communication to other stations by radio telegraph through the Filter Room.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

18. Intercept Officer:

a. General: The Intercept Officer must be a tactical member of the Pursuit Force. His place of duty is in the intercept room of the region. Being a member of the tactical forces he is known to and would have the confidence of the pilots he directs. In the execution of this task he must be positive, aggressive, and perform his duties rapidly and accurately. He works under the direct supervision of the Pursuit Officer. He directs the pursuit aviation from time of take-off until the interception is complete. After the interception he directs the pursuit as instructed by the Pursuit Officer.

b. Before Pursuit is Ordered Off:

(1) In the intercept room all target reports will be plotted on the intercept board simultaneously with those on the operations board. (This is not a standard procedure but necessary because of communications set-up.)

(2) Targets will be given a number at the Filter Center and the number will be transmitted each time a target report is made.

(3) The Pursuit Officer will assign a particular target to each intercept board.

(4) The Intercept Officer upon receipt of target assignment will perform the following steps:

(a) Calculate target speed.
(a) Compute distance between target reports.
(b) Use time-distance computer.

(b) With a constant target speed he will use fixed mileage scales to:
(a) Determine the ETA of target at the nearest point in the Canal Zone.
(b) Determine target ETA at the line of maximum penetration.

(c) Notify the Pursuit Officer of the above estimates.

(d) Plot in weather data along probable route of target.

(e) Check the ground radio with radio operator.

(f) Check clock with Operations Room and Filter Center.

(g) Await instructions from Pursuit Officer.

c. Ordering the Pursuit Off:

(1) The Pursuit Officer will assign a flight of pursuit to intercept the target. The Pursuit Officer will connect the Intercept Officer in on any telephone communication with that unit of flight.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

(2) The initial telephone message to the flight leader will normally include the following instructions:

(a) Initial course.
(b) Altitude.
(c) Standard or needle speed.
(d) Initial radio station.
(e) Possible identity of target.

(3) The Intercept Officer will plot course to be flown and prepare to navigate the unit immediately after take-off.

(a) Dead-reckoning will be used in plotting course of unit.
(b) Speed of assigned pursuit aviation will be obtained from performance charts on that type aircraft.

d. After Take-Off:

(1) As the alert flight takes off the Intercept Officer will receive a report of their take-off from the alert flight's operation clerk.

(a) Immediately after receiving this report the Intercept Officer will stand by for a radio check with the flight on the initial ground station.
(b) When contact is established, the Intercept Officer will be prepared to give any change in the instructions given to the pursuit before take-off.

(2) Once the flight is in the air the Intercept Officer is responsible for the interception and normally he will be the only one giving instructions to the pursuit.

(a) Because of the time lag in target reports he would figure that point ahead of the target track where the target is actually located at the present time rather than the last report plotted on the intercept board.
(b) To make contact with and change course of pursuit takes about one minute; this necessitates planning ahead when a course change is to be made.
(c) The Intercept Officer is responsible for the interception and since the pursuit is going to make the interception, give them every possible break.

(c) Give them warning three to five minutes before the interception is contemplated.
(b) Give them the advantage in altitude over water and over land; try to keep them at the best altitude.
(c) Give them instructions to patrol rather than try to make interception too far from objective.
(d) Keep them between enemy and objective.

RESTRICTED

DECLASSIFIED

(d) Conversation is to be kept to a minimum, but make sure all instructions are received.
(e) In giving instructions to the pursuit do not use geographical landmarks.
(a) Geographical information transmitted in the clear would be playing into the hands of the enemy.
(b) It would be no problem for them to intercept such data and skirt intercepting pursuit.
(f) Once the interception is made, control reverts to the flight leader who directs the pursuit in battle.
(a) Do not try to give pursuit instructions during the battle.

(3) After the enemy has been reported destroyed by the flight leader the Intercept Officer directs the pursuit as instructed by the Pursuit Officer.

e. Directing Patrol Flights or Flights on Air Alert to Target:

(1) When pursuit is given to the Intercept Officer on an air alert over the Canal Zone the Intercept Officer for the pursuit will operate from the AAIS intercept table.

(2) The location of the target will be plotted from the information received from the AAIS.

(3) Pursuit flights will be informed as to the location of the target with all other information about the target such as altitude and number of airplanes.

(4) No attempt will be made to direct the air alert pursuit to the target by course and speed.

19. Rescue Officer:

a. The Rescue Officer is a member of the Operational Staff of the Interceptor Command. He is the coordinating means of all rescue and searching operations of Pursuit aircraft of the Interceptor Command. This officer is on duty on the Control Platform, thus making it possible for him to receive first information in regard to a crash. He will also be aware of any pending combat which might take place and be prepared for any accident or crash in the immediate locality of the combat. It is the Rescue Officer's responsibility and duty regarding a crash to immediately notify the particular rescue agency required. A RESCUE AGENCY is defined as any organized group, whether Military or Civilian, that [redacted] immediate assistance to this Command to rescue pilots.

b. Due to the wide operations of Pursuit aircraft and the terrain features of Panama, the possible operation is divided into three categories: (a) Open sea, (b) Inland bodies of water and coastline, (c) Dense jungle of the interior. Because of the above named divisions have to have complet facilities of rescue [redacted] as it seems possible. These facilities are both [redacted] military.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

Agencies of Rescue and Search:

(a) Military.
  (1) Base Operations
    a. Albrook Field
    b. Howard Field
    c. France Field
    d. Rio Hato Air Base
  (2) Anti-Aircraft Artillery
  (3) U. S. Navy
  (4) Panama Mobile Force
(b) Non-Military.
  (1) Canal Zone Police.
  (2) Dredging Division, Gamboa
  (3) Port Captain, Balboa
  (4) Port Captain, Cristobal
  (5) Colonel R. D. Prescott

c. Procedure for Rescue When the Location is Known:

Any information regarding a crash will be transmitted to the Rescue Officer in the Control Room of the Intercept Command. This information may be given by any individual observing the crash whether in the air or on the ground. If the crash is observed from the air, the flight Commander will transmit this information by radio through the Intercept Officer. The message will contain all information necessary for prompt action, including location, circumstances, etc.

d. All Air Bases maintain complete facilities for rescue operations on which the Rescue Officer will depend. The following procedure will be used:

(a) (1) The Rescue Officer upon receipt of the above information will notify the Base Operations Officer who is nearest the scene of the accident. The Base Operations Officer will then dispatch the rescue facilities which are available to him. These facilities are, Rescue Patrol for Jungle Operation, Crash Boats, and the OA-9, and ZOA-4C type plane. The Crash Boats are operated by calls to Albrook Field, Rio Hato, and France Field. The OA-9 and ZOA-4C type planes are available at Albrook Field.

(2) The Naval Officer on duty on the Control Platform will be consulted by the Rescue Officer in regard to any assistance the Navy might offer. This assistance might be a flying boat type of plane which might be set down on inland water or in the open sea, conditions permitting.

(3) The Anti-Aircraft Officer on duty on the Control Platform will be consulted by the Rescue Officer in regard to any assistance that the Anti-Aircraft Artillery might give. It is possible that the personnel at one of the AAA positions might rescue the pilot.

(4) The Panama Mobile Force will have Jungle Patrols operating in the jungle. The Rescue Officer may call the Headquarters of the P.M.F. at Fort Clayton. He will give the details of the accident to them and request assistance. If they have a patrol in the vicinity of

DECLASSIFIED

DECLASSIFIED

the crash, the P.M.F. will notify this patrol by radio.

g. Outside assistance should not be counted on entirely. When the Rescue Officer feels that faster assistance is possible through the use of other means, he will contact these Rescue Agencies by whatever means of communications he can.

(1) Probably the most complete coverage of the Canal Zone is given by the Canal Zone Police. They have offered full cooperation with the Interceptor Command during any emergency. They offer limited rescue facilities in the jungle, but will be very helpful during a search. They offer good rescue facilities on Inland Water, having stations and speed boats available at Balboa, Cristobal, Gatun Lake, Madden Lake, The Cut, and Pedro Miguel. The best method of requesting assistance will be by telephone to the Officer in Charge at the Central Police Station in Balboa; he in turn will call the particular station necessary. A call can be made direct by the Rescue Officer to any of the above-named stations.

(2) Port Captains at Balboa and Cristobal may be available for assistance during an emergency. They can be communicated with 24 hours daily, but are able to offer only limited help on the water. Darien is their division point of operations in the canal. For assistance between the Pacific and Darien call the Port Captain at Balboa, between Darien and the Atlantic call the Port Captain at Cristobal.

(3) The Dredging Division at Gamboa is operated 24 hours daily and offers rescue facilities on Gatun Lake and The Cut. They will be reliable but may be slow in operation.

(4) A call to the Gatun Army Switchboard will spread a general alarm in that area. The operator may be able to offer assistance or connect the Rescue Officer with the Coast Artillery who have fast speed boats available on the Lake.

f. Procedure for Searching When the Location is Not Known:

(1) Any knowledge of an airplane being overdue at its destination, missing, unreported or unaccounted for will be transmitted immediately to the Rescue Officer in the Control Room of the Interceptor Command.

(2) Upon the receipt of the above information the Rescue Officer will:

(a) Call all fields on telephone, radio or teletype and request information regarding the missing plane.

(b) If no information is received from the fields, the Rescue Officer will notify the Base Operations at Albrook, Howard, and France Fields, and Rio Hato of the missing aircraft, giving a description and other available information. It can be expected that each Base Operations Officer will conduct a search in the areas set forth in Memo. 14-1, Par. 1, 6/23/41.

(c) Notify all members of the Operational Staff on the Control Platform, giving them all the information possible.

(d) Call the Officer in charge at the Central Station of the Zone Police at Balboa; he will notify all his stations.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

(e) Call the Panama Mobile Force at Fort Clayton giving them full particulars concerning the missing aircraft.
(f) Notify the Dredging Division at Gamboa.
(g) Call Colonel R. D. Prescott, Republic of Panama Telegraph and Telephone.

f. The Rescue Officer will keep a record of the different organizations notified, and when the missing aircraft is found he will notify these groups of the fact.

h. When the missing aircraft is located and the Agency that found it is unable to conduct the Rescue Operations, the Rescue Officer will proceed as directed at first.

i. Procedure for Anticipated Accident and Rescue:

When the situation is such that the Rescue Officer anticipates an Accident or Crash, he will immediately call the Base Operations Officer concerned and give all necessary information in regard to a quick rescue. It is possible that most anticipated accidents will be over open water and some distance from land. In order to save all time possible, it may be necessary for the Base Operations Officer to dispatch the Crash Boats and the Rescue Officer to direct them by Radio from the Control Room. It has been suggested by this Command that these boats be placed outside the Harbor nets in order that they can be operated 24 hours a day, without delay. The location of the Crash Boat at Albrook will be off Taboga Island. The Crash Boat at France Field will be around Las Minas Bay. Both of these boats can be contacted by radio through the tower at each particular field. These boats are able to operate as far out as it may be necessary for Pursuit to go. Auxiliary boats are maintained on each side. They are smaller, either do not have radio facilities or have very poor facilities.

j. Operations Memo. #17, 12/14/41, instructed the pilots in what to do in case they bailed out or crashed on land. This should be consulted by the Rescue Officer.

k. The Rescue Officer will keep a complete log, as a permanent record of his procedure when any of the situations mentioned are handled by him. This record will contain information in regard to time, location of pilot, channels of communication used, rescue or searching agencies used, etc.

20. Air Traffic Control Officer:

The Air Traffic Control Officer is a member of the operational staff of the Interceptor Command. Under such regulations as may be promulgated by P.C.D. and C.A.F. he acts as the representative of the Interceptor Commander for the control of airplane traffic within the Panama Canal Zone and the Panama Interceptor Command defense area. His place of duty is the communications room. His duties are:

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

(1) To know at all times the number, location and general mission of all authorized aircraft flying within the Panama Interceptor Command defense area.

(a) File all approved flight plans for impending flights, with the authenticator issued therefor.

(b) Keep an operations file for authorized flights, to indicate progress and allow plotting of their position at any time.

(c) Acknowledge arrival, departure, and position report messages, and grant clearances for authorized aircraft, in the name of the Interceptor Commander.

(2) Maintain complete information of communication facilities available for air traffic control.

(a) Normal channels for receiving and transmitting traffic control messages.

(b) Circuits that may be used in emergency.

(c) Notify A.A.C.S. radio stations of transmitting frequencies of transit airplanes enroute, and requirements for any special situation.

(3) Assists in the identification of aircraft.

(a) Furnishes information regarding friendly aircraft in flight to Controller and Raid Clerk on request.

(b) Informs Controller of movement of unauthorized aircraft approaching the Canal Zone.

(4) Maintains liaison with the CAA representative in the Panama Canal Zone for effective control of Civil Aircraft.

(a) Maintain records of authorization for special flights to Canal Zone by CAA or State Department.

(b) Notify the Alert Officer of requirements for escort of foreign aircraft.

(5) Records.

(a) Maintain file of all messages sent or received.

(b) Maintain file of all violations of air traffic regulations and submit periodic reports thereof to the Interceptor Commander.

(6) During periods of alert:

(a) Prepare and transmit necessary instructions to air carrier and transient aircraft in flight to Canal Zone, in accordance with existing regulations and instructions of CAB representative.

(b) Grant clearances to aircraft within the limitations imposed by the Interceptor Commander during this period.

(c) Notify the Control Officer of aircraft in flight that cannot be contacted by radio.

21. Bomber Command Liaison Officer:
To be published.

22. FCD Liaison Officer:
To be published.

23. Radio "A" Officer:
To be published.

24. CAB Representative:
To be published.

25. CAA Representative:
To be published.

RESTRICTED
DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

The Air Adjutant Gen

DECLASSIFIED

RESTRICTED

PANAMA INTERCEPTOR COMMAND
Office Of The Commander

Albrook Field, Canal Zone,
December 29, 1941.

SUBJECT: Manual of Headquarters Panama Interceptor Command

TO: All Concerned

1. The enclosed Manual covering the Mission, Organization and Operation of the Headquarters, Panama Interceptor Command is published for the information and guidance of all concerned.

A. H. GILKESON
Colonel, Air Corps,
Commanding.

1 Incl: Manual
Distribution: "B"
50 Copies S-3.

DECLASSIFIED

RESTRICTED

File

Air AG 461 (20)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir. 5200.9 Sept. 27, 1980
Authority NND 760116 By [illegible] NARS, Date 6/14/96

RESTRICTED

Dec. 29, 1941.

PANAMA INTERCEPTOR COMMAND

NOTE: 1 A

1. General: An Interceptor Command is a military organization designed to provide air defense for a designated area. It is a command whereby the direct means of air defense is vested in one military commander. There can be no division of his forces or facilities if complete air defense is to be achieved. The Interceptor Command is an operational unit set up to thwart the enemy by preventing hostile aviation from achieving its plans for air destruction within a designated area.

2. The Interceptor Command: The commanding officer is the officer who commands the interceptor aviation of the air force in any area.

3. Defense Forces: The defense forces and facilities of the Interceptor Command are classified as active forces and passive facilities. The active defense forces are: Interceptor and fighter pursuit aviation, antiaircraft artillery, and balloon barrage. The passive means are: Lighting control, control of navigational aids to the enemy, air raid warning, smoke, dummy installations, and other protective devices. It is obvious that some of the passive means of defense require no control but are highly effective.

4. Interceptor and Fighter Aviation: Because of its high mobility, pursuit aviation is alone capable of defending an area as a whole, and all other means of defense must be coordinated and operated in such a manner as to achieve maximum protection from destruction to installations in the area by hostile aviation. Pursuit aviation is the only active defense agency which can meet hostile aviation in its own realm and offer air defense by destruction of the hostile air forces.

5. Antiaircraft Artillery: Antiaircraft artillery offers a high degree of protection within their capabilities through destruction of hostile aircraft, disruption of hostile operations, and other active means of defense.

6. Balloon Barrage: Balloon barrage offers defense by destruction of all aircraft entering the area defended. Its capabilities though positive are quite limited.

DECLASSIFIED
RESTRICTED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

7. Passive Defenses: Passive defenses are those means of air defense operated by the Interceptor Command to achieve coordinated maximum protection. All means of passive defenses organized within an area should be operated under the control of the Interceptor Commander.

8. Aircraft Warning Service: In order that all the defense means, both active and passive, may be operated at maximum effectiveness and employed economically, an aircraft warning service is necessary. The maximum use of AWS can be achieved by the Interceptor Commander through the use of the information furnished for air defense means.

SECTION II

ORGANIZATION OF THE PANAMA INTERCEPTOR COMMAND

9. General: The Panama Interceptor Command is an organization designed to provide air defense to the Panama Canal and allied installations. In order that the command may operate in accordance with its mission, all the means of the air defense within the area should and must come under the command or the Operational Control of the Commanding Officer of the Panama Interceptor Command.

DECLASSIFIED

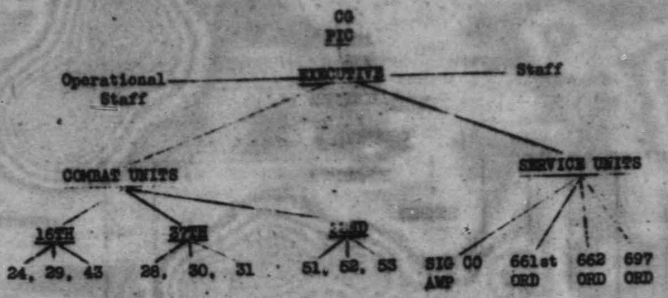
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

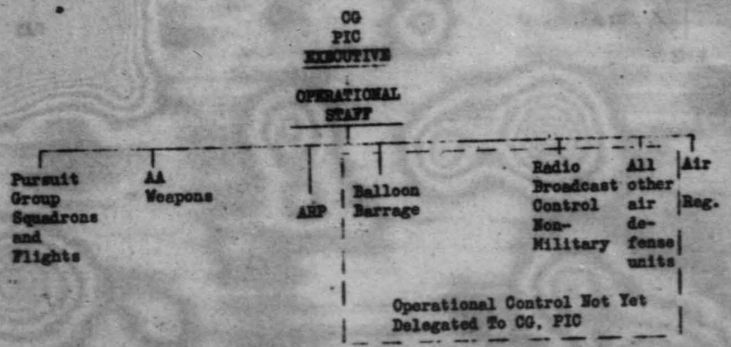
DECLASSIFIED

RESTRICTED

10.a. COMMAND ORGANIZATION



b. ORGANIZATION FOR OPERATIONAL CONTROL IN COMBAT



* Operational Control of US Navy Fighter, AA Defenses of US Navy vessels when in harbor or in zone of tactical support, Balloon Barrage, U.S.N. and other active and passive air defenses.

DECLASSIFIED

RESTRICTED

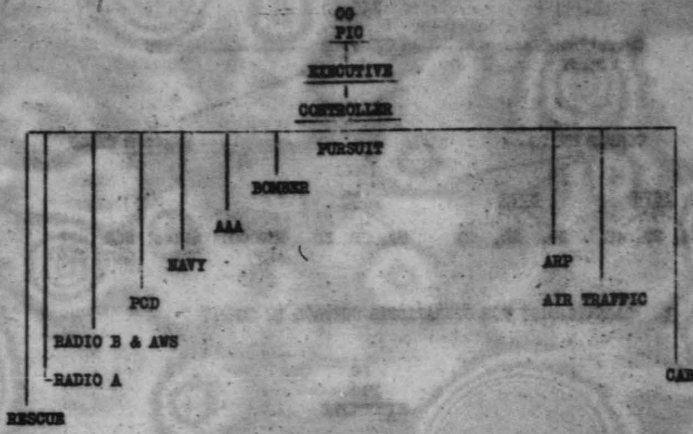
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

RESTRICTED

(C) OPERATIONAL STAFF



DECLASSIFIED

RESTRICTED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

RESTRICTED

11. Operations: The Panama Interceptor Command operates in three phases, namely: First, the normal training of its command units; second, the combined training of all means of air defense; third, combat operations.

a. In order that pursuit units and the aircraft warning services are able to function effectively, continuous progressive training for their mission must be carried on. It is obvious that when combat operations begin, the period of intensive training closes.

b. Combined training of all the means of air defense within the Panama Region is the responsibility of the Region Commander. These combined training periods should, as much as possible, simulate actual combat conditions. These phases are in training for the third phase which is actual combat operations.

c. Combat operations involve the effective employment of all means of air defense when such air defense becomes necessary. The training received during previous periods of operation must be put into effect and changes made only to employ the defense unit more effectively.

12. Operational Staff: The Panama Interceptor Commander, in addition to actually operating the defenses, prepares plans for the maximum effectiveness of the defense forces as the situation requires. In actual operations the Interceptor Commander appoints a number of officers to operate the units in his place. The officers so appointed are called controllers and are charged by the Interceptor Commander with tactical control of all active air defense forces and operational control over passive air defense facilities. Only one controller is on duty at a time; and along with the controller works the operational staff, composed of the following officers:

a. Pursuit officer

b. Antiaircraft artillery officer

c. Bomber Command liaison officer

d. Navy liaison officer

e. POD liaison officer

f. Radio B officer

g. Radio A officer

DECLASSIFIED
RESTRICTED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

h. Intercept officers

i. Rescue officer

j. CAB representative

k. ARP representative

l. Air traffic control officer

SECTION III

DUTIES OF THE OPERATIONAL STAFF

13. Controller: The controller is the Acting Tactical Commander of the Intercept Command. The active defense forces under his command are composed of assigned or attached interceptor or fighter aviation and the AWS. The controller exercises operational control of the operation of antiaircraft artillery, automatic weapons, searchlights, and balloon barrages. He further controls the operation of such passive defenses as are delegated to him in accordance with the special directive, Headquarters, Panama Interceptor Command (To Be Published). The operational control of antiaircraft artillery is accomplished only in accordance with the special directive, Headquarters, Panama Interceptor Command (To Be Published). The controller's staff consists of all the personnel on the control platform and the intercept officers.

The combat effectiveness of the active defense weapons is a function of the timeliness, accuracy, completeness, and continuity of intelligence of enemy air movements. This information comes from the AWS and is presented to the controller as a picture on the operations board. The Interceptor Command Signal Officer is charged with the operation of this service.

The original tactical disposition of the active defense forces in the region is made by the Interceptor Commander based upon the results of the air defense study and plan for Panama.

The controller has all the necessary elements of information to make his tactical decisions for the employment of the active forces. He is also provided with the means of issuing his orders to carry out the mission based upon his decision. The tactical decision is made by the controller after a brief review of the situation based on the enemy intelligence supplied by the AWS and other G-2 information of the enemy. This information is considered in the light of the assigned mission, the relative combat strength of his own and the enemy forces, the enemy's capabilities based on his disposition, of his strength, type of aircraft and the probable targets in the area.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

The possible plans of action open to the active forces of the air defense are considered, and the decision is made to use the plan most likely to succeed in the particular situation presented. The following is the suggested line of reasoning that the controller should use in making the above decision:

(1) First it must be decided if an interception is to be attempted. This will be governed by the availability of force, the advantages to be gained, and the possibility of being able to make the interception.

(2) Next, if the interception mission is to be attempted, how much force should be used? The answer to this will be formed by evaluating the size of the enemy formation and its defense capabilities, the type of aircraft that can be used, the approximate state of training of the crews to be used, and the airdrome from which this force can come. If there is only one airdrome from which the interception can be made, the problem is then limited to the force and type of equipment at that location; but it should be borne in mind that if it can be made from more than one airdrome, the above factors should be considered in making the decision. Due to the lack of suitable long-range altitude information, the amount of altitude to be searched for the target must be considered also. The controller is responsible that ample interceptor or fighter aviation is dispatched in order to search the proper altitude interval.

(3) Next, the present state of weather over the area of operation must be considered along with the possible changes that will occur in the weather over the area during the mission.

(4) It will be very strongly impressed on all commanding personnel that the bomber is the main objective of all intercept operations. Intercept forces will be instructed to avoid combat whenever possible with other types of enemy aircraft when bombers are the target. It is vitally important to do this, whenever possible, when the bombers of the target flight are being convoyed by fighters.

For other special duties, see the control office folder.

14. The Pursuit Officer: The pursuit officer is the assistant controller of the command, that is, second in acting tactical command. The Pursuit Officer will be able to perform all the functions of the Controller. In addition to the above, when the pursuit officer is functioning as pursuit officer, he is directly charged with the following duties:

(a) He will be continually informed as to the status of all the active forces in the command.

DECLASSIFIED
RESTRICTED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

RESTRICTED
DECLASSIFIED

(b) He will choose the unit or units from an airdrome that will be ordered on the mission after being directed to do so by the Controller. That is, the controller may say to the pursuit officer, "Intercept Target 8 with two flights from Evanco, search vertical interval 10 to 20 thousand feet." The pursuit officer then chooses the two flights for the mission. The choice of the correct flights will be based on availability, readiness, and the number of missions already performed, and by the state of training of the flight commanders in the light of the mission to be performed.

(c) The Pursuit Officer is charged with making sure that the status board is correct and kept up to date.

(d) If, when a mission is decided upon, it is necessary to immediately order the intercepting force into the air, the Pursuit Officer will, before assigning the mission to an intercept board, order the unit to take off, give the direction in which the unit is to fly and the altitude to be gained. When this is done he then chooses an available intercept board and gives the mission to the Intercept Officer at that board. He also calls the Radio A Officer, advises him of the mission that is starting, and orders that the necessary ground radio channels be set up for use of the Intercept Officer. The Pursuit Officer also controls the state of status of the units at airdrome for, or on the order of, the Controller.

15. Anti-Aircraft Liaison Officer:

a. POST - On control platform in Interceptor Command Control Room.

b. COMMUNICATION FACILITIES -

(1) A direct telephone line to AAD Atlantic.

(2) A direct telephone line to AAD Pacific.

(3) A direct telephone line to Hq. P.C.A.C. is paralleled with the line to AAD Pacific in order that information transmitted to AAD Pacific is simultaneously transmitted to Hq. P.C.A.C. There is only a headset on the P.C.A.C. terminus of this line.

(4) A teletype machine in the Air Traffic Room is in a circuit containing AAD Atlantic and AAD Pacific.

c. DUTIES -

(1) Maintain a close observation of the tactical situation as plotted on the Operations Board and transmit to AAD Pacific and AAD Atlantic any pertinent information.

DECLASSIFIED
RESTRICTED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

i. e. Location of target or targets.

Type of target.

Direction of flight.

Successive positions of target.

(2) Notify AAD Atlantic and AAD Pacific immediately each time the Controller orders pursuit aircraft to take-off on a combat mission. (Patrol, identification, escort or interception).

(3) Notify AAD Atlantic and AAD Pacific immediately when the Controller decides that a threat or prospective threat no longer exists and the status of "All Clear" again becomes effective.

(4) Notify Controller when either or both AAD Atlantic and AAD Pacific are ordered completely manned for instantaneous action by the AAD Commanders concerned.

(5) Notify Controller when the Status described in d. above of either or both AAD Pacific and AAD Atlantic is terminated by the Commanders concerned.

(6) Notify Controller of any special operations of antiaircraft artillery.

Examples: a. Trail Shot Firing.
b. Searchlight Drill.

(7) Transmit to AAD Atlantic and AAD Pacific any intelligence or information available which is pertinent to antiaircraft artillery or harbor defense artillery operations.

Examples: a. Bona-fide reports of unidentified aircraft.
b. Bona-fide reports of unidentified or suspicious shipping.
c. Bona-fide reports of suspicious or threatening occurrences in vicinity of the Panama Area.

(8) Transmit immediately to the AAD Command post concerned any orders of the Controller reference "Cease Firing".

(9) Keep a Log of all telephone messages sent and received between the AAD command posts and the Interceptor Command.

g. Whenever the Outgoing AWS teletype net becomes inoperative, in whole or in part, the Antiaircraft Artillery Liaison Officer will transmit by telephone to the AAD command posts information of aircraft clearances, take-offs, approaches to the Defended Area, etc. This information will be obtained from the Air Traffic Board, the Navy Liaison Officer, the Bomber Liaison Officer and/or the Controller.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

g. If the direct telephone line to either or both AAD command posts becomes inoperative, important information reference - approach of targets, take-off of pursuit on combat missions, etc., will be transmitted on the Outgoing AWS teletype.

f. If both the Outgoing AWS teletype and the direct telephone lines to the AAD command posts become inoperative, vital information of approach of targets will be transmitted by the regular telephone system to the officer on duty at Hq. P.C.A.C. Telephone Quarry Heights 267.

16. Navy Liaison Officer:

a. The Navy Liaison on duty is located on the Control Platform. He is charged with the dissemination of all pertinent information to the Controller. This information will consist of all movements of naval aircraft and naval surface vessels.

b. He will keep the Controller advised as to the mission or missions of the various naval craft whenever practicable.

c. He will keep the watch officer, 15th Naval District, and the watch officers of the Naval Air Station and Patrol Wing Three advised concerning the existence and movements of targets which have been sighted and the movements of army aircraft which are of concern to the Navy.

d. He will be furnished direct telephone communications between his station on the control platform, the 15th Naval District and Naval activities in Coco Solo. In the event of disruption of telephone communications, he will use the teletype as an auxiliary means of communication to Coco Solo.

e. He will keep himself informed as to any and all plans promulgated by the army concerning the manner of shifting control operations in an emergency.

f. He will assist the Controller in the identification of targets when so requested.

17. Radio "B" Officer:

The radio "B" Officer is located on the control platform. He is charged with the operation of all Radio "B" equipment. He will advise the Controller on the methods of operation of this equipment so that the Controller can receive the type of information needed at the time needed. He will take the necessary steps to have stations change areas of search whenever one or more stations become inoperative so that all approaches to the Canal Zone are covered. He will not cause any station to "track" a target without having been ordered to do so by the Controller. The Radio "B" Officer has communication to Stations 1 and 2 by telephone (through normal telephone channels or by telegraph from the Filter Room). He has communication to other stations by radio telegraph through the Filter Room.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

RESTRICTED
DECLASSIFIED

10. Intercept Officer:

a. General: The Intercept Officer must be a tactical member of the Pursuit Force. His place of duty is in the intercept room of the region. Being a member of the tactical forces he is known to and would have the confidence of the pilots he directs. In the execution of this task he must be positive, aggressive, and perform his duties rapidly and accurately. He works under the direct supervision of the Pursuit Officer. He directs the pursuit aviation from time of take-off until the interception is complete. After the interception he directs the pursuit as instructed by the Pursuit Officer.

b. Before Pursuit is Ordered Off:

(1) In the intercept room all target reports will be plotted on the intercept board simultaneously with those on the operations board. (This is not a standard procedure but necessary because of communications set-up.)

(2) Targets will be given a number at the Filter Center and the number will be transmitted each time a target report is made.

(3) The Pursuit Officer will assign a particular target to each intercept board.

(4) The Intercept Officer upon receipt of target assignment will perform the following steps:

(a) Calculate target speed.
(a) Compute distance between target reports.
(b) Use time-distance computer.
(b) With a constant target speed he will use fixed mileage scales to:
(a) Determine the ETA of target at the nearest point in the Canal Zone.
(b) Determine target ETA at the line of maximum penetration.

(c) Notify the Pursuit Officer of the above estimates.

(d) Plot in weather data along probable route of target.

(e) Check the ground radio with radio operator.

(f) Check clock with Operations Room and Filter Center.

(g) Await instructions from Pursuit Officer.

c. Ordering the Pursuit Off:

(1) The Pursuit Officer will assign a flight of pursuit to intercept the target. The Pursuit Officer will connect the Intercept Officer in on any telephone communication with that unit of flight.

DECLASSIFIED
RESTRICTED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

(2) The initial telephone message to the flight leader will normally include the following instructions:

(a) Initial course.
(b) Altitude.
(c) Standard or needle speed.
(d) Initial radio station.
(e) Possible identity of target.

(3) The Intercept Officer will plot course to be flown and prepare to navigate the unit immediately after take-off.

(a) Dead-reckoning will be used in plotting course of unit.
(b) Speed of assigned pursuit aviation will be obtained from performance charts on that type aircraft.

d. After Take-Off:

(1) As the alert flight takes-off the Intercept Officer will receive a report of their take-off from the alert flight's operation clerk.

(a) Immediately after receiving this report the Intercept Officer will stand by for a radio check with the flight on the initial ground station.
(b) When contact is established, the Intercept Officer will be prepared to give any change in the instructions given to the pursuit before take-off.

(2) Once the flight is in the air the Intercept Officer is responsible for the interception and normally he will be the only one giving instructions to the pursuit.

(a) Because of the time lag in target reports he would figure that point ahead of the target track where the target is actually located at the present time rather than the last report plotted on the intercept board.
(b) To make contact with and change course of pursuit takes about one minute; this necessitates planning ahead when a course change is to be made.
(c) The Intercept Officer is responsible for the interception and since the pursuit is going to make the interception, give them every possible break.

(a) Give them warning three to five minutes before the interception is contemplated.
(b) Give them the advantage in altitude over water and over land; try to keep them at the best altitude.
(c) Give them instructions to patrol rather than try to make interception too far from objective.
(d) Keep them between enemy and objective.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

(d) Conversation is to be kept to a minimum, but make sure all instructions are received.

(e) In giving instructions to the pursuit do not use geographical landmarks.

(a) Geographical information transmitted in the clear would be playing into the hands of the enemy.

(b) It would be no problem for them to intercept such data and skirt intercepting pursuit.

(f) Once the interception is made, control reverts to the flight leader who directs the pursuit in battle.

(a) Do not try to give pursuit instructions during the battle.

(3) After the enemy has been reported destroyed by the flight leader the Intercept Officer directs the pursuit as instructed by the Pursuit Officer.

g. Directing Patrol Flights or Flights on Air Alert to Target:

(1) When pursuit is given to the Intercept Officer on an air alert over the Canal Zone the Intercept Officer for the pursuit will operate from the AAIS intercept table.

(2) The location of the target will be plotted from the information received from the AAIS.

(3) Pursuit flights will be informed as to the location of the target with all other information about the target such as altitude and number of airplanes.

(4) No attempt will be made to direct the air alert pursuit to the target by course and speed.

19. Rescue Officer:

a. The Rescue Officer is a member of the Operational Staff of the Interceptor Command. He is the coordinating means of all rescue and searching operations of Pursuit aircraft of the Interceptor Command. This officer is on duty on the Control Platform, thus making it possible for him to receive first information in regard to a crash. He will also be aware of any pending combat which might take place and be prepared for any accident or crash in the immediate locality of the combat. It is the Rescue Officer's responsibility and duty regarding a crash to immediately notify the particular rescue agency required. A RESCUE AGENCY is defined as any organized group, whether Military or Civilian, that will offer immediate assistance to this Command to rescue pilots.

b. Due to wide operations of Pursuit Aircraft and the terrain features of Panama, the possible operation is divided into three categories: (a) Open sea, (b) Inland bodies of water and coastline, (c) Dense jungle of the interior. Each of the three named divisions have to have complet facilities of rescue by the ..test means possible. These facilities are both Military and Non-Military.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

Agencies of Rescue and Search:

(a) Military.
  (1) Base Operations
    a. Albrook Field
    b. Howard Field
    c. France Field
    d. Rio Hato Air Base
  (2) Anti-Aircraft Artillery
  (3) U. S. Navy
  (4) Panama Mobile Force
(b) Non-Military.
  (1) Canal Zone Police.
  (2) Dredging Division, Gamboa
  (3) Port Captain, Balboa
  (4) Port Captain, Cristobal
  (5) Colonel R. D. Prescott

c. Procedure for Rescue When the Location is Known:

Any information regarding a crash will be transmitted to the Rescue Officer in the Control Room of the Intercept Command. This information may be given by any individual observing the crash whether in the air or on the ground. If the crash is observed from the air, the flight Commander will transmit this information by radio through the Intercept Officer. The message will contain all information necessary for prompt action, including location, circumstances, etc.

d. All Air Bases maintain complete facilities for rescue operations on which the Rescue Officer will depend. The following procedure will be used:

(a) (1) The Rescue Officer upon receipt of the above information will notify the Base Operations Officer who is nearest the scene of the accident. The Base Operations Officer will then dispatch the rescue facilities which are available to him. These facilities are, Rescue Patrol for Jungle Operation, Crash Boats, and the O&-9, and 2O&-4O type plane. The Crash Boats are operated by calls to Albrook Field, Rio Hato, and France Field. The O&-9 and 2O&-4O type planes are available at Albrook Field.

(2) The Naval Officer on duty on the Control Platform will be consulted by the Rescue Officer in regard to any assistance the Navy might offer. This assistance might be a flying boat type of plane which might be set down on inland water or in the open sea, conditions permitting.

(3) The Anti-Aircraft Officer on duty on the Control Platform will be consulted by the Rescue Officer in regard to any assistance that the Anti-Aircraft Artillery might give. It is possible that the personnel at one of the AAA positions might rescue the pilot.

(4) The Panama Mobile Force will have Jungle Patrols operating in the jungle. The Rescue Officer may call the Headquarters of the P.M.F. at Fort Clayton. He will give the details of the accident to them and request assistance. If they have a patrol in the vicinity of

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

RESTRICTED
DECLASSIFIED

the crash, the P.M.T. will notify this patrol by radio.

g. Outside assistance should not be counted on entirely. When the Rescue Officer feels that faster assistance is possible through the use of other means, he will contact those Rescue Agencies by whatever means of communications he can.

(1) Probably the most complete coverage of the Canal Zone is given by the Canal Zone Police. They have offered full cooperation with the Interceptor Command during any emergency. They offer limited rescue facilities in the jungle, but will be very helpful during a search. They offer good rescue facilities on Inland Water, having stations and speed boats available at Balboa, Cristobal, Gatun Lake, Madden Lake, The Cut, and Pedro Miguel. The best method of requesting assistance will be by telephone to the Officer in Charge at the Central Police Station in Balboa; he in turn will call the particular station necessary. A call can be made direct by the Rescue Officer to any of the above-named stations.

(2) Port Captains at Balboa and Cristobal may be available for assistance during an emergency. They can be communicated with 24 hours daily, but are able to offer only limited help on the water. Darien is their division point of operations in the canal. For assistance between the Pacific and Darien call the Port Captain at Balboa, between Darien and the Atlantic call the Port Captain at Cristobal.

(3) The Dredging Division at Gamboa is operated 24 hours daily and offers rescue facilities on Gatun Lake and The Cut. They will be reliable but may be slow in operation.

(4) A call to the Gatun Army Switchboard will spread a general alarm in that area. The operator may be able to offer assistance or connect the Rescue Officer with the Coast Artillery who have fast speed boats available on the Lake.

f. Procedure for Searching When the Location is Not Known:

(1) Any knowledge of an airplane being overdue at its destination, missing, unreported or unaccounted for will be transmitted immediately to the Rescue Officer in the Control Room of the Interceptor Command.

(2) Upon the receipt of the above information the Rescue Officer will:

(a) Call all fields on telephone, radio or teletype and request information regarding the missing plane.

(b) If no information is received from the fields, the Rescue Officer will notify the Base Operations at Albrook, Howard, and France Fields, and Rio Hato of the missing aircraft, giving a description and other available information. It can be expected that each Base Operations Officer will conduct a search in the areas set forth in Memo. 14-1, Par. 1, 6/23/41.

(c) Notify all members of the Operational Staff on the Control Platform, giving them all the information possible.

(d) Call the Officer in charge at the Central Station of the Zone Police at Balboa; he will notify all his stations.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

(e) Call the Panama Mobile Force at Fort Clayton giving them full particulars concerning the missing aircraft.
(f) Notify the Dredging Division at Gamboa.
(g) Call Colonel R. D. Prescott, Republic of Panama Telegraph and Telephone.

g. The Rescue Officer will keep a record of the different organizations notified, and when the missing aircraft is found he will notify these groups of the fact.

h. When the missing aircraft is located and the Agency that found it is unable to conduct the Rescue Operations, the Rescue Officer will proceed as directed at first.

i. Procedure for Anticipated Accident and Rescue:

When the situation is such that the Rescue Officer anticipates an Accident or Crash, he will immediately call the Base Operations Officer concerned and give all necessary information in regard to a quick rescue. It is possible that most anticipated accidents will be over open water and some distance from land. In order to save all time possible, it may be necessary for the Base Operations Officer to dispatch the Crash Boats and the Rescue Officer to direct them by Radio from the Control Room. It has been suggested by this Command that these boats be placed outside the Harbor nets in order that they can be operated 24 hours a day, without delay. The location of the Crash Boat at Albrook will be off Taboga Island. The Crash Boat at France Field will be around Las Minus Bay. Both of these boats can be contacted by radio through the tower at each particular field. These boats are able to operate as far out as it may be necessary for Pursuit to go. Auxiliary boats are maintained on each side. They are smaller, either do not have radio facilities or have very poor facilities.

j. Operations Memo. #17, 12/14/41, instructed the pilots in what to do in case they bailed out or crashed on land. This should be consulted by the Rescue Officer.

k. The Rescue Officer will keep a complete log, as a permanent record of his procedure when any of the situations mentioned are handled by him. This record will contain information in regard to time, location of pilot, channels of communication used, rescue or searching agencies used, etc.

20. Air Traffic Control Officer:

The Air Traffic Control Officer is a member of the operational staff of the Interceptor Command. Under such regulations as may be promulgated by F.C.D. and C.A.F. he acts as the representative of the Interceptor Commander for the control of airplane traffic within the Panama Canal Zone and the Panama Interceptor Command defense area. His place of duty is the communications room. His duties are:

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

RESTRICTED DECLASSIFIED

(1) To know at all times the number, location and general mission of all authorized aircraft flying within the Panama Interceptor Command defense area.

(a) File all approved flight plans for impending flights, with the authentication issued therefor.

(b) Keep an operations file for authorized flights, to indicate progress and allow plotting of their position at any time.

(c) Acknowledge arrival, departure, and position report messages, and grant clearances for authorized aircraft, in the name of the Interceptor Commander.

(2) Maintain complete information of communication facilities available for air traffic control.

(a) Normal channels for receiving and transmitting traffic control messages.

(b) Circuits that may be used in emergency.

(c) Notify A.A.C.S. radio stations of transmitting frequencies of transit airplanes enroute, and requirements for any special situation.

(3) Assists in the identification of aircraft.

(a) Furnishes information regarding friendly aircraft in flight to Controller and Raid Clerk on request.

(b) Informs Controller of movement of unauthorized aircraft approaching the Canal Zone.

(4) Maintains liaison with the CAA representative in the Panama Canal Zone for effective control of Civil Aircraft.

(a) Maintain records of authorization for special flights to Canal Zone by CAA or State Department.

(b) Notify the Alert Officer of requirements for escort of foreign aircraft.

(5) Records.

(a) Maintain file of all messages sent or received.

(b) Maintain file of all violations of air traffic regulations and submit periodic reports thereof to the Interceptor Commander.

(6) During periods of alert:

(a) Prepare and transmit necessary instructions to air carrier and transient aircraft in flight to Canal Zone, in accordance with existing regulations and instructions of CAB representative.

(b) Grant clearances to aircraft within the limitations imposed by the Interceptor Commander during this period.

(c) Notify the Control Officer of aircraft in flight that cannot be contacted by radio.

21. Bomber Command Liaison Officer:
To be published.

22. FCD Liaison Officer:
To be published.

23. Radio "A" Officer:
To be published.

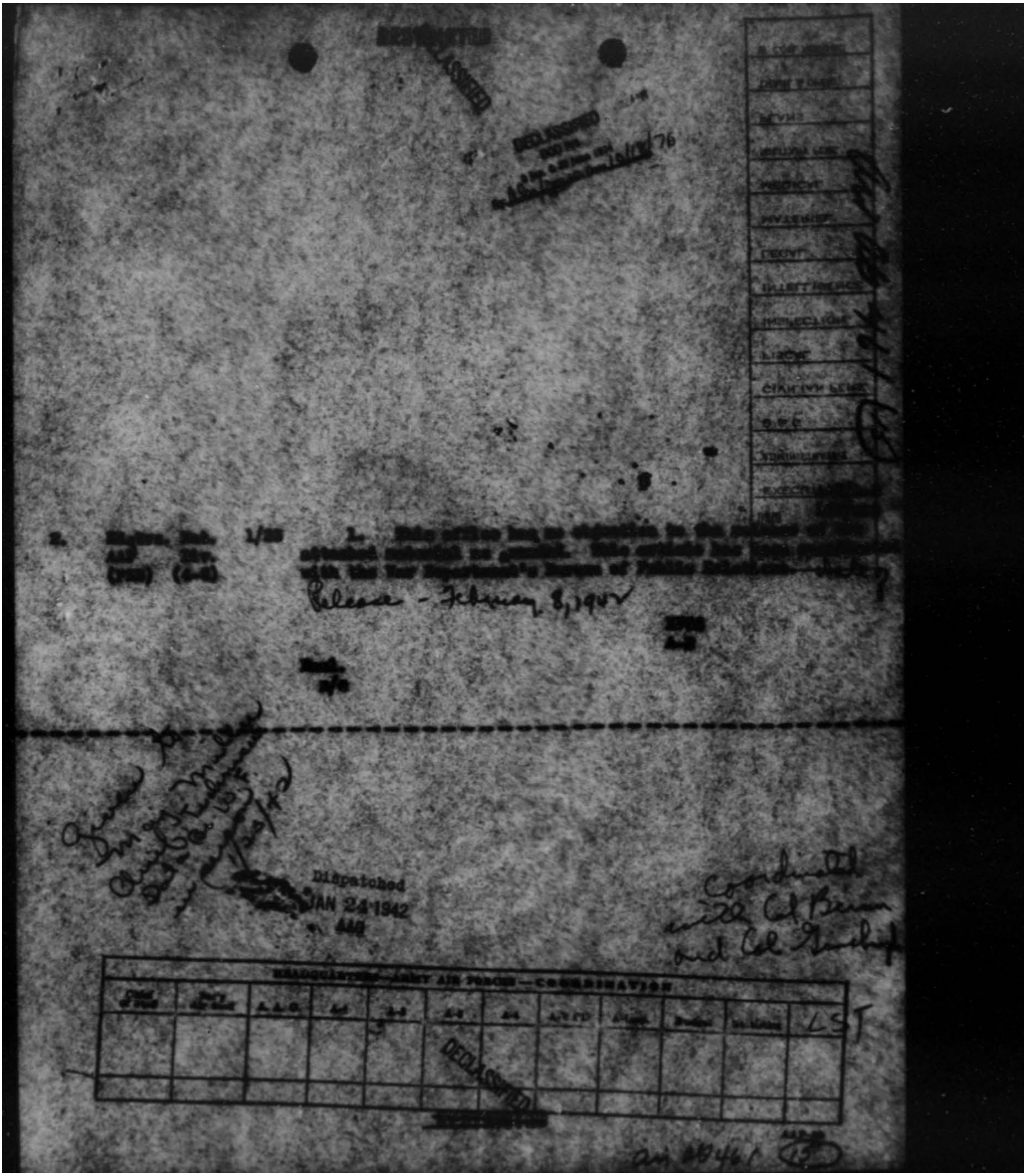
24. CAB Representative:
To be published.

25. CAA Representative:
To be published.

DECLASSIFIED

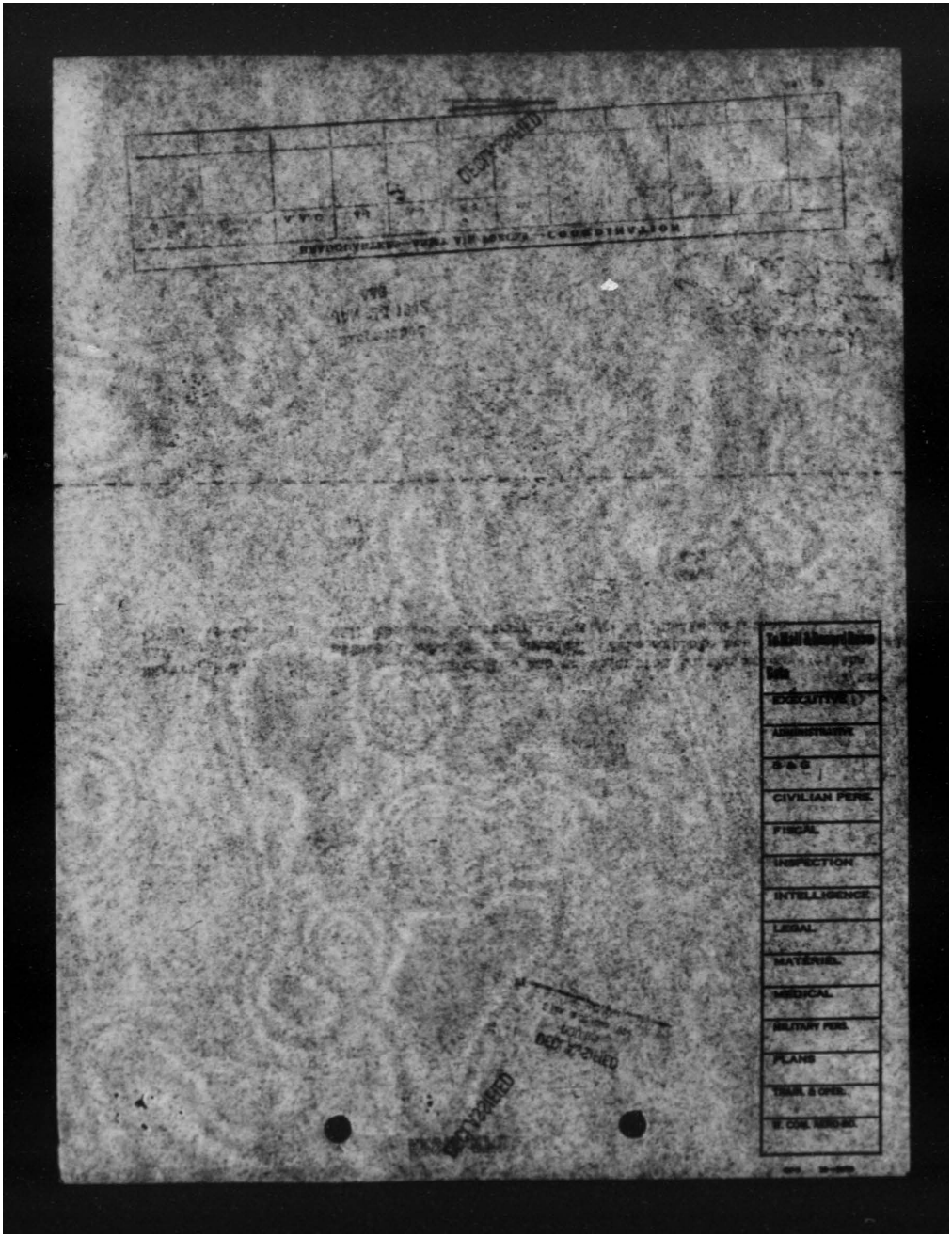
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

INTER-OFFICE MEMORANDUM
WAR DEPARTMENT, AIR CORPS
Office, Assistant Chief
Materiel Division

DECLASSIFIED
DOD or
[illegible]

Wright Field, Dayton, Ohio
December 29, 1941

TO: Chief, Materiel Division
Office, Chief of the Air Corps
Washington, D. C.

SUBJECT: Review of Story Titled "Wright Field Activities in Calendar Year 1941"

1. The subject story is forwarded for War Department review proposed press release for early in January. Inclosure 1 is a full-length, 19-page story; inclosure 2 is a condensed 800-word story.

2. As in previous years, the subject story is based upon rep requested from the several section chiefs at Wright Field which des principal activities and achievements of a non-classified nature du the past year.

3. In furtherance of national morale, it is believed desirab release as much of the subject story as possible, but attention is to possible conflict with a letter from the Chief of Air Corps, dat November 22, 1941, titled "Ban on Detailed Information as to Produc Organization, Etc., particularly in respect to monthly production p and backlog orders in the first two paragraphs, both of which may p have been previously released in Washington.

4. It is requested that this office be notified of the decisi made, and the release date for the local press, if release is appro

/s/ G. L. Usher

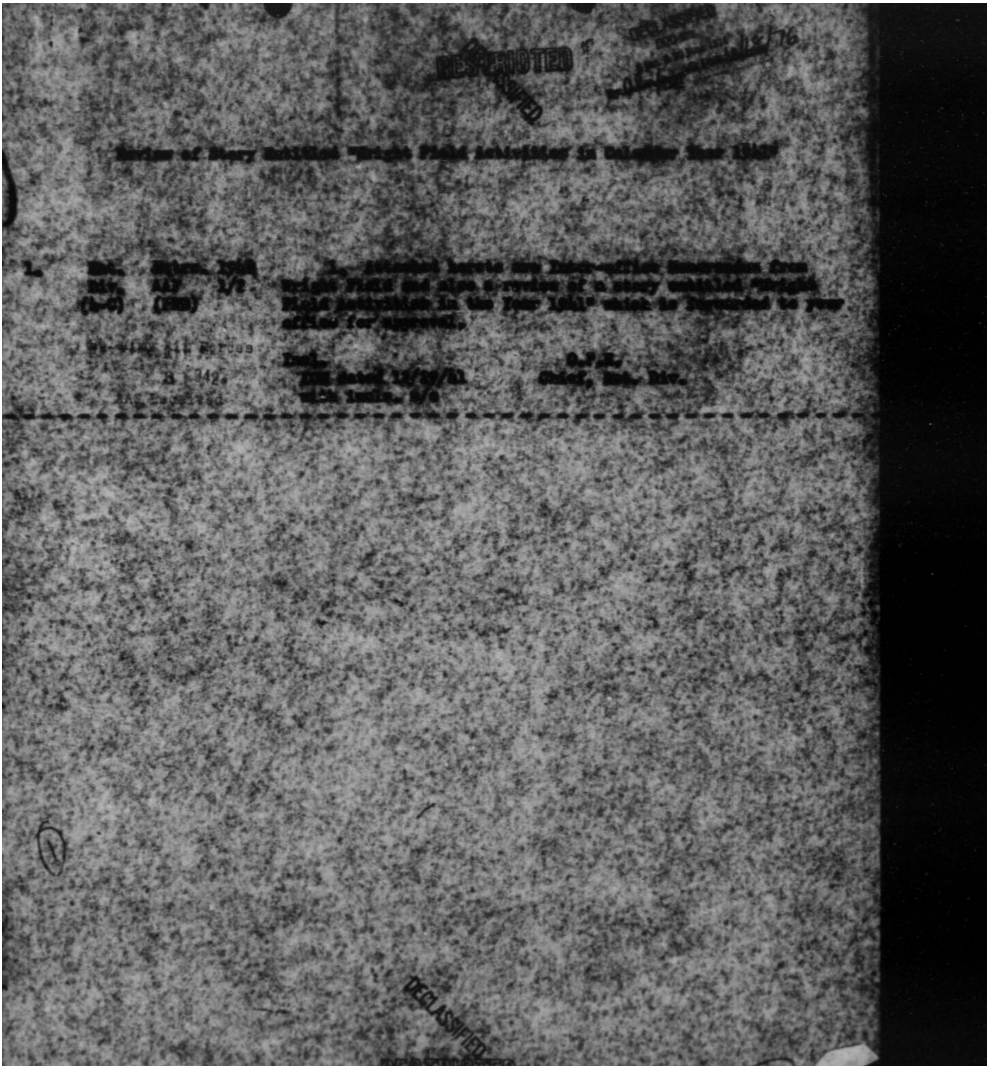
G. L. USHER
Colonel, Air Corps
Administrative Executive

Incls. 2

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

DECLASSIFIED
DOD DIR
[illegible]

[illegible] Field, Dayton, O., [illegible] month the nation's production of Army aircraft [illegible] months, the facilities of the automobile industry and some 2,000 new contractors [illegible] have been fitted with the aviation industry into vast arsenal established by the Air Corps.

The 1918 wartime arsenal bears little resemblance to the domestic structure of 18 months ago. It has the assembly lines of mass production, fed by the flexible subcontracting system long used by the Air Corps. At the end of 1918, it has [illegible] in contracts and purchase orders as compared to $2,000,000,000 in 1918.

It has twelve assembly plants assigned huge quotas, and nine engine and propeller factories starting production with full shifts and fighter and trainer plants which are nearing production schedules and in many cases exceeding them.

Contrary to popular opinion the Air[illegible] manufacturer does not build the complete airplane. He builds the airframe, and installs in it engines, propellers, instruments, radios, electrical generators and starters, armament, tires, wheels and brakes furnished by the Government.

This "Government Furnished Equipment," usually referred to as GFE, includes some 800 specific items which are purchased from

DECLASSIFIED

RESTRICTED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

[illegible] is a branch of the protective engineering section, in which the engineering supervision of military aircraft production is exercised through periodic inspection, tests, reports, training and study. Production survey and control will be the aim of coordinating material aircraft production.

Paralleling the supersonic planes on production is this greatly improved two-seat plane in the experimental engineering section. The requirements of materials, processes and production methods were accomplished by developing new materials for which specifications had to be developed. The higher performance, particularly climbing of the service ceiling, of the new airplanes now in production required [illegible] additional and refinements which would have required months in production.

Production of the airplanes being made in this country in high altitude flying such as the first reports of the exceptional performance of the Flying Fortresses in Europe. In the intervening months, additional refinements accomplished by the power plant laboratory, propeller laboratory, the aircraft, armament and equipment laboratories have brought the ceiling of the stratosphere still closer.

In the form of improved turbo superchargers, higher engines, improved oxygen masks and distribution systems, flexible armament installations and defensive armor now being released from development for production, the Army Air Forces has equipment which will apply for combat on actual warfare moves higher and higher. Such forces the warplanes of 1939 and 1940 will take are strategic reserves maintained in

DECLASSIFIED

RESTRICTED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

do projects in the experimental engineering section, but their specific, strategic purpose and shielding power will be materially superior to those now in service.

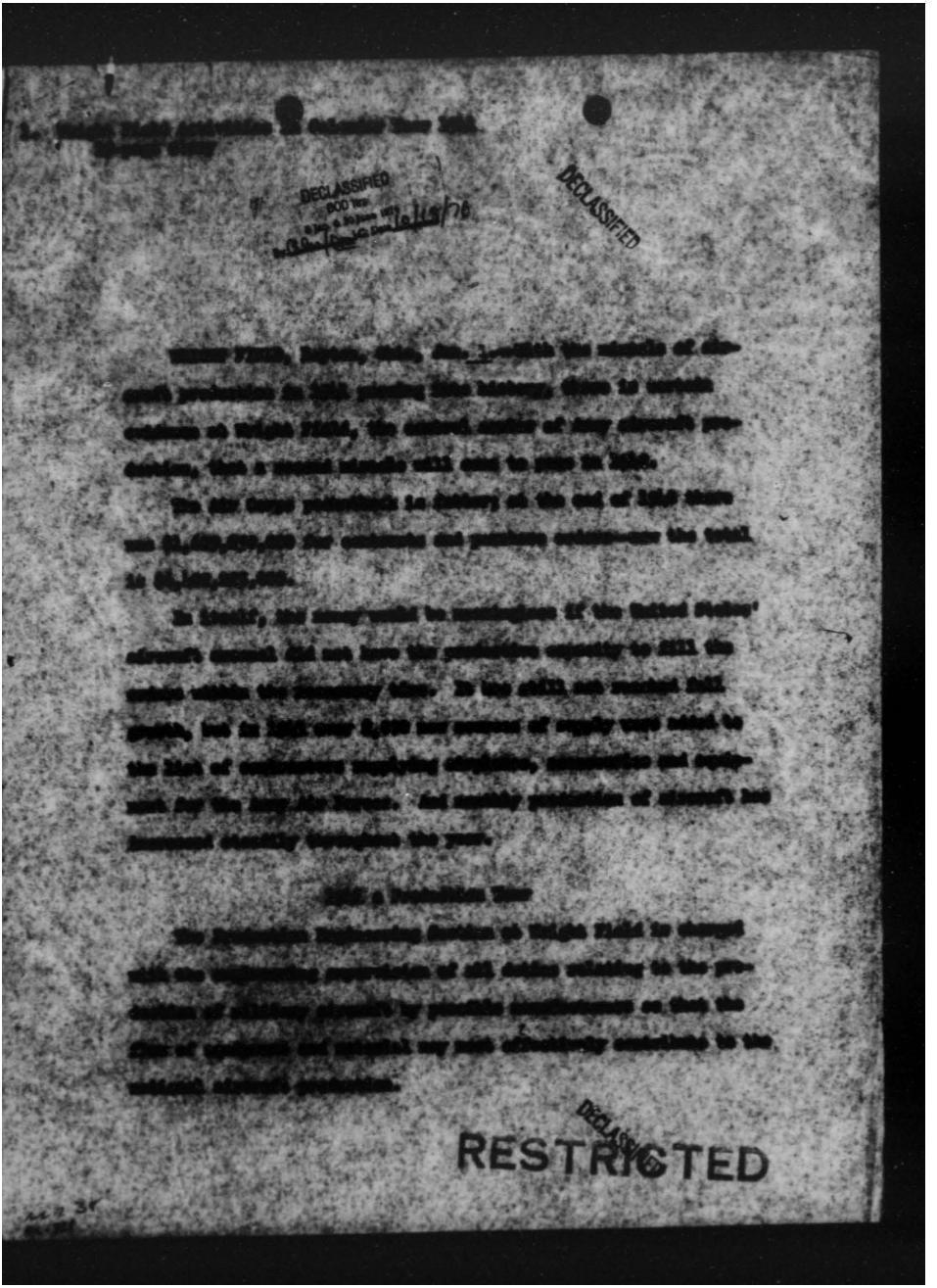
As necessary expansion to handle the workload on new specific, the size of the flying field at Wright Field is being doubled by a $7,500,000 construction program which includes six new hangars and additional shop and office buildings. Equipment has been provided approximately 7,000 more, with over 4,000 in procurement distributed officers in the manufacturing areas, working on a six-hours, six-days basis in common with other defense agencies.

-30-

DECLASSIFIED
RESTRICTED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

[redacted] Aeronautical Division the development of the gas plant, both of home and abroad, have proved with the development of the jet [redacted] in the development of the long range heavy bomber and the superiority of America's high altitude bombers.

This year has seen the accomplishment of the B-47 Stratojet [redacted] proved in the skies over Europe. The B-47, particularly the new B-47E with improved range, flying power, and still higher performance, is America's greatest achievement for long range defense.

Growth of Boeing Production

The contributions of this mighty weapon is quickly to our going forward by Boeing, Douglas, and [redacted] who have pooled their experience and efforts.

To accelerate the B-47 production, the Boeing, Douglas, [redacted] Committee was formed during the year with headquarters in Seattle. The committee comprises representatives of Boeing, Douglas, and [redacted] as well as a representative of the Production Engineering Section who serves as chairman. This committee coordinates all the work [redacted] of technical detail, engineering and material control involved in the [redacted] program of tooling and the [redacted] factors in the [redacted] assembly.

Besides the extensive tooling by the airframe industry and [redacted] the two industries have the assistance of [redacted] scores of [redacted] which has been the year's biggest effort of the Engineering Section of Production Engineering Section.

DECLASSIFIED

RESTRICTED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

[redacted]

[redacted]

[redacted]

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

[redacted] have used the engine for flying pylons from assembly hangars to launch ramps and they are also used effectively for towing locomotives, cranes, and navigating under shielded war conditions.

The assignment of the training airplane manufacturing [redacted] along with production schedules and in many cases exceeding production quotas has been an outstanding contribution to the campaign.

The development of larger cargo ships, namely, the Army C-82, has been pushed to fulfillment during the year. The C-82 is used for general utility, to convey personnel and cargo, and can be utilized as a hospital ship. This twin-engined airplane can transport 134 combat aircraft engines and miscellaneous parts for servicing our airplanes. It can land 50 passengers and as a hospital ship can carry 35 litters.

Fitting the Pieces Together

A gigantic task of coordinating the procurement and distribution of more than 600 different items of Government furnished equipment for our airplanes began increasingly more and more complicated as production was speeded up.

This task falls to this [redacted] known as the "Government Furnished Equipment" Branch of Production Engineering Section, usually referred to as GFE.

Contrary to popular conception the aircraft manufacturer does not build a complete airplane. He builds the fuselage, wings, and tail, fuselages and installs engines, propellers, instruments, radios, electrical generators and switches, armament, tires, wheels, and brakes as

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

[redacted] aircraft production. Such items are taught by the Air Corps direct from the manufacturer.

At the present time, there are [redacted] different instructors with [redacted] different manufacturers who come into contact at one time or another with the work of negotiation started by this unit. The [redacted] spent during the year has included a program of familiarizing the production and distribution of British equipment for U.S.A. airplanes designed on the British program. A new unit has also been set up here to facilitate the production of British equipment in this country to be manufactured under British specifications.

Work of Foreign Missions

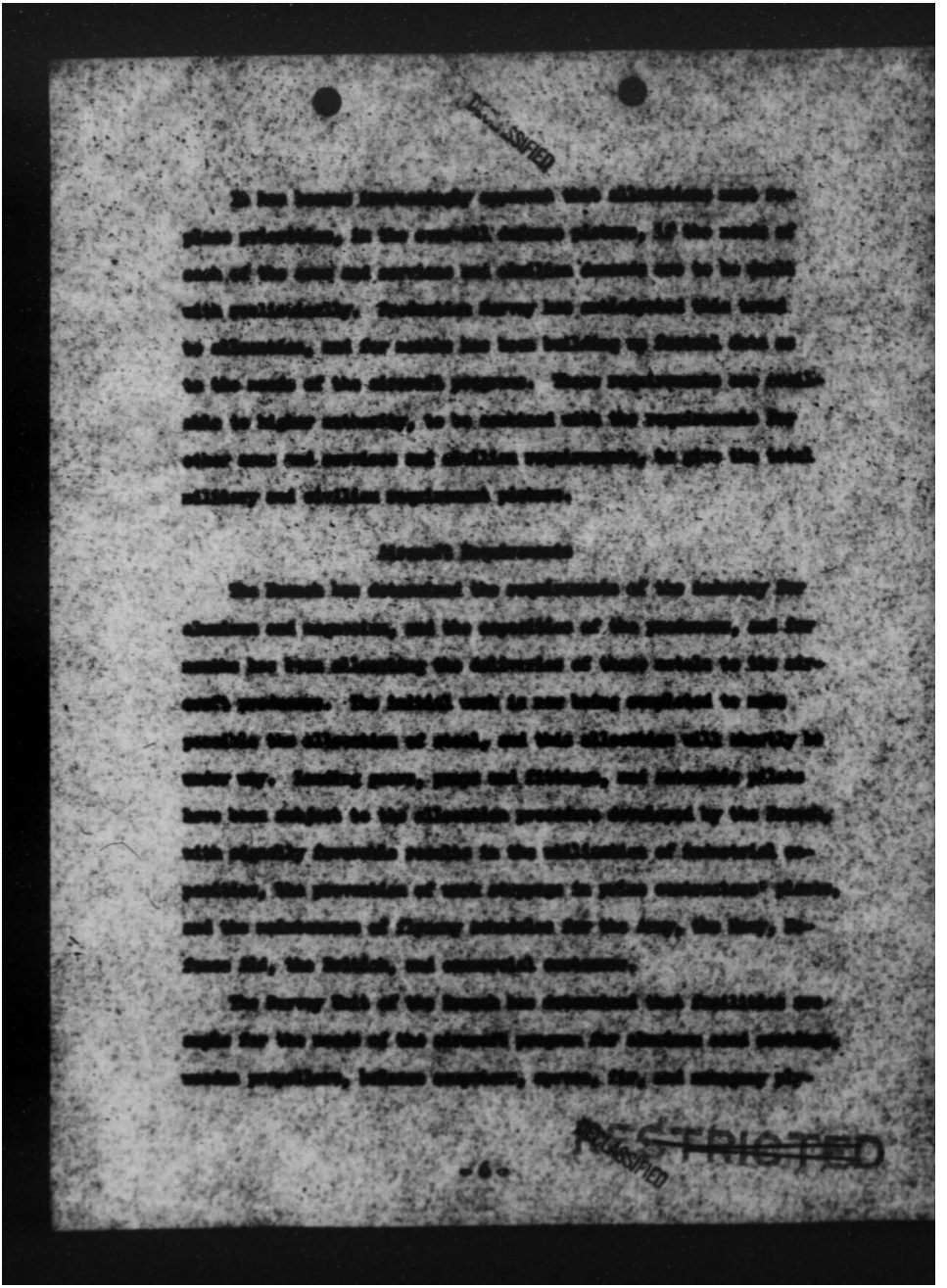
The Technical Army Attaché has applied this year to the specific agency for the following fields, Aircraft Engines, [redacted]. To maintain and distribute equipment and materials, to determine production requirements and acquisition of aircraft accessories, armaments, and engines, based on the average. To direct maintenance and administrative supervision. To keep in contact British shortages affecting production schedules. To investigate sudden test difficulties.

The granting of this "service agency" to contractors who are engaged in the aircraft engine program, was based upon a realization that experience in the foregoing fields would be enough that the development of airplane spares to the expenditure of their large-scale production.

DECLASSIFIED
RESTRICTED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



DECLASSIFIED

RESTRICTED
DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

DECLASSIFIED

RESTRICTED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

[redacted]

[redacted]

[redacted]

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

[redacted]

[redacted]

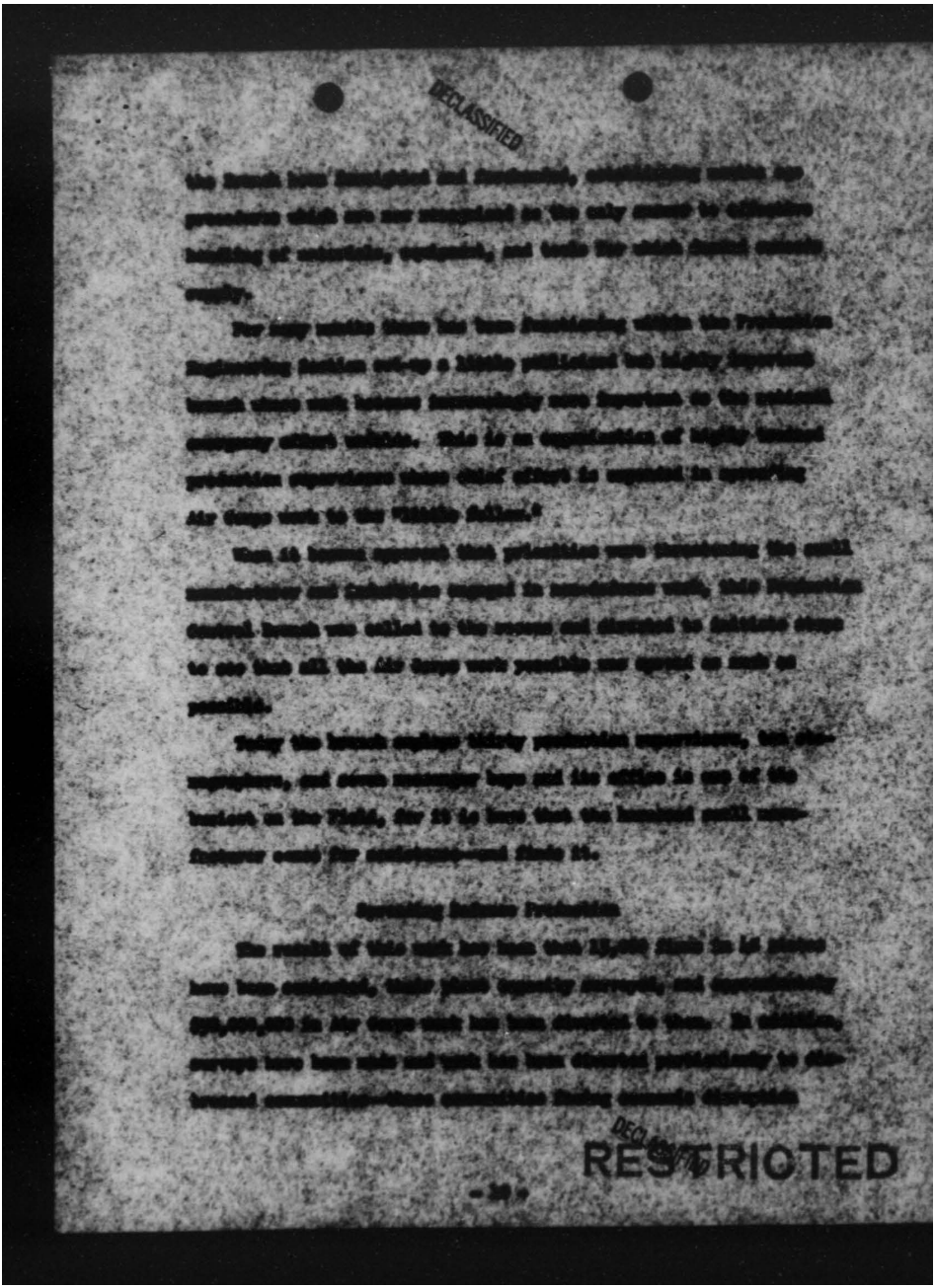
[redacted]

DECLASSIFIED

RESTRIC~~TED~~

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

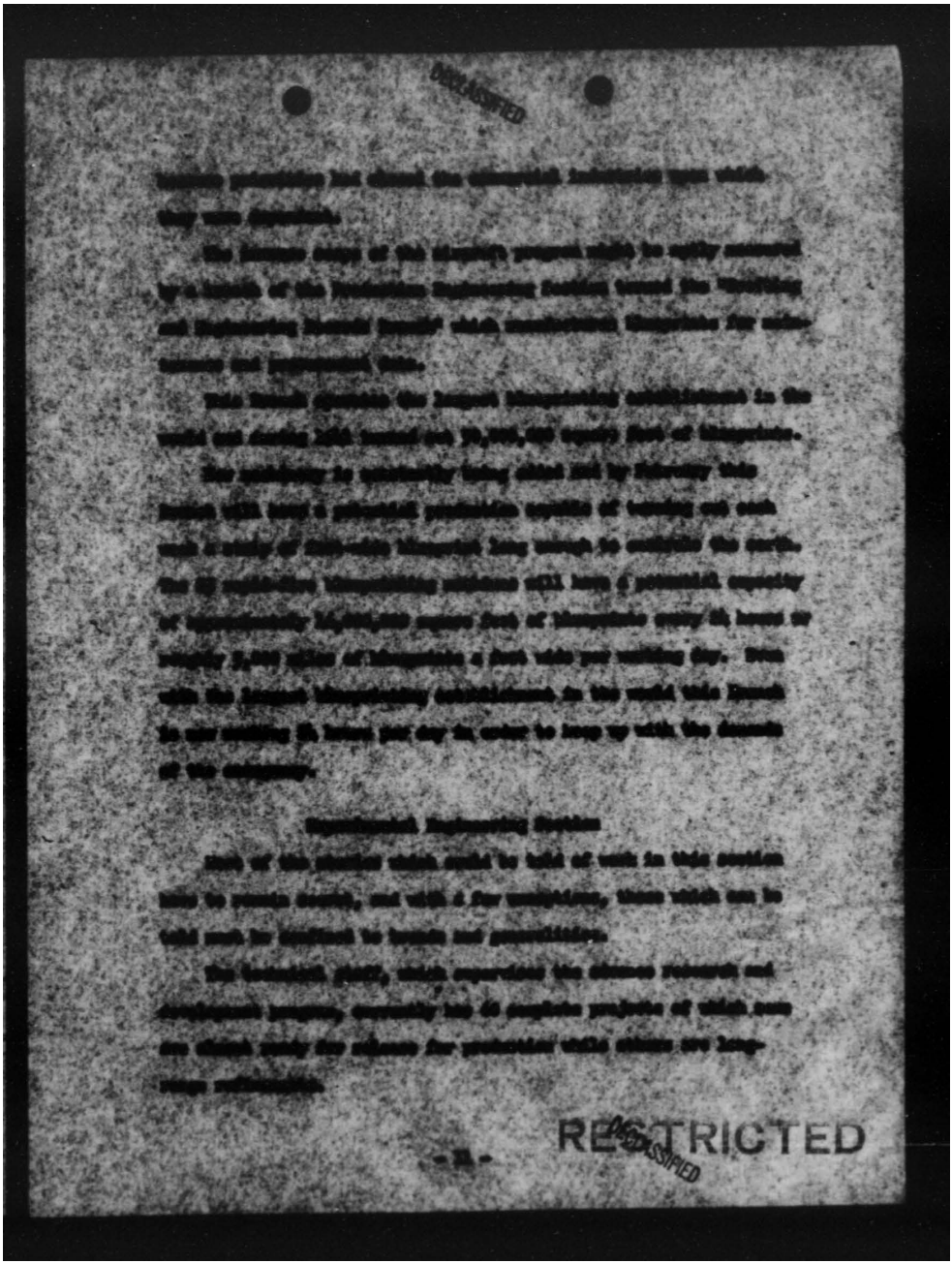


DECLASSIFIED

DECLASSIFIED
RESTRICTED

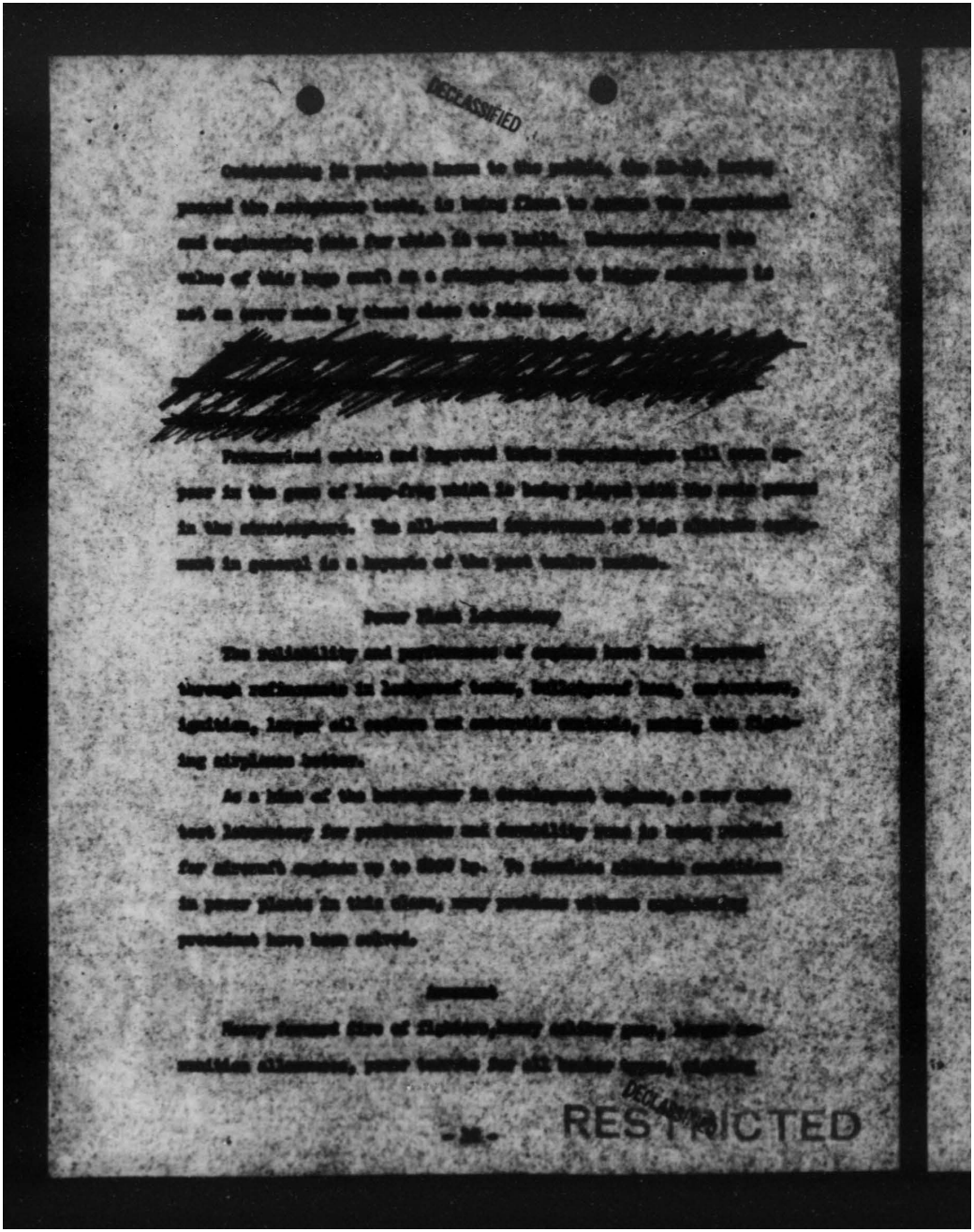
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



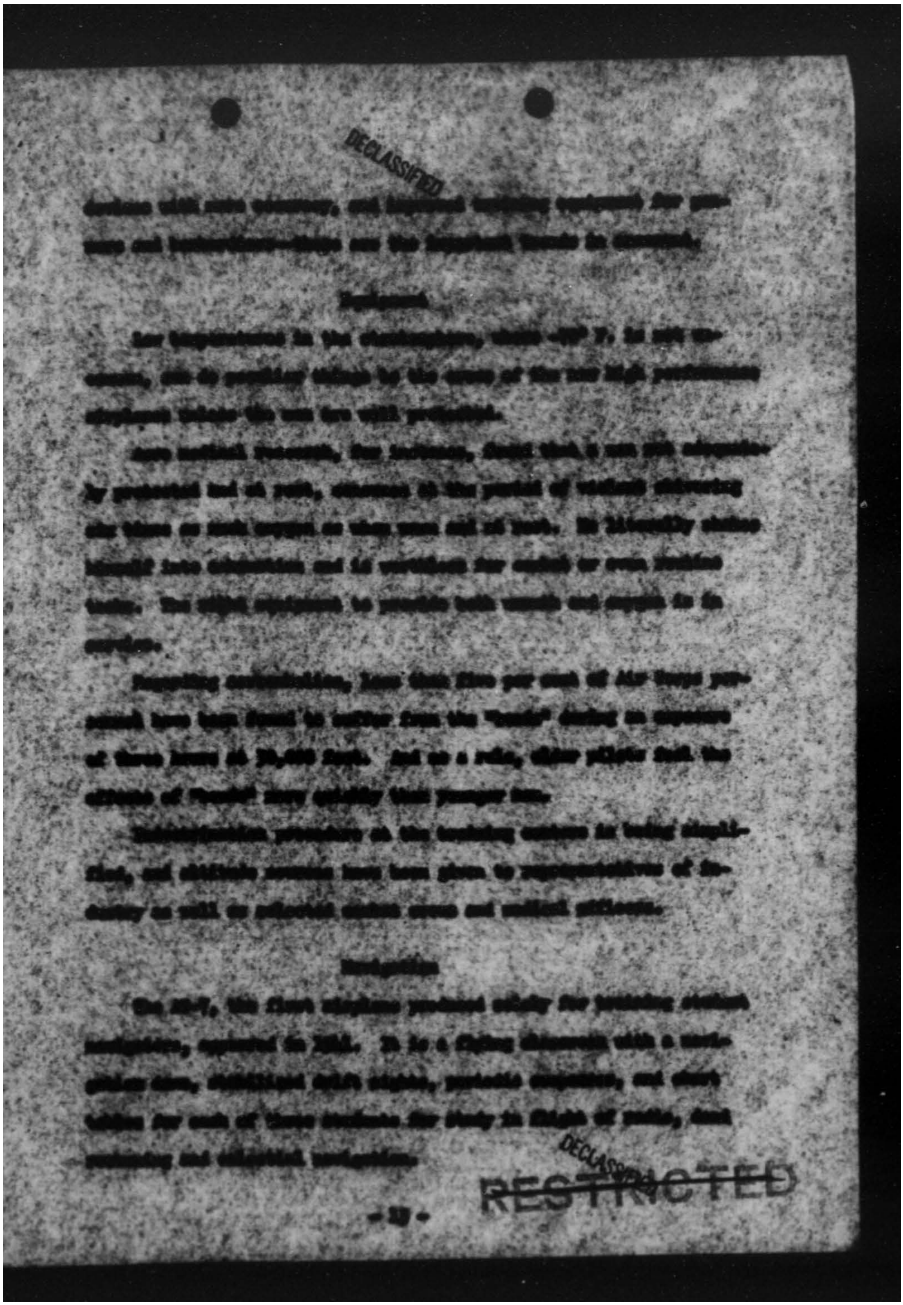
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

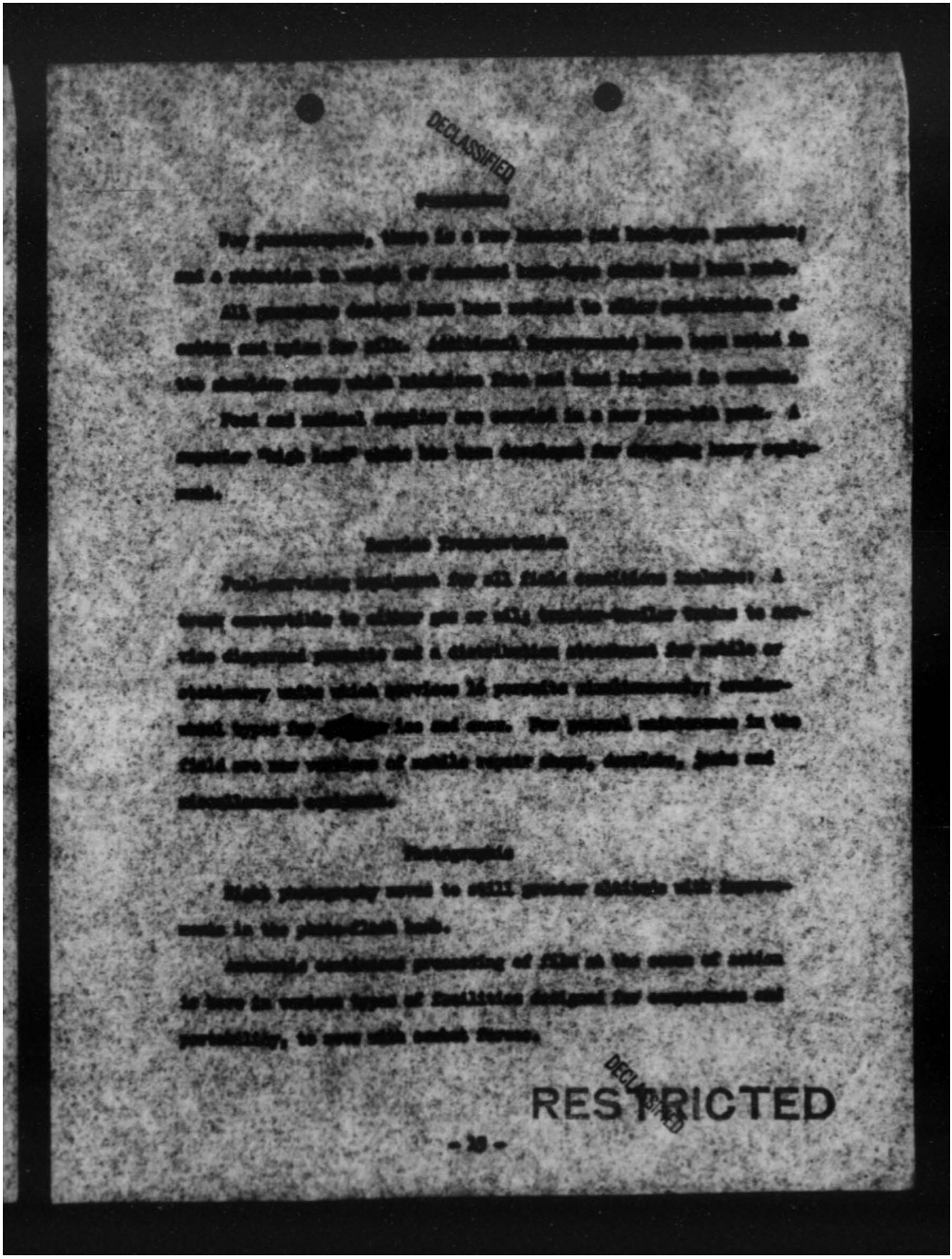
[redacted]

DECLASSIFIED

RESTRICTED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

And with notable advances in automatic remote control devices which require little or no attention from the pilot, these [illegible] installations have become virtually standard equipment on all military aircraft.

Propeller

For the bigger engines in the offing, the trend in propellers is toward dual rotation—half of the blades whirl clockwise, and half counter-clockwise on one coaxial shaft.

So, when three or four-blade propellers reach the limit, in diameter, beyond which their tips would be chewing into the ground or the nose of the airplane, and still bigger props are needed for still larger engines, the propeller designer, to keep the diameter within reason, adds more blades of the permissible diameter. And to avoid loss of propeller efficiency, adopts dual rotation.

Tomorrow's propellers will likely be reversible as well as full-feathering, since the reversible feature has value as a braking force to shorten the landing roll of heavy aircraft.

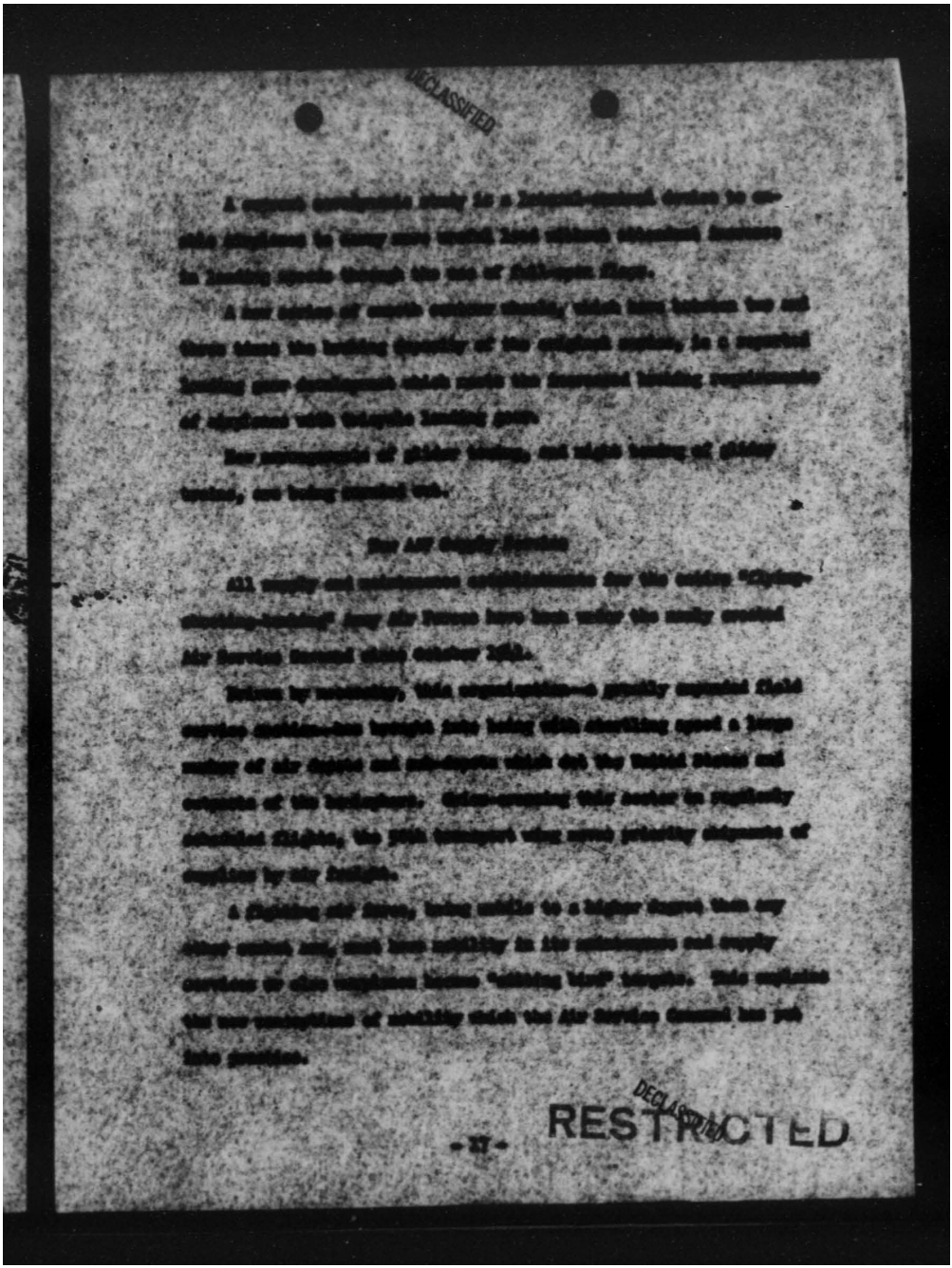
Aircraft Laboratory

New tactical problems in aerial warfare are met here with research and persistent applied refinement of aircraft design.

Structural properties of aluminum substitutes, plastics and plywoods, stainless steel and other materials continue to be investigated for suitability for military aircraft.

DECLASSIFIED RESTRICTED

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

[redacted] the procurement of the [redacted] the [redacted] Installation of the pro-
gram substantial increases[redacted] for 1949 was [redacted] critical program-
ming to [redacted] standard designs were to expedite.

Streamlined Air Mobility

Streamlining of the system of requiring supplies on hand and sup-
plies needed was recently accomplished by establishing a Mobility Sec-
tion which links all depots and major stations of the AAF with the Air
Service Command at Wright Field.

A daily inventory, entered automatically, shows the exact status of
supplies and replacement requirements of specific stations. The new
system reduces paper work, simplifies inventory, and does away with the
log between sender, purchaser and deliveries. Once implemented, the pro-
curement of essential airplanes is held to an irreducible minimum by the
closer control established.

For a Larger Aircraft Industry

The Industrial Planning Section, in preliminary surveys in connec-
tion with new plants for the aircraft industry, has processed 242 ex-
pansion projects to date.

Factors considered were the determination of the necessity for ex-
pansion, cost estimates, availability of labor, and establishment of a
production quota based on past production of similar plants.

Speed of Final Training

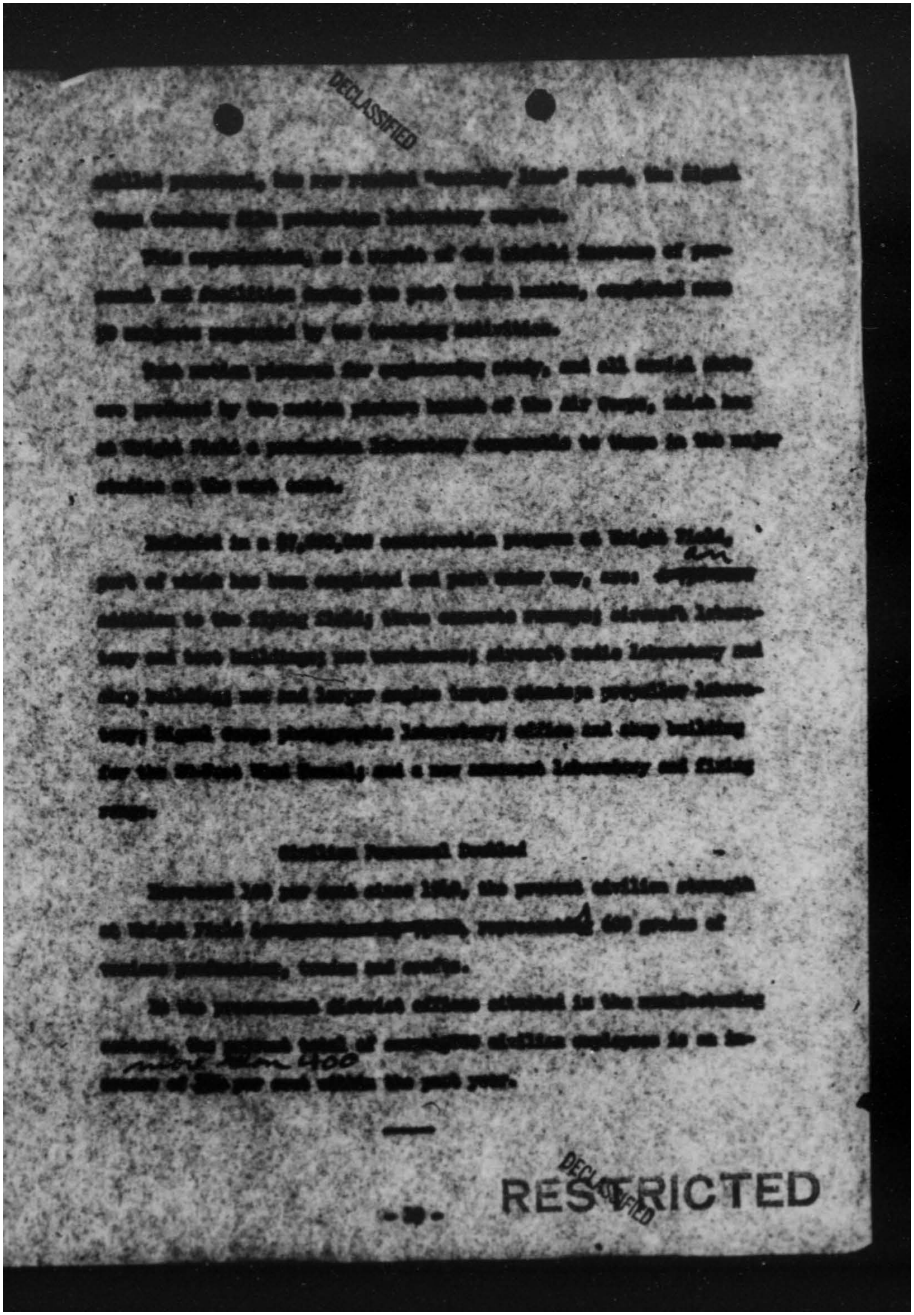
The production of AAF training films, for pilots, navigators,
bombardiers, mechanics, radio operators, gunners, engineers and other

DECLASSIFIED

 RESTRICTED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

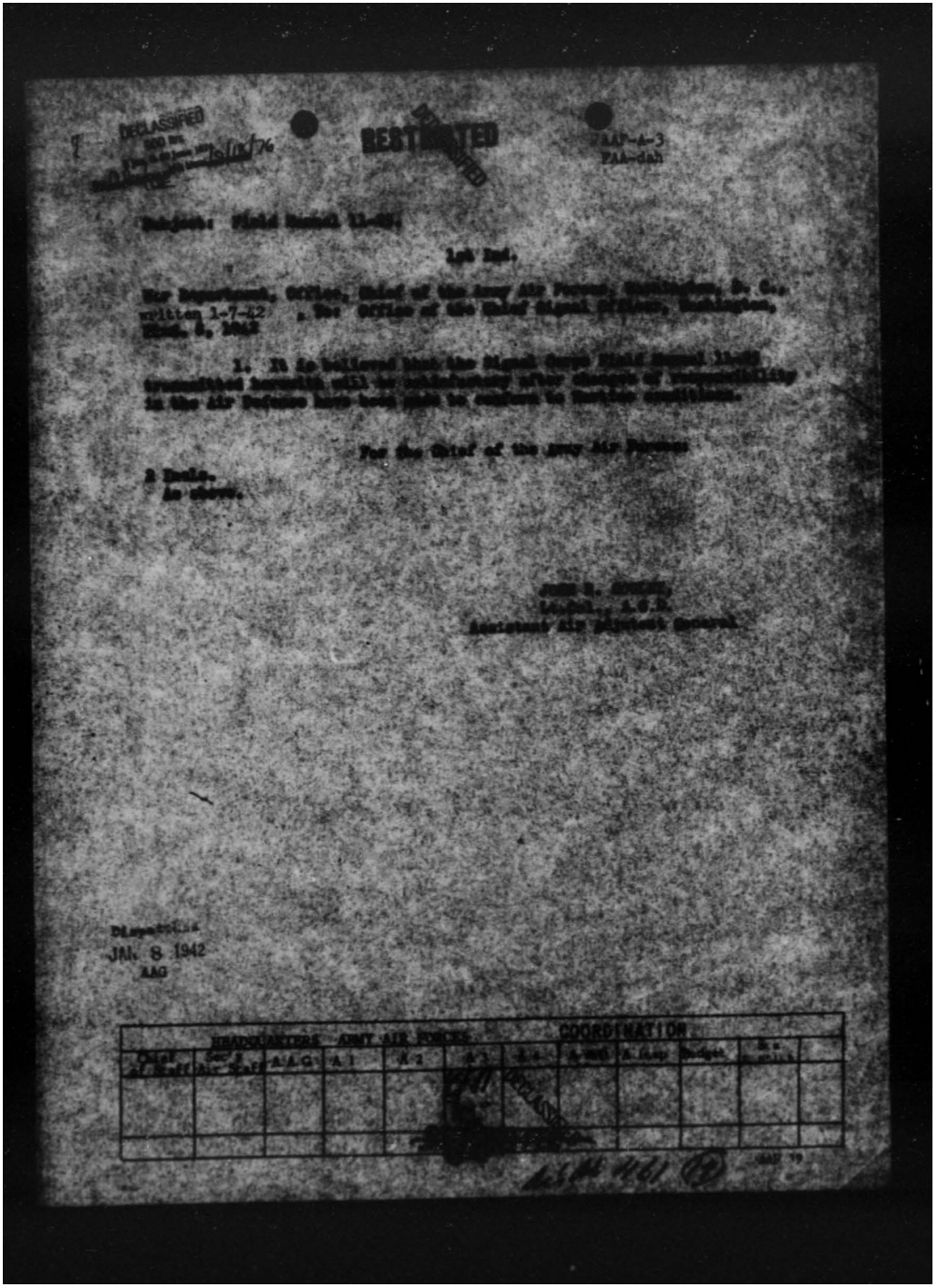


DECLASSIFIED

RESTRICTED
DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



DECLASSIFIED
RESTRICTED
AAF-4-3
PAA-dah

Subject: Field Manual 11-487

1st Ind.

War Department, Office, Chief of the Army Air Forces, Washington, D. C., written 1-7-42 2. Ret Office of the Chief Signal Officer, Washington, D. C., 1942

1. It is believed that the Signal Corps Field Manual 11-487 [illegible] until [illegible] in the Air Defense have been given to officers in theater conditions.

For the Chief of the Army Air Forces

2 Incls.
As above.

[illegible]
Lt-Col., A.G.D.
Assistant Air Adjutant General

JAN. 8 1942
AAG

HEADQUARTERS ARMY AIR FORCES							COORDINATION				
Chief of Staff	Sec'y Air Staff	A.A.G.	A-1	A-2	A-3	A-4	A-Met	A-Asp	Budget	[illegible]	

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

RESTRICTED
DECLASSIFIED
DOD Dir.
NSC Memo 10/23/74

IN REPLY REFER TO
OCSigO - 461 (FM ARS)

WAR DEPARTMENT
OFFICE OF THE CHIEF SIGNAL OFFICER
WASHINGTON

0-7

December 30, 1941.

Subject: Field Manual 11-25.

To: Chief of Army Air Forces.

1. Forwarded herewith is a proposed draft of Field Manual 11-25. A similar draft has been forwarded to the Commanding General, Air Force Combat Command for comments from that organization. Your comments and recommendations are requested relative to the adequacy and correctness of the material contained therein.

2. Due to the urgent need of the service of this manual, it is further requested that your comments be submitted before January 6, 1942.

For the Chief Signal Officer:

F. C. Meade,
Lt. Col., Signal Corps.

2 Inclosures:
Incl 1: Cy. FM 11-25
Incl 2: Cy. Ltr. to AFCC

Received JAN 1 1942
M.R. OCAC
RECEIVED
JAN 1 1942
CLASSIFIED MAIL AND FILE UNIT
DECLASSIFIED
RESTRICTED

A-1/1(11-a)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir. 5200.9
Auth: NND 760033 Date: 1/18/76

RESTRICTED

FM 4-107, CAFM, Barrage Balloons, Tactics and Technique.

To: Asst. C/S G-3

For: Inviting attention to

written 1-7-42
AAF/A-3
FAB-Gib

JAN 8 1942
AAG

Reference to paragraph 3c basic communication, dated December 24, 1941,

File 9, subject: FM 4-107.

1. It is recommended that copies of "Barrage Balloons, Tactics and Technique, (Tentative)" be distributed to: The Air Support Command, Bomber Command, and all Interceptor Commands.

For the Chief of the Air Staff

Incls.
W/F A-3/60766 to A/S
12/26 W/Basic, BOMAF
42 AAG 12/24 W/Basic
Cy, FM 4-107.

E. P. CURTIS
Lt. Col., Air Corps
Secretary of the Air Staff

HEADQUARTERS, ARMY AIR FORCES												COORDINATION
Chief of Staff	Dep. C/S and Staff	A.A.G.	A-1	A-2	A-3	A-4	A-5	A-6	A-7	A-8	Budget	Sec. of Gen. Staff	
					RESTRICTED								

Am 68 461 (13)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

DECLASSIFIED
DOD Dir. 5200.9 as amended
Authority NND 760050
By [illegible] NARS, Date 12/12/76

CONFIDENTIAL

Note.--A line will be drawn across sheet after each comment.

File No. .....

Tally No. AAF .....

SUBJECT: Radio 1412

NO.	FROM	TO	DATE	COMMENTS
1	Air AG	C/AG Pub.Div.	1941 12-27	1. For necessary action. Advise this headquarters of date on which shipment is made. H.H.H. Captain, A.G.D. Asst. Air A.G. Incl. 2 Radios 1412 & 11-12
2.	OCAC Adm.	Air AG	12/29	OCAC/11-D JEP:pdr 1. Publications requested in attached two radiograms were shipped December 29, 1941. H.H.H. Incl. 2 Radios 1412&11-12

DECLASSIFIED

(Do not write remarks here)

F-0011, AC, Rev. 8/15/41

A12/29 (25-a)
A12/29 (11-d)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

ACTION COPY

SECRET

CE RADIOGRAM O-4-C

13NVHC
503P TIME FILED

DECLASSIFIED
DOD Dir. 5200.9 Sec. 1.3 and 4.A.1.g. Date 11/17/76

December 26, 1941
336 PM

From: Indigo

To: Chief of Air Corps

No. 1412 December 26

To replace those lost by fire, it is urgently requested that an immediate shipment of the following be made to this base:

Master file of Air Corps Circulars

Master file of Air Corps Circular Letter

Bonesteel

Distribution:

Air Forces
General Arnold
General Spaatz

ACTION COPY TO AAG

Received in Cable Section, AAG
9:25 a.m. 12-27-41
Paraphrased by Captain MacDonald:jmt

PARAPHRASE

ACTION COPY

5/152

DECLASSIFIED
SECRET

Air 09461 (12)

1A WUHC
27/61CP Time Filed

SECRET

RADIOGRAM

DECLASSIFIED
DOD Dir. 5200.9 Sec. 1.3 and 4.A.1.g. Date 11/17/76

O-4-C

December 27, 1941
3:40 PM

FROM: INDIGO

TO: HQ Army Air Force

11-12--December 27

Due to loss by fire request replacement immediately of all regulations Army Air Force published to this date.

Bonesteel

Received in Cable Section
6:30 AM December 29, 1941
Paraphrased by Siebert:hhh

Distribution

ACTION COPY TO AAG

Air Forces

General Arnold
General Spaatz

MA 3-R L Ew.3

PARAPHRASE

DECLASSIFIED
SECRET

INFORMATION

5/152

Air 09461 (12)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

~~SECRET~~

HHH jn

Replacement of publications destroyed by fire.

1. Air AG Air SO 1941.
Cable 12/29
Dec. 29 Indigo:

Your radios 2435 and 11 dash 12 acknowledged Stop Master files of Air Corps Circulars Memo Circular Letters and AAF Regulations being prepared and will be shipped you at earliest practicable date Stop Arnold Hap

H.H.A.

Dispatched
DEC 29 1941
AAG

HEADQUARTERS ARMY AIR FORCES - COORDINATION

Chief of Staff	Dep Chief Air Staff	A.C.A.S.	A-1	A-2	A-3	A-4	A- Spp	A. Insp	Budget	Sec- retariat	
		DMM									

~~SECRET~~

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

DECLASSIFIED

File No. .....

Tally No. AAF .....

CS-413

Note.--A line will be drawn across sheet after each comment.

SUBJECT: Replacement of publications destroyed by fire.

NO.	FROM	TO	DATE	COMMENTS
1.	Air AG	Air AG Cable Sec.	1941 12/29	Request following radio be sent to Bonesteel at Indigo: Your radios 1412 and 11 dash 18 acknowledged Stop Master files of Air Corps Circulars Comm Circular Letters and AAF Regulations being prepared and will be shipped you at earliest practicable date Stop Arnold End H.H.L.
2	AAF/AAG CABLE SECTION	Air AG	FEB 16 1942	AAF/AAG HHL:ie In accordance with request contained in comment 1 above, a radiogram substantially as written therein, was sent to CG, Indigo, on December 29, 1941. H. R. L. Ch. Cable Sect.

DEC 29 1941 PM

RECEIVED HQ. AAF., AIR A. G.

A.F. No. 854

FEB 16 1942 AAG Received

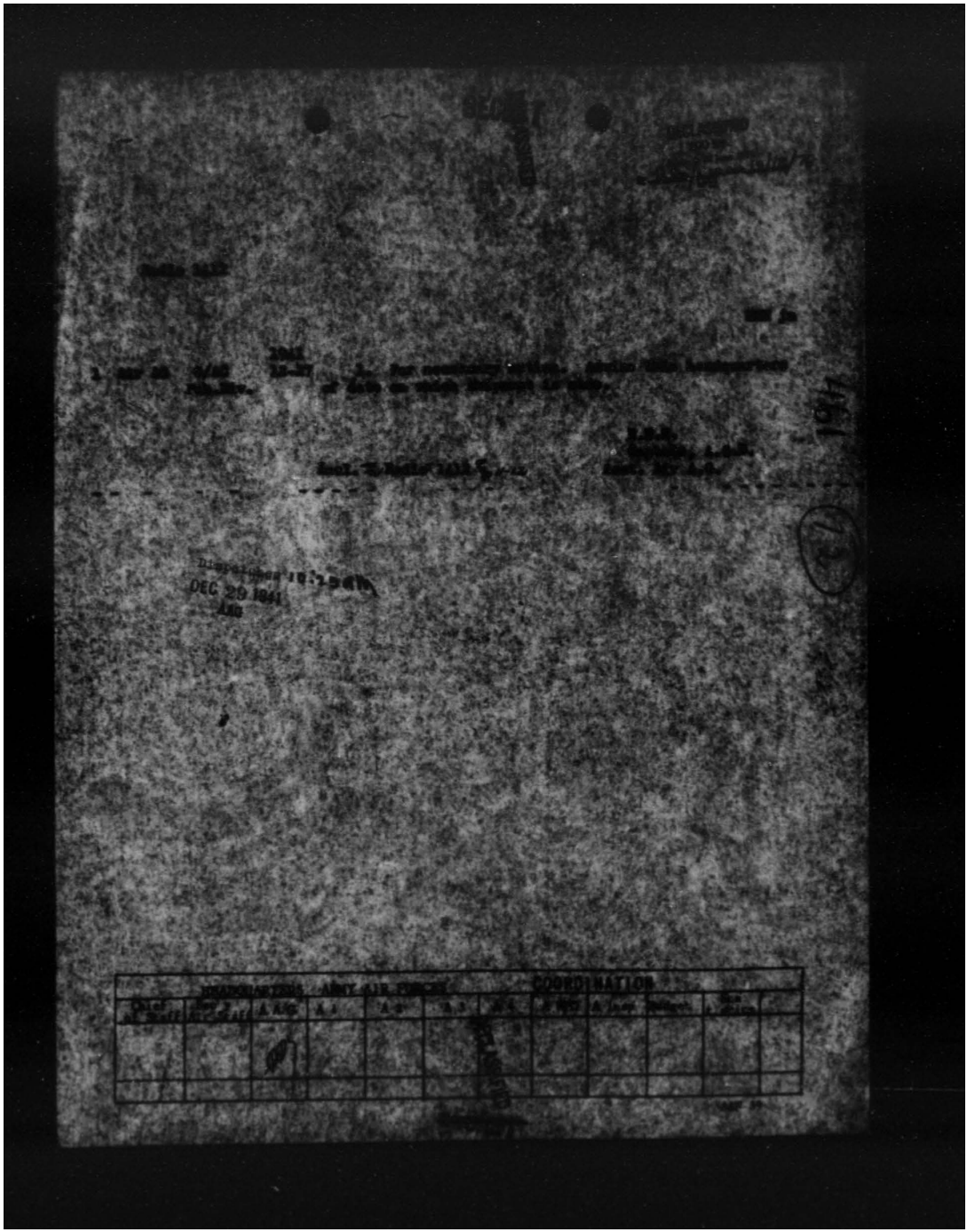
DECLASSIFIED

(Do not use reverse side)

Page No. .....

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD DIR
5200.9 & AR 380-5 SEC
NND 760124 By [illegible] NARS, Date 12/12/76

~~SECRET~~

RADIOGRAM

CR

O-4-C

13WHC
503P TIME FILED

December 26, 1941

336 PM

From: Indigo

To: Chief of Air Corps

PARAPHRASE

No. 1412 December 26

To replace those lost by fire, it is urgently requested that an immediate shipment of the following be made to this base:

Master file of Air Corps Circulars

Master file of Air Corps Circular Letter

Bonesteel

Distribution:

Air Forces
General Arnold
General Spaatz

ACTION COPY TO AAG

Received in Cable Section, AAG
9:25 a.m. 12-27-41
Paraphrased by Captain MacDonald jmt

Capt Hurst: For action on radio telling what material we can do without now

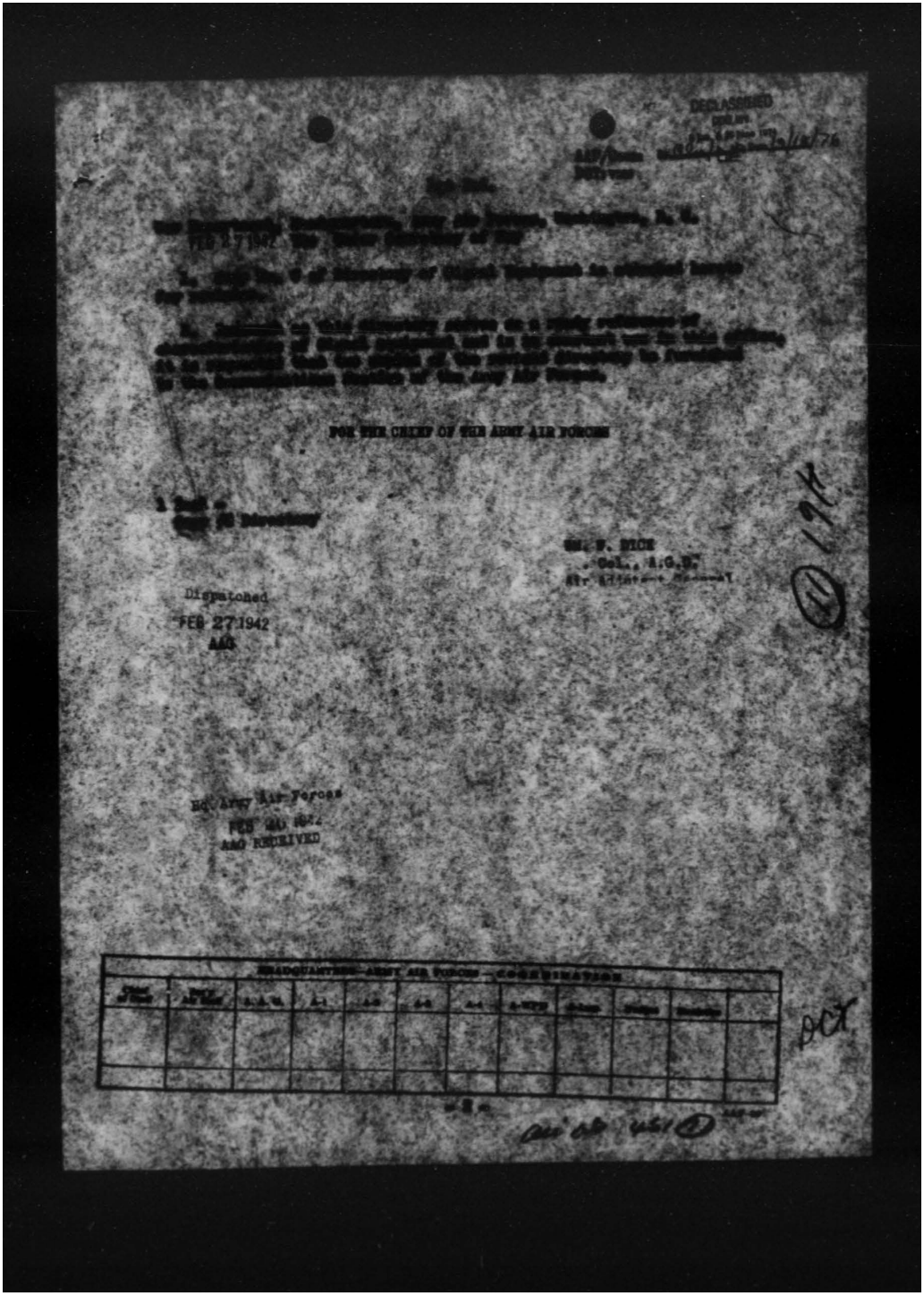
INFORMATION

DECLASSIFIED

~~SECRET~~

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



DECLASSIFIED
DRLM

FEB 27 1942

FOR THE CHIEF OF THE ARMY AIR FORCES

Dispatched
FEB 27 1942
AAG

Hq. Army Air Forces
FEB 28 1942
AAG RECEIVED

HEADQUARTERS ARMY AIR FORCES COORDINATION

Chief of Staff	Deputy Chief of Staff	A-1	A-2	A-3	A-4	A-5	A-6	Personnel	Training	Operations	Materiel

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

WAR DEPARTMENT
OFFICE OF THE UNDER SECRETARY
WASHINGTON, D. C.

Feb. 19, 1943

SUBJECT: Directory of Signal Equipment (Radio Sets)

TO: Chief of Air Corps

1. A revision of the Directory of Signal Equipment (Radio Sets) prepared by the Signal Section, Statistics Branch, Office of the Under Secretary of War, is in process.

2. It is requested that Copy No. 6, recorded as being in possession of your office, be returned to the Statistics Branch.

/s/
R. E. HAINES
Colonel, A.C.,
Executive, Statistics Branch
O.U.S.W.

and AS 461 (32)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
E.O. 12958 Sec. 3.3 NND 760033
By NARA Date 10/12/76

CONFIDENTIAL

DECLASSIFIED

January 8, 1942

Airway Manuals.

TO:

AAF/Gen

1. It is recommended that the subject information not be released to Mr. B. Sugarman, Captain United Air Lines as similar information relating to other airports has been treated as classified information.

2. A joint traffic control board, Army, Navy and CAA have under consideration the extent to which information relating to instrument approach guides may be released to non military aircraft operators.

3. It is believed that Captain Sugarman should be referred to the Civil Aeronautics Administration for information as to whether his request may be complied with at some later date.

Dispatched
JAN 13 1942
AAG

For the Chief of the Air Staff:

3 Inels.

MARTIN F. SCANLON

Chief of Staff					A-1	A-2	A-3	A-4	A- WPD	A Insp.	Budget	Legislation	

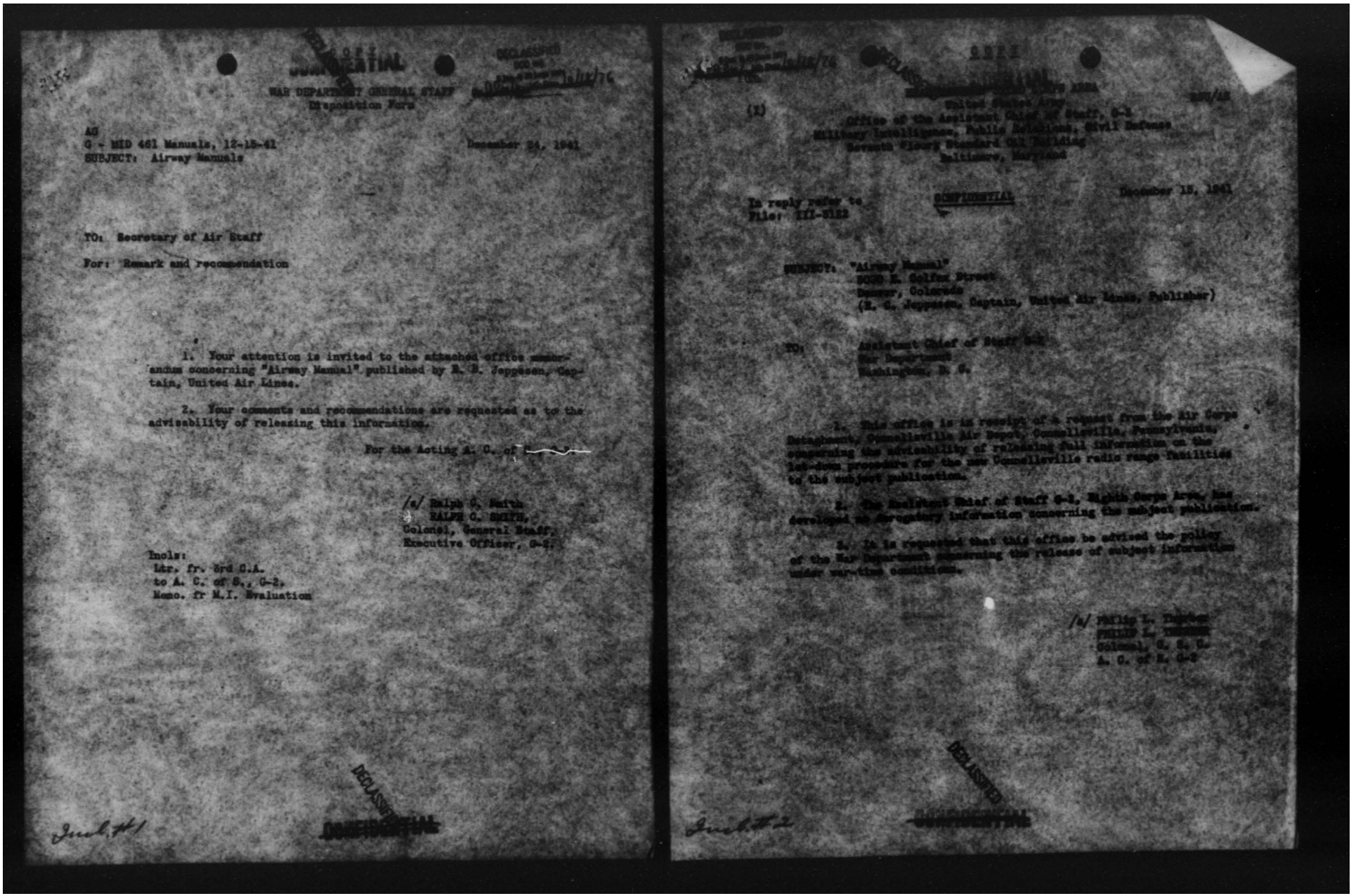
AAF-30

DECLASSIFIED
DOE/HW
CONFIDENTIAL

Army 461 (11)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



WAR DEPARTMENT GENERAL STAFF
Disposition Form

AG
G - MID 461 Manuals, 12-15-41 December 24, 1941
SUBJECT: Airway Manuals

TO: Secretary of Air Staff

For: Remark and recommendation

1. Your attention is invited to the attached office memorandum concerning "Airway Manual" published by R. S. Jeppesen, Captain, United Air Lines.

2. Your comments and recommendations are requested as to the advisability of releasing this information.

For the Acting A. C. of [redacted]

/s/ Ralph C. Smith
RALPH C. SMITH,
Colonel, General Staff,
Executive Officer, G-2.

Incls:
Ltr. fr. 3rd C.A.
to A. C. of S., G-2,
Memo. fr M.I. Evaluation

DECLASSIFIED

Inch. #1

(1)

Office of the Assistant Chief of Staff, G-2
Military Intelligence, Public Relations, Civil Defense
Seventh Floory Standard Oil Building
Baltimore, Maryland

In reply refer to
File: III-3122

CONFIDENTIAL

December 15, 1941

SUBJECT: "Airway Manual"
5020 E. Colfax Street
Denver, Colorado
(R. S. Jeppesen, Captain, United Air Lines, Publisher)

TO: Assistant Chief of Staff G-2
War Department
Washington, D. C.

1. This office is in receipt of a request from the Air Corps Detachment, Connellsville Air Depot, Connellsville, Pennsylvania, concerning the advisability of releasing full information on the let-down procedure for the new Connellsville radio range facilities to the subject publication.

2. The Assistant Chief of Staff G-2, Eighth Corps Area, has developed no derogatory information concerning the subject publication.

3. It is requested that this office be advised the policy of the War Department concerning the release of subject information under war-time conditions.

/s/ Phillip L. Thorson
PHILLIP L. THORSON
Colonel, G. S. U.
A. C. of S. G-2

DECLASSIFIED

Inch. #2

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
E.O. 12958
By [illegible] Date 10/19/95

CONFIDENTIAL
OPT

November 27, 1941

MEMORANDUM FOR CAPTAIN HOSTENSAK:

Subject: Airway Manual

The only information I have been able to secure concerning subject publication is a review of the manual published in the Aero Digest for October, 1941. It reads as follows:

"Capt. Jeppesen has created an airway manual so valuable that it should be in the hands of every pilot flying the domestic civil airways. Available in several forms, the manual includes in compact and usable form all required information on airway radio ranges, airport design, airway layouts and profiles. Radio range data includes complete details of established let-down procedures for instrument approach and a complete outline of the airport with all nearby obstructions. The pages covering airways give complete airway navigation details including mileages, radio range bearings, location of all airports and the detailed profile of the area covered, showing all high terrain and magnetic variation.

"As this publication supplies in one book all of the flight information required at any time in the cockpit, it is highly recommended. It is supplied in a leather, zipper-closed binder employing 1.5" rings for loose leaf pages. The binder measures 8.25" x 10.75" x approximately 2" in thickness- a size most convenient for cockpit usage.

"A master of the United States is available in two manuals, one covering the eastern half, the other the western half with Kansas City, Missouri being the dividing line. In addition, individual airline coverages are available--each such coverage supplying all information required by the individual airlines for the regular and alternate routes over which they are qualified to operate."

J. F. PERRY,
1st Lt., Military Intelligence
Evaluation.

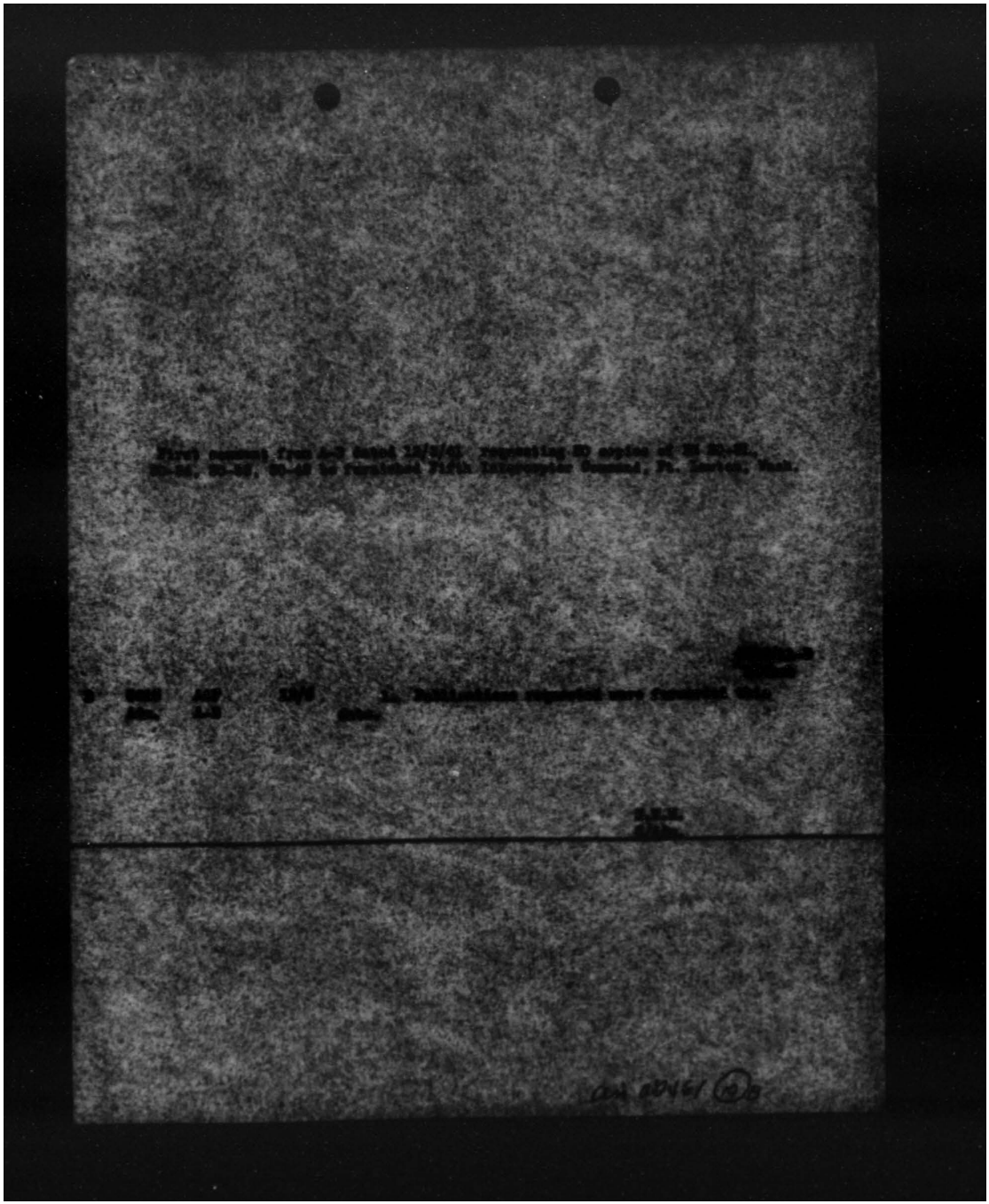
DECLASSIFIED

Encl No 3

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

File No.

Tally No. AAF

Note.--A line will be drawn across sheet after each comment.

SUBJECT: Request for War Department Publications.

NO.	FROM	TO	DATE	COMMENTS
1	AAF A-2	OCAC Adm. Div.	1941 12/5	AAF/A-2 ASJ-mh 1. Request that fifty (50) copies of each of the following publications be forwarded to headquarters Fifth Interceptor Command, Fort Lawton, Washington. FM 30-31 Rec. 12-6-41 " 30-32 " 30-36 First Class Mail 12-6-41 " 30-42 2. Request that this office be notified when above is accomplished. R.F.S. C/A-2
2	OCAC Adm.	AAF A-2	12/6	OCAC/11-B HCKimb 1. Publications requested were forwarded this date. R.H.E. C/Adm.

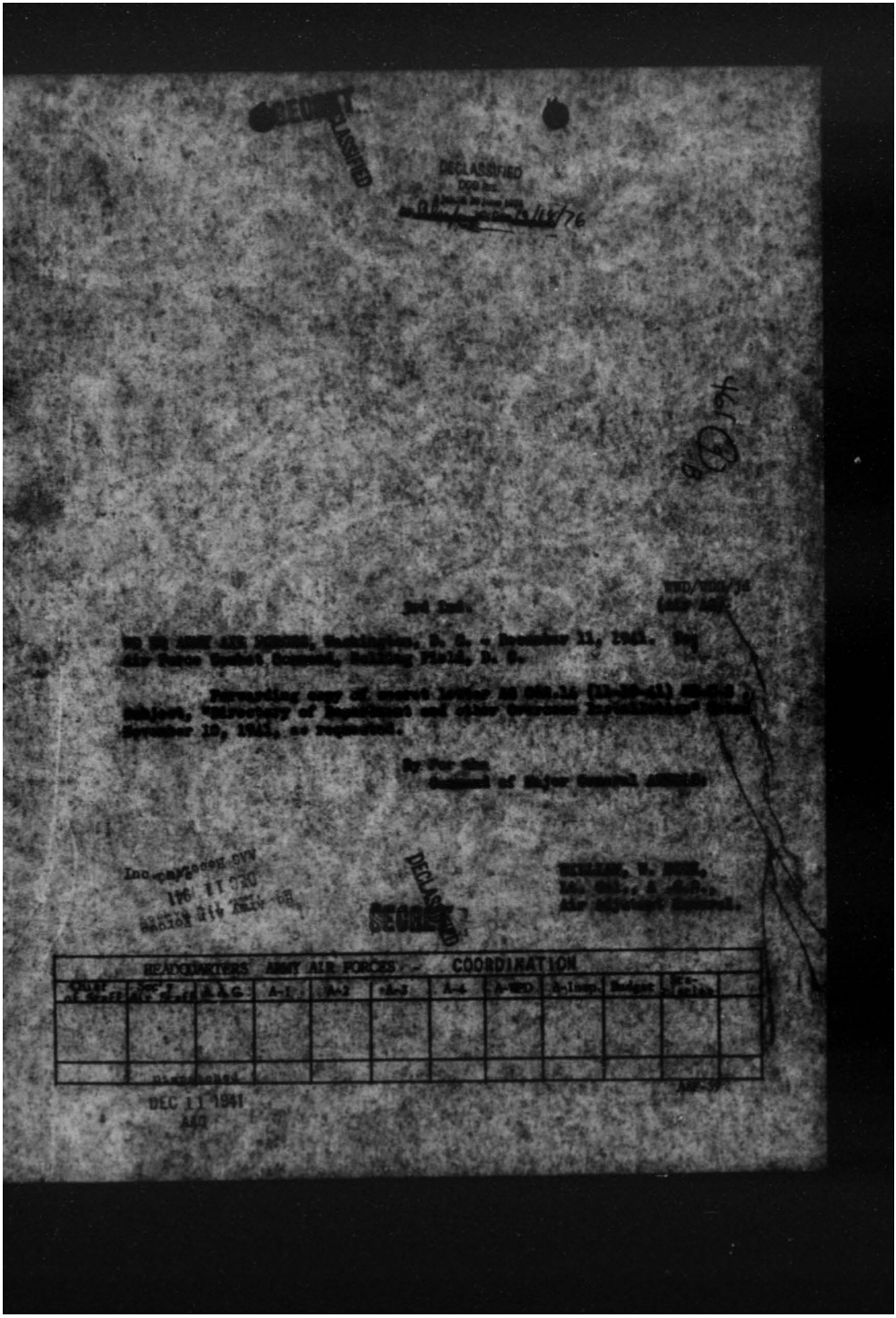
RECEIVED DEC 4 1941 CLASSIFIED MAIL

DECLASSIFIED

A12-4(45-a) 5/13

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

~~SECRET~~

DECLASSIFIED

SUBJECT: Directory of Departments and other overseas Installations.

AG 020.34 (12-6-41)MS 2d Ind. GLW/PG - 1728.

War Department, A.G.O., December 10, 1941. - To the Chief of the Army Air Forces.

Copy number 170 of document requested in basic communication is inclosed.

By order of the Secretary of War:

CARL ROBINSON

Adjutant General.

1 Inclosure:
Added cy. No. 170, dir. of dpts. ml. other overseas installations as of Nov. 30, 1941.

Hq. Army Air Forces
DEC 1941
AAG Received

- 2 -

DECLASSIFIED

~~SECRET~~

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET DECLASSIFIED

DECLASSIFIED
DOD Dir. 5200.9 Sept. 27, 1967
By NARS, Date 12/22/76

FROM: Hq. Air Force Combat Command
SUBJECT: Directory of department and other overseas installations.
To: Chief of Army Air Forces

Request that 1 copy of secret letter AG 062.14 (11-10-41) MR-M-C subject Directory of department and other overseas installation dated Nov. 10 1941 be furnished this headquarters.

Sgd. C M Russell

1cy Ind. (Air AG)

WD AG ARMY AIR FORCES, Washington, D.C., December 6, 1941
TO: The Adjutant General

Recommending Compliance.

By the Chief of the Army Air Forces:

47 A G O
DEC 8 1941
Received

WILLIAM W. HOOE
Lt. Col., A.G.D.
Asst. Adjutant General

HEADQUARTERS ARMY AIR FORCES — COORDINATION											
Chief of Staff	Air Staff	AAG	A-1	A-2	A-3	A-4	A-4(C)	Proj.	Budget	Pers. Liaison	

DECLASSIFIED

SECRET

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET
RESTRICTED

DECLASSIFIED
DOD dir.

DEC 8 194

Revision of Air Board Report.

12-1-41

1. This headquarters concurs in general with the attached proposed training circular. The general comment to be made is that the discussion is not entirely in consonance with the present organization of the Air Force Combat Command.

2. Specific comments are as follows:

a. Paragraph 3 b. Observation aviation is definitely supporting aviation and is included in the Air Support discussion. This subparagraph should be placed under paragraph 3 a. (2). Reconnaissance, as discussed under the assigned to Air Forces the wording at the end of the paragraph should be changed from "were assigned" to "was attached."

HEADQUARTERS ARMY AIR FORCES — COORDINATION											
Chief of Staff	Sec'y Air Staff	A.A.G.	A 1	A 2	A 3	A 4	A-WPD	A-Trng	Budget	Req. Limits	

SECRET
RESTRICTED

Air AG 441 (8)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIF

b. Paragraph 5 a. End of second sentence "except training aviation" should be stricken out. Some small quantity of training airplanes are required in tactical units.

c. Paragraph 5 g. (1). Inasmuch as Air Support Commands have now been organized specifically for the purpose of furnishing direct and close support to ground forces, this paragraph should be revised to accord with the assigned task of the Air Support Commands. The following draft is suggested:

"To provide the necessary air power in support of ground forces operations. While all combat aviation will be trained within the means to provide effective air support to ground forces, certain types will be specifically so trained and will have direct and close support of ground forces as their primary mission. Air support forces include observation aviation needed to provide aerial observation and liaison for the ground troops. Because of the necessity for close control by the ground force commanders, observation aviation must be attached to the ground units specifically supported."

d. Paragraph 5 g. (1). Transport. A statement should be made in this sub-paragraph to the effect that the transport of parachutes and air borne troops is a function of the Support Forces.

e. Paragraph 5 g. Observation Aviation. This paragraph should be deleted as it is included in Support Forces and is covered in paragraph 5 g. above.

For the Chief of the Army Air Forces:

Incls. 2
Adv.Circular.
Ltr.10-30-41 fm
Brig.Gen.Barney L.Tuxhille.
Copies of Incls. not retained.

EDWARD P. CURTIS,
Major, Air Corps,
Secretary of The Air Staff

Dispatched
DEC 4 1941
AAG

HEADQUARTERS ARMY AIR FORCES		COORDINATION									
Chief of Staff	Sec'y Air Staff	A.A.G.	A-1	A-2	A-3	A-4	A-WPD	A-Insp.	Budget	Statistics	

AAF-39

DECLASSIFIED
SECRET

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

Training Circular on Basic Air Force Doctrine.

1. AAF C/S 11/20 1941 In three copies are requested regarding the draft of training circular on "The Army Air Force — Basic Doctrine," [illegible].

C.S. C/AS

Encls-2
Dir. circular.
Ltr. 11/20/41 from
Brig.Gen.Henry L.Sneed.

Dispatched
NOV 17 1941
AAG

HEADQUARTERS ARMY AIR FORCES - COORDINATION

Chief of Staff	Deputy Air Staff	A.A.G.	A-1	A-2	A-3	A-4	A- WPD	A. Insp.	Budget	Sig. Station	

AAF-30

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

1719

CONFIDENTIAL
(SEE AR 380-5)

DECLASSIFIED
DOD Dir.
E.O. 11652 Date 12/18/76

OCTOBER 1941

MONTHLY DIGEST OF ORDNANCE ACTIVITIES

RECEIVED
DEC 16 1941
CLASSIFIED SECTION
AND FILE UNIT

WAR DEPARTMENT

OFFICE OF THE CHIEF OF ORDNANCE

WASHINGTON, D. C.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

Confidential DECLASSIFIED DOD Dir. 5200.9 Sec. A Sec Instr. 5200.1 11/8/76 QE Confidential DECLASSIFIED

MONTHLY DIGEST OF ORDNANCE ACTIVITIES

NOTICE

The Monthly Digest of Ordnance Activities is placed in the "Confidential" Classification. Persons to whom this document is entrusted or disclosed are responsible for its safe custody and security. It will not be discussed nor disclosed in the presence of persons not authorized to have knowledge thereof.

Information as to the contents of this document will be disclosed only to those persons in the Government Service whose duties require that they have such knowledge, and to such other persons of special trust as of necessity must be informed.

Information pertaining to amounts of munitions on hand, rates of production, estimated delivery dates, and similar data, is of such a confidential nature that it will not in the future be furnished to organizations or individuals, without the express approval of the Secretary of War.

OCTOBER

1941

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

MONTHLY DIGEST OF ORDNANCE ACTIVITIES

OCTOBER 1941

CONTENTS

Part I — General Office

Ordnance Highlights of the Month 5
Personnel:
Military 7
Civilian 8
Training:
Military 12
Civilian 14
Plant Protection and Safety 16

Part II — Industrial Service

Procurement:
Summary of Awards to Industry 21
Outstanding Awards to Industry 22
Summary of Act., Ord. Dist. Off. 25
Ordnance Establishments:
Production Highlights 31
Planning Activities 36
New Construction 38
New Facilities 40
Production in New Facilities 41

Part III — Field Service

Stores - Ammunition 45
Stores - General Supplies 48
Planning Activities 52
Publications 53

Part IV — Research & Engineering

Ammunition 65
Artillery 69
Small Arms 72
Tank & Combat Vehicles 75

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

PART I.

GENERAL OFFICE

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

ORDNANCE HIGHLIGHTS OF THE MONTH

GADSDEN ORDNANCE PLANT DEDICATED ON OCTOBER 9, 1941

The Gadsden Ordnance Plant, Gadsden, Alabama, was dedicated on October 9. Construction of the plant began on November 1, 1940, and is practically complete. Shell forging and machining operations have already been started. It is designed to forge and machine high explosive shell and is the largest government-owned plant making shell for artillery use.

GROUND BREAKING CEREMONIES - MISSISSIPPI ORDNANCE PLANT

Ground breaking ceremonies officially launching construction work on the Mississippi Ordnance Plant at Flora, Miss., took place on October 17.

The Mississippi plant will be a bag-loading factory, occupying about 7,000 acres, 20 miles northwest of Jackson. It will load charges for 105 and 155 mm. howitzers and 155 mm. guns.

PUMP COMPANY DELIVERS FIRST COMMERCIALLY-MADE 90 MM. ANTIAIRCRAFT GUN CARRIAGES

The first complete battery of 90 mm. antiaircraft gun carriages to be produced commercially was delivered to the Ordnance Department on October 24 by the Worthington Pump & Machinery Corporation.

PRODUCTION OF 60 MM. SHELLS STARTED AT WOLF CREEK ORDNANCE PLANT

Production of 60 mm. shells at Wolf Creek Ordnance Plant, Milan, Tennessee, is now under way. This plant, designed for loading and assembling shells, fixed rounds, bombs, primers, boosters, and fuses, and the processing of ammonium nitrate, is now approximately 70% complete.

ASSEMBLY OF FIRST COMMERCIALLY-MANUFACTURED 105 MM. HOWITZER

Combined efforts of engineer and production experts of a refrigerator firm, an oil well supplies manufacturer, a railroad car manufacturer, and the Ordnance Department have produced, without preliminary adjustment, the first 105 mm. howitzer composed of commercially-manufactured component parts.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

ASSEMBLY OF FIRST COMMERCIALLY-MANUFACTURED 105 MM. HOWITZER (Cont.)

The howitzer was assembled without difficulty and passed proof tests at the Erie Proving Ground before acceptance.

The tube was manufactured by the Vilter Manufacturing Company of Milwaukee, Wisconsin. This firm customarily makes refrigeration and air-conditioning equipment.

Recoil mechanism was made by the Byron Jackson Company of Los Angeles, producers of oil well supplies and pumps. The Pullman Standard Car Manufacturing Company of Hammond, Ind., normally manufacturers of railroad cars, produced the carriage.

INDIANA ORDNANCE WORKS IN COMPLETE PRODUCTION

All six smokeless powder production lines are now in operation at the Indiana Ordnance Works, Charlestown, Indiana.

Powder manufactured at the Indiana works is bagged at the neighboring Hoosier Ordnance Plant and loaded at various shell loading plants.

OPENING CEREMONIES AT DENVER ORDNANCE PLANT

Five months ahead of schedule, the Denver Ordnance Plant, one of six new facilities for the manufacture of small arms ammunition, was opened on October 25. Of the six new plants scheduled to manufacture this type of ammunition, the Denver plant is the second to go into regular operation.

FIRST COMMERCIALLY-MADE 155 MM. GUNS DELIVERED TO ORDNANCE DEPARTMENT

The first 155 mm. guns to be produced by a commercial manufacturer were delivered to the Ordnance Department on October 29, 1941, by the Mesta Machine Company of Pittsburgh, Pa. Previously, Watervliet Arsenal was the only source of production for these guns.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

MILITARY PERSONNEL

COMMISSIONED

REGULAR ARMY OFFICERS

Number Authorized	415
Number on Branch Duty	389
Number on Other Duty	21
Number Charged to Branch	410
Number Not Charged to Branch	3
Number Detailed from Other Branches	82

PROMOTIONS

To Colonels with rank from 10-14-41:

Lt. Col. Frank J. Atwood	Lt. Col. Edison A. Lynn
Lt. Col. Raphael S. Chavin	Lt. Col. Edward E. MacMorland
Lt. Col. DeRosey C. Cabell	Lt. Col. Hugh C. Minton
Lt. Col. Guy H. Drewry	Lt. Col. Gordon B. Welch
Lt. Col. James L. Hatcher	

RETIRED ARMY OFFICERS

Number Recalled to Active Duty	7

RESERVE OFFICER PERSONNEL

Total for October		3,303
Total for September	3,246	
Gain in October	191	
Loss in October	134	
Net Gain in October	57	
Specialists		50
Total Number on Active Duty (Includes reserve officers on EAD, on request for duty, and on detail in the Ord. Dept.)		3,582

ENLISTED PERSONNEL

Authorized Strength	25,114
Actual Strength (As of August)	26,789
(Above totals include selectees.)	

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CIVILIAN PERSONNEL

EMPLOYEES AT ESTABLISHMENTS UNDER CHIEF OF ORDNANCE

Office of Chief of Ordnance 2,501

General Office	476
Industrial Service	1,237
Field Service	788
TOTAL	2,501

Manufacturing Arsenals 51,239

Arsenal	W.P.A.	Civil Service
Frankford	725	12,492
Picatinny	265	12,021
Rock Island	187	9,816
Springfield	48	7,511
Watertown	218	4,830
Watervliet	80	4,569
TOTAL	1,523	51,239

Field Service Arsenals & Depots 10,238

Anniston	91
Augusta	582
Benicia	773
Charleston	1,013
Curtis Bay	389
Delaware	707
Milan	18
Hansemond	454
Ogden	1,065
Raritan	2,810
Ravenna	3
San Antonio	603
Savanna	1,624
Seneca	4
Wingate	36
Umatilla	66
TOTAL	10,238

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CIVILIAN PERSONNEL

EMPLOYEES AT ESTABLISHMENTS UNDER CHIEF OF ORDNANCE (Cont.)

Edgewood Loading Plant		273
Ordnance Ammunition Prod. Office, Wilmington, Del.		18
New Facilities - Ind. Service		2,213
Alabama Ordnance Works	5	
Baytown Ordnance Works	35	
Indiana Ordnance Works	178	
Kankakee Ordnance Works	113	
Morgantown Ordnance Works	9	
Maumelle Ordnance Works	7	
Ohio River Ordnance Works	2	
Plum Brook Ordnance Works	20	
Radford Ordnance Works	260	
Volunteer Ordnance Works	5	
Weldon Spring Ordnance Works	58	
Arkansas Ordnance Plant	7	
Coosa River Ordnance Plant	1	
Denver Ordnance Plant	149	
Des Moines Ordnance Plant	12	
Elwood Ordnance Plant	144	
Gadsden Ordnance Plant	16	
Hoosier Ordnance Plant	105	
Iowa Ordnance Plant	152	
Kingsbury Ordnance Plant	130	
Lake City Ordnance Plant	104	
Lone Star Ordnance Plant	11	
Louisiana Ordnance Plant	15	
New River Ordnance Plant	58	
Ravenna Ordnance Plant	136	
St. Louis Ordnance Plant	137	
Twin Cities Ordnance Plant	41	
Utah Ordnance Plant	30	
Wolf Creek Ordnance Plant	147	
Detroit Tank Arsenal	126	
TOTAL	2,213	
Proving Grounds		4,661
Aberdeen	2,571	
Erie (including Depot)	1,480	
Jefferson	562	
Southwestern	48	
TOTAL	4,661	

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

EMPLOYEES AT ESTABLISHMENTS UNDER CHIEF OF ORDNANCE (Cont.)

Ordnance Procurement Districts		11,355
Birmingham	256	
Boston	499	
Chicago	1,302	
Cincinnati	973	
Cleveland	1,317	
Detroit	1,191	
Hartford	1,287	
New York	687	
Philadelphia	1,482	
Pittsburgh	956	
Rochester	742	
St. Louis	480	
San Francisco	70	
Los Angeles Ord. Region	113	
TOTAL	11,355	

EMPLOYEES AT ESTABLISHMENTS NOT UNDER CHIEF OF ORDNANCE

Corps Areas		997
I Corps Area	170	
II Corps Area	116	
III Corps Area	87	
IV Corps Area	193	
V Corps Area	83	
VI Corps Area	29	
VII Corps Area	55	
VIII Corps Area	177	
IX Corps Area	87	
TOTAL	997	

EMPLOYEES AT ESTABLISHMENTS NOT UNDER CHIEF OF ORDNANCE (Cont.)

Miscellaneous		1,364
Columbus General Depot	119	
New Cumberland Gen. Depot	85	
New Orleans General Depot	7	
Panama Pacific Gen. Depot	170	
Schenectady General Depot	74	
Shanaktin General Depot	6	
Hawaiian Ord. Depot	261	
Philippine Ord. Depot	521	
Puerto Rican Dept.	41	
A.F.C.C., Bolling Field	69	
U.S. Military Academy	5	
Wright Field	6	
TOTAL	1,364	

GRAND TOTAL CIVILIANS 84,859

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

NEW COURSES

Oil Gears for 37 mm Antiaircraft Fire Control Equipment

To be given at - Westinghouse Manufacturing Co., East Springfield, Mass. and Gilbert and Barker, Springfield, Mass.

Date - December 1st.

Open to - Coast Artillery Personnel, Ordnance Military Personnel and Ordnance Civilian Machinists.

37 mm Cannon, M4 (Aircraft)

To be given at - Colt's Patent Firearms Co., Hartford, Conn.

Date - November 10th.

Length of Course - 3 weeks

Open to - Ordnance Officers on duty with the Air Force.

Enlisted Specialists Artillery Course

To be given at - Ordnance School, Aberdeen P. G.

Date - December 1st.

Subdivisions of Course - Antiaircraft Artillery, Divisional Artillery and Heavy Artillery (155 mm Gun & Carriage, M1)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

FIRING RANGE AT ORDNANCE SCHOOL

War Department approval has been secured covering a new $30,000 firing range laboratory building to be constructed at the Ordnance School. This laboratory will afford an opportunity for technical students in artillery and small arms courses to proof fire weapons after instructional disassembly and assembly.

SCHOOL QUOTAS

With the completion of Fall maneuvers the quotas for attendance of military personnel at the Ordnance School are being fully absorbed. In order to facilitate the reallotment of any unused quotas, it is desirable that reports of all acceptances and rejections of quotas be submitted to the Office of the Chief of Ordnance, attention of Military Personnel and Training Division, at the earliest practicable time and not later than the fifth of the preceding month.

NEW MANUALS ON AVIATION ORDNANCE

Following new manuals are being published by the Ordnance School for distribution to Ordnance aviation units:

"Aviation Ordnance Organization"
"Ammunition Supply in the Air Force"

REFERENCE LIBRARY FOR FIELD UNITS

A small library of commercial handbooks is being compiled for Ordnance field units. These will consist of technical reference data for machinists, welders, painters, electricians, and other technicians. It is anticipated that the complete library will be distributed during the coming month.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CIVILIAN TRAINING

ORDNANCE DEPARTMENT EMPLOYEES IN TRAINING

October 1941

ESTABLISHMENT	INSPECTORS												
	Artillery Ammunition	Optical Instruments	Mdg. & Assembly, Ams.	Bag Loading	Powder & Explosives	Artillery Carriages	Automotive	Common	Machine Gun Material	Tng. for Inspection	Defense Tng. Courses	Miscellaneous
ARSENALS												
Frankford	41	20						10				
Picatinny			86	9	21							
Rock Island						26	23		15			
Springfield									5			
Watertown												5
Watervliet								16				5
P.S. DEPOTS												
Curtis Bay	4											
Delaware	3											
Nansemond	3											
Ogden	1											
Raritan	4											
Savanna	2											18
ORDNANCE WORKS												
Kankakee					15							
ORDNANCE DISTRICTS												
Birmingham										50		
Boston										50	36	
Chicago										460		
Cleveland										30		
Detroit										30		
Hartford										55		
New York										25		
Philadelphia										47		
Rochester										60		
ABERDEEN P.G.												

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CIVILIAN TRAINING

ORDNANCE DEPARTMENT EMPLOYEES IN TRAINING

October 1941

ESTABLISHMENT	MECHANICAL TRADES											
	Misc. Mechanics	Apprentice Machinists	Apprentice Girls	Instrument Repairmen	Supervisory Employees	Key Employees	Machine Operators	Explosive Operators	Sub-Inspectors	Armament Machinists	Automotive Mechanics	Extension Trade Trg.
ARSENALS												
Frankford	136	452	246		25	6						21
Picatinny		80			366	48	50	832	60			
Rock Island		65				90				65	40	
Springfield		85					440					375
Watertown		127			120		395					590
Watervliet	20	176			56	25	50					550
P.S. DEPOTS												
Augusta				25							25	
Benicia				9							25	
Curtis Bay					1	10						
Erie	35											
Nansemond	12				4							
Ogden					1			200				
Raritan					2							
San Antonio				82							25	
Savanna					1	40		50				
OTHER PLACES												
I Corps Area	10											
IX Corps Area												10
Sperry Gyroscope										40		
ABERDEEN P.G.		30				8	31			15		

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

PLANT PROTECTION

Approximately 2600 industrial plants working on Ordnance contracts have been assigned to the Chief of Ordnance by the Under Secretary of War for adequate plant protection against sabotage. The inspection of these plants is accomplished through the Procurement District Offices. Each office has a Plant Protection Officer assisted by civilian plant protection inspectors.

The number of facilities assigned to a district office varies from 33 to 566 private plants. Many of these plants have been surveyed during the past two years by the Federal Bureau of Investigation, which organization made recommendations to the presidents of the companies concerned for more adequate protection against possible sabotage.

The outstanding item in plant protection is that of fire prevention. A plant protection inspector determines the present safeguards against fire and sabotage and recommends additional safeguards where his inspection indicates hazards and plant protection weaknesses.

Plant managements have been very cooperative in placing in effect recommendations at their own expense. To date 1119 plants have been inspected and reported upon. Twenty commissioned officers and 91 plant protection inspectors are on duty in the various Procurement Districts. The protection of many privately owned facilities has been markedly increased. Critical plants are given priority over less important plants. Many plants are re-inspected from time to time as conditions warrant.

"SAFETY DIGEST"

The "Safety Digest", a new periodical of the Office of the Chief of Ordnance, Plant Security Division, has recently made its debut. This publication is issued in the interests of industrial safety. It contains accident experience summaries diagramatically illustrated together with analysis of the accidents. Brief descriptions of the more important accidents are included. Items on safety appearing in various trade publications are abstracted in the "Digest." The tables and analysis appearing in the first issue are based upon 13,192 reports of injuries sent to the Plant Security Division during the three months July, August, and September in accordance with Ordnance Department Safety Bulletin No. 14. All establishments that have not yet received copies of the "Safety Digest" and desire to be placed on the mailing list should communicate with the Office of the Chief of Ordnance, Plant Security Division.

INDUSTRIAL HEALTH SURVEYS

The War Department has requested that the Division of Industrial Hygiene, National Institute of Health, conduct studies of industrial health hazards in Government-owned but privately operated defense plants. The responsibility for the evaluation and control of health hazards in such plants is thereby definitely placed upon the Division of Industrial Hygiene, rather than upon the State industrial hygiene units. This decision should dispel any doubt or confusion on the question of responsibility which has arisen in the various state units.

The personnel of crews assigned to this work consists of surgeons, sanitary engineers, public health engineers, and chemists. A tentative program for inspection and first reconnaissance trips of Ordnance contract-operated facilities will be as follows:

During month of November:	
Indiana Ord. Works	Iowa Ord. Plant
Missouri Ord. Works	Lake City Ord. Plant
Radford Ord. Works	St. Louis Ord. Plant
Weldon Springs Ord. Wks.	
During month of December:	
Baytown Ord. Works	Kansas Ord. Plant
Jayhawk Ord. Works	Lone Star Ord. Plant
Denver Ord. Plant	Utah Ordnance Plant
During month of January:	
Kankakee Ord. Works	Hoosier Ord. Plant
New River Ord. Works	

PLANT VISITS

The number of requests for visits to Ordnance Establishments and plants having Ordnance contracts has steadily increased. The Plant Security Division, through procedures developed for handling visits, expect to assist these necessary visits and at the same time to so control them as to prevent interference with production.

SAFETY BULLETINS

Throughout the month Safety Bulletins were issued outlining instructions to be followed by Ordnance establishments in order to standardize their procedures in compiling injury statistics and data on accident prevention, thereby permitting a comparison of the accident record of one establishment with another on a recognized and acceptable uniform basis.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

PART II

INDUSTRIAL SERVICE

SUMMARY OF AWARDS AND COMMITMENTS MADE TO INDUSTRY, F.Y., 1942

(Cumulative Awards Through October 1941)

Awards for Equipment and Ammunition	Amounts*
Educational Orders	$ 18,535.98
Small Arms & Infantry Weapons	74,337,519.92
Artillery Material	87,333,970.36
Anti-Aircraft Material	27,733,486.28
Aircraft Armament	54,526,662.12
Miscellaneous Fire Control	38,092,724.73
Miscellaneous Ordnance & Ordnance Stores	47,866,459.70
Tanks & Other Ordnance Combat Vehicles	189,825,889.51
Ordnance Tractors & Special Vehicles	1,057,256.40
Miscellaneous Ordnance Automotive Supplies	541,843.15
Small Arms Ammunition	66,758,986.48
Artillery Ammunition	242,391,342.77
Explosives, Propellant Powders, & Miscellaneous Ammunition	681,034.03
Aircraft Bombs & Pyrotechnics	57,472,078.79
Miscellaneous Small Orders	4,560,051.59
**GRAND TOTAL	$887,197,841.81
**Includes Classified Awards Amounting to	$266,449,655.42

* * *

Construction of New Facilities	$498,002,046.00

* * *

Orders Placed with Arsenals and New Ordnance Facilities	$851,537,018.88***

***In addition, about $270,000,000 worth of production orders had been placed by Oct. 31 on which certain papers had not been finally processed.

Defense Aid Awards	$802,391,756.11
Mixed Awards	$ 31,488,596.29

*Included in these amounts are orders for items of issue being procured direct from private industry, and orders for raw materials and supplies to be used by arsenals in their manufacturing operations.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

OUTSTANDING AWARDS TO INDUSTRY IN OCTOBER 1941

Small Arms Materiel	
Colt's Patent Firearms Mfg. Co. BMG, Cal..50, w/extra parts	$ 6,525,343.91
Western Cartridge Co. M1 Rifles, Parts, & Tools	5,791,200.00
High Standard Mfg. Co. BMG, Cal..50, M2 AC, Basic, & extra parts	6,755,791.24
General Motors Corp. BMG, Cal..30 & extra parts, M1919A4	9,489,570.00
The Union Fork & Hoe Co. Bayonets, M1905	1,252,890.56
Small Arms Ammunition	
American Brass Co. Brass Cartridge Case & Primer Cups	1,047,199.50
U. S. Cartridge Co. A.P. Cartridges, Cal..50, M2	6,420,987.20
Artillery Materiel	
American Type Founders, Inc. 37 mm Guns, M6 w/extra parts	2,551,500.00
National Pneumatic Co. 37 mm Guns, M6 & spare parts	3,848,460.00
United Engineering & Foundry Co. 105 mm How., M2A1 w/spare parts	1,021,377.00
Byron Jackson Co. Recoil Mechanisms, M2	1,163,843.64
Worthington Pump & Machinery Corp. Gun Mounts, 90 mm, M1A1 and spare parts	6,147,400.00

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

PROCUREMENT

OUTSTANDING AWARDS TO INDUSTRY IN OCTOBER 1941

Artillery Materiel(Cont.)

United Shoe Machinery Corp. 37 mm Guns, M6	$ 1,725,000.00
The Wellman Engineering Co. Barbette Carriage, 6", T2	3,485,420.00

Artillery Ammunition

Rockwood Alabama Stone Co. 155 mm H.E. Shell, M102, machining only	1,026,150.00
Stewart-Warner Corp. P. D. Fuse, M48 (metal parts)	2,607,267.90
The S. M. Jones Co. A. P. Shot, 37 mm, forging	2,600,000.00
Feltex Corp. Containers, Fiber for packing 3", 81 mm & 105 mm ammunition	4,402,760.04
Philco Corp. Fuse, P. D., M48	2,590,500.00
Pullman Standard Car Mfg. Co. 155 mm H.E. Shell, M102 (complete)	3,070,000.00
Stamford Rolling Mills Co. Discs	1,028,595.20
U. S. Hoffman Machinery Corp. 155 mm H.E. Shell, M102 (machining only)	1,648,000.00
Reynolds Research Corp. Fiber Containers for 155 mm charges	1,070,204.77
W. P. & John Barnes Co. A.P. Shot, 37 mm, M51B2, machining, heat treating and banding	4,000,000.00
Willys-Overland Motors Inc. 155 mm H.E. Shell, M102 (complete)	5,078,370.00

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

PROCUREMENT

OUTSTANDING AWARDS TO INDUSTRY IN OCTOBER 1941

Artillery Ammunition (Cont.)

The Hoover Co. P. D. Fuze, M51 (less booster, M21)	$ 1,984,000.00
E. I. du Pont de Nemours & Co. Trinitrotoluene, Grade 1	1,512,500.00
Chase Brass & Copper Co., Inc. Cartridge Case, 37 mm, Mk. III A2 & 75 mm, M18	1,507,485.00

Miscellaneous

Mergenthaler Linotype Co. Range Quadrant, M5, and spare parts	1,148,126.75
The Timken Detroit Axle Co. Transmissions & Misc. Parts for Light Tanks	1,242,258.95
Unexcelled Mfg. Co. Flare, Aircraft, Para. M26 (less fuse)	1,462,500.00
A. O. Smith Corp. Bombs	28,981,300.00
Eastman Kodak Co. Optical materiel	2,026,875.51
Nash Kelvinator Corp. Binoculars, M3 (6 x 30)	2,137,500.00
Union Oil Co. Toluene	2,100,000.00
Shell Oil Co. Nitration Toluene	6,100,000.00

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SUMMARY OF ACTIVITIES, ORDNANCE DISTRICT OFFICES

STATUS OF EDUCATIONAL ORDER PROGRAM

Contracts Awarded	93
Contractors Involved	82
Contracts Completed to Date	63

STATUS OF THE PRODUCTION STUDY PROGRAM

Contracts Awarded	76
Contractors Involved	72
Studies Involved	95
Studies Completed and Received	75
Study Contracts Cancelled	5

PROCUREMENT PLANNING ACTIVITIES

All Ordnance Districts have been requested to make a study of sources for manufacture of gears and crankshafts for Guiberson Diesel Engines to assist Guiberson Diesel Engine Company in meeting the accelerated Tank program. Preliminary Reports have been received and detailed reports are to be submitted to the St. Louis Ordnance District for direct coordination with the manufacturer.

DISPLAY ROOMS

The District Offices are continuing to add photographs and samples to their established Display Rooms from time to time as new requirements arise in the Districts relative to planning for the procurement of various items.

HIGHLIGHTS IN THE ORDNANCE DISTRICTS

Birmingham Ordnance District

Over 60 facilities were visited during the month for procurement planning purposes.

The value of contracts distributed during the month amounted to approximately $1,500,000.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SUMMARY OF ACTIVITIES, ORDNANCE DISTRICT OFFICES

HIGHLIGHTS IN THE ORDNANCE DISTRICTS (Cont.)

Birmingham Ordnance District (Cont.)

Excluding contracts under $100,000, inspection is being conducted on 76 prime and subcontracts the value of which approaches $35,000,000.

The District Officers cooperated with the Alabama State Fair in furnishing an Ordnance exhibit for the fair. The exhibit was well received and created favorable comment.

Boston Ordnance District

Over 60 facilities were visited for procurement planning purposes.

The total number of Inspection Requisitions and Contracts in force is 820; the value of the contracts approaching $60,000,000.

The District Office furnished a display of Ordnance materiel at the Defense Conference of the Associated Industries of Massachusetts, held at Copley Plaza Hotel in Boston.

Chicago Ordnance District

Over 150 facilities were visited to obtain industrial surveys and for procurement planning purposes during the month.

New contracts awarded during the month were valued at over $21,000,000.

The total number of all Inspection Contracts and Requisitions in force is 6,411 amounting to over $360,000,000.

During the past month nearly 5,000 people visited the District Office.

A Defense Clinic under the auspices of the Contract Distribution Service was held in the Stevens Hotel, Chicago.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

HIGHLIGHTS IN THE ORDNANCE DISTRICTS (Cont.)

Chicago Ordnance District (Cont.)

The District Office furnished a large exhibit for the occasion and provided that sufficient officers and civilian engineers were present at all times to discuss Ordnance problems with hundreds of subcontractors.

A representative of the District Office met with the president of the Chicago Museum of Science and Industry relative to the District supplying the museum with Ordnance items from which a permanent display is to be made.

Cincinnati Ordnance District

Visits were made to 190 facilities for the purpose of obtaining industrial surveys and planning for the procurement of Ordnance materiel.

Distribution was made of 29 new contracts during the month.

Inspection is being conducted on 2363 prime and subcontracts amounting to a total value of over $150,000,000.

Presentation ceremonies for the Executive Officer during the month were: the one millionth 37 mm, shell, from the Delco Div., General Motors Corp., Dayton, Ohio; the six millionth 20 mm, fuze, from the National Cash Register Co., Dayton, Ohio; the one hundred thousandth 75 mm, M-64 shell, from the Kingston Products Corp., Kokomo, Indiana.

The Executive Officer was a guest of the Cincinnati Chamber of Commerce at a reception and dinner in honor of the British Management, Labor Mission, touring industrial centers of the United States.

Cleveland Ordnance District

Industrial surveys were made of 132 new facilities.

Contracts approved for award to facilities in the district during the month amounted to $12,000,000.

On contracts valued over $10,000, inspection is being conducted on prime and subcontracts valued at $250,000,000.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

HIGHLIGHTS IN THE ORDNANCE DISTRICTS (Cont.)

Detroit Ordnance District

Visits were made to 154 facilities for procurement planning purposes.

The value of contracts distributed during the month amounted to over $5,000,000.

Inspection is being conducted on 2886 prime and subcontracts, valued at over $115,000,000.

The District Office established a suboffice in the Book-Cadillac Hotel for the convenience of the Chiefs, Assistant Chiefs and Executive Officers from other Districts on the occasion of the 22nd Annual Meeting of the Army Ordnance Association, held in Detroit.

Hartford Ordnance District

Visits were made to 92 facilities for procurement planning purposes.

Over $6,000,000 in contracts were approved during the month.

Inspection is being conducted on 1754 prime and subcontracts valued at over $320,000,000.

A presentation ceremony was held at the Worthington Pump and Machine Corp., Holyoke, Mass. on Oct. 24, 1941, in connection with the acceptance by the Government of the first 90 mm, A.A. Mount, produced in that plant.

New York Ordnance District

Visits were made to 123 plants for procurement planning purposes.

Awards totalling over $9,000,000 were made during the month.

Inspection is being conducted on 1428 prime and subcontracts valued at over $175,000,000.

R. Hoe & Company producing 90 mm Recoil Mechanisms, is delivering four per day as against two and one-half per day scheduled in their contract.

Deliveries of fire control equipment valued at over $1,000,000 were made during the past month.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

HIGHLIGHTS IN THE ORDNANCE DISTRICTS (Cont.)

Philadelphia Ordnance District

Surveys were made of 69 new facilities during the month.

The total number of all Inspection Contracts and Requisitions in force is 8337, valued at over $475,000,000.

The Executive Officer was presented with: the millionth 60 mm Projectile, by the Auto Specialties Mfg. Co., Lehigh Foundries and Merchant & Evans at Lancaster, Pa.; the millionth 20# Fragmentation Bomb, by Ed. G. Budd Co., Philadelphia; the millionth M-48 Fuze by the Philco Corp.

The District Office provided a display of Ordnance items at the National Metals Congress held in Philadelphia.

Sixty-one days from breaking ground the York Safe & Lock Co. erected the building, installed machinery and delivered one machined set of Disston Armor Plate.

Pittsburgh Ordnance District

Surveys were made of 63 new facilities.

Total number of all Inspection Contracts and Requisitions in force is 1147 valued at over $55,000,000.

Rochester Ordnance District

Industrial surveys were made of 40 new facilities during the month.

Total number of prime and subcontracts being inspected is 1262, valued at approximately $350,000,000.

On October 21, a Defense Production Clinic sponsored by the Erie County Council of Defense was held in Buffalo, N.Y. at which approximately 550 facilities were represented. This is the fifth such clinic which has been held in cities in this District, all of which have been attended by representatives of the District Office. These clinics were specifically for subcontractors, but have been found most helpful by the District Office in acquainting manufacturers with Ordnance requirements and tolerances, and particularly in impressing upon manufacturers the quality required in the manufacture of Ordnance materiel.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

HIGHLIGHTS IN THE ORDNANCE DISTRICTS (Cont.)

St. Louis Ordnance District

Visits were made to 140 facilities for procurement planning purposes.

Inspection is being conducted on 161 prime and subcontracts amounting to $93,000,000.

The Executive Officer participated in the ground breaking ceremony held at Garland, Texas, at the site where a plant to manufacture diesel tank engines will be erected by the Guiberson Diesel Engine Company.

San Francisco Ordnance District

Visits were made to 175 facilities for procurement planning purposes.

Inspection is being conducted on 112 prime and subcontracts valued at over $16,000,000.

Representatives of the District Office attended a meeting of the California Defense Council at Sacramento, California.

Representatives of the Seattle Sub-Office took part in the Defense Clinic of the Seattle Manufacturers Association, and a statewide Defense Meeting of the Washington Chamber of Commerce.

The District Office was also represented at a manufacturers meeting sponsored by the Bank of America at Southgate, California, and at a meeting of the Pasadena Mfg. Association at Pasadena, California.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

PRODUCTION HIGHLIGHTS

FRANKFORD ARSENAL

Production Schedules

Total production schedules being met with exception of schedule of production for Cal. .45 ammunition.

Small Arms Ammunition Department

Inaugurating full 7 days per week, 24 hours per day operation, using swing-shifts, whereby each employee works 6 days per week but the plant operates 7 days per week.

Artillery Ammunition Department

Total tonnage of items shipped to stores in October 4,013

Tonnage shipped to stores in September 3,997

This is a 6% increase per working day.

Total tonnage of items shipped out of Arsenal during October 3,871

Total tonnage shipped out in September 4,044

Amount shipped out per working day remains same as in September (Av. 149 tons per day.)

Mechanical Time Fuze Shop

2,500 Laminated Plate Fuzes M43A3B1, W.O. 9137-M3 completed October 7th. All shop tests satisfactory.

100 T17 Low Rotational Velocity Fuzes, W.O. 9137-M3 completed. Estimated Date of shipment, October 28th.

Work progressing satisfactorily on 50 - T37 Aircraft Fuze, W.O. 9137-M3 for use against light armor plate. Will be completed sometime in November.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

ORDNANCE ESTABLISHMENTS

PRODUCTION HIGHLIGHTS

PICATINNY ARSENAL

Shipment of Gages

Complete shipments made during the month to following plants:

Curtis Bay Ord. Depot	- Propellent Charge Gages for 6" Howitzer.
Elwood Ord. Plant	- Fuze, Anti-Tank Mine, H.E. M1 Anti-Tank Mine, H.E. M1
Iowa Ordnance Plant	- 155 mm How. H.E., M102 81 mm M43A1, H.E. & Practice
Ravenna Ord. Plant	- 155 mm Gun M1 Shell H.E. M101
Wolf Creek Ord. Plant	- Percussion Primer M23A1

Tetryl

Production increased from 3,000 to 6,700 lbs. daily.

Smokeless Powder

New cotton nitrating line operating on a three-shift basis since Oct. 27th. Daily production is approximately 10,000-lbs.

Fuse and Booster Loading

Production rates accelerated to point where it has become possible to discontinue third working shift on several of fuse and booster loading lines. Production schedules established by Chief of Ordnance being maintained in some cases by working existing equipment on single-shift basis.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

ORDNANCE ESTABLISHMENTS

PRODUCTION HIGHLIGHTS

ROCK ISLAND ARSENAL

New Manufacture

Completed during the month and turned over to Field Service:

Carriages, 75 mm Gun, M2A3, w/Recoil Mechanism, M1897A7 & 75 mm Gun, M1897A4	58
Carriages, Gun, 105 mm, M2 w/Recoil Mechanism, M2	91
Mechanism, Recoil, 37 mm Gun for Medium Tank, M3	65
Mechanism, Recoil, 105 mm Howitzer, M2	119
Mechanism, Recoil, 155 mm Gun, M3, 155 mm Gun Carriage, M1	56
Mounts, Tripod, Machine Gun, Cal..30, M1917A1	124
Mounts, Tripod, Cal..50, A.A. Machine Gun, M2	10
Mounts, Subcaliber, Cradle, for Tripod Mount, Cal..50, A.A., M2	74
MMG, Cal..30, M1919A4, Fixed	200
Links, Metallic Belt, Cal..30, M1	4,950,100
Links, Metallic Belt, Cal..50, M2	1,650,100
Cases, Cartridge Storage, Mk. III, Propelling Charges for 16" Gun, M1919 & 16" How., M1920, 12" Mortar, M1890-08; M4, 16" Gun, Mk. II, Mod. 1	2,268

SPRINGFIELD ARMORY

U.S. Rifle, Cal..30, M1

Rifles produced from Oct. 1 to Oct. 24	21,000
Rifles delivered at the rate of 1,000 per day.	
Total produced to October 31	306,377

Spare Parts & Accessories

Large quantity spare parts and accessories produced for M1 Rifle and Brown. Machine Guns, Cal..30 & Cal..50.

Additional Barrels Produced

9.86-lb., A.C., Cal..50 D35348A	3,660
Watercooled, D28271	10,312
B.A.R., Cal..30, M1918 modified to M1918A2 completed to Oct. 30, 1941	14,371

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

ORDNANCE ESTABLISHMENTS

PRODUCTION HIGHLIGHTS

WATERTOWN ARSENAL

X.O. 300 - 38 - 5/38 Cal. Twin Mounts

5 mounts completed this month, making a total of 26 completed to date.

X.O. 373 - 379 - 37 mm Gun Carriages M3

21 mounts completed this month, making a total of 376 mounts completed to date.

X.O. 522 - 414 - 90 mm Gun Carriages

29 carriages completed this month, making a total of 91 completed to date.

X.O. 535 - 182 - 90 mm Recoil Mechanisms

26 recoil mechanisms completed this month, making a total of 104 completed to date.

Centrifugal Casting

Rated capacity of Casting Section ..... 90 guns per day.
Average production for October ..... 89 guns per day.
Total metal melted for October ..... 3,714,000 lbs.

Both "pounds melted" and "total guns cast" are a record for Casting Section. 2312 cast during this month, included 37 mm, 57 mm, 3" A.A. liners, 90 mm & 105 mm How.

Coldworking

New record established in the coldworking of guns listed below:

90 mm new taper	97
90 mm old taper	100
105 mm howitzer	204
Total	401

1 - 105 mm howitzer rejected after coldworking.

On October 21, new record established for 1 day's production: 12 - 90 mm and 10 - 105 mm Hows.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

ORDNANCE ESTABLISHMENTS

PRODUCTION HIGHLIGHTS

WATERVLIET ARSENAL

37 mm Guns, M3	214
37 mm Tubes, M4	122
75 mm Guns, M2	142
75 mm, M2 Rifling Bars (rifling grooves cut for C.H. Cowdrey Machine Works)	3
75 mm Tubes, M2	11
75 mm Gun Tubes, M2 (coldworked only, for Empire Ord.)	120
75 mm Gun, M3	1
81 mm Mortars & Mounts, M1	54
90 mm Guns, M1	58
90 mm Gun Tubes, M1	59
105 mm How. Tubes, M2A1 (coldworked only, for United Engineering & Foundry Co.)	44
5" 51 Cal. Navy Gun Mk. XV, relined	1
155 mm Guns, M1A1	5
155 mm Gun Tubes, M1A1 (coldworked only, for Mesta)	16
8" Guns, Mk VI Mod. 3A2, relined	2
8" Howitzers, M1	7
16" Navy Gun Mk. VI	1

Breech Ring Castings for 75 mm Guns M3

Order placed with Ohio Steel Foundries for 5000 breech ring castings. Delivery rate of 2500 per month has been established.

Quotations

Firm quotations on the following have been received:

*Olds Motor Works, 75 mm Guns, M3
*Munitions Manufacturing Corp., 3" Guns
Chain Belt Company, 4.7" Guns
*Vilter Manufacturing Company, 3" Guns, T10
Rochester Ordnance Corp., 75 mm Guns & 3" Guns

(*Recommendation for award forwarded the Chief of Ordnance)

Expansion of Facilities for Production of Gun Forgings

Negotiations underway at the following:

American Locomotive Works
Adirondack Foundries & Steel, Inc.
Mitchell Steel Company
National Supply Company
Star Drill Company
Jones & Loughlin Steel Corp.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

PLANNING ACTIVITIES

FRANKFORD ARSENAL

Descriptions of Manufacture

In Progress:

"Cartridge, Pistol Ball, Cal..45, M1911" (Rev.)
"Cartridge, Tracer, Cal..45, M1" (Rev.)
"Cartridge, Ball, Cal..50, M2" (Rev.)
"155 mm Forging, M101"
"155 mm Forging, M102"
"75 mm S.A.P. Shot, M72"
"90 mm Shell, M58"
"60 mm Shell, M49A2"
"105 mm Forging (How.), M1"
"75 mm Forging, M48"
"75 mm Cart. Case, M18"

Completed:

"75 mm Shell, M48"

PICATINNY ARSENAL

Loading Lines

Drawings for following have been approved:

"Typical Fuze Loading Line for Groups I-A, II-A and III-A Loading Lines"
"Minor Caliber Fuze Line"
"Burster Line for Ord. Chemical Assembly Plant"
"Ordnance Chemical Assembly Line"

Drawings for following submitted for approval:

"Artillery Primer Loading Line for minor caliber ammunition"
"Artillery Primer Loading Line for Group I-A Loading Line"
"Typical Booster Loading Line for Groups I-A, II-A and III-A Loading Lines"

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

PICATINNY ARSENAL (Cont.)

Lists of Tool and Equipment Drawings

An addendum to above prepared and distributed to various loading plants for each Typical Loading Line.

ROCK ISLAND ARSENAL

Descriptions of Manufacture

Tentative copies of the following have been sent to Chief of Ordnance for approval:

"Carriage, 75 mm Howitzer, M3A1"
"Mount, Tripod, Machine Gun, Cal..30, M2"

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

NEW CONSTRUCTION

FRANKFORD ARSENAL

C.O.M. Program	Completed
Small Arms Research Lab. & Ballistic Range, #150	98%
Two Field Service Storehouses	32%
Small Arms Ammunition Dept. Office Bldg.	52%

Rehabilitation Program

Installation of new roofing continuing.

Loading House for black powder components of Mech. Fuzes, Bldg. #68	100%
Tin Shop Bldg. No. 125	95%
Electrical Shop, Bldg. 126	75%
Improvements to 600 yard Firing Range (except for additional work not included in program)	100%

ROCK ISLAND ARSENAL

Percentage of completion for principal projects:

Large Warehouse	15%
Sewage Disposal System	30%
Administration Building	26%
Heat Treat & Forge Shop	80%
Paving of Rodman Avenue	100%

SPRINGFIELD ARMORY

Work continued on Bldg. 214.

Motor Vehicle Storage Bldg. #25 completed and put into service.

Reconstruction of Bldg. #32 continued and nearing completion.

Interior of Bldg. #28 progressing satisfactorily.

C.O.M. Project

New Field Service Building is up to second floor and work is ahead of schedule.
Bldg. #28 progressing satisfactorily.

W.P.A. Project

W.P.A. Project #26 covering motorizing of machinery continued and 18 machines were motorized.

NEW CONSTRUCTION

WATERTOWN ARSENAL

Bldg. 32 - Additional Machine Shop Area
Concrete floor is completed in 6 bays in west end, 65% completed in south bay.

Bldg. 38 - Service Division - Increase of Floor Space
Completed. Gives the Service Division approximately 4800 sq. ft. additional floor area.

Bldg. 41 - Foundry - Additional Centrifugal Casting Facilities
Construction progressing satisfactorily.

Bldg. 421 - Leanto
Construction delayed by non-arrival of structural steel.

Bldg. 421 - Reroofing North Leanto
35% complete.

New Warehouse
Approximately 38% complete.

WATERVLIET ARSENAL

Loop Distribution System
Completed.

Addition to Heat Treating Building
Pits installed and floors completed.

Additions to Big Gun Shop
Additions started - footing placed on N.W. addition.

Railroad Bridge
Bridge removed. Railroad track taken up. Grading will start this week.

Alteration and Additions to Broadway Storehouse
Work continues to adapt it to manufacturing operations.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

NEW FACILITIES

ADDITIONAL MUNITIONS PLANTS

1. Name - Wabash River Ordnance Works
   Location - Vicinity of Newport, Indiana
   Purpose - Manufacture of high explosives
   Operator - E. I. du Pont de Nemours & Co.
   Estimated Cost - $53,000,000

2. Name - Kings Mills Ordnance Plant
   Location - Kings Mills, Ohio
   Purpose - Manufacture of small arms ammunition
   Operator - Remington Arms Co.
   Estimated Cost - $6,000,000

EXPANSION OF EXISTING FACILITIES

1. Detroit Tank Arsenal
   Production facilities to be doubled.
   Estimated additional cost of $18,875,000.
   Total estimated cost of entire plant - $38,875,000.
   Operator - Chrysler Corporation.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

PRODUCTION IN NEW FACILITIES

INITIAL OPERATION

Kankakee Ordnance Works

Revised Dates of Initial Operation:

No. 2 Power House	11/25/41
No. 2 Acid Area	12/1/41

	TNT	DNT	TETRYL
No. 1 Line			10/27/41
No. 2 Line			11/5/41
No. 3 Line	10/4/41	10/20/41	11/10/41
No. 4 Line	10/20/41		11/17/41
No. 5 Line	10/30/41		12/1/41
No. 6 Line	11/10/41		12/3/41
No. 7 Line	12/8/41		12/15/41
No. 8 Line	12/13/41		12/17/41
No. 9 Line	12/17/41		12/22/41
No.10 Line	12/22/41		12/26/41
No.11 Line	12/26/41		1/10/42
No.12 Line	12/30/41		1/12/42

Indiana Ordnance Works

First Stage Powder initiated operations on C Line September 30, 1941, with the manufacture of 240 mm Howitzer Powder.
D Line operation was initiated on October 8, 1941, with the manufacture of 155 mm Howitzer M2 Powder.

Elwood Ordnance Plant

Group I Line started operations on October 1, 1941.

Radford Ordnance Works

All lines in operation.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

INITIAL OPERATION (Cont.)

New River Ordnance Plant

Line No. 3 started operations on October 10, 1941.

Hoosier Ordnance Plant

3rd Prop. Line started operations on October 9, 1941.

4th Prop. Line started operations on October 15, 1941.

Bag manufacturing started September 22, 1941.

Line No. 7 (Propellant charge line) started operations on October 9, 1941.

Line No. 8 (Propellant charge line) started operations on September 1, 1941.

Weldon Spring Ordnance Works

Line No. 1, TNT, in operation on October 1, 1941.

Line No. 2, in operation on October 22, 1941.

Kingsbury Ordnance Plant

37 mm Line in operation on October 30, 1941.

Wolf Creek Ordnance Plant

60 mm Line started operations on September 20, 1941.

The following lines will be ready for acceptance and initial operation on November 10, 1941:

Line B, 20 and 37 mm
Line I, Black Powder Pelleting
Line H, Artillery Primers

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

PART III

FIELD SERVICE

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

STORES - AMMUNITION

AMMUNITION DEPLETIONS

The value of ammunition lost through deterioration, except small arms, amounted to ..... $ 273,603.60

AMMUNITION ACCRETIONS

Small Arms Ammunition

Cartridge, Ball, Cal..22	65,000,000
Cartridge, Armor Piercing, Cal..30	5,994,000
Cartridge, Armor Piercing, Cal..50	3,197,600
Cartridge, Ball, Cal..30	66,385,500
Cartridge, Ball, Cal..45	40,844,000
Cartridge, Dummy, Cal..30	36,940
Cartridge, Tracer, Cal..30	15,982,500
Cartridge, Tracer, Cal..45	1,400,000
Cartridge, Tracer, Cal..50	3,690,050
Link, Metallic Belt, Cal..30	13,000,000
Link, Metallic Belt, Cal..50	13,364,000
Shell, Shotgun, 12 ga. brass, #00 buckshot	250,000
Shell, Shotgun, 12 ga. #7½ chilled shot	400,000

Artillery Ammunition

Shell, Fixed, Practice, M55A1, 37 mm Gun M1A2	242,213
Shell, Fixed, H.E., M54, 37 mm Gun M1A2	232,213
Shell, C/R, M58, 90 mm Gun	1,500
Shot, Fixed, A.P., M51, tracer, 37 mm Gun, M3 & M5	2,450
Shell, Fixed, H.E., M71, 90 mm Gun	5,000
Charge, Propelling, 155 mm Gun, M1	303
Charge, Propelling 1070#-proj. 12" Gun	423
Projectiles, 8" Gun, M3A2	1,772
Projectiles, 1660# T.P., 14" Gun	143
Shell, H.E., M42, M.H., 3" AA Gun	75,628
Shell, H.E., M54, Aircraft, 37 mm, M4	78,313
Shell, Fixed, H.E., M48, for 75 mm Gun w/Fuse, P.D. M48	12,420
Shell, H.E., M41A1, 75 mm Pack. How., fused w/M54 Fuse.	12,596
Shell, H.E., M1, w/Fuse, P.D., M48 for 105 mm How., M2.	420

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

AMMUNITION ACCRETIONS (Cont.)

Bombs & Bomb Fuses

Bomb, Demolition, 100-lb., M30	20,000
Bomb, Demolition, 300-lb., M31	201
Bomb, Fragmentation, 20-lb., M41	50,041
Fuse, Bomb, M103 (nose)	5,010
Fuse, Bomb, M106 (tail)	140,070
Fuse, Bomb, M108 (nose)	8,240
Charge, Spotting, Assembly, M1A1	180,000
Burster, M7	13,000

Grenades

Grenade, Hand, Fragmentation, Mk. II	217,301

Pyrotechnics

Flare, Aircraft, Parachute, M8A1, Landing	2,033
Flare, Aircraft, Parachute, M9	11,500
Flare, Aircraft, Parachute, M24	125
Signal, Aircraft, Red Star, Parachute, M11	39,020
Signal, Aircraft, Red Star, Cluster, M14	46,969
Signal, Aircraft, White Star, Blinker, Parachute, M15	39,969
Signal, Aircraft, Green Star, Blinker, Parachute, M16	46,938
Signal, Drift, M25	1,674
Signal, Ground, White Star, Parachute, M17	74,950
Signal, Ground, White Star, Cluster, M18	20,000
Signal, Ground, Green Star, Parachute, M19	1,915
Signal, Ground, Amber Star, Parachute, M21	20,000
Signal, Ground, Amber Star, Cluster, M22	20,000

RENOVATION

Following Shell were renovated during the month of Oct. 1941:

Raritan

37 mm Practice Shell, Mk. II	58,653
75 mm H.E. Shell, Mk. I (reduced charge)	80,514

[redacted]

155 mm How., H.E., Empty Shell, Mk. IA1, (modernize only)	35,140

[redacted]

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

RENOVATION (Cont.)

Charleston

155 mm H.E. Shell, Mk. IA1	16,965
155 mm H.E. Shell, Empty, Mk. IA1 (modernize only)	22,130

Hammond

155 mm H.E. Shell, Mk. IIIA1	8,740
155 mm Shell, Empty, Mk. IA1 (modernize only)	16,900
Shell, H.E., 200-lb., 8" Gun	400
155 mm H.E. Shell, Mk. IA1	2,579

Hawaii

3" A.A. H.E. Shell, M42 (refuzed)	3,648
155 mm How. H.E. Shell, Mk. I (reboostered)	4,663

Panama

3" A.A. H.E. Shell, M42 (refuzed)	5,091

NEW AMMUNITION DEPOT SITE

Name - Blue Grass Ordnance Department

Location - Vicinity of Richmond, Kentucky

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

STORES - GENERAL SUPPLIES

GENERAL SUPPLIES DEPLETIONS

Total value of stock salvaged during October, 1941 amounted to $133,023.26

GENERAL SUPPLIES ACCRETIONS

Spare Parts ordered during October totalled $2,775,116.15

SURPLUS STOCKS

Stocks declared surplus during the month totalled.. $11,774.00
Sales of surplus materiel consummated during the month amounted to $173,328.41

MAINTENANCE

Artillery - Electric Brakes with Break-Away Mechanism

In view of accidents on gun carriages using above mechanism, every precaution should be taken to make certain that the battery used to actuate electric brakes when carriage breaks away from prime mover is in place, properly up to charge, and that all wiring and switches are functioning correctly. The emergency switch is to be habitually left in the "off" position except when brakes are tested by authorized personnel. Proper functioning of brake is to be tested before each trip. Switch terminals should be well wrapped. Connecting chains should under no circumstances be wrapped around the switch box.

Ordnance Vehicles - Fire Extinguisher

2,500 2-lb. portable, hand-type, carbon dioxide fire extinguishers equipped with permanent shut-off valves and with appropriate brackets are being procured to replace the liquid type which is no longer required.

Lubrication

War Department Lubrication Guides (for Ordnance Materiel) are being distributed as follows:

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

MAINTENANCE (Cont.)

Lubrication (Cont.)

1. General Lubrication Instructions for Ordnance materiel, "Bound Manual" and Detailed Lubrication Instruction, Ordnance Field Service Bulletins 6 series, (loose-leaf binders) are being mailed to all Corps Areas, Air Force Combat Command, U.S. Military Academy and all Departments via Raritan Arsenal. In addition, various service schools, etc. are being provided with enlarged Lubrication Guides for instructional purposes.

2. Lubrication Guides will be listed as an accessory in the Standard Nomenclature List for each item as these are compiled or revised. In this manner Guides will be available for the use of servicing personnel. Requisitions from the field for guides for existing equipment will be made in accordance with present regulations. New equipment, as delivered by the manufacturer to the Ordnance Department will be equipped with a Lubrication Guide at the time of delivery.

3. All publications are being changed and coordinated with the respective Lubrication Guides and products listed thereon as rapidly as is practical.

4. O.F.S.B. 6 - 4 "Product Guide" including the latest acceptable proprietary products, has been printed and is being distributed.

Lists of Essential Extra Parts

Lists submitted and approved by Board of Spare Parts on following equipment:

Small Arms:
- Chest, Water, Cal..30, M1
- Equipment Lists for Small Arms
- Hanger, Ammunition, Machine Gun, M1
- Hanger, Ammunition, Machine Gun, M2
- Hanger, Machine Gun, Cal..30, M5
- Hanger, Tripod, Cal..30, M3
- Mount, Truck, Pedestal, T47
- Rifle, U.S. Cal..30, M1917

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

MAINTENANCE (Cont.)

Lists of Essential Extra Parts(Cont.)

Artillery:
Special Repair Tools

Automotive:
Medium Tank, M3 (Revised)
Medium Tank, M2A1

Following, previously approved by Board on Spare Parts, have been revised due to changes in design, revisions of drawings, changes in organizational spare parts requirements, etc.:

Small Arms:
Equipment Lists for B.M.G. Cal..30, and Cal..50
Thompson Sub-Machine Gun, Cal..45, M1928 A1
Hanger, Ammunition, Cal..30, M8
Equipment for Mount, A.A. Tripod, M2 and Mount, A.A. Pedestal, M2
Mount, A.A. Machine Gun Tripod, Cal..50, M2
Mount, Pedestal, Cal..50, M2
Rifle, U.S. Cal..30, M1

Artillery
37 mm A.A. Gun Mount, M3
37 mm Gun, M5
37 mm Gun, M6
75 mm Gun, M2

Automotive
Light Tank, M3

Lists for following items of Fire Control and Sighting Equipment submitted for approval:

Board, Adjustment, Fire, M1
Board, Correction, Range, M1A1
Case, Carrying, M14
Circle, Aiming, M1916, Mount
Corrector, Sound Ranging, Wind, M1
Instrument, Azimuth, M1910A1 (inc. Telescope M1910A1)
Mount, Telescope, M6A1
Mount, Telescope, M18

MAINTENANCE (Cont.)

Lists of Essential Extra Parts (Cont.)

Lists for following items of Fire Control and Sighting Equipment submitted for approval: (Cont.)

Rule, Set Forward
Scale, Prediction, M1
Setter, Fuze, M8
Telescope, M6

MODIFICATION

Following is a resume of the more important items in the modernization program now in progress at Ordnance establishments:

Carriage, 155 mm How., M1917 & M1918	53
Carriage, 155 mm Gun, M1918	8
Light Tanks and Combat Cars	50
Continental Engine, Light Tank	67
Machine Gun, Cal..30, M1917	231
Telescope, B.C., M1915	63
Range Finder, 1M Base	33
Range Finder, 80 CM Base	56
Field Glasses, Type EE	2,248

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

PLANNING ACTIVITIES

PHILIPPINE DEPARTMENT

Completed:

List of Controlled Items of Equipment for the Allotted Garrison.

NUMERICAL LIST OF ORDNANCE UNITS

Completed showing proposed station assignment as of Sept. 30, 1941.

TACTICAL GASOLINE AND LUBRICANTS

Completed:

Second Supplemental Estimate for Ordnance Dept. F.Y. 1942.

50TH & 66TH ORDNANCE COMPANIES

Recommended Reassignment.

FORCE "TUNA"

Equipment and Requirements of the Ordnance Detachment were furnished Chiefs of interested Arms and Services.

CARBINE, CAL..30 M1 - SUBSTITUTES

Ordnance Officer, II Corps Area was notified of substitutes which may be issued in place of "Carbine, Cal..30 M1" to Ordnance companies outside the continental limits of the United States.

23RD ORDNANCE COMPANY (MM)

List of required QM and Medical equipment was furnished the Quartermaster General and the Surgeon General. List of Shortages in Controlled Items of Equipment was obtained.

ORGANIZATIONAL SPARE PARTS FOR LIGHT TANK, M2A4 and M3, & MEDIUM TANK M3

Lists of above were sent to the Armored Force, Ft. Knox, Kentucky for concurrence.

PUBLICATIONS

CIRCULARS

OFSC 177 & C1 May 15, 1941 Revised	Distribution of Publications and Blank Forms
OFSC 177 C - 2 Sept. 23, 1941	Same as above
OFSC 217 C - 1 Sept. 26, 1941	Truck, Instrument Repair, M1
OFSC 238 Sept. 29, 1941	Ammunition Packing and Subcaliber Equipment for 105 mm How. M1A1 & M2
OFSC 242 Sept. 18, 1941	Truck, Instrument Repair, M1 (Load B)

Following cleared for publication:

OFSC 245	Recommended Procedure for Uncrating and Preparing Wright Whirlwind New and Rebuilt Tank Engines for Installation
OFSC 161 C - 3	Cleaner, Rifle, Bore
OFSC 177 C - 3	Distribution of Publications and Blank Forms
OFSC 225 C - 1	War Dept. Lubrication Guides, Ordnance Automotive Materiel

Following forwarded to Raritan for final action:

OFSC	Covering distribution of War Dept. Lubrication Guides for Artillery Materiel

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

FIELD SERVICE

PUBLICATIONS

STANDARD NOMENCLATURE LISTS

SNL A - 2 C - 1 October 6, 1941	Gun, Machine, Cal..50, Brown., M1921, and M1921A1, Watercooled and Mounts
SNL A - 4 C - 1 October 6, 1941	Rifle, Automatic, Cal..30, Browning, M1918 and M1918A1
SNL A - 5 C - 1 October 6, 1941	Gun, Machine, Cal..30, Brown., M1917, and M1917A1 and Mounts
SNL A - 6 C - 1 October 6, 1941	Gun, Machine, Cal..30, Brown., M1919A2 and M1919A4 - Fixed and Flexible and Ground Mounts
SNL A - 7 C - 2 October 6, 1941	Gun and Carriage, 37 mm, M1916 and Carriage, Gun, 37 mm, M1916A1
SNL A - 8 C - 1 October 6, 1941	Machine Gun and Machine Gun Ammunition Carts, M1917
SNL A - 12 C - 1 October 6, 1941	Gun, Machine, Cal..30, Browning Aircraft, M1919 (For Fixed and Flexible Use)
SNL A - 13 C - 1 October 6, 1941	Gun, Machine, Cal..30, Brown, Aircraft, M1918A1 (for Fixed and Flexible Use)
SNL A - 15 C - 2 October 6, 1941	37 mm Gun and Tank Cradle, M1916
SNL A -18 C - 2 October 6, 1941	Rifle, Machine, Cal..30, Browning, M1922
SNL A - 20 C - 1 October 6, 1941	Gun, Machine, Cal..50, Browning, M1921 Aircraft - Fixed and Flexible

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

FIELD SERVICE

PUBLICATIONS

STANDARD NOMENCLATURE LISTS (Cont.)

SNL A - 26 C - 1 October 6, 1941	Cart, M2, and M2A1
SNL A - 28 C - 1 October 6, 1941	Gun, Machine, Cal..30, Browning, M2 Aircraft - Fixed and Flexible
SNL A - 29 C - 1 October 6, 1941	Gun, Automatic, 37 mm, M1A2 and Carriage, Automatic Gun, 37 mm, M3
SNL A - 32 C - 1 October 6, 1941	Gun, Submachine, Cal..45, Thompson, M1928A1
SNL A - 33 C - 2 October 6, 1941	81 mm Mortar and Mount, M1
SNL A - 34 C - 1 October 6, 1941	Mortar, Trench, 3-Inch, Mk. I, Mk. IA1, and Mk. IA2, and Mount
SNL A - 37 Sept. 10, 1941	Gun, Machine, Cal..50, Brown., M2 Water-cooled Fixed and Flexible, and Mounts
SNL A - 38 C - 1 October 6, 1941	Gun, Machine, Cal..50, Brown., M2, Aircraft - Fixed and Flexible
SNL A - 39 C- 1 October 6, 1941	Gun, Machine, Cal..50, Brown., M2, Heavy Barrel, Fixed and Flexible & Ground Mounts
SNL A - 42 C - 1 October 6, 1941	Hand Carts
SNL A - 43 AA3 - 1d Sept. 19, 1941	60 mm Mortar Materiel

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

STANDARD NOMENCLATURE LISTS (Cont.)

SNL A - 43 C - 1 October 6, 1941	60 mm Mortar Materiel
SNL A - 44 C - 2 October 6, 1941	Gun, 37 mm, M3, and Carriage, Gun, 37 mm, M4
SNL A - 45 C - 1 October 6, 1941	Gun, 37 mm, M5, and Cradle, Tank, 37 mm, T2
SNL A - 49 C - 1 October 6, 1941	Rifle, Automatic, Cal..30, Brown., M1918A2
SNL B - 3 C - 2 October 6, 1941	Rifle, U.S. Cal..30, M1903 and M1903A1
SNL B - 6 C - 1 October 6, 1941	Pistol, Automatic, Cal..45, M1911 and M1911A1
SNL B - 7 C - 1 October 6, 1941	Revolver, Colt, Cal..45, M1917; Revolver, Smith & Wesson, Cal..45, M1917
SNL B - 8 C - 1 October 6, 1941	Bayonets and Their Scabbards
SNL B - 9 C - 1 October 6, 1941	Shotguns
SNL B - 18 C - 1 October 6, 1941	Pistol, Pyrotechnic, M2
SNL B - 21 C - 1 October 6, 1941	Rifle, U.S. Cal..30, M1

STANDARD NOMENCLATURE LISTS (Cont.)

SNL B - 22 C - 1 October 6, 1941	Interchangeability Chart - U.S. Rifle Cal..22, M1922, M1922M1, M1922M1 (W.R.A.), Cal..22, M2, M2 (W.R.A.), Cal..30, M1903, 1903A1, M1903A1 (W.R.), M1, M1917
SNL B - 23 C - 1 October 6, 1941	Pistol, Very, 10-Gage, Mk. III
SNL B - 24 C - 1 October 6, 1941	Projector, Signal, Ground, M3
SNL C - 2 C - 1 October 6, 1941	Gun and Carriage, 75 mm, M1916 and Modifications
SNL C - 3 C - 1 October 6, 1941	Howitzer and Carriage, 155 mm, M1918 and M1918A2
SNL C - 3 C3 - 1c Sept. 18, 1941	Howitzer and Carriage, 155mm, M1918 and M1918A2
SNL C - 4 C - 1 October 6, 1941	Gun and Carriage, 75 mm, M1897M1 and 1897M1A2
SNL C - 9 C - 1 October 6, 1941	Gun and Carriage, 75 mm, M1917 (British)
SNL C - 10 C - 1 October 6, 1941	Battery Reel, M1917
SNL C - 11 C - 1 October 6, 1941	Cart, Artillery, M1918A1, and Reel, Artillery, M1909M1
SNL C - 17 C - 1 October 6, 1941	Howitzer and Carriage, 155 mm, M1917

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

STANDARD NOMENCLATURE LISTS (Cont.)

SNL C - 17 C17 - 1c Sept. 18, 1941	Howitzer and Carriage, 155 mm, M1917 (Schneider)
SNL C - 18 C - 1 October 6, 1941	Tools, Special Repair, Pack, Light, and Medium Field Artillery
SNL C - 20 C - 1 October 6, 1941	Howitzer and Carriage, Pack, 75 mm, M1
SNL C - 20 C - 2 October 20, 1941	Howitzer and Carriage, Pack, 75 mm, M1
SNL C - 25 C - 1 October 6, 1941	Gun and Carriage, 75 mm, M1897A4
SNL C - 26 C - 1 October 6, 1941	Howitzer and Carriage, 75 mm, M3 and M3A1
SNL C - 27 C - 2 October 6, 1941	Gun and Carriage, 75 mm, M1917A1
SNL C - 28 C - 1 October 6, 1941	Howitzer and Carriage, 155 mm, M1918A1
SNL C - 28 C28 - 1h Sept. 18, 1941	Howitzer and Carriage, 155 mm, M1918A1
SNL C - 29 C - 1 October 6, 1941	Caisson, Light, M1; Limber, Light, M2
SNL C - 30 C - 1 October 6, 1941	Gun and Carriage, 75 mm, M1916A1 and M1916M1A1

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

FIELD SERVICE

PUBLICATIONS

STANDARD NOMENCLATURE LISTS (Cont.)

SNL D - 4 C - 2 October 6, 1941	Materiel, Howitzer, 240 mm, M1918
SNL D - 9 C - 1 October 6, 1941	Materiel, 3" Antiaircraft Gun, M1917 (Fixed)
SNL D - 10 C - 1 October 6, 1941	3" Antiaircraft Gun Mount, M1918; 3-Ton Antiaircraft Gun Trailer, M1918
SNL D - 11 C - 1 October 6, 1941	Materiel, Gun, 155 mm M1918
SNL D - 16 C - 1 October 6, 1941	Materiel, 3" Antiaircraft Gun, M3 (Fixed)
SNL D - 18 C - 1 October 6, 1941	Gun, Antiaircraft, 105 mm, M3, and Mount, 105 mm Antiaircraft Gun, M1 (Fixed)
SNL D - 23 C - 1 October 6, 1941	Materiel, 3" Antiaircraft Gun, M2A2 (Mobile)
SNL F - 1 F1 - 1c August 28, 1941	Major Items of Small Arms, Automatic Gun, Trench Mortar and Field Artillery Sighting Equipment and Fire Control Instruments
SNL F - 2 F2 - 1d August 28, 1941	Major Items of Harbor Defense, Railway and Antiaircraft Artillery Sighting Equipment and Fire Control Instruments
SNL F - 3 F3 - 1b August 28, 1941	Items Not Authorized for General Issue
SNL F - 5 July 15, 1941	Items Common to Two or More Group F Products

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

STANDARD NOMENCLATURE LISTS (Cont.)

SNL F - 6 C - 1 October 6, 1941	Circle, Aiming, M1918 (French)
SNL F - 9 C - 1 October 6, 1941	Telescope, B.C., M1915

Following forwarded to Raritan for Final Action:

SNL C - 21	Parts List for Materiel, 105 mm How.
SNL S - 1 (changes to)	Bombs, Aircraft, All Types, and Fusing, and Miscellaneous Components, Part I and Part II
SNL G - 104 (changes to)	Medium Tank, M3
SNL B - 21	Rev. List of Org. Spare Parts, Org. Equipment
SNL R - 1 Parts I and II	Ammunition Items and Packing & Marking
SNL R - 4 Parts I and II	Ammunition Items and Packing & Marking

Revised Addendums to:

SNL A - 38	Gun, Machine, Cal..50, Browning, M2, Aircraft
SNL C - 12	Gun and Carriage, 75 mm
SNL G - 103	Light Tank, M3 (tentative)
SNL G - 104	Medium Tank, M3 (tentative)
SNL A - 28	BMG, Cal..30, M2
SNL B - 21	12 Months' Maintenance for Arm, Rifle, Rack, M1, to be included in addendum

BULLETINS

OFSB 1 - 5 Sept. 15, 1941	Supervised Articles of Ordnance
OFSB 1 - 6 C - 1 October 26, 1941	Report of Principal Items of Ordnance Supplies
OFSB 1 - 6 1 - 2 October 25, 1941	Report of Principal Items of Ordnance Supplies
OFSB 1 - 6 C - 3 October 8, 1941	Report of Principal Items of Ordnance Supplies
OFSB 3 - 5 C - 3 Sept. 30, 1941	Small Arms Ammunition
OFSB 3 - 5 C - 4 October 6, 1941	Small Arms Ammunition
OFSB 5 - 1 C - 1 October 3, 1941	Field Service Modification Work Orders Method

TECHNICAL MANUALS

Following cleared for publication during the month:

TM 9 - 1205	Ordnance Maintenance, Browning Machine Gun, Cal..30, All Types; U.S. Machine Gun, Cal..22 and Trainer, Cal..22
TM 9 - 1557	Ordnance Maintenance, Elevation Quadrant, M1
TM 9 - 1900	Ammunition, General
TM 9 - 2681	Instruction Guide, Plotting Boards, M3 and M4 (for final publication)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

FIELD SERVICE
PUBLICATIONS

FIELD MANUAL

Cleared for publication:

FM 6 - 91	Service of the Piece, 8-Inch Howitzer, M1

TRAINING CIRCULARS

Cleared for publication:

Care and Cleaning of U.S. Rifle, Cal..30, M1

Latching of Breech Operating Handle on 37 mm Guns

Use of Direct Electric Starters in Motor Vehicles

Change to TM 9 - 305, 75 mm Gun Materiel, M1897 and Modifications

Change to FM 23-5, Rifle, Cal..30, Semi-Automatic, M1

FIRING TABLES

Cleared for publication:

FT 12-F-3	Gun, 12-Inch, M1888 and M1895
FT 6-B-3	Gun, 6-Inch, M1897A1, M1908, M1908A1 and M1908MII

ORDNANCE EQUIPMENT CHART

Forwarded to Raritan for final action:

OEC 6-10	Field Artillery Brigade, Square Division

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

PART IV

INDUSTRIAL SERVICE

RESEARCH AND ENGINEERING

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

AMMUNITION

BOMBS AND BOMB FUZES

Bomb, General Purpose, 250-lb. M57
Drawings and Specifications for this bomb, which has the same dimensions as the 300-lb. M31, except that the length is reduced 3¼", thereby reducing weight to 250-lbs, are now available. This bomb will contain approximately 50% explosive.

Bomb, Demolition, 100-lb. M30
50 bombs, made on experimental order by Murray Manufacturing Company by electric resistance butt welding process, have been completed. 10 bombs shipped to Aberdeen and 5 to Watertown for tests. Proving Ground hard surface tests have been completed and indicate bombs are satisfactory. Results of Watertown tests not yet available.

Bomb, Armor Piercing, 1600-lb. Mark I
Bomb expected to be standardized in near future according to Navy drawings.

Bomb, Depth, 325-lb. Mark 17. Mod. 1
Same as the above.

Fuse, Bomb, Nose, M106
A safety block arrangement designed for this fuse to increase safety in handling when assembled to a bomb, and also to increase height at which fused bomb can be dropped safely. Samples with safety blocks shipped to Proving Ground and will be tested in near future.

PYROTECHNICS

60 mm Mortar Illuminating Projectile
Small quantity of these projectiles now being manufactured for test. Design is essentially the same as that of the ground signals, except that it was found impracticable to stabilize the projectile.

Range Indicating Signals
60 range indicating signals, similar to M17 White Star Parachute Ground Signal, except that an additional star is positioned 12 yards below the original star.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

PYROTECHNICS (Cont.)

Range Indicating Signals (Cont.)
are being manufactured at Picatinny. Shipment of 50 signals will be made to Armored Force for use in November maneuvers. Remaining 10 signals will be tested at the Proving Ground.

Observation and Reconnaissance Flares
50 of the following flares have been shipped to Armored Force Board and 50 each to the Infantry Board for test in coordination with Air Corps, to determine military requirements of a satisfactory Observation and Reconnaissance Flare:

Flare	Candlepower	Burning Time	Weight
M9 Flare	60,000	1 Minute	1.9 lbs.
M9 Flare, Modified	300,000	30 Seconds	1.9 lbs.
MBA1 Flare	350,000	3 Minutes	17.6 lbs.
T6 Flare	1,250,000	1 Minute	17.0 lbs.
M24 Flare	800,000	3.5 Minutes	43.5 lbs.

PROJECTILES

Shot, A.P., 37 mm M51B2
1000 rounds of 37 mm A.P. Shot, M51B2 without cap and windshield have been prepared by Picatinny and furnished to Aberdeen for test from aircraft against moving tank in the 37 mm Automatic Gun M4.

Shell, H.E., 155 mm M104
To determine effectiveness of 155 mm H.E. Shell when fired against armor plate, a number of these shell assembled with the M51 fuse set for delay action, are to be fired at the Proving Ground against one-half inch and three-quarter inch Class B Armor Plate and against one inch Ship Plate.

Projectile, Semi-Armor Piercing 8", T11
Drawings of the 8" Semi-Armor Piercing Projectile (240 lbs.) T11 for the 8" Gun being prepared. Upon completion, development will be initiated.

Shell, Dummy, 16", 2240 lb.
Design of the 2240 lb. 16" Dummy Projectile to simulate the Mk XI Projectile has been prepared.

FUZES

Fuze, B.D., Mk V
As a result of Proving Ground tests, it has been decided that the Mk V fuze plunger assembly will be replaced with the Mk X fuse centrifugal plunger assembly.

Fuze, Time, Mechanical, 10-Second, T37
Development of an instantaneous time fuse (10-Second) for use at high altitude instead of the M54 fuse is being carried on by Frankford. This fuse has been designated T37 and is for use in the 75 mm Aircraft Gun T7.

CARTRIDGE CASES

Case, Cartridge, 37 mm, M16
The Corcoran-Brown Division of Electric Auto-Lite Company has produced a one piece drawn steel 37 mm Cartridge Case which was satisfactory in firing tests. Proposal is being obtained from that Company to manufacture 20,000 steel 37 mm cartridge cases for experimental purposes.

Case, Cartridge, 90 mm M19
Frankford is experimenting on steel 90 mm, M19 Cartridge Cases.

ANTIAIRCRAFT MINES

Projectile, A.A. 90 mm, T12, Air Mine
Project being initiated for development of 90 mm Air Mine T12. This mine will be fired from the 90 mm gun and will consist of a parachute, wire, and bomb which will be expelled from the projectile by a time fuse.

ANTITANK MINES

Mine, Anti-tank, Radio Controlled
A radio controlled land mine is to be developed.

Mine, Anti-tank, Non-Magnetic
To be developed.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

PROPELLANTS

57 mm Gun M1

Samples representing suitable web range of powder granulations for this weapon have been selected with the expectation that granulation tests will be conducted in the very near future. A directive is in process of preparation covering the above granulation tests and will be issued when definite information relative to availability of projectiles is secured.

81 mm Mortar

An investigation has been undertaken to develop an improved means of stitching or reinforcing powder increments used in this mortar. This is necessary to afford increased stiffness in order to decrease the tendency to drop from the fin recess.

PRIMERS

Primer, Percussion, M32

Die cast M32 primer parts made from Class 2 casting have been tested and found to be unsatisfactory as they are too brittle. Additional die cast parts are being manufactured by the Doehler Die Casting Company from Class 9 Alloy.

20 mm Primer

Experimental work on a wet method of loading 20 mm percussion elements is being conducted at Picatinny.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

RESEARCH AND ENGINEERING

ARTILLERY

MOBILE CARRIAGES

105 mm Howitzer Carriage, T6
The mounting of a 105 mm Howitzer, T7, on a 75 mm Howitzer Carriage, M3A1 is under study at the present time. This materiel is to be used for the Air Borne Task Force.

3" Gun, T10 - 105 mm Howitzer Carriage T1
A firing test has been conducted on this materiel, and a road test is now in progress. A preliminary report on the firing test indicated satisfactory performance of gun and carriage.

AIRCRAFT ARMAMENT

20 mm Gun, M1
Test on first 5 production models made by Bendix Aviation Corporation being conducted at the Aberdeen Proving Ground. Specific improvements have been made in the design of the driving spring and firing pin. Additional guns are being given an endurance test at Bendix Aviation Corporation. One gun has been fired 10,000 rounds satisfactorily. An improved driving spring and firing pin was used.

20 mm Gun, M2
First production model of 20 mm Gun, M2 made by the Olds Motor Works is being tested at Aberdeen.

37 mm Gun, M4
Colt's Patent Fire Arms Mfg. Co. is cooperating with the Ordnance Department in the development of the following:

1. 37 mm Automatic Gun, M4E1; feed from right side only
2. 37 mm Auto. Gun, M4E2; feed from either right or left side.
3. Magazine, flat, 37 mm, T3; flat magazine for gun 37 mm, M4
4. Magazine, 30 round, 37 mm T4; a 30 round magazine for use with gun 37 mm, M4 in a Lockheed P38 airplane.
5. Magazine, Endless Belt, M6E1; hopper magazine.

75 mm Gun, M2 - Aircraft - Setter, Fuse, Rammer Combination T2 & T3
United Shoe Machinery Corporation received a contract for the manufacture of two automatic loading and fuse setting mechanisms for the 75 mm aircraft gun. One model is to be made from the Finn Design and the other from the Dixson Design. Models should be delivered by December 1941.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

RESEARCH AND ENGINEERING

ARTILLERY

TANK GUNS

37 mm Gun T16
Gun was designed as an anti-aircraft and tank gun. It is a continued development of the semi-automatic, 37 mm Gun, M6 and incorporates an automatic loading mechanism with single shot and automatic fire for the M6 gun. The projectile used weighs 1.92 lbs. and has a muzzle velocity of 2600 f.s. First pilot model has been completed and fired successfully. Detailed drawings being made.

3" Gun, T12
Gun has been completed and installed in Heavy Tank, T1 at Baldwin Locomotive Plant. Proof firing will occur at Aberdeen.

ANTITANK GUNS

20 mm Gun, T6
Awaiting powder chamber specifications. This gun to have a straight bore with a muzzle velocity of approximately 4500 f.s. It is to be mounted and fired from a 37 mm Gun Carriage, M4.

3" Gun, T10
This gun is being tested at Aberdeen on the 105 mm Howitzer Carriage, M2. To date it has fired satisfactorily with certain changes indicated.

RAILWAY AND SEACOAST

6" Gun, 55 Calibers, T2
Layout for this gun now being made. It will fire the 105 lb. projectile with a muzzle velocity of 3100 f.s. High explosive and armor piercing ammunition will be developed.

ANTIAIRCRAFT ARTILLERY

75 mm A.A. Low Velocity Materiel

Gun Carriage, T8E1
Now undergoing tests at Fort Monroe. Will be given comparative tests alongside the 40 mm A.A. Carriage.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

ANTIAIRCRAFT ARTILLERY (Cont.)

75 mm A.A. Low Velocity Materiel (Cont.)

Director, T14 (Modified Kerrison Predictor)
This unit is performing satisfactorily at Ft. Monroe. The Range Mechanism has been changed to take a fuze cam and scale for the 75 mm ammunition.

Director T13
Shipped to Ft. Monroe for Service Tests with the 75 mm A.A. Gun Carriage, T8 E1. Static tests at Frankford Arsenal were satisfactory.

20 mm A.A. Materiel

Gun Mount, T2
Modifications have been completed at Watertown. Parts for the Cal..50 Machine Gun Mounts T45 and T46 being fitted.

Computing Sight, T2
New tie rod designed and manufactured by Sperry for installation on the sight. Braces have been added to the sight support to provide greater rigidity. Watertown is making a canvas carrying bag for one of the sights.

Computing Sight, T3
One of the 20 mm A.A. Gun Mounts, T2 has been shipped to General Electric Co. for installation of Computing Sight, T3. Delivery is expected the last of November.

MISCELLANEOUS FIRE CONTROL EQUIPMENT

Gun Data Computer, T8
Triangle solvers for this unit have been completed at Sperry and are waiting for the Marson units. Other component units are waiting for assembly in the computer. If all parts are delivered from subcontractors on schedule, delivery will be made in January 1942.

Fuze Setter - Rammers, T2 and T3
Design of these two alternative fuze setting and ramming units for 75 mm aircraft gun well underway. Laboratory models have been demonstrated.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

RESEARCH AND ENGINEERING

SMALL ARMS

AMMUNITION

Incendiary Ammunition

Tests of first production lot of Cal..30 incendiary ammunition gave excellent results. The only malfunctions were traceable to an occasional faulty production assembly. This has been corrected and no further difficulty from this source is anticipated.

Round for the Carbine, Caliber .30, M1

Frankford requested to develop a high pressure test cartridge for the Carbine, Cal..30, M1. It is to be loaded to a pressure of 47,500 pounds plus 2,500 pounds and incorporate non-corrosive, non-mercuric primers.

Cal..60 Ammunition

Further development of Cal..60 ammunition concentrated on obtaining a satisfactory propellant powder. Two Cal..60 barrels, manufactured by Winchester Repeating Arms Company have been sent to Frankford for use in testing ammunition.

MATERIEL

Reising Sub-Machine Gun

The Armored Force Board has completed its tests of the Reising Sub-Machine Gun and found this gun to be very satisfactory and in several respects superior to the Thompson Sub-Machine Gun. No reports received from other service tests. Six High Standard guns completed and will be delivered for service tests early in November.

Light Machine Gun

Colt's, Springfield, and Rock Island guns are essentially Browning type machine guns modified by reduction in weight and cyclic rate. These weapons and the gas operated Sedgley have undergone tests at Aberdeen. Guns submitted by the Auto-Ordnance and Schir gun are scheduled for test early in November. Latter weapons are gas operated.

Machine Gun Links

Studies being continued at Rock Island. Plastic links manufactured by Erie Resistor Corporation tested at R.I.A. and Wright Field. They are unsatisfactory in that they are affected too greatly by temperature changes. They are not sufficiently flexible and tend to flow under sustained forces.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

MATERIEL (Cont.)

M1 Rifle Improvements

Tests made at Springfield, using experimental gas cylinders fabricated from X1340 and Winchester 908 steel with a chrome plated bore, are reported sufficiently successful to warrant possible substitution for stainless steel gas cylinder now used. These steels can be parkerized without difficulty.

Cal..50 Machine Gun Development

High priority given investigations of various methods for reducing muzzle glow and flash in Cal..50 aircraft machine guns. Flash hiders have been fabricated at Springfield and are awaiting tests. Priority of other work and limited facilities due to building reconstruction have delayed further progress on most of the items relating to Cal..50 machine gun developments ordinarily carried on at Springfield.

AMMUNITION COMPONENTS

Flash Inhibitor in Small Arms Ammunition

Tests of propellant powders containing a flash inhibitor have not indicated that much can be accomplished in reducing muzzle glow and flash by this method. It is indicated that a considerable reduction of flash may be accomplished by the use of a base igniter in Cal..50 ammunition. To date a satisfactory propellant for Cal..60 ammunition has not yet been obtained.

Tests are also being conducted to determine the effect of decreasing the propellant charge in the reduction of flash. Cal..50 ammunition, loaded to velocities of 1900, 2300, 2500 and 2800 feet per second, has been fired. Of these lots only that loaded to 2800 feet per second gave satisfactory functioning, consequently it does not seem likely that it will be practicable to eliminate flash by reduction in muzzle velocity of Cal..50 ammunition.

BASIC AND TECHNICAL RESEARCH

Season Cracking

Investigations of season cracking in 70/30 cartridge brass are being continued as outlined in previous reports. It is

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

BASIC AND TECHNICAL RESEARCH (Cont.)

Season Cracking (Cont.)
strongly indicated that season cracking is caused primarily by the presence of moisture and ammonia resultant from the decomposition of smokeless powders. Other factors are believed to influence the rate of cracking; primarily oxygen and CO_2. This is being thoroughly investigated at Frankford.

TANKS

Light Tank T7
Assembly of soft plate model continuing at Rock Island.

Light Tank T7E1
Drawings have been completed and manufacture is underway.

Light Tank T7E2
Studies of this design are underway to correct deficiencies which have been found in the T7 and T7E1. These studies will be completed before drawings are released for manufacture.

Light Tank T9 (Air-Borne)
Wood model has been completed and manufacture will be initiated shortly. Delivery is expected in January of 1942. Mr. Christie has submitted a proposal for the manufacture of a pilot, air-borne tank but which is not in accordance with military characteristics previously established for this vehicle and would require a newly designed airplane to carry it. The Chief of Air Corps has been requested to inform the Ordnance Department if the development of such an airplane is contemplated. Pending receipt of this information no further action on Mr. Christie's proposal can be taken.

Light Tank T10 (Amphibian)
Design studies of an amphibian tank based on the Light Tank T9 are approximately 80% complete.

Light Tank M4
This is a Light Tank M3E2 with twin cadillac engines and hydromatic transmission. Vehicle has just completed a 2300 mile endurance run at General Motors Proving Ground with satisfactory results and is now ready to go to Aberdeen for further test and design work on an integrated fighting compartment and welding of tank hull using homogeneous armor.

Medium Tank M4
Designs of the cast hull vehicle have been frozen. Welded hull should be completed by November 1. 95% of drawings have been released for manufacture. Production of vehicle to start as soon as Medium Tank M3 manufacturers can make change-over without interrupting production.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

TANKS (Cont.)

Heavy Tank T1E2
Initial operating tests of this vehicle with the torque converter were made on Aug. 18. Shop tests are being conducted.

ARMORED CARS

Armored Car T18
Design calls for a heavy armored car of approximately 16 tons. The Yellow Truck and Coach Mfg. Company has submitted preliminary layouts. A proposal from them is now being awaited.

FIRE CONTROL FOR COMBAT VEHICLES

Position Regulator Traversing Mechanism for Medium Tank M3
Unit has been at Aberdeen undergoing tests and has now been returned to the manufacturer due to excessive back lash in the gears.

Position Regulator Traversing Mechanism for Medium Tank M4
This unit due at Aberdeen about November 2 and will be installed on the pilot model vehicle for test.

Gyrostabilizers for 75 mm Gun in Medium Tank M4
This unit is now installed on a medium tank at Aberdeen and tests to date indicate that mechanism is satisfactory.

GUN MOTOR CARRIAGES

4.5" Gun Motor Carriage T6
General Motors is completing a wooden mock up of the 4.5" gun on a special chassis.

3" Gun Motor Carriage T1
3" Antiaircraft Gun T9 mounted on high speed commercial chassis. Delivery will be made sometime in November.

3" Gun Motor Carriage T7
3" Antiaircraft Gun T9 mounted on chassis of Armored Car T13. Layout drawings have not yet been received from Trackless Tank Corporation.

GUN MOTOR CARRIAGES (Cont.)

105 mm Howitzer Motor Carriage T19
105 mm howitzer mounted on Half Track Personnel Carrier M3. Manufacture in progress at Aberdeen. Indications are that the vehicle will be seriously overloaded.

105 mm Howitzer Motor Carriage T25
105 mm howitzer mounted on Medium Tank M3 modified. This is in the nature of an assault weapon and requires thinned-down armor sections in the tank. Layout started.

105 mm Howitzer and Chassis of Armored Car T13
Study drawings in progress of this application requested by the Armored Force.

105 mm Howitzer on Special Chassis
Studies will be started immediately on this requirement of the Armored Force in which extremely low silhouette is emphasized and will require a completely new arrangement of chassis components.

75 mm Gun Motor Carriage T12
75 mm gun on Half Track Personnel Carrier M3. Deficiencies reported as the result of service tests with troops are being corrected on a production vehicle at Aberdeen preparatory to releasing the design for quantity production.

75 mm Howitzer Motor Carriage T18
75 mm Howitzer mounted on Light Tank M3. Firestone and Ford are to submit proposals shortly on the manufacture of 2 pilots.

75 mm Field Howitzer on Modified Light Tank M3 Chassis
The Armored Force has requested this design which is similar to the above except that the armor thickness is to be reduced. Studies are in progress.

75 mm Howitzer Motor Carriage T30
75 mm field howitzer mounted on Half Track Personnel Carrier M3. Project initiated at the request of the Armored Force. Layout drawings completed and ready for inspection by representatives of the Armored Force.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

GUN MOTOR CARRIAGES (Cont.)

75 mm Gun Motor Carriage T26
75 mm antiaircraft gun on Medium Tank M3 Chassis. This is primarily an antiaircraft unit. Studies are in progress.

75 mm Gun Motor Carriage T29
75 mm Gun T8 mounted on Light Tank M3. Study drawings indicate that this is a suitable application.

75 mm Howitzer on Light Tank M3
This is to be strictly an artillery weapon with a minimum of armor and to embody all the military characteristics of the ground mount. Studies are to be started immediately.

40 mm Gun Motor Carriage T1
40 mm Bofors antiaircraft gun with Kerrison Director mounted on a Half Track Chassis T3. Vehicle at Aberdeen undergoing automotive tests. Firestone has completed pedestal for the Kerrison. Vehicle will be returned to Mack for conversion.

37 mm Gun Motor Carriage T8
37 mm Gun M3 on Special Ford Chassis. Manufacture of gun shields for fifteen production vehicles proceeding at Aberdeen. Distribution of finished vehicles will be made as completed.

37 mm Gun Motor Carriage T13 and T14
37 mm Gun M3 mounted on special 6 x 6 chassis based on 1/4-ton reconnaissance car. Wooden mock up completed at Willys-Overland.

37 mm Gun Motor Carriage T21
37 mm Gun M3 mounted on Fargo, 3/4-ton, 4 x 4, low silhouette chassis. This vehicle performed satisfactorily during maneuvers and is being recommended as a substitute standard. Deficiencies being corrected on pilot model at Aberdeen.

37 mm Gun Motor Carriage, T22
37 mm Gun mounted in an armored, wheeled vehicle of special design. Procurement of pilot vehicle authorized. Ford and Chrysler submitted tentative designs and proposals are expected shortly.

37 mm Gun Motor Carriage T23
This is a modification of Light Tank T9 to meet requirements for light, highly mobile, antitank weapon. This development

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

GUN MOTOR CARRIAGES (Cont.)

37 mm Gun Motor Carriage T23 (Cont.)
parallels the 37 mm Gun Motor Carriage T22. Layout drawings are in progress.

37 mm Gun M3 on Ford, 4 x 4 Special Chassis (G4)
This chassis is similar to one used on 37 mm Gun Motor Carriage T8 except that engine and driver are located at the front. Chassis has not yet been made available.

Multiple Gun Motor Carriage, T26
Combination 37 mm Caliber .50 Antiaircraft unit mounted on Half Track Scout Car M2. Three of these vehicles are performing very satisfactorily in service tests. One remains at Aberdeen for incorporation of changes as they are recommended by the Using Arm.

Train Defense Machine Gun Mount, T10
This truck cab mount for either Cal..50 or .30 Machine Gun has been tested, modified, and recommended for standardization by Armored Force Board. Vehicle with mount being sent to Aberdeen for further tests.

Train Defense Machine Gun Mount, T9
Design similar to Mount T10 except for mounting a Cal..30 machine gun only. Vehicle with mount being sent from Ft. Knox to Aberdeen for further tests.

SCOUT CARS

Scout Car, M3A1E3
A Scout Car, M3A1, mounting a 37 mm gun has been under test at Aberdeen. This vehicle has now been shipped to the Cavalry Board, Ft. Riley, Kansas for extended service tests.

MAINTENANCE VEHICLES

Transport Equipment for Transporting Light and Medium Tanks
Brief military characteristics have been received from Field Service. Studies are being made with various representatives of truck and trailer manufacturers.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

RESEARCH AND ENGINEERING

TANK & COMBAT VEHICLES

ARMOR PLATE

Armor for Aircraft

A Subcommittee meeting on armor for aircraft was held in Washington on October 3. The provisions of Tentative Specification AXS-606 were discussed. Consensus of the Rolled Armor manufacturers was that these specifications will be satisfactory for the procurement of armor plate in gages below 1/4-inch thickness. A draft of specification for Non-Magnetic Armor for Aircraft and Ordnance application was discussed. Air Corps representatives indicated that the needs for a material of this type will diminish as remote indicating compasses become more available to the Arm.

Helmet Steels and Body Armor

Subcommittee meeting for the above was held in Washington on October 4. Present state of development of steels for helmets was discussed. Possibility of a large volume of steel going into helmets for use of the Office of Civilian Defense was considered. No designs of helmet for Civilian Defense were suggested. A long discussion of the Navy developments of Body Armor took place. This was of particular importance in view of interest taken by the General Staff on this subject.

Heavy Tank T1E1 (Welded)

Armor Plate on front of this vehicle has been changed from 3" to 3½" in thickness and some alterations have been made in the rear hull. The tank can be made a composite of castings and armor plate, and final welded drawings cannot be performed until engineering work at Baldwin is completed.

M3 Light Tank

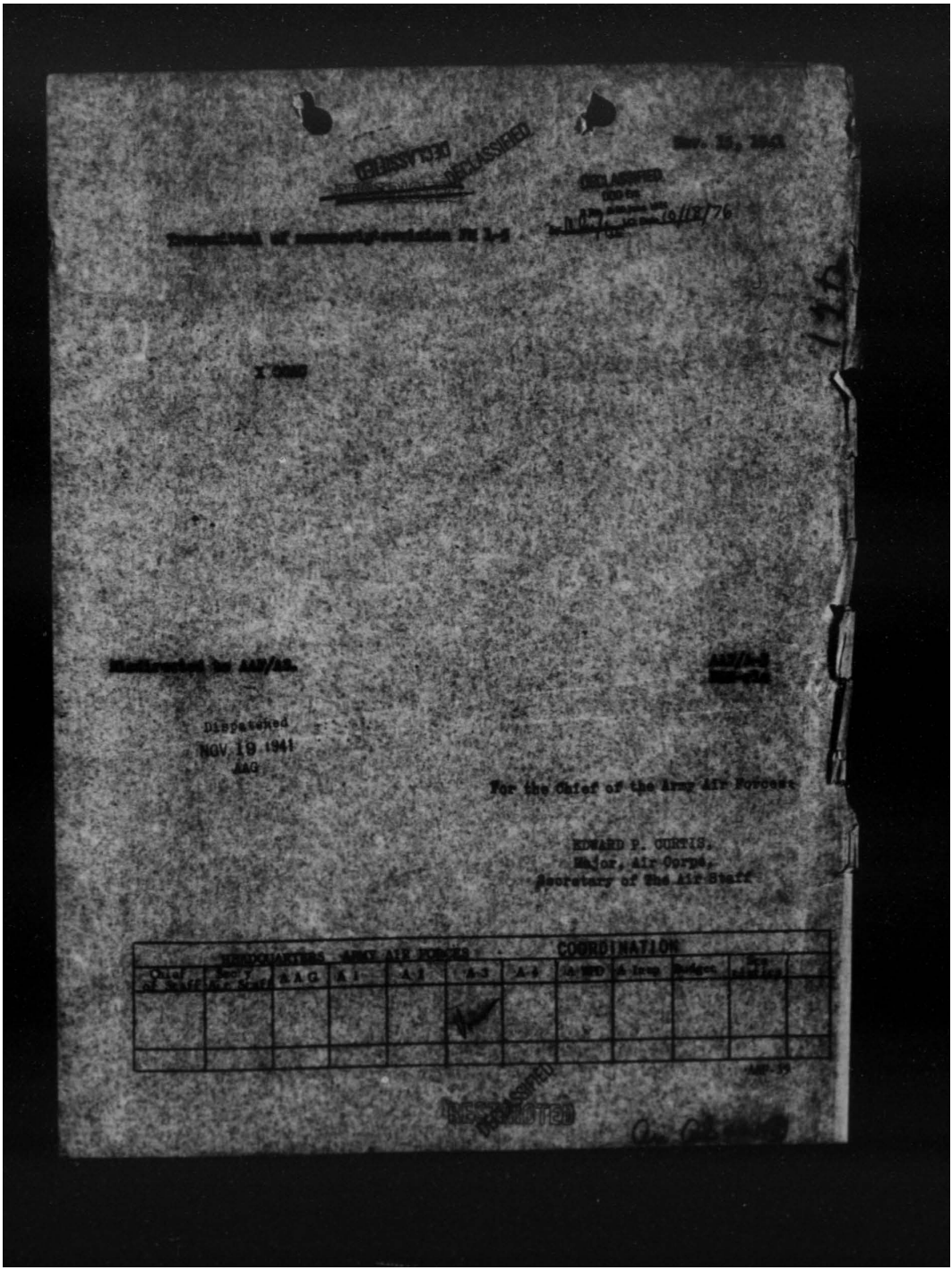
This office and Cadillac have prepared estimates converting the subject tank from riveted face-hardened construction to welded homogeneous construction.

Specification AXS-497 - Welding of Armor -

Administration of subject specification by Districts is lax. Letters have been written to enforce requirements for qualification of welders and of welding procedure. Recommendations from this office for changes in subject specification, and the use of data sheets have been unanimously approved by all members of the Committee. Data sheets will provide a valuable store of knowledge concerning welding of armor.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



DECLASSIFIED

Nov. 15, 1941

DECLASSIFIED
DOD Dir 5200.9 As amended, Sec II(b)(4) Exec Order 10/12/76

Transmittal of memorandum dated Nov 14-41

X 2000

Memorandum for AAF/AC.

AAF/1-2

Dispatched
NOV. 19 1941
AAG

For the Chief of the Army Air Forces:

EDWARD P. CURTIS,
Major, Air Corps,
Secretary of the Air Staff

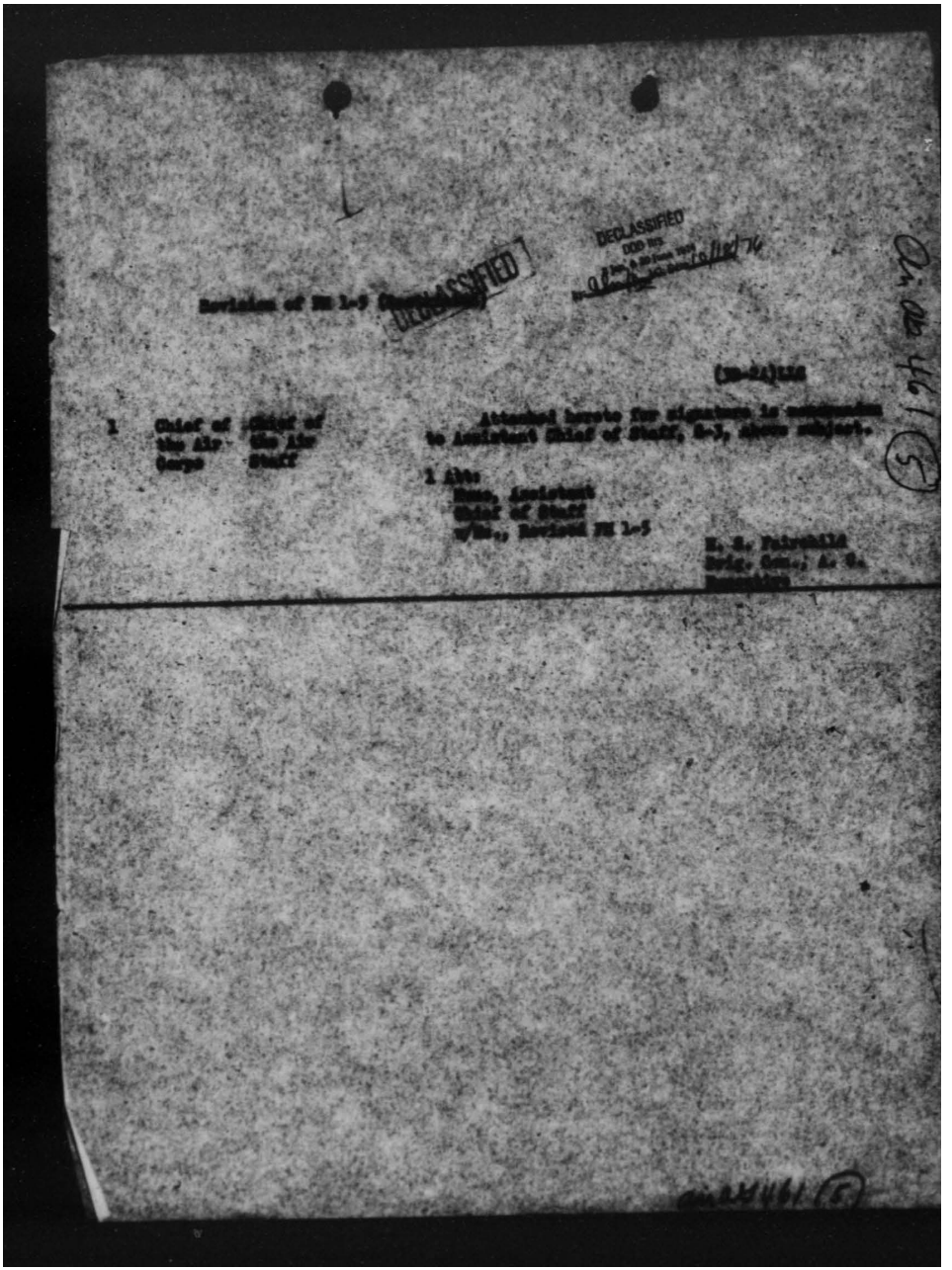
HEADQUARTERS, ARMY AIR FORCES							COORDINATION					
Chief of Staff	Sec'y Air Staff	AAG	A-1	A-2	A-3	A-4	A-5 WPD	A Insp	Budget	AAF Liaison		

AAF-19

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



Revision of JCS 1-5

DECLASSIFIED

DECLASSIFIED
DOD DIR
[illegible]

Ch 46 (5)

(JCS-24)/156

1 Chief of the Air Staff
Chief of the Air Corps

Attached hereto for signature is correspondence to Assistant Chief of Staff, G-3, above subject.

1 Encl
Memo, Assistant
Chief of Staff
w/Rev., Revision JCS 1-5

H. H. Fairchild
Brig. Gen., U. S.
Secretary

Ch 24 #61 (5)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

DECLASSIFIED
9/22/76

THE AIR CORPS TACTICAL SCHOOL
Maxwell Field, Alabama

(6)

September 23, 1941.

SUBJECT: TM 1-271 "Handbook for Aerial Gunners" (Restricted).

TO: Commanding General, Army Air Forces, Washington, D. C.

1. In compliance with instructions contained in letter Office Chief of Air Corps, August 23, 1941, subject: "TM 1-271, Handbook for Aerial Gunners", there are inclosed for your information and files five (5) copies of tentative Part Three, TM 1-271 (Restricted).

2. Request acknowledgment of these publications by indorsement hereon.

Hq. Army Air Forces
Sep 27 1941
AAG RECEIVED

WILLIAM D. WHEELER,
Colonel, Air Corps,
Acting Commandant.

1 Incl.
5 Cys. Part Three,
TM 1-271
(Restricted).

1st Ind.

WD HQ ARMY AIR FORCES, Washington, D. C. September 30, 1941
To: Commandant, Air Corps Tactical School, Maxwell Field, Alabama

Receipt is acknowledged of five copies of the above publication.

For the Chief of the Army Air Forces:

Dispatched
OCT 1 1941
AAG

WILLIAM E. DISE
Lt. Col., A.G.D.
Air Adjutant General

3 Corps to A-3
1 Corps to A-4
1 " " A-WPD
(Ocfacrecvd. 10 Corps)

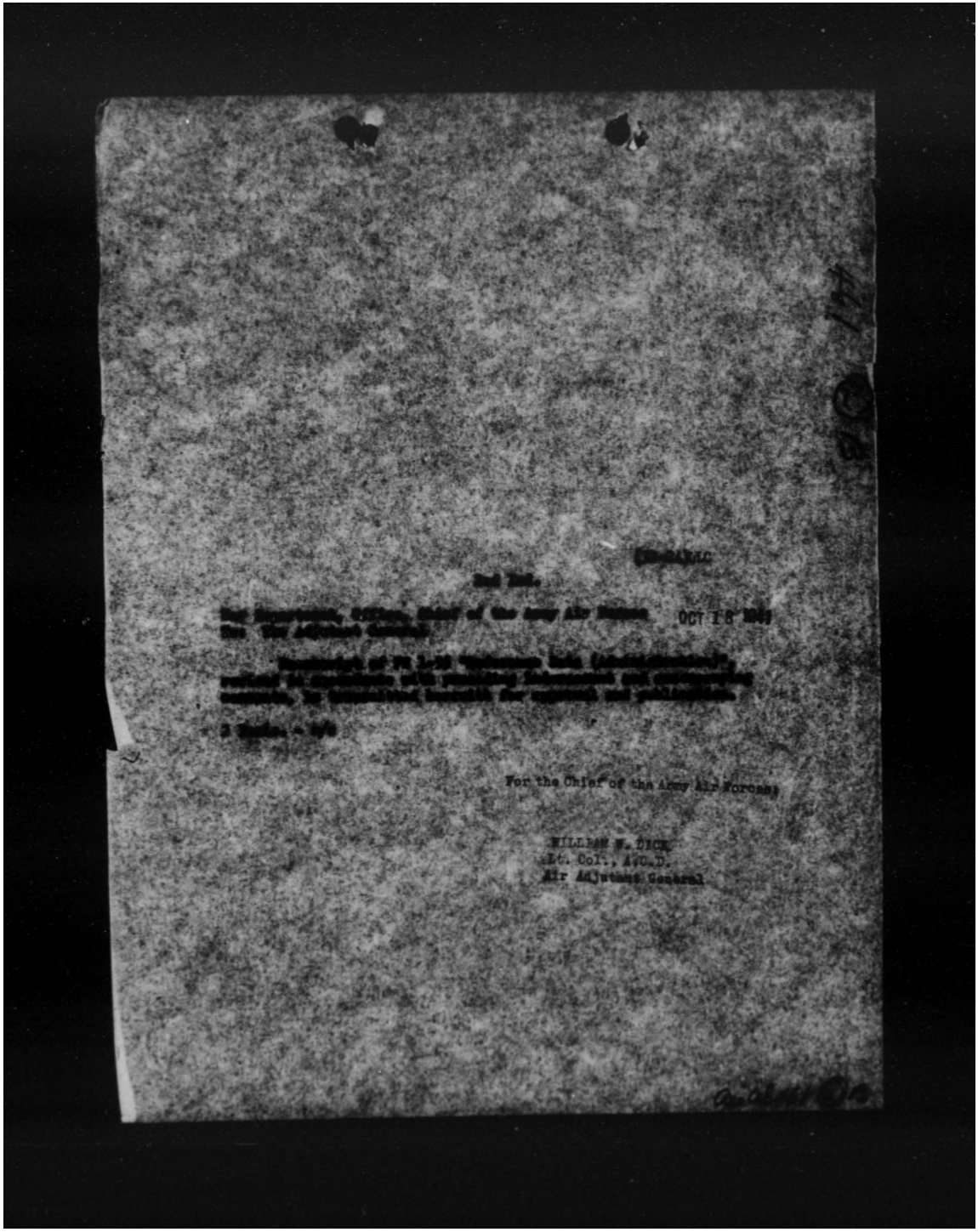
RESTRICTED

DECLASSIFIED

air ag 461 (3)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



2nd Ind.

OCT 18 1949

For the Chief of the Army Air Forces:

WILLIAM W. DICK
Lt. Col., A.G.D.
Air Adjutant General

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

DECLASSIFIED

DECLASSIFIED
DOD Dir. 5 200.10 and AR 380-5
By [illegible] DE Date 12/18/76

AC FM 1-55, "Reference Data."

AAF/A-4
JJO/mp

5. AAF C/AC 1941 1. It is believed that the unit of fire and mission C/AS 10/31 rates for Dive Bombers as it appears in Appendix III totaling 200%, is excessive in view of the fact that load specifications do not prescribe a combined load when the 1000 lb. bomb is carried.

2. In this respect the minutes of the Subcommittee of the Air Corps Technical Committee on Air Corps - Ordnance Requirements is again under revision and will shortly be processed through the General Staff for approval. As revised, chemical bombs have been deleted from mission rates of all types of aircraft because of policies regarding the use of chemicals. Instead, a blanket requirement of 1 missions per plane per month has been set up for all planes equipped to carry chemical bombs. Upon approval of the revision by the Secretary of War, copies will be forwarded to your headquarters for distribution.

3. Classification of this communication as confidential is concurred in.

Incls.
List to CAC fr AGO,
5/7/41, abv subj,
w/4 Incls & 2 Incls:
Minutes of sub-com. of
ACTCom. "Amd. A" 9/27/41.
AAF Fld Manual FM 1-55A.

G3
C/AS

Dispatched
NOV 4 1941
AAG

HEADQUARTERS ARMY AIR FORCES - COORDINATION

Chief of Staff	Secy Air Staff	A.A.G.	A-1	A-2	A-3	A-4	Ar M'D	A. Insp.	Budget	Statistics	
	[illegible]										

DECLASSIFIED

AAF-39

CONFIDENTIAL

Aug 44 461 (2) A

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

~~CONFIDENTIAL~~ DECLASSIFIED

DECLASSIFIED
DOD Dir.
10/18/74

AC AM 1-40, "Reference Data.".

MMK:ims (3-CS)

4. C.A.C. C.S.A.F.10/14 1941

1. Forwarded for your further comment.

2. After informal conference with Colonel Sorensen, (A-4), Lt. Col. Lewe, Board Member, now on temporary duty in this office has revised Appendix III to show separately the unit of fire and mission rates for dive bombers. It has been necessary to change the mission rates suggested given for light bombardment as the dive bombers can not carry all the types of bombs given for light bombardment.

Incl.
Ltr. to CAC fr ACB 5/7
w/ 4th Inds.
Minutes of sub-com. of
ACBCommittee "Amendment
A", 5/17/41

3. This office recommends a classification of confidential, but not registered.

M. S. F.
Brig. Gen., Air Corps
Executive.

3 Exec 240 4/15 Draft

19-5-9-16

~~CONFIDENTIAL~~ DECLASSIFIED

[redacted]

Amall 461 (2)
A-2349 Tr (10-15-41)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir. 5200.9 & 5200.10
NND 760124 Date 15/12/76

2d Ind.

THE AIR CORPS BOARD, Maxwell Field, Montgomery, Alabama, 28 August 1941.
TO: The Chief of the Air Corps, Washington, D. C.

1. Submitted herewith for approval is the final report on Air Corps Board Study No. 6-C in the form of proposed AAF FM 1-55A, "REFERENCE DATA (ADMINISTRATION) [CONFIDENTIAL].

2. As stated in the text of this manual, the Minutes of the Sub-Committee of the Air Corps Technical Committee on Revision of Air Corps - Ordnance Requirements, May 5, 1941, as changed and approved by the Chief of the Air Corps and the Secretary of War, dated July 22, 1941, served as a basis for the computation of the Days of Supply and Units of Fire contained in the manual.

3. It will be noted that references to dive bombers have been omitted in the manual, since the Sub-Committee did not state in the Minutes the percentage mission rates for the various bomb loadings these particular airplanes are capable of carrying. Likewise, the Day of Supply for Chemical Spray has been omitted, since the Minutes do not set up mission rates for this item. A Day of Supply Table for Oxygen has been added. The Material Division furnished the data for this item.

4. If approved, it is recommended that the Commandant, Air Corps Tactical School, Maxwell Field, Montgomery, Alabama, be so notified, and instructed to proceed with the publication and distribution of this Registered Confidential field manual, as authorized in paragraph 2, basic letter, and 1st Indorsement thereto. The distribution list for this field manual, as approved by the Chief of the Air Corps in 1st Indorsement, dated July 8, 1941, to letter, Air Corps Board, to the Chief of the Air Corps, subject: "Proposed Distribution List - AC FM 1-55A, "Reference Data - Administration," dated June 26, 1941, as well as the complete file on the manual, are being turned over to the Commandant of the Air Corps Tactical School by the Air Corps Board.

5. It is further recommended that the classification of this communication be changed from SECRET to CONFIDENTIAL.

/s/ D. S. STRATEN,
Colonel, Air Corps,
Acting Director.

1 Incl. - Listed
(in trip.)

DECLASSIFIED
COPY
CONFIDENTIAL

DECLASSIFIED
DOD Dir. 5200.9 & 5200.10
NND 760124 Date 15/12/76

3rd Ind. (3409)

War Department, Office, Chief of the Air Corps, Washington, D. C., Sept. 20, 1941. TO: Director, Air Corps Board, Eglin Field, Valparaiso, Florida.

1. Returned for further revision as follows:

a. Reference should be made of dive bombers in appropriate tables. Mission rated and loadings will be the same as for light bombardment.

b. It is desired that a Day of Supply for Chemicals be included, using the mission rate given in paragraph 5Ge of the Minutes of the Air Corps Technical Committee, dated May 5, 1941.

c. Percentages in types of ammunition should be arranged to conform to the attached copy of Amendment 4, of the Minutes of the Air Corps Technical Committee.

d. Include for pursuit airplanes bombs that can be carried as follows:

P-40-D, P-40-E, and P-40-F - six 20 lb. fragmentation, and/or one 500 lb. in place of auxiliary gas tank.

P-39 - one 300 lb. or one 500 lb.

2. The classification of this manual should be reconsidered as the matter contained therein does not appear to warrant even a "Confidential" classification. Provided no information is contained which an intelligent enemy could not reasonably deduce from the information contained in the press, in aeronautical and other technical publications and from a knowledge of aircraft technical capabilities and limitations, it would seem that a classification higher than "Restricted" would be unnecessary.

2 Incls.
#1 - w/c (FM 1-55A - 3pg. #2 & #3).
Except 1 cy w/d
#2 - added
Amend. 4 of Minutes of
Subcom. of AC Tech.
Committee dated 9/11/41.

DECLASSIFIED
COPY
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir. 5200.9 Sec. A (2) June 1972
By O.A.C. Date 10/18/76

~~SECRET~~

4th Ind. (34)

THE AIR CORPS BOARD, Eglin Field, Valparaiso, Florida, 13 October 1942.
TO: The Chief of the Air Corps, Washington, D. C.

1. Proposed AAF FM 1-35A, "Reference Data - Administration (Confidential)," is forwarded herewith, in triplicate, with revisions as directed in paragraph 1, 3d Indorsement, above.

2. The Board is of the opinion that the inclusion of A-24 and A-25 dive bombers in Appendix III under the classification of Bombardment, Light, with bomb loadings the same as the A-20 series, is erroneous and will seriously weaken the value of the manual. Also, the added Table on Chemical Spray is more or less without basis, as no monthly mission rate for this item was set up by the Sub-Committee. The mission rate for Chemical Spray, as shown in the Table, and the percentages of the various gases were arrived at by the Board in collaboration with the Air Corps Representative at Edgewood Arsenal.

3. The Board cannot concur in the matter that this proposed manual should carry a classification lower than Confidential. The fact that an intelligent enemy can figure out the material contained therein is no reason why it should be handed to him. The enemy should be required to pay in one manner or another for everything he gets. Moreover, this manual is designed primarily for use by G-4 and S-4 Staff officers and it is felt that they will have little trouble safeguarding it at a headquarters.

4. Request that the inclosed receipt be accomplished.

1301

ROBERT KAUCH,
Colonel, Air Corps,
Director.

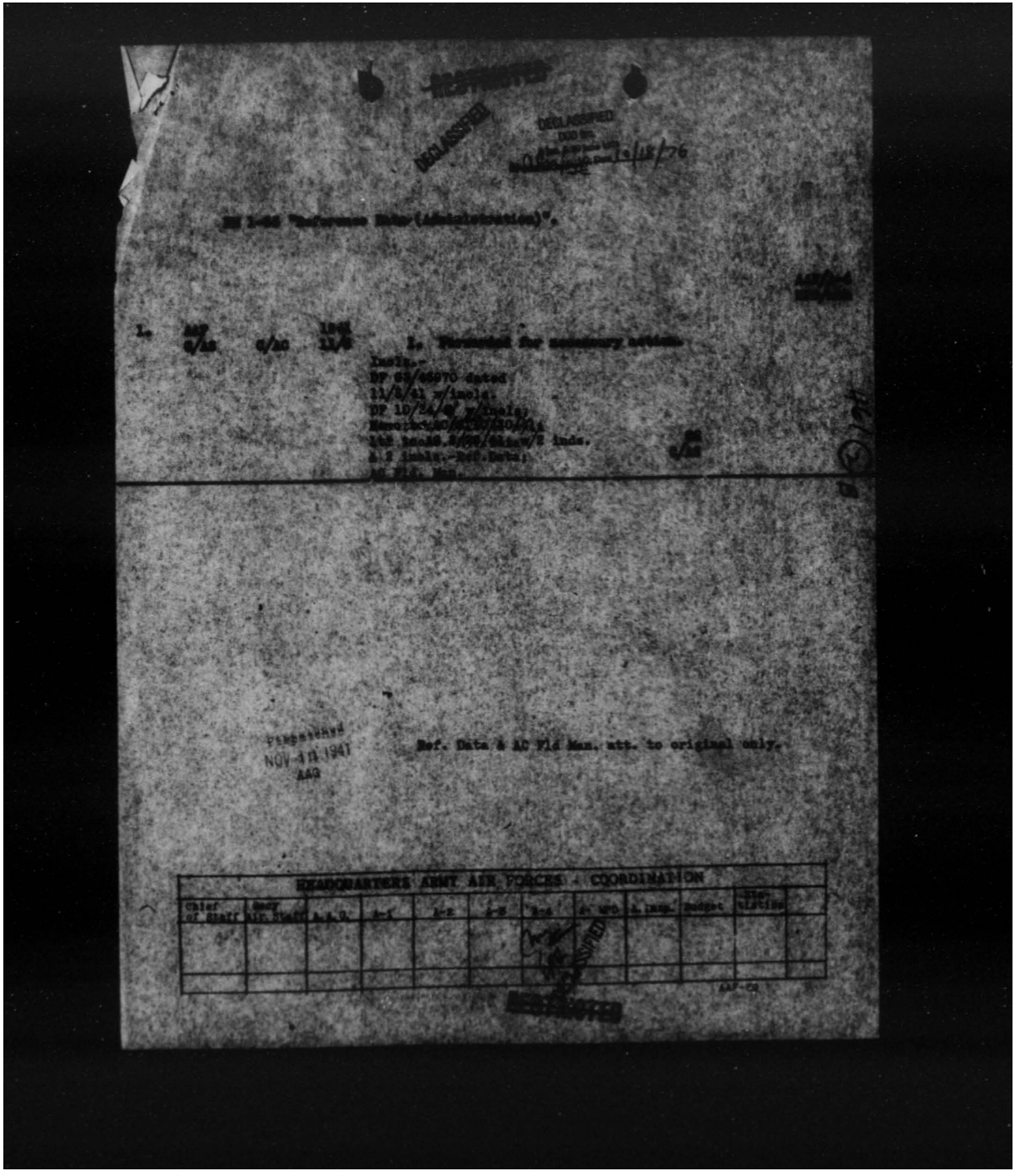
2 - Incls.
2 Added (listed).

DECLASSIFIED
~~SECRET~~

S-2447-84 (10-13-42)

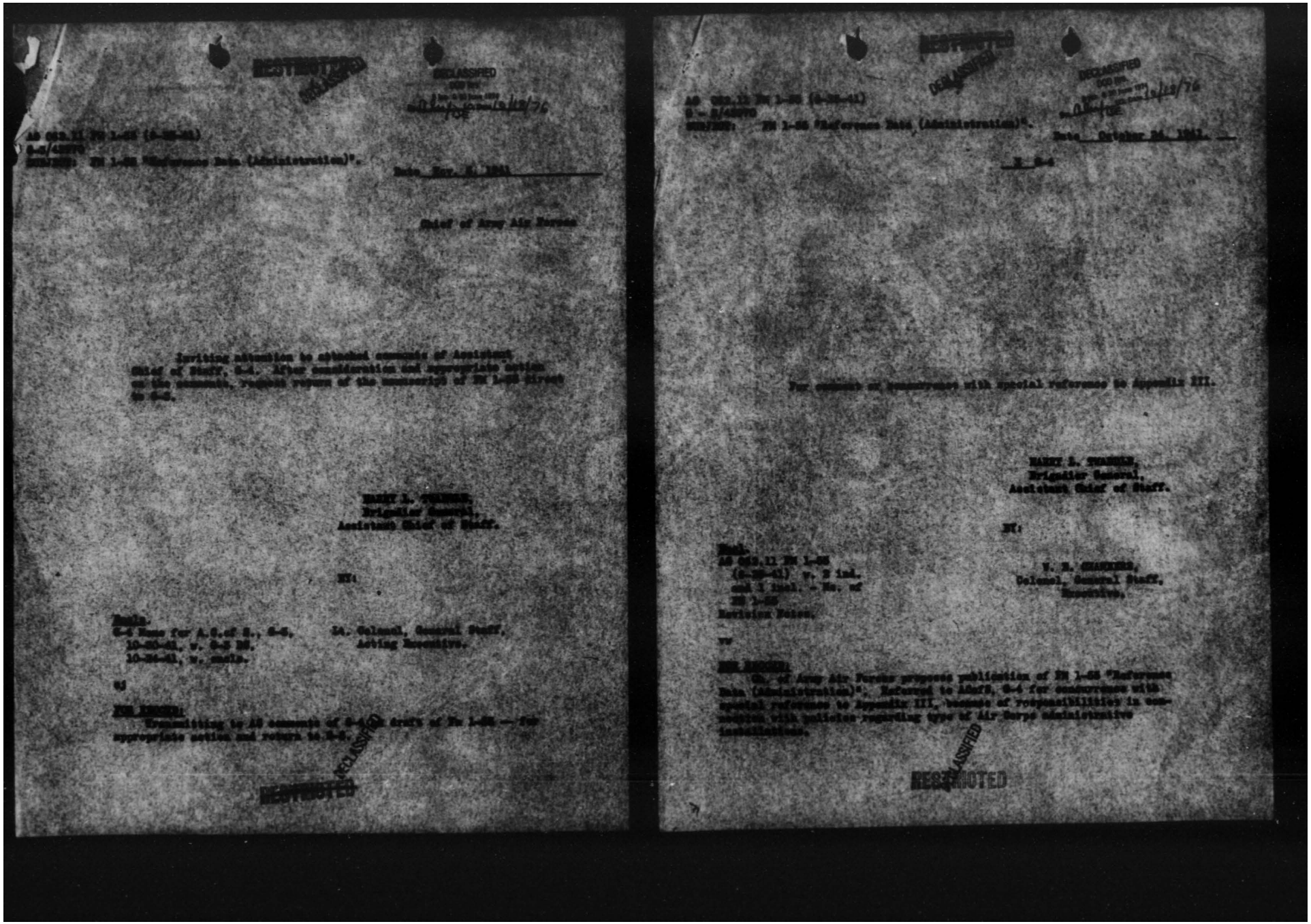
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



RESTRICTED

DECLASSIFIED

AG 062.11 PR 1-25 (6-25-41)
G-2/42970
SUBJECT: PR 1-25 "Reference Data (Administration)".

Date Nov. 6, 1941

Chief of Army Air Forces

Inviting attention to attached comments of Assistant Chief of Staff, G-4. After consideration and appropriate action on the comments, request return of the manuscript of PR 1-25 direct to G-2.

HARRY L. TWADDLE,
Brigadier General,
Assistant Chief of Staff.

By:

Encls.
G-4 Memo for A.C.of S., G-2, 10-30-41, w. G-2 Memo. 10-24-41, w. encls.

H. Colonel, General Staff,
Acting Executive.

RESTRICTED

DECLASSIFIED

AG 062.11 PR 1-25 (6-25-41)
G-2/42970
SUBJECT: PR 1-25 "Reference Data (Administration)".

Date October 24, 1941.

G-4

For comments or recommendations with special reference to Appendix III.

HARRY L. TWADDLE,
Brigadier General,
Assistant Chief of Staff.

By:

Encls.
AG 062.11 PR 1-25 (6-25-41) w. 2 ind. and 1 incl. - No. of PR 1-25 Revision Notes.

V. H. [illegible],
Colonel, General Staff,
Executive.

RESTRICTED

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir
E.O. 12958, Sec. 3.5
NSC Memo, 11/24/98
By NARA, Date 6/1/99

WAR DEPARTMENT
WAR DEPARTMENT GENERAL STAFF
Supply Division, G-4
Washington, D. C.

G-4/21943-36

RESTRICTED
DECLASSIFIED

October 20, 1941

MEMORANDUM FOR THE ASSISTANT CHIEF OF STAFF, G-3:

Subject: FM 1-35 "Reference Data (Administration)".

1. G-4 does not concur in the Appendix II and Appendix III of the attached Air Corps Field Manual, for the following reasons:

a. The strength shown in Appendix II is not in accordance with the latest Air Corps published Tables of Organization. A change in Appendix II will require changes in Appendix III.

b. In Appendix III under "All Combat Squadrons" and "All Group Headquarters Squadrons" the items "Guardhouse", "M P Regular Whse", and "First Aid and Hospital" should be eliminated. These items are furnished in the group and are not required by units of the size of a squadron.

c. The theater-of-operations construction shows the combined bath house and lavatory. These items should be combined in all instances.

d. Under the column headed "Size", the figures should agree with the theater-of-operations type of construction which is contemplated.

e. Reference is made to FM 101-10 Chapter 9, in which 400 cubic feet is authorized for sleeping quarters for enlisted men. The tables should be changed accordingly and 400 cubic feet per man used in place of 500 cubic feet per man for enlisted men's barracks; and for officers' quarters, 600 cubic feet per man in place of 1000 cubic feet per man.

f. There is nothing to show the difference (Page 13) between the 2 types "Additional for Pursuit (P) Squadrons".

g. It is believed that Appendix III should show the requirements for all the units listed in Appendix II.

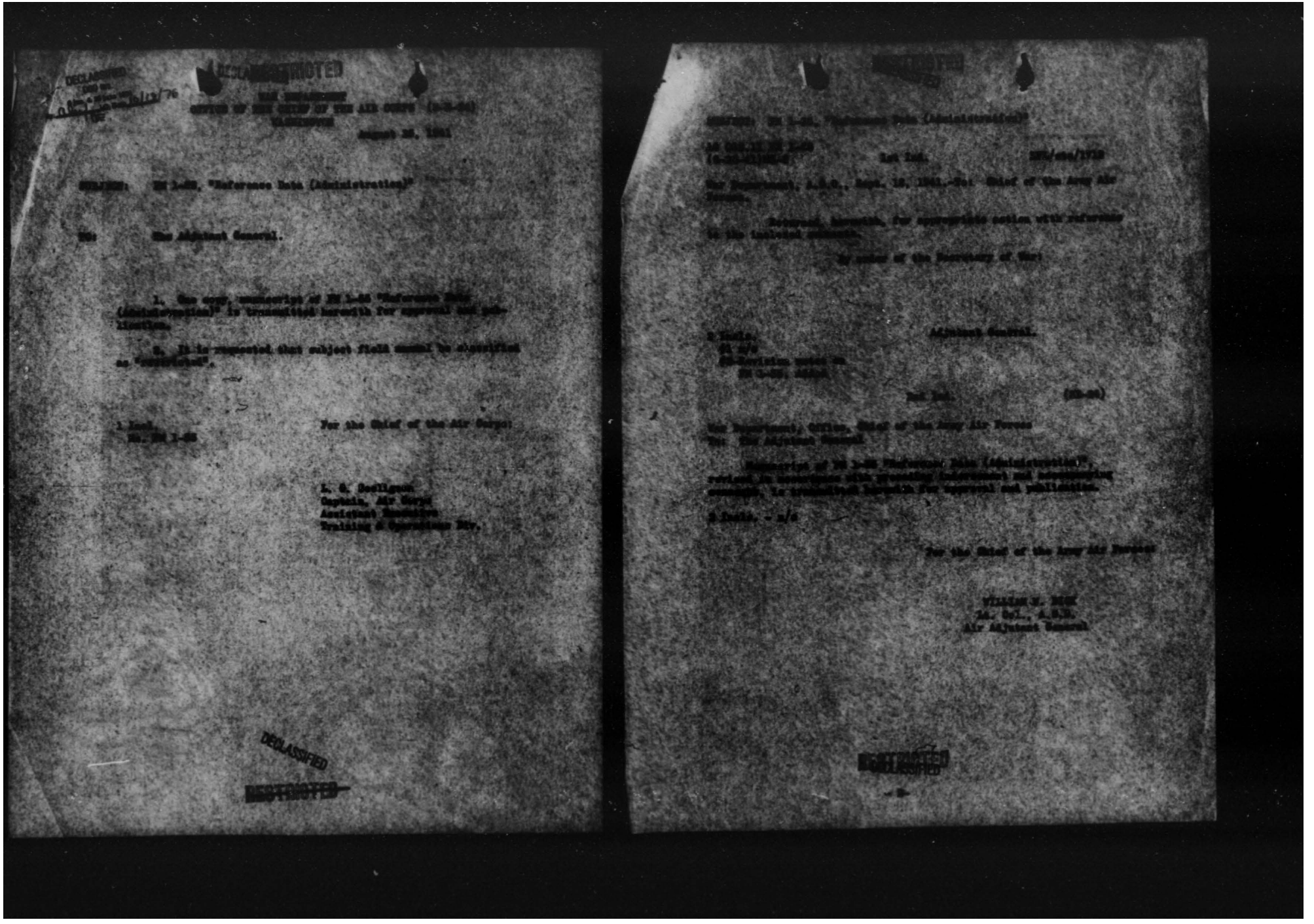
R. A. WHEELER,
Brigadier General,
Acting Assistant Chief of Staff.

Incls.
WF G-4/43970
w. Incls.

RESTRICTED
DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

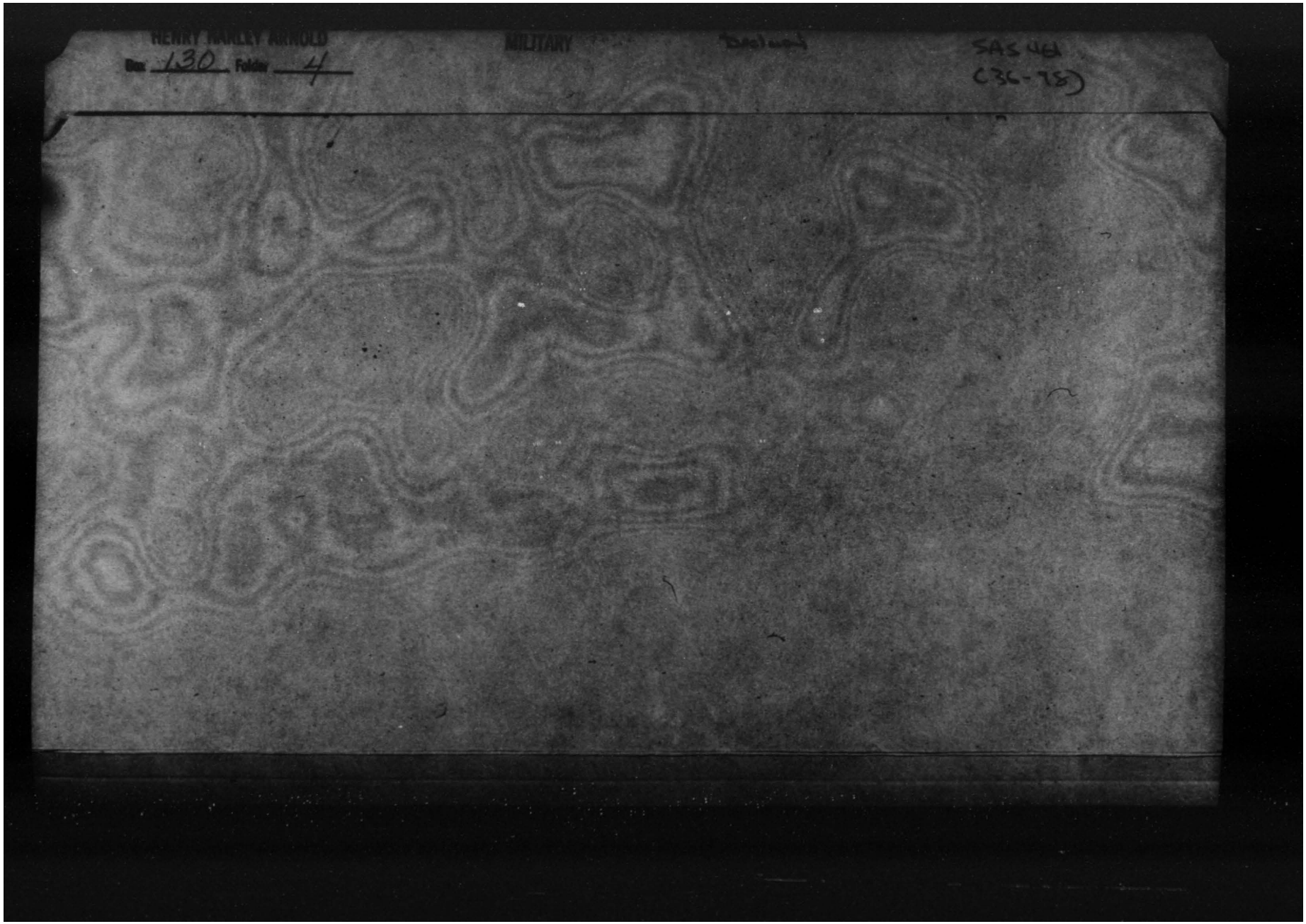
THIS PAGE IS DECLASSIFIED IAW EO 13526



DECLASSIFIED
RESTRICTED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

~~SECRET~~

HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

File No. AA 3 2453

Note.-- A line will be drawn across sheet after each comment.

Tally No. AAF

SUBJECT: Disposition of Obsolete Secret Reports.

NO.	FROM	TO	DATE	COMMENTS
1.	AFCAS	AFDMC	1942 4/17	AFCAS JYI/mvb 1. The Chief of the Air Staff has raised the question of what disposition is being made of obsolete copies of AAF forms SC1, SC1A, SC3, SC3A and SC4. 2. In the interest of security, it is directed that necessary action be taken to issue instructions for the destruction of these forms within a reasonable time after they are issued unless there is good reason for retention by the agency concerned. S/AS
2.	AFDMC	AFMSP	1942 4/18	AFDMC LKF/lm 1. It is directed that necessary steps be taken to insure the destruction of forms mentioned in paragraph 1 above within a reasonable time after their issuance. Please indicate procedure followed and steps taken to destroy out-of-date copies in hands of recipients By [illegible] BEG D/MC

APR 17 '42

RECEIVED

Procurement Sec.

DECLASSIFIED

~~SECRET~~

(Do not write on reverse side)

Page No.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

HEADQUARTERS ARMY AIR FORCES
ROUTING AND RECORD SHEET

File No. _____
Tally No. AAF-60

Note — A line will be drawn across sheet after each comment.

DECLASSIFIED

SUBJECT: AFMSC ORDERS

NO.	FROM	TO	DATE	COMMENTS
3.	AFMSC	AFDMC	1942 4/18	ELJ:ja 1. Attached are AFMSC Orders 2, 3, 4, 5, and 7, covering the security of Classified documents published by this office. 2. No steps have been taken with respect to copies signed for by other offices, which offices are themselves responsible under Army Regulations. Chas. B. Thornton Chas. B. Thornton Captain, A.A.F. Director of Statistical Control
4.	AFDMC	AFMSP	1942 4-20	RSH/hf 1. The intent of the directive from Col. York requires this Office to take definite steps to insure the destruction by the recipients of the back issues of the AAF forms mentioned. Experience has proven that Army Regulations are not particularly effective without constant follow-up. Your office, it is understood, through the services of Lt. Woodman, does receive a receipt from the receiving offices at the time back issues are handed to Classified Mail Section for destruction. This arrangement apparently is informal, and was created by your desire to insure strict secrecy. 2. Inasmuch as the distribution is small, it is believed proper by this office that instructions be sent out from the Director of Statistical Control to the recipient offices requiring that the arrangement be continued on a formal basis. This would necessitate a follow-up at stated intervals by Lt. Woodman to see that back copies have been destroyed. There is no definite way of insuring such destruction except by officer follow-up, and under the intent of the reorganization, the Office with initial responsibility for any given function should assume full responsibility when necessary. In this particular instance, where the reports are of vital importance from the security angle, it is logical that the entire control be maintained by your Office. While this forces you to assume

(Do not use reverse side) P-4071, AF, Rev. 8/10/41

DECLASSIFIED

Page No. 2

AAG 461 (98)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED SECRET

HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

File No. aaf-2453

Note. -- A line will be drawn across sheet after each comment.

Tally No. AAF

SUBJECT: AFMSC Orders

NO.	FROM	TO	DATE	COMMENTS
4 (Cont'd)	AFDMC	AFMSP	1942 4/20	additional detail work, it also creates the proper impression in the minds of receiving offices as to the importance of such secret reports. 3. It is requested, therefore, that you issue formal instructions to all recipients requiring some form of official notice to you that back copies have been destroyed, and that a copy of these instructions be attached to this R&R and returned to this Office for submission to the Air Staff. Att: Copy of Orders No. 2, 3, 4, 5, 7, from Director, Stat. Control. B.E.G., Dir. Management Control
5	AFMSC	AFDMC	1942 5-7	1. Copy of instructions requested in par. 3 of R&R comment 4. above, is attached hereto. CBT Cant..AC Dir. Stat.Control Copy made w/known Copy instructions added
6	AFDMC	AFCAS Attention Col. York	1942 5/7	pk 1. Attention is invited to above comment No. 5 and attached copy of instructions forwarded to the necessary offices. B. E. G. Dir., Management Control Att: No change

File per Col York 5/18/42

DECLASSIFIED (Do not use reverse side) F-4071.AF, Rev.8/14/41

SECRET

Page No. ——— Air AG 461 (97)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

HEADQUARTERS ARMY AIR FORCES
ROUTING AND RECORD SHEET

Copy

File No. _____

Note — A line will be drawn across sheet after each comment.

Safety No. AAF _____

SUBJECT: SECRET REPORTS - Destruction of Obsolete Copies of AFMSC Publications SC-1 & 1A, SC-2C, SC-3 & 3A, and SC-4.

NO.	FROM	TO	DATE	COMMENTS
1	AFMSC		1942 5/6	1. In accordance with the desires of the C/AS it is requested that the recipient offices of any of the above listed reports distributed by this division arrange for the proper destruction of all non-current copies of such reports as soon as they have served their purpose. 2. It is further requested that this office be furnished with a copy of each completed certificate of destruction in order that the receipts for the documents in question may be written off to the credit of the recipients. 3. Attention is invited to paragraph 22 of AR 380-5 and paragraph 9 of Instructions Rq AAF 20-2 of 9-22-41, covering the destruction of classified documents. 4. Any office having specific need to retain back copies of any of the subject reports should so state, giving the reason therefor. 5. Certificates of destruction and/or statements as to retained copies should be submitted to this office as soon as practicable. CBT Capt. A. C. Dir. Stat. Control

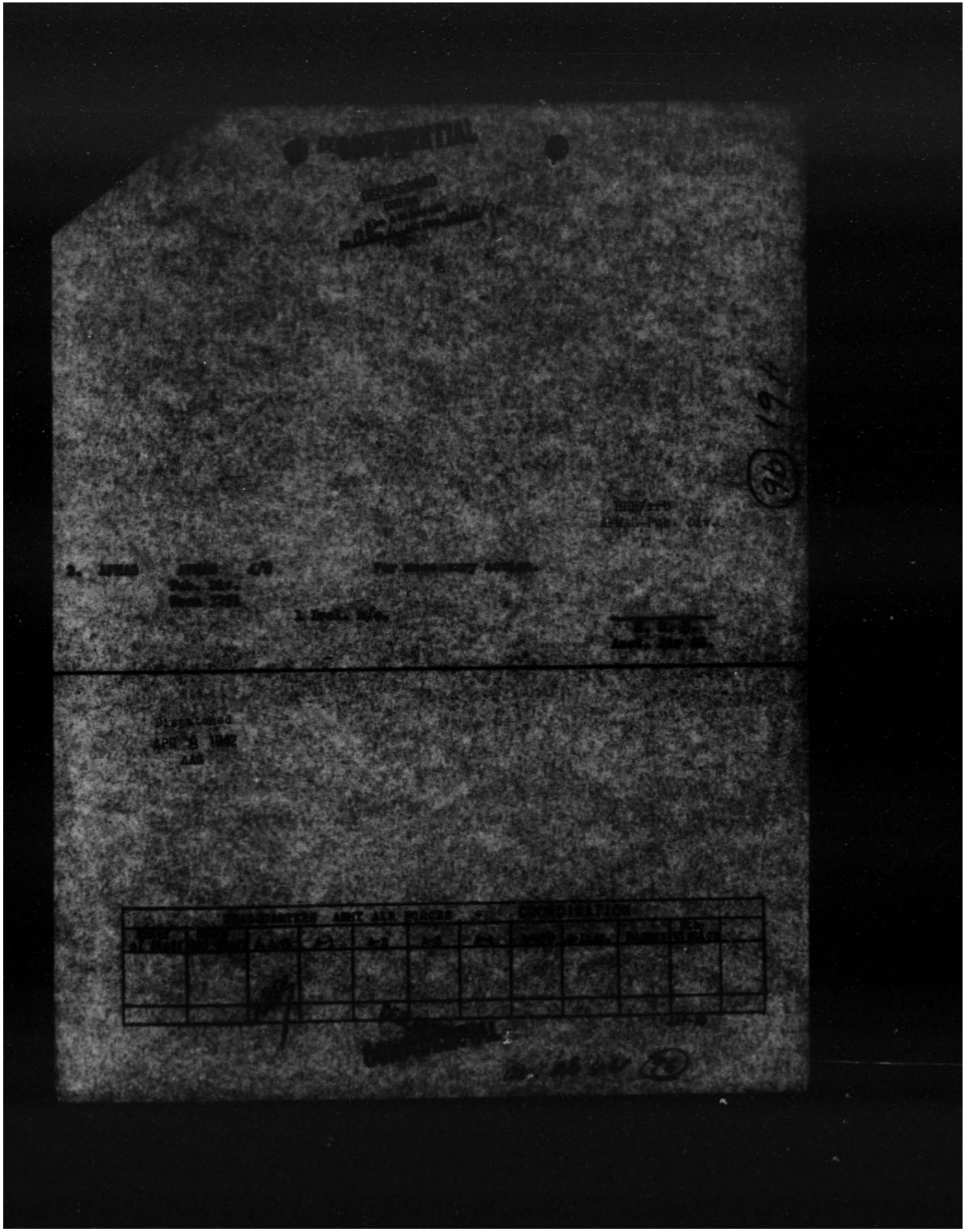
(Do not use reverse side) 8-0071, AF, Rev. 8/19/41

Page No. _____

New Incl

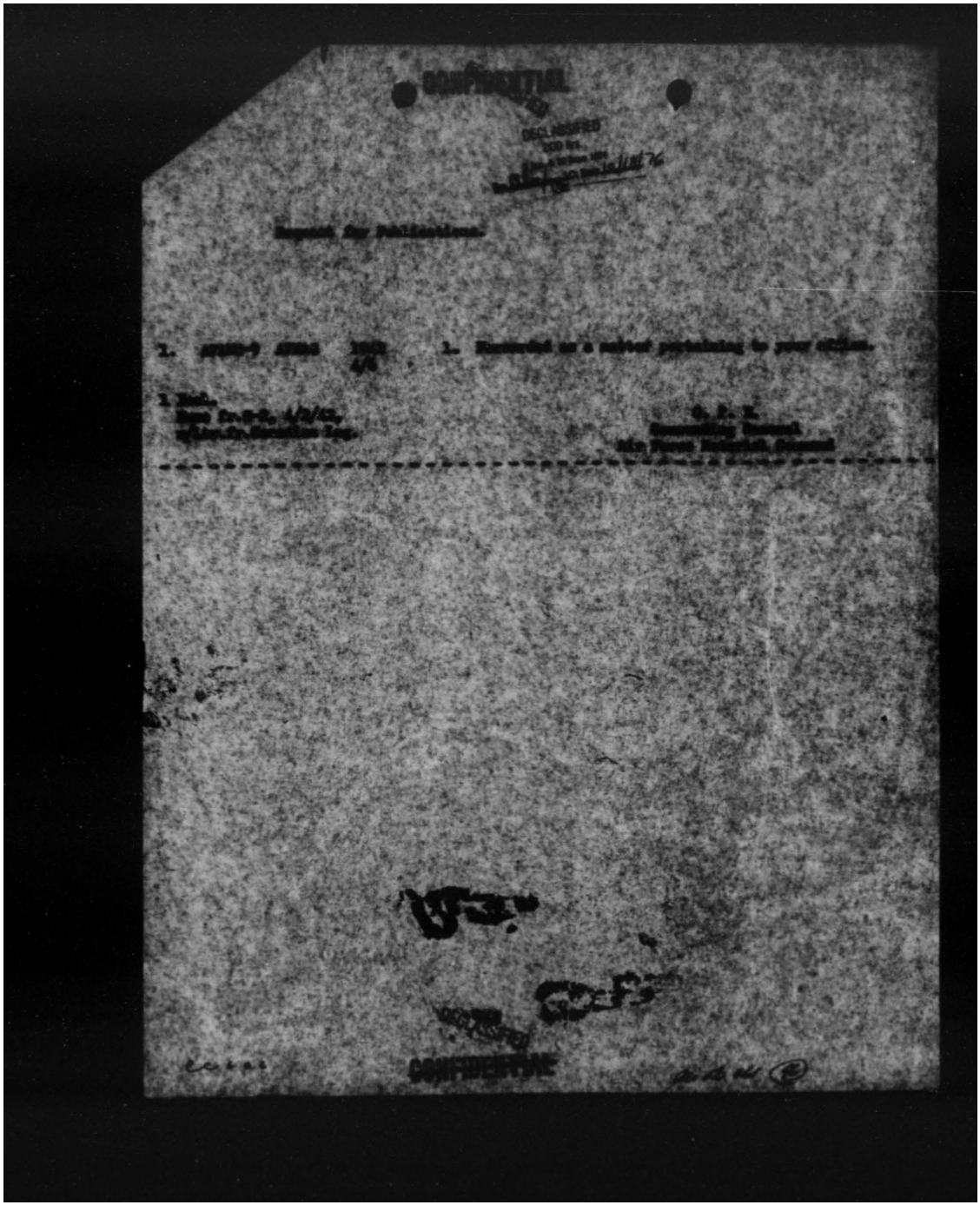
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED DOD Dir. 5200.9 Sec. A, 30 June 1971 Dir. 12/18/76 OSE

HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

DESTROYED

File No. 322

Note. -- A line will be drawn across sheet after each comment.

Tally No. AAF

AAF 000.71

SUBJECT: Furnishing Telephone Lists to Commercial Firms for Purposes of Solicita

NO.	FROM	TO	DATE	COMMENTS AFDMR/MEG/c
1	AFDMR	AFMAG	1942 3-25	1. A recent AGO letter was distributed throughou War Department indicating that office rosters contain the name, branch, detail, office room and telephone n residence address and residence telephone number, wer printed by various offices in the War Department and being distributed to commercial firms for purposes of solicitation. 2. It is suggested that furnishing of such list a misuse of government material and personnel. It fu more subjects army officers to being pestered to deat commercial firms either by telephone calls or persona visits. It is recommended that action be taken to th that the War Department issue instructions that such not be furnished to any commercial firms or individua except those constituting a part of the War Department Mervin E. G M. E. G.
	Ex	Gen. Inf. Maj. Hines RM. 3234	4/2	1. For information as to whether rosters of officers, telephone directories, or similar public prepared by you are distributed or supplied upon requ to commerical firms. J. B. C. Lt. Col., A.G.D. Asst. Air AG.

DECLASSIFIED DEC

(Do not use reverse side) AF-AG 1-61

Page

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

DECLASSIFIED Restricted No. . . . . .

Note:--A line will be drawn across sheet after each comment.

Tally No. AAF. . . . . .

SUBJECT: Furnishing Telephone Lists to Commercial Firms for Purposes of Solicitations.

NO.	FROM	TO	DATE	COMMENTS
3.	AFMAG Gen. Inf.	AFMAG Ex.	1942 4/3	1. No officers' rosters, telephone directories, or similar publications have been furnished by this office to any commercial firms. C.J.H. Maj., A. C. Ch., Gen. Inf. Sec.
4.	AFMAG	AFDMR	1942 4/6	AFMAG JBC:HHH 1. Attention is invited to comment No. 3 above. In view of the statement contained therein, it appears that no roster or telephone list prepared in this headquarters is being furnished commercial firms. 2. The publication, "Officers of the Army, In or Near the District of Columbia" compiled by The Adjutant General, however, contains the names, room numbers and telephone numbers of all officers stationed in this vicinity. That publication is a public document and may be obtained from the Superintendent of Documents by any citizen for a nominal sum. 3. In view of the above facts, no further action on the suggestion contained in comment No. 1 is being initiated by this office. J. B. C. Lt. Col., A.C.D. Asst. Air AG.
5	AFDMR	AFMAG	4-7	AFDMR MEG:el 1. The suggestion contained in paragraph 2, item No. 1 above, was not intended to apply to the office of the Air Adjutant General in particular, nor exclusively. Paragraph 1 of the attached letter indicates that a practice has grown up within the War Department which, in the opinion of the

Do not use reverse side!

W-607), AC, Rev. 8'14'41.

DECLASSIFIED Restricted Page No. 2

Air WD 461 (4)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

HEADQUARTERS ARMY AIR FORCES
ROUTING AND RECORD SHEET

DECLASSIFIED
RESTRICTED

File No. .....

Note. -- A line will be drawn across sheet after each comment.

Tally No. AAF .....

SUBJECT: Furnishing Telephone Lists to Commercial Firms for Purposes of Solicitations.

NO.	FROM	TO	DATE	COMMENTS
5 contd.	AFDMR	AFMAG	4-7	undersigned, is a mis-use of government material and personnel. It was for that reason that this matter was brought to the attention of your office. It is still believed that action on the part of the War Department to stop this situation should be taken. Atchd.: AGO Ltr.3-22-42, AG 330.35 (3-19-42)MC-B-M

M. E. Gross.
Col. A.C. M.E.C.
Mil. Requirements

To Biles:
Due augustin in item 5 is bring brought to the attention of the C.S. (Pub Rel. Off.) for its action — MMS 10 Apr

DECLASSIFIED
RESTRICTED

(Do not use reverse side) R-4071, AF, Rev. 8/14/41

PAGE NO. 3

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

RESTRICTED

DECLASSIFIED

[redacted]

WAR DEPARTMENT
The Adjutant General's Office
Washington

AG 330.35 (3-19-42)MC-B-M

March 22, 1942.

SUBJECT: Officers' Roster.

TO: The Commanding Generals,
Army Ground Forces; Army Air Forces;
Services of Supply; All Armies; Army
Corps; Divisions; Corps Areas;
Departments; Defense and Base Commands;
The Commanding Officers,
Exempted Stations;
The Chiefs of Arms, Services, and Bureaus.

1. It has come to the attention of the War Department that some headquarters are printing Officers' Rosters containing the name, branch, detail, office room and telephone number, residence address and residence telephone number of each. These lists are supplied upon request to commercial firms for purposes of solicitation.

2. It is recommended that the names of Intelligence Officers whose duty it may be to conduct under-cover investigations and whose work may be compromised by the publication of their names and addresses, be deleted from the published list and be placed in a RESTRICTED supplement to the unclassified Officers' Roster, available only to persons authorized to receive such information.

3. It is not believed necessary to include in the RESTRICTED supplement the names of officers assigned in G-2 or S-2 sections in executive, public relations or administrative capacities.

By order of the Secretary of War:

[signature]
Adjutant General

COPIES FURNISHED:
The Divisions of the War Department
General Staff.

DECLASSIFIED

RESTRICTED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

ROSTER OF DUTY OFFICERS — OFFICE OF THE DIRECTOR OF MILITARY REQUIREMENTS

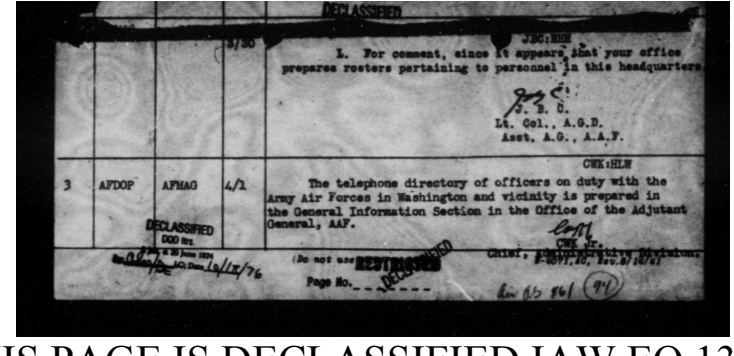
Date April	Director Military Requirements	Director Ground-Air Support	Director Bombardment	Director Ind. Mg.	Director Base Services	Director War Org.& Personnel	Director Air Defense
Monday 6	Col. Gross GE 1000 Ext. 145	Col. King OR 3610	Lt. Sustrick WI 2904	Maj. Bowsky LI 3705	Lt. Carmichael WA 2562	Col. Atkinson TA 2887	Maj. Hittenek EM 6061
Tuesday 7	Maj. Herman CH 9779	Col. Barnett AD 6270	Lt. Sherley WO 3516	Maj. Pool EX 7890	Lt. Finton RE 1075	Maj. MacCloskey NO 6600	Maj. Kaiser RE 0461 Ext. 503
Wednesday 8	Col. Bowman CH 3738	Lt. Price AD 3775	Lt. Smith DI 2663	Lt. Hinson TA 3811	Capt. Sippel GE 7386	Maj. Carter SH 3309	Capt. Fletcher GL 2505
Thursday 9	Capt. Lint NO 1237	Maj. Gilmartin OR 0083	Lt. Johnston GL 5705	Maj. Windrom MI 6665	Capt. Robinson TR 6918	Maj. Snyder OR 1354	Col. Sprehnek BR 2252
Friday 10	Maj. Merchant CO 2025	Col. Barnes CH 2000 AFT 328	Lt. Wasseche WI 5464	Maj. Rogers, Jr RE 2323	Capt. Crouch EX 2224	Col. Chauncey EN 1964	Maj. McKee NO 9096
Saturday 11	Capt. Burdette RE 2323 Ext. 601	Capt. Sykes NO 7368	Lt. Sustrick WI 2904	Maj. Todd TE 6359	Capt. Coste TR 6918	Capt. Lyberger GL 6191	Maj. Patrick WO 1706
Sunday 12	Col. Gross GE 1000 Ext. 145	Col. Kelley OR 0724	Lt. Wasseche WI 5464	Maj. Cowling CH 6042	Capt. Dixon AT 1883	Capt. Newman DI 1277	Col. Goss FR 9000 Extn. 745

DECLASSIFIED

W-7311,A.F.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



DECLASSIFIED

JBC:HEH

			3/30	1. For comment, since it appears that your office prepares rosters pertaining to personnel in this headquarters. J. B. C. Lt. Col., A.G.D. Asst. A.G., A.A.F.
				CWK:HLH
3	AFDOP	AFMAG	4/1	The telephone directory of officers on duty with the Army Air Forces in Washington and vicinity is prepared in the General Information Section in the Office of the Adjutant General, AAF. C. W. K. Jr. Chief, Administrative Division

DECLASSIFIED
DOD Dir. 5200.9 & 10 June 1958
Auth: NND 760030 By: NARS Date: 19/IX/76

(Do not use this space) RETURNED
Page No. 1 DECLASSIFIED

Rev NN3 861 (94)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

Subject: Furnishing Telephone lists to commercial Firms for purposes of Solicitations.

Dispatched
APR 3 1942
AAG

2. AGWAR AGWAR 1942
Re Gen. Inf. 0/2
Mil. Plans
EM. 2004

1. For information as to whether officers, telephone directories, or similar publications prepared by you are distributed or supplied upon request to commercial firms.

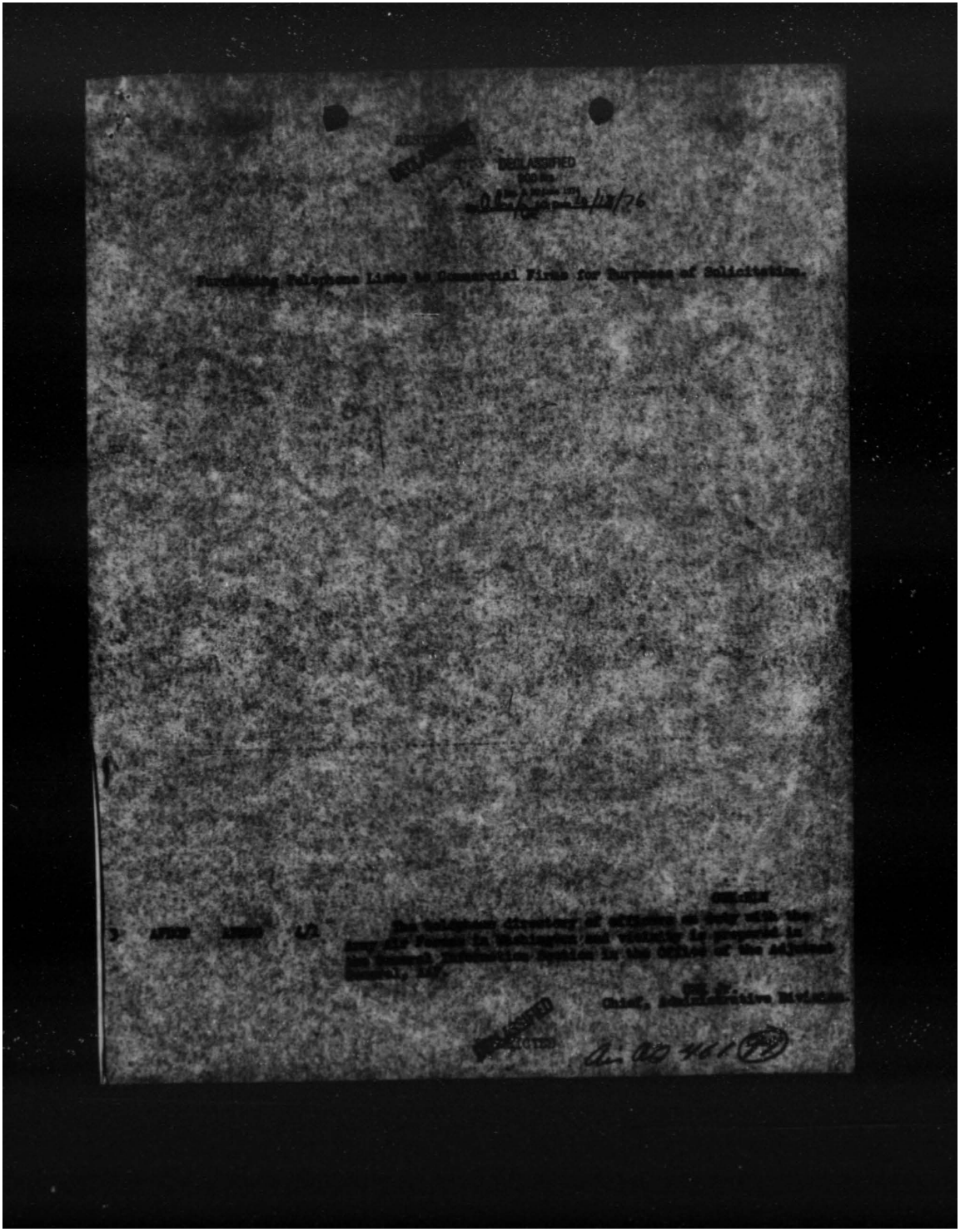
J. A. G.
Ex. Sec., A.G.O.

Chief of Bureau	Ref. Ltr.	A.A.G.	A-1	A-2	A-3	A-4	A-WPD	A-Pers.	Budget Division	Re-marks

AAG-30

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD DIR
By [illegible] NLC, Date 9/18/74

Furnishing Telephone Lists to Commercial Firms for Purposes of Solicitations.

AFDMR/MRB/ch

1942

1 AFDMR AFMAG 3-25

1. A recent AGO letter was distributed throughout the War Department indicating that office rosters containing the name, branch, detail, office room and telephone number, residence address and residence telephone number, were being printed by various offices in the War Department and were being distributed to commercial firms for purposes of solicitation.

2. It is suggested that furnishing of such lists is a misuse of government material and personnel. It furthermore subjects Army officers to being pestered to death by commercial firms either by telephone calls or personal visits. It is recommended that action be taken to the end that the War Department issue instructions that such rosters not be furnished to any commercial firms or individuals except those constituting a part of the War Department.

[redacted]

1. For comment, since it appears that your office prepares rosters pertaining to personnel in this headquarters.

J. B. C.
Lt. Col., A.G.D.
Asst. A.G., A.A.F.

DECLASSIFIED

Air 08 461 (99)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

325

File No. . . . . .

Note--A line will be drawn across sheet after each comment.

CONFIDENTIAL

Tally No. AAF . . . . . .

SUBJECT: Reply to letter of Mr. Howard C. Knotts.

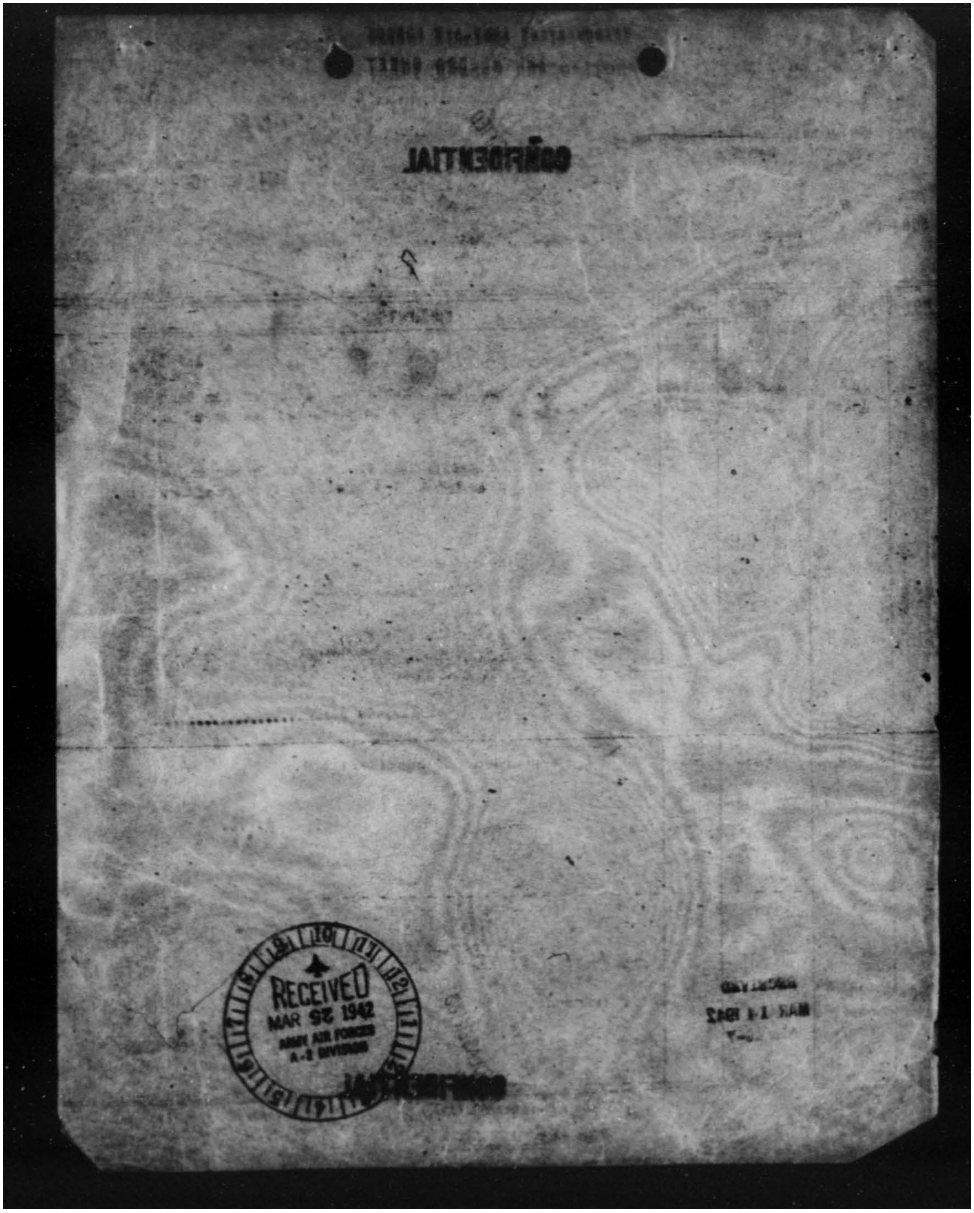
NO.	FROM	TO	DATE	COMMENTS
1	AAF A-2	AAF AAG	1942 3/7	AAF/A-2 WJT-eh 1. Inclosed herewith is a letter for General Arnold's signature in reply to inclosed letter of Mr. Howard C. Knotts. 2. Recommend that Mr. Knotts letter and inclosure be forwarded to A-4 Division for consideration. RECEIVED MAR 7 1942 AIR AG-7 W. L. W. C/A-2 2 Incls. #1-Ltr fr Mr. Howard C. Knotts to Gen. Arnold w/incl. 2/28/42 #2-Drft of ltr to Mr. Howard C. Knotts. AAF/AAG WJTeh
2	AFMAG	AAF-A-4	3-11	Forwarded for consideration. E. REID AIr A.G.
3	AFADS	AFMAG	3-14	AFADS TJK/mah 1. In accordance with Item 1, I have had the attached article read carefully. It is written from the standpoint of a man who has something to sell -- that is, Air Transportation, and from that standpoint he has disregarded many of the other needs for airplanes in order to reach his objective. You will note that the proof for this was prepared prior to the declaration of war. I have

RECEIVED MAR 14 1942 AIR AG-7

Enclosure folded in Envelope

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

File No.

Note.—A line will be drawn across sheet after each comment.

Tally No. AAF

CONFIDENTIAL

SUBJECT: Reply to letter of Mr. Howard C. Knotts

NO.	FROM	TO	DATE	COMMENTS	AFADS TJR/mdb
Cont. 3	AFADS	AFMAO	3-14	made several marginal notes, particularly as the article applies to an apparent lack of transportation. The following is the status of transportation on order or for which orders are contemplated:	

Transports on order or for which orders are contemplated:***

Transp. 4 eng.	C54, C54A (DC-4)		760
	Const.		180
Transp. 2 eng. 36 pass.	C-46		906
Transp. 2 eng. 21 pass.	C-47		2335
	C-53		442
	C-62*		2063
Transp. 2 eng. 14 pass.	18**		240
Transp. 2 eng. 6 pass.	C-45		250
			7186

* The C-62 is said to be a "Chinese" copy of the C-53 in wood to be built by Waco; 13 on order; 2040 in background.

** Lockheed Ladestar (18) - 414 place passenger transport.

*** 1000 gliders with a troop capacity of approximately 10,500 on order; funds for gliders for 21,000 additional troops being included in "E" Supplemental estimate.

Incls.
1. Ltr fr Mr. Howard C. Knotts to Gen. Arnold w/incl. 2/28/42
2. Drft of ltr to Mr. Howard C. Knotts.

TJR
C/AFADS

CONFIDENTIAL

(Do not write on reverse side)

Page No. 1

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

JOURNAL OF AIR LAW AND COMMERCE
Northwestern University Law School
357 East Chicago Avenue
CHICAGO, ILLINOIS

Editor-in-Chief
HOWARD C. KNOTTS
205 South Sixth Street
Springfield, Illinois

February 28, 1942

Lieutenant General H. H. Arnold,
United States Army Air Force,
Washington, D. C.

My dear General Arnold:

Attached herewith is a copy of the January 1942 issue of the Journal of Air Law and Commerce which contains the study of William M. Sheehan entitled "Air Freight for Defense", which may be of particular interest to you. Mr. Sheehan has done previous work on air freight, is a graduate of Harvard Law School and of the Boeing School of Aeronautics, has worked for Lockheed, and has done work for Panagra in Bolivia, among other assignments. The manuscript of this study was in semi-final draft when I was asked to appear before the Civil Aeronautics Board on September 24, 1941 in behalf of the federal certificates for all aircraft and all pilots, and it was used in connection with that discussion. The final draft was in type two weeks before Pearl Harbor, so you see it not only has background but is not catalyzed by our entry into the war. Incidentally, Mr. Sheehan is just back in this country and presently can be reached through his home address, Redwing Farm, Adamsville, Rhode Island.

Our mutual friend Reed Landis tells me that he has sent his copy of the Journal to General Miller and has recommended that I send you the enclosure. I am very pleased to hear that Reed is to be made part of the Maintenance Command, and I know you must be happy to have the services of such a capable officer. I personally am looking forward to the day the Air Force will consider taking on an old soldier who can't chin the physical examination.

Since we last had personal contact (when I was Consulting Expert to the Bureau of Air Commerce in the drafting of the Civil Air Regulations and to the Civil Aeronautics Authority in their revision) just and proper recognition has been given to you for your fine services. My wholehearted congratulations.

RECEIVED
MAR 3-1942
AIR AC

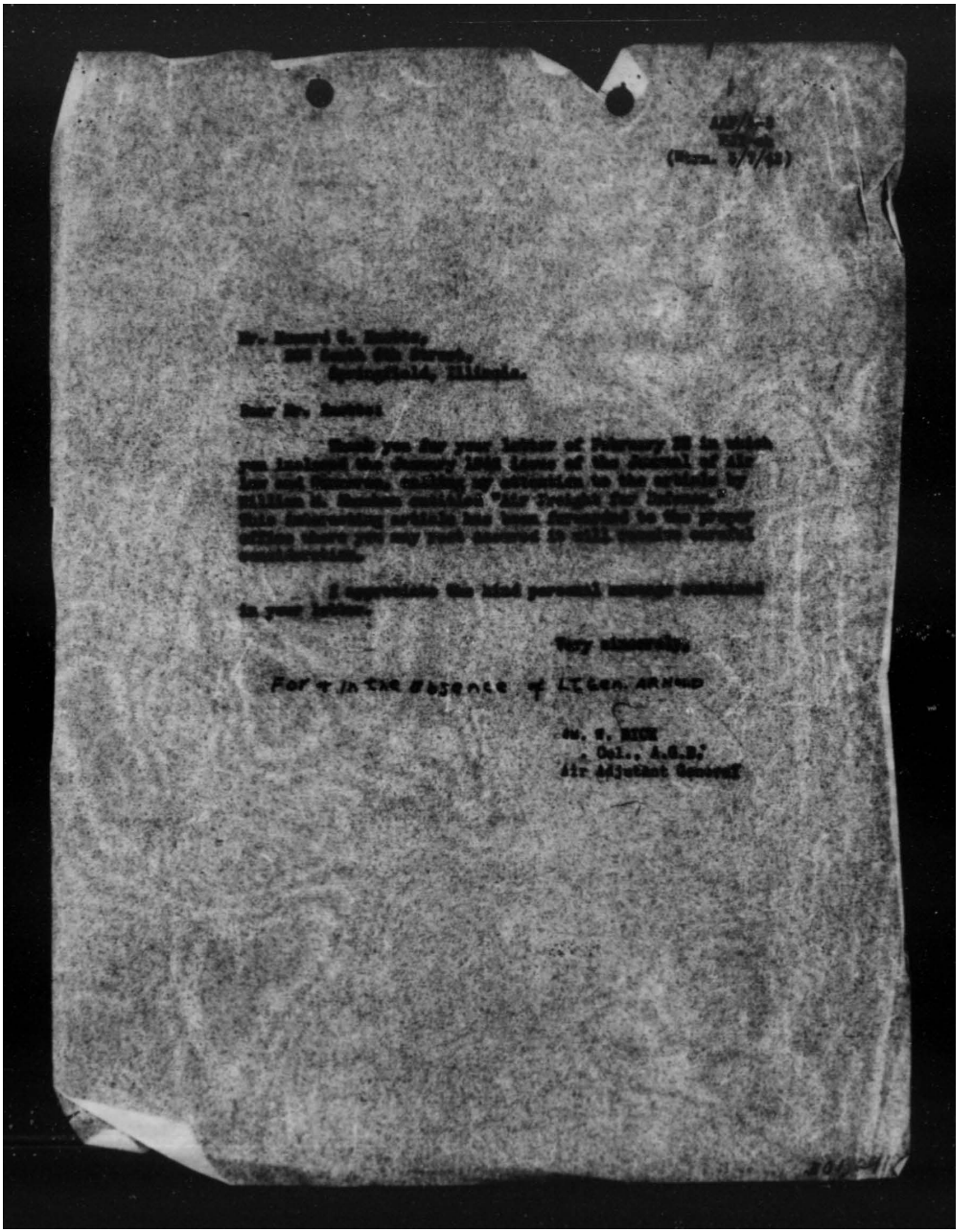
Sincerely yours,

Howard C. Knotts

HCK:MC
Copy to Reed G. Landis,
Aviation Aide to the Director,
Office of Civilian Defense,
Washington, D. C.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



AGP/A-2
(Mrs. 2/7/42)

Mr. Howard E. Hoobler,
[illegible] 6th Street,
Springfield, Illinois.

Dear Mr. Hoobler:

Reference is made to your letter of February 28 in which you inclosed the January 16th issue of the Journal of the Bar and Chancery, calling my attention to the article by William H. Hoobler entitled "Our Twilight Court Scheme."

This interesting article has been forwarded to the proper officer where you may rest assured it will receive careful consideration.

I appreciate the kind personal message contained in your letter.

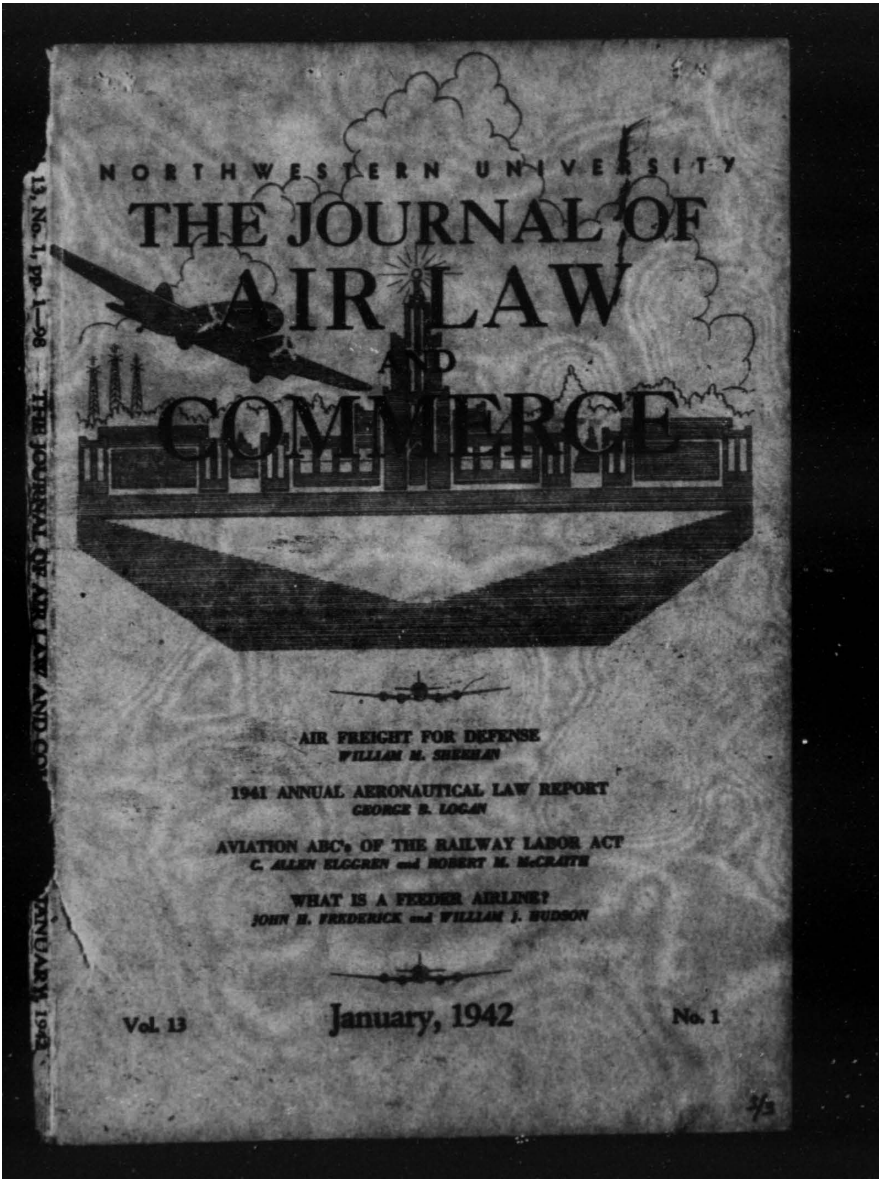
Very sincerely,

For T. in the Absence of Lt.Gen. ARNOLD

J. A. ULIO
Col., A.G.D.,
Air Adjutant General

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



13, No. 1, pp. 1—98 THE JOURNAL OF AIR LAW AND COM JANUARY, 1942

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

NORTHWESTERN UNIVERSITY SCHOOL OF LAW

REGISTRATION is limited to four hundred students.

SELECTION is based upon intellectual attainments and qualities of character.

DEGREE OF JURIS DOCTOR is based upon an acceptable college degree and three years of law study; or three years of college work and four years of law study.

DEGREE OF BACHELOR OF LAWS is based upon three years of acceptable college work and three years of law study.

GRADUATE DEGREES (LL.M. and S.J.D.) are based upon research open to teaching fellows who hold both college and law degrees. A limited number of tuition fellowships are available.

CLINICAL PRACTICE in Civil, Industrial and Criminal cases is required.

PUBLICATIONS. The School fosters three legal journals which publish the writings of the Students Publication Board and members of the Faculty:

Illinois Law Review
Journal of Criminal Law and Criminology
Journal of Air Law and Commerce

INSTITUTES AND FOUNDATIONS. The School fosters the Air Law Institute, The American Institute of Criminal Law and Criminology, The Rosenthal Foundation, The Linthicum Foundation, The Raymond Foundation; members of the faculty are associated with many organizations, through which research investigations are available to both undergraduate and graduate students.

THE SUMMER TERM offers a wide selection of subjects and individual studies.

FORMAL COURSES and INDIVIDUAL STUDIES. Individual studies, both independent and in connection with formal class room courses after the first year, are provided for students who desire to go further into a subject than formal class room methods will permit. The two methods of study are complementary. Either without the other is inadequate for legal training. The formal courses are based upon case book materials aligned for the employment of the most advanced methods of analysis and teaching technic. The curriculum has been thoroughly revised. Many fragmentary courses have been combined, subject matter no longer vital has been discarded, fresh materials reflecting current problems have been included.

BUSINESS TRAINING. The excellent facilities afforded by the School of Commerce (next door) for study of problems involved in business administration are available to the students of the Law School. Studies in the two schools are available in numerous kindred fields, and may be pursued simultaneously or successively.

COMMUNITY AS A LAW SCHOOL LABORATORY. As a basis for third and fourth year individual studies and graduate studies, the Chicago metropolitan area, with its multitude of vital current problems, is utilized as a Law School laboratory.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

THE JOURNAL OF AIR LAW AND COMMERCE

The Journal of Air Law and Commerce prints matter it considers worthy of publication. However, no responsibility is assumed for the soundness of the views expressed.

EDITED BY

HOWARD C. KNOTTS, Editor-in-Chief.
JOHN H. WIGMORE, Associate Editor.
CARL M. JENSEN, JR., Student Editor.

EDITORIAL BOARD

EDGAR S. GORRELL—President, Air Transport Association of America.
RUSSELL C. MEIGS—Chairman, Chicago Aero Commission; Member, Illinois Aeronautics Commission; Chief, Aircraft Section, Office of Production Management.
DAVID L. BEHNCKE—President, Air Line Pilots Association, International.
L. A. VILAS—Vice President, The Pyle-National Company.

DEPARTMENT EDITORS

State Department:
GILL ROBB WILSON—Director of Aviation, State of New Jersey; President, National Aeronautic Association.
ELWOOD R. COLE—Lieutenant Commander, Bureau of Aeronautics, Navy Department.

Federal Department:
STUART G. TIPTON—Assistant General Counsel, Legal Safety Division, Civil Aeronautics Board.
FRED M. GLASS—Of Counsel, American Airlines, Inc.

International Department:
STEPHEN LATCHFORD—Chief, Aviation Section, Division of International Communications, State Department; Chairman, American Section of the CITEJA.
SAMUEL E. GATES—International Counselor, Civil Aeronautics Board.

EDITORIAL ADVISORY BOARD

DAVID C. BEERS—President, United States Aviation Underwriters.
PAUL V. BETTERS—Executive Director, United States Conference of Mayors.
HARLLEE BRANCH—Chairman, Civil Aeronautics Board.
THOMAS BURKE—Chief, Division of International Communications, Department of State.
JOHN H. JOUETT—President, Aeronautical Chamber of Commerce of America.
GEORGE B. LOGAN—Legal Counsel, National Association of State Aviation Officials; National Committee-at-Large, National Aeronautic Association.
NATHAN WILLIAM MacCHESNEY—President of the Illinois Commission on Uniform State Laws.
EARL D. MALLERY—Executive Director, The American Municipal Association.
HAVEN B. PAGE—Lieut. U.S.N.R., Plans Division, Bureau of Aeronautics, Navy Department; Member of Advisory Committee, American Section, CITEJA; Member, District of Columbia Bar.
WILLIAM A. SCHNADER—Chairman, Committee on Uniform Aeronautical Code, National Conference of Commissioners on Uniform State Laws.
EDWARD P. WARNER—Vice-Chairman, Civil Aeronautics Board; Member, National Advisory Committee for Aeronautics.
MABEL WALKER WILLEBRANDT—Chairman, Committee on Aeronautical Law, American Bar Association.

Subscription Per Year: United States, $5.00; Foreign, $5.50. Single Copies $1.50. Published in January, April, July, and October by Northwestern University Press. Address all communications to the AIR LAW INSTITUTE, 357 East Chicago Avenue, Chicago, Illinois.

Copyright, 1941, by the AIR LAW INSTITUTE

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

TABLE OF CONTENTS

ARTICLES

Air Freight for Defense — *William M. Sheehan* — 1
1941 Annual Aeronautical Law Report — *George B. Logan* — 20
Aviation ABC's of the Railway Labor Act — *C. Allen Elggren and Robert M. McCreith* — 39
What Is a Feeder Airline? — *John H. Frederick and William J. Hudson* — 54

STATE

Working Memorandum on Intermunicipal Airport Cooperation — *Emil F. Jurs* — 61
Illinois Model Airport Zoning Act — 64
Officers of National Association of State Aviation Officials for 1942 — 70

FEDERAL

Regulation Requiring Notice of Construction or Alteration of Structures on or near Civil Airways — 72
Pilot and Aircraft Certificates Required — 75
"Accident Involving Aircraft" Reinterpreted — 77
Civil Air Regulations Status, October 14, 1941 — 78
War Regulations Concerning Private Flying — 81
War Policy—C.A.B. Economic Regulation Procedure — 82
Office of Defense Transportation—Executive Order — 83
Civil Aviation—Commerce to War—Executive Order — 86

NOTES, COMMENTS AND DIGESTS

Corporate Control by Other Common Carriers under the Civil Aeronautics Act (*Pan American Airways Co. v. Civil Aeronautics Board*, C.C.A. 2nd, 1941) — *G. Watson and J. Silberg* — 87
Revocation of Pilot's Certificate—Appeal—Motion for Stay of Order of Civil Aeronautics Board — 92
Workmen's Compensation—Status of Reserve Pilot under Statute Determined by Yearly Earnings whether Acting as First Pilot or Co-Pilot at Time of Accident — 93

BOOK REVIEWS

Air Transportation — *Howard C. Knotts* — 95
Air Mail Payment and the Government — *Howard C. Knotts* — 96

THE JOURNAL OF AIR LAW AND COMMERCE

Volume 13 JANUARY, 1942 Number 1

AIR FREIGHT FOR DEFENSE

By William M. Sheehan*

Many years ago in the capital of old Nippon, crowds gathered to watch the Emperor pass by. Word had gone forth that the Son of Heaven was to wear a new and wondrous cloak, of silk finer than a spider's web, so delicate that it could only be appreciated by persons of superior perception and taste. Many were the exclamations as the proud ruler moved along, gracefully hunching his collar or kicking aside a rebellious fold. Each, fearing his own stupidity, was loath to admit that he could not enjoy the rare spectacle. Until at length one small voice cried out, "But he has nothing on at all." Then others, soon all, agreed that in truth the Emperor's vaunted garment existed only in imagination.

There is a parallel today. Among our people, anxious lest some hostile air force rain upon their homes and industries the same death and destruction that has made a shambles of Old World cities, has grown a hope and belief that the present expansion program will provide us with the strongest, most complete air power ever known. Comforted that tens of thousands of bombers, fighters and other combat planes are on the way, we envision an air arm that will cast over not only the United States but the entire Western Hemisphere a cloak of impenetrable aerial protection.

Yet the cold and obvious fact is that the air force we are planning threatens bitter disillusionment—for want of one unspectacular but essential type of aircraft, the sky truck. As though we provided a mechanized army with tanks and armored cars but no trucks, or a navy with battleships and destroyers but no supply vessels, we are

* Mr. Sheehan is the author of "Air Freight for the United States," 10 Journal of Air Law and Commerce 454 (1939), and "Airplanes for Air Freight," 11 Journal of Air Law and Commerce 197 (1940). He is now technical advisor to Panagra airlines in South America, particularly in connection with the replacement of the freighting activities of the old German airline, Lloyd-Aero Boliviano.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

trying to create a balanced air arm without the thousands of troop and cargo transports that modern warfare makes absolutely imperative. Our eagerly awaited cloak of security is nothing but pieces of a fine garment without stitches to hold them together.

Years ago, Admiral Mahan, one of our great naval authorities, said,

> "The student will observe that changes in tactics have not only taken place after changes in weapons, which necessarily is the case, but that the interval between such changes has been unduly long. This doubtless arises from the fact that an improvement of weapons is due to the energy of one or two men, while changes in tactics have to overcome the inertia of a conservative class * * * it is a great evil. It can be remedied only by a candid recognition of each change."

Now there can be no doubt that our leaders have "recognized" the airplane as a new and important kind of weapon. Powerful combat units, discussion in responsible circles of a 125,000 plane air force, indicate that. Even as early as 1931, progressive elements in the U. S. Army, realizing that the moving of troops and equipment by air might be much more effective than hit-and-run bombing, experimented in flying a whole battery of field artillery from one end of the Panama Canal to the other. But the fact that since then so little has been accomplished in military air transportation, and in all published programs for expansion such relatively small emphasis has been placed upon the airplane as a carrier, justifies the conviction that our leadership has yet to recognize the *full* potentialities of air power. Admiral Mahan was right. The interval between discovery of the transport plane as a weapon and its use for tactics, logistics and other military purposes is much too long.

It must be admitted that Germany has suffered less from "conservative inertia" in this respect than have we. For by 1935 she had not only experimented in the flying of troops and equipment but had commenced the large-scale production of a standardized sky truck, the Junkers Ju 52.

So it was that during the battle of Norway the Nazis were well supplied with transport aircraft. Shuttling back and forth like busy ants these Ju 52's, augmented by 40-place Junkers Ju 90's and Focke Wulf Condors, dropped men and material at numerous strategic points. Grey-clad soldiers with rifles, machine guns, light field guns, mine-throwers and collapsible motorcycles, were flown over, and beyond the powerful British fleet. Perhaps sea power was not

defeated by air power in that campaign, but it was most effectively circumvented.

More significant was Nazi use of sky trucks in smashing Belgium and Holland. Here appeared both parachute and air landing troops and for the first time, according to R. C. Candee, Chief of the Intelligence Division, Office of the Chief of the Air Corps, was accomplished that which the consensus of military opinion had previously agreed impossible, namely, the capture and holding of ground by an air force.

In the Balkans, high-lift, rough-landing sky trucks were employed with success. In Africa, General Wavell's hard-won gains were lost to mechanized forces refueled in part from aerial tankers. Troops ferried by air are a feature of the present Libyan battle. The strongly defended island of Crete succumbed not to land artillery or naval invaders, but to air borne troops complete with small tanks, maintained by airplanes and gliders.

Finally in the gigantic Russian campaign, although no longer progressing favorably for the Nazis, sky trucks have been a vital auxiliary, without which the German push might have collapsed long ago. For it is not like Napoleon's disastrous invasion, the Nazis are moving behind a 2200 mile front. The difficulties of moving troops and supplies over such an area are stupendous, especially when it has been the avowed policy of the retreating armies to leave nothing but scorched earth behind—no railroad tracks, bridges, roads, tunnels—every square foot of ground subject to hidden mines. That lines of communication have been kept open and a relentless pressure maintained for so long in hostile territory is attributable in part to the fleet of not hundreds but *thousands* of busily shuttling Junkers.[1]

One views these conquests with wonder. How could Nazi Germany, a short time ago completely bankrupt, opposed by the finest army, the most powerful navy and resources of almost the entire world, come to dominate in the space of two years sixteen countries of Europe? Ruthless terrorism, clever Machiavellianism, fifth columning, treachery, deceit—all these, to be sure. But more fundamental has been the power of its armies. Not old-fashioned military might such as that in which France excelled, but a power

1. According to official German statistics, during the period June 22, 1941, to October 31, 1941, on the Eastern front alone, Luftwaffe transports moved up 42,000 tons of supplies, bringing 80,000 troops, flying a total distance of 12,000,000 miles. For purposes of comparison, all the cargo, freight or express, military or commercial, flown during the entire past year in the United States amounted to about a fifth of the quantity indicated above.

270 Tons a day - 480 hours per day + 25 planes = 600 round trips

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

that Admiral Mahan would say resulted from overcoming "the inertia of a conservative class." The ability not only to find new weapons, different types of tanks, guns, combat planes, submarines, etc., but to apply them in changes of tactics. Not the least among these has been use of the sky truck to speed up operations to an unprecedented tempo. Nazi strategists have grasped the real significance of air power. By putting whole regiments on wings, they have embarked upon what may prove to be the most revolutionary change in military thought that man has ever known. War has moved into the third dimension.[2]

The building of armed forces is a matter which civilians usually leave to others. Yet, in the absence of indications that our leaders appreciate the necessity of building large sky truck auxiliaries, constructive suggestions from those engaged in civil aspects of sky trucking are a responsibility. In this spirit, it is proposed to consider, first, what sky trucking facilities the United States has on hand or, so far as is known, on order; next, how sky truck auxiliaries would enhance our military strength; and finally, how such auxiliaries might be obtained.

I.

The only aircraft that have had any appreciable experience moving heavy freight in this country are the sky trucks of the Army Air Corps, for the most part 12 ton, twin-engined Douglasses. Last year the Army's transports, fifty or sixty in number, moved more than 4,000 tons of aircraft engines, propellers and other cargo, operating scheduled runs between four major depots at Middletown, Pennsylvania, Fairfield, Ohio, San Antonio, Texas, and Sacramento, California. The Air Corps' newly formed Air Service Command now claims over three hundred transports for passengers and cargo. Good as far as it goes, but hardly worthy of a first class air power.

Contrast this handful of freighters with the Nazi horde, which by Allied estimates is anywhere from 5,000 to 10,000—probably closer to the latter figure.

For want of the necessary types and quantities of airplanes, no more than four battalions in the U. S. Army are receiving training in parachute tactics. Only recently was the first battalion of 550 men created to study and practice maneuvers involving air

2. "Air power today has decided the fate of nations. Germany with her powerful air armada has vanquished one people after another. On the ground, large armies had been mobilized to resist her, but each time it was that additional power in the air that decided the fate of each individual nation." Henry L. Stimson.

landings. And if one searches published breakdowns of United States warplane orders for future comfort, he will discover only about five hundred additional aircraft destined to supplement our military air transport services during the next few years.

Whereas the carefully planned German air force counts more than *sixteen* percent of its first line fighting strength in the form of troop and cargo bearing sky trucks, Uncle Sam, who maintains garrisons scattered over a third of the earth's surface, had up to a few months ago less than *four* percent of total aircraft strength in this form.

But how might increased emphasis on the production and use of sky trucks contribute to American defense?

II.

The first answer is by direct military utilization of such equipment, both for regular supply auxiliaries and for tactical maneuvers.

Since the dawn of time logistics, or the movement of troops and supplies, has been one of the most fundamental of military problems. "The art of war consists of always having more forces than the opponent . . . at the point where one attacks," said Napoleon—a thought more succinctly phrased by the General Staff School in its *Principles of Strategy*, "Be stronger at the decisive point." Decisive points shift frequently and suddenly. Therefore the need of the fastest possible transport facilities is obvious. A fleet of 1,000 sky trucks divided among army, navy and air corps, although far short of German figures, would go a long way toward speeding up our military supply services.

Now that we are at war there is danger of attack along either coast. Our best equipment, including the all too few mobile anti-aircraft guns, is placed along the Atlantic seaboard. Suddenly aircraft carriers appear off the Pacific shores and send squadron after squadron of bombers to destroy airports, power dams, communication facilities, as well as the forty or fifty percent of aircraft production which lies conveniently bunched there. It might be necessary to move a large amount of troops, guns and supplies across the country with the greatest possible speed. How would the Army accomplish this? Judging by maneuvers up to the present time, by trucks and trains. For although the Air Corps has experimented in moving heavy pieces and troops with side arms, there has never been a truly large scale movement of men with heavy military

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

equipment in our planes. As a matter of fact, as indicated previously, the Air Corps has never had enough sky trucks to undertake such maneuvers. The citizens of Los Angeles would have to wait three days and two nights for the fastest express trains to reach them from the other coast.

In tying together the far-flung ramparts of our defense area the need of great numbers of sky trucks is particularly apparent. For the advantage of air transportation stands out sharply when contrasted with ten or twelve knot surface vessels. It is regrettable that today our vital outposts in Alaska, Hawaii, the Philippines, Iceland, Greenland, Trinidad, the West Indies, and Dutch Guiana, have no sky truck connection worthy of the name with main bases, but must await slow, plodding marine vehicles for virtually all their needs.

In a letter to Admiral Land several years ago, President Roosevelt wrote, "You and I know, from our work during the war, the disabilities of a navy which lacks an adequate merchant fleet. With all its enormous potential combat power, such a navy is tied to its land bases." Is it not obvious that an air force without aircraft supply vehicles is equally under disabilities? We are spending billions to enlarge our naval auxiliary. Is not creation of aerial auxiliaries just as important?

Strangely enough, the nation which heretofore has shown itself most progressive in development of transportation facilities, that can lay claim to more than a quarter of the world's scheduled airways, one-third the railways, one-half the paved highways, has made no appreciable effort to harness as its servant, even for its military forces, the fastest cargo medium of the day. But, aware that levees, bridges, canal locks, tunnels, road junctions and long, gleaming rail lines are the first objectives of high flying bombers in modern warfare, more and more citizens are beginning to inquire why provision is not being made for vehicles which use the indestructible pathways of the air, the landing fields of which can be any ball park, meadow or level stretch of road, the transport functions of which are not likely to be impaired by civilian congestion in time of trouble.

Even more promising than in naval and military supply systems is the use of sky trucks for maneuvers of attack.

In this connection, the relation of speed to the effectiveness of attack, as propounded by Colonel James L. Walsh to the Army Industrial College, is of interest. Making an obvious analogy to the

fundamental laws of motion set forth by Isaac Newton, Colonel Walsh said:

> "In war, the kinetic energy of attack increases directly with the weight but increases as the square of velocity. Velocity, in turn, increases directly with distance covered in a given time, but inversely with time required to traverse a given distance. Hence, if weight is doubled, striking energy is doubled. But if time is halved, striking energy is quadrupled, and if time is cut down to one third, striking energy is increased ninefold—which perhaps explains the startling effectiveness of today's war."

According to Colonel Walsh's theory, other factors such as fire-power and armor protection remaining the same, the military effectiveness of an army has a cubic relation to its speed of movement. If, as is roughly the case, aircraft transport and combat units are capable of moving ten times faster than surface vehicles, the effectiveness of an army transported in airplanes should then be of the order of ten cubed, or 1000 times, greater than a similar truck- or ship-borne force. To be sure, practical difficulties might prevent the full benefit theoretically possible from being immediately attained. Yet even the partial workability of this stupendous concept is sufficient to justify great reliance upon air transportation in tactical maneuvers of offense.

Because of the importance of speed,[2] some experts now advocate that Uncle Sam lead in taking the final step of evolving air power. They urge that enough of the sky truck type of airplane be constructed as soon as possible to serve as the basis of what, for want of a better term, might be called "airmadas"—fleets of scouts, bombers, fighters, and transports for carrying whole divisions or armies, parachute troops, infantrymen, artillerymen, engineers and all their equipment. Intended primarily to collaborate with land and sea forces, these air units would, however, be capable of independent action in taking and holding territory of strategic importance.

In keeping with the wise principle of retaining military strength within the United States as long as possible and sending it out to points remote from our cities and industries only when it is clear from which direction we were in greatest danger, there ought to be at least four airmadas, one in each corner of the country. That in

2. "The tempo of battle, as many have observed recently, has speeded up tremendously, but the ultimate (a war time will be reached not by the Panzer Divisions, not by the motorized brigades, but by parachute troops and air infantry." Major General H. H. Arnold and Colonel I. C. Baker in Winged Warfare, Harper, N. Y., 1941.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

the Northwest would be poised to hop to Alaska, that in the Southwest to Hawaii, the Southeast one to South America, the Northeast to Iceland. For these purposes, a range of approximately 1,500 miles should suffice.[4]

Having decided upon a range, we are in a position to see what loads can be transported. In the following table are shown the weight-hauling characteristics of two long range aircraft produced for the United States air arms. The first, the Boeing B17E, is a recent version of the Army's familiar "Flying Fortress." The other, the Consolidated PBY2-2, a late edition of a distinguished series of navy patrol bombers. The Boeing is a four-engined landplane of about 22 tons when loaded, the Consolidated a four-engined seaplane of about 30 tons. Either could, with minor structural changes such as enlarged doors, seats and bomb racks removed, "beefed-up" floors, etc., be converted into extremely useful sky trucks.

MILITARY LOADS OF POTENTIAL SKY TRUCKS

Range	Boeing B17E (Landplane)	Consolidated PBY2-2 (Seaplane)
1500 mi.	16,120 lbs.	24,160 lbs.
3500 mi.	10,000 lbs.	14,920 lbs.

It may be that other makes of aircraft would show equally good or better figures. The Douglas B19, for example, gigantic 82 ton landplane recently completed for the U. S. Army, is able to haul a greater load of fuel than a railroad tank car. Probably more useful as freight car than bomber, several thousand of this type could ferry staggering quantities of men and material to remote points in a short time. But the B19 giant is an experimental proposition. It would be years before we could count upon a fleet of them. In the interest of immediate practicability, tried models such as the two selected above would seem preferable.

Supposing the airmada is built around a streamlined division of ten to twelve thousand men, complete with much if not all the equipment now carried in major maneuvers, how many airplanes would be needed for each?

Lt. Colonel Wm. C. Lee, in the *Infantry Journal*, said the number is astonishingly large, yet "not so great that American

4. Such a range would enable the Northwest air force to reach its objective in a single hop—while the Southwest airmada would have a longer single hop to Hawaii —and the Northeast and Southeast forces would have two hops to Iceland and the bulge of Brazil, respectively. It is significant that long range of operations has been emphasized as one of the first needs of our developing air power by many distinguished military authorities, including Major General H. H. Arnold, Deputy Chief of Staff of the Army for Air.

industry should be unable to produce them." According to the writer's calculations, approximately 3,500 sky trucks of the types mentioned above, plus of course, combat airplanes for protection, would be necessary.[5]

Half of the sky trucks would be landplanes, half seaplanes, in order both to spread risks and reduce congestion at landing fields. Many of them would be adapted for specialized uses such as ambulance planes, repair shops, camp kitchens, fuel tenders. Vital equipment would be carried in duplicate to care for washouts. All planes would be equipped for quick loading, rough landing and would carry the maximum loads compatible with reasonable safety. Upon reaching destinations, some would be immediately re-converted to original functions of bombers and long range patrol ships. The balance would wing back to the nearest supply base to ferry in additional supplies.

Scouts, pursuits, interceptors, observation planes, dive bombers and other types of combat planes that the particular situation might require would be there. Dispatched in staggered groups—again to avoid congestions at intermediate or objective landing fields—the entire formation would proceed somewhat like a naval fleet. In front, swift scouts, in constant radio communication with other units, then twin-engined destroyer-like fighters grouped about hard-hitting bombers, and finally the heavily loaded transports convoyed by more destroyer-type aircraft. Just as a naval fleet may proceed at the speed most suitable for its submarines and oil tenders, so the airmada could move at the speed most suitable for its sky trucks—a relatively slow tempo which would enable greater loads to be carried and, incidentally, permit the convoying planes to escape the necessity of refueling while in flight.

One can imagine circumstances that might cause such an airmada to be called into action. Major General J. J. Fulano, in command of the Southeast Airmada Division, with headquarters at Tampa, Florida, has received orders to proceed at once to eastern Brazil, where a group of Fascist army officers has assumed control of the government. Having directed an orderly to fetch the heavy, loose-leaf book known as "Plan C," General Fulano studies the key pages.

5. It is assumed that the airmada division would require sufficient aircraft to carry approximately 20,000 tons of material and 1000 tons of extra fuel. Referring to the capacities at 3000 miles (enabling a 1500 mile hop and return) shown in the above table for the Boeing and Consolidated airplanes, a need of 180 of each for personnel, 80 of each for fuel, 1600 of each to carry material, or a total of 3600 (roughly 3000) sky trucks in all is indicated.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

"Military Intelligence reports enemy activity obscured by unusual secrecy at Dakar. Coastal command reports no naval action in vicinity of Trinidad. Revolutionists incapable of strong resistance save, possibly, at Rio de Janeiro."

"That means we had better let Rio go until the hump is under control," concludes the general.

Orders are given. Radios crackle. Hustle and bustle fill dozens of airports from Key West to New Orleans, from Charlottesville, North Carolina, to Pine Bluff, Arkansas.

Wing commanders give orders to group commanders, relayed on by them to squadron leaders, from there to thousands of eager pilots, navigators, radio operators, mechanics, infantrymen, artillerymen, engineers.

Without delay, two parachute battalions in transports accompanied by scouts, fighters and several refueling planes are zooming to their destination at 300 miles per hour. "Take principal harbors and beach points—occupy airports, strategic rivers and lakes—seize control of rail lines and highways from Maranhao to Salvador," is their mission. Intended only to overcome weak resistance or demoralize internal communications where there might be strong resistance, these parachuting pioneers carry mostly light equipment —side arms, wire cutters, dynamite, light machine guns, 60 mm. mortars, folding bicycles.

On their tails come detachments of engineers, specialists in preparing airports, either by expanding existing fields or making new ones in strategic spots previously selected. They are equipped with shovels, dynamite, tractors, scrapers, bull-dozers, giant searchlights, artificial landing strips. With them come several units of anti-aircraft troops with their highly mobile 37 mm. anti-aircraft guns.

Finally, traveling half as fast, come the main forces. Both at the halfway stop at Trinidad and at various destination airports, double landing strips laid into the prevailing wind permit a steady trickle of incoming planes on one side, of outgoing planes on the other. Equipment of air infantry and artillerymen, besides personal luggage, food, tents, rifles, includes most of the items standard for the surface army today. The 134 lb. 81 mm. mortar, the 37 mm. anti-tank gun that shoots 7500 yards, pierces 1½ inch armor like butter and weighs 850 lbs. The 1,470 lb. 75 mm. howitzer, and the

new 105 mm. howitzer that will soon replace the old 75's as standard light artillery piece. Motorcycles equipped with .45 caliber submachine guns—tiny, 2,200 lb. "jeep" liaison cars which can scoot with four men over rough country at high speed—1½ ton utility trucks, 5 ton scout cars. Even our 9½ ton heavy armored cars, 13½ ton light tanks and the huge 15 ton 155 mm. gun, whose 95 lb. shell can be hurled more than 14 miles for the longest range of any field artillery weapon in our army, should be capable of transport in sky trucks such as the Douglas B19—if not in the Consolidated seaplane described above.

With advance detachments in possession of all key points within twelve hours and the more slowly flying main forces commencing to arrive twenty-four hours after the original order to proceed, General Fulano may enjoy a feeling of achievement. Speeding directly over ocean, mountain, jungle, his men will have commenced effective occupation of a strategic region 3,000 miles away within the space of a single day, an accomplishment which would have taken a surface expedition weeks or more.

But the General's duties are by no means near an end. His sky trucks must hourly ferry up more supplies and equipment. Bombs and bomb racks, so that sky trucks remaining with the advance forces may be converted into bombers—machine guns and extra fuel tanks so that others may be converted into long range patrol boats. Spare parts and replacement engines. The large field guns may soon have a daily appetite of something like 44 tons of shells, the small field pieces 179 tons, the howitzers 256 tons, the rifles 209 tons of bullets. His men will need each day about 135 tons of food supplies, a part of which may be obtainable from the occupied country. Combat and scout planes and surface vehicles may use several thousand tons of fuel a day. To meet such demands, the General's sky trucks have a maximum daily ferrying capacity of 22,875 tons, granted supplies have been previously located at the advance base at Trinidad—of 11,437 tons if operating back to the main base in the United States. In either case it should be ample quantity, even allowing for crackups and other mishaps.

Although responsibility for upkeep of aircraft may devolve on allied divisions and facilities at Trinidad may be available for major repairs, General Fulano will rely on his ten or twelve thousand supra-marines, men of exceptional ability and training, for first aid to disabled planes. As time allows, however, more and more service detachments will be ferried up to advance stations, grad-

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

ually freeing the air infantry and artillerymen for their primary function of fighting.

The foregoing, of course, is not intended to constitute a prophetic picture of the hop-skip-and-jump warfare of the future. No one can clearly foresee that. But it does purport to convey an idea, based upon the performance and capabilities of current types of aircraft, of what could be done to put an army on wings.

Nor is there any desire to gloss over obstacles which must be overcome before independent airmadas of occupation may be relied upon as instruments of military tactics. Some of the problems seem almost insuperable. Adapting large aircraft for landing on rough terrain or for containing heavy, concentrated loads. Training airport layout engineers and selecting highly skilled mechanical infantrymen and artillerymen. Procuring sufficient pilots. "Airlining" equipment and ordnance to minimum weight and bulk. "Fitting" pieces that can not be broken down into smaller sections. And, above all, organizing the entire operation so that when the time comes, it may be conducted with the smoothness and swiftness that success demands.

But no matter how great these problems, we should be able to count upon the ingenuity of American military authorities to work them out. For the core of the idea is sound—airplanes *can* carry large military loads in addition to the fuel necessary for their return to bases of origin—a large number of the appropriate types can carry to and maintain at remote destinations entire divisions or armies. The difference between what has been proposed herein and what has been done already by the Luftwaffe is one of degree only. However the difficult details may ultimately be worked out, the outlines are apparent.

A matter for reflection is that what we could do, others could, too—perhaps first. It is not a preposterous suspicion that Germany, with its megalomaniac-led war machine which has already had tremendously valuable experience in the use of parachute and air landing troops in various situations abroad, might attempt sudden penetration of this hemisphere by airmadas, wholly or in part.

Years before this war began, Nazi pilots were flying great four-engined commercial airliners, the same type that made the 3900 mile non-stop flights between Berlin and New York, regularly from western Africa to Brazil. Even though chief Nazi require-

ments in the war have been for short-range aircraft, long-range equipment has not been neglected. The economical oil-burning Diesel aircraft engine (which we so unwisely overlook) has been perfected to the point where for long distances it compares favorably with our highly developed, fuel-hungry gasoline engines. Powered with four of the Diesels, Germany's 22 ton Dornier Do26 flying boat, now in use as part of the counter-blockade, can fly 5,593 miles on less than four tons of fuel. The more conventionally powered (gasoline) Focke Wulf Kurier could in less than eight hours transfer thirty or forty men, or four tons of supplies, from Dakar to Brazil. It is reported to have an all-out cruising range of 10,000 miles.

"The only thing that can defeat air power is an air force that can go up and stop it," said Billy Mitchell. Surely the thing most likely to discourage ambitious, air-minded aggressor nations from developing long-range airmadas capable of flying over our Atlantic fleet and funneling into some inaccessible and possibly hospitable territory far from our own bases, is the existence of just that sort of air force in the United States.

III.

Another important use of a sky truck auxiliary would be of indirect military value, i.e., in speeding up rearmament production.

A fleet of three or four hundred transports similar to those now employed by the Air Corps, to haul only heavy, bulky materials, parts, tools, supplies and products of our vital war industries, would hasten the day when we can feel prepared for any contingency. Utilizing essentially the same routes and stops as existing airlines—probably operated as a new and separate transport activity by them—this cargo service would connect practically every important industrial center by air. Rearmament transportation would be on a six to ten fold faster basis. The industrial areas of either coast, three thousand miles apart, would be merely a day's flight from each other.

Not only the magnitude of our rearmament program, but the evident determination of the Government to spread the work about in order that every available industrial plant contribute to the nation's effort, places a tremendous emphasis upon swift commodity transportation. Parts for bomb-sights, rangefinders, new and secret apparatus, have always been produced in isolated shops, then assembled elsewhere under strict surveillance. Now, production

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

of such large objects as ships and tanks are subject to this transport-burdening "sub-contracting." In the vital aircraft manufacturing industry itself, where more than fifty-five percent of requirements for fabrication are shipped, on the average, over 1,500 miles for assembly, there is a great and growing need of a freight service swifter than that of trucks and trains.

Beyond our borders there may soon be an even greater need for a sky truck auxiliary. Certain raw materials, tin, rubber, antimony, vanadium, manganese, essential to American industry, are imported in part or in whole from abroad. Many of these now come from the Orient, a source which even the most confirmed optimist will admit might suddenly be cut off. Despite stock piles, in some cases all too inadequate, we are likely to have urgent need for such materials produced outside the country if war troubles grow.

Fortunately we may fill most of our wants in countries to the south. Tin from Bolivia, antimony from Mexico, vanadium from Peru, cinchona from Colombia, rubber and manganese from Brazil. We may also supplement our own supplies of copper and nitrates from Chile, of wool, tungsten and hides from Argentina, of bauxite from the Guianas.

But how will we transport these materials up to the United States? By surface vessels, to be sure. Yet no one knows, if or when the worst came to pass, how many merchant ships we might have, or whether marine commerce with South America would be free from hostile naval action. Even if we had enough vessels and adequate convoy protection, a fleet of six or seven hundred cargo planes, which by flying directly to inland mines and plantations would be free of the notoriously inadequate transport facilities of mountain, jungle and desert covered South America, might well be a precious asset in days to come.

There remains to be considered what we have in this country of a non-military character that might be used for industrial sky-trucking.

We have, of course, an efficient but expensive AIR EXPRESS service, operated jointly by the airlines and railroads, whereby shipments are carried in small compartments in the same planes with passengers and mail. This operation is neither by experience nor size of accommodations suited for large scale heavy freight activity.

It is a grave error to assume, as do some students of the transportation problem, that in event of a crisis the 350 aircraft of domestic airlines and 150 airplanes of the country's foreign airlines could readily be converted to use either for industrial transportation or some more direct military purpose. They would be wholly deficient not only from the point of view of numbers, but also in types and, most important, in organizational experience.

If the need suddenly arises to move important supplies or a large force in the quickest way possible, we can not simply commandeer all transport planes as the French pressed into service all the taxicabs of Paris during World War I. Modern warfare is highly dependent upon careful long range planning, and the problems inherent in air transportation are vastly greater than those of surface transportation. The interior of our conscript planes would have to be revamped—floors reinforced—hatches put in. Airports would have to be prepared, supplies cached. Without previous extensive practice, the use of these few hundred airliners might prove quite disastrous.

Moreover, it is doubtful whether the airliners should be relieved of their vital function of speeding army officers, government officials, businessmen, technicians, mail and urgently needed small parts across our broad country. Defense efforts would be seriously impaired. The British, pressed as they are for anything that will fly, have found it expedient to maintain ninety-five percent of their pre-war commercial air schedules. The Germans have even added to theirs, using new equipment for the purpose.

Military or commercial, our sky trucking assets are practically nil. Incredible as it may seem, we do not appear to have even the will to correct this situation. But can it be corrected? Can this hole in our defense armor be plugged in time?

A careful, reasoned answer is in the affirmative—*if*, and only if, we act immediately and our action is decisive and energetic.

IV.

The need of at least 16,000 sky trucks has already been mentioned, 1,000 for the regular supply auxiliary of the army, navy and air force, 14,000 for the four airmada divisions, 650 for airlines operating to remote sections of the Western Hemisphere, and 350 for industrial rearmament transportation within the United States. They should be divided among three existing types of

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

aircraft, short-haul and long-haul landplanes and long-haul seaplanes, and should be available well before the earliest possible date of any hemispheric invasion attempt.

It might be wise to plan the building of 16,000 sky trucks per year, until a total of sixty or seventy thousand has been secured, when a 16,000 annual replacement would serve to maintain the nation's sky truck auxiliaries in proper, modern condition. After the first critically needed 16,000 had been allocated for the purposes indicated above, subsequent production could augment them, and, to an even greater extent, replace slower surface facilities as they become worn or destroyed. If, as at the moment seems likely, a battle of transportation is to continue for many years whether there be war or peace, and if the freight portion of total airline activity is ultimately to reach the dominating proportion of seventy-five or eighty percent as in every other form of transportation, an objective of sixty or seventy thousand sky trucks is by no means disproportionate for a nation which has a peace-time fleet of 5,000,000 surface trucks, 11,500,000 tons of cargo vessels and 1,750,000 freight cars.

16,000 planes per year would require a productive rate of about 45 per day, a more conservative figure than the 1,000 airplanes daily desired by Mr. Ford or the 500 suggested by C. I. O.'s Walther Reuter, even allowing that the sky trucks are larger planes. Incidentally, if, as appears preferable, sky truck production is added to the military plane production already planned, in such a way as not to interfere with it, the President's 50,000 military planes per year objective should be reached in 1942 or 1943, instead of 1944, the date heretofore set for its accomplishment.

How much of a burden upon the nation's productive capacity would be involved in adding 16,000 transports per year to the aircraft already planned? According to calculations of T. P. Wright, one of the country's outstanding authorities in these matters, we should produce approximately 28,000 trainers, bombers, pursuits, etc., in 1942, 39,000 in 1943, 49,000 in 1944.

There are two features about the sky truck program, as distinguished from other types of military aircraft construction, that make possible rapid increase of production: 1) concentration on a few types, and 2) no design changes.

1) Our presently planned production calls for forty or fifty different types of military aircraft. It is generally conceded that

despite the great advantages of standardization the complexities of modern aerial warfare prevent the use of any smaller number of models. Thus, on the average, we are producing something like five or six hundred planes of each type per year, and at peak production in 1944 will average barely more than 1000 planes of each type. The sky truck program would call for at most only three makes of aircraft, each, incidentally, devoid of the instruments, accessories, gadgets, trappings and highly specialized armament that characterize combat planes. Production would average 5000 planes of each type. As a result, sky truck construction would have a much better chance of achieving "mass production" than any other type of airplane fabrication.

2) Manufacturers of combat planes, like the dog after the mechanical rabbit, are continually striving for unattainable perfection. Each time a new idea promises better performance, production is stopped, blueprints revised, tooling changed, new jigs built. Like the woman who was afraid to stop adding to her house lest the spirits punish her, engineers seem to be forever withholding a final O K and large scale production is always "just around the corner." Nor is this fussiness avoidable in combat plane production. An air force would be foolish to risk its precious pilots in equipment even slightly inferior to that of the enemy.

But there would be none of this delay in building sky trucks. The three chosen types of aircraft would be copied as they were, with the readjustment of providing larger doors, stronger floors and loading facilities which do not exist today. As with the Nazis' Junkers Ju 52's, the objective would be quantity rather than quality.

To effect such a program legislative and executive action would of course be necessary. A chief of production appointed by the President and empowered to commandeer all necessary non-military production capacity. Drop hammers, turret lathes, drill presses, hydropresses, grinders, shapers, milling and boring machines as well as labor, materials and factory space would be appropriated "for the duration" from the automobile or any other industry as might be necessary. Blueprints, jigs and dies would be scattered throughout private industry in order that scores of them might be copied, installed and used as quickly as possible.

The Government has provided for creation of new manufacturing capacity to build annually 10,000 long range bombers of the Flying Fortress and Consolidated Flying Boat types. A difference

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

between this and the program proposed herein is that, plane for plane, sky truck production would be considerably easier of attainment. Moreover, while the bombers in themselves are a drain on our supply of materials, the sky trucks would to a great extent help replenish them.

As a corollary of sky truck expansion, we would have to make great efforts in other directions, too. To get the most out of our supra-expeditionary force, we would need more and better airports within the United States—all the air bases that can be procured beyond our borders. We should have to train tens of thousands of mechanics, navigators, radiographers, meteorologists.[1] Pilots, too, would be a problem, although sky trucking would enable good use of our "overage" men and provide a training field for inexperienced military fliers. With sky truck designs frozen for a year or so, time would be given for very desirable research along the lines of specially designed freightplanes[2] for use in subsequent standardizations. Gliders, too, merit intensive research. For sooner than we think they may be to air cargo what boxcars are to railroads, trailers to highway trucking.

To many the advent of peace seems so remote that to mention plans for the post-war world is a waste of time. Yet peace is sure to come, and, like the holocaust itself, may happen sooner than expected. At any rate, so great an expenditure[2] as this sky truck program would necessitate ought not be made without consideration of its relation to cessation of hostilities. Pursuits and bombers, like destroyers and battleships, will be so much junk at war's end. Vehicles designed for fighting are bound to be inefficient and uneconomical for other purposes, such as commercial transportation, particularly air freight transportation. But the sky truck would be useful, come war or peace. Of the fifty or sixty billions which at this writing have been spent or committed to defense purposes, little will be as usefully invested as would be the funds for these sky trucks.

The sky truck program here presented is essentially an emergency one. We should, of course, prefer it to grow slowly and

1. "It is not unlikely that a new cargo type, the heavy freight carrier, will shortly appear in the military arms of the leading nations. There is some evidence of it already and there is a general demand among the tactical units and in the supply agencies for such a type in this country. * * * The designs submitted to date point to a fairly slow plane with great weight-lifting ability and particularly designed for the rapid loading and unloading of freight. * * * The trend toward the general use of air infantry necessitates a troop transport of large capacity." Major General H. H. Arnold, op. cit., p. 16.

2. Cost of the 16,000 planes per year should approximate three billion dollars.

surely—even as the French and British intended that and other phases of aviation to grow in their countries. But if we have to defend this hemisphere, we shall probably not be given all the time we should like by our enemies. Transportation may well be the key problem, a large fleet of sky trucks a precious aid. Along with all the other rearmament demands those sky trucks would entail a burden on the energies and pocketbooks of the American people. But the rewards would be great—a modernly geared army and navy supply system, a rearmament industry that functioned with utmost speed and efficiency, the world's fastest, most deadly striking units. And these, with the program of combat plane construction upon which we have already embarked, would provide us with the cloak of protection that we are all so anxious to see.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

1941 ANNUAL AERONAUTICAL LAW REPORT*

By George B. Logan

Because of the importance, in my opinion, of two proposals concerning aviation, legally, these proposals will be first discussed, and if time permits, court rulings will be taken up last.

It is earnestly requested that, if you cannot lend me your ears, you at least bend them my way until you hear of these proposals.

There is a proposal that there should be a Federal Aviation Liability Act. There is also a proposal that the American Bar Association withdraw its support of the Uniform Regulatory Act.

With the genius I have at getting things backward, I will discuss the last one first.

You will recall that this Association worked assiduously in connection with the Aeronautical Law Committee of the American Bar Association in the preparation of the Uniform Regulatory Act. The work began, as far as the American Bar Association is concerned, in 1929; as far as the National Association of State Aviation Officials is concerned, it began with the formation of the Association in 1930. This Uniform Regulatory Act was finally approved at our National Convention at Cheyenne, in 1934. It was approved by the American Bar Association and by the Commissioners of Uniform State Laws at the Annual Meeting of the American Bar Association in San Francisco in 1935.

That law, or those exceedingly similar to it, has had the backing of our Association, and having had the support of the American Bar Association, as activated through the Commissioners of Uniform State Laws, has been enacted, and is now in force in many states.

The present Aeronautical Law Committee of the American Bar Association, at least four out of five members, has, in the past year, conceived the idea that this Uniform Regulatory Act is unwise, should not have been approved, and should no longer be encouraged by the American Bar Association. In short, the Committee has taken

* This Report is made each year to the National Association of State Aviation Officials by Mr. Logan, its Counsel, and is officially published by the Journal of Air Law and Commerce.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

WF-1-4/42-15M

~~CONFIDENTIAL~~

(14-3-3)

DECLASSIFIED
DOD Dir. 5200.9 Sec. 4 (d) Para. 1(2)
By [illegible] Date 14 Mar 76
UE

WAR DEPARTMENT

HEADQUARTERS, AIR SERVICE COMMAND

WASHINGTON, D. C.

MAR 18 1942

MEMORANDUM TO: The Commanding General, Headquarters, Army Air Forces.

SUBJECT: Action Taken on Telegram No. 69 from New Delhi for Publications and Blank Forms.

1. Reference is made to the attached subject telegram dated March 9, 1942 requesting shipment of blueprints, drawings, publications, blank forms, etc. for the organization of the Tenth Air Force Headquarters. Shipment of six (6) sets of Technical Orders, three (3) sets of stock lists and all pertinent publications listed in Army Air Force Regulation 5-9 are being forwarded to the following address:

Port Quartermaster
Charleston Port of Embarkation
Charleston, South Carolina
Marked for shipment 8090-A

2. Shipment by air is not being made due to the weight and bulk involved in the quantity of publications and blank forms requested.

HENRY H. A. MILLER
Major General, USA
Commanding General, Air Service Command

1 Incl.
Telegram No. 69
dtd. 3/9/42 fr.
New Delhi.

Hq. Army A
MAR 18 1942
AAG Receiv

Noted by General Miller

~~CONFIDENTIAL~~

DECLASSIFIED

(83)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DEPARTMENT OF STATE

PARAPHRASE

STRICTLY CONFIDENTIAL

Telegram no. 69 Dated: March 9, 1942.

From: New Delhi Rec'd: March 9, 1942.

RUSH

This message is for "AGWAR" from Brereton:

Has the promotion of Brady been confirmed?

I request that the following be shipped at once by air: One entire set blueprints and six assembly drawings for B-24-D, B-17-E, C-53, P-40-F or other equipment relevent to this theater. At least six copies tech orders, parts catalogs, manufacturers handbook, table of organizations, air corps circulars, T.B.A. Also pay tables, army regulations and memoranda, office forms and vouchers, army registers, army lists and directories, index for filing, and other data which would aid in organization of Tenth Air Force headquarters.

Wilson

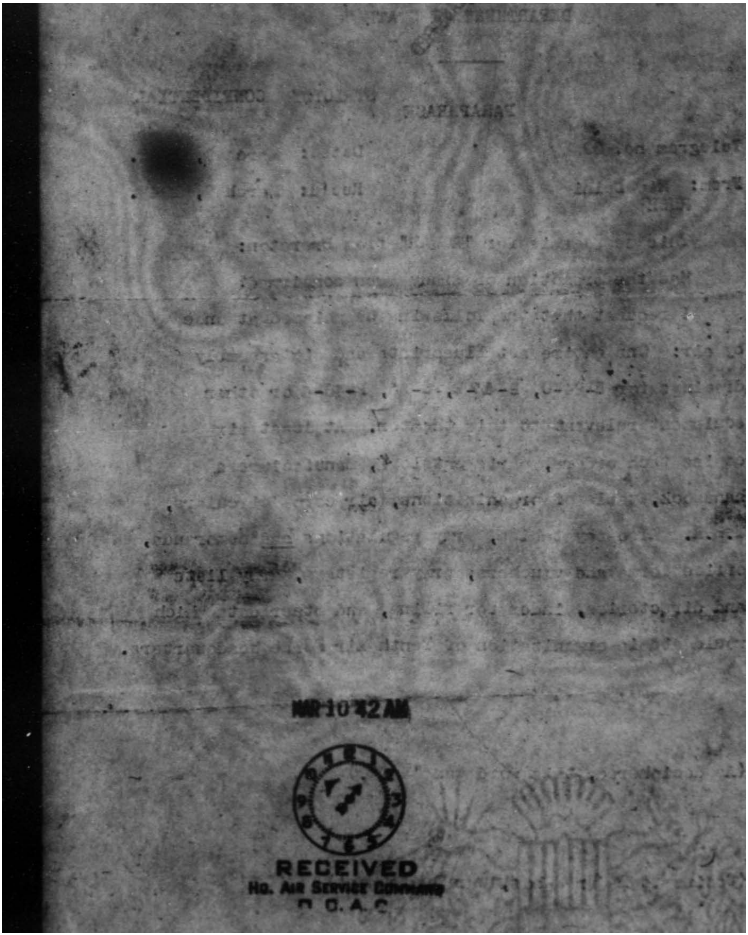
(As deciphered, this word was "asr".)

(Copies to Major Sands, War Department)

Incl.

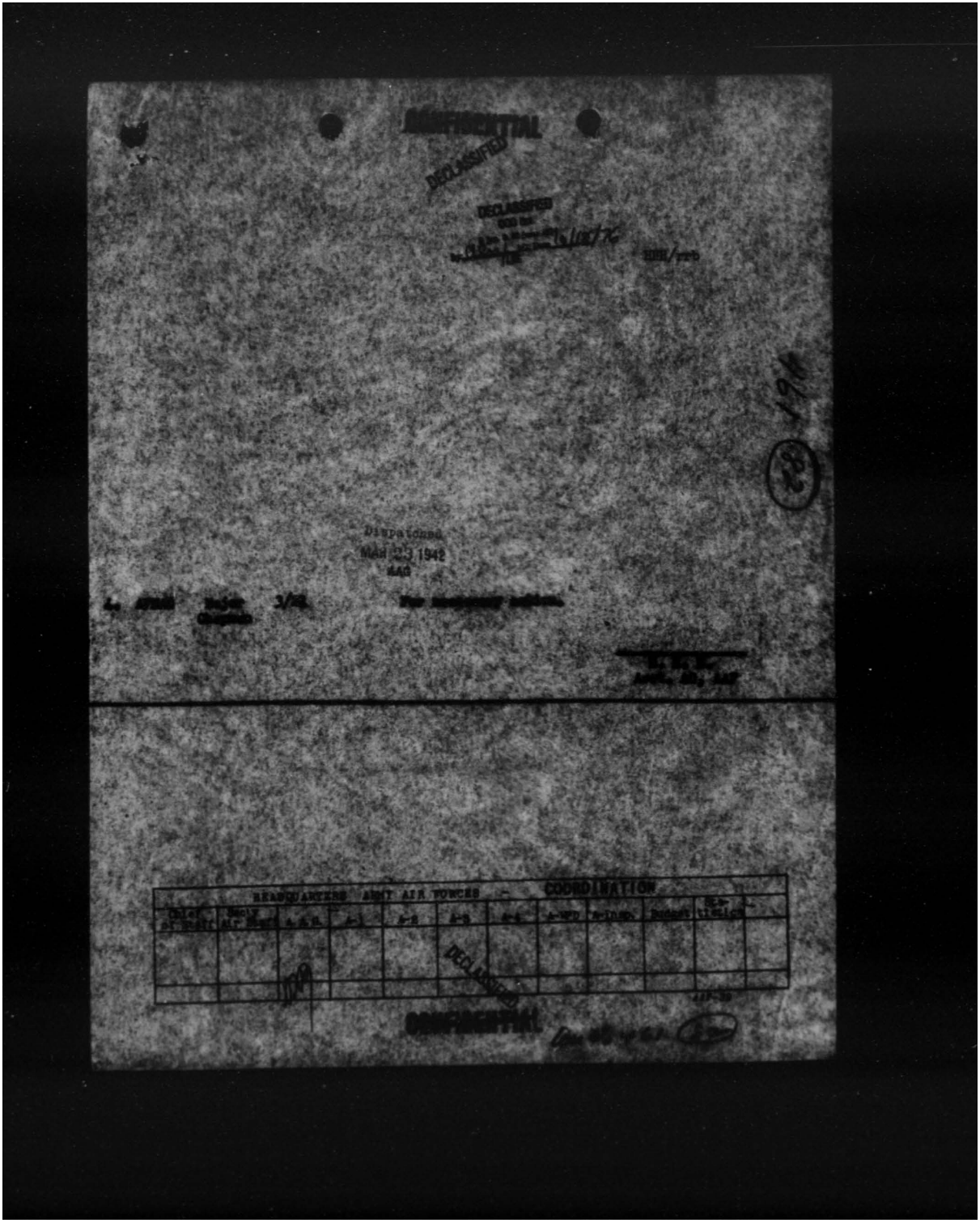
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



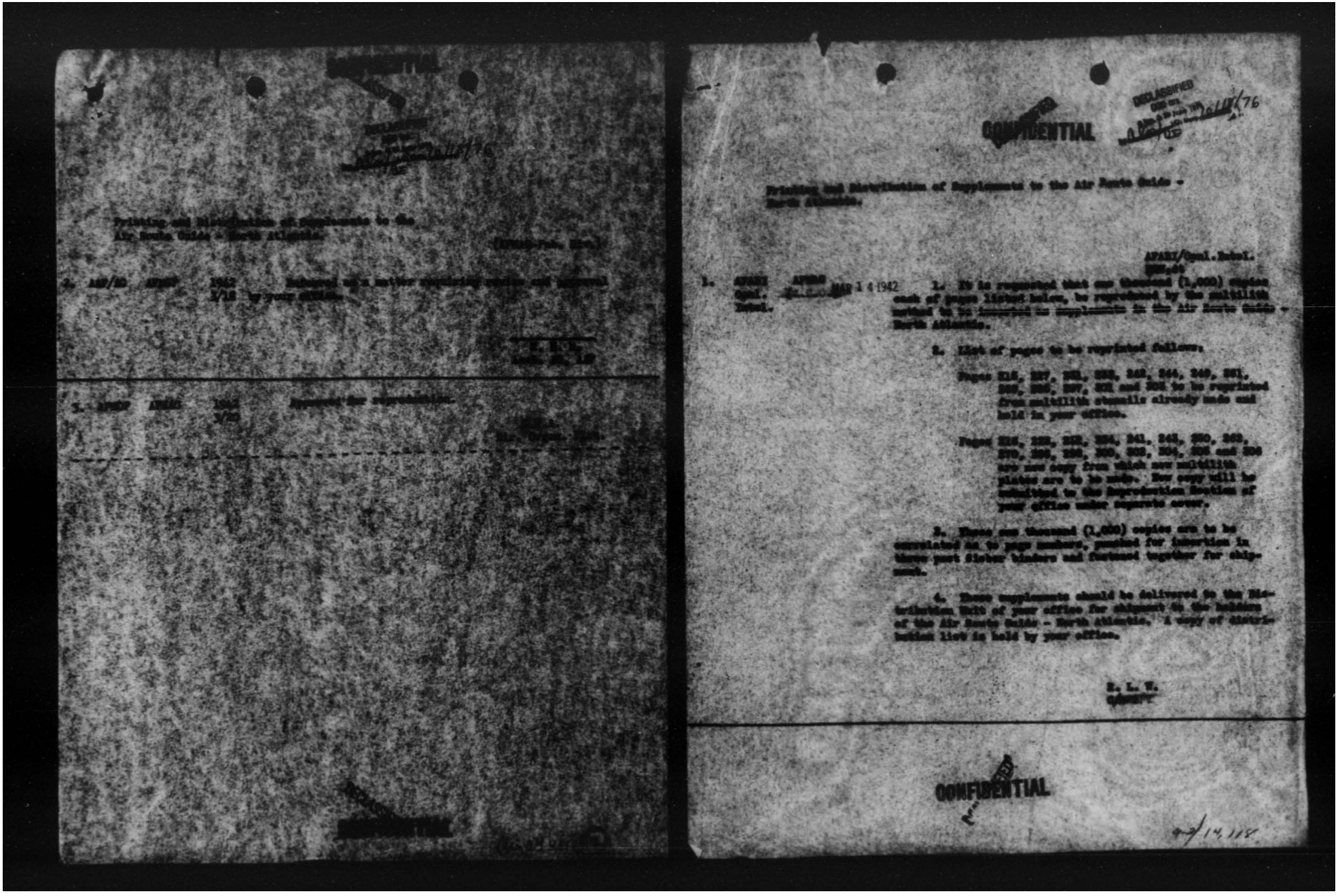
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



Printing and Distribution of Supplements to the Air Route Guide - North Atlantic.

(Group-Pos. Mtg.)

4. AAF/AD AFSOP 1942 Returned with notes requiring review and approval 3/18 by your office.

5. AFSOP AFAEC 1942 Approved for reproduction.

CONFIDENTIAL

DECLASSIFIED

Printing and Distribution of Supplements to the Air Route Guide - North Atlantic.

AFAEC/Opnl.Rebel.
EMM.ds

1. AFAEC Opnl. Rebel. AFSOP MAR 14 1942

1. It is requested that one thousand (1,000) copies each of pages listed below, be reproduced by the multilith method to be inserted as supplements to the Air Route Guide - North Atlantic.

2. List of pages to be reprinted follows.

Pages 216, 227, 231, 233, 240, 244, 249, 251, 252, 255, 257, 272 and 304 to be reprinted from multilith stencils already made and held in your office.

Pages 211, 212, 213, 224, 241, 245, 250, 263, 270, 288, 290, 295, 302, 304, 305 and 306 are new copy from which new multilith plates are to be made. New copy will be submitted to the Reproduction Section of your office under separate cover.

3. These one thousand (1,000) copies are to be assembled as to page numbers, punched for insertion in three post binder and fastened together for shipment.

4. These supplements should be delivered to the Distribution Unit of your office for shipment to the holders of the Air Route Guide - North Atlantic. A copy of distribution list is held by your office.

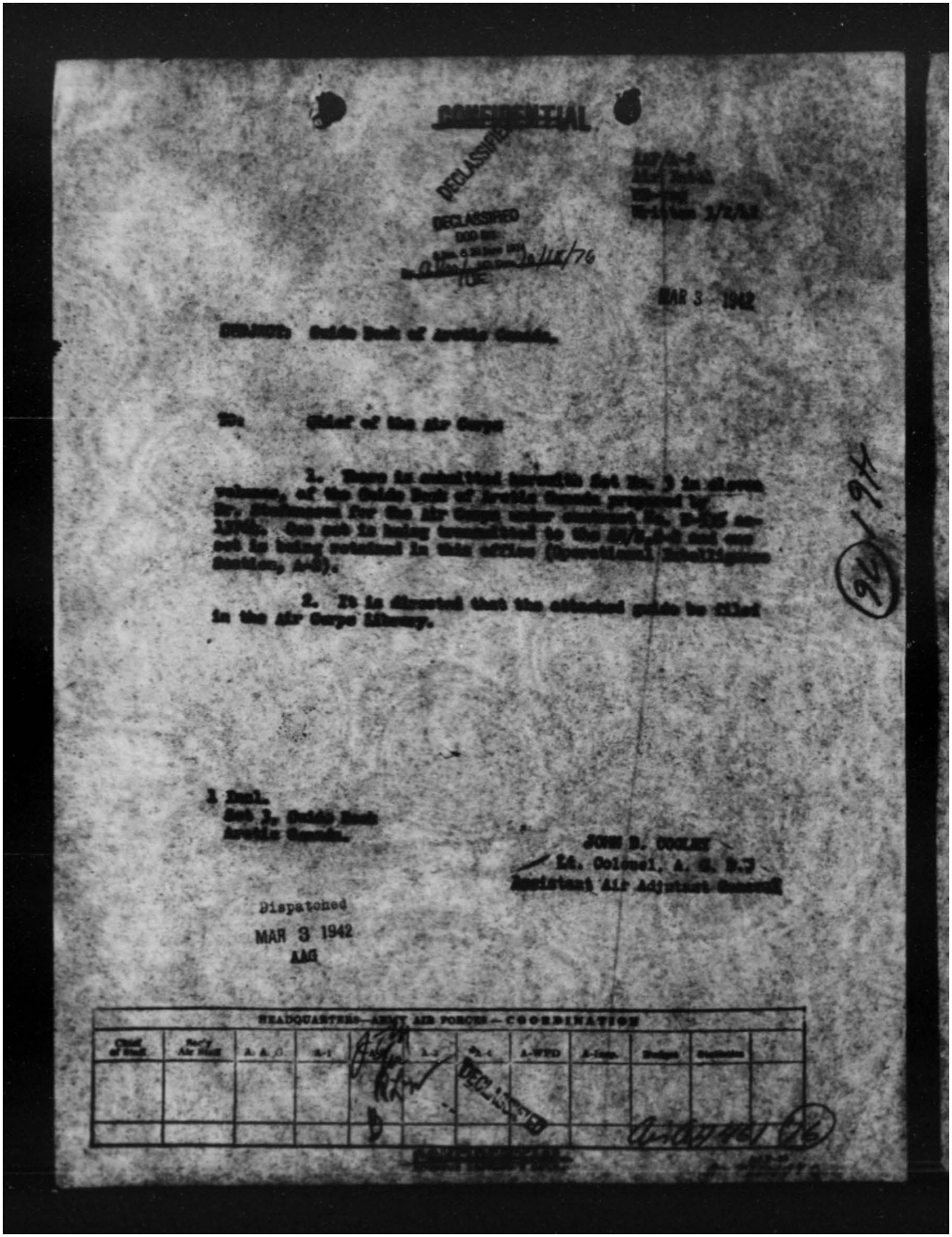
E. L. W.
Chief

CONFIDENTIAL

9-2/14,114

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



CONFIDENTIAL

DECLASSIFIED

DECLASSIFIED
DOD Dir.
Auth: 5 USC 552
By: [illegible] Date: 7/11/76
TUE

AG/B-2
Misc. Books
Vol. [illegible]
Written 3/2/42

MAR 3 1942

SUBJECT: Guide Book of Arctic Canada.

TO: Chief of the Air Corps

1. There is submitted herewith for Mr. [illegible] volumes, of the Guide Book of Arctic Canada prepared by Mr. [illegible] for the Air Corps under contract No. [illegible] 1942. One set is being transmitted to the [illegible] and one set is being retained in this office (Secretariat, Intelligence Section, AAG).

2. It is directed that the attached guide be filed in the Air Corps Library.

3 Encl.
Sub. Guide Book
Arctic Canada.

JOHN B. DOOLEY
Lt. Colonel, A. G. D.C.
Assistant Air Adjutant General

Dispatched
MAR 3 1942
AAG

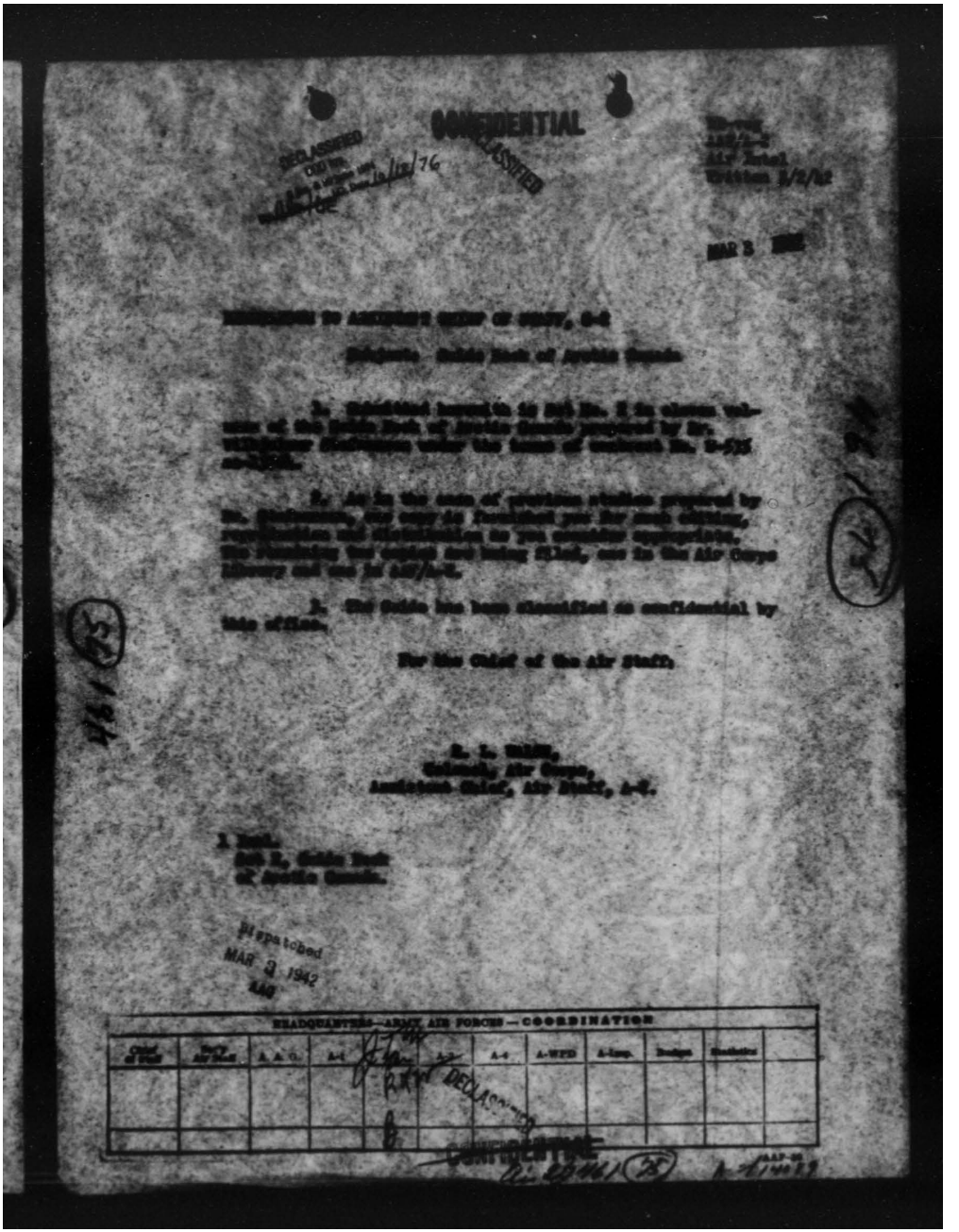
HEADQUARTERS—ARMY AIR FORCES—COORDINATION

Chief of Staff	Deputy Air Staff	A. A. G.	A-1	A-2	A-3	A-4	A-WPD	A-Plans	Budget	Executive	

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



CONFIDENTIAL

DECLASSIFIED
CSDR
a letter dtd
Auth: Ltr dtd 12/12/74

MAR 3

Memorandum for Assistant Chief of Staff, A-4

Subject: Bibliography of Aviation Engine

1. Submitted herewith is Bib No. 2 in the series of bibliographies of aviation subjects prepared by Mr. Wilhelmina Hoffmann under the terms of contract No. W-535 ac-11,911.

2. As in the case of previous studies prepared by Mr. Hoffmann, this copy is furnished you for such editing, reproduction and distribution as you consider appropriate. The furnishing was required and being filled, was to that Air Corps Library and was for A/C/S, A-4.

3. The folder has been classified as confidential by this office.

For the Chief of the Air Staff:

H. A. Wilds,
Colonel, Air Corps,
Assistant Chief, Air Staff, A-4.

1 Incl.
Bib 2, Folder Book
of Aviation Engine.

Dispatched
MAR 3 1942
AAG

HEADQUARTERS—ARMY AIR FORCES—COORDINATION

Chief of Staff	Deputy Air Chief	A. A. G.	A-1	A-2	A-3	A-4	A-Weth	A-Engr.	Budget	Statistics	

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

~~CLASSIFIED~~

~~CONFIDENTIAL~~

DECLASSIFIED
DOD Dir. 5200.9, Sec. II, Par. 4 (a) (2)
By [illegible] Date 10/18/76

THE AIR CORPS TACTICAL SCHOOL
Maxwell Field, Alabama

February 26, 1942.

SUBJECT: TM 1-271, "Handbook for Aerial Gunners", Parts I and II.

TO: Headquarters, Army Air Forces, Washington, D. C.

461.94

1. In compliance with instructions from the Office of the Chief of Air Corps there are forwarded herewith Five (5) copies of tentative Parts I and II of TM 1-271, "Handbook for Aerial Gunners" (RESTRICTED).

2. Request acknowledgment of these publications by indorsement hereon.

John A. Greene
JOHN A. GREENE,
Major, Air Corps,
Acting Commandant.

1 Incl.
5 Cys TM 1-271
Pts I & II
(Restricted)

Enclosure detached
in Envelope

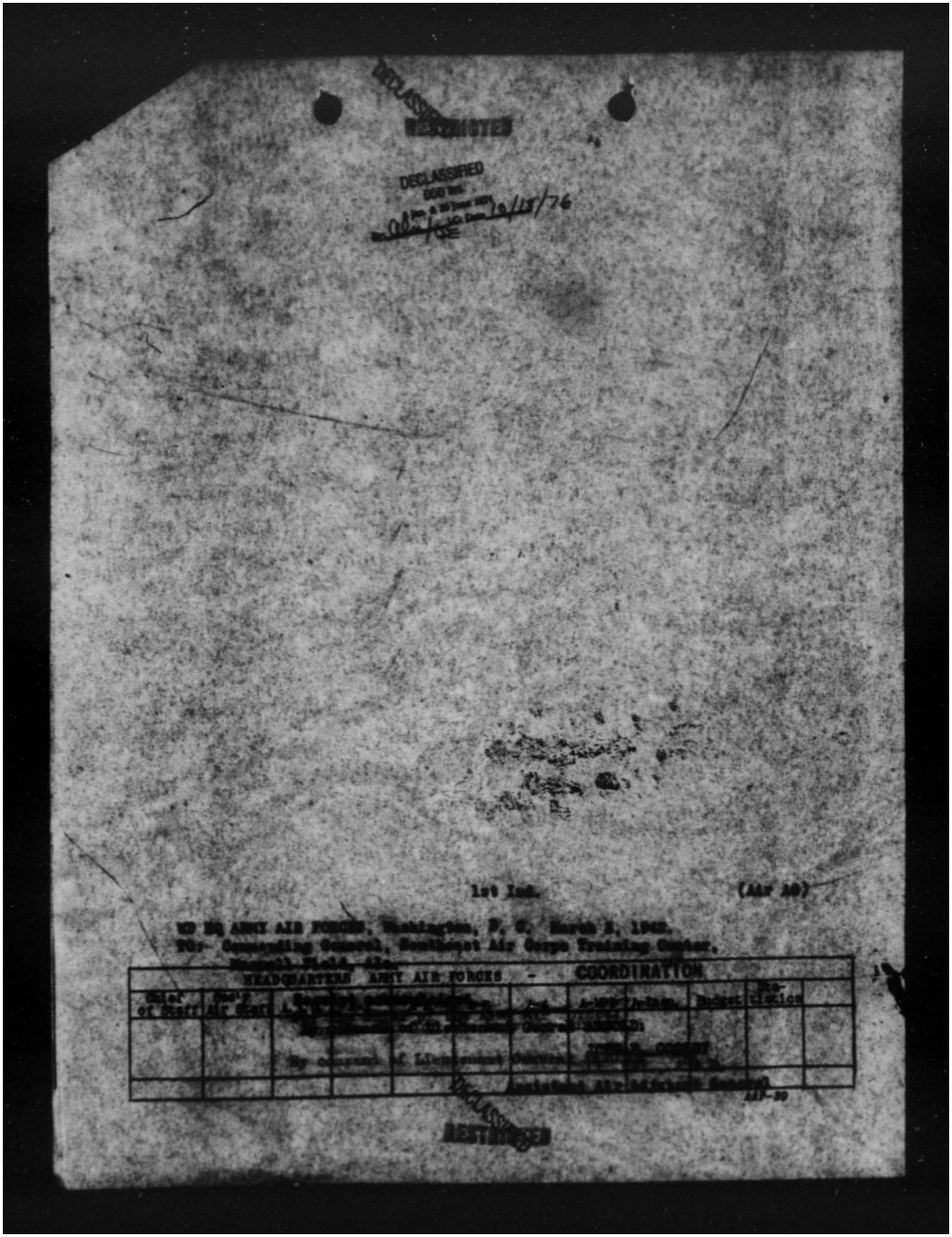
~~DECLASSIFIED~~

852049 MAR 12 42
CENTRAL MAIL SECTION A.A.F.

461.94

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir.
5200.9 Sec. 4 (d) (Para 1) (2)
Date 12/19/76
TOE

DECLASSIFIED
RESTRICTED

TM 1-271

WAR DEPARTMENT

TECHNICAL MANUAL

HANDBOOK FOR AERIAL GUNNERS

TENTATIVE

INTRODUCTION
AND
PARTS ONE AND TWO

THEORY OF AERIAL GUNNERY
AND
AERIAL GUNSIGHTS AND SIGHTING

R. P. 1-9-42 A.C.T.S. - 6,000

AU 89461

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

RESTRICTED TM 1-271

TECHNICAL MANUAL
No. 1-271

WAR DEPARTMENT,
Washington.

DECLASSIFIED
DOD Dir. 5200.9, 27 Sep 1958
Auth: NND 760076 By: DE 7/16/76

AIR CORPS
HANDBOOK FOR AERIAL GUNNERS

TENTATIVE

Prepared under direction of the
Chief of the Air Corps

****

		Page
INTRODUCTION.	Purpose and Scope.	
PART 1.	Theory of Aerial Gunnery.	1-83
PART 2.	Aerial Gunsights and Sighting.	84-101
PART 3.	Tactical Gunfires.	Bound separately

****

INTRODUCTION

	Paragraphs
Purpose and Scope	1-2

PART ONE

CHAPTER 1.	General and Definitions	3-4
2.	Elements of Exterior Ballistics	5-16
3.	Trajectory	17-23
4.	Deflection and Displacement of the Projectile	24-33
5.	Effect of Fire on Aircraft Structures	34-36

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

HANDBOOK FOR AERIAL GUNNERS

Prepared under direction of the
Chief of the Air Corps

INTRODUCTION

	Paragraph
Purpose	1
Scope	2

1. PURPOSE.-The purpose of this manual is to provide a compilation of the basic principles underlying the practice of aerial gunnery so that trained flight personnel will have the sound basic knowledge that is required for quick (almost instantaneous) solution of aerial gunnery problems so necessary for correct employment of aircraft guns in combat. It is intended as a textbook for the study of aerial gunnery and as a reference book for airplane commanders and the leaders of formations.

2. SCOPE.-The manual has been prepared in three parts:

a. PART I is devoted to the theory of aerial gunnery and is designed to afford the student gunner an appreciation of the various forces and factors that influence the flight of bullets fired from aircraft guns.

b. PART II is devoted to aerial gun sights and sighting, is intended to acquaint the student gunner with the sighting problem as a whole and with the characteristics and employment of aerial gun sights.

c. PART III is devoted to tactical gunfires. It covers the employment of guns in air combat and the disposition of forces and the control of fire for offensive and defensive air fighting. It is

THIS PAGE IS DECLASSIFIED IAW EO 13526

HIS PAGE IS DECLASSIFIED IAW EO 135

designed to acquaint student gunners, airplane commanders and formation leaders with the considerations which should govern the selection of assault and defensive dispositions in a given situation and to provide a method of determining the gunfire-strength and weakness factors of their own and enemy equipment.

HIS PAGE IS DECLASSIFIED IAW EO 135

THIS PAGE IS DECLASSIFIED IAW EO 13526

PART I

THEORY OF AERIAL GUNNERY

CHAPTER 1

GENERAL AND DEFINITIONS

Paragraph
General 3
Definitions 4

3. GENERAL.--a. No amount of classroom or mechanical instruction can take the place of work on the range where firing can be done under simulated combat conditions. Before satisfactory work can be done on the range, the student aerial gunner must have a good understanding of the forces that affect the flight of bullets and a thorough working knowledge of sights and how gun and target movement will affect the aiming point so as to be thoroughly familiar with the fundamentals and theory of aircraft gunnery. It is not an easy matter to hit a moving target in the air with a gun mounted on an unstable platform which is also moving in relation to the target. With few exceptions in air fighting, targets are fleeting targets due to the movement of the gunner's airplane and the target airplane. Therefore, sustained fire, in the sense of continuous fire with a specific weapon over a period of minutes, is practically unknown in aerial gunnery. Under average conditions, an attack consists of repeated assaults where each assault lasts only a few seconds and the target remains a fleeting target. Consequently, the aerial gunner has but a very brief period of time in which to solve correctly the problem involving several factors that govern the selection of the point on which he must lay his guns so as to hit effectively and disable or destroy the target airplane in that particular assault.

b. To get the best results from his guns, the

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

aerial gunner must have a thorough working knowledge of them, their ammunition, and the principles underlying the construction and employment of his gun sights. He must also know the structural and performance characteristics, the fire power, the fields of fire, and the vulnerable areas of hostile aircraft so that he will know where and at what to shoot.

c. The final objective of all aerial-gunnery training is to attain the ability to hit the enemy rapidly and effectively under all the varying conditions of air combat and to hit first. This is necessary because of the vulnerability of the gunner's airplane. The very brief duration of an air fight prevents the aerial gunner from using fire-direction equipment and methods that contribute so greatly to the effectiveness of surface gunfire in hitting targets at long ranges with sustained fire. The lack of fire-direction equipment limits air engagements to relatively short ranges, while the lack of sustained fire makes it necessary to stress rapidity and accuracy of fire to the utmost. THE AERIAL GUNNER WHO CANNOT HIT FAST AND HARD IS A LIABILITY TO HIS COMBAT CREW AND HIS FORMATION.

4. DEFINITIONS.--a. AIMING.--The operation of pointing the gun in range or direction, or in both range and direction, by means of the sight.

b. AIMING POINT.--The point at which the gunner sights in pointing the gun.

c. ANGLE OF ELEVATION (OR ELEVATION).--The angle between the axis of the bore and a straight line from the muzzle of the gun to the target.

d. ANGLE OF DROP.--The vertical angle between the line of departure and a straight line from the muzzle of the gun to the projectile.

e. AXIS OF THE BORE.--The center line of the bore of the gun.

f. AZIMUTH (OF THE GUN).--Azimuth (of the gun) is the horizontal angle, expressed in degrees, measured clockwise between a vertical plane through the line of flight and a vertical plane through the axis of the bore of the gun.

g. BONE SIGHTING.--The process by which the axis of the bore and the line of sight are made parallel, or are made to converge on a point.

h. DRIFT.--The lateral deviation of a projectile from the vertical plane of departure caused by the rotation of the projectile around its longitudinal axis and the resistance of the air.

i. DROP.--The vertical distance at any point on the trajectory to the line of departure.

j. FIXED GUN.--A gun installed in an airplane so that the direction of fire is fixed with respect to the other parts of the airplane.

k. FLEXIBLE GUN.--A gun so installed in an airplane as to permit, while in flight, variation in the direction of fire with respect to the other parts of the airplane.

l. HARMONIZE.--To adjust the line of sight and the gun to secure a desired pattern at a definite range.

m. IRON SIGHT (OR RING AND BEAD).--This sight consists essentially of two reference points placed at a definite distance apart and attached to the airplane in front of the pilot or to the flexible machine gun. The front sight may consist of a simple bead in the form of an upright or post, and the rear sight is a ring of a size designed to correct for the deflection of moving targets.

n. INERTIA DISPLACEMENT.--The displacement of a

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

projectile resulting from the forward movement of the firing airplane when the orientation of the gun is any angle from the line of flight.

o. LATERAL LEAD.--The horizontal angle through which a gun must be traversed to the right or left of a straight line from the muzzle of the gun to the target in order for the projectile to pass through the target.

p. LINE OF DEPARTURE.--A line tangent to the trajectory at the muzzle of the gun to the target.

q. LINE OF POSITION.--A straight line from the muzzle of the gun to the target.

r. MIL.--A unit of angular measurement equal to 1/6400 part of 360 degrees. For practical purposes a mil may be taken as the angle which is subtended by an arc one foot in length at a distance of 1,000 feet.

s. MUZZLE VELOCITY.--The velocity of the projectile as it leaves the muzzle of the gun.

t. OPTICAL SIGHTS.--Optical sighting instruments based on the principle of the collimator which is a small telescope affixed to an instrument, gun sight, or the like, having a convex or convex-concave lens with cross-hairs at the focus of the lens to permit accurate sighting along the line of light rays from the objective.

u. RANGE.--The distance the projectile must go to strike the target. In the case of moving targets the range includes the distance the target moves during the time of flight of the projectile.

v. SIGHT.--A device to aid the gunner in giving proper elevation and direction to a gun.

w. SYNCHRONIZE.--To adjust the mounting and timing of machine guns on an airplane so that the guns may be fired through the plane of a rotating propeller without striking the blades thereof.

x. TIME OF FLIGHT.--The time required for the projectile to travel from the gun to the target.

y. TRAJECTORY.--The curve described by the center of gravity of a projectile in flight.

z. VERTICAL LEAD.--The vertical angle by which the gun must be moved above or below a straight line from the muzzle to the target in order for the projectile to pass through the target.

aa. YAW.--The angle between the longitudinal axis of the projectile and the tangent to the trajectory at the center of gravity of the projectile.

bb. ZENITH DISTANCE.--The angular distance, expressed in degrees, from the upward vertical or zenith to the axis of the bore.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

AIR CORPS

CHAPTER 2

ELEMENTS OF EXTERIOR BALLISTICS

			Paragraphs
SECTION	I.	Determining factors	5- 6
	II.	Forces acting on the projectile	7-14
	III.	Trajectory in vacuum and in air without wind or yaw	15-16

SECTION I

DETERMINING FACTORS

	Paragraph
Trajectory	5
Determining factors	6

5. TRAJECTORY.--a. In attaining the ability to hit the target effectively under all varying conditions, the gunner must have a thorough knowledge of the trajectory of projectiles fired from the guns being used and the various factors that determine the flight path. The trajectory is the curve in space traced by the center of gravity of a projectile. Its point of origin is the point in space at which the projectile leaves the projecting mechanism, and its terminus is the point where the projectile bursts or encounters a medium other than air.

b. The phrase "elements of the trajectory" is applied to the various parts of the trajectory. Some of the elements are illustrated in figure 1 and defined in the succeeding sub-paragraphs.

(1) ASCENDING BRANCH is that portion of the trajectory described by the projectile when going up.

(2) DESCENDING BRANCH is that portion of the trajectory described by the projectile while coming down.

(3) ORIGIN is the location in space of the center

of the muzzle of the gun at the instant of departure of the projectile.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

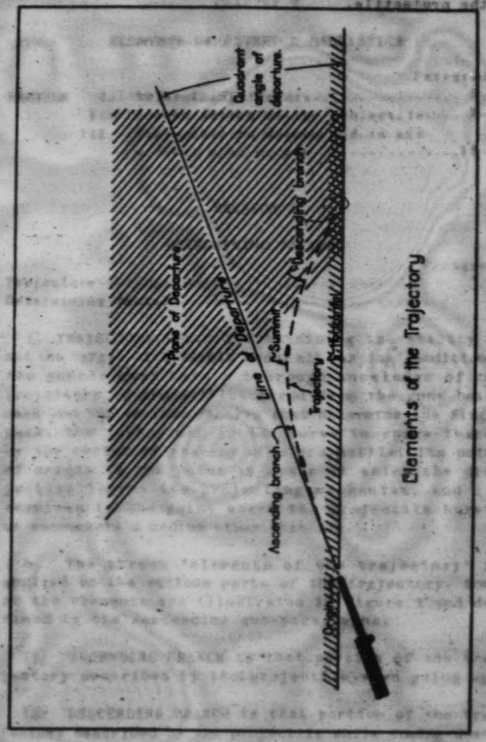


Figure 1.—Elements of the trajectory.

(4) LINE OF DEPARTURE is the tangent to the trajectory at its origin.

(5) PLANE OF DEPARTURE is a vertical plane that includes the line of departure.

(6) QUADRANT ANGLE OF DEPARTURE (elevation) is the angle which the line of departure makes with the horizontal in the plane of departure.

(7) SUMMIT is the highest point on the trajectory.

(8) THE MAXIMUM ORDINATE is the vertical distance between a straight line from the muzzle of a gun to the target and the summit of the trajectory.

6. DETERMINING FACTORS.--a. MAXIMUM USABLE RANGES. Accurate shooting, whether on the ground or in the air, requires an almost exact knowledge of the range so that the proper angle of elevation can be determined and set into the sights. The length of time of an aerial engagement is so short that it does not permit estimating ranges and adjusting sights. Therefore, accurate shooting is limited to short ranges where the departure of the trajectory from the line of departure is very small and the sights can be preadjusted so that the projectile at no time is more than half the target's dimensions above or below the sight line. Where preadjusted sights are used, the usable ranges of aircraft guns are limited to the initial part of the ascending branch of the trajectory. The maximum usable range is considered to be 600 yards for the .30-caliber machine gun and 1,000 yards for the .50-caliber gun.

b. PLACE OF ORIGIN.--Altitude is the only one of the three dimensions of space (altitude, latitude, and longitude) that will have any appreciable effect upon the shapes of trajectories of projectiles fired from airplanes in combat. This is due to the short ranges at which firing takes place.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

c. CONDITIONS UNDER WHICH IT IS PROJECTED.--Some of the conditions, such as quadrant angle of departure (elevation), direction, muzzle velocity, initial spin of the projectile, motion of the gun platform, and reaction of the gun barrel while the projectile is in the bore, can be predetermined and taken into consideration when the guns are installed and harmonized. Those that cannot be predetermined are discussed in other paragraphs of this manual.

d. BALLISTIC CHARACTERISTICS OF THE PROJECTILE.--The moment of inertia, location of the center of gravity, amount of "nose ogive" (the particular shape of the projectile's nose whose axial sections are arcs of a circle which are tangent to the cylindrical portions of the projectile), stability factors and streamlining or resistance to flight are factors taken into consideration by the manufacturer of the ammunition and ballistic experts who test fire and prepare ballistic tables for each caliber and type of ammunition.

e. CHARACTERISTICS OF THE AIR THROUGH WHICH IT PASSES.--This is a variable factor and is determined by the barometric pressure, height above sea level and moisture content of the air. Under combat conditions the height above sea level is the most important factor and will be discussed later.

SECTION II

FORCES ACTING ON THE PROJECTILE

	Paragraph
General	7
Propellant charge	8
Gravity	9
Air resistance	10
Rotation	11

	Paragraph
Moving mount	12
Yaw	13
Conclusions	14

7. GENERAL.--The trajectory of a bullet discharged from a gun would be a straight line in prolongation of the axis of the bore, and the bullet would maintain a constant velocity were it not for gravity and the various effects of the air. There are four primary forces which affect the trajectory of all bullets fired from machine guns. Figure 2 shows these forces and the direction in which they act.

8. PROPELLANT CHARGE.--a. The initial force is the combustion of the propellant charge. When the firing pin strikes the primer of the cartridge the propellant (powder) is ignited, and the rapid expansion of the gases formed by the burning powder forces the bullet through the bore of the gun at a high speed. The speed at which the projectile leaves the gun is called muzzle velocity, and for a given projectile it determines the time of flight required for a given range and the penetration power of the projectile at that range. As a rule, higher muzzle velocities require greater amounts of power for the propellant charge and a heavier gun must be used.

b. By increasing the propellant charge, muzzle velocities are increased and this will:

(1) Reduce the time of flight for a given range which reduces bullet drop.

(2) Reduce the time available for target movement and simplify the sighting problem.

(3) Increase the hitting power of projectiles which increases the amount of armor they will penetrate.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

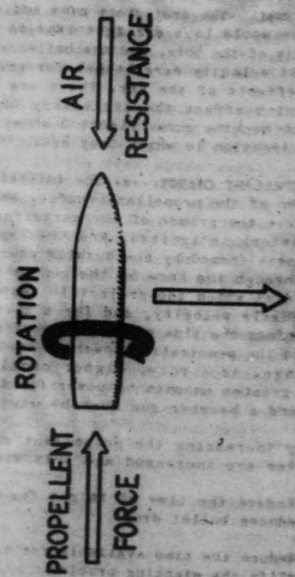


Figure 8.--Forces affecting the trajectory of bullets.

c. Reducing the propellant charge lowers the muzzle velocity and this will:

(1) Reduce the weight of the gun and the overall dimensions of a complete round of ammunition which permits the installation of more guns and the carrying of more ammunition of a given weight and bulk.

(2) Increase the time of flight for a given range and the bullet drop.

(3) Increase the time available for target movement which increases the sighting problem.

(4) Reduce the hitting power of the projectile and the amount of armor it will penetrate.

9. GRAVITY.--a. The force of gravity can be explained by stating one of the fundamental laws of physics: the law that any two bodies attract each other by a force which is proportional to the product of their respective masses divided by the square of the distance separating them, this distance being measured from their mass centers. Since the earth's mass and radius are so large in comparison to the mass and altitude of any projectile, this force of attraction is practically a constant. The force of gravity acts vertically downward on a bullet producing a downward acceleration (rate of increase in velocity) of g (approximately 32.2 feet per second per second) according to the law of falling bodies.

b. The instant that the bullet leaves the support of the gun barrel it starts to fall or drop at once and will drop just as fast, neglecting air resistance, as any other object would fall when freed of its support. The "drop" increases as the square of the time of flight in accordance with the equation $S = \frac{1}{2} gt^2$, wherein S = amount of fall, g = 32.2 approximately and t = time of flight. During the first part of the bullet's flight, the drop due to gravity is quite

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

small, as there is a limited amount of time in which the force of gravity has to act. The bullet slows down as it travels toward the target, and this slowing down increases the amount of time for a given distance of forward travel of the bullet in which gravity has to act. When a gun is fired horizontally, the bullet drop at the end of the first second is only about 16 feet but 2.25 times as great (36 feet) at the end of one and a half seconds, 4 times as great (64 feet) at the end of two seconds, 9 times as great (145 feet) at the end of the third second and so on, increasing as the SQUARE of the time. Some guns are very accurate with certain ammunition, but not as accurate with other ammunition of the same caliber but different make and loading. In the future all ammunition of the same caliber will be matched for a given range and air speed.

c. To compensate for bullet drop, the muzzle of the gun must be elevated so that the gun actually points some distance above the target. Because of variations in ballistic characteristics, the time of flight is not constant for all types of guns with the same loading for all ranges. Therefore, the angle of elevation for a given range will vary for different types of guns and will vary for the same gun for different ranges. When the trajectory has a considerable degree of curvature, accurate shooting requires an almost exact knowledge of the range so that the proper angle of elevation can be determined and set into the sights. With the high muzzle velocities of modern aircraft guns and present ranges of air combat, the downward curvatures or "bullet drop" is relatively small, as the time of flight of bullets over those ranges is normally less than one and one-half seconds.

10. AIR RESISTANCE.--a. Air resists the passage of projectiles and acts in direct opposition to their forward motion, which causes their velocities to diminish constantly. It has been found that the resist-

ance of a body moving in air is not a constant force, like gravity, but that it increases as the square of speed of the projectile is discharged in air, it begins to lose forward speed immediately after leaving the barrel and loses more of its initial velocity during the first 100 yards of flight than it does during the second 100 yards and so on. Air resistance is influenced by the density of the atmosphere, becoming less as the density decreases and greater as the density increases. Therefore, the loss of bullet speed resulting from air resistance is greatest at sea level and decreases as the distance above sea level increases. The combination of two forces, gravity and air resistance, causes a progressive increase in the curvature of the trajectory as the range increases, and the curvature of the trajectory will increase or decrease with changes in altitude.

b. Wind affects the flight of a bullet. A crosswind will tend to drift a bullet in the direction toward which the wind is blowing. Winds blowing longitudinally up or down in respect to the axis of the bore increase or decrease air resistance.

11. ROTATION.--Rotation of the bullet around its longer axis is necessary for stability in flight. All aircraft guns are rifled by cutting a series of grooves in the bore of the gun barrel as shown in figure 3. The number of lands and grooves, their depth and width will vary with the caliber of the gun. The rifling has a uniform right hand twist and makes a complete turn for a certain length of the gun barrel. As the bullet is forced through the barrel by the propellant charge, the lands cut into the soft outer metal of the .30-caliber, .50-caliber, and into the rotating band of the 20-millimeter and 37-milimeter projectiles forcing them to turn in the same direction. The spin imparted by the rifling stabilizes the bullet which otherwise would tend to tumble in flight. The rotation of the projectile causes a slight drift in the direction of rotation. In aerial gunnery the error is so small that it can be ignored by the gunner.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

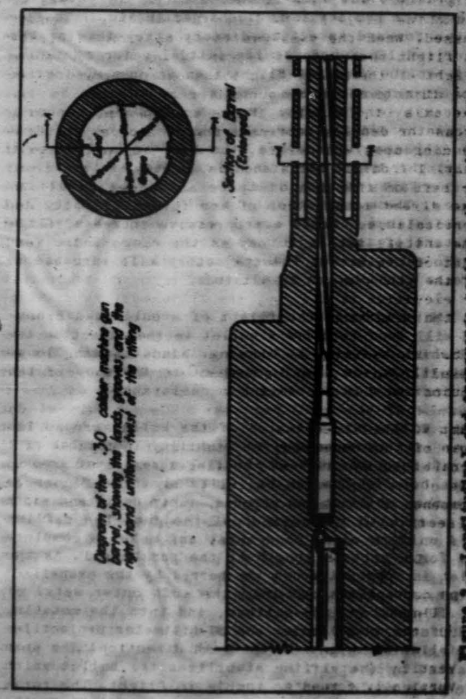


Diagram of the .30 caliber machine gun barrel, showing the lands, grooves, and the right hand uniform twist of the rifling

Figure 3.—Longitudinal and transverse sections through machine-gun barrel.

12. MOVING MOUNT.--a. So far, only those forces affecting the trajectory of a projectile fired from a machine gun with stationary mounts have been discussed. When the same gun is fired from an airplane in flight there are other forces which influence the flight of the projectile, as shown in figure 4. When the direction of the gun movement is parallel with the axis of the bore, the primary effect is to increase or decrease the velocity of the projectile depending upon whether it is fired forward or to the rear. The displacement of the trajectory to the right or left of the axis of the bore is negligible. When the direction of gun setting is not parallel both vertically and horizontally with the line of flight, the initial velocity of the projectile is the resultant of the muzzle velocity and the forward velocity of the gun mount. Accordingly for an upward movement or elevation of the gun, the trajectory is displaced in the direction of flight as shown in figure 5.

b. The relative motion between the air and the gun, resulting from the forward travel of the airplane, causes the projectile to "jump" as it emerges from the muzzle of the gun. The direction of this windage jump is the direction of the first quarter cycle or turn of the precession (rotation) of the point of the projectile at the instant of emergence from the muzzle of the gun. When projectiles are fired in a plane perpendicular to the flight path of the airplane, the direction of the jump is as follows:

DIRECTION OF FIRE	DIRECTION OF JUMP
90 degrees to the right of the line of flight	Down
90 degrees to the left of the line of flight	Up
Vertically upward	Right
Vertically downward	Left

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

Figure 4.--Forces acting on a projectile in flight.

Figure 5.--Trajectory of projectile fired from an airplane in flight with axis of gun at about 45 degrees above the line of flight.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

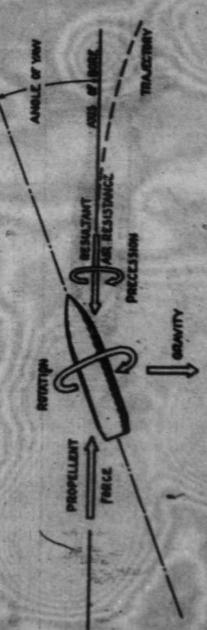


Figure 6.—Force diagram showing how air resistance increases angle of yaw thereby further increasing air resistance.

SHOWING HOW AIR RESISTANCE INCREASES THE ANGLE OF YAW, THEREBY INCREASING AIR RESISTANCE

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

The windage jump is independent of gravity and range, but is dependent on the component of true air speed perpendicular to the longitudinal axis of the projectile.

13. YAW. -- a. In addition to the spin about the longitudinal axis caused by the rifling of the gun, all projectiles have a secondary rotation or yaw about the center of gravity, somewhat comparable to the wobble or yaw of a spinning top about the vertical. With small arms, yaw is due primarily to the ogival (pointed-arch) shape of the bullet head, which causes the resistance of the air to be centered forward of the center of gravity of the projectile.

b. It is possible for the projectile to have a small yaw relative to the bore of the gun, and when it leaves the gun, the resultant air resistance will increase the initial angle of yaw and the windage jump outside the gun. Figure 6 shows how the point of application of the resultant air resistance acting on a projectile that had a small angle of yaw (0.15 degree) relative to the bore of gun increases the initial or first maximum yaw. When the projectile leaves the muzzle of the gun, the projectile drops below the line of departure and the point of application of the resultant air resistance on the under side of the nose causes clockwise precession with respect to the direction of travel. This causes the greater pressure to occur on the left side (with respect to direction of travel) of the projectile which increases the drift to the right, resulting in maximum yaw. As the nose of the projectile precesses, the angle of the resultant air resistance relative to the axis changes, and as it changes, so does the plane of precession which according to laws of dynamics of spinning bodies, is automatically at 90 degrees to the line of the resisting force. The whole motion resembles the wobble of a spinning top about the vertical. However, the spinning projectile tends to follow the curve of the trajectory.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

c. When a machine-gun projectile is fired horizontally at right angles to the line of flight of an airplane, the air blast due to the cross-wind causes an apparent jump. Ballistic research data shows that the average yaw of the projectile is maximum after it leaves the gun and decreases as time of flight increases until it dampens out in approximately 0.8 of a second. The yaw relative to air affects the trajectory by increasing air resistance. As a result, yawing projectiles have a longer time of flight for a given range. This increases the drop and the "trail." The maximum dispersion caused by variations in yaw of projectiles fired from .30-caliber machine gun with an air speed of 200 miles an hour is quite small. As air speed is increased, the windage yaw will be greater and the maximum dispersions of projectiles will be increased. When the speed of the airplane is increased to 400 miles an hour, ballistic research shows that the effect of windage yaw on the lateral deflection is greater than on the vertical deflection. Evidently the cause for the increase in deviation, except at very short ranges, is yawing which increases the air resistance encountered by the projectile. At very short ranges, near the beginning of the trajectory, the so-called cross-wind force causes most of the variation. The maximum calculated dispersion is 18 mils at 500 yards. Actually the dispersion will probably be less than 18 mils at 500 yards, because the yaw in the bore is usually less than the maximum which was used in the calculations, and since uniformity of loading conditions tends to group muzzle or orientations.

14. CONCLUSIONS.--From the aforegoing discussion of forces affecting the trajectory of projectiles fired from machine guns, it is evident that the trajectory is the resultant of all forces acting on the projectile. Some of these forces are so small in magnitude as to permit their effects to be ignored for all practical purposes. The force of greatest magnitude acting on a projectile is the propellent force which de-

termines the muzzle velocity. The other principal forces which act on the projectile and change the shape of the trajectory from what would otherwise be a straight line coinciding with the axis of the bore are, in order of their importance, speed of mount, air resistance, the effect of which is called "trail," and gravity. Figure 7 shows the effects of these three forces on the trajectory of a projectile having a muzzle velocity of 2,700 feet per second.

SECTION III

TRAJECTORY IN VACUUM AND IN AIR WITHOUT WIND OR YAW

Paragraph
Trajectory in a vacuum---------- 15
Trajectory in air---------- 16

15. TRAJECTORY IN A VACUUM.--One of the major forces acting on a projectile in flight is gravity. Assume that a projectile is fired in a vacuum with a velocity at the muzzle of the gun of V feet per second in the direction OM as shown in figure 8 and at a vertical angle β from the horizontal. Assume, in addition, that the force of gravity is constant throughout the flight of the projectile. During its flight, the projectile is acted upon only by gravity, and a study of the resultant trajectory reveals the following facts:

a. The trajectory is a parabola.

b. The trajectory is symmetrical in respect to the maximum ordinate, the ascending and descending branches are the same length and are traversed in the same time, and the quadrant angle of fall is the same as the quadrant angle of departure.

c. The trajectory depends on the initial velocity V and the angle of departure β only. The shape of the

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

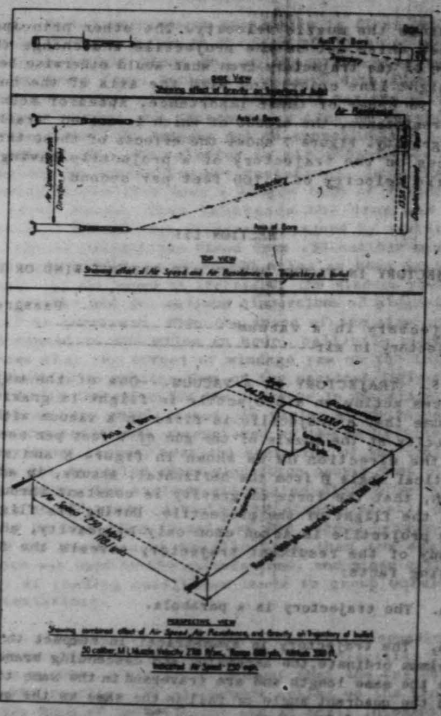


Figure 7.---Diagrams showing the effects on the trajectory of a projectile of gravity, air speed and air resistance. Propellant force of such magnitude as to give muzzle velocity of 2,700 feet per second.

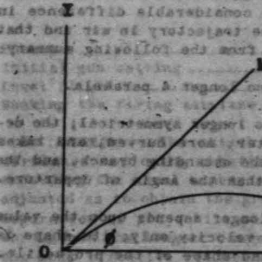


Figure 8.---Trajectory of a projectile in vacuum.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

trajectory is independent of the shape and weight of the projectile.

d. The terminal velocity is the same as the initial velocity.

e. Maximum range is attained when the angle β is 45°.

f. The trajectory lies in the plane of departure.

16. TRAJECTORY IN AIR.--The trajectory in vacuum is dependent only upon the initial velocity and the quadrant angle of departure. As a result of the various effects of air, there is considerable difference in the characteristics of the trajectory in air and that in vacuum as may be seen from the following summary:

a. The trajectory is no longer a parabola.

b. The trajectory is no longer symmetrical; the descending branch is shorter, more curved, and takes longer to traverse than the ascending branch, and the angle of fall is larger than the angle of departure.

c. The trajectory no longer depends upon the value and angle of the initial velocity only; its shape is affected by the weight and shape of the projectile.

d. The terminal velocity is less than the initial velocity.

e. Maximum range is not necessarily attained at an angle of departure of 45 degrees.

f. The trajectory does not lie in the plane of departure. This displacement, called "drift," is due to air resistance and the rotation of the projectile.

CHAPTER 3

TRAJECTORY

		Paragraphs
SECTION I.	Fixed Gunnery	17-20
II.	Flexible Aerial Gunnery	21-23

SECTION I

FIXED GUNNERY

	Paragraph
Theory	17
Initial gun setting	18
Level flight	19
Banking the firing airplane	20

17. THEORY.--The attack and interceptor types of airplanes employing a battery of fixed machine guns exceeding the usual number of two, have their guns so adjusted as to obtain the greatest coverage with least separation of projectile path from the sighting line throughout the longest range possible. This will give the most effective volume and density of fire on any given target for more than one range.

18. INITIAL GUN SETTING.--a. To obtain the most effective volume and density of fire for more than one range without the use of auxiliary adjusting devices for either the sights or guns, the fire power is distributed by a process of determining the greatest coverage with the least separation of projectile path from the sight line throughout ranges of from 100 to 600 yards. To accomplish this the guns are adjusted so as to give them the necessary elevation to effect the desired angular separation of the projectile from the sighting line for various ranges and conditions, as shown in figure 9 for a four-gun pursuit airplane.

b. The initial setting of forward-firing fixed ma-

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

chine guns in the single-engine interceptor or pursuit airplanes that have two synchronized .50-caliber machine guns in the nose and two .30-caliber free-firing machine guns in each wing takes into consideration the trajectories of the projectiles and the dispersion patterns. This is shown in figures 10 and 11.

c. The guns are elevated so that the projectiles will travel the maximum distance along the line of sight with minimum separation therefrom. The elevation at which the guns are set will properly compensate for the curvature of projectile trajectory so that reasonable accuracy is provided throughout usable ranges of from 100 to 600 yards, as shown by the two side views in figure 10. This is done by taking into consideration the ballistic characteristics of the ammunition to be used, the distance the muzzle of the gun is below line of sight, and the coverage desired by the cones of dispersion from all guns. For instance, the attack-and-interceptor type airplanes employing a battery of machine guns consisting of two synchronized .50-caliber guns located in the nose and four free-firing .30-caliber guns mounted two in each wing will have different angles of elevation so as to secure maximum coverage and density of fire. The two .50-caliber guns are given the smallest amount of elevation because the muzzles of those guns are close to the line of sight and the initial muzzle velocity of the ammunition is 2,700 feet per second. The two inboard .30-caliber guns are given more elevation than the .50-caliber guns because the muzzles of the former are a greater distance below the line of sight and the initial muzzle velocity of the ammunition is 2,600 feet per second. The two outboard .30-caliber guns are given more elevation than the inboard guns. The initial setting in elevation and for converging or diverging fire will vary according to aircraft designs and installation of the guns.

d. Slightly diverging fire is used for the .50-caliber guns because of the large dispersion pattern

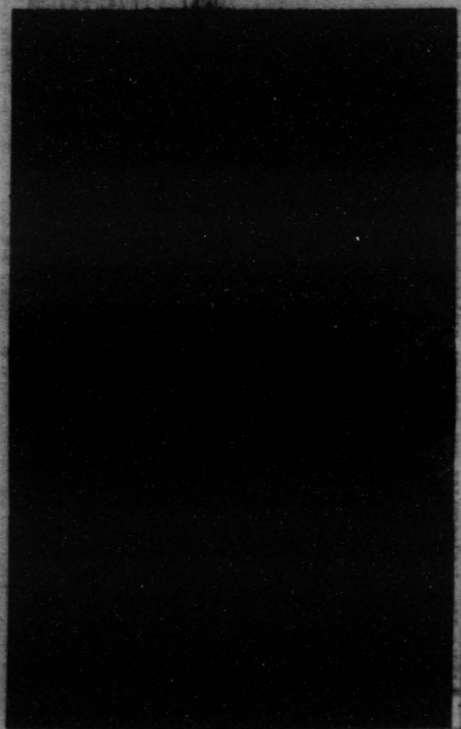


Figure 9.--Harmonization of sight and guns of a four-gun pursuit airplane.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

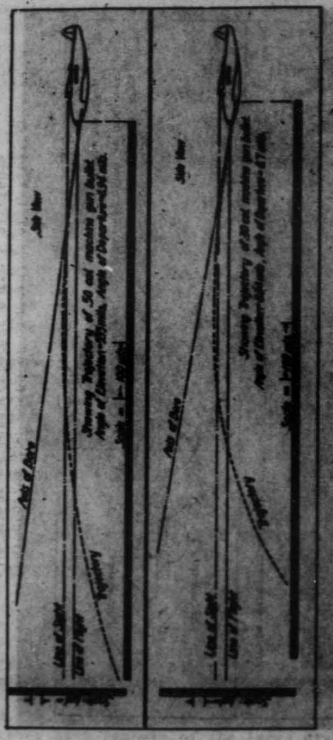


Figure 10.—Harmonization of sight and guns of a single-engine six-gun interceptor or pursuit airplane.

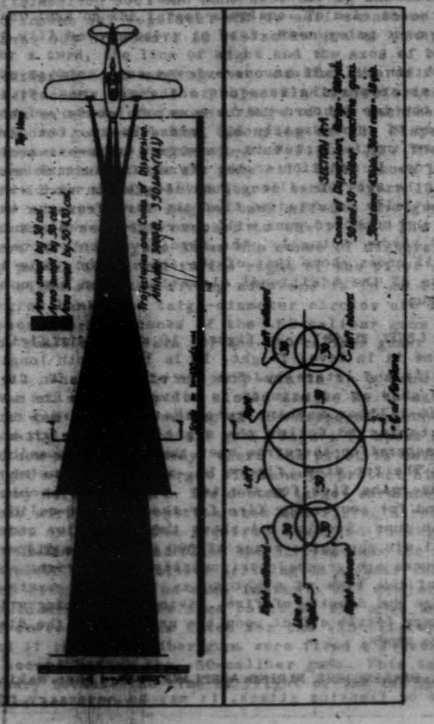


Figure 11.—Trajectories and cones of dispersion of the six guns of a single-engine interceptor or pursuit airplane.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

given in the ground firing tables, and because the muzzle of the gun is less than one foot horizontally from the center-line of the fuselage. The amount of divergence is approximately 21 inches in 400 yards.

To obtain the fullest coverage from the .30-caliber guns, as supporting weapons to the two .50-caliber guns, the two inboard guns are set to converge at a distance of approximately 218 yards. The two outboard guns are initially set to converge at approximately 230 yards. In addition to the aforegoing initial settings, the two .30-caliber guns located in each wing are initially adjusted so that the fire from the inboard and outboard guns will converge at a distance of 400 yards. Actually, the fire from the outboard gun will cross above that of the inboard gun. This is because of the additional elevation given the outboard gun.

19. LEVEL FLIGHT.--In figures 10 and 11 the firing airplane is in level flight. It is level both longitudinally and laterally. The two side views in figure 10 show an adjustment in elevation for the .50 and .30-caliber machine guns that will permit the trajectories to follow the sighting line with the least separation therefrom over the greatest possible range. The top view, figure 11, shows an adjustment for diverging fire for the two .50-caliber machine guns and for converging fire for the four .30-caliber machine guns. Section A-A shows the dispersion cones for all six guns at a range of 600 yards. The dispersion cones are grouped horizontally to the right and left of the line of sight so as to obtain maximum coverage and density of fire. Diving or climbing will have very little effect upon the grouping of the dispersion cones.

20. BANKING THE FIRING AIRPLANE.--a. When making a beam or flanking attack, it may be necessary for

the firing airplane to make a five, ten or twenty degree-per-second rate of turn so as to maintain correct lead on the target airplane. To make these turns, it will be necessary to bank. When going into a bank for a turn, the line of sight and the axes of bore of the machine guns revolve around the line of flight. At the same time, the projectile trajectories will revolve around the axes of bore of the machine guns. This will disturb the grouping of the dispersion cones shown in Section A-A of figure 11. The dispersion cones of the six guns will be as shown in figure 12 for a fifty-seven degree bank. Figure 13 shows how a seventy-two degree bank affects the grouping of the cones with respect to the pilot. The lower part of this figure shows the cones of dispersion to be partly above and to the right of the pilot's line of sight when the firing airplane is in an eighty-degree bank. The large-diameter circles are in all cases the fire cones of the .50-caliber guns while the small circles are for the .30-caliber guns.

b. When the firing airplane is in a bank for a beam attack, the pilot should aim so as to make the best use of the grouping of the dispersion cones and density of fire from all guns. Figure 14 shows a beam attack and "break-away" where the pilot is using the right wing of the target airplane to protect him from enemy defensive fire. The dotted target airplane shows this airplane's position when the firing airplane's pilot is taking the required lead and firing. The solid-line target airplane and circles show the target airplane and projectiles arriving on or near the target airplane at the same instant. All projectiles would arrive at the same point at the same instant if correct lead was taken for the .50-caliber guns and if the .30-caliber guns were fired a fraction of a second before the .50-caliber guns. This is necessary because the time of flight of the two projectiles are different.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

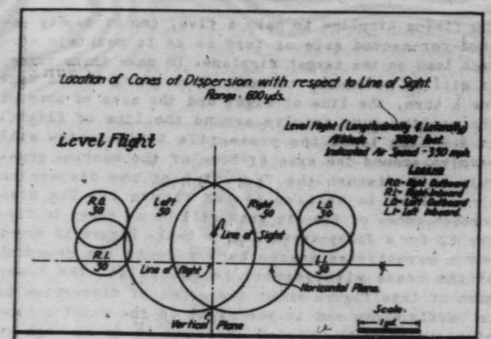


Figure 12.--Grouping of cones of dispersion for level flight and 57-degree bank.

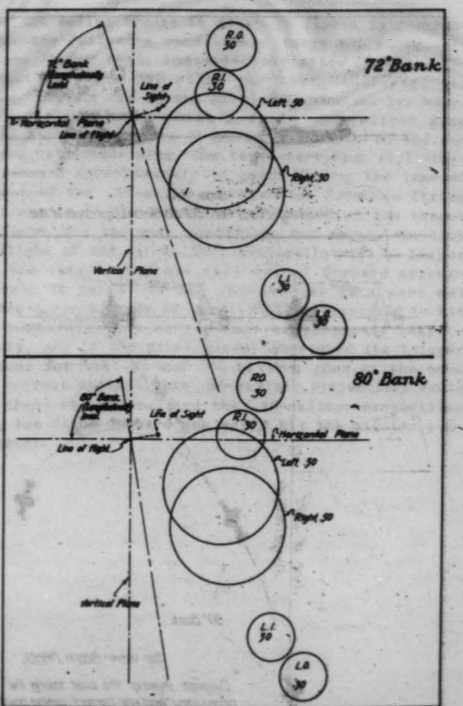


Figure 13.--Grouping of cones of dispersion for 72-degree and 80-degree banks.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

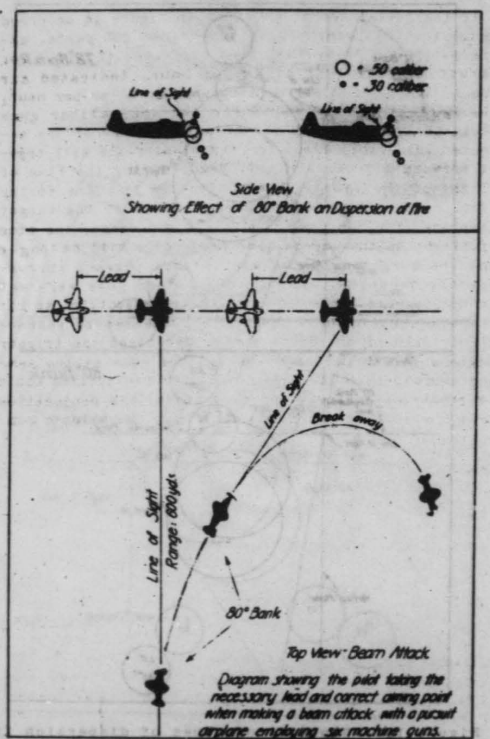


Figure 14.--Beam attack and "break-away."

If the aerial combat as shown in figure 14 occurred under the following conditions: range 600 yards, altitude 15,000 feet, indicated air speed (I.A.S.) for target airplane 250 miles per hour, indicated air speed (I.A.S.) for firing airplane 350 miles per hour, the correct aiming point for the .50-caliber guns would be approximately 71 yards in advance of the selected vulnerable area. The target-airplane will travel forward approximately 71 yards during the time of flight of the .50-caliber projectile from the firing airplane to the predetermined position of the target airplane. For the same conditions and range, the time of flight of the .30-caliber projectile will be longer and the target airplane will travel forward approximately 74 yards. If the .50-caliber guns were set at the correct leads to cause their projectiles to hit the bombardier and nose-gunner compartments respectively, and if the pilot gunner depressed the trigger buttons for the .30 and .50-caliber guns at the same and correct instant, the .50-caliber projectiles would hit their objectives, and the .30-caliber projectiles from the right inboard gun would hit the pilot's compartment.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECTION II

FLEXIBLE AERIAL GUNNERY

	Paragraph
General	21
Gun movement parallel to axis of bore	22
Gun movement not parallel to axis of bore	23

21. GENERAL.--Flexible guns are so installed as to permit the firing of each gun in all directions permitted by its location and installation. The guns are aimed and fired by the individual gunners and not aimed by maneuvering the airplane.

22. GUN MOVEMENT PARALLEL TO AXIS OF BORE.--a. When the direction of gun movement is parallel with the axis of the bore, the initial velocity is increased or decreased, depending upon whether the gun is moving in the direction of fire or in the opposite direction. When a fixed or flexible machine gun is fired forward parallel to line of flight, the speed of the firing airplane is added to the muzzle velocity of the projectile. The muzzle velocity of the .50-caliber machine-gun projectile is 2,700 feet per second, and the velocity of an airplane traveling 250 miles an hour is 367 feet per second. Therefore, the ground speed of a projectile fired forward from an airplane traveling 250 miles an hour would be 2,700 plus 367, or 3,067 feet per second. If we swing the flexible gun around and fire to the rear and parallel to line of flight, the effect is the opposite. The ground speed of the projectile will be 2,700 minus 367, or 2,333 feet per second. It is thus seen that the speed of the mount which is the same as that of the firing airplane acts to give the projectile maximum ground speed when fired forward and minimum when fired to the rear.

b. An increase in projectile velocity will shorten the time of flight for a given distance and decrease the drop; whereas, a decrease will lengthen the time of flight and increase the drop. For example, firing on stationary ground targets with M1 ball ammunition (muzzle velocity 2,600 feet per second) from a .30-caliber aircraft machine gun in a stationary mount at sea level, the projectile drop at 500 yards is 83 inches. Under the same conditions but firing from a gun moving in the direction of fire at the rate of 200 miles per hour parallel to the axis of the bore, the drop is 63 inches. When the gun is moving in the opposite direction, the drop is 103 inches.

c. Firing on moving aerial targets necessitates consideration of the speed and direction of travel of the target. In figure 15(1) the target airplane is flying at the same speed as the firing airplane which is 250 miles an hour at 3,000 feet altitude. The target airplane travels forward during the time of flight of the projectile from the gun to the target. When firing forward, the distance the projectile must travel, its time of flight, and the drop are increased as compared with shooting at a stationary target because the target airplane is traveling away from the point where the projectile left the muzzle of the gun. In firing to the rear, figure 15(2), the opposite is true, because the target airplane is traveling toward the gun.

d. Where the speed of the gun and target are equal, the distance traveled by the target increases or decreases the time of flight of the projectile more than the increase or decrease in ground speed of the projectile caused by the speed of the gun. For this reason the direction and speed of gun and target movement with respect to direction of fire must be considered when bore-sighting aircraft guns.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

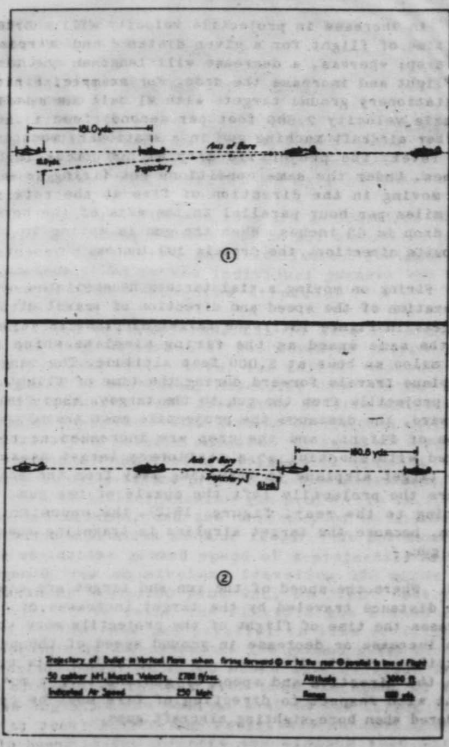


Figure 15.--Trajectories of bullets when firing on moving aerial targets.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

23. GUN MOVEMENT NOT PARALLEL TO AXIS OF BORE... a. When a gun is flexibly mounted on an airplane, the trajectory is considerably modified by the direction in which the gun is fired. The precise nature of the modification is dependent upon the speed of movement, the altitude, and the angular relationship between the axis of the bore and the direction of gun movement. The following system of expressing the angular relationship between direction of gun movement and the axis of the bore is employed to facilitate reference.

(1) The angle between the direction of movement and the vertical plane containing the axis of bore is expressed in degrees of azimuth, as shown in figure 16. When the direction of gun movement is parallel to the axis of the bore and the gunfire is in the direction of movement, the azimuth is zero degrees. When the axis of the bore is at right angles clockwise to the direction of movement, the azimuth angle is 90 degrees. Thus, the azimuth of a gun fired horizontally to the right at right angles to the line of motion is 90 degrees; whereas, when the gun is fired horizontally to the left at right angles to the line of the direction of movement, the azimuth is 270 degrees.

(2) The angle between an upward vertical through the center of rotation of the gun mount and the axis of the bore is expressed in terms of zenith, as shown in figure 16. Zero zenith is straight up; 90 degrees zenith is horizontal, and 180 degrees is straight down.

b. (1) The speed of the mount gives the projectile maximum ground speed when the gun is fired horizontally (90 degrees zenith) forward and parallel to line of flight (zero degrees azimuth). As the gun swings horizontally (90 degrees zenith) from front to rear (zero to 180 degrees azimuth) the ground speed of the projectile becomes slower, as shown in figure 17.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

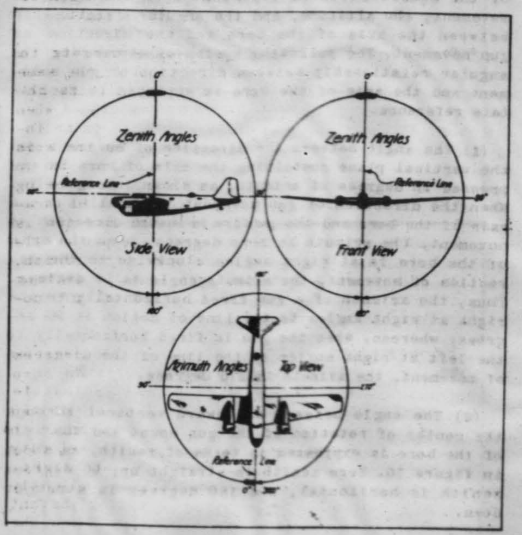


Figure 18.--System of expressing angular relationship between direction of gun movement and axis of bore.

When firing on ground targets at a given range, the time of flight if the projectile increases which gives gravity more time to act. Therefore, the drop of the projectile below the axis of the bore for any given elapsed time will increase as the firing position of the gun changes when swinging from front to rear.

(2) Changing from stationary ground targets to aerial targets traveling parallel to and at the same speed and altitude as the firing airplane, the decrease in projectile speed relative to the ground when swinging the gun from front to rear results in no increase in the drop of the projectile below the axis of the bore. (See paragraph 22c.) Hence a difference in drop of the projectile does occur as it does cause being the difference in windage jump as explained in paragraph 12b. Referring to figure 18, when the gun is swung from front to rear, the drop of the projectile increases and reaches maximum at 90 degrees zenith, 90 degrees azimuth, and then decreases to minimum when the gun is fired at 90 degrees zenith, 270 degrees azimuth.

(3) When a gun is fired horizontally (90 degrees zenith) and at an azimuth angle greater than zero degrees and less than 180 degrees, the projectile will have a trajectory that is the resultant of two forces: the muzzle velocity which is at an angle to the line of flight of the airplane, and the velocity of the mount which is in the direction of flight. The trajectory of the projectile will lie slightly to the left of the axis of the bore at the instant the gun is fired, as shown in figure 19. When the gun is fired forward (90 degrees zenith and zero degrees azimuth) or to the rear (90 degrees zenith and 180 degrees azimuth) the trajectory of the projectile will be along the flight line of airplane and axis of bore of the machine gun. The angle which the trajectory makes with the axis of bore at the instant the gun is fired is greatest when firing at an angle of 90 degrees zenith and 90 degrees azimuth, and decreases as the gun is traversed to zero or 180 de-

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

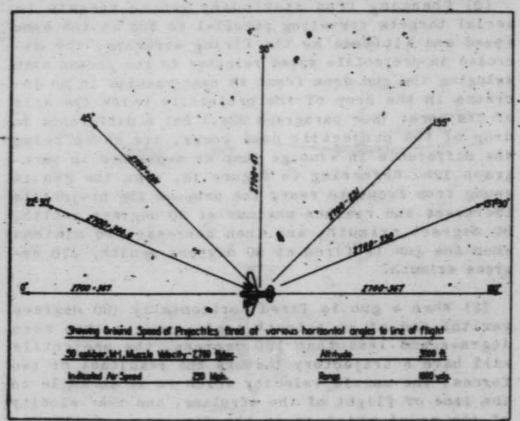


Figure 17.--Ground speed of projectiles fired at various horizontal angles to line of flight.

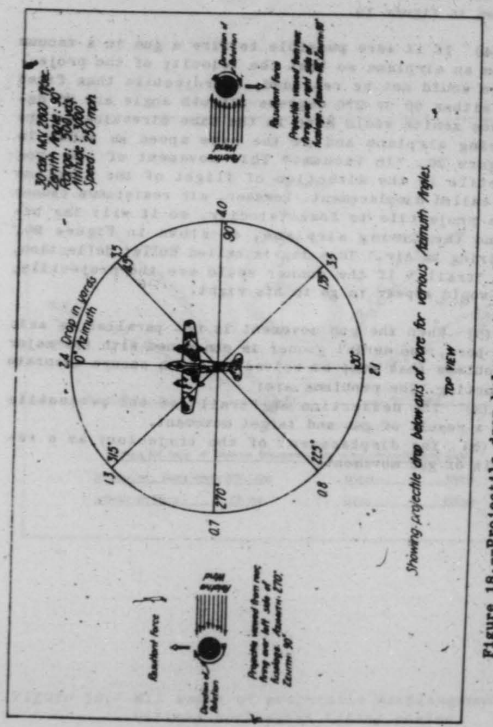


Figure 18.--Projectile drop below axis of bore for various azimuth angles.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

grees azimuth with zenith angle of 90 degrees, as shown in figure 19.

(4) If it were possible to fire a gun in a vacuum from an airplane so that the velocity of the projectile would not be retarded, a projectile thus fired at either 90 or 270 degrees azimuth angle and 90 degrees zenith would move in the same direction as the firing airplane and at the same speed as shown in figure 20, "In Vacuum." This movement of the projectile in the direction of flight of the airplane is called displacement. However, air resistance causes the projectile to lose velocity, so it will lag behind the firing airplane, as shown in figure 20, "Firing in Air." This lag is called bullet deflection, or "trail." If the gunner could see the projectile, it would appear to go to his right.

(5) When the gun movement is not parallel to axis of bore, the aerial gunner is concerned with two major problems that must be solved so as to secure accurate shooting. The problems are:

(a) The deflection or "trail" of the projectile as a result of gun and target movement.

(b) The displacement of the trajectory as a result of gun movement.

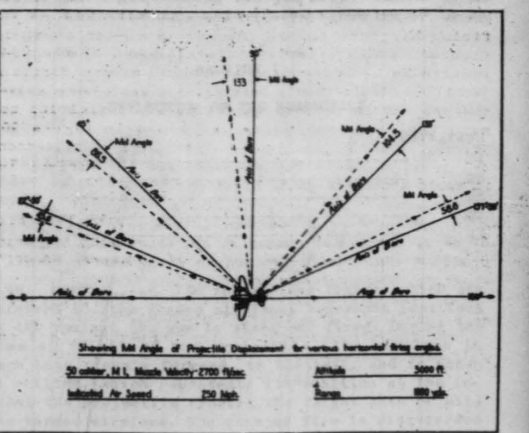


Figure 19.--Mil angle of projectile displacement for various horizontal firing angles.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

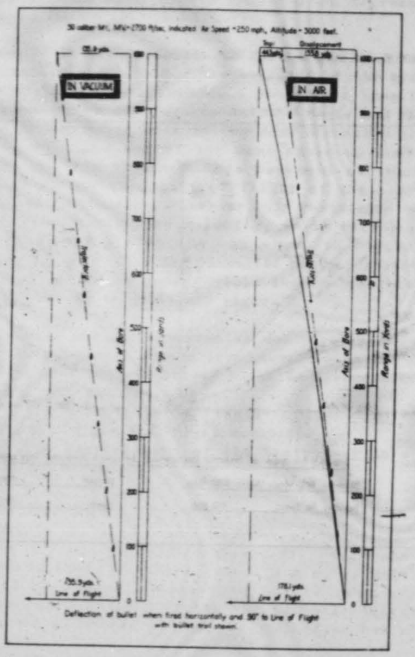


Figure 20.--Deflection of bullets fired horizontally at 90 degrees to angle of flight in air and in hypothetical vacuum.

CHAPTER 4

DEFLECTION AND DISPLACEMENT OF THE PROJECTILE

		Paragraphs
SECTION I.	Deflection of the projectile	24-28
II.	Theory	29-33

SECTION I

DEFLECTION OF THE PROJECTILE

	Paragraph
General	24
Frame of reference	25
Range	26
Speed	27
Altitude	28

24. GENERAL.--a. In the various figures which are referred to, the shaded airplanes represent positions at the instant the gun is aimed and fired. During the time of flight of the projectile, the airplane in each case travels forward, to the left, and is shown in outline, which represents its position at the instant the projectile crosses the flight path or hits the target airplane. The cone of fire is disregarded in all calculations of deflection and the general problem is on the basis of single aimed shots. The trajectory of the projectile is assumed to be a straight line for the usable ranges of the various guns and deflection angles. In figure 21 the target

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

and firing airplanes are flying in the same direction, on parallel courses, and at the same rate of speed. If the projectiles were visible, this figure represents what would be seen from a position above the firing airplane as the gunner aims and keeps his sights on the motor of the target while firing. The projectile would cross the flight path of the target airplane 44.3 yards behind the aiming point. Air resistance retards the projectile through its time of flight causing it to slow down and lag behind. The amount that the projectile lags behind the axis of bore extended at any instant after it leaves the muzzle of the gun is called "bullet trail." However, ballistic reports express bullet trail as LATERAL and VERTICAL deflections.

b. Even though projectiles travel at comparatively high speeds, they do require an appreciable time for flight. The time is dependent on both the distance to the target and velocity of the projectile. The latter is in turn dependent with a given gun and ammunition combination on gun orientation, the gun platform speed, and the density of the air, that is the altitude. During the time of flight of the projectile, an aerial target may move a considerable distance. This distance depends on the speed of the target and the length of the time of flight. Therefore, in shooting at aerial targets, some allowance must be made for target movement during the time of flight of the projectiles. The nature and amount of that allowance will be determined by the time of flight of the projectiles and the speed of the target airplane.

c. The allowances for gun-platform and target movement are made by offsetting the axis of the gun bore from the gun-target line in either or both a horizontal and vertical plane. The amount of the offset is commonly referred to as the deflection. Shots

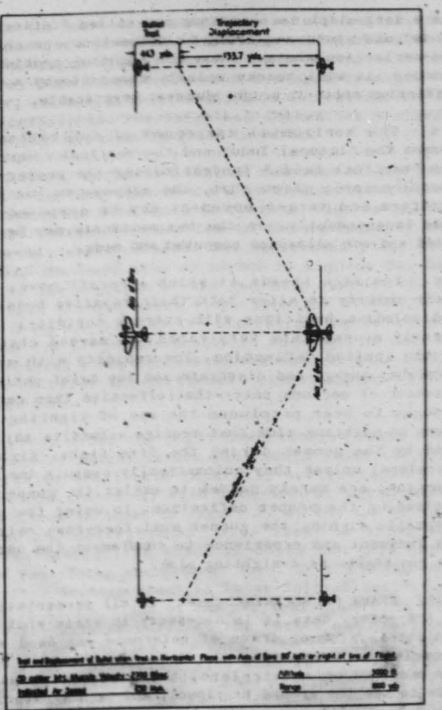


Figure 21.--Trail and lateral displacement of bullets fired in horizontal plane with axis of bore, 90 degrees left and right of line of flight.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

where deflection is necessary are called "deflection shots" and shots requiring no deflection are called "no-deflection shots." When the sighting problem is studied, it will become readily apparent why a "no-deflection shot" is sought whenever practicable.

d. The horizontal component of deflection is termed the "lateral lead" and the vertical component the "vertical lead." In determining the proper deflection for a given shot, the allowances for gun-platform and target movement may be computed and made independently, or the two movements may be related and one allowance computed and made.

e. The high speeds at which aircraft move, and their ability to alter both their relative headings and relative positions with extreme rapidity, frequently necessitate very rapid and marked changes in the applied deflection. The rapidity with which airplanes engage and disengage and the brief period--a matter of seconds only--that effective fire can be brought to bear precludes the use of sighting devices or sighting aids that require extensive adjustment by the gunner during the fire fight. Sights, therefore, unless they automatically compute the deflection, are merely guides to assist the gunner in estimating the proper deflection. In using the non-automatic sights, the gunner must therefore rely on his judgment and experience to supplement the use of his gun sights as a sighting aide.

25. **FRAME OF REFERENCE.**--a. In all presentations of trajectory data it is necessary to state what coordinate system or frame of reference was used when securing or presenting the data. In the case of a gun mounted on an airplane, the gunner may not be able to see the ground or clouds, and cannot determine any motion with respect to them. Even a target airplane would appear to be stationary when it is traveling in the same direction on a parallel course at the same rate of speed. The frame of reference most natural to the gunner would be one moving with the gun, so that range would mean distance from gun to target, and bullet trail would mean lateral and vertical deflections. The range and lateral or vertical deflection are usually given in yards.

b. Lateral deflection is the movement of the projectile to the right or left of the vertical plane containing the bore axis, as shown in figures 21, 22, and 23. Vertical deflection is the movement of the projectile above or below the horizontal plane containing the bore axis as shown in figures 24, 25, and 26. The position of the gun with respect to, or the angle the gun makes with, the line of flight of the firing airplane at the time of firing determines whether the projectile trails to the right or left of the vertical plane containing the bore axis or trails above or below the horizontal plane containing the axis of bore.

c. Very often the angle that the gun makes with the line of flight is one that would cause the projectile to trail both laterally and vertically. A projectile trajectory with both lateral and vertical deflections is shown in figure 7. At the top of this figure and described as "side view" is shown the vertical deflection which is below the horizontal plane containing the axis of bore. In the center and described as "top view" is shown lateral deflection which is to the right of the vertical plane that contains the axis of bore. At the bottom and described as "perspective view" is shown the trajectory of a 0.50-caliber projectile with both lateral and vertical deflection. For the range of 1,000 yards, the lateral deflection is 44.3 yards to the right of the vertical plane, and the vertical deflection is 11.8 yards below the horizontal plane.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

26. RANGE.--The trail of a projectile increases at an accelerated rate as the range increases. After the projectile leaves the gun, air resistance acts and causes a progressive decrease in projectile speed. This causes a progressive increase in the amount of time required for the projectile to travel succeeding distances of 100 yards as exemplified in figure 27. This figure shows the firing and target airplanes traveling at the same constant speed and the slowing down of the projectile as a result of air resistance. Because of this slowing down of the projectile, the target airplane will travel forward a greater distance as the projectile's time of flight increases for each succeeding 100 yards. The distance that the target airplane travels forward, during the projectile's time of flight for each 100 yards in range up to 1,000 yards, is shown along the flight line of the firing airplane, Since the target and firing airplanes are traveling at the same rate of speed, the distances shown are the same for both airplanes.

27. SPEED.--a. FIRING AIRPLANE.--With altitude remaining the same, increasing the speed of the firing airplane will cause a progressive increase in "bullet trail" as shown in figure 28. Figure 29 shows that as the speed of the firing airplane increases, displacement of the projectile increases, which increases the flight distance of the projectile for a given range. As the flight distance of the projectile increases, its time of flight will increase. If the time of flight of the projectile for given ranges remained the same, an increase in the speed of the firing airplane would permit the projectile to move forward a distance in proportion to the increase in speed. The increase in time of flight of the projectile and increase in speed of the firing airplane cause a progressive increase in "bullet trail."

b. TARGET AIRPLANE.--Where the speed of the firing airplane and altitude remain constant, the amount the projectile lags behind the target airplane increases

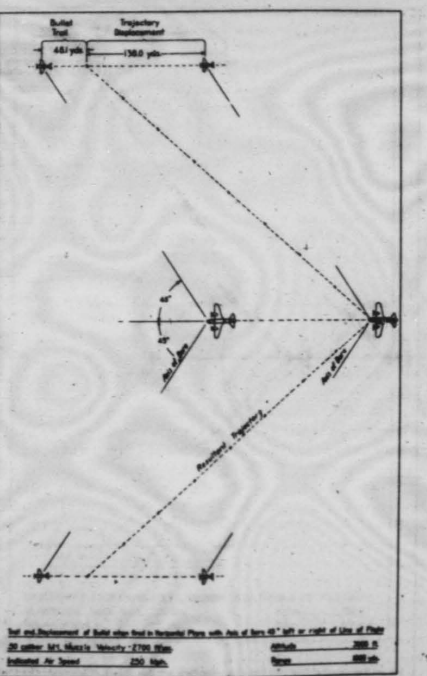


Figure 22.--Trail and lateral displacement of bullets fired in horizontal plane with axis of bore, 45 degrees left and right of line of flight.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

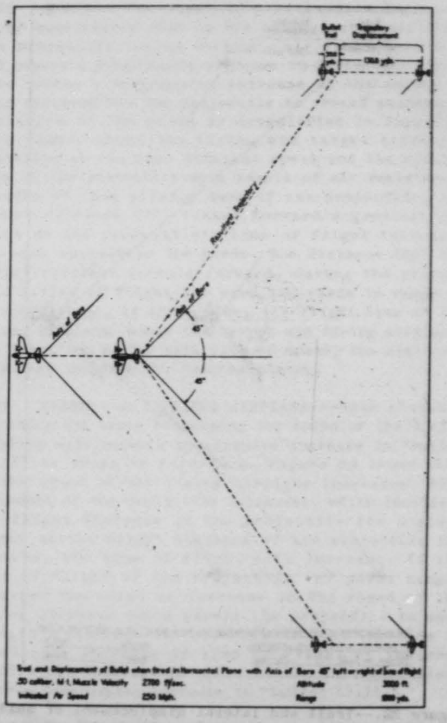


Figure 23.--Trail and lateral displacement of bullets fired in horizontal plane with axis of bore, rearwardly 45 degrees left and right of line of flight.

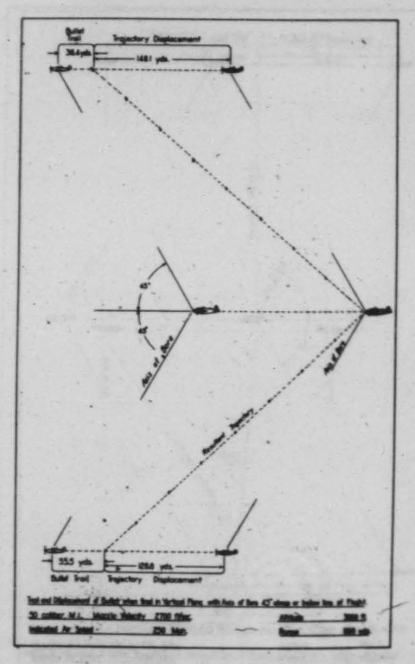


Figure 24.--Trail and vertical displacement of bullets fired in vertical plane with axis of bore 45 degrees above and below line of flight.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

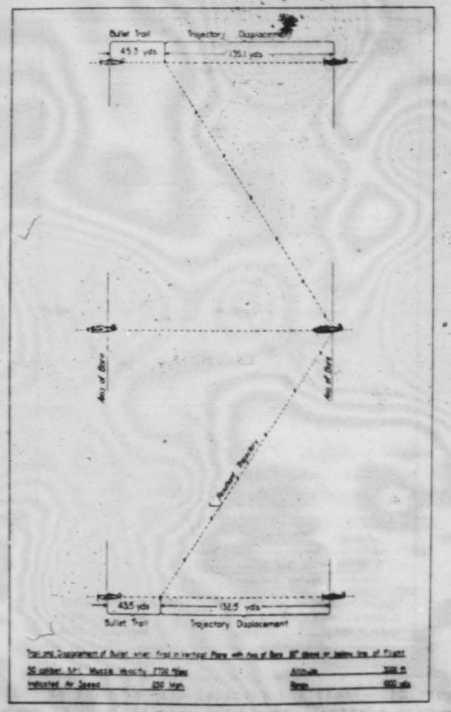


Figure 25.--Trail and vertical displacement of bullets fired in a vertical plane with axis of bore 90 degrees above and below line of flight.

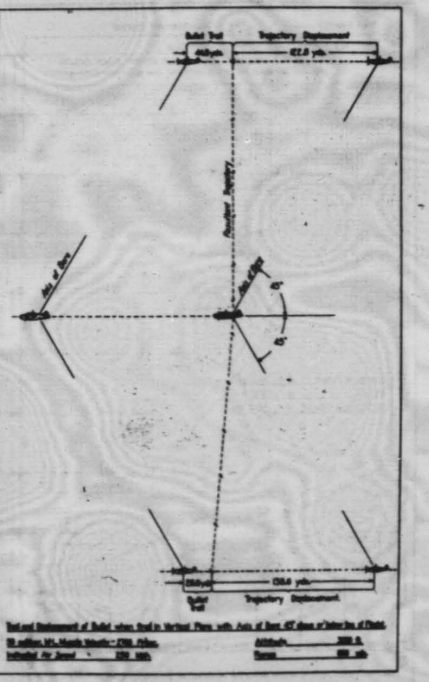


Figure 26.--Trail and vertical displacement of bullets fired in a vertical plane with axis of bore, 45 degrees rearwardly above and below line of flight.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

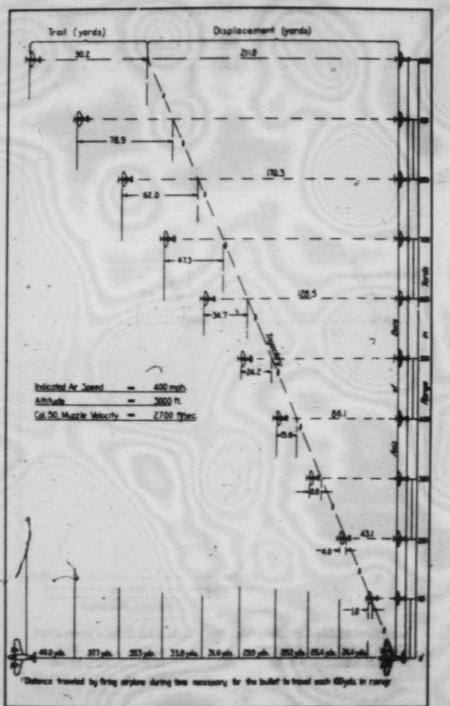


Figure 27.--Effect of air resistance on projectile speed.

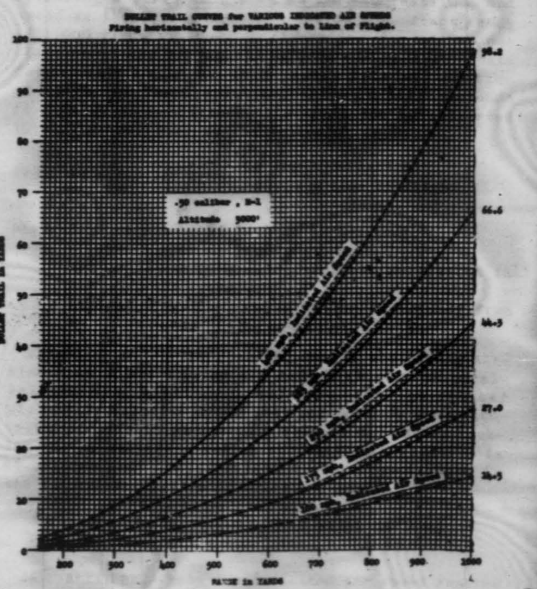


Figure 28.--Effect of speed of firing airplane on bullet trail.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

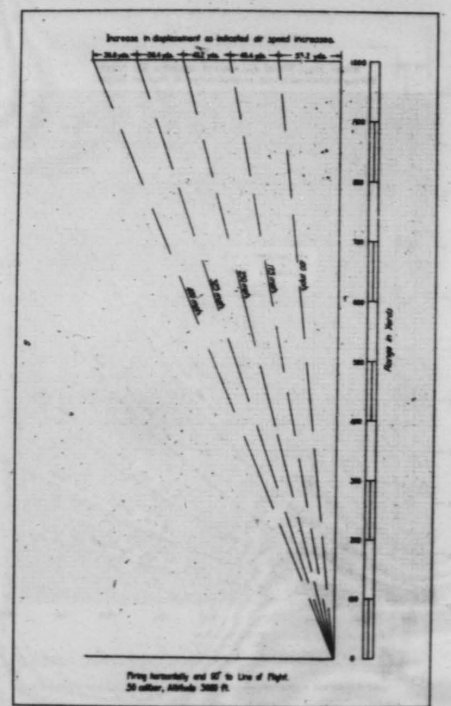


Figure 29.--Effect of speed of firing airplane on projectile displacement.

or decreases as the speed of the target airplane is increased or decreased. When the target airplane is traveling a parallel course at the same altitude and speed as the firing airplane and at a constant range of 1,000 yards as shown in figure 21, the lateral deflection of the projectile as given in ballistic data for aircraft guns is 44.3 yards. Knowing the time of flight of the projectile, which is 1.456 seconds for the given conditions, its trail can be converted into miles per hour by the following formula:

$$\text{Trail in miles per hour} = \frac{3{,}600 \times \text{deflection}}{1{,}760 \times \text{time of flight}}$$

where 3,600 = number of seconds in one hour,
1,760 = number of yards in a mile,
deflection = lateral or vertical deflection in yards,
time of flight = time of flight in seconds from gun to target.

EXAMPLE: Given the speed of target and firing airplanes as 250 m.p.h. in the same direction on parallel courses, altitude 3,000 feet, gun .50-caliber M1, muzzle velocity 2,700 feet per second, gun orientation 90° zenith, 90° azimuth, range 1,000 yards. Looking in the ballistic tables the lateral deflection is 44.3 yards and time of flight 1.456 seconds. What is the lateral deflection in miles per hour?

Solution: $\frac{3{,}600 \times 44.3}{1{,}760 \times 1.456} = 62.2$ miles per hour

28. ALTITUDE.--When the indicated air speed remains the same, bullet trail decreases as altitude increases. This decrease is more rapid at low altitudes than at high. Figure 30 shows that with an indicated air speed of 250 miles an hour and changes in altitude from 3,000 to 15,000, and from 15,000 to 27,000 feet, the decrease in bullet trail for the first 12,000-foot change is twice as much as it is for the second 12,000-foot

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

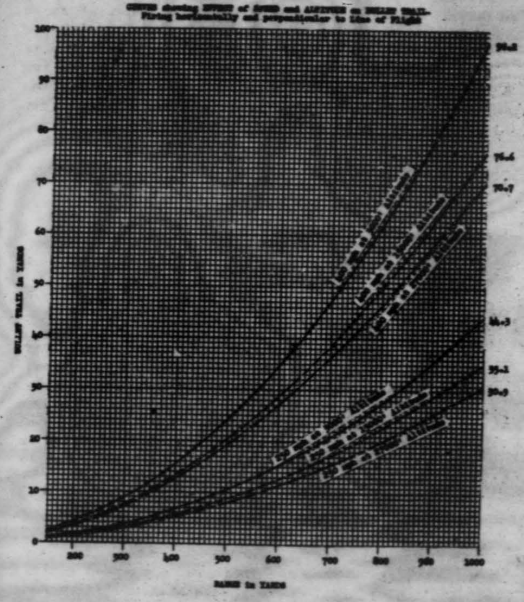


Figure 30.--Effect of speed of firing airplane and altitude on bullet trail.

change in altitude. An increase in indicated air speed increases the bullet trail but the rate of decrease of bullet trail becomes greater with increase in altitude. As shown in figure 30, the increase or decrease in indicated air speed affects bullet trail more than do changes in altitude. A change in speed of the firing airplane from 250 to 400 m.p.h. is shown by figure 30 to increase the bullet trail from 30.9 to 70.7 yards at an altitude of 27,000 feet, from 35.1 to 78.6 at 15,000 feet, and from 44.3 to 98.2 at 3,000 feet. The difference between the bullet trail at 400 m.p.h. for the first 12,000-foot change (from 3,000 to 15,000 feet) in altitude is approximately four times as great as the difference for the second 12,000-foot change (from 15,000 to 27,000 feet).

SECTION II

DISPLACEMENT OF THE PROJECTILE

	Paragraph
Theory	29
Range	30
Speed	31
Altitude	32
Angle gun makes with line of flight	33

29. THEORY.--a. The distance that a bullet fired at an angle to the line of flight moves in the direction of flight of the firing airplane because of the forward movement of the airplane is called displacement. This distance is measured along a line perpendicular to the axis of bore, as in figures 21 and 25. The firing airplane may be climbing, diving

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

or in horizontal flight, but displacement is always in the direction of flight of the firing airplane at the instant the gun is fired. The displacement, however, is not measured along a line parallel to the line of flight but, as stated before, along a line perpendicular to the axis of the bore. The displacements shown in figures 22 to 24 therefore merely indicate the general direction of the displacement and not, as in the case of figures 21 and 25, the actual directions in which displacements as given in ballistic tables are measured. When firing from an airplane, the trajectory of the bullet is the resultant of two velocities, muzzle velocity and airplane velocity, the effect of other forces acting on the bullet being disregarded. If a flexible gun is fired horizontally and at 90 degrees to line of flight of the firing airplane, the bullet will move in the same direction and at the same rate of speed as the firing airplane during the small period of time necessary for the propellant charge to send the bullet through the gun barrel. If the bullet did not lose any of the speed given to it while passing through the gun barrel, it would keep pace with the firing airplane until pulled to earth by gravity.

b. The extent to which the trajectory is displaced will vary with different types of airplanes and with the vertical and lateral angles between the axis of the bore and the line of flight. As with rifles, the canting of aerial guns induces firing errors. Flexible guns are normally so installed that the gunner can compensate for the effects of banking, but if the bank is incidental to a high "g" turn the gunner may be thrown away from his guns or otherwise rendered unable to operate them. The degree to which canting affects the fire of fixed guns is dependent upon such factors as the distance between the line of sight and the axis of the cant, and the amount of elevation and toe-in of the guns. For purpose of illustrating

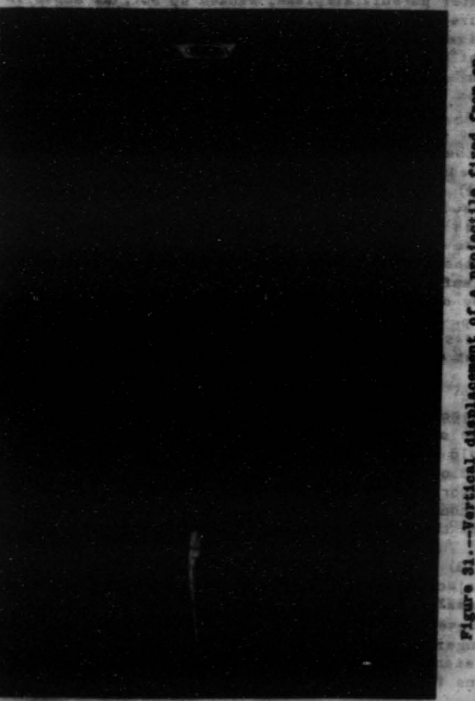


Figure 21.--Vertical displacement of a projectile fired from an airplane in a 90-degree bank.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

some of the effects of a bank, consider a wing-gun fighter pursuit airplane, banked up 90°, as shown in figure 31. If the guns and the sights have been harmonized so that the trajectories cross the line of sight vertically and laterally at 300 yards when the plane is in a horizontal position, the guns are elevated some four or five mils and are toed in about eight mils. When an airplane is thus banked at an angle of 90 degrees and the guns adjusted as outlined in the following paragraph, the trajectory is displaced with reference to the line of sight as follows:

(1) The guns in the top wing are depressed eight mils. Naturally, the bullets from these guns will cross the line of sight at less than 30 yards because no allowance has been made for drop. The guns on the lower wing are elevated eight degrees, which is sufficient to cause the trajectory to cross the line of sight at 300 yards if there were no bullet drop. Because of bullet drop, however, the trajectories of these guns will actually cross the line of sight some distance beyond the harmonization range.

(2) The canting of the guns further causes the trajectory to depart in a horizontal plane from the line of sight. The effect is similar to that which would be obtained in level flight if the guns were toed out instead of in. The displacement of the trajectory caused solely by the canting of the guns and without regard to the departure of the line of sight from the line of flight is shown in figure 32.

(3) At short ranges the gunner can offset the trajectory displacement by varying his point of aim a small amount. At intermediate and longer ranges, however, this becomes rather difficult because of the longer times of flight and the greater displacement distances involved. The sighting problem for fixed guns firing against high-speed targets crossing the

Figure 32.—Top view showing lateral displacement of the projectile when the airplane is in a 90-degree bank.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

line of sight at angles greater than 15° is further complicated by the relatively large lead angle. The magnitude of that angle can well be shown by considering the case of a fixed-gun fighter delivering against a 300-mile-an-hour bomber from the rear quarter (45° off the tail) with an initial firing range of 450 yards. The time of flight of the bullet will be approximately one-half second and the bomber will be some 75 yards in advance of where it was when the bullet left the muzzle of the gun. The apparent motion across the line of sight, and consequently the deflection, will be approximately 52 yards. The lead angle will then be approximately 100 mils or just less than 6 degrees. To permit the gunner to use the target airplane as a reference point in establishing the necessary mil-angle lead, a sight must have a field of view, lateral and vertical, of some 12 degrees. To permit reasonable accuracy if firing when in a turn, fixed gun sights should further have reference marks which permit the establishment of a line of sight in moderately steep banks.

30. RANGE.--The horizontal projection of bullet trajectory is approximately a straight line, as shown in figures 21, 22, and 23. The angle that the trajectory of a bullet makes with the extended center line of bore at the instant a gun is fired can be determined. Figure 19 gives the displacement angle for some of the horizontal firing positions. This angle does not vary over two mils for any range up to 1,000 yards for the .50-caliber or 600 yards for the .30-caliber machine gun when the indicated air speed is 250 miles an hour at an altitude of 3,000 feet. Disregarding variations of less than two mils, displacement will increase in direct proportion to range.

31. SPEED.--When the speed of the firing airplane is increased, displacement of the bullet increases

in almost direct proportion. Figure 29 shows that bullet displacement increases almost the same distance for each 75-mile-an-hour increase in speed of the firing airplane.

32. ALTITUDE.--Bullet displacement decreases as altitude increases, but the decrease is very small within short ranges of 1,000 yards or less for the .50-caliber aircraft machine gun. Where the range is 1,000 yards, bullet displacements for indicated air speeds at different altitudes when firing horizontally and 90 degrees to the line of flight are as follows:

Miles per hour	Displacement in yards for altitudes indicated		
	Alt.3,000 ft.	Alt.15,000 ft.	Alt.27,000 ft.
250	133.8 yards	128.3 yards	125.0 yards
325	173.2 yards	165.2 yards	160.1 yards
400	211.8 yards	200.5 yards	192.1 yards

As air becomes less dense with an increase in altitude, air resistance decreases, and time of flight of the bullet decreases. Compare the aforegoing table with figure 30 and note that bullet displacement does not decrease as rapidly as bullet trail for the same increases in altitude.

33. ANGLE GUN MAKES WITH LINE OF FLIGHT.--The mil angle that the bullet trajectory makes with axis of bore is shown in figure 19 for the firing positions shown in figures 18, 21, 22, and 23. The angle that bullet trajectory makes with axis of bore increases as the gun swings from a forward or rear firing position to one perpendicular to line of flight. Bullet displacement due to the speed of firing airplane increases as the gun swings from a forward or rear firing position to one perpendicular to line of flight.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

With range and speed of the firing airplane remaining the same while firing on stationary ground target, the flight distance of the bullet will increase because of displacement, as the gun swings from forward or rear firing position to one perpendicular to line of flight. Under the same conditions, the time of flight of the bullet will be minimum when firing forward parallel to line of flight and it will increase as the firing position of the gun swings to the rear. The increase in time of flight of the bullet when fired in a rearward direction is the result of the bullet's ground velocity being the muzzle velocity minus the speed of the mount instead of the muzzle velocity plus the speed of the gun mount as when firing in a forward direction. This is clearly shown in figure 17. The Norman wind-vane sight aids in correcting for bullet displacement due to speed of the firing airplane and the angle that the gun makes with line of flight. If the wind-vane sight is not used, the gunner is forced to aim at a point between the plane and the target. This aiming point must be on a line through the object and parallel to the direction of flight of the firing airplane. If the angle that the gun makes with line of flight, the altitude, and the speed of the firing airplane remain the same, the gunner can change from ground to aerial targets, and the mil angle that the bullet trajectory makes with axis of bore will not change. Flight distance and time of flight of the bullet will change. As an example, refer to figures 21 to 26, inclusive, which show the gunner firing vertically and horizontally at target airplanes. Firing forward, figure 15(1), the flight distance of the bullet is the range, 1,000 yards, plus 181 yards, which is the distance that the target airplane travels forward during the time of flight of the bullet. Firing to the rear, figure 15(2), the flight distance of the bullet is the range, 1,000 yards, minus 160.6 yards, the distance that the target airplane travels forward during the time of flight of the bullet. The following table

shows how bullet displacement, due to the forward speed of the firing airplane and the angle that the gun makes with line of flight, reduces flight distance of the bullet as the gun swings from front to rear:

Figure number	Time of flight	Flight distance of bullet
15(1)	1.480 seconds	1,181 yards
24	1.517 seconds	1,140 yards
25	1.475 seconds	1,016 yards
26	1.370 seconds	889 yards
15(2)	1.314 seconds	839 yards

Time of flight increases as the gun swings through the first 45 degrees and then decreases as it continues to swing toward the rear.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CHAPTER 5.

EFFECT OF FIRE ON AIRCRAFT STRUCTURES

Paragraph

Relative vulnerability of structural parts ---------- 34
Degree of damage caused by projectiles- 35
Desirable aiming points ---------- 36

34. RELATIVE VULNERABILITY OF STRUCTURAL PARTS.--a. A modern all-metal military airplane can withstand a large number of hits provided its vital controls, its engines (or sufficient power units to maintain flight) and its fuel system remain intact. Small-caliber projectiles do very little structural damage. Studies conducted abroad during the present conflict show that single and multi-motored airplanes have returned to their bases with more than 200 hits from rifle-caliber machine guns. In addition, such reports show that modern aircraft can withstand hits from .50-caliber and 13.2-milimeter projectiles without causing sufficient structural damage to result in failure of the parts mentioned while in flight. Wing spars, motor mounts, and fuselage longitudinal members have absorbed a large number of hits without causing failure. In the present conflict skillful pilots return to their bases with parts of their airplane, such as tail, aileron, wing and fuselage surfaces shot away.

b. Combats considered in investigations and analyses of duels between fixed-gun fighters, fighters and multi-motored bombers, show that approximately

75 per cent of the approaches are made from astern, that is, from within a stern angle of 30 degrees in all directions to the horizontal axis of the target airplane. This is the only method of approach (with modern air speeds) by which the target can be held in the sights for any appreciable time. Under this kind of attack, structural parts that have any appreciable area exposed to projectiles that may strike their flat surfaces at any angle less than 30 degrees to the longitudinal axis of the airplane are wing spars, tail structures, engine mounts, longitudinal members, frames and bulkheads.

35. DEGREE OF DAMAGE CAUSED BY PROJECTILES.--a. UNARMORED AIRPLANES NOT IN FLIGHT.--The trend in armament for the single-engine pursuit or interceptor to the multi-motored bomber has been toward more guns, larger calibers with explosive projectiles, and higher rates of fire. All these changes increase the effectiveness of both offensive and defensive weapons. The following table, compiled in 1936, summarizes the results of actual tests. Although it neglects the important factors of range and accuracy, it does show the relative merits of the various caliber guns and their projectiles. This table represents an analysis of selected shots fired at unarmored metal airplanes resting on the ground but loaded as for flight. The damage figures represent structural damage and not lethal damage caused by gun fire from the various weapons. The item "damage per shot" was estimated on the basis of man-hours required to repair the damage done by each individual shot.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

Ammunition	.30 Cal.	.50 Cal.	20 mm. S. C. H. E.	23 mm. H. E.	37 mm. 1 lb.	37 mm. 2 lb.	37 mm. 3 lb.
Possible rate of fire	1200	575	300	250	150	125	90
Damage per shot	2	3	20	217	333	450	675
Damage in one second	41.6	33.7	325	900	833	938	969
Weight of projectiles put out in 10 seconds	4.8	12.85	8.66	14	20.8	31.3	26	18.75
Weight of rounds put out in 10 seconds	18.6	33.7	29.3	60	71.3	46.5	40.7	27.6
Ratio of weight of projectiles to weight of rounds	.257	.365	.328	.333	.292	.77	.643	.5
Weight of fixed gun	18	80	80	100	150	140	179	217
Weight of flexible gun	27	80	80	250	450	200	646	817
Damage index for fixed guns	1.89	.405	2.64	3.14	4.67	8.32	4.37	3.44
Damage index for flexible guns	.819	.272	1.9	1.83	1.72	1.55	1.89	1.01

b. DAMAGE TO ARMORED AIRPLANES IN FLIGHT.--(1) The damage per shot or in one second of fire from the various caliber projectiles would be somewhat larger if the representative airplane were armored and in flight instead of at rest. If the indicated air speed is more than 300 miles per hour, the wind pressure on extruding damaged surfaces would increase the loading on that particular part to the extent that additional damage would be done. This increase is very small for the .30 and .50-caliber guns except where the projectiles are striking armor plate. In this case, the splatter effect on the armor plate will sever the stressed skin surfaces and cause damage by pulling rivets loose, or cause failure of the structural members and the stressed skin. Increased stresses in stress-carrying members of heat-treated aluminum alloy, caused by reduction of the number of such members carrying the total load and by wind pressure on the torn members jutting into the slipstream, make greater the possibility of the failure spreading to the basic structure. This possibility of spreading the failure area is also greater because of the brittleness of the alloy which allows cracks to appear and spread rapidly under the higher stresses set up by the conditions mentioned. Compressive stresses are usually more critical in aircraft structures than tensile stresses. Consequently buckling will occur in structural members or skin subjected to additional loads caused by failure of the critical members of the aircraft structure.

(2) For the larger caliber guns (20-mm and above) the damage caused by wind pressure will increase with increase in size of projectile at faster rates than given in the table for the direct damage done by projectiles. One or two explosive hits on an airplane structure have a good chance of bringing the airplane down because of collapse of damaged surface or struc-

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

ture. Against armored airplanes the splatter effect of explosive projectile fragments striking the armor plate will do more damage than fragments of .30 or .50-caliber projectiles, for the following reasons:

(a) There are more and larger fragments.

(b) The explosive charge of the projectile imparts a much higher velocity to the fragments.

(c) The larger mass of the individual fragments multiplied by the higher explosive force behind them gives more foot pounds of energy to each fragment, therefore, causing them to do more structural damage.

c. DAMAGING EFFECT ON VULNERABLE PARTS.--(1) AIRPLANE STRUCTURE.--The airplane structure itself can usually withstand a number of hits from .30 and .50-caliber projectiles without causing failure as the designed load of airplane structures is usually one and one-half times the applied load. Even with this structural strength one or more hits from 20-mm or larger caliber high-explosive projectiles will cause failure if the airplane is traveling or is subjected to high speeds before the damage is repaired. To cause failure of a wing or elevator it is necessary to group a number of shots in a wing spar and even then the only damage may be weakening of the wing but not total failure. The number of shots necessary to cause failure is dependent on the angle of fire and caliber of the gun used. As the caliber of the projectile is increased the number of hits necessary to cause failure is reduced. Firing on a wing from above or below is more effective than fire delivered from a rear attack. The reason for this is that high-explosive projectiles will explode on the rear portions of the wing before they have had a chance to get to important parts of the wing structure. Hits on the fuselage will tear out sections of the skin covering, damage bulkheads, and cut control cables and electric wires.

(2) FUEL TANKS.--The fuel system, which includes tanks, fuel lines, pumps, and carburetor or injection system, is very vulnerable to machine-gun fire. At present fuel tanks are self sealing and some military planes use armor plate to protect their fuel tanks from the most likely direction of attack. The fuel lines are not very vulnerable because of their small size; however, some military powers inclose them in conduit. Where this is not done, full advantage is taken of what protection structural members will afford. Fuel pumps, carburetor or fuel-injection system are protected by the motor, bullet-proof fire walls, or bulkheads. The fuel system is not very vulnerable to .30-caliber machine-gun fire, but it is vulnerable to .50-caliber projectiles because of their penetrating power at combat ranges. The .50-caliber projectile will leave a small hole when entering a self-sealing fuel tank but tears a large hole where it passes through the opposite side. This is due to the projectile tumbling as it passes through the liquid fuel. A tracer or an incendiary projectile may cause an explosion if it enters or passes through a fuel tank wherein there is a mixture of vapor and air. A hit with a 20-mm or larger caliber high-explosive projectile will cause complete failure. Hits in fuel tanks mean not only loss of fuel through leaks but also a great probability of fire in the air. Fuel leaks will reduce the length of the flight, while a fire will cause abandonment of the airplane and subsequent loss through crashing. The lubrication system, which includes tanks, coolers and oil lines, is vulnerable to all caliber projectiles except where it is protected by armor.

(3) MOTORS.--One or more hits by small-caliber armor-piercing or large-caliber high-explosive projectiles will cause instant or delayed disabling damage unless the motor is protected by armor from the most likely direction of attack. Hits on the engines may not put them entirely out of commission

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

but will reduce their power by disabling one or more cylinders. Hits need not be made on the cylinders themselves since a hit on the engine by an explosive projectile will cut ignition wires, break spark plugs, and puncture intake manifolds.

(4) PERSONNEL.---One or more hits from small or large-caliber projectiles will cause immediate lethal damage to personnel. A report covering the armor and armament of the latest model pursuit airplane produced by a foreign government, clearly shows that they consider personnel essential to flight are very vulnerable to machine-gun fire. They have sacrificed armament so that the pilot could be given more protection by installing more square feet of heavier (0.80 inches - 15 mm in thickness) armor plate. It is not practical to protect the pilot completely with armor plate with the result that hits in the pilot's cockpit will undoubtedly wound or kill the pilot. In addition, there is the chance of cutting control cables, fuel lines and electric lines, and of damaging instruments. With the general use of explosive projectiles, hits in the cockpit will reduce the effectiveness of flight personnel. Hits in the bombardier, navigator, or air-gunners' compartments will be equally effective in reducing the effectiveness of personnel. A projectile may go through the bomb bay and detonate the bombs carried there. If the air gunners are wounded or killed, the attacking pilot can concentrate on the pilot or other vulnerable parts without being subjected to defensive fire from the target airplane.

36. DESIRABLE AIMING POINTS.---a. The flight personnel of an airplane are so vital to continued operation, and some parts to an airplane are so vulnerable to gunfire, that they must be given a degree of protection despite the weight considerations. Weight limits the amount of protection that can be given to vulnerable areas if the airplane is to perform its combat mission satisfactorily.

b. Results of firing-trials indicate that the vulnerability of armored airplanes may adequately be specified as follows:

(1) For immediate incapacitation of the whole airplane, the aiming point would be personnel essential to flight, chiefly pilot.

(2) For delayed incapacitation of the whole airplane, the aiming point would be fuel and oil tanks.

(3) Destroy or incapacitate the independent source of return fire by aiming at the gunner, gun, or mounting.

(4) Aim so as to incapacitate the engine or sufficient power units.

(5) Incapacitate the engine or engines by delayed action. In this case the aiming point would be the oil supply, either the tank or cooler.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

RESTRICTED

HANDBOOK FOR AERIAL GUNNERS

• • • •

PART TWO

AERIAL GUNSIGHTS AND SIGHTING

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

TECHNICAL MANUAL
No. 1-271

WAR DEPARTMENT,
Washington.

AIR CORPS
HANDBOOK FOR AERIAL GUNNERS

Prepared under direction of the
Chief of the Air Corps

• • • • • • • • • • • • • • • • • • •

PART II

Paragraphs

CHAPTER 6. The Sighting Problem and the Characteristics and Employment of Gun Sights ---------- 37-41

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

PART II

AERIAL GUNSIGHTS AND SIGHTING

CHAPTER 6

THE SIGHTING PROBLEM AND AERIAL GUNSIGHTS

		Paragraphs
SECTION I.	The sighting problem	37-39
II.	Characteristics and employment of standard gunsights	40-41

SECTION I

THE SIGHTING PROBLEM

	Paragraph
General	37
Sighting devices	38
Sighting methods	39

37. GENERAL.--a. THE PROBLEM.--In pointing the gun it is necessary to allow for the various factors, such as gravity, air resistance, windage, and gun movement, which influence the trajectory. In shooting at moving targets it is likewise necessary to allow for the travel of the target during the time of flight of the projectile. It is necessary to know the range before correct allowances can be made for these factors. The correction for all factors affecting the trajectory constitutes the sighting problem.

b. RANGE.--Accuracy in estimating range cannot be over emphasized because the drop of the projectile due to gravity, the displacement of the projectile due to air resistance, and moving targets, all vary with the distance that the projectile must travel. Tests show that untrained personnel generally estimate the range at about one third of the actual range, and cases have been noted where the range has been estimated at as little as one eighth of the actual range. If the air

gunner uses an incorrect range estimation when making allowances for the various factors, he will miss the target and waste quantities of ammunition that may be needed later. The theory of range estimation is explained in TM 1-495, Aircraft Machine-Gun Sights, Section III.

c. DROP OF THE PROJECTILE.--As explained previously, the projectile begins to drop as soon as it leaves the gun. Allowance for drop is made by elevating the axis of the bore so that the gun actually points somewhat above the target. Inasmuch as the rate of drop increases from instant to instant, it is obvious that the angle of elevation will vary with the range.

d. CORRECTIONS FOR DRIFT.--Drift causes the bullet to move to the right or left of a vertical plane through the barrel. To offset the drift the barrel is pointed to the right or left of the target depending upon the drift direction.

e. TARGET MOVEMENT.--If bullets flew with the speed of light, it would be unnecessary to allow for the movement of the target during the time of flight of the bullet. However, bullets require an appreciable time for their flight with the result that high speed targets such as airplanes are able to travel a considerable distance while a projectile is in flight. Target movement may be considered to have two components with respect to the gun: one along the gun target line and the other at right angles to that line. Movement along the gun target line primarily affects the range. Movement at right angles to the gun target line necessitates shooting at some point on the target flight line ahead of the position occupied by the target at the instant of firing.

f. GUN AND TARGET MOVEMENT.--(1) When the gun and the target are both stationary in space, the distance that the bullet must travel to hit the target is the distance between the gun and the target. This is not so if either the gun, the target, or both, is moving, as in the case with an airplane. In the case of a pursuit (firing) airplane flying at 400 miles an hour, 600 yards directly behind a bombardment (target) airplane flying 300 miles an hour, the actual distance between the gun and the target at the moment under

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

consideration is only 600 yards. It will take the bullet about 6/10th second to go 600 yards. By this time the target airplane will have advanced another 90 yards. By the time the bullet covers this 90 yards the target will have advanced a little more. Consequently, the total flight distance of the bullet will be in excess of 700 yards. Obviously, if the gun were elevated sufficiently to cause the line of fire to intercept the line of sight at 600 yards for a stationary target, the gun will shoot low in the air if the target is moving in the same direction as the gun.

(2) If the target is moving directly toward the gun, it is obvious that the bullet flight distance will be less than the distance between the gun and the target at the time the projectile was fired. If the gun were elevated on the basis of a stationary target it would obviously shoot high under these conditions.

(3) Allowance for the target movement across the line of sight necessitates pointing the gun some distance ahead of the target in the direction in which it is traveling. This distance is dependent upon the speed of the target across the line of sight and not on its flight speed, and is obtained mathematically by multiplying the actual flight speed by the sine of the crossing angle. The speed of the target airplane across the line of sight is termed the apparent speed. For example, with an actual flight speed of 400 miles an hour and a crossing angle of 45 degrees (the sine of which is 0.70), the apparent or target speed to be allowed for is 280 miles; for a crossing angle of 30 degrees (the sine of which is 0.5), 200 miles; and for a crossing angle of 15 degrees (the sine of which is 0.257), 103 miles.

g. DISPLACEMENT DUE TO GUN MOVEMENT.— The forward movement of a gun that shoots forwardly or rearwardly along the line of flight increases or decreases the projectile velocity and, hence, the drop. When a gun is fired at right angles to the line of flight, the trajectory is displaced in the direction of flight, the angle of displacement being dependent upon the orientation of the gun. Were it not for the variation in projectile velocity with the direction in which the gun is pointed in respect to the line of flight,

the displacement would vary according to the sine of the angle between the axis of the bore and the line of sight. Actually, however, the displacement is somewhat less in the forward hemisphere because of the shorter time of flight and somewhat greater in the rear hemisphere because of the longer time of flight.

38. SIGHTING DEVICES.—*a.* GENERAL.—(1) The function of a gun-sighting device is to enable the gunner to hit a desired target when he has the gun accurately aimed for that target. Some sighting devices merely indicate the point the bullet will strike under certain conditions of range, wind, temperature, etc. Others incorporate features which assist the gunner in shooting at moving targets, while a third type automatically computes much, if not all, of the firing data required, and points the gun in the proper direction.

(2) The simplest form of sighting device is that found on the ordinary pistol, revolver and shotgun. It consists essentially of two fixed sight points mounted directly on or in close proximity to the gun barrel. The line of sight established by the sight points is the sight bar and the distance between is the sight radius. The sight bar is usually offset from the axis of the bore in the vertical plane sufficiently to allow for drop at the average range for which the gun is designed. With short range weapons, the fixed sight bar provides satisfactory results.

b. IRON SIGHTS.—(1) Sights which do not employ a system of lenses, prisms, etc., are termed "iron" sights. The sights on the service rifle are in this category. The front and rear sights provide the required sighting points.

(2) The front element (sight) of an aerial gun sighting system may be either fixed with respect to the gun or may be free to move and automatically correct for displacement of the projectile. The rear element (sight) is normally fixed with respect to the gun.

c. OPTICAL SIGHTS.—(1) Optical sights are those which include a system of lenses, prisms, etc. By the proper use of these optical aids the necessity for the gunner's continuously lining up two points is eliminated, thus allowing the gunner a certain amount of freedom in the movement of his head.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

(2) Optical sights generally incorporate reference points for the gunner to use in determining deflection, and when so constructed are employed in about the same way as iron sights. Some optical sights, however, omit this feature and as a result are of little value in enabling the gunner to establish the proper line of sight if deflection allowances are necessary.

d. AUTOMATIC SIGHTS.--Automatic computing sights are optical sights which are so constructed that they offset the axis of the bore from the line of sight sufficiently to allow for gun and target movement. The gunner must feed in the range, generally by means of a stadia ranging device. Other than this, all the gunner does is to track the target with the sight, keeping it properly aligned with respect to the reference marks he sees on the image of the sight reticule.

e. DESCRIPTION AND OPERATION OF GUNSIGHTS.--See TM 1-495, Aircraft Machine-Gun Sights, paragraphs 6, 23, and 24.

39. SIGHTING METHODS.--a. GENERAL.--Various factors which affect the trajectory of a bullet when fired from a flexible gun have been discussed. There are five factors that must be considered when selecting the correct aiming point. They are: (1) Muzzle velocity of the bullet.
(2) Velocity of the firing airplane.
(3) Gun orientation.
(4) Velocity of the target airplane.
(5) Range.

Changes in altitude are an important additional factor below 15,000 feet. A sight that will assist the gunner in aiming must be of a type that will permit the gunner to correct for the factors listed. A sighting device establishes a line of sight which the gunner can use as a basis for determining the amount the axis of the bore must be offset laterally and vertically to compensate for the necessary deflections.

b. OFF-SIGHTING METHODS.--When shooting at moving targets with a sight bar fixed with respect to the axis of the bore, the gunner must "off-sight," that is, he must aim at some point other than the target, so as to allow for the travel of the target during the time of flight of the shots or bullets. This is the method of sighting employed by skeet and trap

shooters and by aerial gunners not equipped with automatic computing sights. The gunner's accuracy of fire when "off-sighting" is dependent on:
(1) His ability to determine the aiming point correctly.
(2) His ability to aim his gun at that point, which may be purely an imaginary point in space, that is, a fictitious point.

That excellent results can be obtained under certain conditions of range and target speed with "off-sighting" is evidenced by the many skeet and trap shooters who consistently break 90 percent or more of their "birds."

c. THE INDEPENDENT-ALLOWANCE METHOD.--The independent allowance method requires that the gunner allow for the displacement of the trajectory caused by the movement of his own airplane and for the travel of the target during the time of flight of the bullet. He must in addition allow for drop when the range is greater than that for which the guns and sights are harmonized. This method of sighting requires a solution of so many variables that accurate shooting is more or less impossible unless the gunner has an automatic computing sight. There is a gun sight, the wind vane, which compensates for muzzle velocity, velocity of the firing airplane, and the angle that the gun makes with the firing airplane, referring the resultant to the actual speed of the target airplane. The gunner must correct for the actual speed of the target airplane. The combat velocity of the firing airplane is predetermined and the sight set for that speed. Usually combat velocities of both target and firing airplanes are changing, which presents difficulties and a possibility of error in estimating their speeds.

d. RELATIVE-SPEED METHOD.--(1) In the relative-speed method of sighting, guns and the sights are so harmonized that the line of fire crosses the line of sight at a predetermined range. The axes of the gun bores are elevated somewhat above the line of sight, the amount depending upon the ballistic characteristics of the guns and their ammunition, and upon the range. Normally the guns are so elevated that no cor-

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

rections are required when shooting at short ranges, because the departure of the projectiles from the line of sight at ranges less than the harmonization range is very small. However, when shooting at ranges materially in excess of the harmonization range, an increasing amount of correction is necessary because of the rapid increase in drop.

(2) When using the relative-speed method of sighting, the gunner relates target movement to his own movements by combining in one correction the allowances required for movement of the target and the displacement of the trajectory because of gun movement. He thus is concerned only with the apparent movement of the target airplane with respect to his own airplane. Under certain conditions, primarily when the target is moving on a parallel course, he must allow for bullet trail. At the shorter ranges this allowance can be made by selecting the nose of the target airplane as the point of aim. At longer ranges it will be necessary to use an imaginary point some distance ahead of the target airplane.

(3) The relative-speed sight refers the muzzle velocity to a combination of target and firing airplane velocities; that is, to the relative velocity of target airplane with respect to the firing airplane. The sight does not correct for bullet trail. The sight consists of a fixed bead fore-sight and ring backsight. In using this sight, it is necessary for the gunner to move the gun and his eye so as to keep the fore-sight, center of the ring-sight, and his eye in line when establishing the correct line of sight. When the optical systems are used, the gunner's eye is always correctly positioned. The gunner sees a luminous ring with a dot in the center, figure 34. The ring itself is the correct size to allow for a relative speed of 50 miles an hour at right angles to the line of fire. The ring sight or optical system is so mounted that the plane of the ring is perpendicular to the gun barrel and line of fire.

(4) When using the relative-speed sight, the gunner must determine the apparent movement of the target airplane relative to his own (the firing) airplane. The gunner must allow for what he sees, namely the

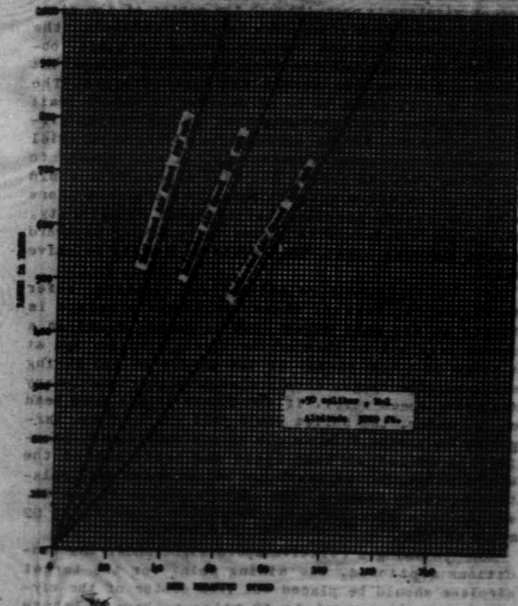


Figure 33.--Chart for converting bullet trail into relative speed at 3,000 feet altitude.

766-42-9

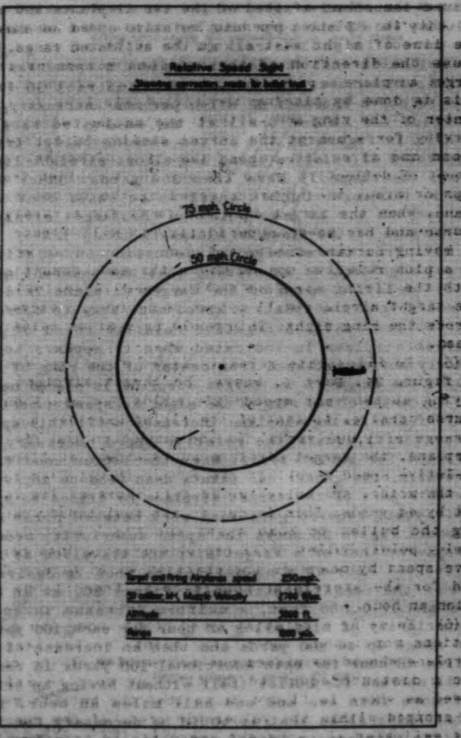
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

solved component of the target airplane's relative velocity in a plane perpendicular to his line of fire. The line of sight must always be adjusted so as to cause the direction of the apparent motion of the target airplane to pass through the center of the ring. This is done by placing the target airplane in the center of the ring and, without moving the sight, observing for a moment the target airplane's apparent speed and direction across the line of sight. The amount of deflection to be allowed for is bullet trail plus or minus the apparent speed of the target airplane. When the target airplane is flying a parallel course and has speed superiority, it will appear to be moving forward across the ring sight. This would be a plus relative speed. Given the same conditions with the firing airplane having speed superiority, the target airplane will appear to be moving backward across the ring sight. This would be a minus relative speed.

(5) To illustrate relative-speed sighting, refer to figure 21, Part I, where the target airplane is flying at the same speed (250 miles per hour) on a course parallel to that of the firing airplane and at a range of 1,000 yards. To the gunner on the firing airplane, the target airplane would appear stationary (relative speed zero). If the gunner took a dead bead on the motor, the bullet would fall short of its target by 44 yards. This is due to air resistance, causing the bullet to lose speed and trail behind the aiming point. Bullet trail can be converted into relative speed by means of the chart shown in figure 33, and for the aforegoing condition is found to be 62 miles an hour.

(6) In using a relative-speed sight under the conditions mentioned, the aiming point for the target airplane should be placed out from center of the circle a distance equal to 62 miles an hour relative speed as shown in figure 34 so that the bullets will be grouped within the vulnerable area. If the gunner has estimated the apparent speed of the target airplane to be 15 miles an hour greater than his own, and not the same as his own, he would take 15 miles per



gure 34.--Correction made in relative speed sight for a bullet trail of 62 miles per hour.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

hour as the relative speed of the two airplanes and add to that the 62 miles per hour relative speed necessary to correct for bullet trail at the estimated range. If he estimated that the target airplane's speed was 15 miles per hour less than his, he would subtract 15 from the relative speed of 62 miles per hour necessary to correct for bullet trail at the estimated range.

(7) In figure 35 the curves showing bullet trail converted to relative speed are almost straight lines when the range is more than 200 yards. Under 200 yards in range, bullet trail is so small that the gunner can aim at some point on the target airplane in advance of the place he wishes to hit.

(8) From the aforegoing discussion on relative-speed sighting, it is evident that the apparent negative relative speed of the target airplane is subtracted from the relative speed necessary to correct for bullet trail. A negative relative speed of the target airplane is indicated when it appears to be slowly moving backward from center of the ring of the sight. The image of the target airplane is placed nearer to center of the ring of the sight as speed superiority of the firing airplane increases until this speed superiority equals the relative speed necessary to correct for bullet trail. When the latter condition prevails, the gunner can take a dead bead on any vulnerable part of the target airplane he wishes to hit. This would require good team work between pilot and gunner. Figure 36 shows the speed superiority necessary over that of a target airplane traveling at 250 miles per hour if a no-deflection shot is desired. Under the conditions shown in figure 36, at an altitude of 3,000 feet, a uniform increase in speed superiority of nine miles an hour for each 100 yards in range up to 800 yards and then an increase of 16 miles an hour for each additional 100 yards in range will correct for bullet trail without having an error of more than two and one-half miles an hour. The chart also shows that it would be necessary for the firing airplane to travel 355 miles an hour to have sufficient speed superiority to enable the gunner to make a no-deflection shot when the range is 1,000 yards. At an altitude of 15,000 feet with all other

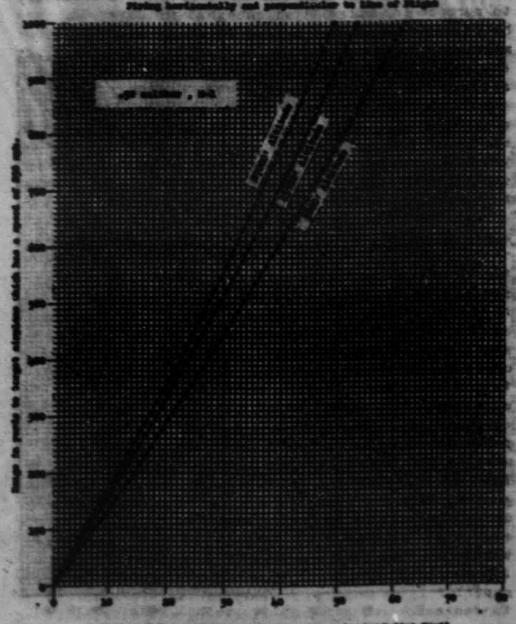


Figure 35.--Chart for converting bullet trail into relative speeds at altitudes of 3,000, 15,000 and 27,000 feet.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

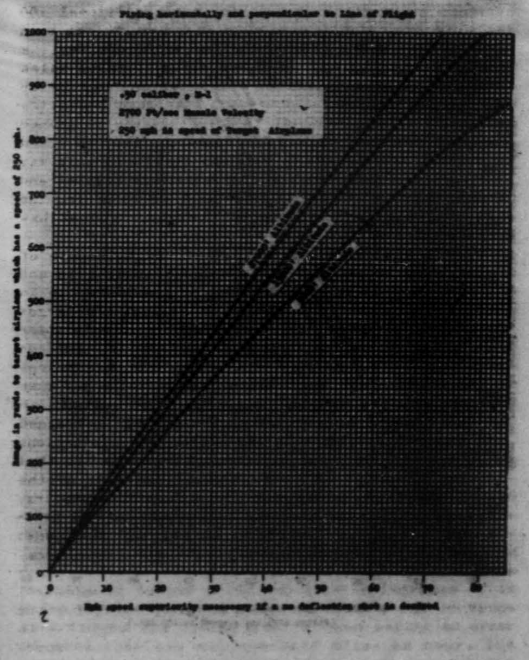


Figure 36.--Chart showing speed superiorities necessary to avoid deflection shots.

conditions being the same, a uniform increase in speed superiority of seven and one-half miles an hour for each 100 yards in range up to 800 yards, and then an increase of 10 miles an hour for each additional 100 yards in range can be used with an error of less than two miles an hour. For an altitude of 27,000 feet, a uniform increase in speed superiority of seven miles an hour can be used for each 100 yards in range up to 1,000 yards with an error of less than two miles an hour. In actual combat, an advantage can be gained when the pilot and gunner team together and use speed superiority to correct for bullet trail. In this way they can make their sighting problem very simple, and if the gunner of the target airplane is returning the fire, the sighting problem of the enemy gunner has been made very difficult.

e. USE OF TRACER AMMUNITION.--Through the use of tracer ammunition, the aerial gunner is able to see his line of fire, thereby noting any adjustments in sighting which must be made in order that the target be reached. The time that the gunner has to make these adjustments in sighting is usually extremely limited; therefore, he must be able to sense the changes required. In order to sense these changes and apply them almost instantaneously to engage successfully an aerial target, the gunner must be thoroughly trained and must have a clear understanding of the limitations of tracer bullets. The principal limitation is that the gunner cannot tell the range of any part of the trace except that of the point at which it disappears. There are two types of tracer ammunition used at present in the .30 and the .50-caliber machine guns: (1) Normal tracer, which burns out (or disappears) at from 1,200 to 1,500 yards.

(2) Short-range tracer, which burns out (disappears) at 600 ± 25 yards. It is generally necessary for the gunner to make some alteration of his sighting to compensate for the movement of the target, but sometimes a point-blank aim will be sufficient to bring the target within the bullet group. When this condition is true for a two or four-gun turret, the bullets appear to enter the sight ring from both sides and converge on the center, remaining at the center

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

until they disappear. If the point-blank aim is not correct, the traces converge nearly on the sight center and then all move away from the center in some direction. The gunner determines whether or not the point-blank aim is correct by firing a burst, called the allowance shot, and observing the trace of the bullets. If the point-blank aim is not correct, the experienced gunner can determine almost instantaneously from his allowance shot the correction needed and the direction in which it should be made.

SECTION II

CHARACTERISTICS AND EMPLOYMENT OF STANDARD GUNSIGHTS

Paragraph
Standard fixed gunsight---------- 40
Standard flexible gunsight---------- 41

40. STANDARD FIXED GUNSIGHT.--a. CHARACTERISTICS.--This sight is an optical automatic computing sight which is so constructed that it automatically elevates or depresses the bore axis of the gun by an amount necessary to compensate for gravity drop at the range being fed into the sight by the pilot gunner. The sight ordinarily incorporates an adjustable ranging device of the stadia type.

b. EMPLOYMENT.--Prior to combat or target practice the pilot gunner sets the ranging device for the dimensions of his target airplane or type of target to be fired on. The pilot gunner must track the target with the sight, keeping it properly aligned with respect to the reference marks he sees in the sight reticule, and at the same time feed in the range by keeping the target properly spanned by adjusting the stadia ranging device.

41. STANDARD FLEXIBLE GUNSIGHT.--a. CHARACTERISTICS.--This sight is similar to the standard fixed gunsight except that it automatically elevates or depresses and offsets the axis of the bore from the line of sight the amount necessary to compensate for gun and target movement and the other important governing factors.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

b. EMPLOYMENT.--The employment of this sight is similar to the standard fixed-gun sight. The gunner must learn to operate the controls of his turret so smoothly that he can track the target with the sight, keeping the target properly aligned with respect to the reference marks he sees in the sight reticule.

c. MAXIMUM EFFECTIVE RANGE.--In theory this sight should be good for the effective maximum range of the gun. In practice, the angle subtended by the target limits the range because it limits the accuracy with which the gunner can adjust the stadia ranging device.

WPBD-1942

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

RESTRICTED

DECLASSIFIED

DECLASSIFIED
DOD Dir. 5200.9 as amended
NND 760030 By [illegible] NARS, Date 10/18/76

February 28, 1942

EXECUTIVE MEMO FOR: AAG

SUBJECT: Changing War Department Publications.

1. The G-3 Division of the War Department reports that in several cases recently, War Department publications have been changed without being coordinated with G-3 Division.

2. It is directed that no changes be made in War Department publications prior to coordination with the G-3 Division.

3. Report of action taken is directed.

By direction of the Chief of the Air Staff:

Nathan F. Twining,
Lt. Colonel, Air Corps,
Secretary of the Air Staff.

DISTRIBUTION:
A-1
A-2
A-3
A-4
AWPD
AC

Dispatched
MAR 3 1942
AAG

HEADQUARTERS—ARMY AIR FORCES—COORDINATION											
Chief of Staff	Dep. Chief of Staff	A. A. G.	A-1	A-2	A-3	A-4	A-WPD	A-Inspr.	Budget	Materiel	
WF/RE											

DECLASSIFIED

RESTRICTED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

BRS ltr
2/20/42

FEB 25 1942

DECLASSIFIED

CONFIDENTIAL

Dispatched
FEB 27 1942
AAG

HQ. Army Air Forces
FEB 25 1942
AAG RECEIVED

File marked

HEADQUARTERS ARMY AIR FORCES - COORDINATION

Chief of Staff	Army Air Staff	A.A.G.	A-1	A-2	A-3	A-4	A-WPD	A-Intg.	Budget	Secretariat	

AAF-30

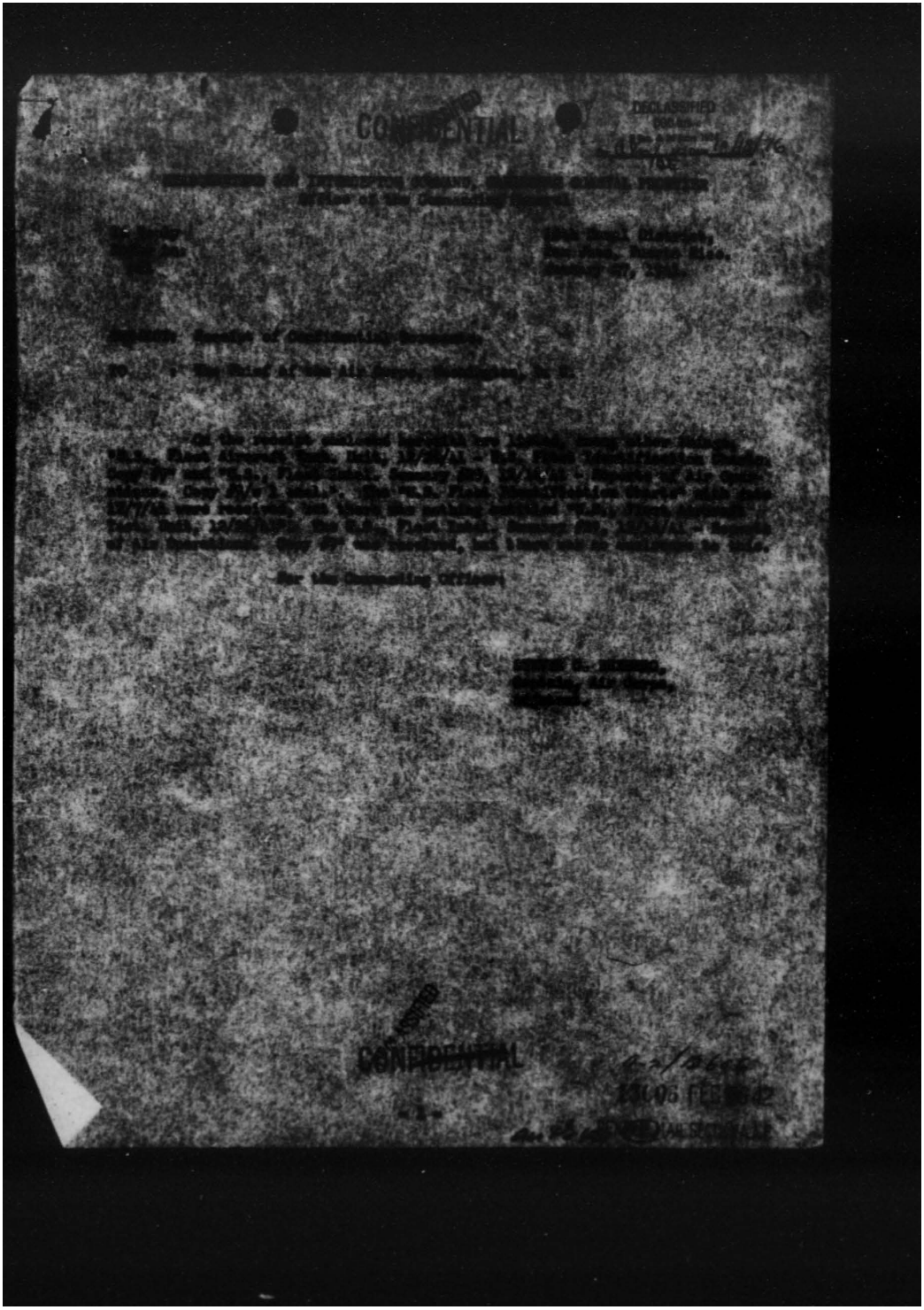
DECLASSIFIED

CONFIDENTIAL

13606

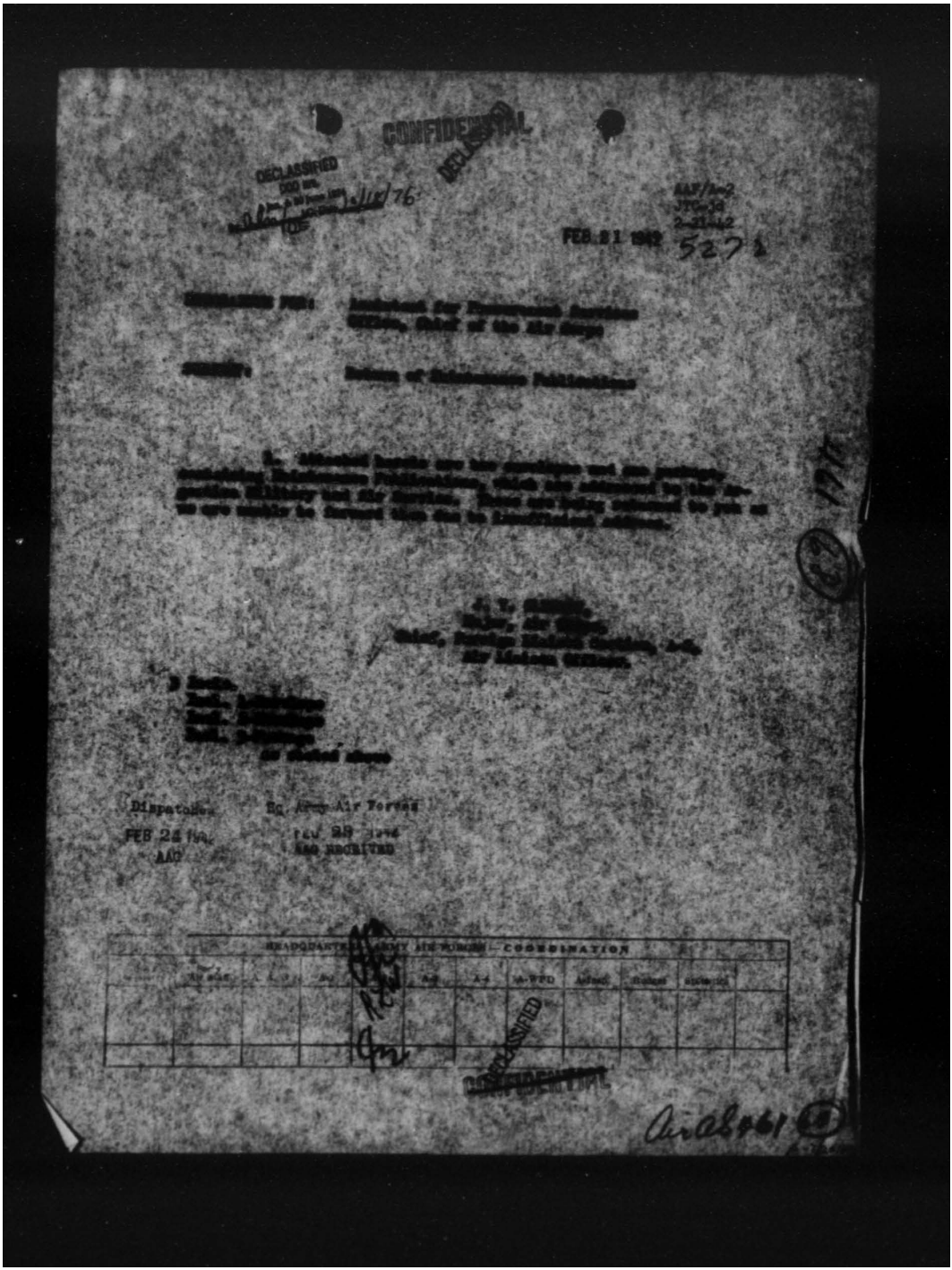
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir. 5200.9
[illegible] 12/17/76

AAF/A-2
SEIAK
VIRGO mm
(2/20/42)

Ord Tech.

FEB 21 1942

[illegible] Air Corps, [illegible], Army Air Forces, [illegible] Assistant Air Transport Officer, Office, Chief of the Air Corps.

1. Reference is made to [illegible] communication and preceding indorsements.

2. It is requested that the publications referred to in the [illegible] communication be furnished the Foreign Liaison Section, Air Corps, [illegible] Army Air Forces, War Department, Munitions Building, [illegible] Street, N. W., Washington, D. C., for [illegible].

For the Chief of the Air Staff:

[illegible] F. Stratemeyer,
Brigadier General, U. S. Army,
Assistant Chief of the Air Staff, A-2.

Dispatched
FEB 24 1942
AAG

HEADQUARTERS ARMY AIR FORCES — COORDINATION

Chief of Staff	Dep. Chief of Staff	A. A. G.	A-1	A-2	A-3	A-4	A-WPD	A-Train	Bolling	Hamilton	

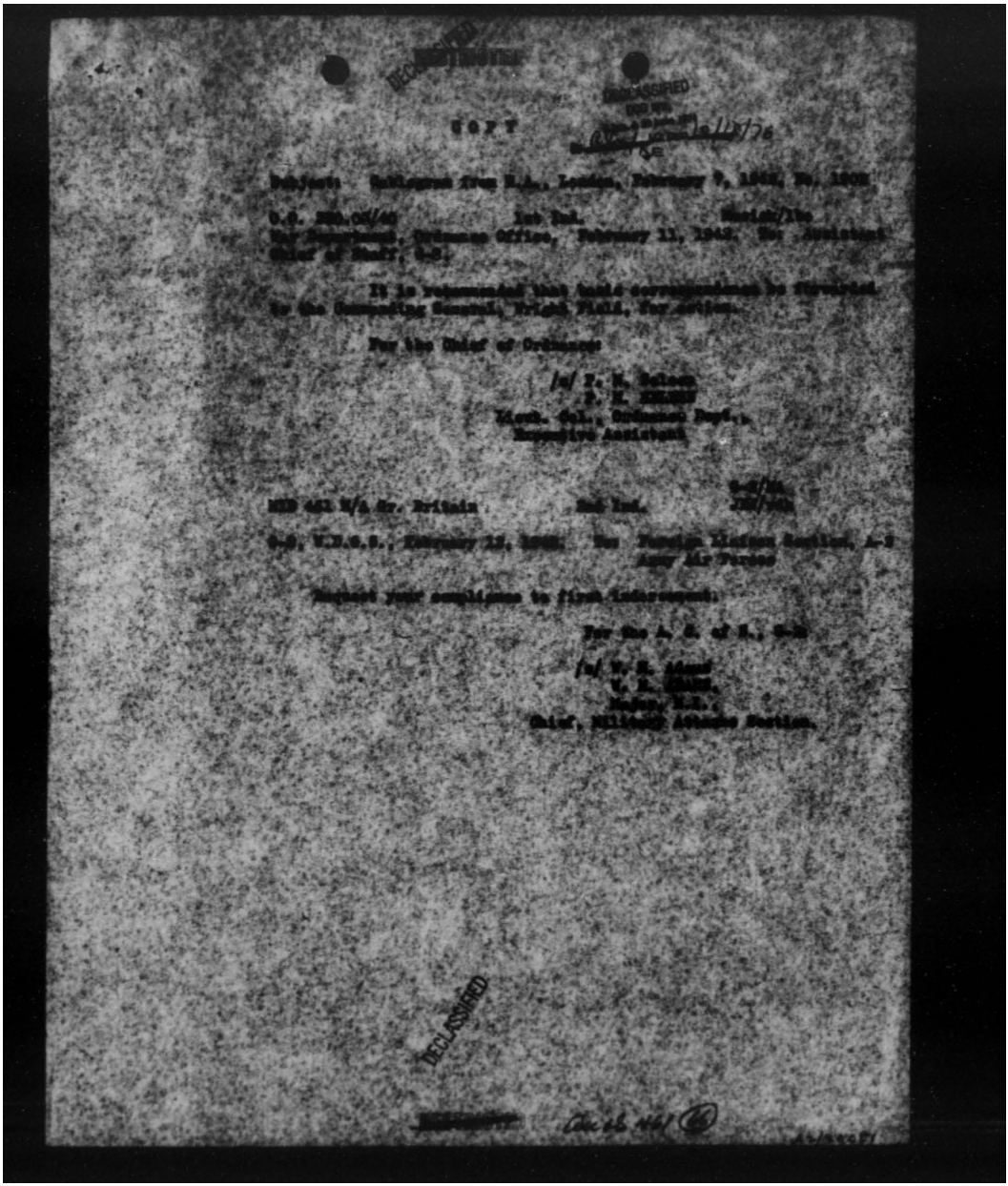
DECLASSIFIED

AAF-34

A-2/2361

THIS PAGE IS DECLASSIFIED IAW EO 13526

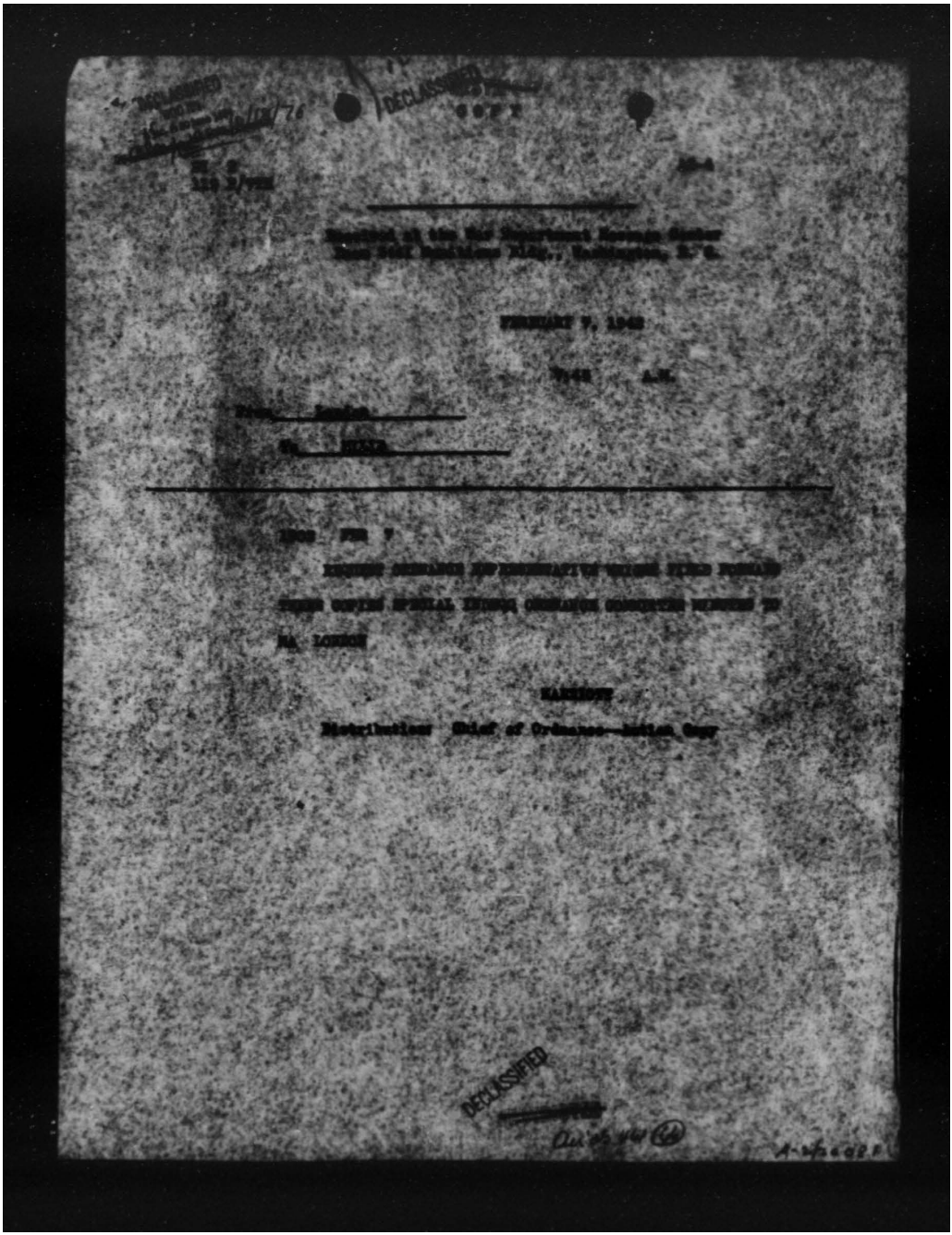
THIS PAGE IS DECLASSIFIED IAW EO 13526



DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

~~CONFIDENTIAL~~

DECLASSIFIED

AAF/A-2
Air Intel.
File Copy
Written 2/28/42

(59) 194

Prepatoned
MAR 4 1942
AAG

Hq. Army Air
MAR 4 1942
AAG Received

1st Ind.

MAR 4 1942

FOR THE CHIEF OF THE AIR STAFF:

HEADQUARTERS — ARMY AIR FORCES — COORDINATION

Chief of Staff	Sec'y Air Staff	A.A.G.	A-1	A-2	A-3	A-4	A-Wpn	A-Surg.	Budget	Statistics	

[redacted]
Colonel, Air Corps,
Assistant Chief of the Air Staff, A-2.

AAF-30

~~CONFIDENTIAL~~ DECLASSIFIED Air 46/(85) AFSC-HC 14-5-2

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

Feb. 22, 1945

[redacted] Air Route Guides

Chief of the Army Air Forces

2. This confirms telephone conversation of February 7 with Captain Starr of your office, at which time it was requested that four (4) copies each of the Route Guides, Flight Charts and Map Route Guides, Alaska, be shipped direct to Eglin Field, Valparaiso, Florida, subject for Project No. 437, attention: Lt. Col. Feldmann.

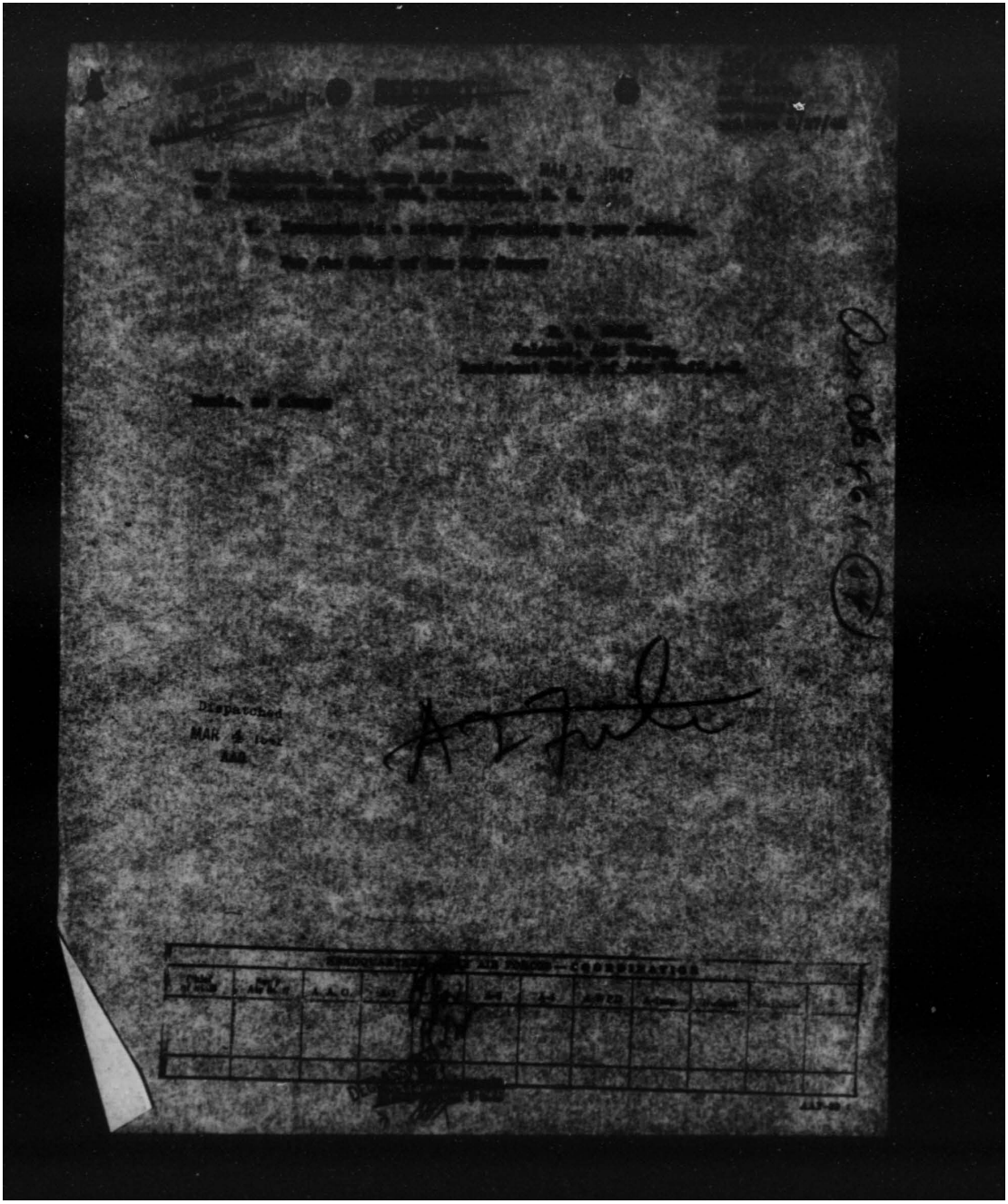
For the Chief of the Air Corps:

/s/ [redacted]
Major, Air Corps,
Assistant Executive
Air Service Command.

Air Ops 461 (65) WSC-1C

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
RESTRICTED

HEADQUARTERS HAWAIIAN AIR FORCE
Office of the Air Force Commander
HICKAM FIELD, T. H.

In reply refer to: 441 (A-4)

12 February 1938.

SUBJECT: Request for Basic Field Manuals.

TO : Chief of the Army Air Forces, Washington, D. C.

1. It is requested that 500 copies of each of the following Basic Field Manuals be furnished the G-2 section of this headquarters as soon as possible; marked first priority:

FM 30-30 - Identification of U. S. Naval Vessels
FM 30-31 - Identification of Japanese Naval Vessels

2. These manuals are to be furnished each instrument type plane now here, or entering the theatre. They are more suitable than the A.S.P. 41 or 42, of which a few copies are available and are now being used.

3. It is further requested that upon publication of a new edition of FM 30-31, Identification of Japanese Aircraft, that 500 copies be furnished this headquarters. 12 present channels are being used as per copies attached.

For the Commanding General:

[redacted]
Colonel, A. G. D.
Adjutant General.

4 Incls:
#1-Sup Plane, Type 97 L/B
#2-Sup Plane, Type 98 B/B
#3-Sup Plane, Type 97 F/B
#4-Sup Plane, Type 97 S/B

DECLASSIFIED
RESTRICTED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

DECLASSIFIED
DOD DIR 5200.9
Authority NND 760076 By LLK NARA, Date 12/8/76

2nd Ind.

AAF/A-2
Air Intel.
Request
Written 2-28-42

War Department, Hq., Army Air Forces MAR 4 - 1942
To Office of Naval Intelligence, Navy Department, Washington, D. C.

1. Reference is made to telephone conversation of February 28, 1942, between Miss Hamblet, of Commander Moore's office, and this Headquarters.

2. Radio communication is forwarded to your office for attention, with the request that the Commanding General, Headquarters, Caribbean Air Force, be supplied with ten copies of the publication referred to.

For the Chief of the Air Staff:

R. L. WALSH,
Colonel, Air Corps,
Assistant Chief, Air Staff, A-2.

Hq. Army Air
MAR 4 1942
AAG Received

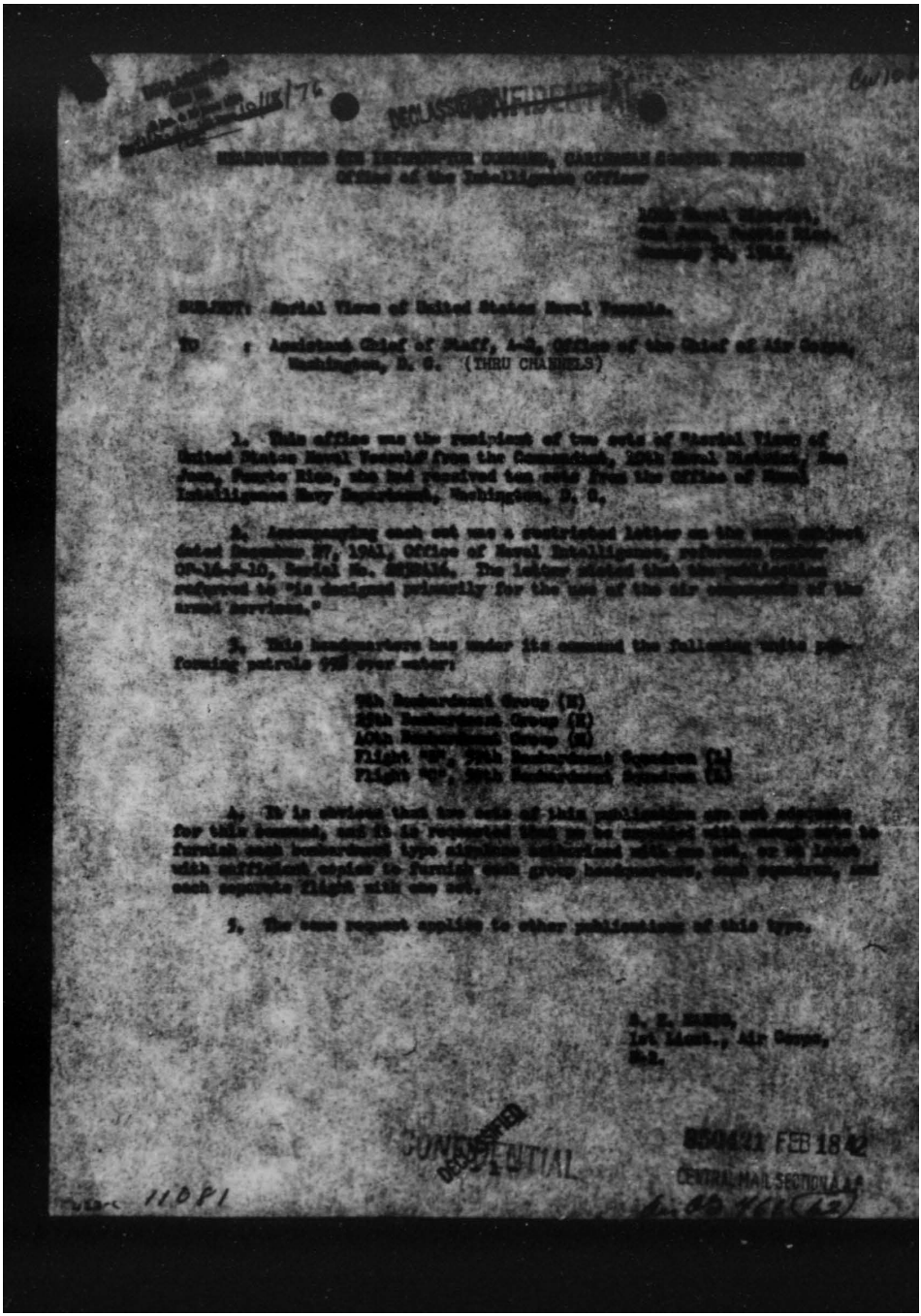
Dispatched
MAR 5 1942
AAG

CONFIDENTIAL

1-3/8.30.4.21

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



Office of the Intelligence Officer

SUBJECT: Aerial Views of United States Naval Vessels.

TO : Assistant Chief of Staff, A-2, Office of the Chief of Air Corps, Washington, D. C. (THRU CHANNELS)

1. This office was the recipient of two sets of Aerial Views of United States Naval Vessels from the Commandant, 10th Naval District, San Juan, Puerto Rico, who had received ten sets from the Office of Naval Intelligence Navy Department, Washington, D. C.

2. Accompanying each set was a restricted letter on the same subject dated December 27, 1941, Office of Naval Intelligence, reference number OP-16-F-10, Serial No. 0028516. The letter stated that the publication referred to "is designed primarily for the use of the air components of the armed services."

3. This headquarters has under its command the following units performing patrols over water:

[redacted]

4. It is obvious that two sets of this publication are not adequate for this command, and it is requested that we be supplied with enough sets to furnish each bombardment type airplane squadron with one set, or be issued with sufficient copies to furnish each group headquarters, each squadron, and each separate flight with one set.

5. The same request applies to other publications of this type.

[redacted]
1st Lieut., Air Corps,
A.C.

CONFIDENTIAL

DECLASSIFIED

850421 FEB 18 42

CENTRAL MAIL SECTION AAF

110P1

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

DECLASSIFIED
DOD Dir.
E.O. 12958 Sec. 3.6
By NARA, Date 10/28/96

SUBJECT: Aerial Views of United States Naval Vessels.

1st Ind. 2-4h

HEADQUARTERS GHQUSAAF AIR FORCES, Albrook Field, Canal Zone, Feb. 3, 1942.
The Chief of the Air Corps, Washington, D. C.

Approved.

By the Commanding General:

H. H. PEPPER,
Major, A. G. D.,
Asst. Adjutant General.

DECLASSIFIED

850421 FEB 1942
CENTRAL MAIL SECTION A.A.F.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

DECLASSIFIED

Dispatched
FEB 26 1942
AAG

FEB 25 1942

1st Ind.

War Department, Hqs. Army Air Forces,
To Assistant for Supply and Maintenance, Office Chief of Air Corps.

1. There are attached herewith twelve copies of subject report for distribution to the Fiftieth Transport Wing.

For the Chief of the Air Staff:

B. L. [illegible],
Colonel, Air Corps,

HEADQUARTERS ARMY AIR FORCES [illegible]

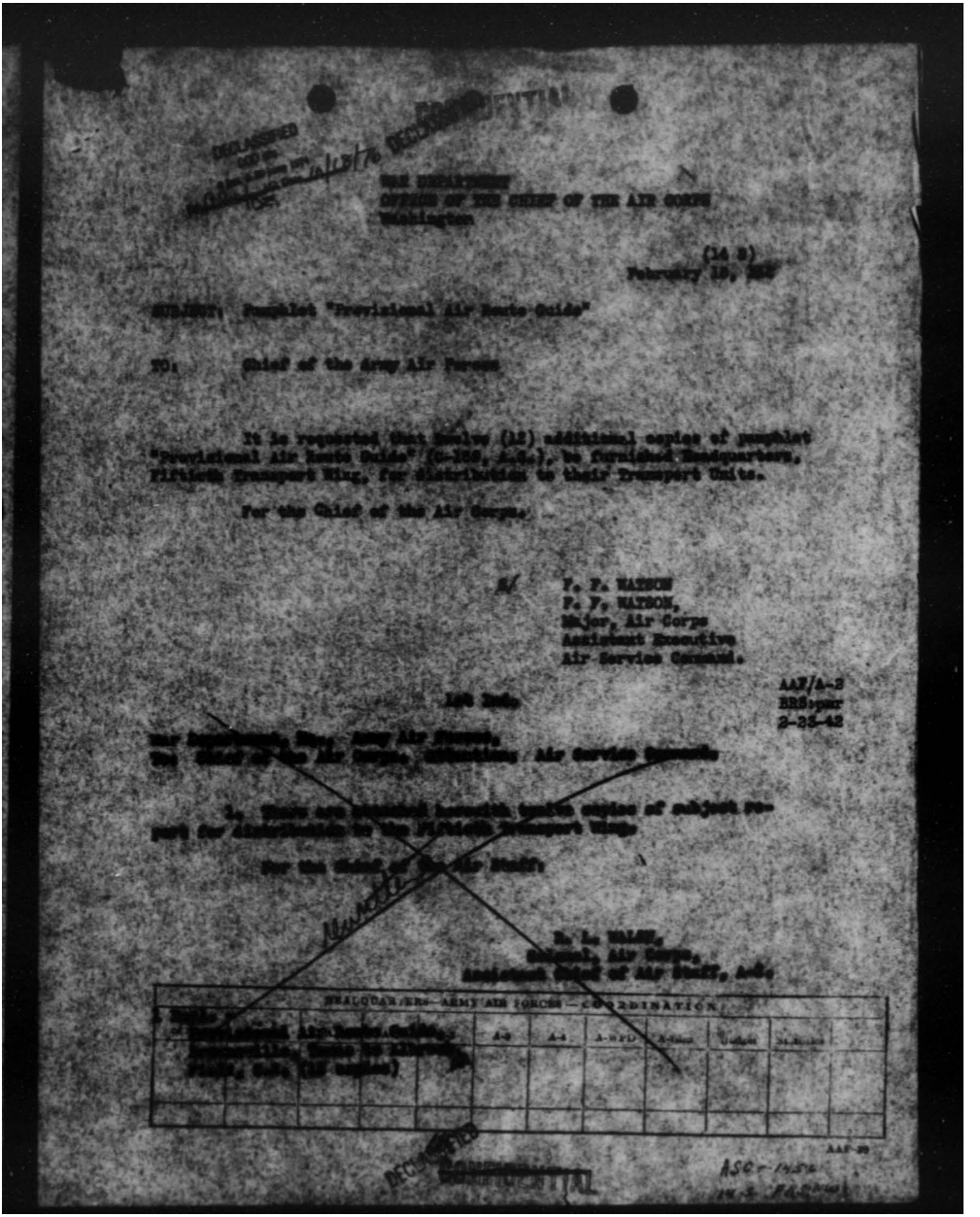
Symbol & Sec't of Initials	Date	Subject	Action	A-2	A-3	A-4	A-4/D	A-Surg.	Engrs	Signal Liaison	
		Brownsville, Texas to Albrook Field, C.Z. (12 copies)									

- 2 -

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THE SECRETARY
OFFICE OF THE CHIEF OF THE AIR CORPS
Washington

(14 S)
February 19, 1942

SUBJECT: Pamphlet "Provisional Air Route Guide"

TO: Chief of the Army Air Forces

It is requested that twenty (12) additional copies of pamphlet "Provisional Air Route Guide" (C-108, A.C.), be furnished Headquarters, Fifteenth Transport Wing, for distribution to their Transport Units.

For the Chief of the Air Corps.

/s/ F. P. WATSON
F. P. WATSON,
Major, Air Corps
Assistant Executive
Air Service Command.

1st Ind.

AAF/A-2
ERS:pmr
2-25-42

[illegible]

[illegible]

[illegible]

H. L. WALSH,
Colonel, Air Corps,
Assistant Chief of Air Staff, A-2.

HEADQUARTERS—ARMY AIR FORCES — COORDINATION

[illegible]			A-2	A-3	A-4				

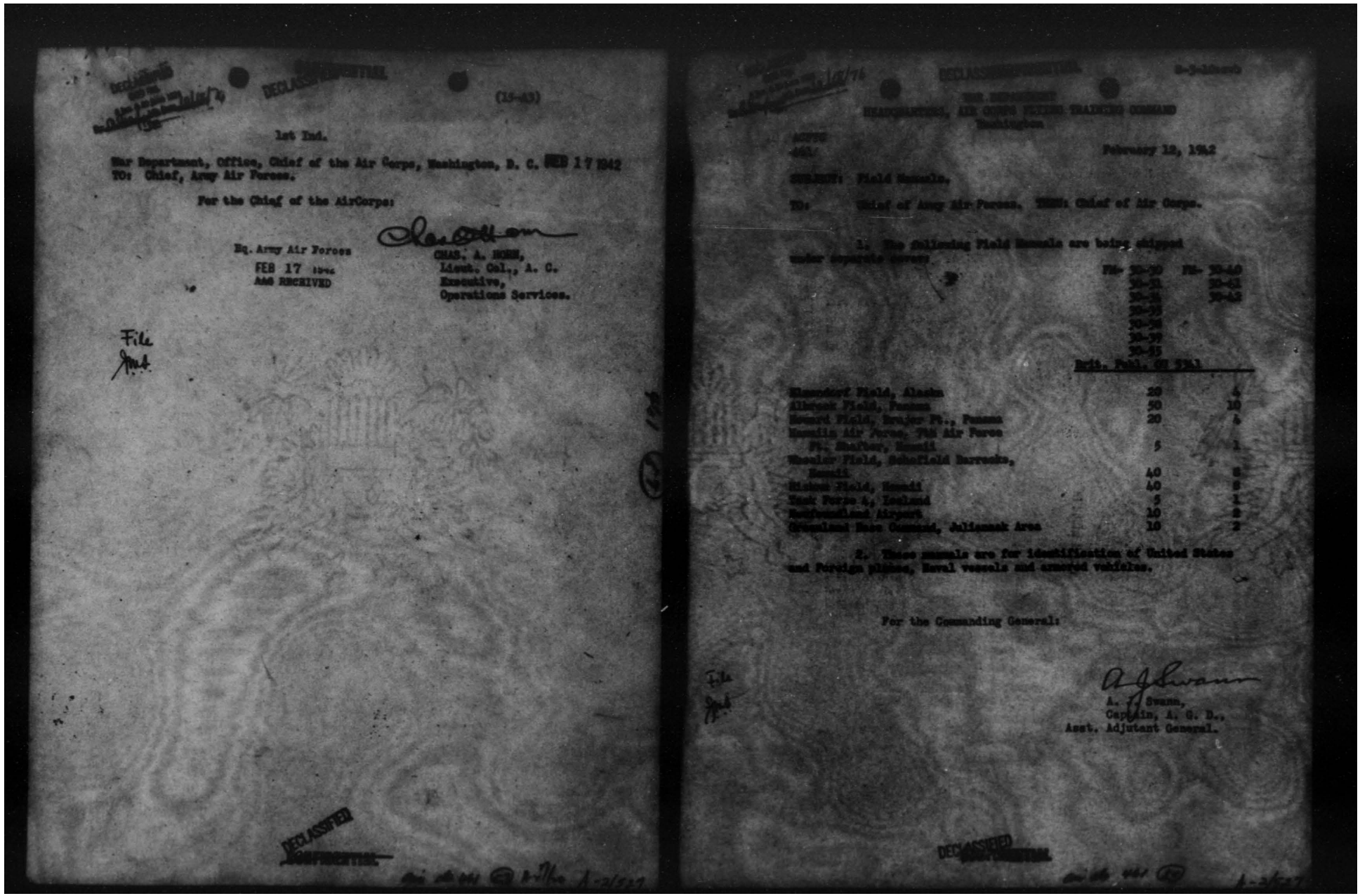
AAF-29

ASC-1452

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



(15-43)

1st Ind.

War Department, Office, Chief of the Air Corps, Washington, D. C. FEB 17 1942
TO: Chief, Army Air Forces.

For the Chief of the AirCorps:

Hq. Army Air Forces
FEB 17 1942
AAG RECEIVED

CHAS. A. HORN,
Lieut. Col., A. C.
Executive,
Operations Services.

File

DECLASSIFIED

HEADQUARTERS, AIR CORPS FLYING TRAINING COMMAND
Washington

February 12, 1942

SUBJECT: Field Manuals.

TO: Chief of Army Air Forces. THRU: Chief of Air Corps.

1. The following Field Manuals are being shipped under separate covers:

	FMs 30-30	FMs 30-40
	30-31	30-41
	30-36	30-43
	30-37	
	30-38	
	30-39	
	30-45	
	Brit. Publ. GS 9341	
Elmendorf Field, Alaska	20	4
Albrook Field, Panama	50	10
Howard Field, Mrajor Ft., Panama	20	4
Hamilin Air Force, 7th Air Force Ft. Shafter, Hawaii	5	1
Wheeler Field, Schofield Barracks, Hawaii	40	8
Hickam Field, Hawaii	40	8
Base Force 4, Iceland	5	1
Newfoundland Airport	10	2
Greenland Base Command, Julianaab Area	10	2

2. These manuals are for identification of United States and Foreign planes, Naval vessels and armored vehicles.

For the Commanding General:

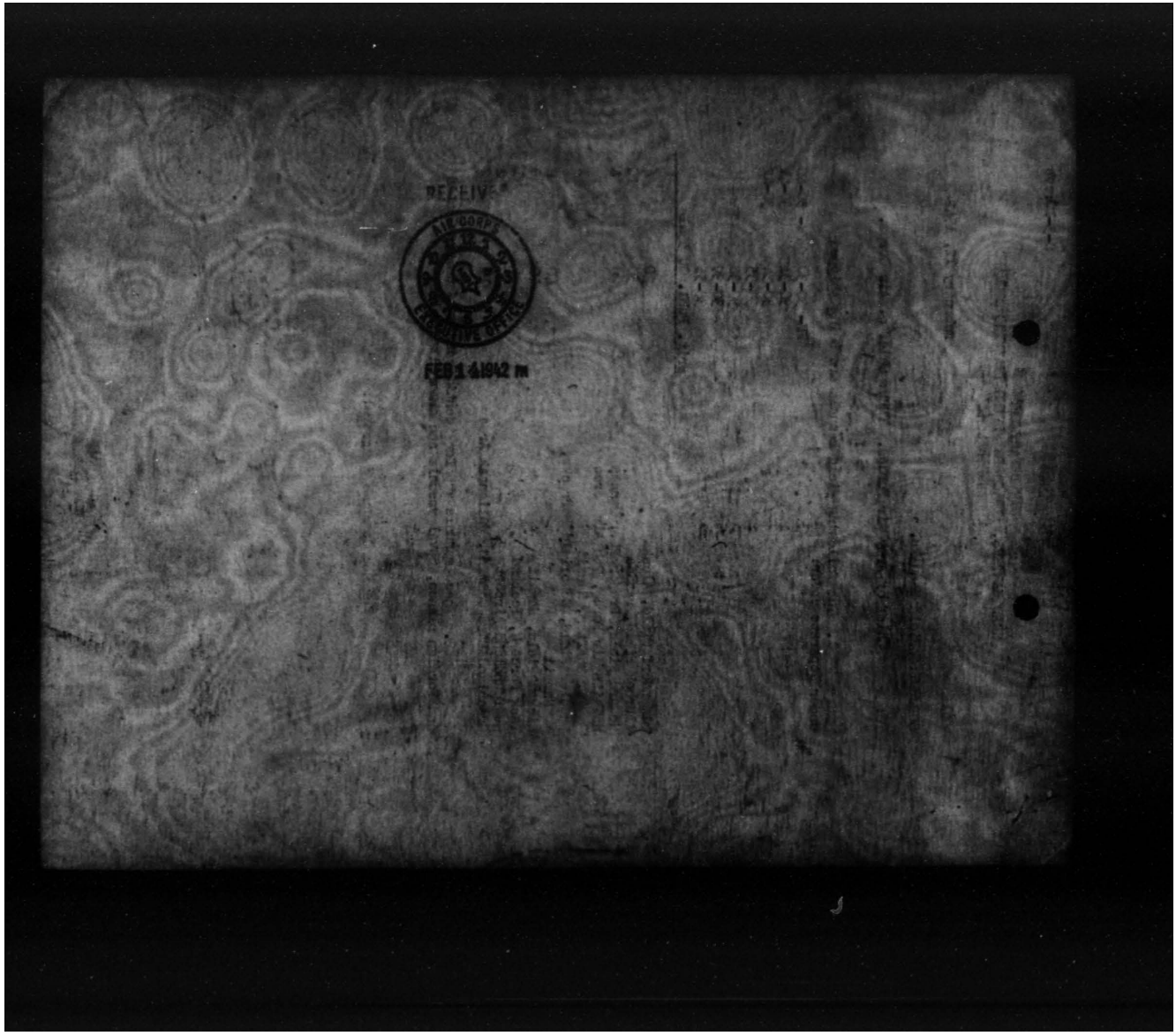
A. J. Swann,
Captain, A. G. D.,
Asst. Adjutant General.

File

DECLASSIFIED

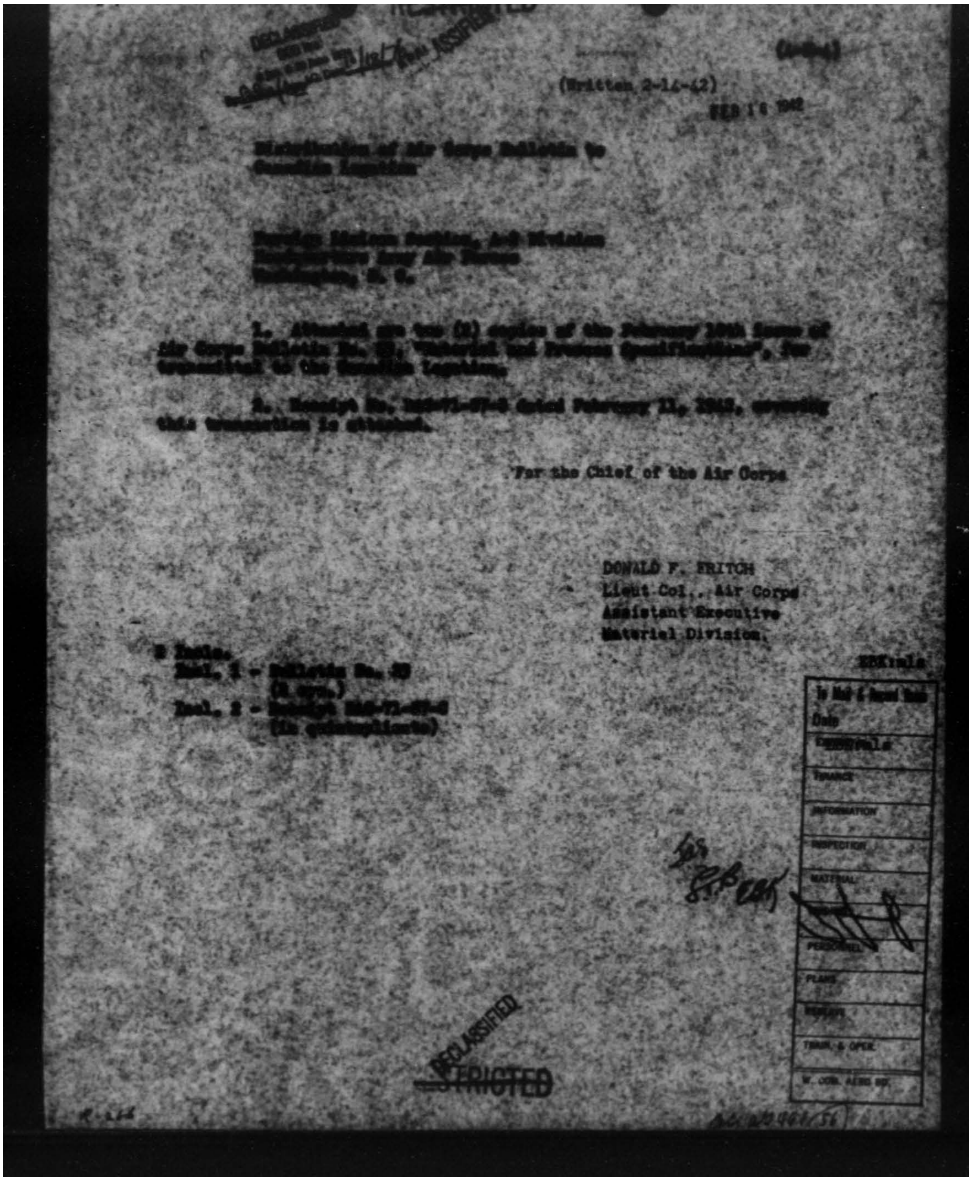
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



(Written 2-14-42)

FEB 16 1942

Distribution of Air Corps Bulletin No

Chemical Engineer

Service Ordnance Building, Arsenal Division
Ordnance Department, Army War Service
Washington, D. C.

1. Attached are two (2) copies of the February 1942, Issue of Air Corps Bulletin No. 29, "Material and Process Specifications", for transmittal to the Chemical Engineer.

2. Receipt No. [illegible] dated February 11, 1942, covering this transaction is attached.

For the Chief of the Air Corps

DONALD F. BRITCH
Lieut Col., Air Corps
Assistant Executive
Material Division

2 Incls.
Incl. 1 - Bulletin No. 29
(2 cys.)
Incl. 2 - Receipt [illegible]
(In quadruplicate)

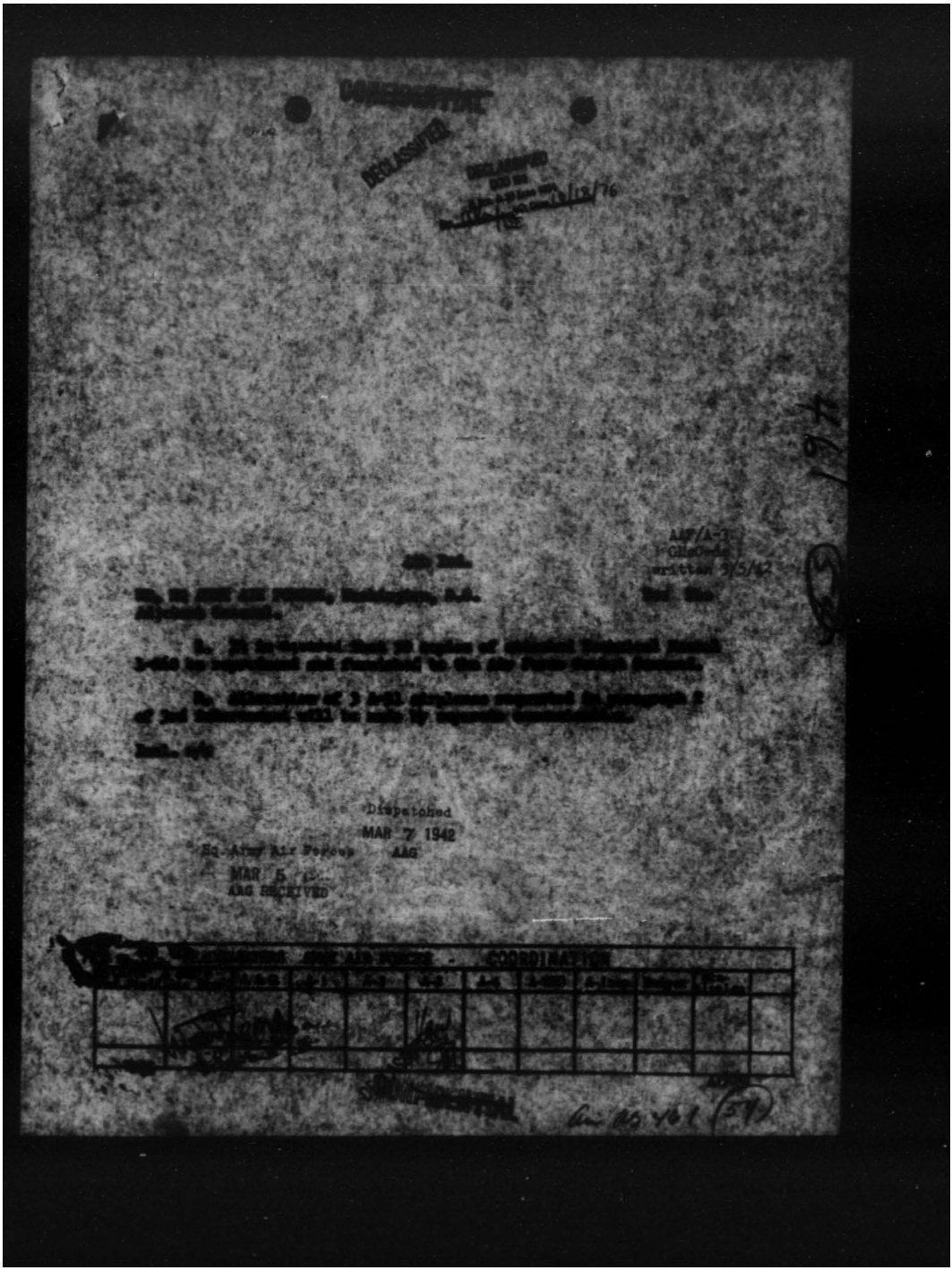
Ltr to Chief of Engrg Branch
Date
Symbol
Transmit
Information
Inspection
Material
Personnel
Plans
Repair
Trans. & Oper.
W. Con. Area Br.

DECLASSIFIED
RESTRICTED

R-LLL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

~~CONFIDENTIAL~~

THE AIR CORPS BOARD
Eglin Field, Florida.

9 February 1942

SUBJECT: TM 1-260, "Dive Bombing."

TO: The Chief of the Air Corps, Washington, D.C.

1. There are forwarded herewith three (3) copies of Technical Manual (tentative) 1-260, "Dive Bombing," for consideration.

2. This office has been unable to service test this manual because of lack of dive bombing airplanes. It is therefore recommended:

a. That arrangements be made to service test subject manual here at the Air Corps Proving Ground before final approval and publication.

b. If the need by some organizations is urgent and immediate, that sufficient quantities of subject manual be forwarded them in mimeograph form.

/s/ D. S. Seaton
D. S. SEATON,
Colonel, Air Corps,
Director.

2 Incls.
#1 - Subject manual (in trip.)
#2 - Form receipt (Executed in C.F.U 2/12/42)

1st Ind. (35-86)ML

WAR DEPARTMENT, Office, Chief of Air Corps, Washington, D.C. Feb. 16, 1942
TO: Chief, Army Air Forces, Washington, D. C.

1. With reference to paragraph 2 a of basic letter, it is recommended that:

a. The Air Force Combat Command be directed to loan a minimum of three (3) Dive Bombers to the Air Corps Proving Ground to be used in service testing subject manual; or

b. That some unit of the Air Force Combat Command, equipped with Dive Bombers, be assigned to the Air Corps Proving Ground for this purpose.

For the Chief of the Air Corps:

/s/ Chas. E. Horn
CHAS. E. HORN,
Lieut.Col., Air Corps,
Executive.

1 Incl:
Orig. Subject Manual
(Dup. & Trip. copies withdrawn)

~~CONFIDENTIAL~~

DECLASSIFIED
DOD Dir. 5200.9
10/18/76

2nd Ind.

War Department, Headquarters of the Army Air Forces, Washington, D.C. Feb. 21, 1942 To: The Commanding General, Air Force Combat Command, Bolling Field, D.C.

1. Your attention is invited to subject manual.

2. It is desired that such action be taken in accordance with 1st indorsement, as available equipment will permit.

By command of Lieutenant General ARNOLD:

/s/ R. C. Lewis
R. C. LEWIS,
Major, Air Corps,
Acting Asst. Air Adj. Gen.

AGC 300.7 (2-9-42) 3rd Ind. (E-27)

HEADQUARTERS AIR FORCE COMBAT COMMAND, Bolling Field, D. C., Feb. 28, 1942
TO: Chief of the Army Air Forces, Washington, D.C.

1. It is recommended that at least fifty (50) copies of TM 1-260 be reproduced without delay and furnished the Air Force Combat Command.

2. It is also recommended that three A-31 airplanes be assigned from production to the Air Corps Proving Ground for service test of the manual; the airplanes to be transferred to the Combat Command upon completion of the test.

For the Commanding General:

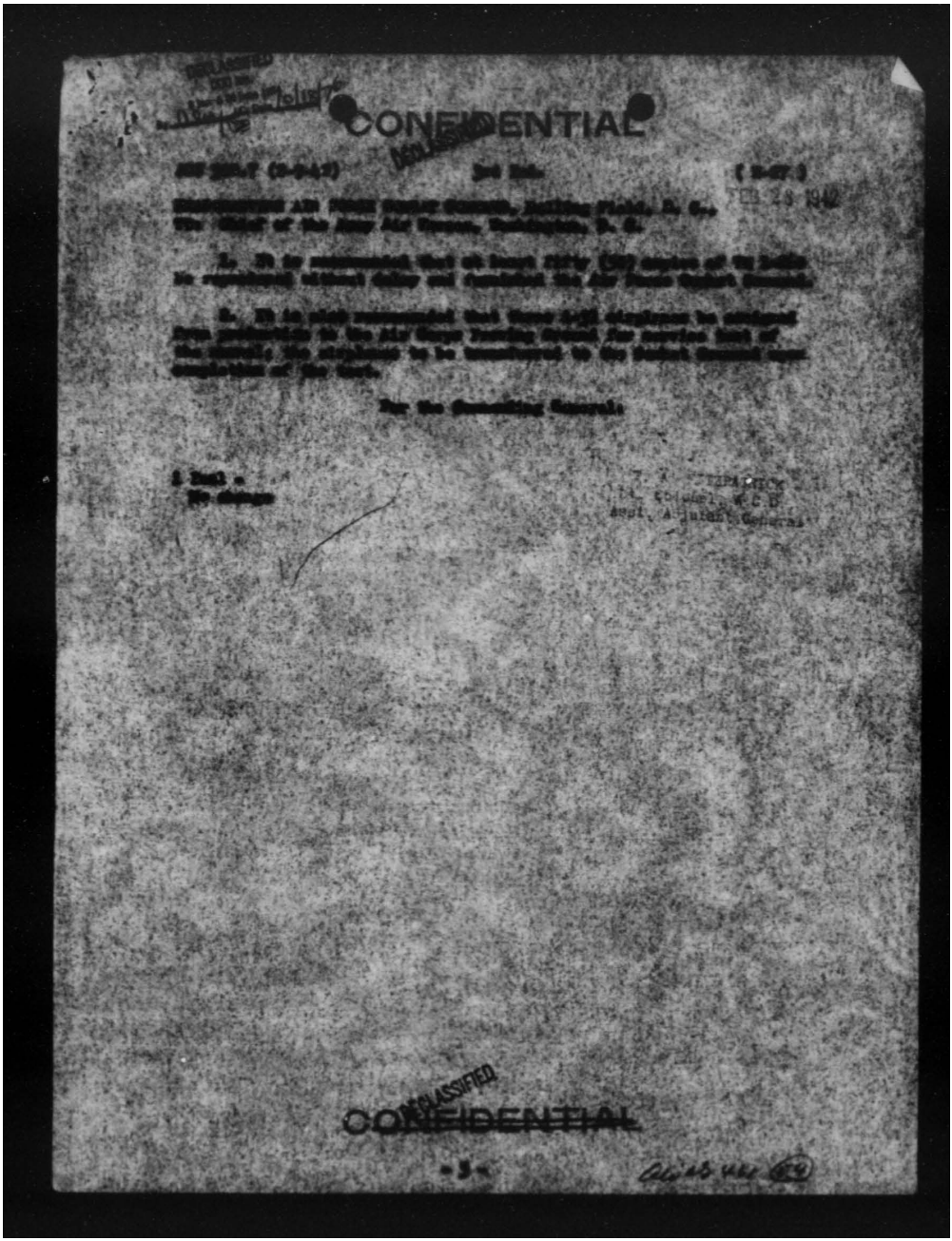
/s/ T. A. Fitzpatrick
T. A. FITZPATRICK
Lt. Colonel, A.G.D.,
Asst. Adjutant General

1 Incl
No change

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

DECLASSIFIED
DOD Dir

AAF/44-5
RWD-dc
2/19/42

SUBJECT: EM 1-260, "Dive Bombing."

Dispatched
FEB 24 1942
AAG

2nd Ind.

War Department, Headquarters of the Army Air Forces, Washington, D.C.
FEB 24 1942 To: The Commanding General, Air Force Combat Command, Eglin Field, Fla.

1. Your attention is invited to subject memo.

2. It is desired that such action be taken in accordance with law [illegible] as available equipment will permit.

HEADQUARTERS ARMY AIR FORCES — COORDINATION												
Chief of Staff	Asst. Chief of Staff	AAG	AI	A-2	A-3	A-4	A-5 WPD	A Insp	Budget	Gen Services		

DECLASSIFIED

AAF-39

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

~~CONFIDENTIAL~~

~~CLASSIFIED~~

DECLASSIFIED
DOE
By [illegible] 6/15/76

THE AIR CORPS BOARD
ELGIN FIELD, FLORIDA (34)

9 February 1942

SUBJECT: TM 1-260, "Dive Bombing."

TO : The Chief of the Air Corps, Washington, D. C.

1. There are forwarded herewith three (3) copies of Technical Manual (tentative) 1-260, "Dive Bombing," for consideration.

2. This office has been unable to service test this manual because of lack of dive bombing airplanes. It is therefore recommended:

a. That arrangements be made to service test subject manual here at the Air Corps Proving Ground before final approval and publication.

b. If the need by some organizations is urgent and immediate, that substitute quantities of subject manual be forwarded them in mimeograph form.

/s/ D. S. STANLEY
D. S. STANLEY
Colonel, Air Corps,
Director.

2 Incls.
#1 - Subject manual (in trip.)
#2 - Form Receipt. (Executed in GHFD 2/12/42)

DECLASSIFIED

~~CONFIDENTIAL~~

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

DECLASSIFIED
DOD DIR
NARA Auth NND
By [illegible] NARA, Date 1/13/76

BASIC: AC No., Eglin Field, Florida, 2/9/42, Subject: TM 1-250, "Dive Bombing".

1st Ind. (1E-Eglin)

WAR DEPARTMENT: Office, Chief of Air Corps, Washington, D.C. Feb 16 1942
TO: Chief, Army Air Forces, Washington, D.C.

1. With reference to paragraph 2 a of basic letter, it is recommended that:

a. The Air Force Combat Command be directed to loan a minimum of three (3) Dive Bombers to the Air Corps Proving Ground to be used in service testing subject manual; or

b. That some unit of the Air Force Combat Command, equipped with Dive Bombers, be assigned to the Air Corps Proving Ground for this purpose.

For the Chief of the Air Corps:

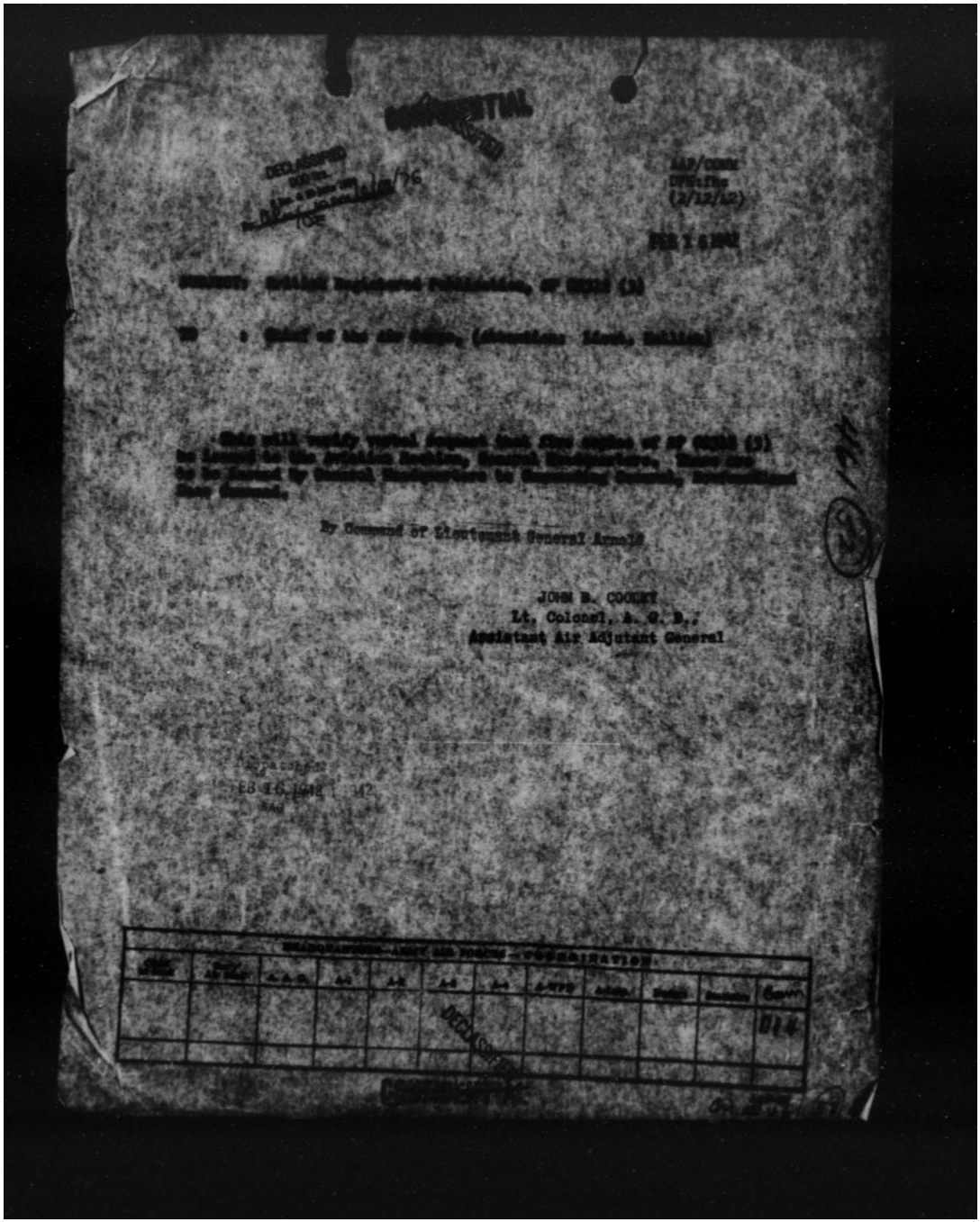
1 Incl:
Orig. Subject Manual
(Dup. & Trip. copies withdrawn)

/s/ Chas. A. Horn
Lieut. Col., Air Corps,
Executive,
Operations Services.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



By Command of Lieutenant General Arnold

JOHN B. COOLEY
Lt. Colonel, A. G. D.,
Assistant Air Adjutant General

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

~~CONFIDENTIAL~~

DECLASSIFIED
DOD Dir. 5200.9 Sec. A (3) Para. 3(d) Ltr. Dated 10/18/76
By [illegible] OSD

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

FEB 18 1942

MEMORANDUM FOR: The Air Adjutant General

Subject: Reference Data (Air Forces)

1. It is desired that a directive substantially as follows be submitted to the Chief of the Air Corps:

1. There is a vital need throughout the Army Air Forces for reference data, in hand book form, upon which to base plans for the movement and employment of Air Task Forces and it is directed that a high priority project be initialed to compile and publish this information with periodic revisions as basic changes occur.

2. Basic statistical data should culminate in recapitulations from which the requirements of Air Forces for rail, water, air and truck movements or, a combination of each, may be readily determined. (See Tab A for Units and suggested arrangement)

3. This directive is in extension of and should include the data required by A-4 Division in letter dated 20th Dec 1941 subject "Basic Statistical and Reference Data" and A-3 Division request subject "Data Required in Army Airplanes for Carrier Operation" dated 15 January 1942 (Copies, Incl. #1 and 2 attached.)

4. It is further directed that the Air Staff Divisions be furnished data as compiled, in draft form, pending completion of the final publication.

For the Chief of the Air Staff:

H. L. GEORGE
Col., Air Corps
Assistant Chief of the Air Staff, A-WPD

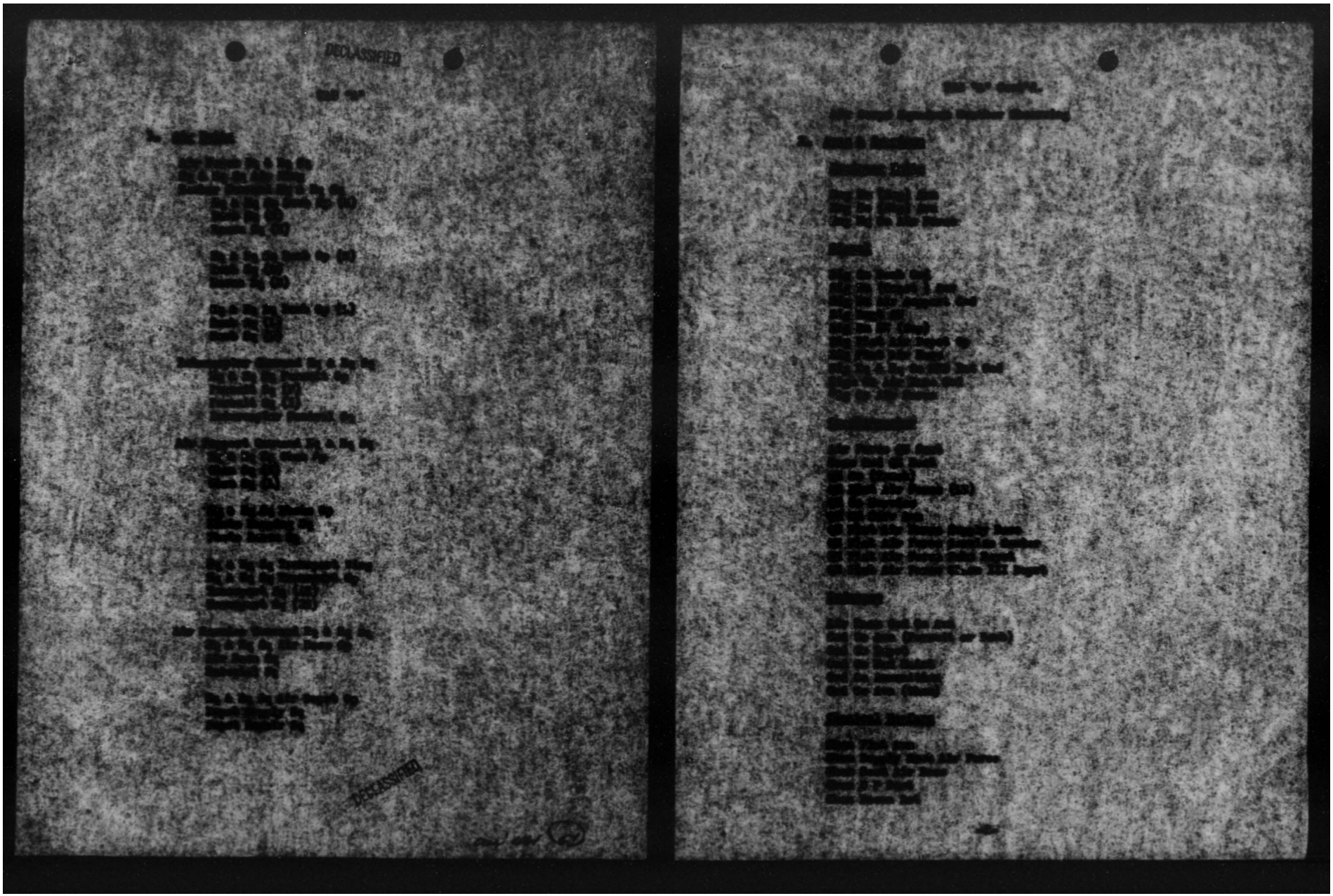
3 Incls:-
1. Tab "A"
2. Ltr. fr AAF/A-4 to Ch/AC wtn 12-30-41 w/tab A
3. Memo fr AAF/A-3 to A.A.G. 1-15-42

DECLASSIFIED

~~CONFIDENTIAL~~

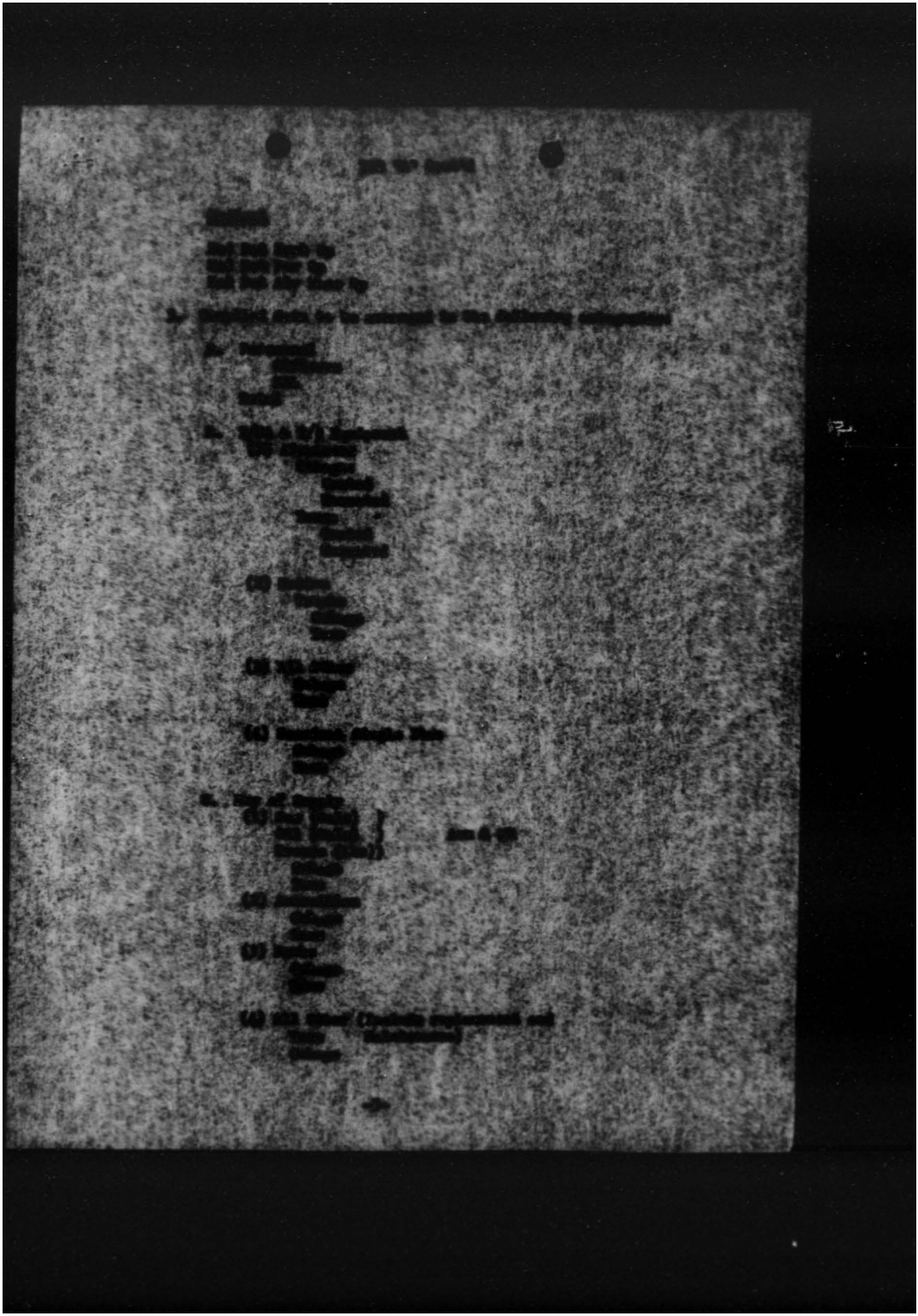
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

AAF/A-4
JPH/cne
Written December 30, 1941.

Basic Statistical and Reference Data.

The Chief of the Air Corps.

1. It is apparent that basic statistical and reference data should be available throughout the Air Forces similar to that available in other services and service schools.

2. An attempt has been made to indicate certain reference data urgently needed at the present time for appraisal of water transport requirements, with respect to movement of individuals, airplanes, tactical units, etc., under a variety of conditions. The attached comments on Tables of Basic Allowance, proposed Tables of Vehicle Requirements, Airplane Requirements, and Organization Requirements are intended to indicate what is desired in some detail, not to be construed as fully inclusive or exclusive, but to serve as a guide.

3. It is requested that accumulation of reference data and compilation in form somewhat similar to that of G. and G. S. Reference Data be initiated immediately. It is suggested that a statistical section coordinate with the statistical section of the Air Staff on the subject to work out data as proposed, immediately, and to follow up the preparation of other data as early as possible. In this connection it is desirable to ascertain what other services may have available such as the Marine Corps.

For the Chief of the Air Staff:

EDGAR P. [illegible],
Colonel, Air Corps,
Assistant Chief of the Air Staff, A-4

Incl:
Tab A

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

TAB A

1. Tables of Basis Allowance should have listed therein cubage and weight of all organic equipment. For reference purposes these tables can be reproduced in more convenient form revised in accordance with revisions of T/E. Tentative included in T/A should have listed cubage and weight empty.

2. A reference table for all types of vehicles in Air Corps use should be available according to classification such as automotive passenger cars, trucks, motorcycles, tractors, and other classification, trailers, cranes, dollies, etc., with weight empty, normal disposable weight and cubage as well as minimum load condition consistent with capacity and dimensions (such as level to sub line). Data should be included covering Day of Supply of gasoline, oil, grease, spare parts based upon well founded maintenance experience. These figures should show pounds or gallons per day up to 30 with summation on the basis of 30 days bulk supply, then number tins (5 gal.) drums (50 gal.), tons-short, tons-long, tons-ship. Data should be included also to show vehicle replacement based upon attrition in Theatres of Operation; also major replacement items not included in Day of Supply maintenance.

3. A reference table for all types of airplanes should be available, according to classification to show complete airplane, and engine, cubage and weight empty, with each separately crated and uncrated. These figures should indicate pounds, cubage, tons-short, tons-long, tons-ship. Data should be included covering Day of Supply of gasoline, oil, grease, normal 1st and 2nd echelon maintenance spare parts based upon well founded experience and in accordance with approved mission rates per month divided by 30 days. Day of supply of bombs, ammunition, pyrotechnics, chemicals, etc. should be included on the same basis. These figures should show pounds or gallons per day up to 30 with summation on the basis of 30 days supply in bulk and in number of tins (5 gal.) drums (50 gal.) with tons-short, tons-long, tons-ship. Data should be included also to show airplane replacement based upon attrition in theatres of operation, as well as engine and major spare parts not included in Day of Supply, also airplane equipment spares such as guns, radio, etc., based possibly on percentage weight of unit.

4. A reference table for each squadron based upon T/O and T/E should be available to compilate data above and show for the following in total figures data in paragraphs 2 and 3.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

(1) Personnel (Note-including replacements in Theatres of Operation).
(2) Individual Equipment (Same Note as (1)).
(3) Organization equipment classified according to function loading priority, necessity, according to (Same Note as (1)).

(a) Essential under all conditions, group and independent operation.
(b) Required for active operations, independent.
(c) Desirable but not essential or required.

(4) Vehicles classified.
(5) Airplanes complete. Cross reference data thus to indicate consolidated cubage and weight figures in tons-short, tons-long, tons-ship with airplanes and vehicles loaded and empty also total disposable personnel and load in cubage and weight.

(6) Consolidate Key of Supply figures as indicated in paragraph 3 in tons-short, tons-long, tons-ship drum (50 gal.), gallons (in thousands).
(7) Consolidated Key of Supply figures for subsistence, water, individual equipment as indicated in (6) above.

h. Consolidated data for squadron should then be augmented to show Hq. and Hq. Sqn. plus one squadron, plus two, plus three, plus four, plus five as covered in g. above.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

January 15, 1942

MEMORANDUM FOR THE AIR ADJUTANT GENERAL:

Subject: Data Required on Army Airplanes for Carrier Operation.

1. It is desired that a directive substantially as follows be submitted to the Chief of the Air Corps:

1. In view of the fact that there is an increasing demand for operating Army airplanes from carriers, it is directed that the following data be procured on all tactical Army airplanes and transports, except those with a wing spread of 90 ft. or greater, now on hand and which are to be procured in the future:

a. True air speed of the airplane at take off, that is, true air speed of the plane at the point where it becomes air-borne with normal gross weight load condition.

b. Flap setting used for take off.

c. The ground run required for take off with zero, 20 mph. and 40 mph. wind, at sea level from a hard surface runway with the normal gross weight load condition.

d. Length wing stubs will protrude from fuselage if wings are detached.

e. Height of highest point of airplane with airplane in normal position on its landing gear.

f. Possibility of detaching wings, in order that plane may be stowed below deck and estimated time to assemble plane on deck, and number of men required. In this connection it should be borne in mind that the crews will only have hand tools to work with and will be working in the open.

g. Weight of plane empty with wings detached.

-1-

Aug 401

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

h. Arrangement for hoisting sling, including location of hoisting point in plan view and side elevation.

i. Three view dimension drawing of airplane.

2. The above information to be published in a convenient form for ready use.

For Chief of Air Staff:

EARL L. NAIDEN
Colonel, Air Corps.,
Assistant Chief of the Air Staff, A-3

-2-

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

DECLASSIFIED
DOD Dir.
10/18/76

05/14

Dispatched
FEB 19 1942
AAG

HHH/rrb
(Adjt Gen)

WD HEADQUARTERS ARMY AIR FORCES, Washington, D. C., February 18, 1942.
To: The Adjutant General.

HEADQUARTERS—ARMY AIR FORCES—COORDINATION

Chief of Staff	G-3	A. A. F.	For the Chief of the Army Air Forces	Duties	Position
			H. H. ARNOLD, Commanding, A.A.F.		
	Brig. Gen.		Assistant to The Adjutant General.		

DECLASSIFIED

CONFIDENTIAL

AAF 201 461 (2-2)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
NND 760033
By NARA, Date 12/17/76

WAR DEPARTMENT

In reply refer to PD(1-29-42)GE/fpm

The Adjutant General's Office
Washington

January 29, 1942.

SUBJECT: Military Publications.

TO: Chief of Army Air Forces,
Room 4E931, Pentagon Building,
Washington, D. C.

1. 8 copies of Change 1 on FM 31-5 are being forwarded by registered mail to your headquarters for distribution as listed below. Such parts of this distribution as do not apply to your headquarters should be disregarded:

a. Distribution as outlined in paragraph 7a(2)(a), (g), (f), and (e), FM 21-6, September 1, 1941.
b. 29 copies to headquarters of armies, army corps, corps areas, departments, divisions, GHQ, and Air Force Combat Command.
c. 3 copies to brigades.
d. 4 copies to regiments and separate battalions.
e. 7 copies to headquarters of posts.

2. Acknowledgment of receipt will be made by indorsement hereon.

By order of the Secretary of War:

Alexander Surles Greely
Adjutant General.

1 copy forwarded A-3
for Air Staff
2-18-42

1st Ind.

14550 FEB 1242

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir. 5200.9 Sec. 1.3 and 4.1(b)
NSC Memo, 11/11/98
NARA, Date 12/15/76

DOCUMENT IS
BY AUTHORITY OF THE
CHIEF OF THE ARMY AIR FORCES
DATE INITIALS

(AAF 385)

February 18, 1942

SUBJECT: Training Circular on Chemical Defense of Air Establishments.

TO: The Chief of the Air Corps.

1. It is directed that a training circular for immediate distribution throughout the Air Corps upon the subject: "Chemical Defense of Air Establishments" be prepared.

2. In this connection attention is invited to the report of a board of officers appointed by AG 370.72 (2-16-42) G-4, May 8, 1941, and to the attached indorsement which give additional data in the premises.

By command of Lieutenant General ARNOLD:

JOHN B. CHENEY
Lt. Col., A.G.D.
Assistant Air Adjutant General

3 Incls.-
Incl.#1 Ltr. from TAG, 2-13-42.
Incl.#2 Tab. A-Status of equipment.
Incl.#3 Tab. B-Additional information.

Dispatched
FEB 19 1942
AAG

HEADQUARTERS ARMY AIR FORCES COORDINATION

Chief of Staff	A-1	A-2	A-3	A-4	A-5	A-6	A-7	A-8	A-9	A-10	Historian	Statistician
JLY & Thorp	Maj C											

DECLASSIFIED

AG 461 (2-18-42)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED DOD Dir. 5200.9 Sept. 27, 1980 Auth. Chief, AGO Ltr. 1/4/76 OUE

~~SECRET~~ DECLASSIFIED

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

FEB 12 1942

MEMORANDUM FOR THE CHIEF OF THE ARMY AIR FORCES:

Subject: Training Circular on Chemical Defense of Air Establishments.

I. Discussion.

1. The Chief of the Air Corps informed the Chief of the Chemical Warfare Service by letter on March 26, 1941, subject: "Chemical Defense of Air Establishment" that the Air Corps was not adequately prepared to meet hostile chemical attacks. A board of officers was appointed by letter Ag 470.72 (3-26-41) O-C, May 5, 1941, and submitted its report on September 17, 1941.

2. There are at present in the air arm a large number of very competent young officers in command of fields and with the multiple duties thrust upon them they may be at a loss as to the proper procedure in organizing the defensive features of a base.

3. This Division is of the opinion that a training circular should be prepared, explaining in comprehensive detail a general defensive plan upon how it should be organized and constructed, furnish a check list for the Base Commander to use as a guide, and prescribe certain drills, instruction and supervision that should be established on each field.

4. The report of the above mentioned Board, together with those listed in Tab B contain valuable material that could be used as a basis for such a training circular. The status of the equipment recommended by the Board is covered in Tab A.

II. Action Recommended.

The Chief of the Army Air Forces directs that the Chief of the Air Corps will prepare a Training Circular for immediate distribution throughout the Air Corps upon the subject: "Chemical Defense of Air Establishments."

APPROVED
CHIEF OF THE AIR STAFF

2 Incls. Tabs A & B.

H. L. GEORGE
Col., Air Corps
Assistant Chief of the Air Staff, A-WPD

Hq. Army Air Forces
Feb 14
AAG RECEIVED

DECLASSIFIED
~~SECRET~~

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET
DECLASSIFIED

Tab A.

The present status of equipment recommended by the Board of Officers appointed under letter Ag 470.72 (3-26-41) O-C, May 5, 1941 is as follows:

1. Protective clothing is being secured by the Quartermaster General. In the meantime, the Office of the Chief of the Chemical Warfare Service is publishing under the date of December 29, 1941, Chemical Warfare Technical Bulletin No. 5-1-41 "Field Impregnation of Clothing." This circular explains how any clothing may be impregnated in the field.

2. Impermeable protective clothing is an article of issue at the rate of one suit for twenty enlisted men. This is in addition to the suits issued to each member of the Chemical Warfare Service detachment on duty at the base.

3. Decontamination equipment:

Shovels, S.H. & L.H.	(QM Issue)
Brooms, Corn	" "
Buckets, 3 gallon	" "
Apparatus, Decontaminating Pressure, 1½ qt.	T/BA-1
" " " 3 gal.	"
" " " 300 gal.	under development
Sampling equipment with Field Laboratory	
Decontaminating Materials	
Bleach	T/BA-1
Decontaminating agent	"
Ointment, protective	"
Eye wash	Medical
Fire fighting materials	QM

4. There has been no development of the "Steam Jenny," (a high pressure steam decontaminating outfit used by the British). It is suggested that a high pressure steam outfit be explained because at many fields one could be improvised.

DECLASSIFIED
SECRET

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET
DECLASSIFIED

Tab B.

The following papers contain valuable material and can be used as a guide for this Training Circular:

a. AG 470.72 (9-17-41), subject: "Chemical Defense of Air Establishment."

b. TSNR 305 - Chemical Defense against attacking airplanes.

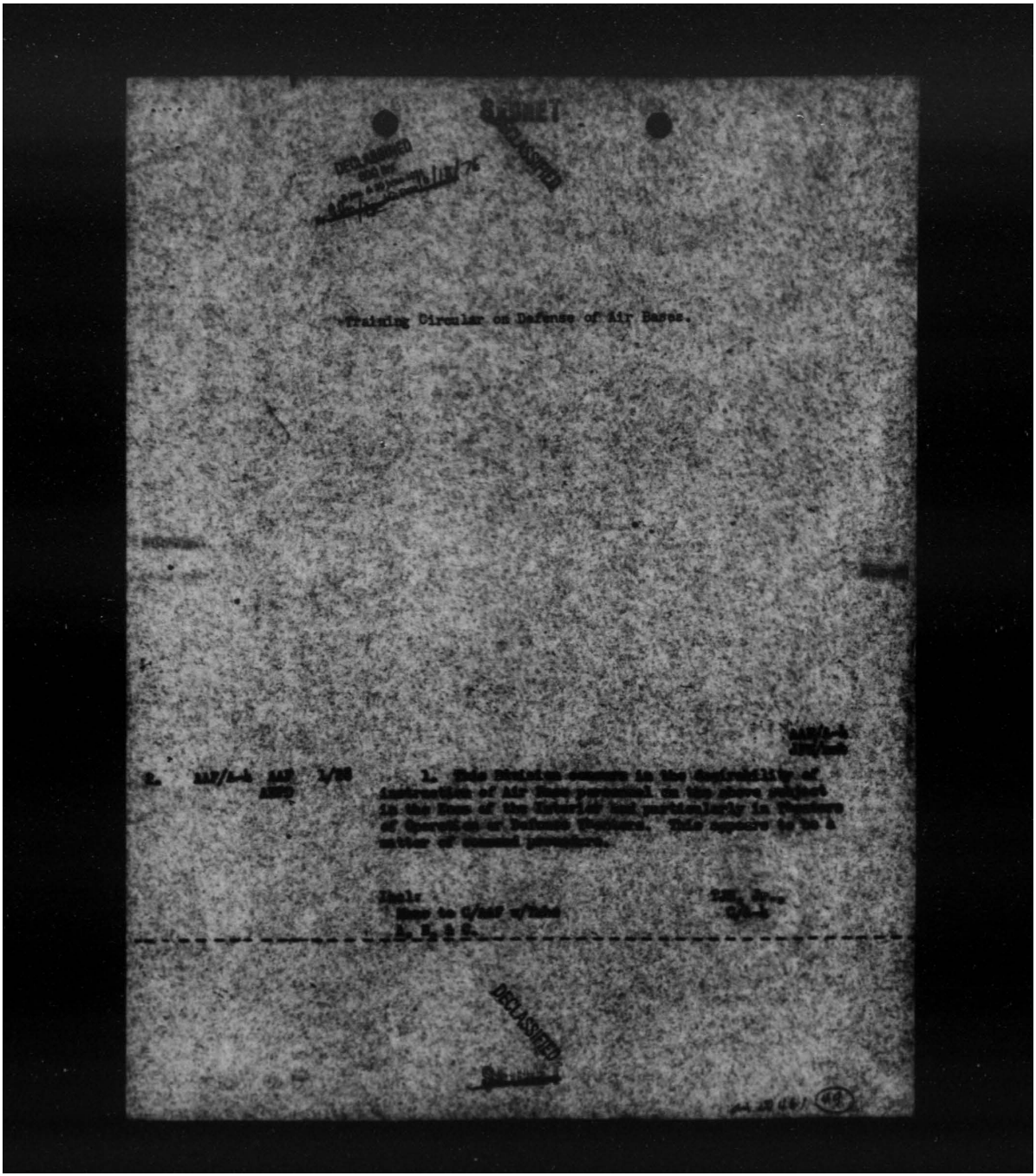
c. EATR 310 (Project B 3) - Technique of Agent Dispersion by Airplanes. Dispersion of Mustard.

d. CWS 470, 8/16, Comf. High Altitude Spray Tests at Muroc Lake.

DECLASSIFIED
SECRET

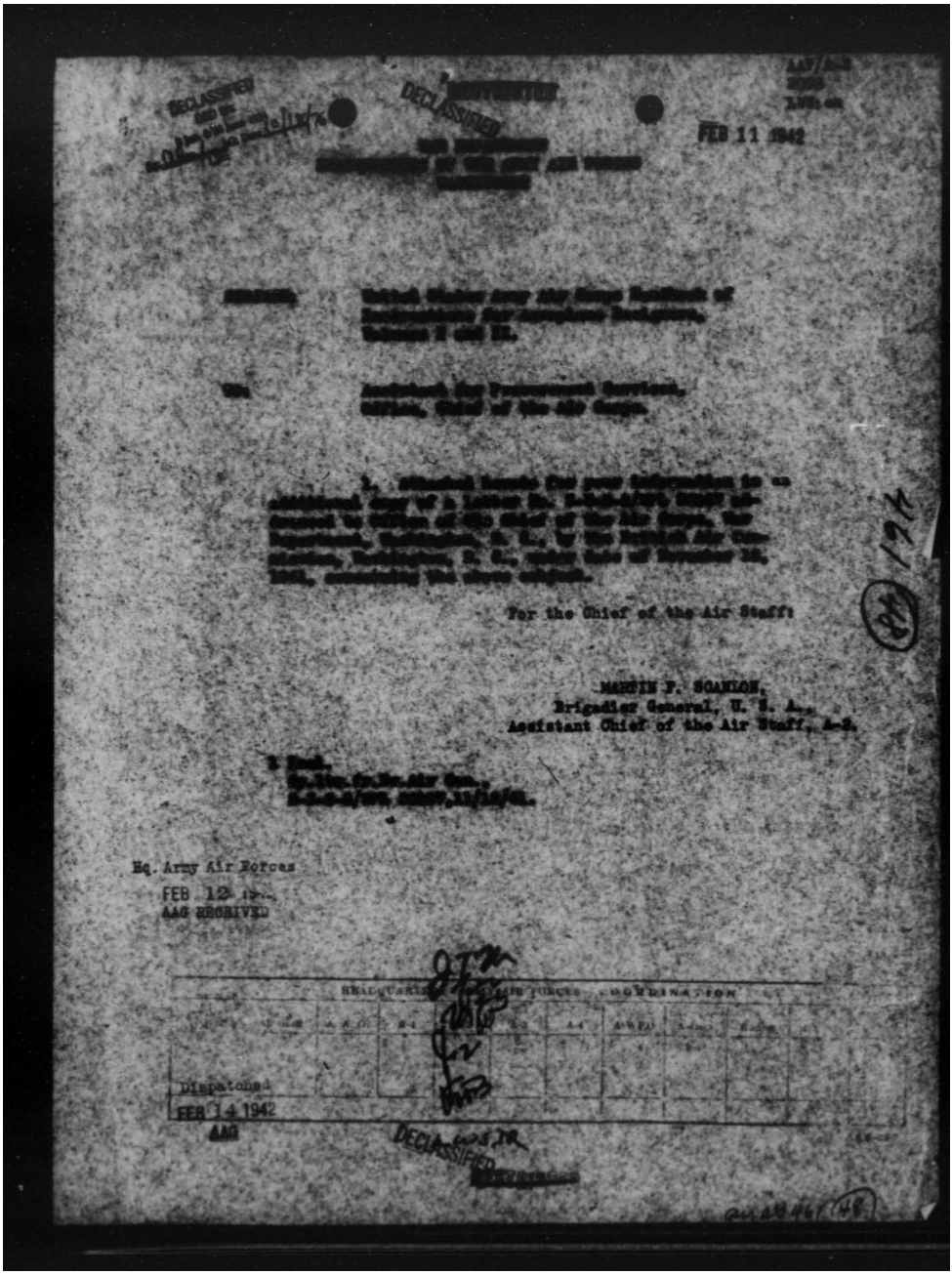
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



DECLASSIFIED

DECLASSIFIED

FEB 11 1942

For the Chief of the Air Staff:

MARTIN F. SCANLON,
Brigadier General, U. S. A.,
Assistant Chief of the Air Staff, A-2.

Hq. Army Air Forces
FEB 12 19..
AAG RECEIVED

Dispatched
FEB 14 1942
AAG

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

DECLASSIFIED DOD Dir. 5200.9 and Sec. 3(b)(1) 76 DECLASSIFIED

FEB 11 1942

SUBJECT: Letter dated 1/17/42 from 9th Interceptor Command, San Juan, Puerto Rico.

TO: Commanding General, Air Forces Combat Command, Bolling Field, D. C.

Attention: G-2, Section.

1. Attached herewith is copy of a letter from the 9th Interceptor Command, San Juan, Puerto Rico with reference to the distribution of publication to that Headquarters.

2. This letter is being forwarded your office in view of the fact that the distribution of publications to this Headquarters is now under your jurisdiction.

By the Chief of the Air Staff:

HARRY J. SENSTAD,
Brigadier General, U. S. A.,
Assistant Chief, Air Staff, A-3.

1 Encl.
Ltr. mentioned above
dated 1/17/42.

FEB 12 1942
Time Received

Dispatched
FEB 13 1942
AAG

HEADQUARTERS ARMY AIR FORCES — COORDINATION											
Routing	Date	A. A. G.	A-1	A-2	A-3	A-4	A-5	A-6	Budget	Statistics	
				BKS							

CONFIDENTIAL

AAF-48

ans 2/13/42 (42)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

copy

CONFIDENTIAL

DECLASSIFIED
DOD Dir. 5 200.10 and
Per OSD Ltr. 10/13/76
(OE)

HEADQUARTERS 6th INTERCEPTOR COMMAND, CARIBBEAN COASTAL FRONTIER
Office of the Commanding Officer,

In Reply
Refer to:
461

10th Naval District,
San Juan, Puerto Rico,
January 17, 1942.

SUBJECT: Publications.

TO: The Chief of the Air Corps, Washington, D. C.

1. This headquarters is receiving Air Information and Information Bulletins etc., addressed to the Commanding General, 13th Composite Wing, Air Corps, Borinquen Field, Puerto Rico. The 13th Composite Wing, was inactivated and the 6th Interceptor Command, was activated in its place pursuant to Section III, paragraph 1, General Orders Number 15, Headquarters Caribbean Air Force, Albrook Field, Canal Zone, dated October 25, 1941. This change was announced in orders published by the 13th Composite Wing and 6th Interceptor Command November 1, 1941, of which copies of orders are attached hereto.

2. Since receiving publications of this nature addressed to the Commanding General, 13th Composite Wing, two (2) copies were retained; one (1) for the use of this headquarters, and one (1) was distributed to the Headquarters and Headquarters Squadron, 6th Interceptor Command, and the remainder of the copies forwarded to the Commanding Officer, Puerto Rico Area, Service Command, Losey Field, Puerto Rico, explaining that two (2) copies were retained, and that no further distribution was made.

3. It is requested this headquarters be informed as to the distribution of these publications.

For the Commanding Officer:

STEVEN C. RHEINERS,
Captain, Air Corps,
Adjutant

3 Encls.
Incl 1-GO #15, Hq CAF 10-25-41
Incl 2-GO #8, Hq 13th Wg 11-1-41
Incl 3-GO #1, Hq 6th Int Comd 11-1-41

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

OFFICE OF THE CHIEF OF THE AIR CORPS

CONFIDENTIAL

DECLASSIFIED

ROUTING AND RECORD SHEET

Note.-- A line will be drawn across sheet after each comment.

File No. 4193

Tolley No. (C) TR-61

SUBJECT: Request for Manuals by Turkish Air Attache.

NO.	FROM	TO	DATE	COMMENTS
1.	OCAC Intel.	OCAC Asst. for Personnel & Training Services.	JAN 28 1942	(2-C-4) GTF:ek 1. Reference is made to R & R Sheet addressed to the Administrative Division, Office, Chief of Air Corps, by this office under date of December 24, 1941, subject, same as above, and to Comment Number 2, by the A. G. O., Publication Division, Office, Chief of Air Corps, and to Comment Number 3, by the Training Division, Office, Chief of Air Corps, and to attachments thereto. 2. The list of Programs of Instruction and Manuals, which was added to the file with Comment Number 3, is inclosed. It is requested that the classification of each item listed be indicated and the list then be returned to this office. /s/ OCAC Intel. 1 Incl. List, Programs of Instruction & Instr. Manuals.
2.	OCAC Flying Trng. Com.	OCAC Intell	1942 2/6	INTELLIGENCE DIV. OCAC RECEIVED (3-D-5) vt 1. None of the Programs of Instruction or manuals shown on attached list are classified. 1 Incl List, Programs of Instruction & Instr. Manuals. B. K. Y. Maj.Gen., U.S.A. Commanding.

FEB 10 1942

RECEIVED
FOR LIAISON SEC., OCAC

file - JTC per mec

DECLASSIFIED

12986 FEB 1942

CENTRAL MAIL SECTION A.A.F.

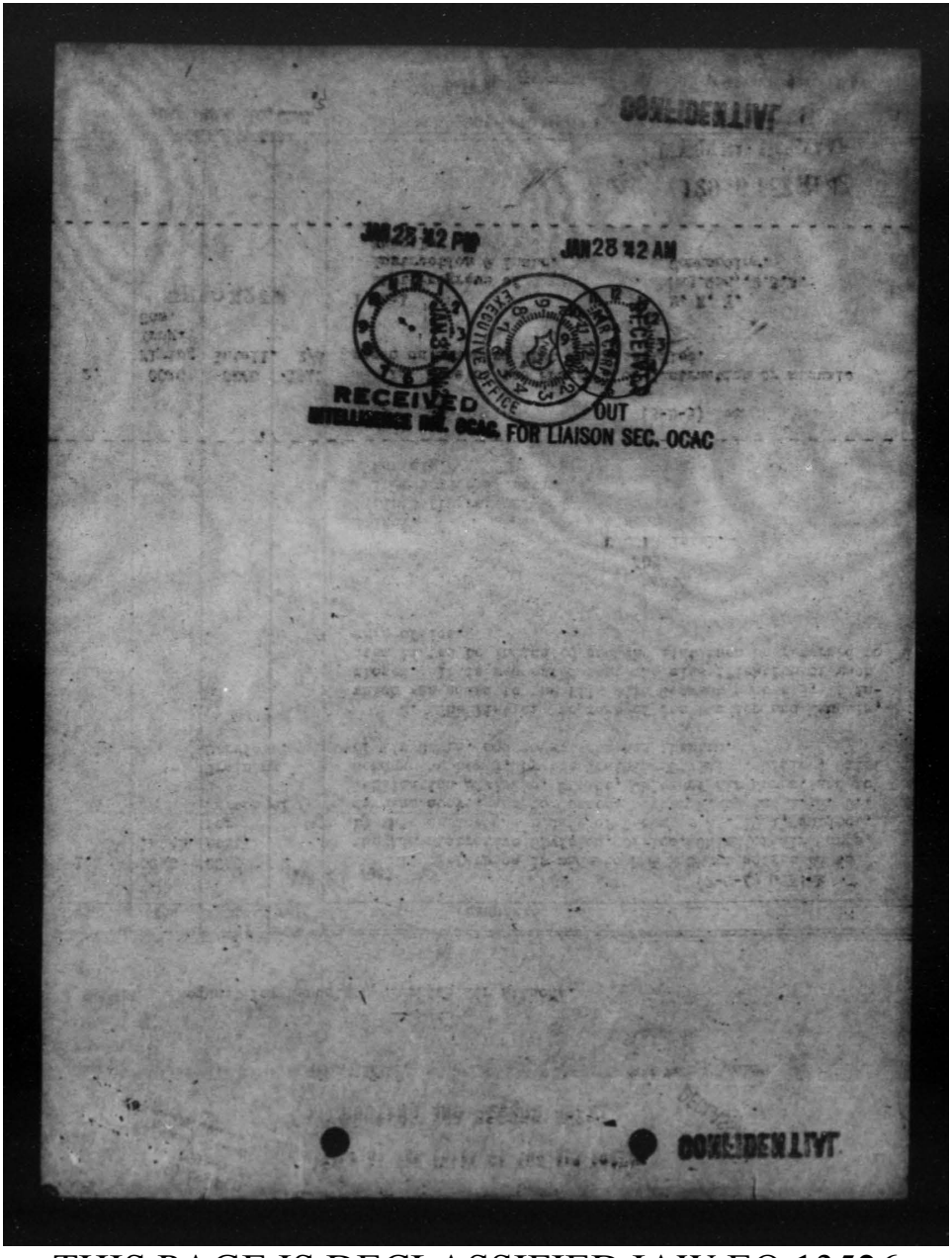
(Do not use reverse side)

CONFIDENTIAL 900038

PAGE NO.

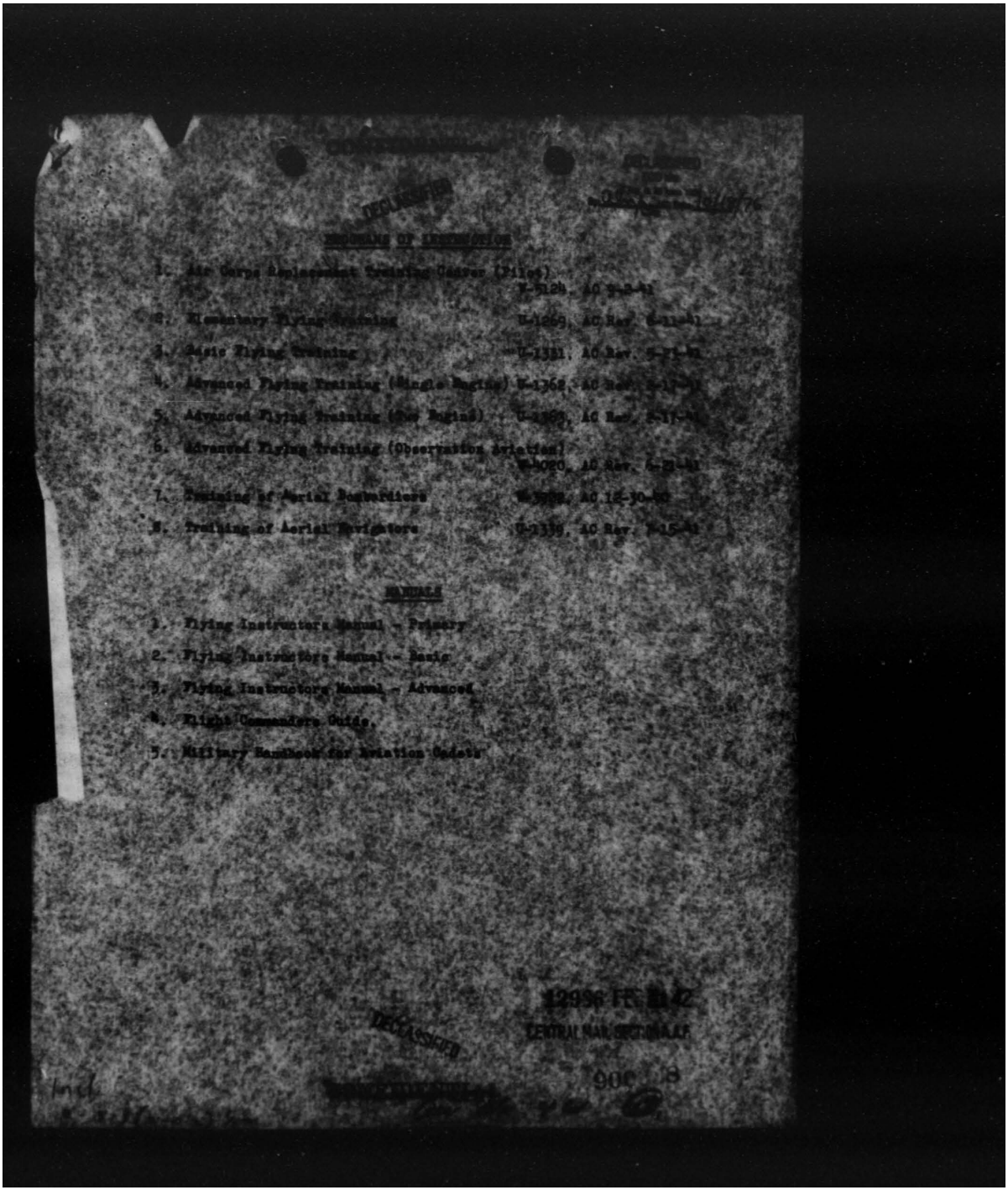
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



DECLASSIFIED

TRAINING OF INSTRUCTORS

1. Air Corps Replacement Training Centers (Pilots) T-5124, AC 9-8-41
2. Elementary Flying Training T-1269, AC Rev. 6-11-41
3. Basic Flying Training T-1331, AC Rev. 5-21-41
4. Advanced Flying Training (Single Engine) T-1362, AC Rev. 5-17-41
5. Advanced Flying Training (Twin Engine) T-1363, AC Rev. 5-31-41
6. Advanced Flying Training (Observation Aviation) T-4020, AC Rev. 6-21-41
7. Training of Aerial Bombardiers T-3998, AC 12-30-40
8. Training of Aerial Navigators T-2339, AC Rev. 5-15-41

MANUALS

1. Flying Instructors Manual - Primary
2. Flying Instructors Manual - Basic
3. Flying Instructors Manual - Advanced
4. Flight Commanders Guide.
5. Military Handbook for Aviation Cadets

12996 FR 8-42

CENTRAL MAR SEC USAAF

DECLASSIFIED

900 18

Incl

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir. 5200.1, 11 June 1974
By Authority of CG AAF Date 10/12/76

RESTRICTED

2093

DECLASSIFIED FEB 11 1942

SUBJECT: Revision 5 to the Handbook of Instructions for Airplane Designers for British Air Commission

TO: Assistant for Procurement Services Office, Chief of the Air Corps

1. Reference is made to Routing and Record Sheet addressed to Intelligence Division, Office, Chief of the Air Corps, by you under date of January 28, 1942, subject same as above.

2. Ten eight (8) copies of Revision 5 to Serial Numbers 1362 to 1369, inclusive, of Volumes I and II, Eighth Edition of the Handbook of Instructions for Airplane Designers have been furnished to the British Air Commission.

3. Two (2) duplicate copies of accomplished receipts covering the original distribution mentioned in the reference communication are attached hereto. Copies of this receipt were previously furnished to you but have evidently gone astray.

For the Chief of the Air Corps:

FEB 12 1942
AMC

GEORGE F. STRICKLER,
Brigadier General, U. S. Army,
Assistant Chief of the Air Staff, A-2.

1 Encl.
Signed Rcpt., 2/28/42 (Copy)

FEB 7 1942
AMC

DECLASSIFIED
RESTRICTED

HEADQUARTERS—ARMY AIR FORCES—COORDINATION											
Chief of Staff	Deputy Air Chief	A.A.G.	A-1	A-2	A-3	A-4	A-WPD	A-Inspr.	Budget	Statistics	

AAF AD/461 (45)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED DOD Dir. 5200.9 Sec. A, Par. 3 Dec. 19/12/76

OFFICE OF THE CHIEF OF THE AIR CORPS

ROUTING AND RECORD SHEET

RESTRICTED

DECLASSIFIED

Note.--A line will be drawn across sheet after each comment.

File No. 2093

Tally No. .....

Subject: Revision 5 to the Handbook of Instructions for Airplane Designers for British Air Commission

NO.	FROM	TO	DATE	COMMENTS
1	OCAC APS (4-E-4)	OCAC Intel. Div.	1-20-1942	1. There are being furnished you under separate cover, this date, eight (8) copies Revision 5 to Serial Nos. 1162 to 1169 inclusive, of Volumes I and II, Eighth Edition of the Handbook of Instructions for Airplane Designers, for transmittal to the British Air Commission. The original Handbooks were furnished your office for transmittal per our R & R dated August 22, 1941, and were covered by Receipt DAO-71-20 dated August 12, 1941. 2. Receipts covering this transaction are attached, however, it will be noted that the monetary value is not indicated as there is no charge since this Revision is being furnished as a part of the original documents. 3. Information is desired as to the accomplishment of Receipt DAO-71-20 referred to above in as much as Wright Field advises that a signed copy has not been returned for its files. O. P. E. Asst. for Proc. Services Incl Receipt No. DAO-71-132 (5 copies)

JAN 22 42 PM

RECEIVED
FOR. LIAISON SEC., OCAC.

RESTRICTED

DECLASSIFIED

(Do not use reverse side)

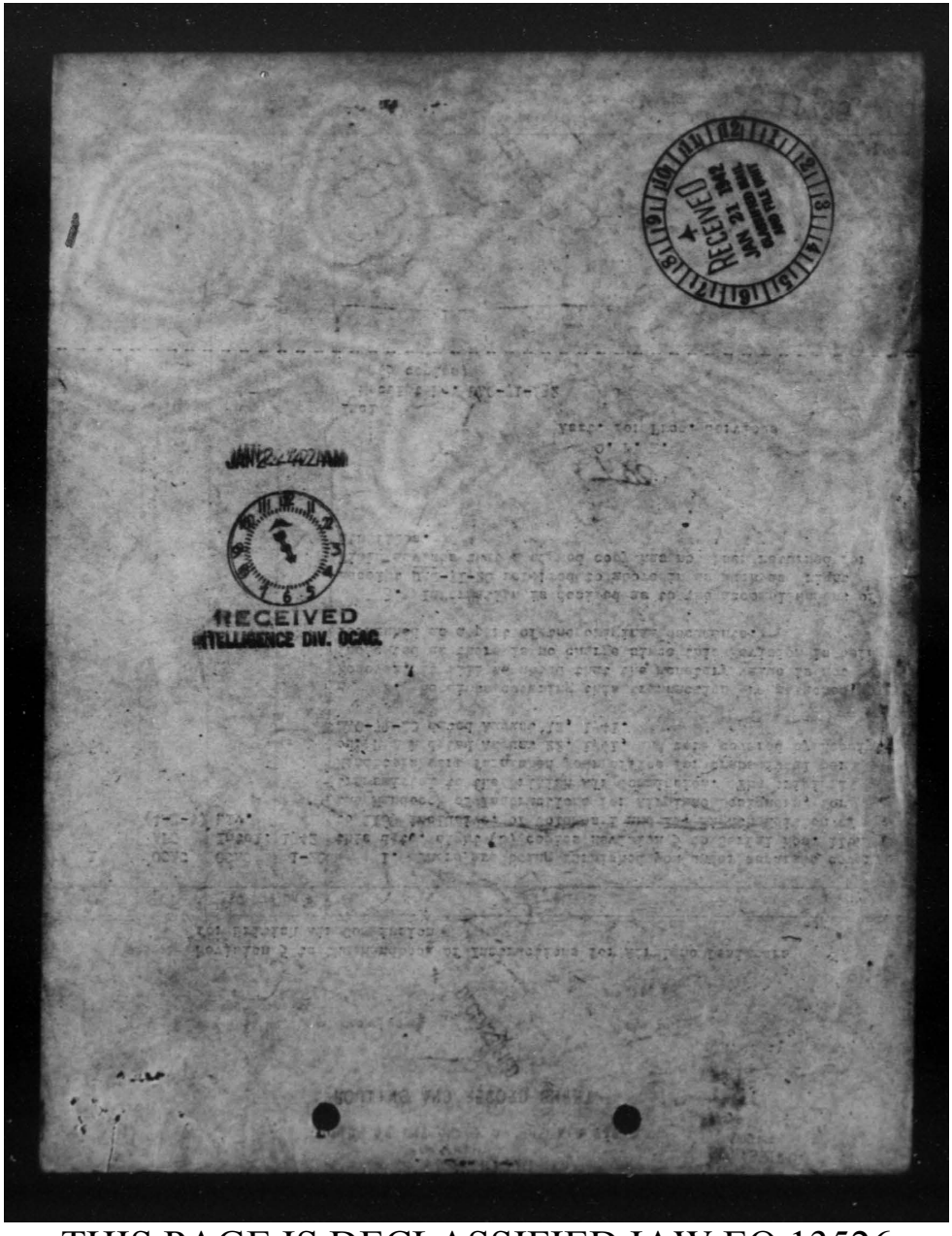
Page No. _____

11735

R-92 - 1/22/2A-2

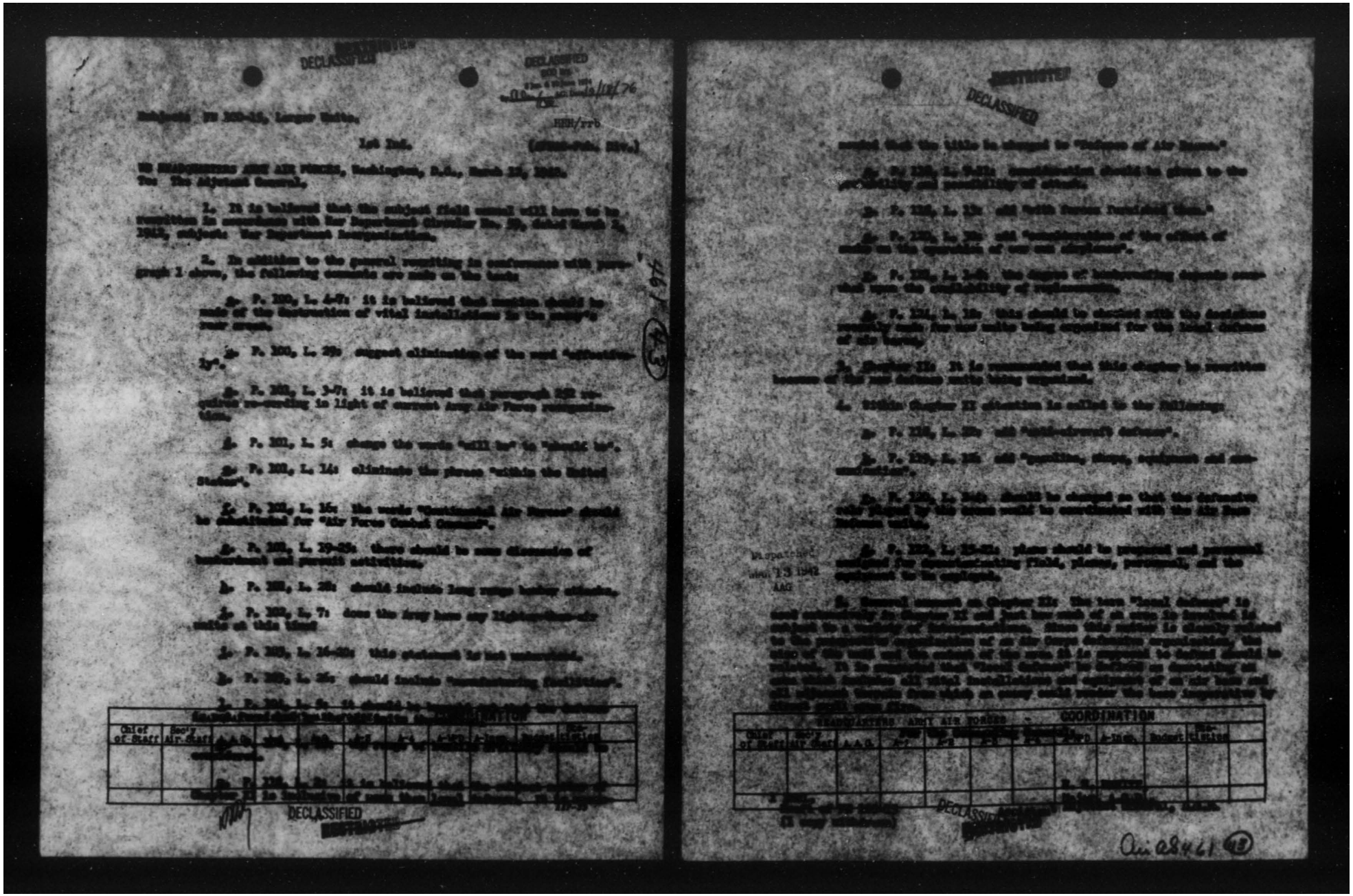
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED DOD Dir. 5200.9 Sec. 1 & 30 June 1995 NARA, Date 6/18/96

DECLASSIFIED RESTRICTED

HEADQUARTERS ARMY AIR FORCES
ROUTING AND RECORD SHEET

File No. . . . . .

Note.-- A line will be drawn across sheet after each comment.

Tally No. AAF . . . . . .

SUBJECT: FM 100-15, Larger Units.

NO.	FROM	TO	DATE	COMMENTS
1.	AAF/Air AG	(1) A-3 (2) A-WPD	1942 2/26	It is requested that you indicate your specific comments or recommendations hereon and return the inclosures to this office before March 15, 1942. Incls.: Draft of FM 100-15 (2 copies) H. H. H.
2.	AAF/A-3	AWPD	3/3	Comments and recommendations on F.M. 100-15 follow:-

Page	Line	Comment
101	3 to 7	It is believed that paragraph 252 requires re-wording in light of current Army Air Force reorganization.
101	16	The words "Continental Air Forces" should be substituted for "Air Force Combat Command."
118	2	It is believed that the subject matter of Chapter XI is inclusive of more than local defense. It is recommended that the title be changed to "Defense of Air Bases."

MAR 4 '42 AM

RECEIVED
AIR WAR PLANS DIV.

General comment on Chapter XI:

The term "local defense" is used extensively in Chapter XI and just how much of an area is involved is subject to a variety of interpretations. Since this matter is closely related to the prospective organization of an Air Corps defensive organization, the size of the unit and the extent of the area it is supposed to defend should be related. It is suggested that "local defense" be defined as denoting an area which includes all vital installations and equipment of an air base and all adjacent terrain from which an enemy could render the base inoperative by direct small arms fire.

H.S.V.
for C/A-3

Incls. n/c
(2 cy of Draft of FM 100-15 received in AWP)

NO.	FROM	TO	DATE	COMMENTS
3	A-WPD	AAG	3/9	AAF/A-WPD CMT/jk 1. It is believed that the subject field manual will have to be rewritten in accordance with War Department Circular No. 59, dated March 2, 1942, subject: War Department Reorganization. 2. In addition to the general rewriting in conformance with Par. 1 above, the following comments are made on the text: a. P. 100, L. 4-7: it is believed that mention should be made of the destruction of vital installations in the enemy's rear areas. b. P. 100, L. 29: suggest elimination of the word "effectively". c. P. 101, L. 5: Change the words "will be" to "should be." d. P. 101, L. 14: eliminate the phrase "within the United States". e. P. 101, L. 19-25: There should be some discussion of bombardment and pursuit activities. f. P. 101, L. 28: should include long range bomber attacks.

DECLASSIFIED RESTRICTED Page No. ____

DECLASSIFIED RESTRICTED Page No. ____

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

Note:--A line will be drawn across sheet after each comment.

File No. . . . . .

Daily No. AAF. . . . . .

SUBJECT: FM 100-15, Larger Units.

NO.	FROM	TO	DATE	COMMENTS
3 (con)	A-WPD	AAG	3/9	f. P. 102, L. 7: Does the Army have any lighter-than-air units at this time? h. P. 103, L. 16-20: This statement is not understood. i. P. 103, L. 26: should include "manufacturing facilities". j. P. 104, L. 5: it should be brought out that the defense is not furnished by the air units themselves. k. P. 108, L. 18: the range of hostile artillery should be considered. l. P. 118, L. 7-11: consideration should be given to the probability and possibility of attack. m. P. 118, L. 13: add "with forces furnished them." n. P. 120, L. 30: add "consideration of the effect of smoke on the operation of our own airplanes". o. P. 121, L. 1-8: the degree of bombproofing depends somewhat upon the availability of replacements. p. P. 124, L. 12: This should be checked with the decisions recently made for new units being organized for the local defense of air bases. 3. Chapter XI: It is recommended that this chapter be rewritten because of the new defense units being organized. 4. Within Chapter XI attention is called to the following: a. P. 118, L. 22: add "anti-aircraft defense".

(See reverse side)

Enclosure No. 3

HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

Note:--A line will be drawn across sheet after each comment.

File No. . . . . .

Daily No. AAF. . . . . .

SUBJECT: FM 100-15, Larger Units.

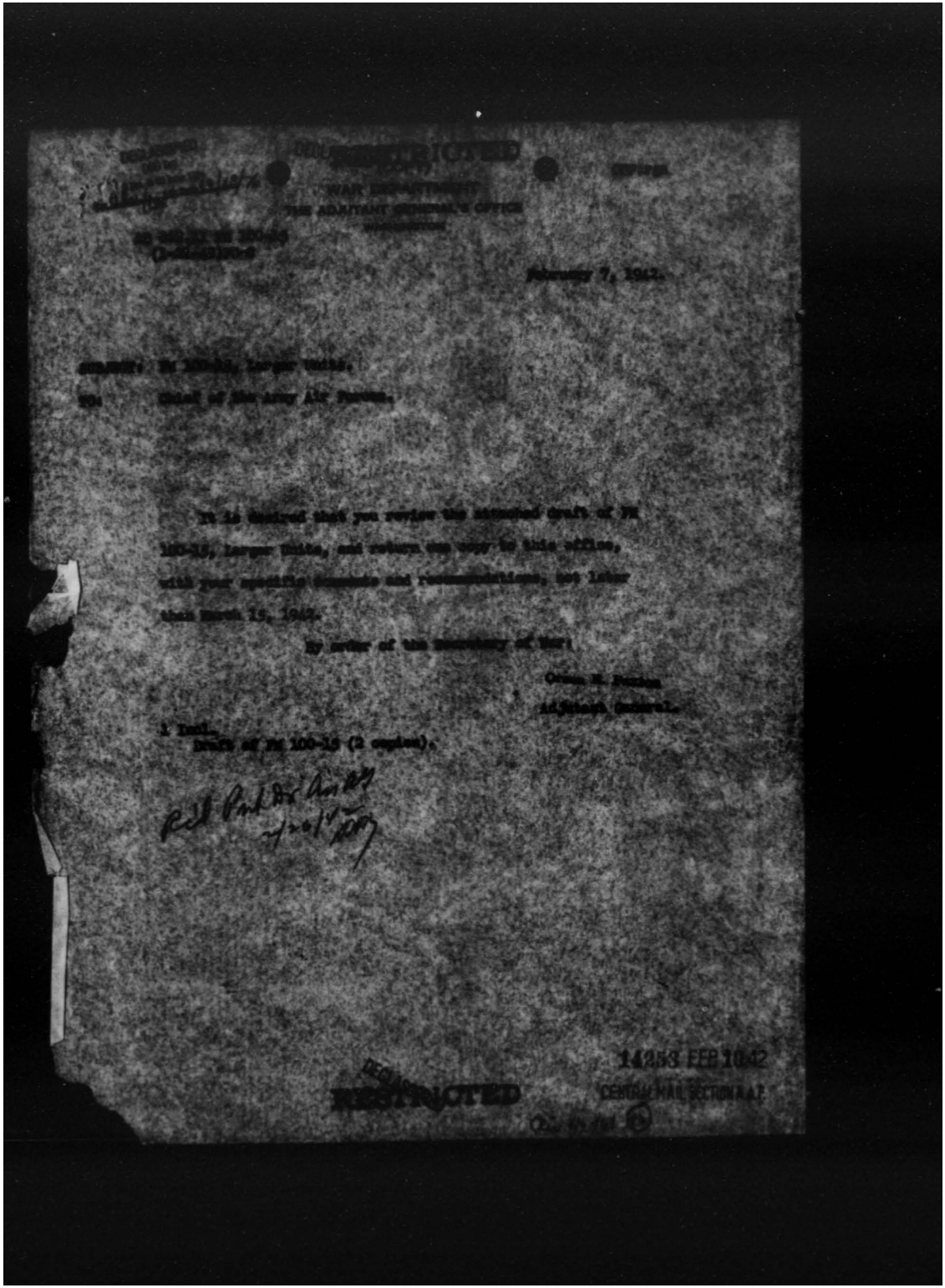
NO.	FROM	TO	DATE	COMMENTS
3 (con)	A-WPD	AAG	3/9	g. P. 119, L. 12: add "gasoline, shops, equipment and communication". q. P. 120, L. 2-4: should be changed so that the defensive role played by the crews would be coordinated with the Air Base Defense units. r. P. 122, L. 15-21: plans should be prepared and personnel assigned for decontaminating field, planes, personnel, and the equipment to be employed. H. A. C. AC/A-WPD Inclsr n/c

(See reverse side)

Enclosure No. 4

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



February 7, 1942.

It is desired that you review the attached draft of FM 100-15, Larger Units, and return one copy to this office, with your specific comments and recommendations, not later than March 15, 1942.

By order of the Secretary of War:

Orvan H. Poston
Adjutant General.

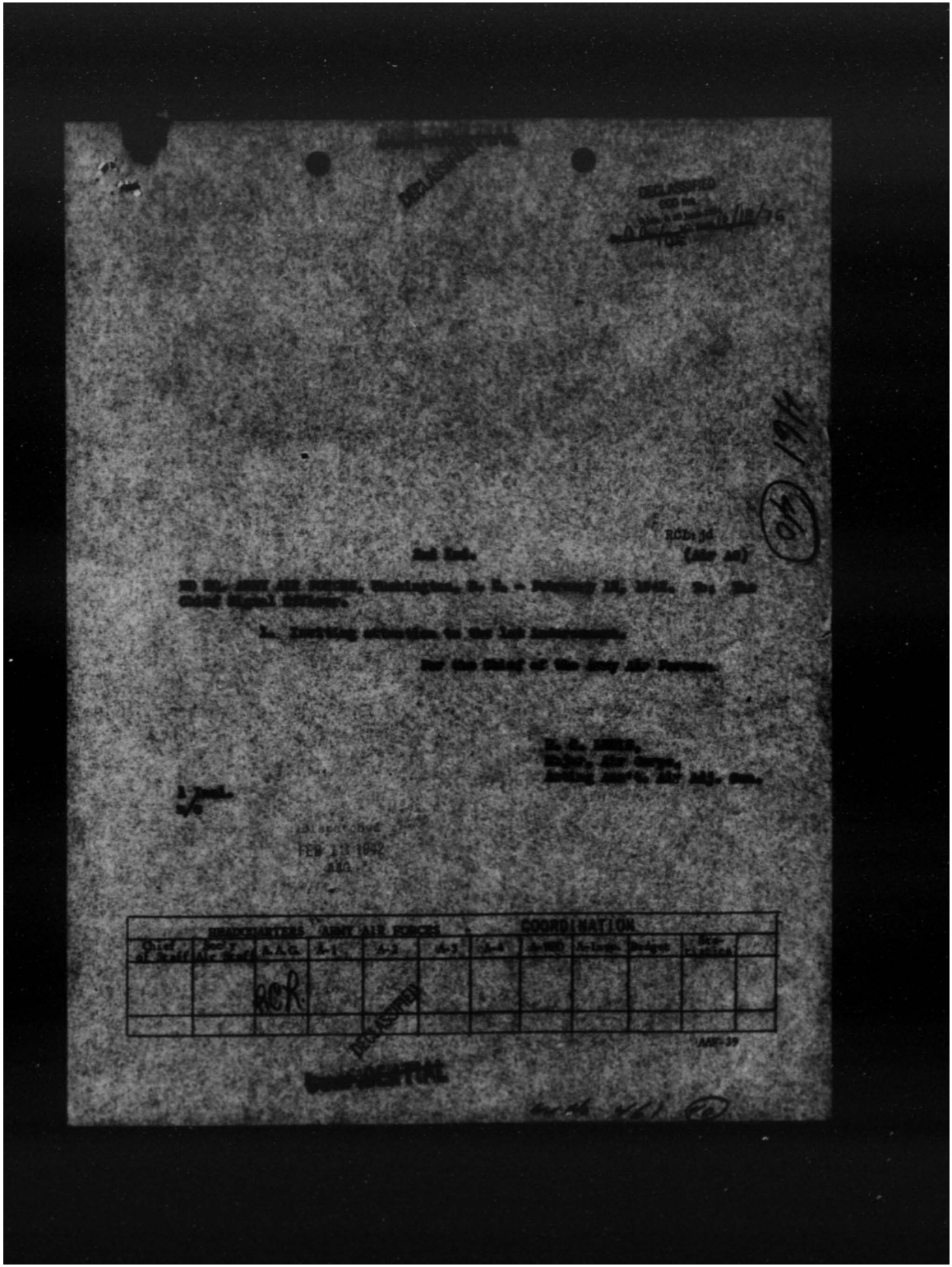
1 Incl.
Draft of FM 100-15 (2 copies).

14253 FEB 1942

RESTRICTED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



HEADQUARTERS ARMY AIR FORCES						COORDINATION					
Chief of Staff	Air Staff	A.A.G.	A-1	A-2	A-3	A-4	A-[illegible]	A-[illegible]	Budget	[illegible]	
		RCR									

AAF-39

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

January 14, 1942

SUBJECT: Manual of the Auxiliary Aircraft Warning Service.

TO: Commanding General, Air Force Combat Command, Bolling Field, D.C.

1. Captain Butcliffe of the Volunteer Women's Auxiliary Air Force on duty at the New York Information Center has prepared the inclosed manual for the organization, operation and training of the volunteer workers of Information and Filter Centers.

2. This manual has been edited by the Project Section of this headquarters, and is recommended for adoption as a guide to the standard organization of the Women's Auxiliary Air Force Units operating in Filter and Information Centers. This manual is applicable to both a volunteer or military organization.

3. The organization as outlined in the manual is being made standard throughout the installations controlled by the 1st Interceptor Command.

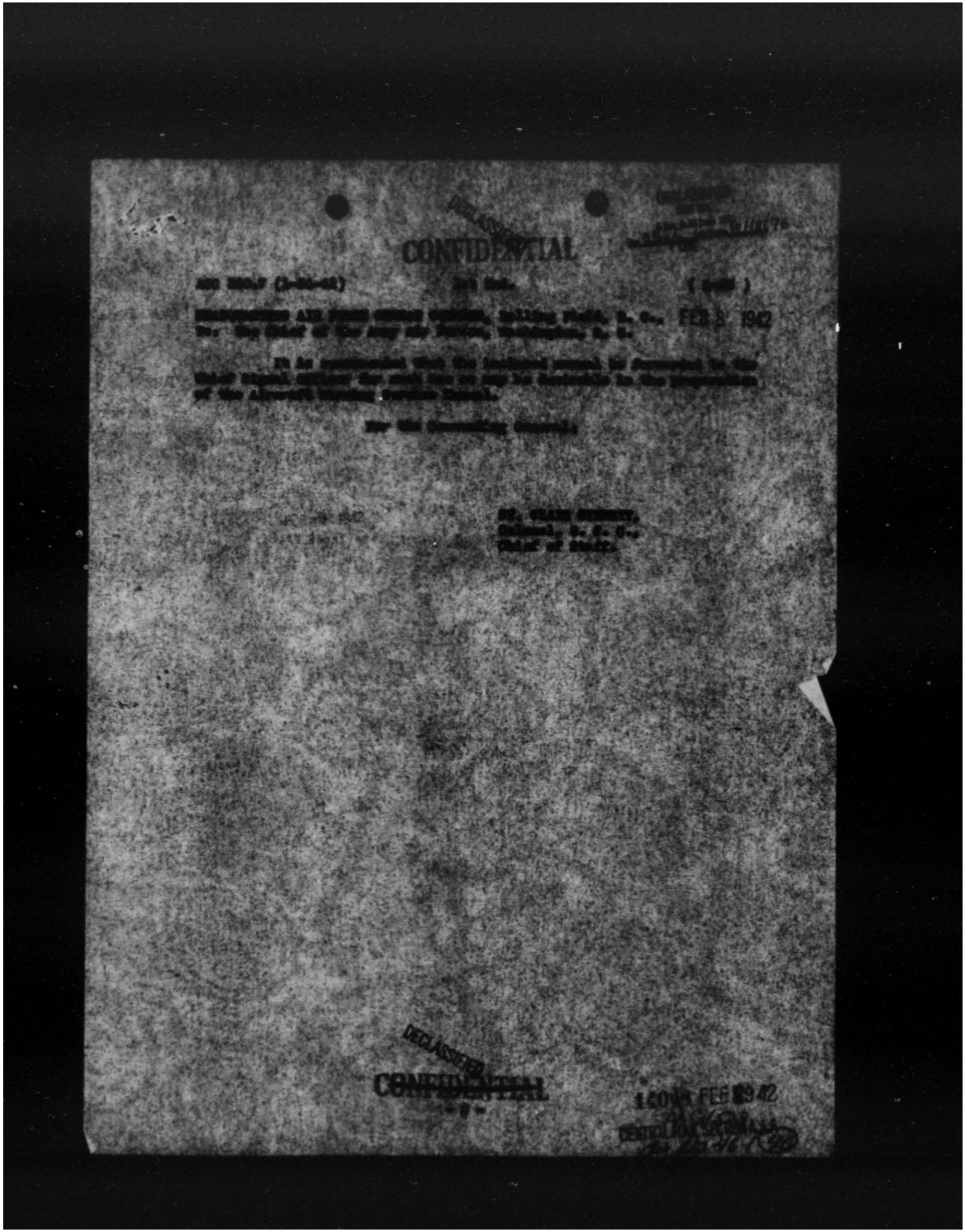
For the Commanding General.

/s/ JOSEPH A. BULGER,
Major, Air Corps,
Executive.

Incl.-
Manual of the Auxiliary Aircraft Warning Service (Confidential)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



CONFIDENTIAL

FEB 8 1942

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

DECLASSIFIED
E.O. 12958, Sec. 3.3
NARA, Date 10/18/05

File No. .....

Tally No. AAF .....

NOTE -- A line will be drawn across sheet after each comment.

SUBJECT: MANUAL OF THE AUXILIARY AIRCRAFT WARNING SERVICE

NO.	FROM	TO	DATE	COMMENTS GPB:hg
1	DIRECTOR AIR DEFENSE	AIR ADJUTANT GENERAL	1942 8-11	1. Request the attached be forwarded to the Chief Signal Officer by 2nd indorsement inviting attention to the 1st indorsement. G. P. S. Lt.Col., A.G. Director. Incls: Manual of Auxiliary Warning Service Basic and 1st Ind.

Hq. Army Air Forces

... 12 ...

AAG RECEIVED

DECLASSIFIED

(Do not use reverse side)

Page No. .....

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

DECLASSIFIED

DECLASSIFIED
DOD Dir. 5200.9 Sec. 1, 3(a)(4)
By [illegible] Date 6/15/76

2nd Ind.

AAG-4/6756

WAR DEPARTMENT, Army Air Forces,
To Commanding General, Air Forces Combat Command, Bolling Field,
D. C.

1. Attached are the three enclosures to report submitted by Major D. V. Hawkins dated 10-31-41 requested in basic communication.

2. This office does not have the facilities to reproduce these enclosures at the present time and they are being forwarded to you for necessary reproduction.

3. There is also attached a copy of enclosure #1 which, it is thought, will be of value to you.

4. It is desired that these enclosures be returned to this office as soon as they have served their purpose.

By Command of Lieutenant General Arnold

JOHN B. COOLEY
Lt. Colonel, A. G. D.
Assistant Air Adjutant General

4 Incls.-
#1 Misc., London Rpt. dated 10/31/41, Air Fighting Tactics R.A.F.
#2 Misc., London Rpt. dated 10/31/41, Hints to Aircr. Recognition Instructions.
#3 Misc., London Rpt. dated 10/31/41, Gunnery.
#4 Misc., London Rpt. dated 10/31/41, Intercommunication Procedure by Controller and Gunners.

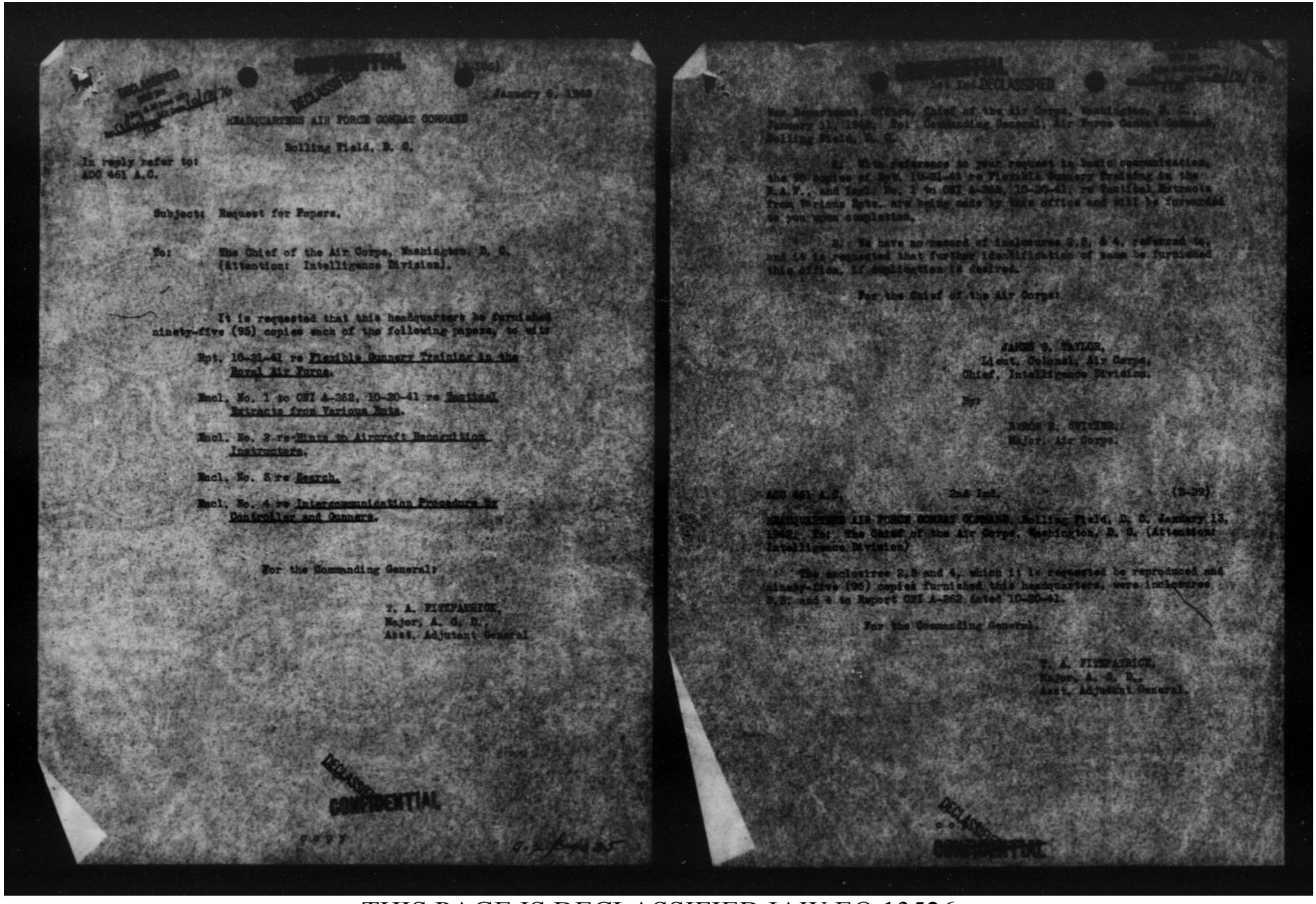
[illegible]
LS 10-1942
AAG

HEADQUARTERS ARMY AIR FORCES								COORDINATION				
Chief of Staff	Ass't Chief of Staff	A.A.G.	A-1	A-2	A-3	A-4	A-5	A-6	A-7	A-8	Budget	Ass't Chief of Staff
				DECLASSIFIED								
				[illegible]								

[illegible] 41-767 (11) WDC 39

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



CONFIDENTIAL

January 6, 1942

HEADQUARTERS AIR FORCE COMBAT COMMAND

Bolling Field, D. C.

In reply refer to:
AGC 461 A.C.

Subject: Request for Papers.

To: The Chief of the Air Corps, Washington, D. C.
(Attention: Intelligence Division).

It is requested that this headquarters be furnished ninety-five (95) copies each of the following papers, to wit:

Rpt. 10-21-41 re Flexible Gunnery Training in the Royal Air Force.

Encl. No. 1 to GHI A-262, 10-20-41 re Tactical Extracts from Various Rpts.

Encl. No. 3 re Hints to Aircraft Recognition Instructors.

Encl. No. 3 re Search.

Encl. No. 4 re Intercommunication Procedure by Controller and Gunners.

For the Commanding General:

T. A. FITZPATRICK,
Major, A. G. D.,
Asst. Adjutant General.

CONFIDENTIAL

COPY

CONFIDENTIAL

1st Ind.

War Department, Office, Chief of the Air Corps, Washington, D. C., January 13, 1942. To: Commanding General, Air Force Combat Command, Bolling Field, D. C.

1. With reference to your request in basic communication, the 95 copies of Rpt. 10-21-41 re Flexible Gunnery Training in the R.A.F., and Incl. No. 1 to GHI A-262, 10-20-41, re Tactical Extracts from Various Rpts., are being made by this office and will be forwarded to you upon completion.

2. We have no record of inclosures 2, 3, & 4, referred to, and it is requested that further identification of same be furnished this office, if duplication is desired.

For the Chief of the Air Corps:

JAMES V. TAYLOR,
Lieut. Colonel, Air Corps,
Chief, Intelligence Division.

By:

[illegible],
Major, Air Corps.

AGO 461 A.C., 2nd Ind. (1-29)

HEADQUARTERS AIR FORCE COMBAT COMMAND, Bolling Field, D. C. January 13, 1942. To: The Chief of the Air Corps, Washington, D. C. (Attention: Intelligence Division)

The enclosures 2, 3 and 4, which it is requested be reproduced and ninety-five (95) copies furnished this headquarters, were inclosures 2, 3, and 4 to Report GHI A-262 dated 10-20-41.

For the Commanding General:

T. A. FITZPATRICK,
Major, A. G. D.,
Asst. Adjutant General.

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir. 5200.9 and 5200.10 amd.
By OSD/WHS, Directorate for Freedom of Information and Security Review, Washington Headquarters Services, Department of Defense
12/18/76

~~CONFIDENTIAL~~

FEB 5 1942

461

38

British Air Commission,
3100 Massachusetts Avenue,
Washington, D.C.

Attention: Air Commodore E.H. Jones

Subject: "Bureau Analysis Criteria"
Note for British Air Commission

A.A.F. File No.: 1200-WPD 0-2-2
R.A.F. File No.: 2047

Gentlemen:

Reference is made to your letter of September 25, 1941 and our reply of October 17, 1941 on the above subject.

Forwarded herewith are eight (8) copies each of the following data:

Amendment No. 4, dated December 8, 1941, to Specification 0-1200-A, "Bureau Analysis Criteria"

Publication AFS-2, dated October 15, 1941, "Bureau Target Handbook" (For use in conjunction with Amendment No. 4 to Specification 0-1200-A)

By messenger 2-5-42

The above referenced publications are applicable to Specification 0-1200-A, British Ser. AFS to AFS Assistance, furnished you by our letter of October 17, 1941.

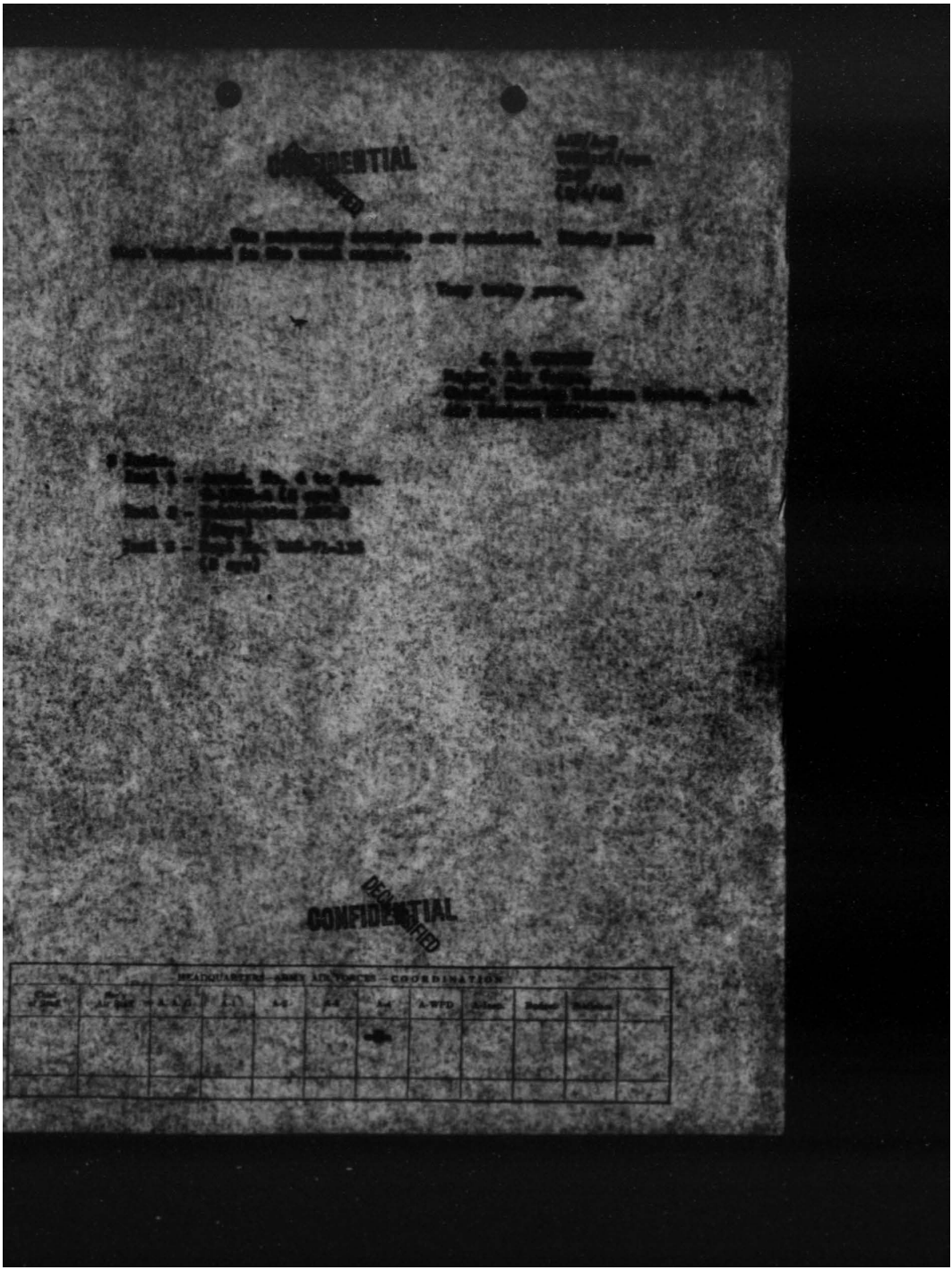
It is regretted that these publications were not available at an earlier date.

~~CONFIDENTIAL~~
DECLASSIFIED

HEADQUARTERS—ARMY AIR FORCES—COORDINATION											
Chief of Staff	Deputy Chief of Staff	A.A.G.	A-2	A-3	A-4	A-5	A-WPD	A-Asst.	Budget	Trans.	

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir. 5200.9 & 5200.1-R
By O/Gen, A/C Date 10/18/76
OSE

OFFICE OF THE CHIEF OF THE AIR CORPS

CONFIDENTIAL

ROUTING AND RECORD SHEET

DECLASSIFIED

Note.—A line will be drawn across sheet after each comment.

File No. 2947

Tally No. - - - - -

Subject: "Stress Analysis Criteria" Data for British Air Commission

NO.	FROM	TO	DATE	COMMENTS
1.	OCAC CAPS (4-E-4)	OCAC Intel.	1-20 1942	1. Forwarded herewith are eight (8) copies each of the following data for transmittal to the British Air Commission, 1785 Massachusetts Avenue, N. W., Washington, D. C.: Amendment No. 4, dated December 5, 1941, to Specification C-1803-A, "Stress Analysis Criteria" Publication ANC-2, dated October 15, 1941, "Ground Loads Handbook" (For use in conjunction with Amendment No. 4 to Specification C-1803-A) 2. The above-referenced publications are applicable to Specification X-1803-A, Serial Nos. 372 to 379 inclusive, furnished your office per Materiel Division R & R No. 2 dated October 9, 1941, copy attached. 3. The prescribed form of receipt covering this transaction is attached. There is no charge for the eight (8) copies of Amendment No. 4 to Specification C-1803-A, as these are being furnished as part of the original documents. The monetary value of 35¢ per copy of ANC-2 is indicated. TOO O. P. E. Asst. for Procurement Services 4 Incls. Incl. 1 - Cy. R&R No. 2, 10/9/41 Incl. 2 - Receipt No. DAO-71-126 (in quintuplicate) Incl. 3 - Amend. No. 4 to Spec. C-1803-A (8 Cys.) Incl. 4 - ANC-2 (8 Cys.)

JAN 21 42 AM

RECEIVED
FOR LIAISON SEC., OCAC

DECLASSIFIED

(Do not [illegible] CONFIDENTIAL

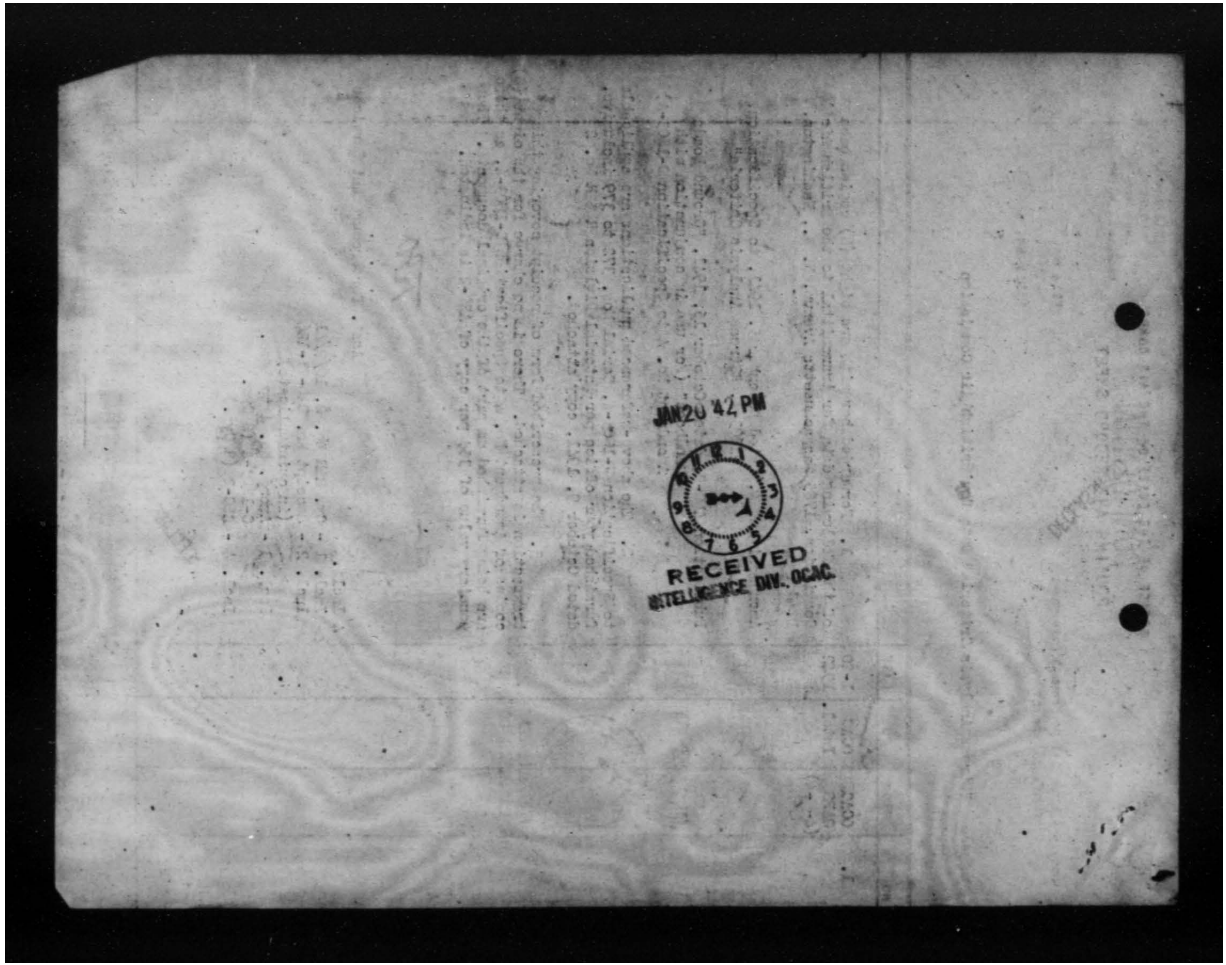
Page No. _____

F-4071, AC. Rev. 8/1/41

C-672 41 12031
Cy-4

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

~~CONFIDENTIAL~~
DECLASSIFIED

DECLASSIFIED
NND Project
By [illegible] NARS, Date 10/12/76

Subject: Request for Air Corps Specification X-1803 - British Air Commission

1. Material Division (4-E-4) Intell. Division 10-9 1941

1. In connection with request contained in letter dated September 22, 1941, from the British Air Commission, attached herewith for transmittal are eight copies each of the following data:

Air Corps Specification No. X-1803-A and Amendment No. 3 - "Stress Analysis Criteria"

Air Corps Technical Report No. 4524 - "Compressibility Phenomena as Related to Airplane Structural Design".

ANC-1(1) - Spanwise Air-Load Distribution

2. Receipts covering the above, indicating monetary value, are attached.

O.P.E.
Ch. Mat. Div.

5 Incls.
Incl. 1 - n/c
Incl. 2 - Spec. X-1803-A and Amend. #3
Incl. 3 - Tech. Report #4524
Incl. 4 - ANC-1(1)
Incl. 5 - Receipt No. DAC-71-57 (in quad.)

COPY

~~CONFIDENTIAL~~
DECLASSIFIED

C-672 5, 1421
6-1464

Incl. 1

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

RESTRICTED

FEB 5 1942

DECLASSIFIED
DOD Dir. 5 Nov. 1990 Ltr. 10/28/76

AAF/A-2
3167
GTF:ok

MEMORANDUM FOR: Chief, Foreign Liaison Section, G-2

SUBJECT: Navigation Publications for the Netherlands East Indies.

1. Reference is made to letter Number 370/2, addressed to the Foreign Liaison Officer, War Department, Washington, D. C., by the Netherlands Military Attache, Washington, D. C., under date of October 2, 1941, requesting navigation publications and to the memorandum addressed to the Chief, Foreign Liaison Section, G-2, by this office, under dates of October 24, 1941, and January 7, 1942, respectively, Subject: Navigation Publications for the Netherlands East Indies, also to a memorandum addressed to the Chief, Foreign Liaison Section, G-2, by this office, under date of December 8, 1941, subject, Technical Orders for Netherlands Military Attache.

2. Attached hereto for transmittal to the Netherlands Military Attache are four (4) copies of Technical Order 00-25-2. This completes the data requested in letter Number 370/2 addressed to the Foreign Liaison Officer, War Department, Washington, D. C., by the Netherlands Military Attache, Washington, D. C., under date of October 2, 1941, referred to in Paragraph One above.

3. Also attached are five (5) copies of Receipt. Please have the Netherlands Military Attache execute and return four (4) copies. The fifth copy is for their files.

For the Assistant Chief of Staff, A-2

J. T. CHENEY,
Major, Air Corps,
Chief, Foreign Liaison Section, A-2,
Air Liaison Officer

HEADQUARTERS—ARMY AIR FORCES—COORDINATION

Chief of Staff	Deputy Chief of Staff	Asst. Chiefs of Staff	A-1	A-2	A-3	A-4	A-5	A-6	A-WPD	A-Surv.	Budget	Secretary
		Incl. 1 - [illegible] (4 cys.)										
		Incl. 2 - Receipt (5 cys.)										

RESTRICTED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

OFFICE OF THE CHIEF OF THE AIR CORPS

ROUTING AND RECORD SHEET

Note--A line will be drawn across sheet after each comment.

File No. 3167

Tally No. _____

Subject: Netherlands Military Attache - Request for Information Regarding Navigation Equipment.

NO.	FROM	TO	DATE	COMMENTS
				(2-C) JTC:fal
1.	OCAC Intel.	OCAC Mat.	JAN 17 1942	1. Reference is made to an R&R addressed to you under date of October 8, 1941, by this office with a copy of letter No. 392/E, addressed to the Foreign Liaison Officer G-2, War Department, Washington, D. C., by the Netherlands Military Attache, Washington, D. C., under date of October 2, 1941, requesting information regarding certain navigation equipment. 2. The information regarding navigation equipment requested in the referenced letter has not yet been received by this office and it is requested that action be expedited in connection with the matter. 3. Attached for your information is a copy of letter No. 392/E, addressed to the Foreign Liaison Officer, G-2, War Department, by the Netherlands Military Attache, Washington, D. C., under date of October 2, 1941, mentioned above. JTC C/OCAC Intel. 1 Incl. Cy.Ltr.#392/E 10/2/41
2.	OCAC Air Ser. Com.	OCAC Intel. ~~Div.~~ A-2	1942 1-29	OCAC/14-8 1. There is attached herewith four (4) copies of Technical Order 05-15-2, which could not be furnished on October 25, 1941, as they were out of print. H. J. F. M. C/ASC 2 Incls. 1-n/c 2-Cy T.O. 05-15-2 (4)

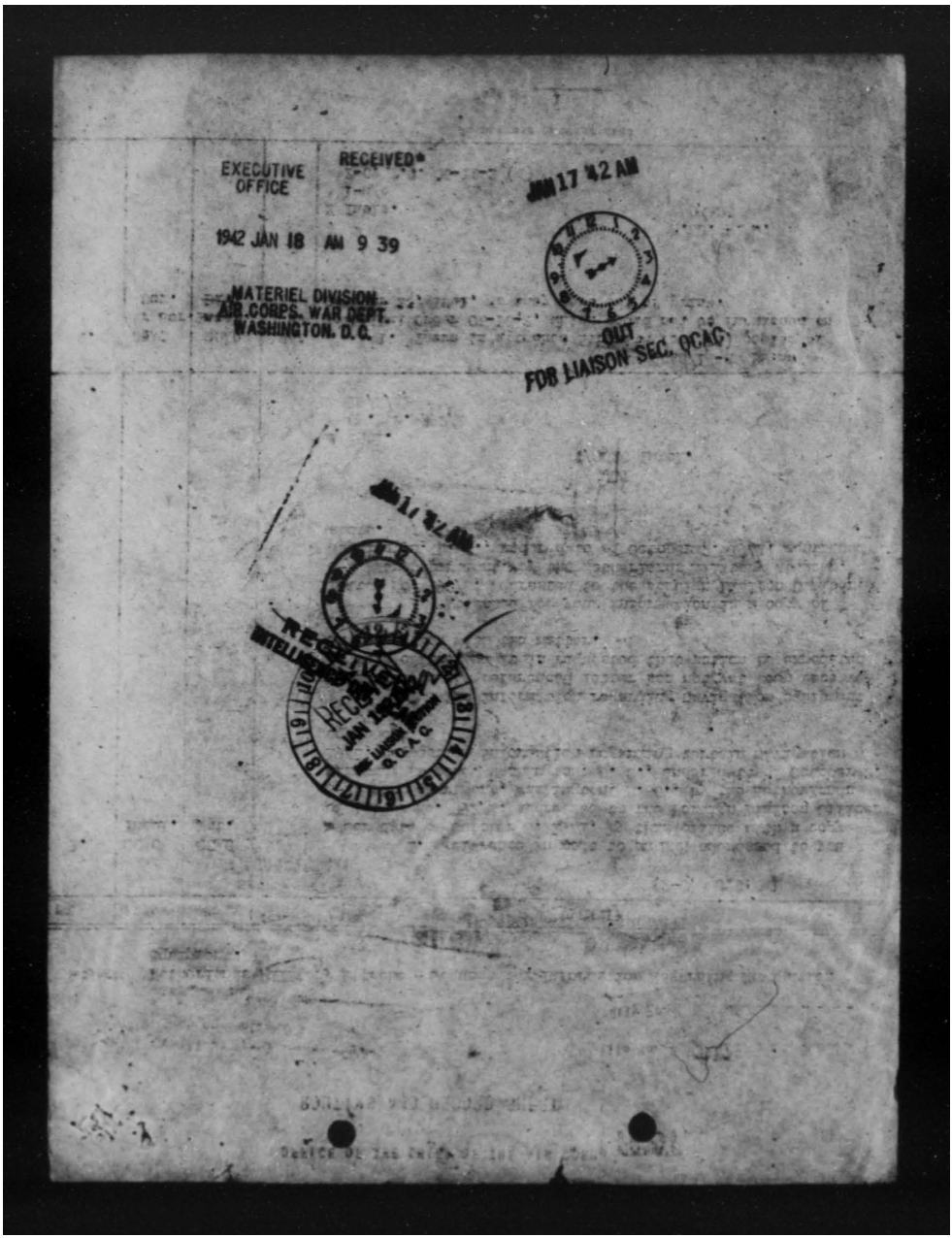
(Do not use reverse side)

Page No. 1

AG 4071, AC, Rev. 8/1/41

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

FEB 6 - 1942

SUBJECT: Distribution of Air Route Guides

TO: Assistant Chief of Staff, G-2

1. In order that proper quantities of subject publications may be procured it is requested that you advise this office as to the number of copies desired for distribution to units and agencies outside the control of the Chief of the Army Air Forces. Based on past experience it is suggested that you include the following:

Navy
British Empire
Office Coordinator of Information
Military Attaches
M.I.D., New York

2. Request that reply be expedited since two guides, namely, Pacific Ocean and Alaska are in process of revision and reprinting at this time.

For the Chief of the Air Staff:

MARTIN F. SCANLON,
Brigadier General, U. S. A.,
Assistant Chief, Air Staff, A-2.

DECLASSIFIED

G-2 Rec'd Feb 9 1942 (36)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

RECEIPT FOR NON-REGISTERED DOCUMENTS

Date: [illegible]

FROM: Chief of the Air Staff
Room 2E64
Munitions Bldg.

TO: Air Movements Section,
Operational Intelligence Division, A-2.

1. Receipt is acknowledged of the following non-registered Confidential, [illegible] documents:

1 copy Airport Directory - New Zealand (June 15, 1942)

1 copy Airport Directory - South America, West Coast (June 10, 1942)

1 copy Route Manual - Miami to Cairo (Part One-2nd Edition-June 15, 1942)

Noted. Files
4/29/42
Col. Rowan
by Air Staff

Please acknowledge receipt
and return immediately to:

Air Movements Section, Room 0-709,
Army Air Forces Annex No. 1,
Gravelly Point, Va.

NOTE: The above documents need not be reported as required by AR 380-5 in the case of registered documents.

[illegible]

[illegible]

W-8262, AF

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DECLASSIFIED
DOD Rpt.
CONFIDENTIAL

2ND ISSUE

ROUTE MANUAL

U. S. ARMY AIR FORCES

MIAMI TO CAIRO

PART ONE

MIAMI—NATAL—MARSHALL

JUNE 15, 1942

CAUTION

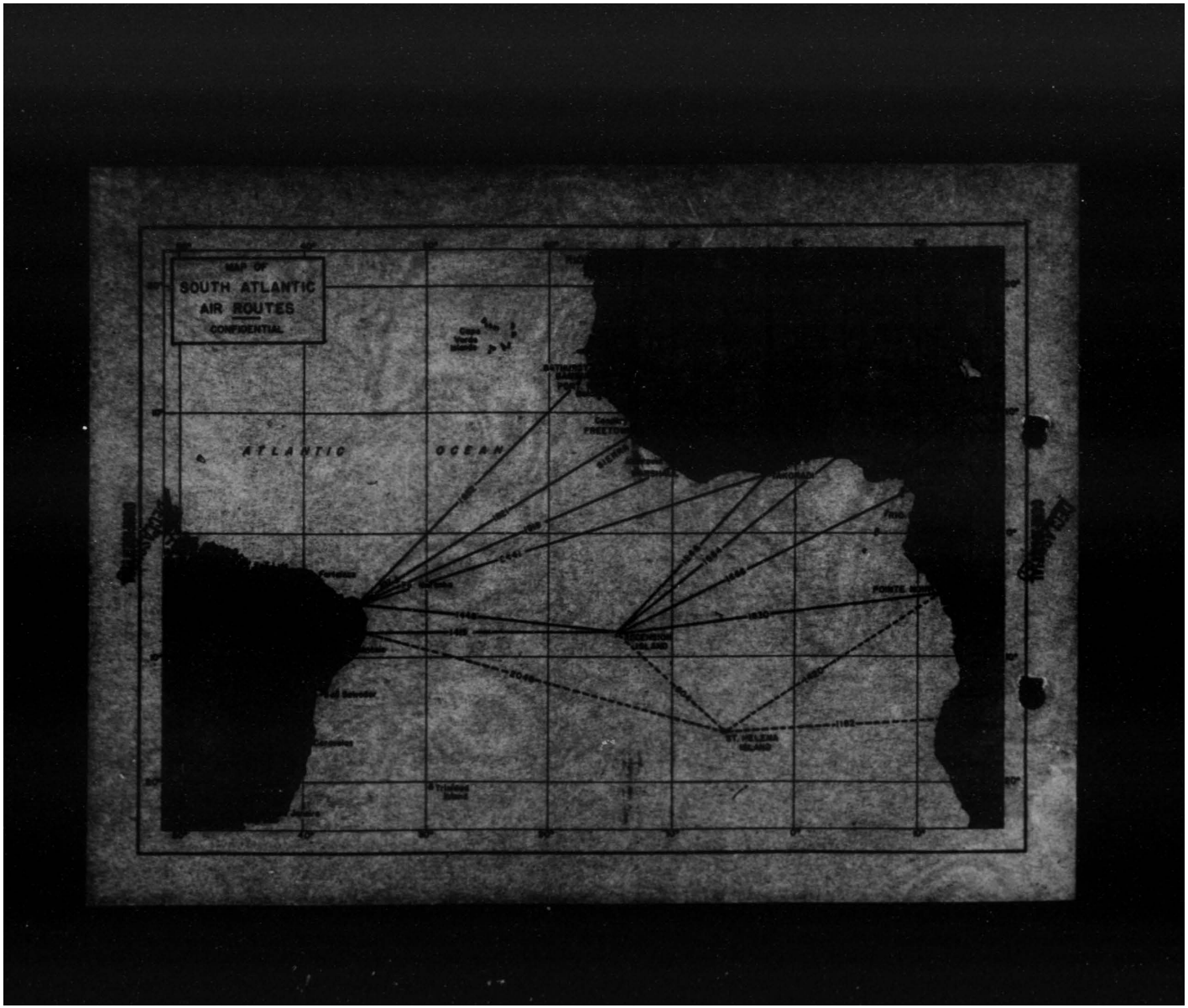
This publication is compiled from the latest and most reliable information available in this office. However, conditions change rapidly and pilots are warned to obtain, whenever possible en route, information relative to existing conditions at all staging points.

PREPARED BY
AIR MOVEMENTS SECTION
OPERATIONAL INTELLIGENCE DIVISION
A. F. D. I. S.—A-2

CONFIDENTIAL
DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED DOD Dir. 5 200.9 June 1985 NSA/CSS Guidelines 6/16/76

CONFIDENTIAL

DECLASSIFIED

2ND ISSUE

ROUTE MANUAL

U. S. ARMY AIR FORCES

MIAMI TO CAIRO

PART ONE

MIAMI—NATAL—MARSHALL

JUNE 15, 1942

CAUTION

This publication is compiled from the latest and most reliable information available in this office. However, conditions change rapidly and pilots are warned to obtain, whenever possible en route, information relative to existing conditions at all staging points.

PREPARED BY

AIR MOVEMENTS SECTION

OPERATIONAL INTELLIGENCE DIVISION

A. F. D. I. S.—A-2

CONFIDENTIAL

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

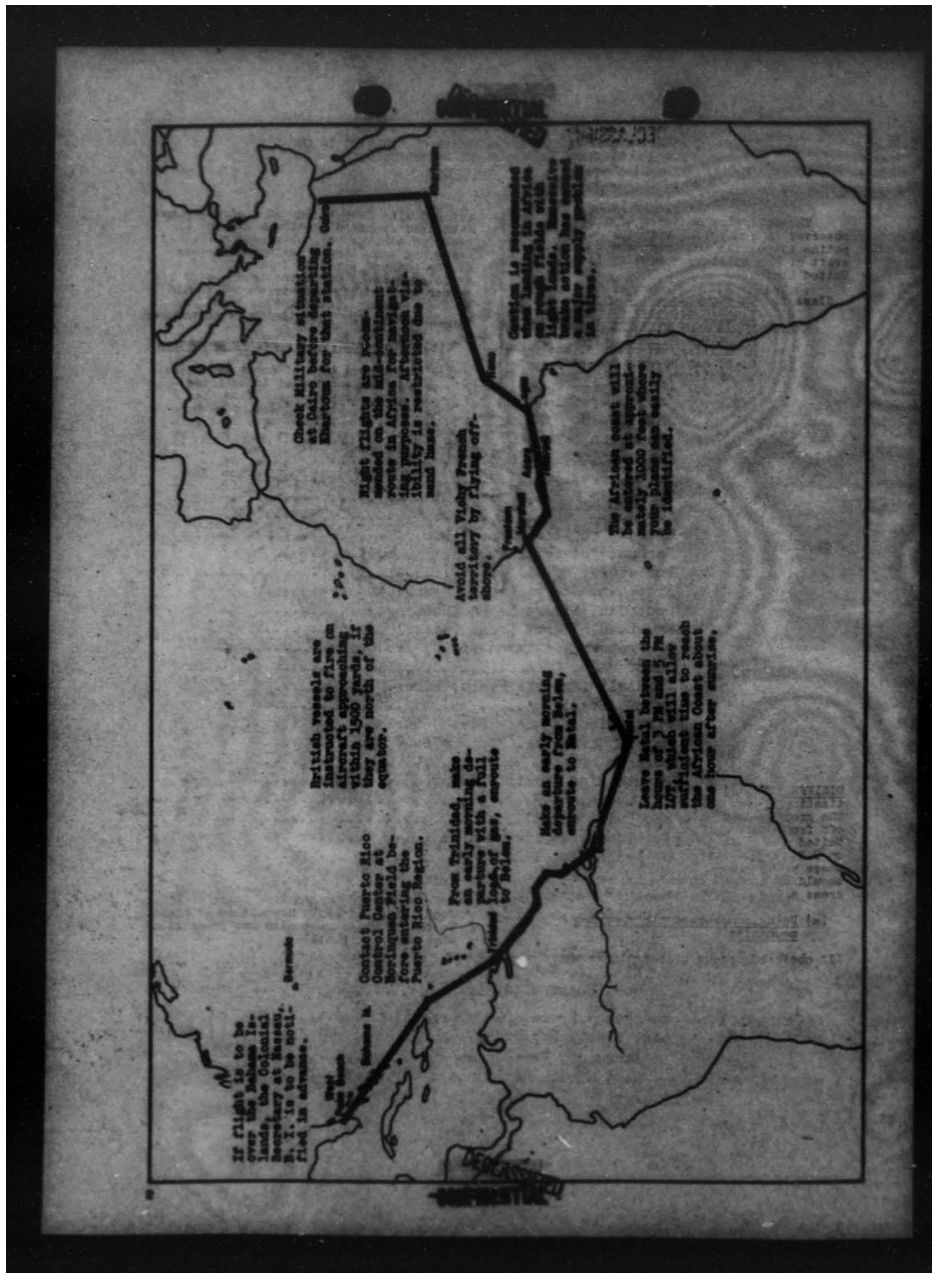
TABLE OF CONTENTS

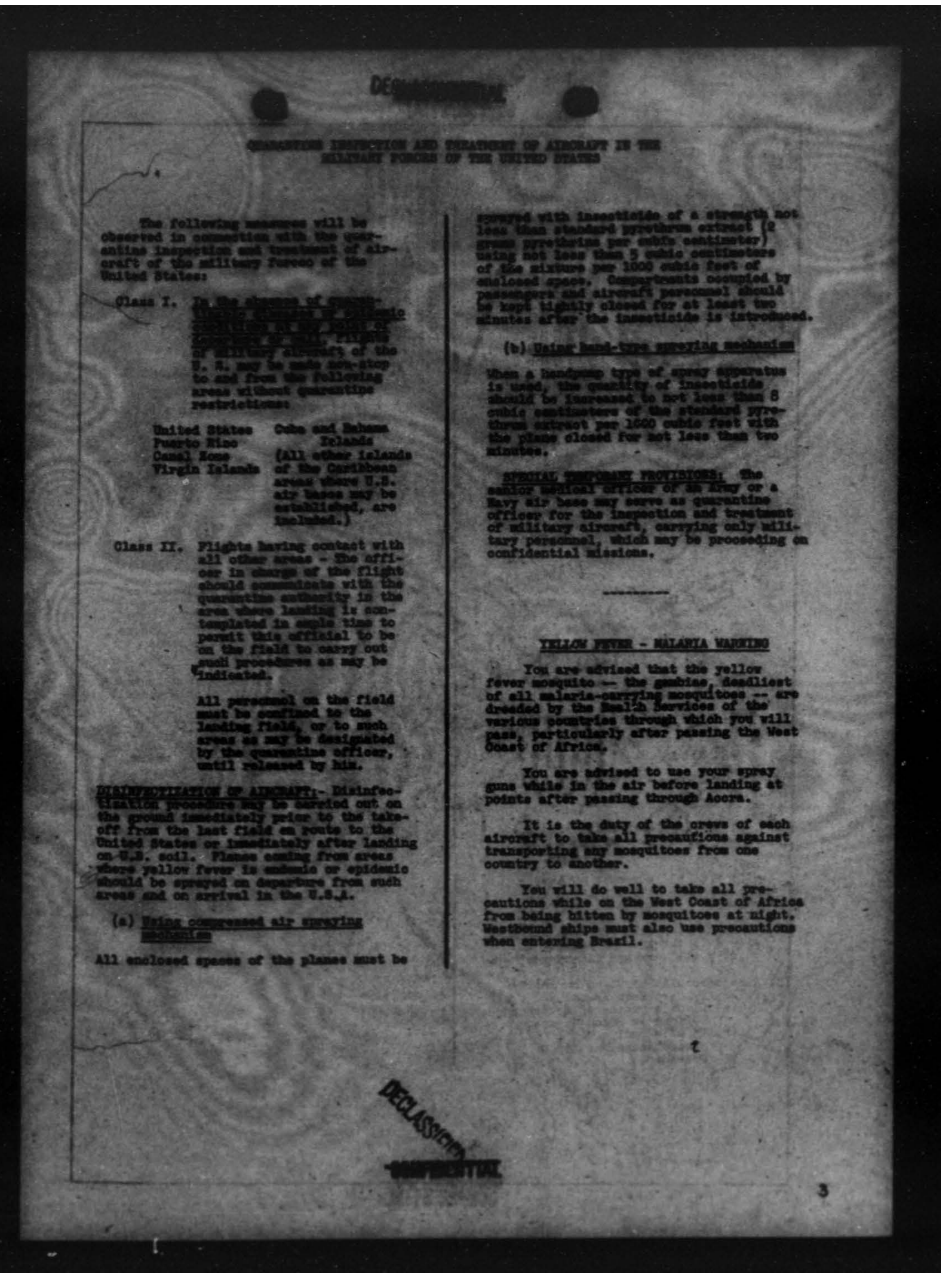
		Page
Chapter I.	General	1 - 7
Chapter II.	Airport Descriptions, Restricted Areas and Approach Procedures(In route order)	8- 61
	Accra, Gold Coast	60
	Amapa, Brazil	36
	Antigua, B. W. I.	20
	Ascension Island	48
	Bathurst, Gambia(restricted area)	52
	Belem, Brazil	38
	Borinquen Field, Puerto Rico	18
	Camaguey, Cuba	8
	Ciudad Trujillo, Dom. Repub.	14
	Fernando do Noronha, Brazil	46
	Fortaleza, Brazil	42
	Freetown, Sierra Leone (restricted area)	53
	Freetown, Sierra Leone (Hastings)	54
	Freetown, Sierra Leone (Waterloo)	56
	Georgetown,(Atkinson Field) Br. Guiana	30
	Guantanamo, Cuba	10
	Marshall (Roberts Field) Liberia	58
	Natal, Brazil	44
	Paramaribo (Zandery Field) Surinam	34
	Pointe Noire, Fr. Eq. Africa	50
	Port au Prince, Haiti	12
	Puerto Rico (restricted area)	17
	St. Lucia, B. W. I.	22
	Sao Luiz, Brazil	40
	Trinidad (restricted area)	25
	Waller Field, Trinidad	26
Chapter III.	Weather Summary	63 - 64
	Lightning	65
Chapter IV.	Radio Facilities	
	Miami to Natal	68 - 77
	West Coast of Africa	78 - 79
Chapter V.	Emergency Procedures, Correction Sheets, Last Minute Revisions	
	Emergency Procedures	80
	Last Minute Revisions	81

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526





QUARANTINE INSPECTION AND TREATMENT OF AIRCRAFT IN THE MILITARY FORCES OF THE UNITED STATES

The following measures will be observed in connection with the quarantine inspection and treatment of aircraft of the military forces of the United States:

Class I. [redacted] Flights of military aircraft of the U. S. may be made non-stop to and from the following areas without quarantine restrictions:

United States	Cuba and Bahama
Puerto Rico	Islands
Canal Zone	(All other islands
Virgin Islands	of the Caribbean area where U.S. air bases may be established, are included.)

Class II. Flights having contact with all other areas - The officer in charge of the flight should communicate with the quarantine authority in the area where landing is contemplated in ample time to permit this official to be on the field to carry out such procedures as may be indicated.

All personnel on the field must be confined to the landing field, or to such areas as may be designated by the quarantine officer, until released by him.

DISINFESTATION OF AIRCRAFT:- Disinfestation procedure may be carried out on the ground immediately prior to the take-off from the last field en route to the United States or immediately after landing on U.S. soil. Planes coming from areas where yellow fever is endemic or epidemic should be sprayed on departure from such areas and on arrival in the U.S.A.

(a) Using compressed air spraying mechanism

All enclosed spaces of the planes must be sprayed with insecticide of a strength not less than standard pyrethrum extract (2 grams pyrethrins per cubic centimeter) using not less than 5 cubic centimeters of the mixture per 1000 cubic feet of enclosed space. Compartments occupied by passengers and aircraft personnel should be kept tightly closed for at least two minutes after the insecticide is introduced.

(b) Using hand-type spraying mechanism

When a hand-pump type of spray apparatus is used, the quantity of insecticide should be increased to not less than 8 cubic centimeters of the standard pyrethrum extract per 1000 cubic feet with the planes closed for not less than two minutes.

SPECIAL TEMPORARY PROVISIONS: The senior medical officer of an Army or a Navy air base may serve as quarantine officer for the inspection and treatment of military aircraft, carrying only military personnel, which may be proceeding on confidential missions.

YELLOW FEVER - MALARIA WARNING

You are advised that the yellow fever mosquito -- the gambiae, deadliest of all malaria-carrying mosquitoes -- are dreaded by the Health Services of the various countries through which you will pass, particularly after passing the West Coast of Africa.

You are advised to use your spray guns while in the air before landing at points after passing through Accra.

It is the duty of the crews of each aircraft to take all precautions against transporting any mosquitoes from one country to another.

You will do well to take all precautions while on the West Coast of Africa from being bitten by mosquitoes at night. Westbound ships must also use precautions when entering Brazil.

DECLASSIFIED
CONFIDENTIAL

3

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

ROUTE INSTRUCTIONS AND INFORMATION

1. All pilots will stay CFR until past Miami (5500 feet or below).

2. Radio communications along the entire route are unreliable.

3. Secret code will be used for transmission of all messages.

4. No passport is necessary.

5. The flight plan may be altered so as to proceed to such additional places or countries, including belligerent countries, as may be deemed necessary. Authority is granted to make such variations in this itinerary and to proceed to such other places as may be necessary.

6. The Chief of the Army Air Forces will be notified, where practicable, of the arrival and departure of the flights by secret code, using Ferry Command facilities for this purpose until after departure from Natal.

7. Strict secrecy throughout. Several stops will be made where there are unfriendly elements. At least one member of the crew will guard each airplane at all times unless U.S. Army forces are available for guard duty.

8. All personnel are warned to obtain immunization shots when due, if possible.

9. British vessels are instructed to fire on anything approaching within 1500 yards in the area north of the equator and west of 35 degrees.

10. Come no closer than 30 miles of French territory in the Caribbean.

11. Upon leaving Borinquen, contact Waller Field AACS (WTTT) on 8200, 4495, 4995 kcs. A 1 and send following message to FC control officer: (1) Aircraft number, (2) Aircraft call sign, (3) ETA - Waller.

12. Early morning take-off from Trinidad with full service for Belem. Lt. Quigley will arrange FX and weather.

13. Airplanes will be fired on in the following Caribbean Areas:
   (a) 25 mile radius of Moengo and Surinam in Dutch Guiana.
   (b) 25 mile radius of Cheesheaware, NW. tip of Trinidad.

14. Leave Natal with calculated ETA at African coast approximately 1 hour after daylight. (Approx. 3 P.M. to 5 P.M. GCT.) Do not clear for Bathurst because of military situation.

15. Do not use Pan American facilities for transmission of messages after take-off from Natal. Use RAF facilities until further notice.

16. Lose 1 hour of time in crossing the ocean.

17. Fly at 9000 to 11,000 feet altitude to avoid cumulus clouds and water spouts.

18. Front lying about 500 miles east of African coast. Probably be necessary to fly under it. Reports that only heavy rain encountered in flying under. Avoid thunder storms along the African coast.

19. Haze along African coast obstructs visibility.

20. Weather map obtained at Belem very reliable.

21. German Interceptor fighter planes are using two radio code bands in Interceptor work as follows:

   One band - .3 to .6 Megacycles
   Other band- 3.0 to 6.0 Megacycles

   To confuse radio interception, German operators frequently change from one band to the other and it will be necessary for your radio men to cover both bands frequently to pick up German messages with reference particularly to possible information they may have concerning your ships.

DECLASSIFIED

CONFIDENTIAL

4

DECLASSIFIED

CONFIDENTIAL

FLIGHT INSTRUCTIONS
Miami to the West Coast of Africa

BE ON THE ALERT IN FOREIGN AIRDROMES TO BE ABLE TO EVACUATE IN CASE OF ATTACK.

Make your moves to maintain secrecy about their destination and times of departure when at various stops. The only person authorized to have this information is the Control Officer.

WEATHER FLIGHT CONDITIONS AND REFERRED TO IN THESE SECTIONS. ANY AREAS MENTION OR DESIGNATED MAY BE INTERDICTED BY ARMY-AIRCRAFT AND FLIGHT IS DANGEROUS.

BAHAMA ISLANDS:

It is permissible to fly over the Bahama Islands but the Colonial Secretary's office, Nassau, N.P. desires to be notified in advance.

GUANTANAMO, CUBA: (See P. 11)

PUERTO RICO REGION: (Puerto Rico, St. Thomas, St. Croix, Antigua)

1. Puerto Rico Region Control Center, Borinquen Field, will be notified of the movement of all aircraft out of or within the region. At San Juan, the area within 15 miles radius of the western end of Isla Grande airport is restricted. When landing at army bases the approach will be at an altitude of less than 1000 feet with wheels down and the airdrome will be circled at a 2 mile radius preceding any maneuvers. Traffic control lights are employed to reduce radio operations. If no instructions received, land after two circles.

2. Obtain a clearance from the Puerto Rico Region headquarters, giving time of take-off and ETA. In emergencies, clearances may be obtained from the air and not closer than 200 miles from the nearest Air Base.

3. Military or Naval Aircraft leaving the Region from bases within the Region will get clearance from the Air or Naval Base giving time to take-off, mission, routes to be followed and ETA.

4. Any change in course will be reported at once, and any change in ETA of over 30 minutes will be reported to the Air or Naval Base concerned.

5. Movements to and from ST. CROIX AND ANTIGUA will be reported to the Control Center through the Bomber Command.

6. All aircraft will keep clear of military or Naval posts, camps, stations, landing fields, seaplane anchorages, or other vital installations unless authorized by this headquarters.

7. Flights between points within the Region will be on a direct course, avoiding those areas in paragraph 6, unless permitting, unless the Control Center is notified otherwise.

8. Airplanes approaching Army Air Bases at night must [illegible] (See P. 33) Fire-flies.

[illegible]: Flying within five miles of [illegible] is prohibited.

[illegible] APPROACH: When approaching [illegible] Field, Trinidad, use a corridor approach. Other areas are restricted. (See p. 25)

BRITISH GUIANA: Flying over Bolkensie [illegible] miles up the river from Georgetown is restricted. (See p. 29)

DUTCH GUIANA: Flying over Zandery is restricted except for low approach with wheels and flaps down when landing. This approach should only be made from the direction of Paramaribo. Flying over the city of Paramaribo is restricted. Flying over Moengo (approximately 50 miles southeast of Paramaribo)is restricted. (See p. 33)

FRENCH GUIANA: Flying within five miles of the coast is prohibited.

SHIPS AT SEA:

Aircraft will avoid flying over ships at sea as a misunderstanding of identification signals may cause anti-aircraft fire.

DAKAR-CAPE VERDE: Keep off a distance of [illegible] miles.

FREETOWN: Use the corridor approach for landings at Waterloo Airport, flying at an altitude of 500' wheels down. Other areas are restricted. Identification challenge may be made by Cape Sierra Leone Station in the north and Waterloo airdrome in the south. (See p. 33)

VICHY FRENCH TERRITORY: You will avoid all Vichy French territory in West Africa by flying off-shore as land observers may report you to German authorities. Our aircraft have been reported.

ROBERTS FIELD, LIBERIA: No night landing facilities.

TAKORADI: Takoradi Harbor is restricted one mile therefrom. Approach will be made under 2000' from the west along the coast and turn north 9000 yards west of Takoradi.

[illegible]:

Aircraft flying along Corridors are to do so at 1000 Ft. or below cloud base, whichever is the lower, and are not to exceed 2000 ft. above ground level at any time, weather conditions permitting.

All aircraft will fire current recognition signals on entering transit corridors and before landing at any aerodrome.

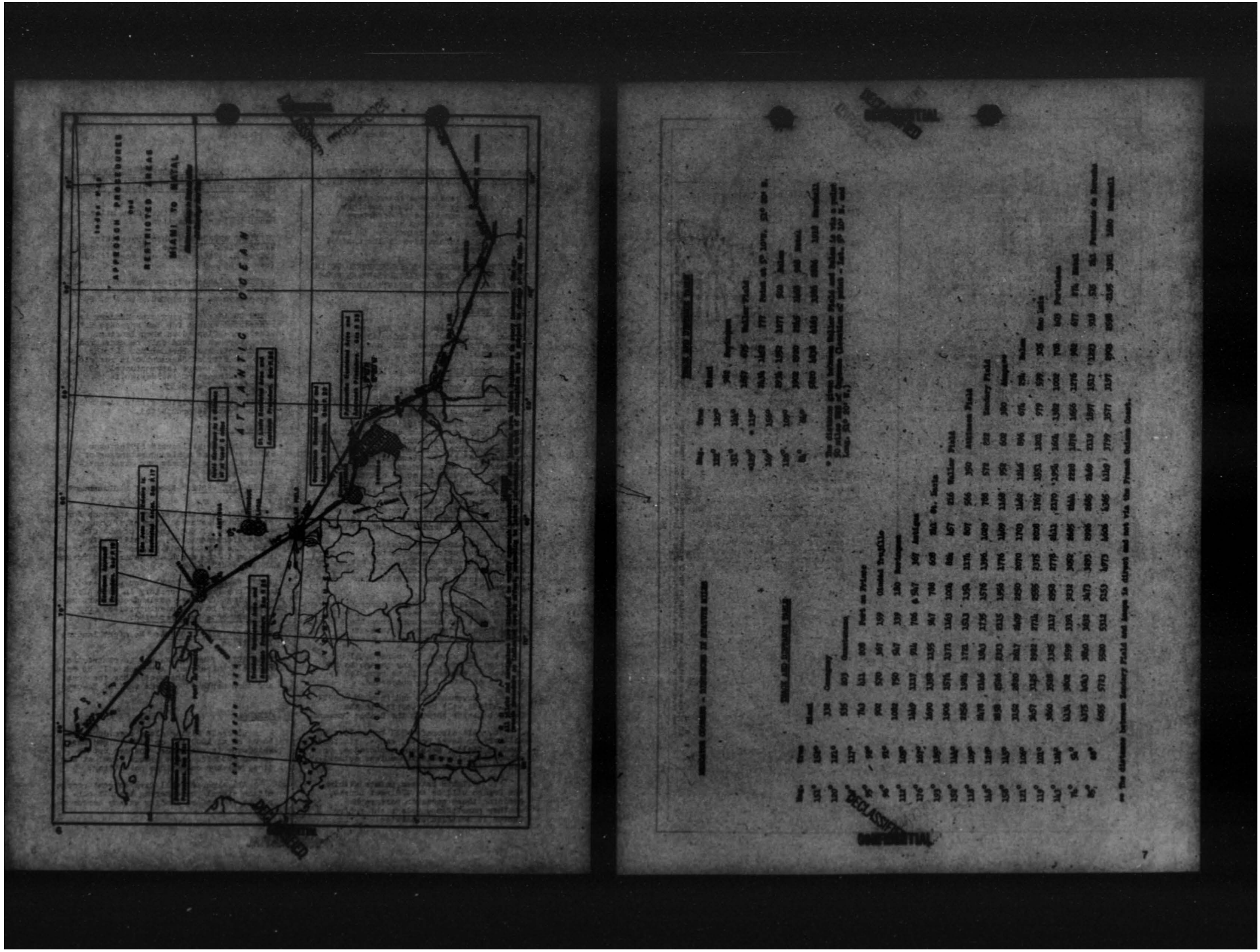
DECLASSIFIED

CONFIDENTIAL

5

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL
CAMAGUEY,
DECLASSIFIED

NAME AND LOCATION

PAA Civil Airport is on the southeast side of the railroad, 4 miles northeast of Camaguey.
Position- Lat. 21° 25' N.
Long. 77° 50' W.
Magnetic Variation- 1° 20'E.(1940)
Altitude- 345'.
Landmarks- White steel tank, 75' high, on opposite side of railroad from the field. The railroad and a parralleling highway are on the NW edge of the field.

DESCRIPTION

Dimensions - Field: "L" shaped - 5400'x5400'. Runways: 5000x200' ENE/WSW, 5000'x200' NNW/SSE.
Surface- Field:
Runways: Oil stabilized sand. Stay on runways.
Markings - White circle in center of field. Boundary flags. Illuminated windcone.
Lighting - Revolving beacon, visible 25 miles. Runway contact lights and obstruction lights.
Obstructions - Railroad, buildings, and 75' tank on northwest side. W - 30' trees at end of E/W runway. NW - 22' pole line.

FACILITIES

Hangars - Double nose hangar (44'x 104'x16').
Repair Facilities - Minor repairs. PAA mechanics.
Fuel and Oil - 100, 90, 87 and 60 octane gas available. Underground tanks. Two 3" pump units (100 gals. per min). Tank trucks available.
Communications - Telephone and telegraph available. Radio available. (See chapter on radio.)
Weather Reports - Very good meteorological station on field. Upper air reports.
Transportation - PAA taxi service to town. Dirt roads.
Personnel Accommodations - Hotels in Camaguey. Passenger station with restaurant and garages.

WEATHER

Prevailing Winds - Summer - east; winter - northeast. Heaviest winds northeast in September, sometimes reach gale force.
Precipitation - 50". Rainy season - May to October.
Visibility - Fogs, rare.

GENERAL INFORMATION

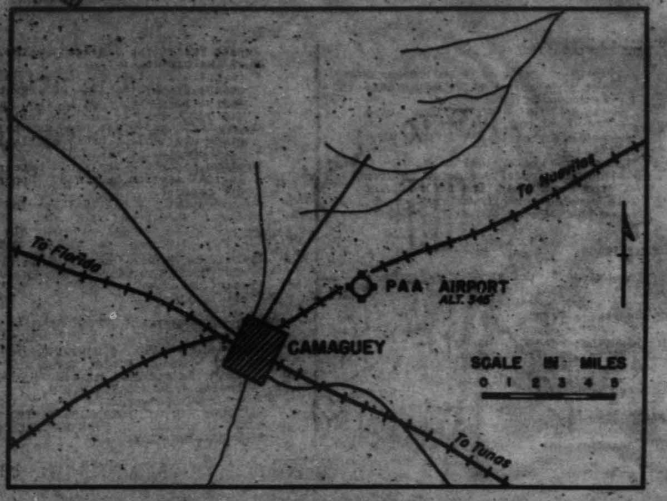
Operated By - Cia. Cubana de Aviation. Owned by Pan American.
Customs - Yes.
Remarks- Lockheed Electras and Boeing 307's use this field. Instrument approach procedure charts by PAA (dated 11-1-40) available.
Runways would not be suitable for continued use of heavy planes. Old General Ignacio Agramonte Airport is not the same field as this PAA Airport.

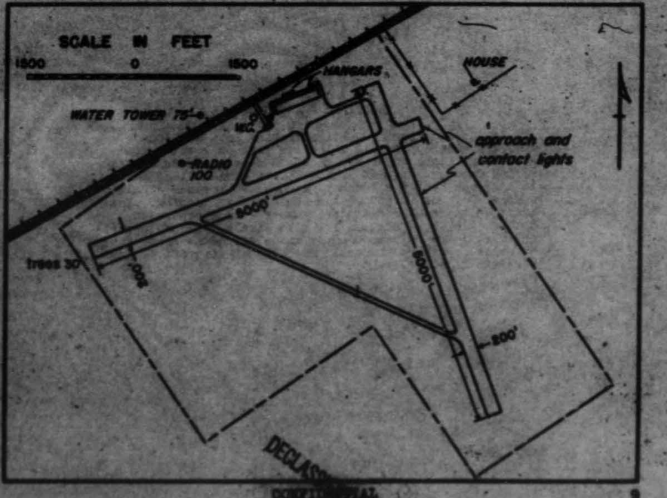
DECLASSIFIED
CONFIDENTIAL

8

DECLASSIFIED
CONFIDENTIAL

(PAA AIRPORT) CAMAGUEY
CUBA





DECLASSIFIED
CONFIDENTIAL

9

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

GUANTANAMO, CUBA

NAME AND LOCATION

McCalla Field is located on the east shore of the channel to Guantanamo Bay, 41 miles east of Santiago. Landing fields are on either shore at mouth of bay.
Position - Lat. 19° 55' N. Long. 75° 09'W.
Magnetic Variation - 00°
Altitude - 85'.
Landmarks - Airport is on a small point of land on W. side of extensive building area.

DESCRIPTION

Dimensions - 4000'x300' NNE/SSW
1994'x200' E/W
2445'x200' NW/SE
Surface - Paved.
Markings -
Lighting- Beacon, boundary, obstruction, floodlights.
Obstructions- Hills SE of field may interfere with approach on NW/SE runway.

FACILITIES

Hangars - One 200'x200'.

Repair Facilities - Minor repairs.
Fuel and Oil - Bulk stock 100 octane fuel.
Communications - Telephone; telegraph. Radio available. See chapter on Radio.
Weather Reports --Local only. Northeast Field Furnishes full reports.
Transportation -
Personnel Accomodations - Enlisted men and officer quarters for a total of 800 men and 200 officers.

WEATHER

Prevailing Winds - North. From 1000 to 1500 hours the wind is NNE to NNW.
Precipitation -
Visibility -

GENERAL INFORMATION

Operated By --United States Navy.
Remarks - Carter Field, Naval Auxiliary Field, is one half mile W. across channel from McCalla Field. It has two 3500' runways.
WARNING: RADIO INFORMATION VARIES FROM MONTH TO MONTH. BE SURE TO CHECK BEFORE LEAVING MIAMI.

APPROACH TO GUANTANAMO BAY

Aircraft entering naval operating base Guantanamo will traverse a point 10 miles due east or west of Windward Point Light under two thousand feet altitude thence flying due west or east approximately parallelling coast to approach harbor entrance. At harbor entrance circle to reduce altitude to 500 feet preparatory to landing. In addition to regular departure make position report on 8310 or 4865 kcs. when on 200 mile circle. Planes departing must leave on same courses and altitude as those for entering. Failure to comply may subject aircraft to anti-aircraft fire.

DECLASSIFIED

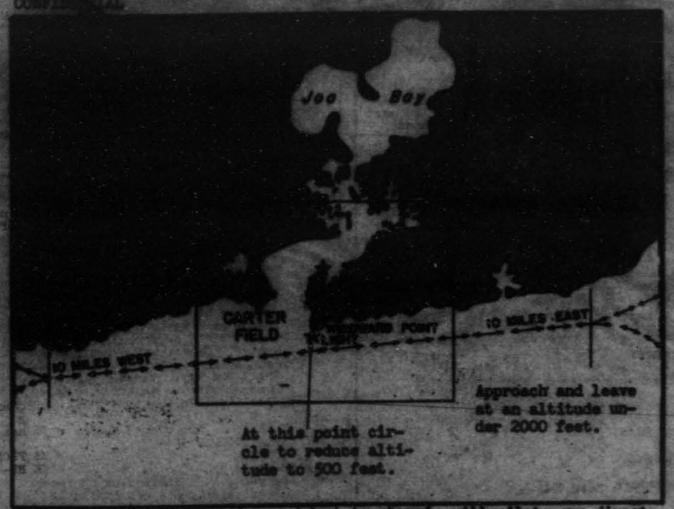
CONFIDENTIAL

10

DECLASSIFIED

(McCALLA FIELD) GUANTANAMO
CUBA

CONFIDENTIAL



CAUTION: Approach procedure subject to change. All pilots are directed to verify procedure before departing for this field.

CONFIDENTIAL

DECLASSIFIED

11

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED CONFIDENTIAL

PORT AU PRINCE, HAITI

NAME AND LOCATION

Bowen Field on NE edge of Port au Prince.
Position - Lat. 18° 32' N. Long. 72° 20' W.
Magnetic Variation - 8° W.
Altitude - 35'.
Landmarks - Point Lamentin Light - 269° T. from field, 4.9 miles distant. Flashing white light visible 15 miles. Gulf of Gonaive is ½ mile W.

DESCRIPTION

Dimensions - Runway 4000'x200' E/W.
Surface - Paved.
Markings - Wind cone. "Bowen Field" and "Port au Prince" on hangar roof.
Lighting - Obstruction lights on 400 radio tower. Beacon, approach, flood, runway contact lights.
Obstructions - Sugar mill with 185' stack on opposite side of highway, close northward of field. Radio towers, 400' high, 3/4 mile southeast. W-30' pole line.

FACILITIES

Hangars - Several.
Repair Facilities - Minor repairs and spare parts available.
Fuel and Oil - Two 3" pump units. Bulk supplies of 90 to 100 octane gas.
Communications - Telephone and telegraph on field. Radio Beacon available. (See chapter on radio).
Weather Reports - Meteorological station on field.
Transportation - Automobile and railroad.
Personnel Accomodations - In city. San Souci Hotel is very good ($4.00 a day). Passenger station on field.

WEATHER

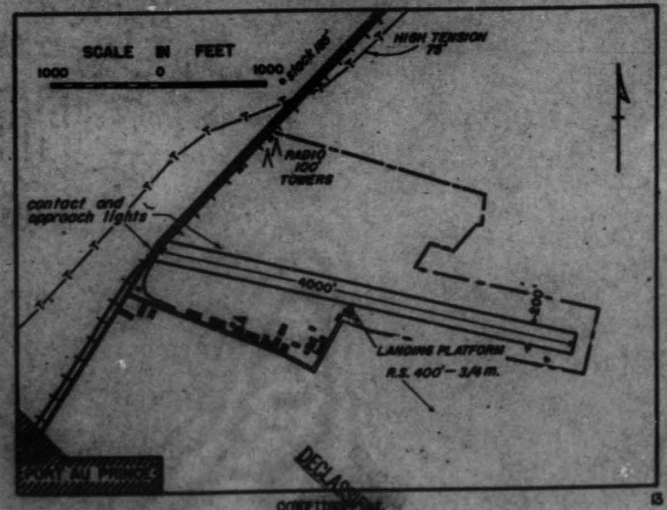
Prevailing Winds - Wind veers from E in the morning to W in the afternoon. NE in summer. S and SE in winter. Occasional hurricanes.
Precipitation - 55" annually, maximum April and May. Thunder showers generally occur in afternoon.
Visibility - No fogs.

GENERAL INFORMATION

Operated By - PAA
Remarks - 1941 Instrument Approach Procedure Charts are available.

DECLASSIFIED CONFIDENTIAL

(BOWEN FIELD) PORT AU PRINCE
HAITI



DECLASSIFIED CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CIUDAD TRUJILLO, DOMINICAN REPUBLIC

NAME AND LOCATION

Miraflores airport is one mile west of center of town.
Position - Lat. 18° 28' N. Long. 69° 54' W.
Magnetic Variation - 8° 00' W.
Altitude - 150'.
Landmarks - Field lies on the NW edge of town and suburban area extends along the E. side of it.

DESCRIPTION

Dimensions - Two all weather surfaced runways - one 3500'x150' NNW/SSE; one 3100'x150' NE/SW.
Surface - Runways - paved. Graded earth strip 150' wide along each side of runways.
Markings - Illuminated wind cone on beacon tower.
Lighting - Obstruction, approach, runway, beacon lights.
Obstructions - E. radio masts, wires, buildings, chimney E. - power line 800' distant; 40' tall; large water tank 1/4 mile distant.

FACILITIES

Hangars - Nos.
Repair Facilities - Minor repairs, small stock.
Fuel and Oil - Large supplies of 100 octane gas on order. Underground tank; two 3" pump units(100 gals. per minute.)
Communications - Telephone on field. Telegraph and cable in town. Radio and Radio Beacon available. See chapter on radio.
Weather Reports - Complete equipment.
Transportation - PAA passenger service to start about 4/20/42. Automobiles available.
Personnel Accommodations - Three hotels in Trujillo City. PAA passenger station on field. Hospital in city.

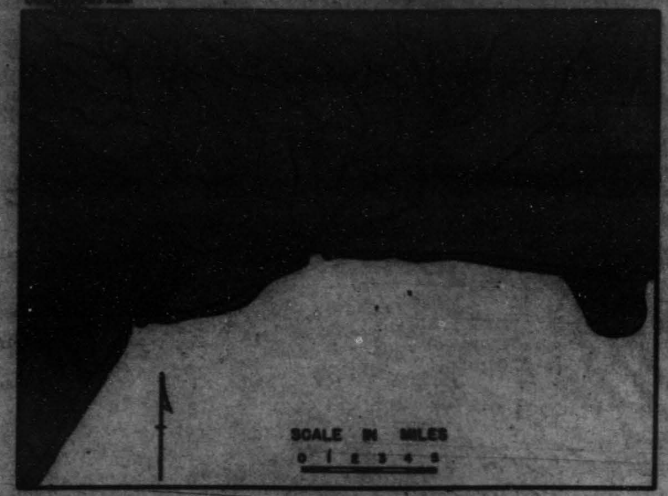
WEATHER

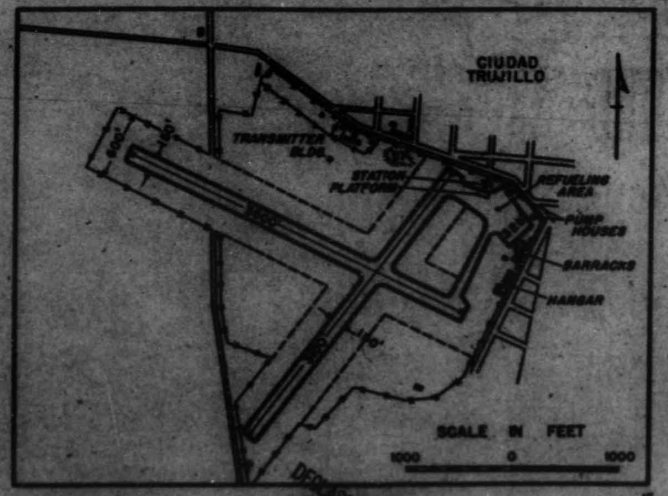
Prevailing Winds - ESE in summer; NE to E. in winter. Sometimes northerly at night and in early morning.
Precipitation - 67" annually.
Visibility - Fogs occasional in spring, early mornings, dissipates rapidly.

GENERAL INFORMATION

Operated by - Government
Remarks - B-17's have landed here.

(MIRAFLORES AIRPORT) CIUDAD TRUJILLO
DOMINICAN REPUBLIC





THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

BORINQUEN FIELD, PUERTO RICO

NAME AND LOCATION

Borinquen Field is 4 miles N of Aguadilla in the NW corner of Puerto Rico, and is the most prominent development in the area.
Position - Lat. 18° 30' N. Long. 67° 08' W.
Magnetic Variation - 6° W
Altitude 218'.
Landmarks -

DESCRIPTION

Dimensions - Three runways. NNE/WSW 8000'x150' (N 4000'-concrete; S 4000' - temporary asphalt surface).
NNE/WSW - 8000'x150' (80% completed).
NW/SE - 6000'x150' (planned but not started).
Surface - Concrete.
Markings -
Lighting - Runway, boundary and floodlights.
Obstructions - Buildings on south side of NNE/WSW runway.

FACILITIES

Hangars - Three hangars 200'x250'.
Repair Facilities - Under construction.
Fuel and Oil - Bulk supplies; 11 gas trucks.
Communications - Radio, telephone and teletype. See chapter on Radio.
Weather Reports - Meteorological station.
Transportation - Railroad and fair road to Aguadilla. Siding to field.
Personnel Accommodations - Concrete barracks and mess for officers and E. M. on field. Good hospital facilities also on field.

WEATHER

Prevailing Winds - NNE.
Precipitation -
Visibility -

GENERAL INFORMATION

Operated By - United States Army.
MARKING: Western half of N/S runway is under construction. The eastern half (4000' long) is available for landings. Caution should be used when making a landing approach from the West.
Remarks: Guards available for P. C. planes. Safe in P. C. office for storing classified material.

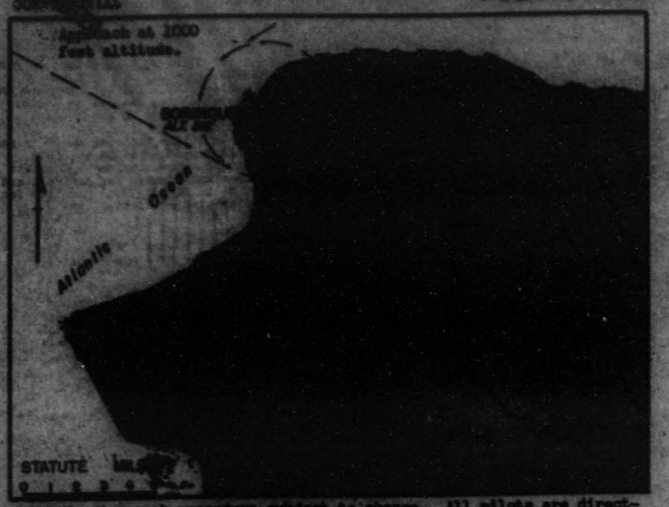
APPROACH TO BORINQUEN FIELD

Aircraft will approach Borinquen Field at an altitude of 1,000 feet with wheels down. They will not approach directly toward the Field, but will fly in a wide circle to the left until recognition has been accomplished. Recognition signals from key destroyers 2K will be employed.

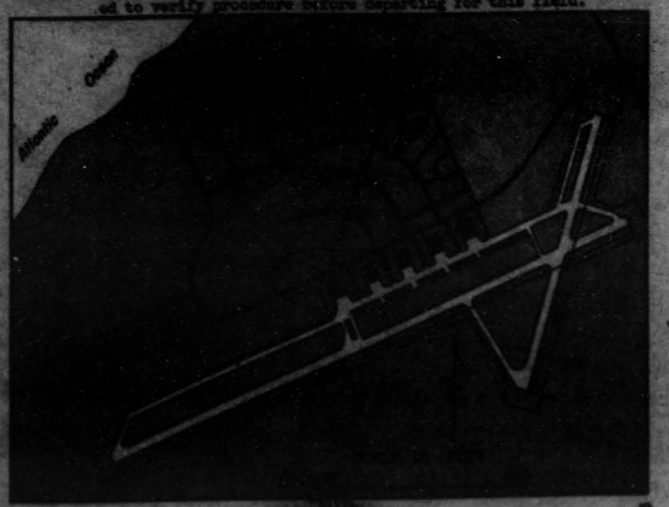
See Page 6 for a brief summary of Puerto Rico Control area regulations.

DECLASSIFIED

BORINQUEN FIELD
PUERTO RICO



CAUTION: Approach procedure subject to change. All pilots are directed to verify procedure before departing for this field.



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

COOLIDGE FIELD, ANTIGUA

NAME AND LOCATION

Coolidge Field is 5 miles NE of St. Johns.
Position - Lat. 17° 07' N. Long. 61° 47' W.
Magnetic Variation - 9° W.
Altitude - 30'.
Landmarks - Airport is on a small peninsula, and completed E/W runway extends to water's edge.

DESCRIPTION

Dimensions - E/W 5000'x150' (completed), E/W temporary runway 4500'x150' (completed); NE/SW 5000'x150' (Grading 50% complete). NW/SE 5000'x150' (Grading 30% completed).
Surface - Limestone rock.
Markings -
Lighting - Available.
Obstructions - A few hills about 100' high 1 mile W. of runway.

FACILITIES

Hangars - Under construction.
Repair Facilities - Minor repairs for engine and plane.
Fuel and Oil - Bulk stocks of 100 octane gas and grade 120 oil.
Communications - Radio and radio beacon available. See chapter on radio.
Weather Reports - Through FAA, St. Johns.
Transportation -
Personnel Accommodations - Temporary barracks, mess and hospital.

WEATHER

Prevailing Winds - East and Northeast.
Precipitation - 50" per annum.
Visibility - Lowest ceilings - December.

GENERAL INFORMATION

Operated by - United States Army.

APPROACH TO COOLIDGE FIELD

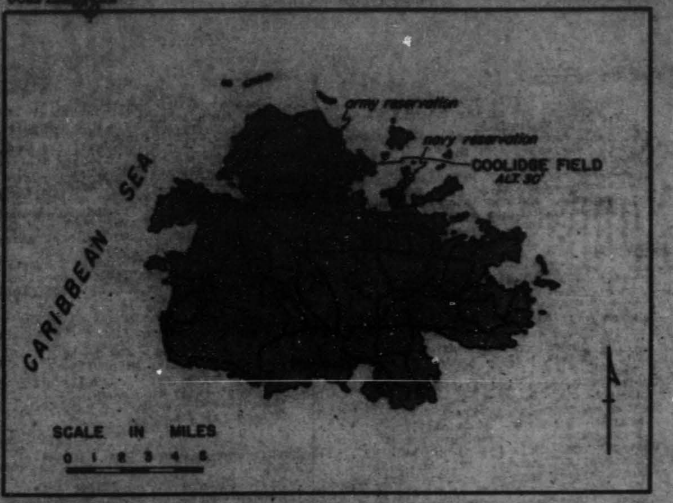
Antigua is included in the Puerto Rico Region Control Area. See page 6 for brief summary of regulations in effect in this area.

CONFIDENTIAL

DECLASSIFIED

CONFIDENTIAL

COOLIDGE FIELD
ANTIGUA



CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

BEANE FIELD, ST. LUCIA

NAME AND LOCATION

Beane Field, Military Airport, is on the southern end of the island, 3/4 mile NE of Vieux Port.
Position - Lat. 13° 43' N. Long. 60° 57' W.
Magnetic Variation - 9° W.
Altitude - 10'.
Landmarks - Field is 1 mile north of Moule A (Pointe lighthouse). Coast line on east edge of field, Vieux Port River on west boundary of field.

DESCRIPTION

Dimensions - Field: approximately 5080'x7000'. Runways: Temporary runway 3950'x150' E/W (completed). Runway "A" 5000'x150' E/W (completed). Runway "B" 5000'x150' NE/SW (under construction). Runway "C" 5000'x150' NE/SW (under construction.)
Surface - Cemented gravel. Permanent runways will be concrete.
Markings - Two windcones.
Lighting - Boundary lights and flood-light on west end temporary runway.
Obstructions - Hill (340') one half mile north of E/W runway. Hill one mile northeast of the west runway. Extreme NE point of the island is a hill (700') high (lighthouse on top), about 1 mile S. of runway.

FACILITIES

Hangars - Under construction; a two-plane hangar available.
Repair facilities - Under construction.
Fuel and Oil - 10,000 gal. gas tanks. Bulk stocks - 100 octane - available. 2 gas trucks. 2 fuellers.
Communications - Field telephone system. Radio available. See chapter on Radio.
Weather Reports - Through FAA Trinidad. Sent from field every odd hour in code.
Transportation - Road and dock under construction. FAA stop.
Personnel Accommodations - Temporary accomodations available. Hospital in cantonment area 3 miles from field.

WEATHER

Prevailing Winds - ESE to NE all year.
Heaviest Jan. - March (15 to 20 m.p.h.)
Precipitation - 85" annually. Showers almost daily in summer.
Temperature - Range 75° to 90° F.
Visibility - No fog.

GENERAL INFORMATION

Operated By - United States Army
Regulations - One complete circle of field before landing.

RESTRICTED AREA AND APPROACH PROCEDURE

All of the Island of St. Lucia is a restricted area except for landings and take offs in the CONTROL AREAS.

Beane Field Control Area is a circle of 5000 yards radius from the center of Beane Field. Approach this area from the East, South, or West at an altitude under 1500'; lower landing gear when two miles from the field; then circle one time to the right on a two mile radius and land when traffic permits.

No flights are to be made during the hours of 2200 GCT and 0900 GCT without prior approval of the Interceptor Commander, Trinidad Region (or his local representative). All aircraft flying at night will have their navigation lights on at all times unless on a combat or intercept mission.

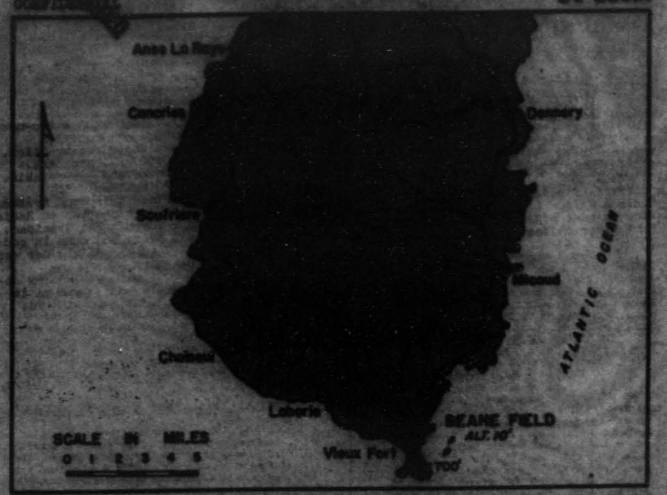
CAUTION

Approach procedure subject to change. All pilots are directed to verify procedure before departing for this field.

DECLASSIFIED

DECLASSIFIED

BEANE FIELD
ST LUCIA



DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

27. GENERAL.

a. Definitions and Designations of Areas, Control Points, and Traffic Lanes:

(1) Defended Areas: Areas over which no aircraft will fly without prior approval of the Interceptor Command, Trinidad Region. These areas are each located by a circle whose radius equals three (3) miles, the centers of which are located at the following points:

(a) Pointe-a-Pierre.
(b) Point Fortin.
(c) Port-of-Spain, including dock area and anchorage.

(2) Control Areas: Areas over which no aircraft will fly, except for landing and take-offs. When in these areas, aircraft will fly at an altitude of less than 1000 ft. These areas are each located by a circle whose radius equals 3 miles, the centers of which are located at the following points:

(a) Waller Field.
(b) U. S. Naval Base.
(c) Piarco Airport.
(d) Edinburgh Field.
(e) Corozotte Field (PAA Seaplane Base.)

(3) Restricted Areas: All Military and Naval posts, camps, stations, bases, and other vital installations not included under one of the above terms. No aircraft will fly over or closer to such areas than 1 mile without prior approval of the Interceptor Command, Trinidad Region. These areas are as follows:

(a) Chaconchacare Island.
(b) Huevos Island.
(c) Monos Island.
(d) Morne Pierre.
(e) La Luna.
(f) Brighton.
(g) Green Hill.

(4) Control Points: Points near the traffic lanes at which Observation Stations are located for the purpose of identifying aircraft entering the Island of Trinidad. These are as follows:

(a) Chaconchacare Island.
(b) Green Hill.
(c) Manzanilla Point.

(5) Traffic Lanes: A lane 2 miles in width, over which aircraft will fly when entering Trinidad. The center lines of the 3 authorized lanes are described as follows: (See attached map).

(a) From the North through La Boca Grande, west of and within 2 miles of Chaconchacare Island; thence to a point 2 miles west and south of Saltchuka, and thence direct to Barrancosa Point.

(b) From the South through La Boca de la Sierpe, within 2 miles of Icacos Point, Punta del Arenal, Carreal Point and Los Gallos Point and thence direct to Barrancosa Point.

(c) From the East over L'Ebranche Rocks; thence to Manzanilla Point.

28. PROCEDURE FOR ENTERING OR LEAVING TRINIDAD.

a. All aircraft, except seaplanes, entering Trinidad west of a line across Trinidad at longitude 61° 15' W, will follow the traffic lane through La Boca Grande or the traffic lane through Boca de la Sierpe at an altitude less than 1500 feet to Barrancosa Point; thence proceed direct to their destination; staying outside of defended areas, restricted areas, and control areas at which landing is not to be made. Seaplanes landing at the U. S. Naval Base or Corozotte will follow the above-defined traffic lanes at an altitude less than 1500 feet through La Boca Grande or Boca de la Sierpe, and thence fly direct to their landing areas, staying outside of defended areas, restricted areas, and control areas at which landing is not to be made.

b. All aircraft entering Trinidad west of a line across Trinidad at longitude 61° 15' W will follow the traffic lane over L'Ebranche Rocks at an altitude less than 2500 feet to Manzanilla Point; thence proceed direct to their destination, staying outside of defended areas, restricted areas, and control areas at which landing is not to be made.

c. All aircraft may leave Trinidad at any point on the coastline, except over defended areas, restricted areas, and control areas.

29. LANDING PROCEDURE AT AIRPORTS AND SEAPLANE BASES.

a. Aircraft landing at any airport or seadrome, except U. S. Naval Base and Corozotte, will enter the control area of the aerodrome at an altitude of 1000 feet or less and proceed to a point one mile from the center of the landing area. They will then lower landing gear (if any), circle the area one time to the left on a 1 mile radius, and land when traffic permits.

b. Aircraft landing at U. S. Naval Base or Corozotte will follow the procedure outlined in paragraph 29 a, except they may make turns to either the right or left, depending upon existing weather conditions.

31. NIGHT FLYING.

No flights will be made during hours 2200 GCT and 0900 GCT without prior notification of the flight to the Interceptor Command, Trinidad Region. At night, all aircraft will fly with navigation lights on, except when the military situation required otherwise.

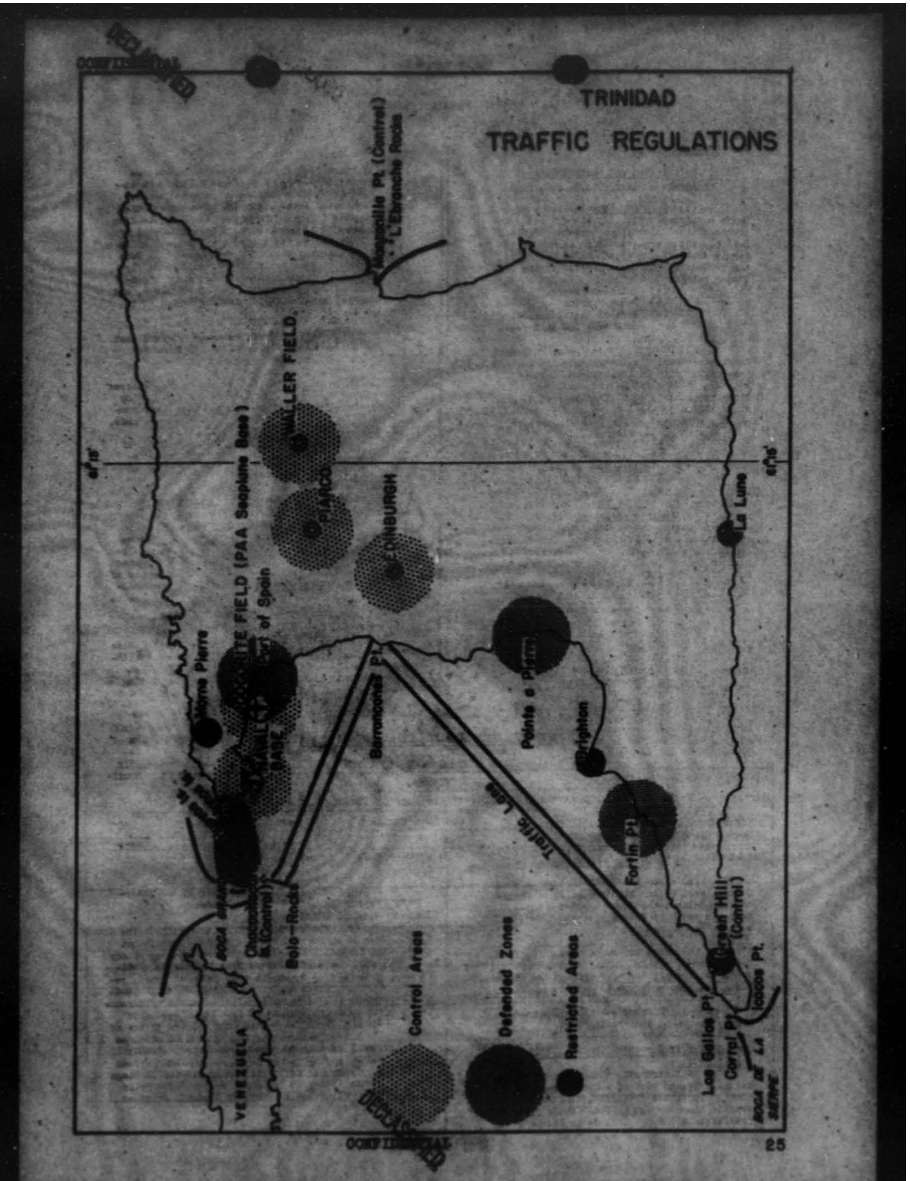
32. EXCEPTIONS TO AIR TRAFFIC REGULATIONS.

a. Special missions of a nature or importance, may be authorized by the Interceptor Command, Trinidad Region, such to be informed of such flights as soon as possible.

b. Special missions, such as towing or photographic missions, approved by the Interceptor Command, Trinidad Region.

c. When weather conditions prohibit the use of authorized traffic lanes, aircraft not in formation may enter or leave Trinidad at any point south of a line across Trinidad at latitude 10° 30' N, except over defended areas, restricted areas and control areas at which landing is not to be made, after obtaining clearance (by radio or telephone) from the Interceptor Command, Trinidad Region, and proceed direct to their destination, staying outside of defended areas, restricted areas, and control areas at which landing is not to be made. Pan-American airliners may use their landing station in Diego Martin Valley in conjunction with prior approval of the Interceptor Command, Trinidad Region.

CONFIDENTIAL
DECLASSIFIED



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

WALLER FIELD, TRINIDAD

NAME AND LOCATION

Waller Field, a military airport, is about 20 miles E. of Port of Spain.
Position - Lat. 10° 36' N. Long. 61° 15' W.
Magnetic Variation - 7° W.
Altitude- 120'
Landmarks - Field is about 13 miles W. of the E. coast of Trinidad Is. White concrete runway stands out. Jungle surrounding. Mts. to N.

DESCRIPTION

Dimensions- Field: 7320'x7320'(square).
Runways: Three R/W runways, each 5000'x150'. Runway "C" is completed with 2 parking aprons adjacent on S. Other runways are under construction. Use runway "C" only, rest of field not available.
Surface - Field: Gravel; well drained.
Runways: Concrete.
Markings - Wind cones.
Lighting - Temporary landing and floodlights in operation. Approach and obstruction lights.
Obstructions - No obstructions higher than 50'. All approaches excellent. Mountains (3000') 3 miles to N.
Radio towers - NE. Tall trees - W

FACILITIES

Hangars - One double-nose hangar (40'x 120') completed. Nine full sized hangars under construction.
Repair Facilities - Limited facilities now available. Major repairs in September 1942.
Fuel and Oil - Ample storage 100 octane gas, Fuel trucks.
Communications - Telephone on field. Radio available. See chapter on Radio.
Weather Reports - Air Corps weather station.
Transportation - Bus, road and railroad under construction. Cars available on field.
Personnel Accommodations - U. S. Army cantonments adjacent to field. Hospital. Ambulance on field.

WEATHER

Prevailing winds - E. and ENE. (15 to 25 m.p.h.)
Precipitation - Annually 50" to 100". In form of local showers of short duration (20 minutes). Rainy season June to January.
Temperature - 75° to 90° F.
Visibility - Tropical rainstorms of short duration occasionally reduce visibility to zero. Cumulus and strato-cumulus clouds at 2500' to 3000' occur during afternoon.

GENERAL INFORMATION

Operated by - United States.
Remarks - Edinburg Field, approximately 10 miles SW of Waller Field. Has a 5000'x200' runway graded. Piarco Field can also be used as an alternate for Waller. Control tower by April 1942.
Warning: Circle to left.

STANDARD LIGHT SIGNALS, WALLER FIELD, TRINIDAD

FROM CONTROL TOWER TO AIRCRAFT

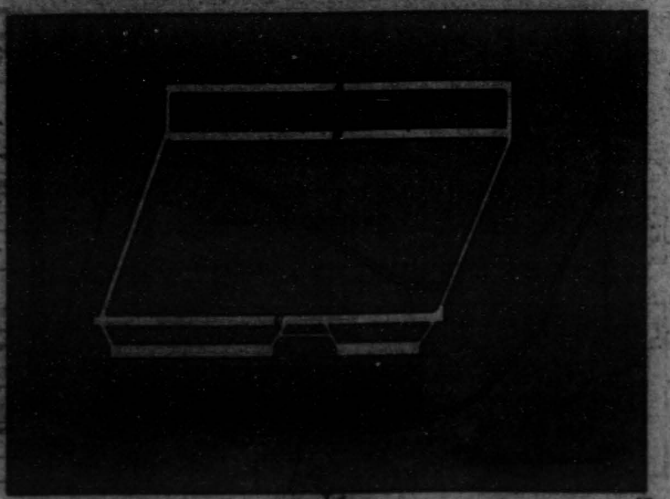
Signal from Tower	MEANING		
	If Airplane is in Flight	If Airplane is Taxiing	If Airplane is in take-off position
Green Light	Clear to land.	Continue taxiing.	Clear for take-off.
Flashing Red Light	Note.	Note.	Return to line.
Red Light	Do not land - stay clear of field and continue circling.	Stop immediately.	Do not take-off. Wait.

FROM AIRCRAFT IN FLIGHT TO CONTROL TOWER

SIGNAL FROM AIRCRAFT		MEANING
Night	Landing Light	Desire to land. This signal will be acknowledged immediately by Control Tower with appropriate signals in Red or Green Light.
	One Flash of Landing Light	This is to acknowledge the signal from the Tower.
	Series of Flashes of Landing Lights	Desire floodlights turned on. If floodlights are on, they will be turned off.
Day	Running Motor	Desire to land. This signal will be acknowledged immediately by Control Tower with appropriate Signals in Red or Green Light.
	Rock Wings	This is to acknowledge signal from the Tower.

DECLASSIFIED

ALLER FIELD
TRINIDAD



DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

TRINIDAD - GENERAL INFORMATION

1. General: Airplanes and crews.

(a) All combat command and ferrying command airplanes should land at Waller Field, Trinidad for services and overnight stops. This field is long enough for full load take-offs and gasoline, oil, weather data, minor maintenance and instructions from the Control Officer are available.

(b) Airplanes are dispersed at this field.

(c) Two critical periods are in force at this field. Daily from 5:30 A.M. to 9:00 A.M. and from 4:00 P.M. to 6:30 P.M. At this time a minimum crew is required to man the airplane. This procedure applies to combat and ferrying command airplanes as well as the other airplanes stationed at this field.

(d) Pilot and radio operator will report to the Control Officer immediately upon landing for instructions. Office of the Control Officer is located in Building #19.

(e) Weather data available in base operations building. Before take-off pilots will be furnished a route forecast for their flight by weather officer of the Ferrying Command stationed at Waller Field.

2. Messing:

(a) Meals are served at the following hours:

Breakfast	6:00 A.M. to 7:30 A.M.
Lunch	11:45 A.M. to 1:00 P.M.
Supper	5:00 P.M. to 7:30 P.M.

(b) Enlisted men will eat at the enlisted men's mess building #15. Officers will have to eat at this mess for early morning breakfast. Price is 25¢ per meal.

(c) Officers can eat at the enlisted mess or at the Officer's Mess in Building #24. The price is 50¢ per meal and if three meals are eaten, a flat rate of $1.25 per day is charged.

(d) Payment for meals will be made in advance for overnight stops at this station. The Control Officer is responsible for the collection for these meals.

(e) If meals and board are paid for, the officers and enlisted men will remain on per diem status.

3. Housing:

(a) There are sufficient facilities at Waller Field to house approximately 150 officers and men. Officers and enlisted men will be quartered in Building #16 at the rate of 50¢ per night, payable in advance to the Control Officer.

(b) A limited number of rooms is available in BOQ for field grade officers. The price is 75¢ payable in advance to the Control Officer.

4. Miscellaneous:

(a) No chits will be signed or credit extended to combat command or ferrying command personnel.

(b) A post exchange is located at Waller Field. A limited stock of supplies is available. Cigarettes are 90¢ per carton.

(c) The Queens Park Hotel facilities are available for housing in Port of Spain. However, staying overnight in town is inadvisable for early take-offs as the distance to town is 37 miles and it takes about one hour and a half to make the trip. The critical period at this field would necessarily interfere with staying in town.

(d) In case of air raid alarms, all combat and ferrying command personnel come under the command of the Control Officer of the ACFC at Waller Field.

(e) Pilots will be told approximately when they should take-off. Take-off time will be early in the morning and breakfast will be served prior to take-off.

(f) All FX'S on arrivals and departures will be sent by the Control Officer in code.

(g) Pilots should advise crews to maintain secrecy at all times, in regard to destination and departures and not even discuss the subject with anyone except the control officer.

(h) Last minute instructions and notams will be given to pilots just before departure.

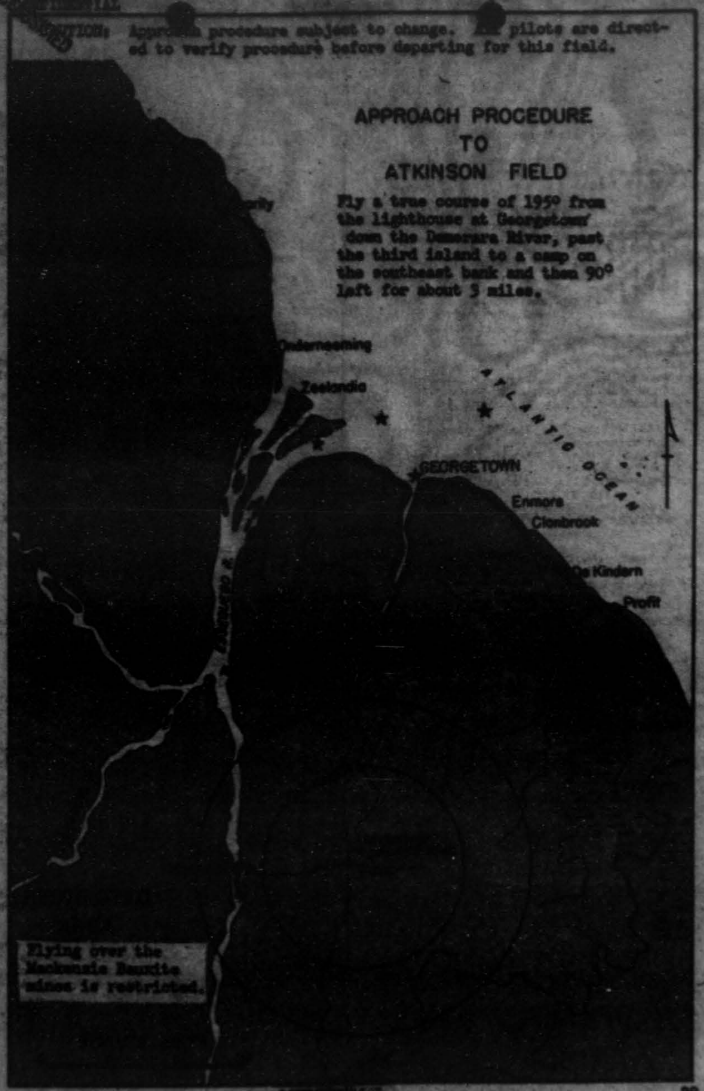
(i) At present, typhus, cholera, and yellow fever serum is not available in Trinidad to complete any inoculations started in the United States.

(j) Transportation facilities are very limited. The ACFC has no transportation at this time and depends on the base to furnish transportation to and from the line and the barracks.

CONFIDENTIAL
DECLASSIFIED

DECLASSIFIED
CONFIDENTIAL

NOTE: Approach procedure subject to change. All pilots are directed to verify procedure before departing for this field.



CONFIDENTIAL
DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

GEORGETOWN, BRITISH GUIANA

NAME AND LOCATION

Atkinson Field is 22½ miles S. of Georgetown and 3 miles E. of Demerara River.
Position - Lat. 06° 29' 36" N.
Long. 58° 24' W.
Magnetic Variation - 9°W.
Altitude - 142'.
Landmarks - One mile S. of construction camp on Demerara river. Dock at river. Jungle surrounds field.

DESCRIPTION

Dimensions - Field: 5260'x5280' (approx). Triangular shape.
Runways: Two - NE/SW and E/W 5000'x150' (under construction). NE/SW runway 4100'x150' (temporary) available at present.
Surface - Field: Sand; natural drainage. Runways: Temporary runway - sand-cement. Permanent runways will be concrete, with a 50' border of sand-crete on each side.
Markings - Yellow windcone on nose hangar.
Lighting - Portable floodlights and temporary runway boundary lights available.
Obstructions -

FACILITIES

Hangar - 1 nose hangar (2d'x80'), completed; 200'x120' hangar under construction.
Repair Facilities - Shops under construction. Minor repairs, limited spares.
Fuel and Oil - Bulk storage. 30 and 100 octane gas. 2 tank truck trailers and 1 tank truck. 6 hand pumps.
Communications - Post telephone system. Radio, Beacon and R/T available. See chapter on Radio.
Weather Reports - Yes.
Transportation - Automobiles in dry weather. No taxis. 2 ASA ship. River berth under 16' draft. Limited QM. Some taxis available.
Personnel Accommodations - Hotel in city. Barracks under construction at field. Hospital.

WEATHER

Prevailing Winds - Summer E to SE. (15 m.p.h.) Winter E to NE (25 m.p.h.)
Precipitation - 80" annually. Rainy season April 15 to Aug. 15 and Nov. 15 to Feb. 1.
Temperature - Maximum 89°F. av. 80° to 84° F.
Visibility - Fog occurs from 2 A.M. to 6 A.M. about 15 days a month. Low ceiling (under 500') occurs not longer than 5 hours a day. Cloud coverage seldom less than .4.

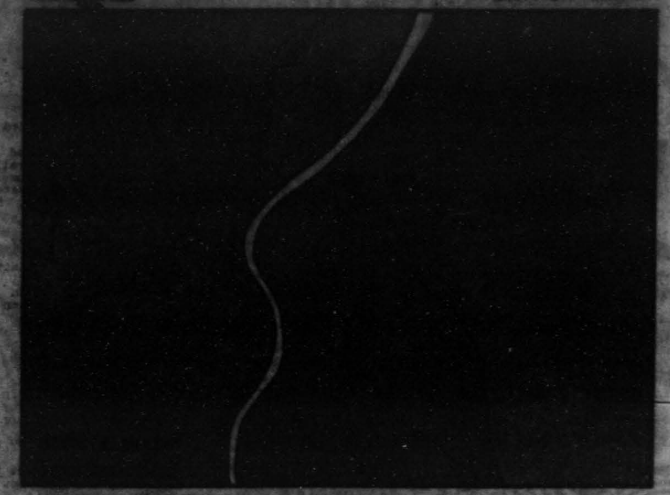
GENERAL INFORMATION

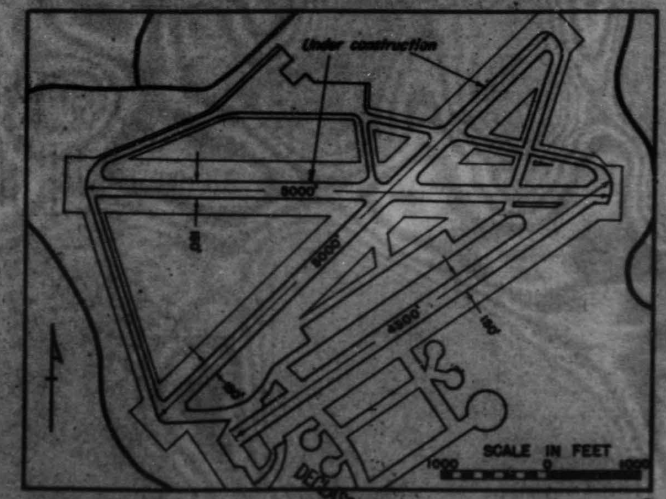
Operated by - United States Army.
Warning: Identification of local aircraft: approach perpendicular to runway 1000' altitude, rock wings, drop gear, proceed left turns to approach.

DECLASSIFIED

DECLASSIFIED

(ATKINSON FIELD) GEORGETOWN
BRITISH GUIANA





DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

APPROACH PROCEDURE TO
ZANDERY FIELD

All of Dutch Guiana is restricted to flying with the exception of:

(1) Control Areas
(2) Traffic Route

The Control Areas are regions included within a circle 10,000 yds. in diameter with its center on the center of the airfield. Planes entering a control circle must do so at an altitude under 1000 feet. These aircraft entering Zandery Field, must let down their landing gear at a distance 2 miles from the field and make one left hand circuit at a radius of 2 miles from the field, then land as traffic permits.

Traffic route (or approach corridor) is a lane five miles wide extending along a straight line between Zandery Field and the lightship at the mouth of the Surinam River. Planes must fly at an altitude under 1500 feet when using the traffic route.

Planes shall not navigate between 2200 GMT and 0900 GMT without previous consent from the Territorial Commandant or the Commandant of the Military Aviation Department of the United States in Trinidad.

CAUTION: Approach procedure subject to change. All pilots are directed to verify procedure before departing for this field.

CONFIDENTIAL

33

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

PARAMARIBO, SURINAM

NAME AND LOCATION

Zandery Airport is located 26 miles E. of Paramaribo, on the N. side of and adjacent to narrow gauge railway from Paramaribo.
Position - Lat. 05° 28' N. Long. 55° 12' W.
Magnetic Variation 10° W.
Altitude - 81'.
Landmarks - Railroad from Paramaribo bounds airport on W. Airport is on a large savannah of white sand, surrounded by jungle.

DESCRIPTION

Dimensions - Field: 6000'x6000' - irregular shape. Runways: E/W - 5000'x200' available; NNE/SSW 5000'x200' under construction.
Surface - Field: sand and sod. Runways: Stabilized sand with asphalt top.
Markings - Wind cone. Corner markings. Radio poles painted red and white.
Lighting - Beacon, boundary, approach, contact, floodlights, obstruction lights.
Obstructions: W. Radio towers (60'); buildings on both sides of E/W runway- entire length. High trees on all sides. NW - Radio towers (100'); beacon (54') 750 ft. S. of west end of E/W runway.

FACILITIES

Hangars - 1 nose hangar - 80'x20'x18' 12 native thatch roof hangars for pursuit ships.
Repairs - Minor repairs available.

Fuel and Oil- Bulk supplies of 80 and 100 octane gas available. Two 3" gauges(100 g.p.m.); 4 hose pits and four 5000 gal. underground tanks.
Communications - Telephone from field to city. Telegraph in city. Radio Station and Beacon available. See sheepcar on Radio.
Weather Reports - Meteorological station on field.
Transportation - By railroad to city. Kilo and taxi stop.
Personnel Accommodations - Available in city. Barracks under construction on field. First Aid Station on field.

WEATHER

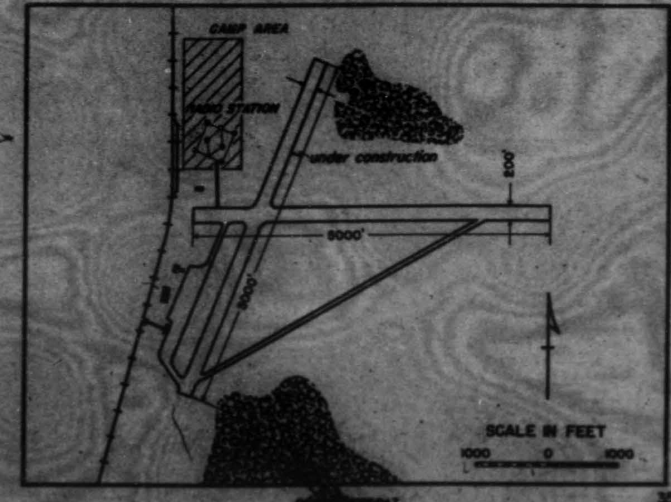
Prevailing Winds - East 25 m.p.h. all seasons.
Precipitation - 100" a year. Two rainy seasons - May to August and November to February. Heaviest May and June.
Temperature - Maximum - 100°. Minimum 70°, average 80° to 85° F.
Visibility - Fog general in mornings except September and October.

GENERAL INFORMATION

Operated By - U. S. Army. PAA Emergency stop.
Customs - Yes.
Remarks - Left hand circuits. Restricted area 5 miles from Paramaribo and bauxite mines.

DECLASSIFIED

(ZANDERY) PARAMARIBO
SURINAM



DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

MONTENEGRO (AMAPA) BRAZIL

NAME AND LOCATION

Amapa Airport is 4½ miles SE of the Rio Amapa Grande and 15 miles SW of the mouth of this river.
Position- Lat. 02° 07'N. Long. 50° 52' W.
Magnetic Variation- 13° W.(1941).
Altitude- 33'.
Landmarks- Field on flat prairie about 1½ miles E of a large swamp lake.

DESCRIPTION

Dimensions - Field:
Runways: NW/SE - 3650'x 150' available. NE/SW - 3500'x150' (under construction).
Surface - Sod; all weather. Natural drainage. NW/SW runway - paved.
Markings - Wind indicator. White border markers around NW/SE runway.
Lighting - Beacon operating. Approach, runway, obstruction and floodlights to be installed.
Obstructions- SE-2-100' radio towers. Approaches clear.

FACILITIES

Hangars - None.
Repair Facilities - None.
Fuel and Oil- Large supplies 100 octane gas on hand. Two 5" pump units (100 gals. per min.) and 4 hose pits.
Communications- Telegraph to village about 5 miles from field. Radio and Beacon available. See chapter on Radio.
Weather Reports - Standard equipment being installed.
Transportation - Road to Rio Amapa. Small boats from the landing to the ocean.
Personnel Accommodations - Living quarters for field personnel are 10 miles E. of field.

WEATHER

Prevailing Winds - E to NE. Highest velocity 30 m.p.h. Average velocity 10 m.p.h.
Precipitation - 80" annually. Rainy season - Jan. to June.
Visibility -

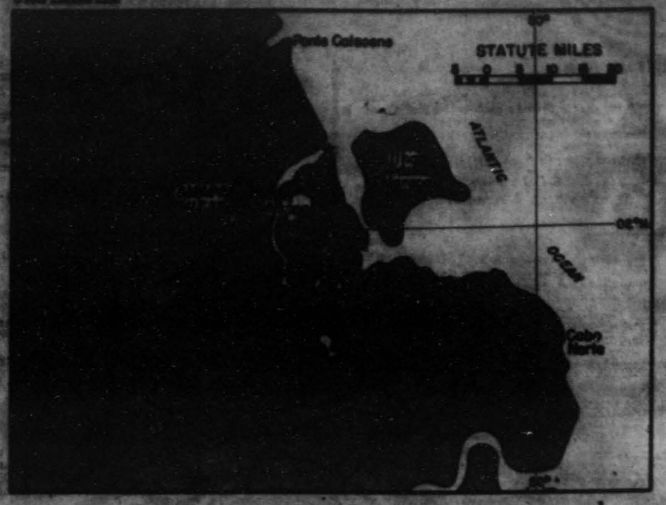
GENERAL INFORMATION

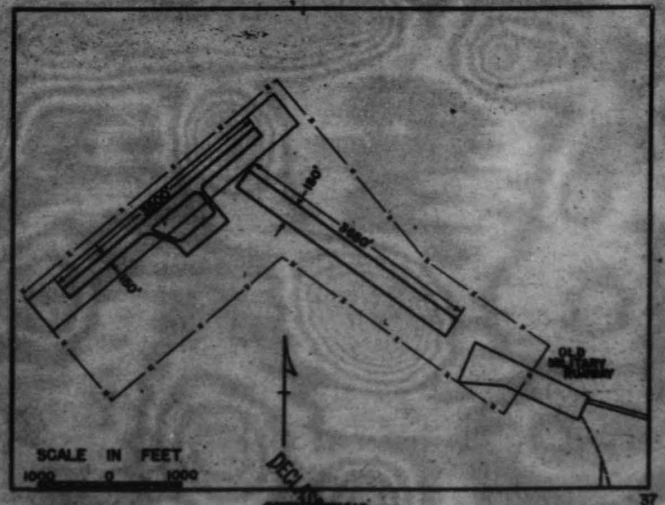
Operated By - PAA
Remarks - Survey only 15% completed on Feb. 25, 1942. Seaplanes can land at lake 1 mile S. of airport. Old military field is adjacent on the S.

DECLASSIFIED
CONFIDENTIAL

DECLASSIFIED

AMAPA
BRAZIL





DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

BELEM, BRAZIL

NAME AND LOCATION

Val de Caes Field is on the eastern bank of the Guajara River, 4½ miles north of Belem.
Position- Lat. 01° 23' S
Long. 48° 28½' W
Magnetic Variation- 14° W. (1940)
Altitude- 40'.
Landmarks- Follow the east bank of the Guajara River due north from Belem to the airport.

DESCRIPTION

Dimensions- 3 runways - N/S, NE/SW and E/W each 5000'x200'; E/W runway not available. A strip 500' wide is being cleared on each side of all runways.
Surface- Bitumen surfaced. 1500' on SW end of NE/SW runway not completed. E/W runway - sod.
Markings- Wind cone.
Lighting- Beacon, approach, contact, flashlights and floodlights. Floodlights on advance request; beacon operates only when planes are expected.
Obstructions-
N - Hangar
E - Trees
S - Trees and radio tower
Approaches being cleared to 40:1 on N/S and NE/SW runway.

FACILITIES

Hangars- Brazilian Air Force hangar 118'x80' being used as living quarters by the U. S. Marines. Base Hangar (40'x80') for large land planes.
Repair facilities- PAA maintenance and servicing facilities for landplanes, with necessary shop equipment. Shortage of mechanics.
Fuel and Oil- Bulk supplies of 100 octane available. Two 3" pump units (100 gals. per min.)
Communications- Telegraph in city. Radio and Beacon available. (See chapter on radio).
Weather Service- Standard meteorological equipment at seaplane station.
Transportation- Taxis and PAA buses to town.
Personnel Accommodations- Passenger station on field. Hotels in Belem. Meals and quarters available on field.

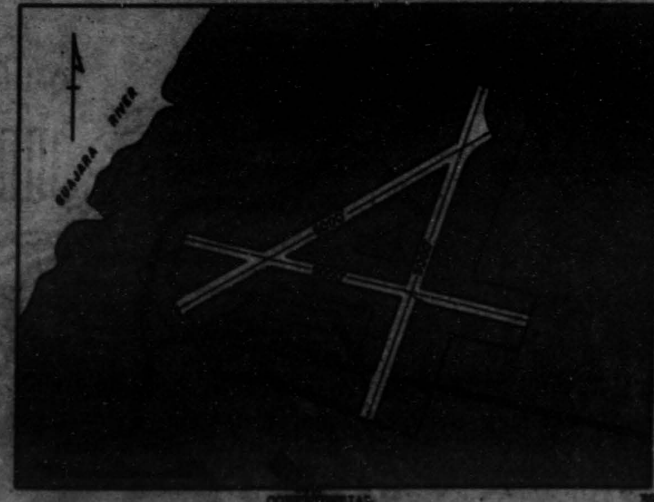
WEATHER

Prevailing Winds- E in morning; N in afternoon.
Precipitation- 120" per year.
Temperature-
Visibility- Cumulo-Nimbus clouds frequent during day.

GENERAL INFORMATION

Operated by- PAA
Remarks- E/W runway is usable but not available, due to construction equipment parked on it.

(VAL DE CAES) BELEM
BRAZIL



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

SAO LUIZ, BRAZIL

NAME AND LOCATION

Sao Luiz (Maranhao) Military Airport is located on the east side of the railroad ½ miles SE of Sao Luiz.
Position - Lat. 2° 35' S. Long. 44° 14' W.
Magnetic Variation -16° W
Altitude - 130'.
Landmarks - R. R. and road on W. side, road on N. side of field.

DESCRIPTION

Dimensions - Field:
Runways: NE/SW - 5000' x 200' (completed).
Surface - Asphalt runway. Field - sandy, smooth, well drained.
Markings - Wind cone.
Lighting - Complete lighting being installed - should be completed January 15, 1942.
Obstructions - Trees to north, east and west. Power line along west side.

FACILITIES

Hangars - Nne.
Repair Facilities - Minor repairs.
Fuel and Oil- Large supplies of 100 octane gas available. 3" pump units (300 gals. per minute) and pit servicing.
Communications - Telephone and telegraph in city. Radio - See Chapter on Radio.
Weather Reports - Station at seaplane base and in city.
Transportation - Automobiles available in city.
Personnel Accommodations - Small hotels in city.

WEATHER

Prevailing Winds - NE
Precipitation - Heaviest rainfall - January to June.
Temperature -
Visibility - Fog one day per month average.

GENERAL INFORMATION

Operated by - Brazilian Army.

DECLASSIFIED

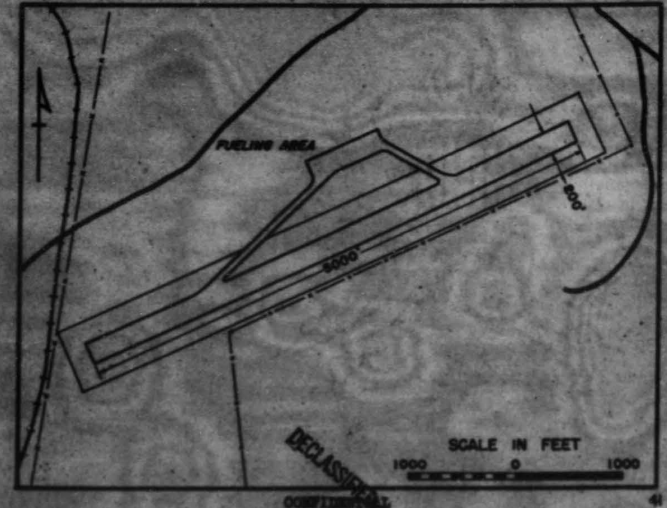
CONFIDENTIAL

40

DECLASSIFIED

CONFIDENTIAL

SAO LUIZ
BRAZIL



DECLASSIFIED

CONFIDENTIAL

41

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

FORTALEZA, BRAZIL

NAME AND LOCATION

PAA Civil Field is at Pici and 4½ miles NW of Fortaleza.
Position - Lat. 3° 41' S. Long. 38° 32' W.
Magnetic Variation - 19° W.
Altitude - 60'.
Landmarks - The Rio Maranguapinho is west of the field. There are two railways, one to the E and NE-1½ miles from the field; the other W and NW about 1 3/8 miles from field. There is a military airport 5 miles E of the PAA Field.

DESCRIPTION

Dimensions - Field: 6230'x2300'.
Runways - 1 runway NW/SE 5000'x200'.
Surface - Field:
Runways: Stabilized sand (sandcrete). Good condition.
Marking -
Lighting - Floodlights to be installed at NW end of runway. (Temporary lights now in use.)
Obstructions - Radio towers.

FACILITIES

Hangars - To be constructed.
Repair Facilities - Minor repairs only. Major repairs can be accomplished at Rio.
Fuel and Oil - Available in city.
Communications - Telephone and telegraph in city. Radio, D/F and Beacon available. See chapter on Radio.
Weather Service - Meteo. station in Fortaleza.
Transportation -
Personnel Accommodations - Passenger station to be constructed on field.

WEATHER

Prevailing Winds - Easterly to northeast. (About 9 m.p.h.)
Precipitation - Rainy season January to June (heaviest March to May). Thunder storms occur February to June.
Temperature -
Visibility - Fogs are rare and are quickly dispersed by the sun when they do occur. Cloud coverage is from .4 to .6 during the spring season. Cloud bases are rarely below an altitude of 500' over seas and can usually be flown over at ten to twelve thousand feet.

GENERAL INFORMATION

Operated By - PAA
Customs -
Remarks - Field is under construction.

DECLASSIFIED

CONFIDENTIAL

42

FORTALEZA
BRAZIL

CONFIDENTIAL

43

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

NATAL, BRAZIL

NAME AND LOCATION

Pitimbu Field is on the eastern side of the railroad (Natal-Sao do Miguiha), 6½ miles SSW of Natal, and 6½ miles W of the Atlantic Ocean.
Position - Lat. 5° 53' S. Long. 35° 15' W.
Magnetic Variation - 20° W.
Altitude -164'.
Landmarks - Lake Parnamirin ENE of Field. Airport stands out from neighboring landscape.

DESCRIPTION

Dimensions - Field:
Runways: (a) NW/SE 5000'x200' (Being extended to 6000'). (b) ENE/WSW 5000'x200' (Being extended to 6000').
Surface - Field: Sand. Soft when wet.
Runways: Asphalt.
Markings - 2 orange cone-shaped markers at each end of runway. Wind cone.
Lighting - White runway boundary lights and 2 yellow lights 500' past end of each runway on all sight. Mobile floodlights at north end of runway. Revolving beacon (alt. green and white flashes. Period 10 secs. vis. 30 miles).
Obstructions - NE-98'Radio towers; SW - Hangars and 98' Radio towers. W - RR and telegraph line. E of runway - small tile roofed buildings.

FACILITIES

Hangars - 3 hangars: 85'x98'x18', 98'x141'x25'; and a double nosed hangar all located on the old airport which is on the S edge of the new field.
Repair Facilities - Limited emergency repairs.
Fuel and Oil- Bulk supplies of 90 and 100 octane gas. 2 refuel pits, two 3" pump units(100 g.p.m.) available. 3 more being installed.
Communications - Telephone and telegraph in town. Radio, Beacon and D/F available. See chapter on radio.

Weather Reports - Facilities for - oceanic and coastwise aircraft available at PAA extns. station with cooperation of Army and Navy personnel.
Transportation - Dirt auto road, poor condition, to city.
Personnel Accommodations- Hotels in city. Passenger station on field. A security of quarters is usual. Pernambuco Army mess hall and latrines with tent camp on field.

WEATHER

Prevailing Winds - Surface Winds ENE-17-21 knots during day. NE-15 knots after sunset.
Precipitation - 40" annually. Rainy season March to May. Frequent showers and occasional torrential showers.
Visibility - Strato-cumulus clouds overland with cumulus forming to seaward and moving inland during early morning hours, increasing cumulus activity toward noon. Afternoons - decreasing cloudiness to seaward with increasing cumulus activity inland. Visibility approximately 15 miles except for showers reducing it to a minimum of 2 miles.

GENERAL INFORMATION

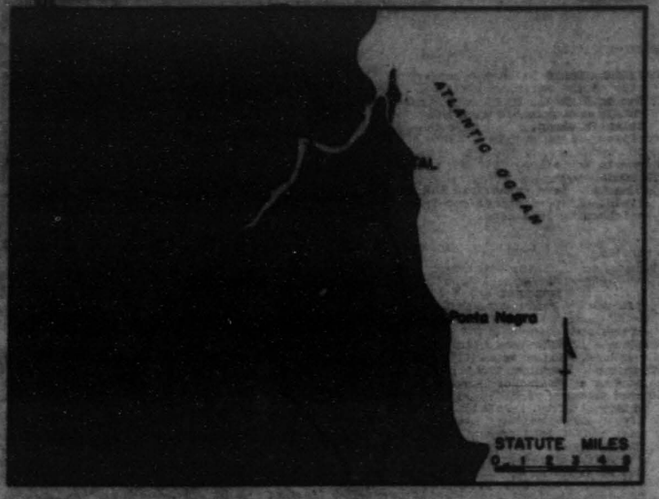
Operated By - Government.
Warning: Account of construction, fields should be circled before landing. 200' graded shoulders on each side of runways still in construction and should NOT be used.
Remarks: Pilots should make initial approach from north, circle field once at 1000', make turn to left and land to NE (due to prevailing winds). Caution is advised in landing:account light cross winds with easterly component. On landing use taxi strip at south end of runway and taxi to parking area.
Guards available for 7 planes.

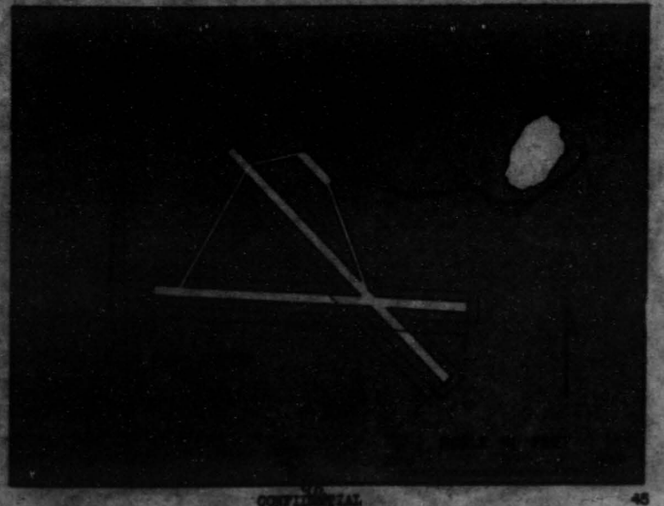
DECLASSIFIED

CONFIDENTIAL

44

(PITIMBU FIELD) NATAL
BRAZIL





CONFIDENTIAL

45

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

FERNANDO-DE-NORONHA, BRAZIL

NAME AND LOCATION

Fernando de Noronha Civil Airport is located near the center of Fernando de Noronha Island which is 250 miles NE of Natal.
Position - Lat. 03° 51' S. Long. 32° 26' W.
Magnetic Variation 21° W.
Altitude - 150'.
Landmarks -

DESCRIPTION

Dimensions - Field: 900'x4921'
Runways: 2950'x130' SSE/NNW.
Surface - Field - Earth soft when wet. Runways - (Concrete in poor shape).
Markings - Yellow and black boundary markers. Illuminated "T".
Lighting - Boundary lights, floodlights at NW end of runway.
Obstructions - NE-hill (1053'), 1 mile distant; SW-hill (754').

FACILITIES

Hangars -
Repair Facilities - Machine shop at prison.
Fuel and Oil - Available. 87 and 100 octane.
Communications - Radio available. See diagram on radio.
Weather Service - Government weather station 5 miles from field.
Transportation - Prison owned vehs from Island to mainland. Taxis for transportation on the Island. Fair roads.
Personnel Accommodations - Health conditions excellent. Prop hospital facilities. Houses adjacent to field.

WEATHER

Prevailing Winds - NE
Precipitation -
Temperature - Average 77°
Visibility -

GENERAL INFORMATION

Operated By - Brazilian Government.
Customs -
Remarks - Penal colony in NE corner of Island.

DECLASSIFIED

CONFIDENTIAL

46

FERNANDO DE NORONHA
BRAZIL

47

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

DECLASSIFIED

ASCENSION ISLAND

NAME AND LOCATION

Ascension Island emergency field is 3 miles S of Georgetown.
Position - Lat. 7° 58' S. Long 14° 24' W.
Magnetic Variation - 23° W.
Altitude - 560'.
Landmarks - Field is on SW corner of the Island and approximately 1/2 mile E of the western shore line.

DESCRIPTION

Dimensions - Field:
Runways: 6000' x 150'NE/SW with 50' shoulders on each side. 4000' to be paved 6/1/42.
Surface - Field:
Runways: To be paved. (4000' will be ready by 6/1/42).
Markings -
Lighting -
Obstructions - 450' hill at SE end of runway. Approach is clear, but hemmed in by hills on both sides.

FACILITIES

Hangars-
Repair Facilities-
Fuel and Oil- Bulk supplies of gas and oil available in dispersed tanks. Pipe line for unloading tankers under construction.
Communications- Cable service at Georgetown. Radio Navigation: Marine radio station ZBT on 500 kcs. British Navy D/F and detector station.
Weather Service-
Transportation- Dirt road leads north to Georgetown on Clarence Bay.
Personnel Accommodations- Water is very scarce. Permanent camp under construction. Hospital facilities available.

WEATHER

Prevailing Winds- SE trade winds (18 m.p.h.)
Precipitation- 5" annually at airport but Green Mt. on east side of the Island has 26" annual rainfall.
Temperature- Mean temp. range 70 to 90 F. Max. 93 , min. 63 F.
Visibility- Excellent.

GENERAL INFORMATION

Operated By -
Customs-
Remarks-

DECLASSIFIED

CONFIDENTIAL

ASCENSION ISLAND

STATUTE MILES

SCALE IN FEET

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

POINTE NOIRE, FR. AFRICA

NAME AND LOCATION

Point Noire Military Airport is 4½ miles NNE of Point Noire.
Position- Lat. 4° 49' S. Long. 11° 51' E.
Magnetic Variation- 11° W. (1948)
Altitude - 50'.
Landmarks- 5 miles E of Atlantic Coast Line. RR. on E side of field.

DESCRIPTION

Dimensions- Field: 2925'x2925'. Runways: 5000'x150' P/S. (Enlarged to 4900'x150' by 6-1-48)
Surface- Field: Sod. Soft in rainy season. Runways: Laterite and soil cement. All weather. (to be paved by 6-15-48).
Markings- Circle E of runway. Windsock.
Lighting- Floodlights and boundary lights planned.
Obstructions- NE- Hangar. E and S. Low trees.

FACILITIES

Hangars- One 150'x225'; door 220'x26'.
Repair Facilities- Railroad workshops in town.
Fuel and Oil- 87 octane and limited 100 octane available. Hand pumps for refueling.

Communications- Telephone and telegraph to Point Noire. Radio and D/F available. Has station on radio.
Weather Service- Meteorological station on field.
Transportation- Local paved roads under construction. RR to Brazzaville.
Personnel Accommodations- Quarters under construction. Hotels and hospital in town.

WEATHER

Prevailing Winds- S and SW. Moderate with frequent calms.
Precipitation- Rainy season Nov. through April. Line squalls from the SW are frequent during this season.
Temperatures- Min. 61° F. Max. 86° F.
Visibility- Low, solid overcast frequent, especially in winter. Early morning fogs occur throughout the year, but dissipate during the morning.

GENERAL INFORMATION

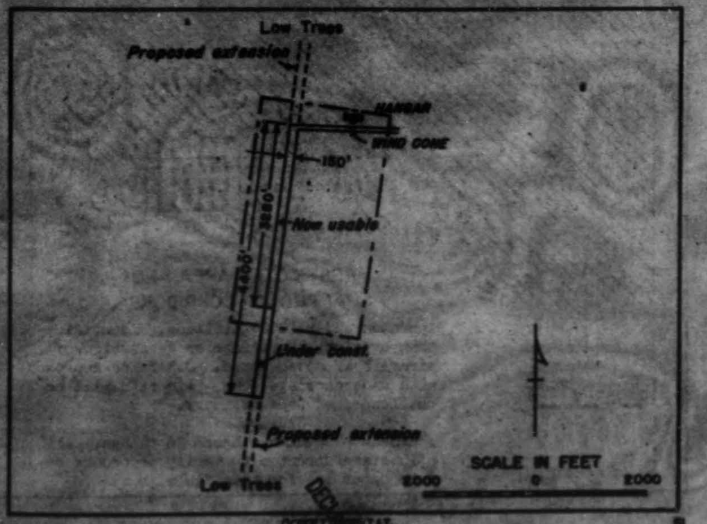
Operated By - Free French.
Remarks- Field under construction. Use with caution.

DECLASSIFIED

CONFIDENTIAL

50

POINTE NOIRE
FRENCH EQUATORIAL AFRICA



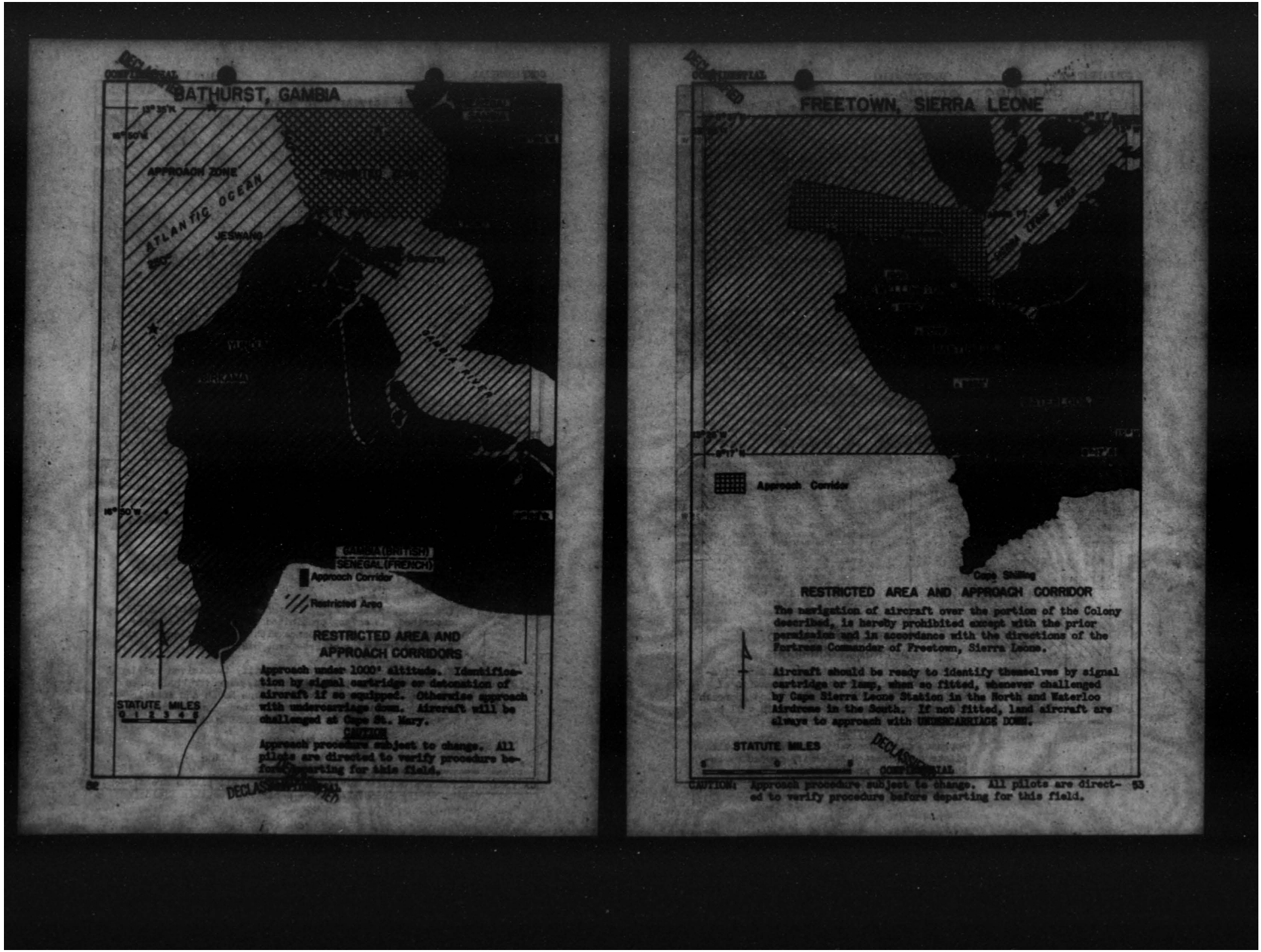
CONFIDENTIAL

DECLASSIFIED

51

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

NAME AND LOCATION

Hastings Airport, 23 miles SE. of Freetown and 1 mile NE. of Hastings.
Position - Lat. 08° 24' N., Long. 13° 08' W.
Magnetic Variation - 17° 25' (1940)
Altitude - 20'.
Landmarks - Bunce River 1 mile E. Railroad adjacent on S.

DESCRIPTION

Dimensions - 3 runways-NNW/SSE 3500'x 450'; NE/SW 3900'x450'; NW/SE 5000'x 450'.
Surface - Runways of laterite gravel. One runway has a bitmac surface. All are rough and full of pot holes.
Hastings -
Lighting - Marine light - Cape Sierra Leone - (Fl. W. vis. 14 mi. fl. once ev. 15 sec.); also a fixed red light, vis. 12 mi. position 08° 30' N., 13° 18' W.
Obstructions - North - 1000' hills, 2 miles distant. Mangrove trees between airport and Bunce River. Only open approaches are from NE., E and SE. 2500' hills to W., NW., and NW.

FACILITIES

Hangars - 1 RAF Bellman hangar. 2 hangars for Navy Air Arm.
Repair Facilities - Available.
Fuel and Oil - Limited stocks, refueling by hand. 1 tank truck with fuel pump of 2 gal. per minute capacity.
Communications - Telephone and telegraph in Freetown. Radio, beacon and D/F (for details see Chapter on Radio).
Weather Reports - Main forecasting station for Bathurst, Cape Palmas flying boat route (B.O.A.C.).
Transportation - Railroad (Freetown to Makeni) adjacent to S. edge of field. Road from Hastings to Freetown. Steamer service at Freetown.

Personnel Accommodations - R.A.F. wireless communts. Health conditions poor; typhoid and malarial fever prevalent. Hotels and hospitals in Freetown.

WEATHER

Prevailing Winds - SW. monsoons May to Oct.; NE. trades from Nov. to April. Harmattan winds from the E. Dec. to Feb. Since winds are light and variable, wind direction is usually disregarded for landing and take-off.
Precipitation - About 150" annually. Rain from May to October with thunderstorms at the beginning and end of the season.
Visibility - During harmattans (Dec. to Feb.) visibility is around 1500' and sometimes drops almost to zero. Heavy rain squalls occur during the rainy season in which visibility is about 150'. Cloud coverage is from .5 to .7. Summits of adjacent hills are often obscured by clouds. Morning fogs 1 day a week during dry season.

GENERAL INFORMATION

Operated By - RAF
Remarks - Airport at Waterloo, (7 miles SE. of Hastings) is being regraded and landings should be made at Hastings until the regrading is completed. A small emergency field is at Wellington (5 miles NE.) A seaplane station is available at Freetown.
CAUTION: Owing to proximity of hills on WEST side of airdrome very careful approach must be made. The best direction to approach is from the east where there are no obstructions and to touch down at eastern end of No. 2 runway and pilots should be careful not to overshoot owing to difficulty of taking off again toward the hills. Clouds often obscure tops of surrounding hills.

This field is not recommended for use by B-24's.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

FREETOWN (WATERLOO), SIERRA LEONE

NAME AND LOCATION

Waterloo Airport, 15 miles SE of Freetown, 7 miles E. of Waterloo.
Position - Lat. 08° 20' N. Long. 13° 02' W.
Magnetic Variation - 17° 30' W (1940)
Altitude -
Landmarks -

DESCRIPTION

Dimensions- 4 runways, each 150' wide with a 225' wide grass strip along each side.
No. 1. NNE/SSW (to be 4900' long(being repaved March 1, 1942)
No. 2. NNE/SSW - not yet started.
No. 3. WSW/ENE - to be 4800' x150'; (1500'x75' paved 9-28-42).
No. 4. NW/SE - 4500' long (not available).
Surface- Runway #3 partially asphalt paved. Others are laterite and undulating.
Markings-
Lighting- Marine lights; Cape Sierra Leone, (white; vis. 14 mi. fl. once ev. 15 sec.) also a fixed red light (vis. 12 mi.) position 8°30'N.13°18'W.
Obstructions-

FACILITIES

Hangars- None.
Repair Facilities- Complete facilities by Jan. 1, 1943.
Fuel and Oil- Small gas trunk with poor pumping unit. Storage in drums.
Communications- Telegraph and telephone in Freetown. Service between coastal towns extremely slow. Radio, R/T and W/T are available. See chapter on radio.
Weather Reports-
Transportation- 3' gauge railroad and passable road to Freetown.
Personnel Accommodations- Mission huts on field; hotels and hospitals in Freetown. PAA quarters under construction.

WEATHER

Prevailing Winds - SW monsoons May to Oct.; NE trades from Nov. to April. Harmattan winds from the N. Dec. to February.
Precipitation - About 158" annually. Rain from May to Oct. with tornadoes at the beginning and end of the season.
Visibility - During harmattans (Dec. to Feb.) the visibility is around 1500' and sometimes drops to almost zero. Heavy rain squalls occur during the rainy season in which visibility is about 150'. During this season cloud coverage is from .5 to .7. Summits of adjacent hills are often obscured by clouds.

GENERAL INFORMATION

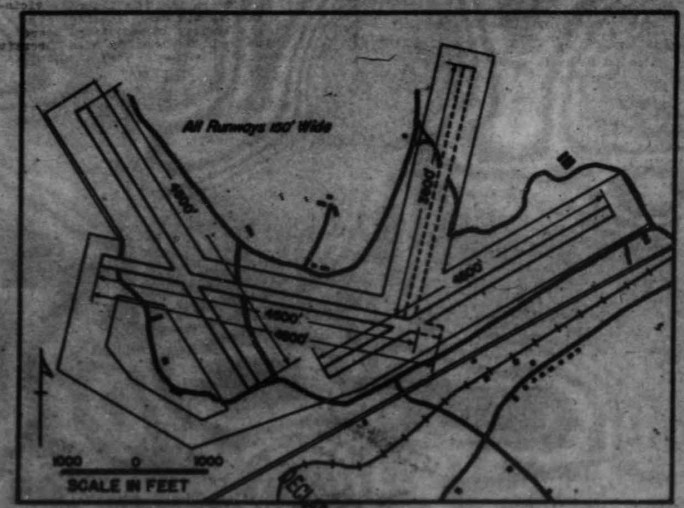
Operated By - RAF
Remarks - Seaplane base is available at Freetown. Waterloo is considered the best of the fields in the vicinity of Freetown.
WARNING: Take-offs at Waterloo are dangerous for heavily laden aircraft until regrading is completed.

DECLASSIFIED

CONFIDENTIAL

DECLASSIFIED

(WATERLOO) FREETOWN
SIERRA LEONE



DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

MARSHALL, LIBERIA

NAME AND LOCATION

J. J. Roberts' Field, located 7 miles NNE of Marshall and 35 miles SE of Monrovia.
Position - Lat. 6° 12' N. Long. 10° 22' W.
Magnetic Variation - 17° W. (1940)
Altitude - 20'.
Landmarks - Junction of Fish Creek and Farmington River immediately NE. Firestone plantation can be seen on the E.

DESCRIPTION

Dimensions- NE/SW runway closed for construction. NE/SW runway - 6200'x 200' available. Both to be 7000'x200'
Surface- Asphalt on NE/SW runway. Other runway of rolled laterite.
Markings- Barbed wire fence surrounds field.
Lighting- Obstruction lights available. Runway boundary lights being installed.
Obstructions- Radio masts 1 mile SW.

FACILITIES

Hangars-
Repair Facilities- 3 PAA mechanics. No spares; no shops.
Fuel and Oil- 50,000 gals. in underground tanks. One trucks. 100 octane gas.
Communications- NBL radio range station, also transmitter and beacon. (See chapter on radio).
Weather Reports- PAA Meteorological Station to be in operation on April 15, 1942.

Transportation- River boats on Farmington River. Road to Firestone Plantation. No port facilities at Harbel. Ships unload into lighters. Local transportation is unknown.
Personnel Accommodations- Officers are quartered in Building 12 miles from field. Barracks and Mess buildings, 1½ miles from field. Food costing $2.60 for 3 meals but is good. Modern dispensary 1½ miles from camp.

WEATHER

Prevailing Winds- During rainy season SE to SW. During dry season NE to NW.
Precipitation- Rainy season June to October inclusive. 144" per annum.
Temperature- Hottest months January through April.
Visibility- Occasional early morning fogs which burn out about 10 A.M. Rainy season- visibility 1 mile, ceiling 1000' to 3000'.

GENERAL INFORMATION

Operated by Pan American Airways, Inc.
Remarks- An alternate field is at the NE corner of Fishermen's Lake, 75 miles NW of Roberts Field.

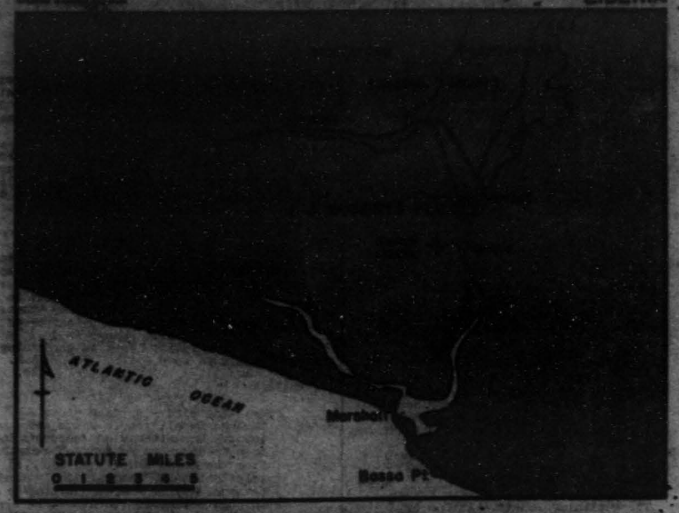
WARNING

#1. Drinking water must be boiled.
#2. Although field is lighted at night, planes should avoid landing. If night landing is necessary, be sure to come in high enough to miss the trees at end of runway. They are hard to see.

DECLASSIFIED
CONFIDENTIAL

56

(J. J. ROBERTS FIELD) MARSHALL
LIBERIA



CONFIDENTIAL

59

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

ACCRA, GOLD COAST

NAME AND LOCATION

Accra Civil Airport, 3½ miles NE. of Accra.
Position - Lat. 05° 36' N., Long. 00° 10' W.
Magnetic Variation - 12° 10' W. (1940)
Altitude - 200 feet.
Landmarks - Accra-Dodowa Road on W. edge of field. Accra-Kumasi RR. is 2 miles W. Mt. Zahrtman, 3 miles W. of airport, is an isolated peak 540' high.

DESCRIPTION

Dimensions - 3 runways connected by a gravel taxiing strip. NNE/SSW 4350'x225' available. NW/SE 4350'x225' under construction. E/W 4350'x225' under construction. The last two runways will be completed by Sept. 1, 1942.
Surface - The NNE/SSW runway is bitumen surfaced and the other two are of laterite gravel. Bitumen surface planned for the last two. Area between runways is cleared, type of surface unknown.
Markings - Concrete drain around perimeter is painted black and white. Wind cone in SW. corner.
Lighting - Emergency boundary flares for outlining runway. A line of white lights is shown at point of contact and red lights at end of runway. Red obstruction lights, which operate only on advance request.
Obstructions - N. - 54' control tower and anemometer mast; police station. Mt. Zahrtman (540'). E. --100' radio masts (painted black and white) about 1500' from field. S. - cantonment buildings ½ mile from field. W. - 80' hangar and 41' windsock adjacent to W. side of NNE/SSW runway. Radio masts (105') about 1½ miles SW. of field.

FACILITIES

Hangars - 1 steel hangar 125'x90'; door 125'x25'. Apron between hangar and NNE/SSW runway. 2 hangars under construction.
Repair Facilities - Very few spare parts. Detachment of PAA mechanics. Compass base. PAA radio mechanics.
Fuel and Oil - Unlimited amount of 100 octane gas and plenty of oil. Gas trucks.
Communications - Telephone and telegraph. Radio, radio beacon and D/F available. (See chapter on radio).
Weather Reports - PAA meteorological station. Reports can be obtained before take-off from the aerodrome control office.
Transportation - PAA bus every 30 minutes. BOAC airline stop en route Lisbon to Lagos. PAA stop Natal to Khartoum. BA to Takoradi via Kumasi. Regular port of call for steamships.
Personnel Accommodations - Administrative buildings on the field. Sea View Hotel in Accra. PAA camp is four miles from the field. Charge is $3.00 a day with meals. Food is good. Mosquitoes in town.

WEATHER

Prevailing winds - Surface winds SW through SW all year. Calms are frequent. Harmattan winds occurring from December to February blow up from the E and NE.
Precipitation - 27" annually. Two rainy seasons, May to July and September through November. Tornadoes in April and November. Humidity always high.
Temperature - Range 70° to 90°. Severe hangars climate. Nights fairly cool.
Visibility - Fogs are rare. Cloud coverage varies from .3 in January to .7 in June. Harmattans (dust storms) may last from three to four days and reduce visibility to 1500' or less, extending to an altitude of 10,000'.

GENERAL INFORMATION

Operated by- BOAC and PAA. Owned by Gold Coast Government.
Remarks- Anti-smoke station at field. Guards available for aircraft. Airport suitable for B-24 operation but brakes should be used sparingly. Left hand circuits required.

WARNING

Field is under construction. Red flags and white crosses will mark unserviceable area.

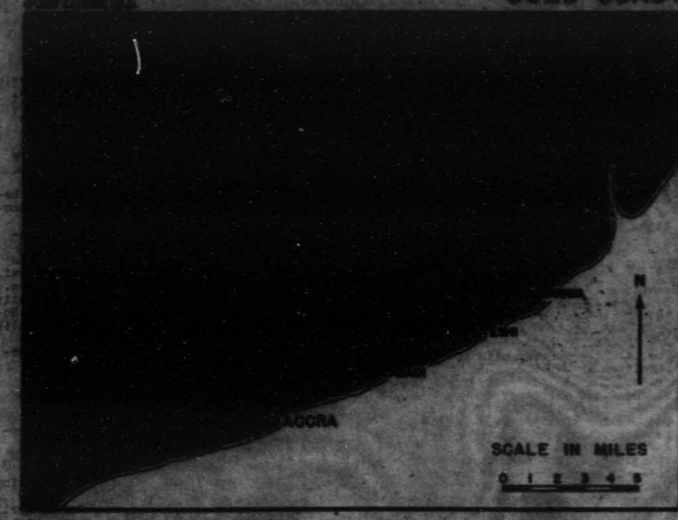
DECLASSIFIED

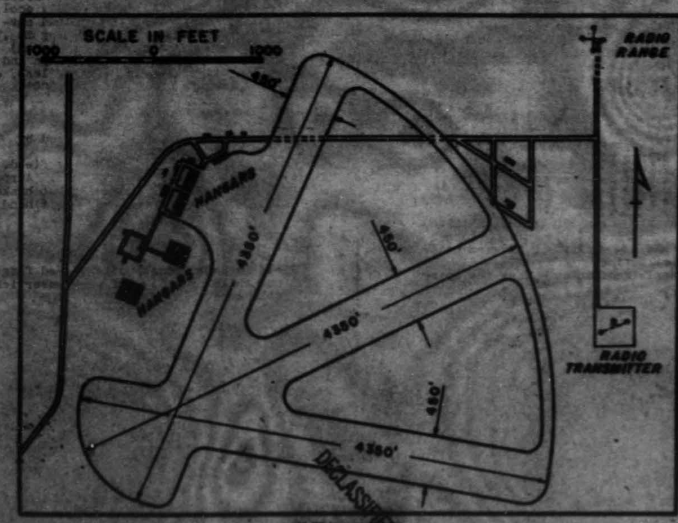
CONFIDENTIAL

80

DECLASSIFIED

ACCRA
GOLD COAST





DECLASSIFIED

CONFIDENTIAL

81

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

WEATHER SUMMARY FOR THE SUMMER SEASON
June 21 to Sept. 21

WEST INDIAN HURRICANE

The tropical disturbance known as the West Indian hurricane generally originates in the western Caribbean Sea or somewhere in the Atlantic. If the origin is in the Atlantic the zone of entrance into the Caribbean lies between Trinidad and a point several hundred miles north of Antigua. It follows a WNW course until in the neighborhood of Cuba or Florida where it may swing NE or continue on into Mexico. Thus the southern tip of Florida and the Islands of Cuba and Jamaica generally suffer most from these storms.

The storm center moves along a course at approximately 12 miles per hour and the day-to-day position can be quite accurately forecast until it nears Cuba. At this point, it may swing in any direction and the resulting storm tides have inflict their greatest damage. Wind velocity near the center of a tornado has attained speeds in excess of 120 knots and the tornado winds may be felt as much as 200 miles beyond the storm center.

Several distinctive and easily recognizable indications presage the advent of a hurricane.

First, the appearance of high cirrus clouds overhead apparently converging toward a single point on the horizon which is often the direction of the storm. This condition is accompanied by a bright red sunrise and sunset.

Second, sea swells (or long unbroken waves) with the interval between the crests much longer than usual. The sea becomes heavier and rougher as the storm approaches and the tides will be higher.

Third, showers occur on the outer limits of the storm and increase to torrential downpours as the storm approaches.

Fourth, a change from the usual steady easterly winds to gusty blasts, probably from some unusual direction marks the edge of the storm area.

These storms might occur frequently during a single season, but those of such severity to be worth mentioning, average about seven a year, starting in the month of June and ending about November.

CARIBBEAN AREA

Winds: The easterly trades predominate with the ENE wind prevailing along the north half of this area and NNE along the south half. An average velocity of six to eight knots prevails near Cuba and increases to 12 or 14 knots near Trinidad. Land and sea breezes affect the prevailing winds along the coasts of the islands, with the strongest winds appearing in the afternoon along the windward coast of the larger islands and at night along the leeward coast of the smaller islands.

Over the sea the upper winds attain a maximum velocity of about 18 or 20 knots at approximately 2,000 feet. The prevailing direction is always easterly with no reversal below 13,000 feet.

From the pilot's viewpoint, the most favorable winds for an east-bound journey will be either just above the surface or above 15,000 feet, where the head winds will be lightest.

Storms: Hurricanes occur all during this season and reach a destructive maximum in August. They generally form in the Caribbean area and continue on a northwest path into Mexico instead of swinging NE near Cuba. This condition is helpful in that, for the great majority of cases, the hurricane path (1) will cross the pilot's course but once; and (2) will be on a straight and easily predictable line. Thunder storms occur 2 or 3 days a week over the entire route and are most frequent in the afternoon on the leeward sides of large islands.

Rains: Cuba experiences a relatively dry period in July and August with heavy rain falling both in June and September. Trinidad, on the other hand, has its wettest month in July. Rainfall is in the form of intermittent thunder showers, occasionally reaching the intensity of torrential downpours, and is always greater on the windward coast of an island than on the lee coast. Rain may fall on 3 to 5 days a week. The average yearly fall is from 40" to 60", increasing along the southern part of this area.

Temperature: The temperature is unusually uniform throughout the year, averaging between 78° and 85° F., with a maximum of 95° and a minimum of 58° F. Humidity is high and the climate would be oppressive if it were not for the constant breezes. The warmest months are July and August near Cuba, and September near Trinidad.

Visibility: Generally over 10 miles. An occasional distinct haze occurs during this season but it is not a pronounced factor affecting visibility. Near the South American coast low clouds are frequent during June and July with ceiling under 1000 feet an almost daily occurrence near Paramaribo.

SOUTH AMERICAN AREA

Winds: Here again the prevailing winds are easterly, extending to an altitude of 18,000 feet and westerly from 18,000 to 25,000 feet. Average velocity of the surface wind is about 8 knots. Upper winds are ENE to E with an average velocity of approximately 17 knots. The most favorable wind condition for a southbound trip would be at an altitude under 3,000 feet where the

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

lightest head winds would be encountered.

Storms: Hurricanes occasionally occur along the northern coast of South America, but are seldom felt south of Paramaribo. Thunder storms occur from Fortaleza to Georgetown throughout June and July.

Rains: The rain belt of the Caribbean area extends along the northern edge of South America as far south as Belem during the first part of this season, but will have moved northward by September. The annual rainfall is approximately 100" at Georgetown and Belem, tapering off to 55" at Natal. The rainy season at Natal is unusual in that it ends about July 30. At the remainder of the stations in this vicinity the rainy season ends in June. During June, rain can be expected almost every day, and near Belem on the Amazon Delta, light thunder showers every other day occur all though the dry season.

The dry season starts in July along the southern section of this area (except for Natal), and moves northward until in September, all of the northeast coast of South America is in a dry belt.

Temperature: Surface temperatures average from 85° to 90° F. with a maximum of 105° and a minimum of 65° .

Visibility: Fogs are rare and when they do occur are quickly dispersed by the sun. The best flying period from the standpoint of visibility and ceiling is during the months of August and September. Cloud coverage ranges from .4 to a full overcast condition, but the greatest per cent of overcast occurs along the north section of this route during June and July. Cloud coverage decreases as the season advances, but seldom falls below .6 at Paramaribo and .4 at Natal. As a haze develops over the jungle during midday, the best flying time is just after sunrise.

Within the rain belt along the northern portion of this area, special conditions of visibility exist. Over the ocean clouds rarely fall below 500 feet and they can usually be flown over at ten or twelve thousand feet. (Caution: Avoid any cumulus nimbus clouds that might extend above the stratus formation at the ten or twelve thousand foot level). If the clouds can not be flown over, they may be flown under as the air is not rough enough to be dangerous at low altitudes (3000' or under). However, torrential rain showers may occur at this height seriously obstructing visibility. Avoid night flying over coastal waters during the rainy season as thunder heads, which form rapidly along the coast at night, might be encountered.

ATLANTIC AREA

Winds: Winds are from the southeast. In the vicinity of the African coast they swing toward the south and near Freetown they may be southwest. The wind velocity in the Natal area is 12 to 14 knots, and near the African coast 6 to 8 knots.

Storms: Hurricanes do not occur. An area of rain and thunder storms centers about 600 miles south of the Cape Verde Islands, and lies immediately north of the track from Natal to Marshall. Thunder showers will occur almost constantly in this locality.

Rain: Rain will be encountered every other day over the entire route to Africa during the months of June and July. From August to September, rainfall might be encountered during the last half of this leg, but will not be a prevalent condition near South America. A thunder shower type of rain can be expected until within several hundred miles of the African coast where the steady, all day downpours characteristic of the African monsoon will prevail.

Temperature:

Visibility: Dense clouds bordering on a full overcast, with heavy rains, will be encountered along the African coast. Cumulo-nimbus clouds will be found in mid-Atlantic and during June and July along the South American coast. Visibility will be good except for the temporary deterioration during rain storms.

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED
LIGHTNING

The following article on lightning was extracted from Pan American Ferries Route Manual. It is a timely article, inasmuch as thunder and lightning storms occur frequently along this route.

"With regard to a number of cases in which aircraft in flight have been affected by lightning, pilots should note the following information:

In nearly all cases recorded, the following appear to have been the determining circumstances:

(a) Meteorological reports indicated the possibility of thundery conditions.

(b) The aircraft flew into or close below the clouds before being struck.

(c) The aircraft had the radio aerial trailing.

In order to avoid danger, the following precautions are advised, whenever the circumstances permit of their adoption:

(a) (i) Avoid all large cloud masses from which showers of rain, hail or snow are falling, especially when meteorological reports give indications of thundery weather; hail is always to be regarded as dangerous.

(ii) When radio is being used in the aircraft, an increase in the number and strength of atmospherics will generally indicate that a dangerous area is being approached. When the radio apparatus is being operated by a radio operator, he should inform the pilot of such an increase. The pilot should consider this information in conjunction with the weather conditions which he can see ahead of him, in deciding if conditions are actually dangerous.

(b) If it is not possible to avoid dangerous areas, the trailing aerial should be earthed and wound in, the aircraft being kept clear of dangerous areas such as those mentioned in sub-para. (a) above, until this is done; little danger is to be expected after the trailing aerial has been wound in.

NOTE: Should the aircraft already be in a dangerous area, e.g., in a hail storm, winding in the aerial may be dangerous to the radio operator. In such a case, the aerial should merely be earthed and the aircraft flown out of the storm as quickly as possible; if necessary the aircraft should be flown back on its course to give the operator an opportunity to wind in the trailing aerial before proceeding through the storm. It is also recommended that the connection of the aerial to earth should be made to the aircraft structure outside the fuselage.

(c) Whenever possible, the aircraft (with trailing aerial wound in) should be flown well below the lowest layer of any cloud masses encountered."

DECLASSIFIED
1
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

RADIO FOREWORD

A communication folder, prepared by the communications section of the Ferry Command, is to be picked up in Washington, along with Syko machine and weather codes.

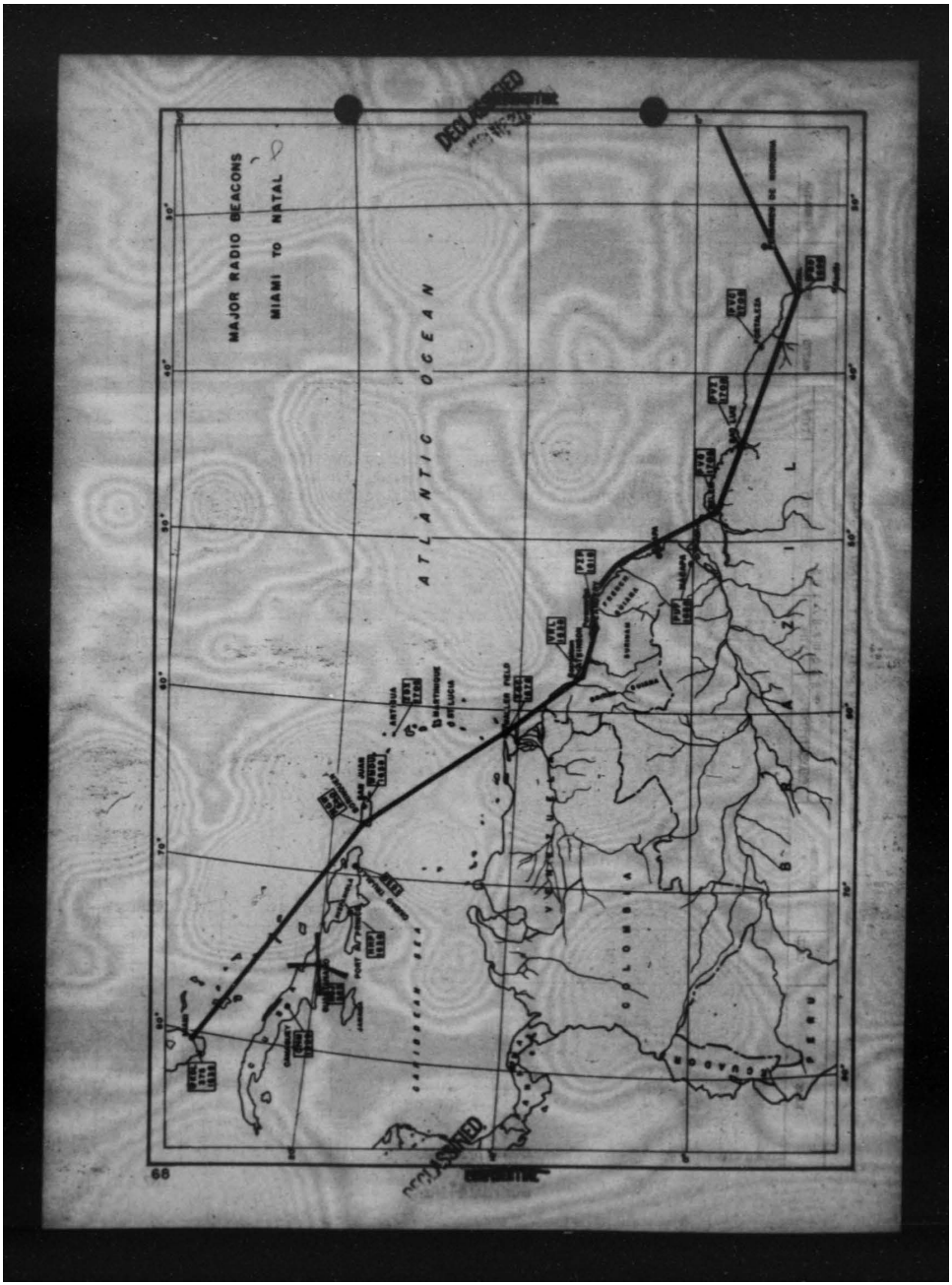
All radio communication services are subject to rapid change. For this reason, it is necessary at every stop to CHECK FREQUENCIES, CALL LETTERS, AND OPERATING HOURS OF ALL STATIONS ALONG THE PROPOSED ROUTE.

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

AERONAUTICAL RADIO STATIONS - KIAMI TO NATAL

NAME	CALL	LOCATION ° ' ° '	FREQUENCIES TRANSMITTING KCS	TYPE	RECEIVING KCS	TYPE	WATTS	HOURS	OPERATOR
Amapa, Brazil	PTF		3070, 5610	-	5000(day) 3000(night)	- -	-	-	PAA
Antilla, Cuba	CMB	"	2870, 3088, 5692	- - - -	5000(day) 3000(night)	- - - -	-	-	PAA
Barbados, Barbados B.W.I.	VPD	13-06-00N 59-37-00W	425, 500	- -					
Bonne Fiele, St. Lucia B.W.I.	JAF	13-43-00N 60-57-00W	6495	-			-	-	AAIS
	WTEB	13-43-00N 60-57-00W	10095	-			-	-	AAIS
	WTEB	13-43-00N 60-57-00W	9715(day) 4560(night)	- - - -	9715(day) 4560(night)	- - - -	-	-	AAIS
	WTEB	13-43-00N 60-57-00W	4280 6495, 11445	A3 A1	6495 6495, 11445	A3 A1	-	-	AAIS
Bonfim, Brazil	PMD-5	01-26-00S 48-30-00W	3150				10		
	PMD-7	01-26-00S 48-29-30W	2870*						
	PMD	01-26-00S 48-29-30W	3070, 3088, 5692, 8895	A3 A3 A1 A1	3088, 5692	A1 A1	600	24 hrs.	PAA
	PPQ	01-23-00S 48-29-00W	2870* 6495, 8430, 5610, 8895	A3 - - - -	2870* 5692, 8895	A3 - - - -	- -	- -	PAA
Bermuda, St. Croix B.W.I.	WTEX	17-30-00N 64- W	4280, 11445 6495, 11445	A3 A1	6495 6495, 11445	A3 A1	-	-	AAIS
Borinquen Field, Puerto Rico	WEQ	18-30- N 67-06- W	8780, 4280 6495, 8430, 11445 9715(day) 4560(night)	A3 A1 A1 - -	11695, 6495, 6210(day) 6495, 8430, 11445 A1 9715(day) - - 4560(night)		-	-	AAIS
Cabo, Haiti	HHP-2	18-38-00N 72-39-00W	342, 1688	-	5000(day) 3000(night)	- -	60	-	PAA
Camaguey, Cuba	CMC	21-25-00N 77-56-00W	2870, 3088, 5500, 5692, 6710	A3 A1 A1	3088, 5692, 5000(day) 3000(night)	- - - -	200	24 hrs.	PAA
Canela, Brazil	PTD	08-41-00S 48-26-00W	3070, 5475	A1 A2			100		

CONFIDENTIAL DECLASSIFIED

CONFIDENTIAL DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

NAME	CALL	LOCATION	FREQUENCIES TRANSMITTING	TYPE	FREQUENCIES RECEIVING	TYPE	WATTS	HOURS	OPERATION
Camocim, Brazil	PTU	02-52- S 40-52- W	500, 525, 708, 3070, 5610, 8217, 8895	A1 A2 - -	5000(day) 3000(night)	- -	100	24 hrs.	PAA
Caripito, Venezuela	YVA6	09-53- N 63-09- W	1638	-					
Charlotte, Virgin Is.	NBB	18-21-00N 64-56-00W	355, 464, 500	-			500	1200-1600 1900-0100	Navy
Ciudad Trujillo, Domin. Republic			2870, 3070, 5495, 5692, 8225, 9310	- - -	5692	-			PAA
			4220, 8200 8872, 4560	- -	-	-	-	-	AEP
	HIA	18-28- N 69-53- W	500	-			5000	1238-2338	
	HIN	18-25- N 69-23- W	1090	-			150	1440-1940 2040-0340	
	HIX	18-25- N 69-23- W	950	-			1000		
	HIX	18-25- N 69-23- W	1350	-			200	1440-1940 2040-0340	
	HI8Q	18-25- N 69-23- W	1470	-			25	1440-1940 2040-0340	
Coolidge Field, Antigua Is.	WTTF	17-07- N 61-47- W	4220 4595, 11445 9765(day) 4560(night)	A3 A1 - -	4495, 4595, 4595, 11445 9765(day) 4560(night)	A3 A1 - -			AACS
	XIX	17-06-00N 61-50-55W	3040, 5692, 8895	A1	5000(day) 3000(night)	- -	75		PAA
Destrellan	FFQ	16-15- N 62-34- W	388, 500, 515	- -		-	1600	1000-0200	Gov't.
Ensenada, Puerto Rico	NFR	17-58- N 66-56- W	438, 500	-	-	-	1500	-	-
Managua, Gr. Managua	YNG	20-57- N 73-40- W	438, 500	-	-	-	200	1200-2100 1500-1900	-
Fortaleza, Brazil	PPC	03-41- S 38-36- W	1708, 3070, 5610, 8895	A1 A2 A1 A2	5000(day) 3000(night)	- -	100	24 hrs.	PAA
Georgetown, Br. Guiana	VXL	06-48-00N 58-10-00W	1638, 3070, 5495, 5692, 8900	A1 A1 A1	5000(day) 3000(night)	- -	100	As required.	PAA

NAME	CALL	LOCATION	FREQUENCIES TRANSMITTING	TYPE	FREQUENCIES RECEIVING	TYPE	WATTS	HOURS	OPERATION
Georgetown, Br. Guiana	VHI	05-49-27N 58-08-50W	375, 400, 425, 500	- -			750	0945-0345	PAA
	WVDO	06-48- N 58-10- W	10065	-					
Georgetown, Atkinson Field, Br. Guiana	WTTD	06-48-00N 58-10-00W	4220, 4595, 11445 4560(night) 9765(day)	A3 A1 - -	4495 4595, 11445 4560(night) 9765(day)	A3 A1 - -			AACS
	SPA	06-48- N 58-10- W	6385	-	-				
Guantanamo, Cuba	NAM	19-54- N 75-09- W	255, 500, 8920, 16300 (or freq. called on)	- -	8920, 16300	-	1000	8AM to 7PM 7PM to 8AM	Navy
	NOJ	19-53-40N 75-05-45W	323, 4235, 8470	- -	4235, 8470	-		0600-1900	Navy Range Station.
Charlotte, Virgin Is.	FFV	17-54- N 64-51- W	388, 500, 515	-	-	-	30	1200-1600 1900-2100	Gov't.
Havana, Ranch Boyeros, Cuba	CMI	23-01-18W 82-21-07W	3088, 5500, 6710, 8700	A1 A1	6583(day) 3082(night)	A1 A1	200	-	PAA
Key West, Florida	NAR	24-33- N 81-48- W	355, 464, 500	-	8920, 16300	-	200	24 hrs. daily.	Navy.
Losey Field, Puerto Rico	WTLJ	18-27-30N 66-06-07W	4220, 4595, 11445	A3 A1	4495, 4595, 4595, 11445	A3 A1			AACS
Macapa, Brazil	PUF	00-01-45N 51-08-20W	3070, 5610, 8895	A1 A1	5000(day) 3000(night)	- -	75		PAA
Mayaguez, Porto Rico	WPNA	18-15- N 67-10- W	790	-	-	-	2500	1100-1300 1500-1800 2200-0200	
Miami, Florida	NOM	25-43-52N 80-14-05W	4230	-	2670, 4050y 8400, 4200 (in case of distress)	- -			Coast Guard
	WIOD	25-59- N 80-09- W	610	-	-	-	5000	1130-0500	PAA
	WNAT	25-48- N 80-09- W	1360	-	-	-	1000	1200-0500	

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

NAME	CALL	LOCATION ° ' "	FREQUENCIES TRANSMITTING	TYPE	RECEIVING	TYPE	WATTS	HOURS	OPERATOR
Miami, Florida	WSXL	25-49- N 80-18- W	375, 1638, 2870, 3082, 5405, 5775, 6425, 8895, 8217, 8895, 11394, 12310, 14440, 17257, 21301	- - - - - - -	2870, 3082, 5692	-	100	24 hrs.	FAA
	WQAM	25-47- N 80-11- W	560	-	-	-	1000	1130-0500	FAA
Miami, Chapman Field, Florida	WSO	25-41-00N 80-19-00W	1220, 8595, 11845	A3 A1	1695 8595, 11845	A3 A1			AACS
Monte Cristo, Dominican Repub.	KTD	19-52- N 71-39- W	350, 500	-	-	-	2000	1258-2338	-
Natal, Brazil	PRD	05-51-01S 35-14-51W	5668 2870 3070, 5610	- A3 -	5668 5610, 5692, 6583, (part time)	- - -	1000	1400-1800 0300-0800	Army FAA
	PSN	05-45-44S 35-12-00W	1698, 2870, 3082, 5505, 5692, 6650	A1 A2 A1 A2 A1 A2 A1 A2	3000(nights) 5000(day) 3082, 5610, 5692	A1 A2 A1 A2 A1 A2	100	24 hrs.	FAA
Paramaribo, Surinam	PZI	05-50- N 55-08- W	1635, 3082, 5495, 8895	A1 A1	5000(day) 3000(nights)	-	80		FAA
Paramaribo, Surinam	PZH	05-50- N 55-09- W	375, 500, 1880, 5495, 8896	- - -	-	-		0840-0940 1340-1540 500 Kmc. & harmonics.	
Paramaribo, Zanderij Field, Surinam	PZP	05-45-43N 55-12- W	1618, 3070, 5405, 5692, 8895	A1 A1	5000(day) 3000(nights)	-	15		FAA
Paramaribo, Surinam	WSXL		1635(nights) 11845(day)	- -	9765(nights) 11845(day)	-			AACS
Ponce, Puerto Rico	WPAB	17-59- N 66-36- W	1370	-	-	-	1000		
	WPHB	18-01- N 66-37- W	1120	-	-	-	850	1500-1800 1300-1400(Sun.) 1500-0100(Sun.)	
Port au Prince, Haiti	HHH	18-33- N 72-20- W	420, 500	-	-	-	2000	1100-0300 1700-1900	
	HHP	18-34- N 72-20- W	1870, 3082, 3082, 5495, 5692, 5692	A1 A2 A1 A2 A1 A2	5000(day) 3000(nights) 5692	A1 A2 A1 A2 A1 A2	200	24 hrs.	FAA

CONFIDENTIAL
DECLASSIFIED
DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

NAME	CALL	LOCATION ° ' ° '	FREQUENCIES TRANSMITTING	FREQUENCIES TYPE	RECEIVING	TYPE	WATTS	HOURS	OPERATOR
Port au Prince, Haiti	HBP2	18-32- N 72-36- W	1458	A1 A2	-	-	60		
	HBB	18-33- N 72-00- W	1230	-	-	-	850	1700-1900 2300-0000	
Port of Spain, Trinidad	MBT-3		6520, 8885	- - - -	6520, 8885	- - - -	-	Continuous 0700-1900	RAF
Port of Spain, Ft. George, Trinidad.	VPQ		- - - -	- - - -	3082(night) 6953(day)	- - - -			
Port of Spain, Cocorite, Trinidad	ZBW	10-40- N 61-33- W	1458, 2870, 3070, 3082 5695, 5698, 8885	A1 A1 A1 A1	3082, 5698, 5000(day) 3000(night)	- - - - - -	100	24 hrs.	PAA
Port of Spain, Piarco, Trinidad	ZQO	10-35- N 61-28- W	1458, 2870, 3070, 5695, 5698(night) 5698(day) 10955	A1 A3 - - A3 A3	3082(night) 6953(day)	- - - -	100 50	24 hrs.	PAA
Paramaribo, Dutch. Guiana.	ZTP	15-40- N 70-01- W	324, 500	- -	- -	- -	500	1230-0330	
Recife, Brazil	PYR	08-08- S 34-56- W	1709, 2870, 5610, 8895, 12995, 16540	A1 A2 A1 A2 A1 A3	3000(night) 5600(day)	A1 A1	850	24 hrs.	PAA
Manaus, Dutch. Guiana.	HIB	14-05- S 60-01- W	398, 459	- -	- -	- -	-	1230-0330	
San Juan, Puerto Rico	NAU	18-28- N 66-06- W	255, 364, 430, 500, 8920, 16300 (or frequency called on)	- - - - - - - - -	8920, 16300	-	2500	24 hrs.	
	WSAQ	18-26- N 66-08- W	600	-	-	-	1000	1100-1800 2000-0300 1200-0215 1100-0300(Sundays)	
	WSAY	18-28- N 66-06- W	1000	-					
	WNYU	18-28- N 66-06- W	375, 1638, 2870, 3082, 5375, 5698	- - - - - -	3082, 5698, 5000(day) 3000(night)	- - - - - -	1200	24 hrs.	PAA
San Pedro, Dutch. Guiana.	HIE	15-47- N 66-16- W	2870, 3070, 5698	- -	5000(day) 3000(night)	- -	100		PAA

CONFIDENTIAL
DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

NAME	CALL	LOCATION ° ' "	FREQUENCIES				WATTS	HOURS	OPERATION
			TRANSMITTING	TYPE	RECEIVING	TYPE			
San Pedro, Ponce, Puerto.	KIA	18-27- N 66-31- W	347, 500	-	-	-	150	1300-2230	
Santa Clara, Cuba	CLZ	22-5- N 80-00- W	333, 387, 500	= =					
Santiago, Cuba	CLB	20-00- N 75-50- W	125, 272, 348, 500	= =	-	-	-	1400-0500	
	CMC	20-01- N 75-51- W	1675, 3028, 5698	= =	5000(day) 3000(night)	= =	200	1200-2200 1130-2200(Sundays)	FAA
	CMKK	20-01- N 75-49- W	930	-	-	-	1000		
	CMKM	20-01- N 75-48- W	1000	-	-	-	1000		
San Luis, Hewaii	PHJP	08-35- S 14-31- W	1490	-	-	-	-	24 hrs.	FAA
	PYC	08-35- S 14-31- W	1708, 2070, 3280, 5600, 5698, 8895	A1 A2 A1 A2 A1 A2	3028, 5698, 5000(day) 3000(night)	= =	100	24 hrs.	FAA
Fulton, Jamaica	KEQ		1620, 1595, 11845	A2 A1	1495, 1595, 11845	A2 A1			AACS
	KEE		9765(day) 1560(night)	= =	9765(day) 1560(night)	= =			
Waller Field, Trinidad	WTDI		10065	-					
	WTHH	10-36-00N 61-15-00W	1620m 1595, 8220, 11845 1560(night) 9765(day)	A2 A1	1495m 1595, 8220, 11845 A1 1560(night) 9765(day)	A2 =			Control Tower
	ZBS	10-36- N 61-15- W	6985	-					

*Control Tower.

*** Natal Radio control tower in operation by Army personnel. Transmits and receives on 5602 kcs.

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DIRECTION FINDING STATIONS - HIGH TO HIGH

NAME	CALL	LOCATION ° ' "	FREQUENCIES TRANSMITTING	TYPE	RECEIVING	TYPE	WATTS	HOURS	REMARKS
Fortaleza, Brazil	FTZ	03-51-S 38-36-W			1708			24 hrs.	H4
Havana, Cuba	CHK	23-08-N 82-21-			950		5000	24 hrs.	
	CHKE	23-08-N 82-21-			590		15000	24 hrs.	
	CHP	23-08-N 82-21-			1675		200		
	CHKQ	23-08-N 82-21-			1150		10000	24 hrs.	
	CHQ	23-08-N 82-21-			690		85000	24 hrs.	
	CHK	23-08-N 82-21-			1010		10000	24 hrs.	
Natal, Brazil	FTN	05-46-S 35-13-			1698		100		
Paramaribo, Surinam	LIS	05-50-N 55-09-					1200		
Port of Spain, Trinidad	WSY-3				1675				H4P
Port of Spain, Pt. George, Trinidad	TTQ	10-41-N 61-31-			368				
St. Johns, Antigua	ZIK	17-06-N 61-52-			1705		75		
San Juan, Puerto Rico	WSZL	18-27-N 66-08-			1320		500		1654-1850 2850-3255 3262-4000 4250-4515

RADIO BEACON STATIONS - HIGH TO HIGH

Belem, Brazil	FTP	01-26-03S 48-29-30W	1708	A1 A2	275, 375	A1 A2	1200	24 hrs.	H4
Belem, Val de Cans, Brazil	FTQ	01-23-05S 48-29-09W	275, 375	A1 A2			1200	24 hrs.	H4
Joape, Brazil	FTF		1708, 358,	-				Until 2400 GCT	H4
Antilla, Cuba			1668	-					H4
Belem, Brazil	FTL	01-26-03S 48-29-30W	1708	A1 A2			1200		

DECLASSIFIED CONFIDENTIAL

DECLASSIFIED CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL
DECLASSIFIED

NAME	CALL	LOCATION ° ' "	FREQUENCY TRANSMITTING	FREQUENCY TYPE	RECEIVING	TYPE	WATTS	HOURS	OPERATOR
Borinquen Field, Puerto Rico.	MCM	18-30- N 67-08- W	540	-					
Ca-Liz, Haiti	WBQ		2142, 1668	-					PAA
Camaguey, Cuba	CMM	21-30-00N 77-50-00W	4097, 1669	A1 A2			1200		
Canela, Brazil	PVO	08-11-00S 49-27-30W	1345, 1698	A1			75		
Canoeiro, Brazil	PVU	02-50-00S 40-50-00W	875, 375, 1708	A1			750	24 hrs.	PAA
Ciudad Trujillo, Domin. Repub.		18-25- N 69-23- W	321, 1618, 1638	- -					PAA
Coolidge Field, Antigua	ZIX	17-06-00N 61-50-55W	346, 1708	A1			75		PAA
Corumba, Brazil	PVO	03-13-00S 30-35-40W	1708	-			100		PAA
Georgetown, Br. Guiana	VIL	06-48-00N 58-10-00W	1638	A1 A2			200	As required.	PAA
Guantanamo, Cuba	NAJ	19-53-40N 75-05-45W	323					Navy (Radio Range Station)	
Igarassu, Ranch Bayeux, Brazil	CKZ	07-03-18S 34-56-07W	1668	A1			200		PAA
Manaus, Brazil	PSP	03-01-40S 60-08-00W	1668	A1 A2			1200		PAA
Miami, Florida	WSSL	25-47-13N 80-31-31W	375, 1638	A1			75		PAA
Natal, Brazil	PSP	05-45- S 35-13- W	1618, 8895	A1			20		PAA
	PSD	05-49- S 35-13- W	375(on request) 1698	- -					
	PUB	05-49- S 35-13- W	1698, 6500	A1 A2			100.		
Paramaribo, Surinam	PZI	05-49- S 55-08- W	1820	A1			1000.		
Paramaribo, Zanderij Field, Surinam	PZP	05-28-30N 55-12-00W	1618, 360	A1			30	On request.	PAA

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

NAME	CALL	LOCATION ° ' "	TRANSMITTING	EQUIPMENT TYPE	RECEIVING	TYPE	WATTS	HOURS	OPERATOR
Piarco, BWI, Trinidad	BWI	-	330kc	-	-		-		
Port au Prince, Haiti Field, Haiti	HHP	18-31- W 72-20- W	275, 375, 500, 525, 1638	A1 A2			800		
Port of Spain, Piarco Field, Trinidad	ZQO	10-35-00N 61-21-00W ? -	1676 330	A1 -			100		PAA
Port of Spain, Ft.George, Trinidad	YBQ	10-13- W 61-33- W	1698(day) 362(night)	A1			800	24 hrs.	PAA
Port of Spain, Cocorite Field, Trinidad	ZDK	10-40- W 61-31- W	1638	A1			100	24 hrs.	PAA
Recife, Brazil	PPB	08-04-16S 34-52-32W	1708	A1			250	24 hrs.	PAA
San Juan, Puerto Rico	WKDU	18-28-30N 66-06-09W	375, 1638	A1 A2			1000		PAA
San Pedro de Macoris Domin. Repub.	HIH		340, 1668						PAA
Sao Luis, Brazil	PPE	02-35- S 44-13- W	1708	A1 A2			100		PAA
Santiago, Cuba	CMK		1678						PAA

*Control Tower
ex Signal is 10 second dash followed by 4 short dashes, 15 minute periods, on hour and on half hour.

77

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED CONFIDENTIAL

AERONAUTICAL RADIO STATIONS - WEST COAST OF AFRICA

	CALL	COORDINATES	TRANSMISSION Freq.	Type	RECEPTION Freq.	Type
Accra (PAA) (Gold Coast)	BOZ2	05-35-49N 00-09-44W	1638	A1	4575	A1
			4575		5662	A1
			8885	A1	6500	A3
			5662	A3	8885	
			5375			
			6593			
			8851			
			12624			
Accra (Civil) (Gold Coast)	ZNT	05-35-49N 00-09-44W	333	A1 A2	333	A1 A2
			6593		6593	
Accra (PAA) (Gold Coast)	ZNT2	05-35-49N 00-09-44W	380			
Bathurst (Gambia)	VSA	13-37-15N 16-34-25W	333		333	
			6593		6590	
Bathurst (Gambia)	MRU	13-27-54N 16-35-16W	4815			
			6500			
			6510			
			8885			
Freetown (Sierra Leone)	BJC		4575		4575	
(RAF)	VPU	08-27-00N 13-16-30W	365	A1 A2	4575	A1 A2
			4875		8885	
			6500			
	SIATA		4530	A3		
Lagos (PAA) (Nigeria)	MRD2		316	A3	5662 (See note on PAA)	A3
			1678			
			5662			
(RAF)	MRD		6500		6500	
(CIVIL)	ZJX	06-27-28N 03-26-13E	333	A1 A2	333	A1 A2
			6593	A1		
Marshall (Liberia)	ELH	06-14- N 10-21- W	419			
			500			
	ELP2		3404		3404	
	PLE	06-19- N 10-49- W	7580		500	
					8200	
	ELH	06-19- N 10-49- W	8425		8425	
	ELP	06-19- N 10-49- W	10310		10310	
	VLI	06-19- N 10-49- W	18460		18460	
	RGB		5662		8200	
			8961			
Takoradi (RAF) (Gold Coast)	BJW (YA9)		4575		4575	
			8885		8885	
Takoradi (Civil) (Gold Coast)	ZNV	04-53-23N 01-45-44W	333		6590	
			6593			

DECLASSIFIED CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

	CALL	COORDINATES	TRANSMISSION Freq.	Type	RECEPTION Freq.	Type
D/F STATIONS - WEST COAST OF AFRICA						
Accra (Civil) (Gold Coast)	ZMF	05-36-00N 00-10-00W			333	
Bathurst (RAF) (Gambia)	VSA	13-27-54N 16-35-16W			4575	
Freetown (Sierra Leone)					4575	
(RAF)	VTU1	08-27-00N 13-16-30W			4875 6500 8885	
Lagos (Civil) (Nigeria)	ZJX (MKD)	06-27-29N 03-26-15E			333	
Takoradi (Gold Coast)	ZJV				4575	
RADIO BEACON STATIONS - WEST COAST OF AFRICA						
Accra (Gold Coast)	A		380 1658			
Bathurst (RAF) (Gambia)	B	13-27-54N 16-35-16W	330			
Freetown (RAF) (Sierra Leone)	F		340			
(Operates for 2 minute periods commencing 5, 20, 35, 50 minutes past the hour)						
Lagos (Civil) (Nigeria)	ZJX		333			
Marshall (Liberia)	R*		316 1638	A3 A3		
Takoradi (Gold Coast)	ZNV		310			

*Signal is a 5 second dash followed by letters MO

NOTE: PAA Stations in Africa: to get 5662 kcs. ask for Channel #6.
to get 1600-1700 kcs. ask for Channel #8.
(operates 0700-1900 GMT)
to get 300-400 kcs. ask for Channel 8A
(operates 1900-0700 GMT)

DECLASSIFIED

CONFIDENTIAL

79

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED CONFIDENTIAL

EMERGENCY PROCEDURES

1. FOR COMMUNICATION BETWEEN PERSONNEL OF A PLANE FORCED TO LAND AND THE ACCOMPANYING AIRCRAFT, OR AIRCRAFT ENGAGED IN SEARCH WHEN RADIO COMMUNICATION IS NOT POSSIBLE, - THE FOLLOWING VISUAL SIGNALS WILL BE USED:

A. NEED (MEDICAL) ASSISTANCE - URGENT. (USED ONLY WHEN LIFE IS AT STAKE). LIE PRONE. (RED SIGNAL)

B. ALL O. K. DO NOT WAIT. WAVE ONE ARM OVERHEAD. (WHITE SIGNAL.)

C. CAN PROCEED SHORTLY. WAIT IF PRACTICABLE. ONE ARM HORIZONTAL.

D. NEED MECHANICAL HELP, OR PARTS - LONG DELAY. TWO ARMS LATERALLY HORIZONTAL.

E. PICK US UP. PLANE ABANDONED. BOTH ARMS VERTICAL.

F. DO NOT ATTEMPT TO LAND HERE. TWO ARMS WAVED ACROSS FACE.

G. LAND HERE. TWO ARMS FORWARD HORIZONTALLY, SCRATCHING AND POINTING IN DIRECTION OF LANDING.

H. ONE RECEIVER IS OPERATING. CUP HANDS OVER EARS.

I. USE DROP MESSAGE. MAKE THROWING MOTION.

J. AFFIRMATIVE. WHITE CLOTH WAVED VERTICALLY, DIP NOSE OF PLANE SEVERAL TIMES.

K. NEGATIVE. WHITE CLOTH WAVED HORIZONTALLY, FISHTAIL PLANE.

AIRPLANE CREWS PROJECT X

1. In case of capture by enemy or by hostile forces no person will give any information of any nature concerning Project X or any other military information. Information given in such cases will include name, rank, and army serial number only. NO OTHER INFORMATION WILL BE GIVEN.

2. Any classified documents or papers carried by the airplane or crew, whether secret, confidential or restricted will be destroyed, preferably by burning, in the event of mishap or the likelihood of its falling into enemy or hostile hands.

3. All personnel will be informed that allotments in force at time of capture to dependents will be continued and dependents will draw such allotments during the entire period of captivity.

DECLASSIFIED CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

LAST MINUTE REVISIONS

1. **Borinquen Field, Puerto Rico**
   Dispersal positions T-6, T-11, T-13, T-14, and R-6 are available for transient craft. The NCO in charge, Transit Aircraft Crew, will coordinate the parking of aircraft.

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

CORRECTION AND/OR ADDITION REPORT

MIAMI-CAIRO ROUTE MANUAL

(Report all fields omitted from this directory, including any under construction. Report also corrective information on fields included in this directory. Detach this sheet and mail to "Air Movements Unit, AFDIS, Headquarters Army Air Forces, War Department, Washington, D. C.")

TO: Air Movements Unit, AFDIS.

FROM:

The following corrections, additions and/or recommendations are suggested:

Name and Rank

Date and Place

(If more space is required use reverse side)

CONFIDENTIAL

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

~~CONFIDENTIAL~~

CORRECTION AND/OR ADDITION REPORT

MIAMI-CAIRO ROUTE MANUAL

(Report all fields omitted from this directory, including any under construction. Report also corrective information on fields included in this directory. Detach this sheet and mail to "Air Movements Unit, AFDIS, Headquarters Army Air Forces, War Department, Washington, D. C.")

TO: Air Movements Unit, AFDIS.

FROM:

The following corrections, additions and/or recommendations are suggested:

Name and Rank

Date and Place

(If more space is required use reverse side)

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

CORRECTION AND/OR ADDITION REPORT

MIAMI-CAIRO ROUTE MANUAL

(Report all fields omitted from this directory, including any under construction. Report also corrective information on fields included in this directory. Detach this sheet and mail to "Air Movements Unit, AFDIS, Headquarters Army Air Forces, War Department, Washington, D. C.")

TO: Air Movements Unit, AFDIS.

FROM:

The following corrections, additions and/or recommendations are suggested:

Name and Rank

Date and Place

(If more space is required use reverse side)

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

DECLASSIFIED

AIRPORT DIRECTORY

SOUTH AMERICA
WEST COAST

BOLIVIA
CHILE
ECUADOR
PERU

AU 194

PREPARED BY
AIR MOVEMENTS SECTION, AFDIS
U. S. ARMY AIR FORCES
WASHINGTON, D. C.

EDITION OF
JUNE 10, 1942

Perforated correction sheets are attached at end of this Directory. All personnel are requested to complete these sheets and forward them promptly.

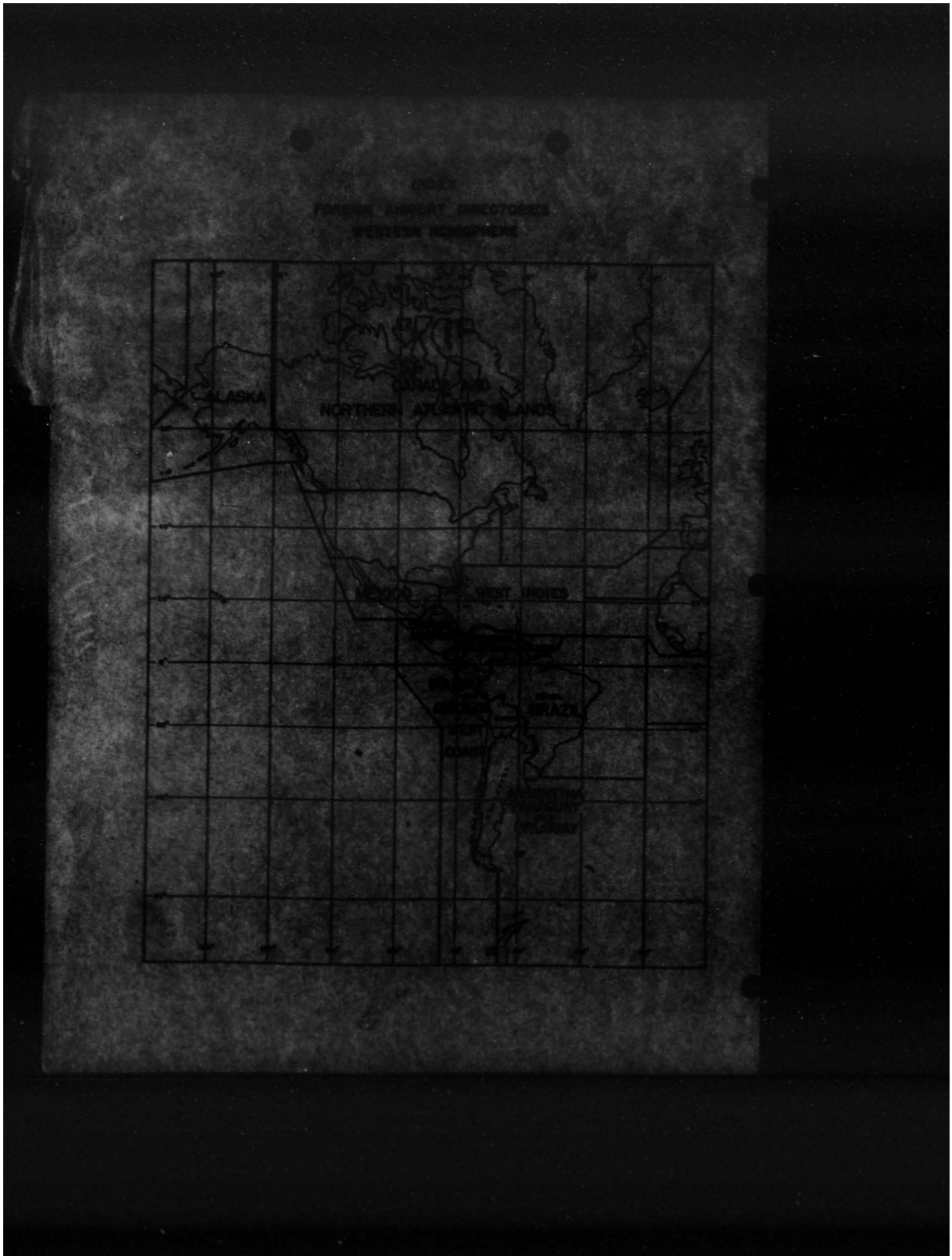
DECLASSIFIED

CONFIDENTIAL

AU AO 46 (10)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir. 5 200 10ea
Chief, Records Div. 2/15/96

DECLASSIFIED

SOUTH AMERICA, WEST COAST

PREFACE

In general, air operations developed primarily along the coast; overland transportation was negligible, little work was necessary to prepare landing grounds on the coastal plains and deserts. Influx of capital and technical improvements in equipment together have rapidly established a network of scheduled air lines.

Although navigational aids are lacking, hangars few, repair shops under-equipped, fuel handling inadequate, and but little artificial surfacing—these deficiencies can be readily remedied.

Topographical features present almost insurmountable barriers to extension of highways and railroads; huge natural resources, growing industrialization, and stabilization of local governments will insure increasing development of air operations.

Topography of the various countries should be carefully studied. Highways marked on maps are often mere trails, there are but few railroads, and many towns are so similar in lay-out as to make recognition difficult.

Airport elevations range from sea-level to 13,398 feet at La Paz, Bolivia; terrain varies from sandy deserts and tropical jungles to the high sierra with its confusion of snow-clad peaks and bottomless gorges. Hazards to pilotage are coastal rains and fogs, rains in the low, humid areas, and in the sierra, clouds and thunderstorms. Icing conditions are met in the Andean passes. Local, magnetic storms may affect compass and radio. Emergency landings in the swamp and jungle areas are apt to be fatal. However, along the coast and on the Sierran plateaus there are innumerable emergency landing grounds, and there is constant spreading of established bases.

Crackups are hard to locate in both sierra and montana; subsistence and foot-travel in some sections of the rugged Andes and in the jungled montana is almost impossible. Also, it should be noted that in the thin air of the Andean heights, parachute descent is so rapid as to often result in landing injuries.

In studying flight routes, it must be remembered that many of the intermediate or emergency fields offer little in the way of facilities; there has been practically no preparation of landing surfaces beyond elementary grading, and fuel supplies are limited to the air lines' needs. On the coast, dust and sand conditions are extremely bad. Alternate landing areas are frequently available, and inspection should be painstaking whenever possible before landing.

The major airports—except some purely military fields—are on the Pan American Airways system. Other air lines are in operation within the various countries but only PANAGRA has developed communication and operational facilities to a high degree of reliability and extent.

At these airports the pilot can be sure of accurate weather reports and up-to-date information on other conditions further along his route. The PANAGRA radio network is complete although as yet voice radio has been installed only at Lima (Limatambo).

High octane gas is available, although quantities and refueling equipment are usually inadequate for military operations. Also, it must be remembered that almost all of the gasoline for West Coast airports comes from the refinery at Talara, Peru; transportation along the coast and up to the sierra is slow, necessitating long-range planning for extraordinary requirements.

BOLIVIA

Bolivia has been included in this directory of the west coast republics because of its key position in the air line network of South America.

The great plateau in the southwestern part of the country has an average elevation of 12,000 feet, lying between two Andean mountain chains. Numerous ranges branch from the main ones in all directions. (Three of the highest peaks in the Western Hemisphere are Sorata,

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

21,490 feet; Illimani, 21,204 feet; and Sajama, 21,047 feet.) Northward and eastward the land slopes down to the tropical lowlands of the Amazon and Parana drainage basins.

Difficulties of transportation have led to development of a regular network of air lines, connecting the central plateau cities with the lowlands.

Particular note should be taken of the high elevation of many landing fields in Bolivia—La Paz, 13,398 feet—with the resultant effects on aircraft operations. Usually, strong winds are found in the afternoon hours and are of assistance to pilots, but overloading in the thin air is hazardous in the extreme.

CHILE

Chile is traversed by two mountain chains, the Cordillera de la Costa and the Andes. Between these two chains, lies the great, longitudinal valley. The coast is flat and barren in the north, broken by cultivated valleys in the central section, and in the extreme south becomes an archipelago.

On sandy coastal deserts, and in the cultivated valleys, emergency landings are possible at many places. Flight conditions are good with the exception of occasional fogs, though even then there is usually sufficient ceiling for letting down out over the ocean. In the extreme south fogs and heavy rains, as well as extremely high winds, make dangerous flight conditions.

From Arica to Santiago prevailing winds below 5,000-foot altitudes are from the south; above 8,000-foot altitudes prevailing winds are from the north, so advantage can normally be taken by choosing proper altitude according to direction of flight.

Flight across the Andes from Santiago to Mendoza, Argentina, offers no difficulty in clear weather for an airplane with a service ceiling of 18,000 feet or better. (Although it is to be avoided if possible, passage through the valley can be accomplished at 14,000 feet.) However, winds of great velocity are encountered over this section of the Andes, along with turbulence and clouds. Occasionally, planes are unable to make headway and have to turn back. Since the pass crosses the shoulder of Mount Aconcagua, 23,500 feet—with other 20,000 foot peaks nearby—instrument flight in this region is extremely hazardous.

ECUADOR

Three topographic regions are found in Ecuador, (1) the coastal, lowland region, (2) the "sierra" or Andean highlands, and (3) the "montana" east of the Andes, a heavily wooded lowland draining into the upper Amazon.

Despite scant transportation facilities in Ecuador, unfavorable geographic conditions have slowed the development of aviation. The thick vegetation, swamps, and heavy rains of the north coast, the prevalence of fogs along the south coast, the rugged character and high altitudes of the sierra, and the dense jungles of the Amazon basin all contribute to the hazards of flight. Emergency landings are usually disastrous.

Along the north coast heavy rains are frequent—usually in late afternoon.

The south coast has a high frequency of fogs, although normally fog depth is 1,500 to 4,000 feet.

Intermontane areas are usually clear, with the exception of low ceilings in early morning hours. Although the mountain passes flanking the valleys are often blocked by thick, turbulent clouds in afternoon hours and thunderstorms occur along the ridges, aircraft can take advantage of the good valley weather in flight across Ecuador.

In eastern Ecuador heavy afternoon showers of short duration are frequent, but clouds in the Amazon basin are rarely so high they cannot be flown over.

PERU

The topography of Peru largely accounts for its distribution of landing fields. Physically Peru may be divided into (1) a narrow coastal belt, on which most of the landing fields are situated, and which provides many areas in which landing fields can be easily constructed or where emergency landings can be made, (2) the great Andes Mountain System, known as the "sierra," where many pampas suitable for the construction of emergency landing fields may be found, and (3) the

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

tropical country east of the Andes, generally covered with dense jungle, which offers little possibility for emergency landing.

Landing fields in Peru have little artificial surfacing or drainage; the natural surface of the ground is mostly suitable for airfield development and the lack of rain along the coast permits fields there to be used throughout the year. Even the main airports of Peru—Talara, Chiclayo, Limatambo (at Lima) and Arequipa—have no paved runways, though there are plans to improve these fields.

Air movements in Peru are largely confined to the coastal region, not only because of its topography and general commercial development, but also because it links up the countries to the north and south of Peru: this coastal belt comprises a considerable portion of the air route along the west coast of South America. Of increasing importance is the route eastward to Iquitos, through which it is planned to link up Peru and Brazil.

Visibility is the most critical of the meteorological elements along the almost rainless coast of Peru. During the winter months (from about June to November) heavy fogs and mists prevail, and low clouds are present almost every day.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL DECLASSIFIED

DECLASSIFIED CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

SUMMARY

The airport data herein is a consolidation of information available at Headquarters Army Air Forces. This information has been obtained chiefly from the following sources: Pan American Grace Airways, Inc.; Military Attaché reports; and reports of Army Air Force observers travelling in the area.

The landing fields for the directory have been grouped under:

BOLIVIA
CHILE
ECUADOR
PERU

Summarized, the data is as follows:

BOLIVIA: 42 emergency fields; 5 military and civil airports. The civil airports are:

Cochabamba Hayhuayes, field under expansion, to be first link on new West-East transcontinental route of Panagra: La Paz—Cochabamba—Santa Cruz—Robere—Puerto Suarez. To be Army base; now suitable for B–18's.

Oruro, used by PANAGRA, LAB. Suitable for DC–3's.

Trinidad, good approaches, level terrain, 4,000 foot runway. Dust and sand conditions bad. DC–3's; B–18's.

Uyuni, regular stop on PANAGRA "diagonal" route, Lima—La Paz—Buenos Aires.

The military airport is:

La Paz (El Alto de), altitude 13,398 feet. Well equipped, also used by airlines. DC–2's, DC–3's, Junkers, P–40's, B–17's have operated from here.

CHILE: 64 emergency fields; 8 military and civil airports. The civil airports are:

Antofagasta, excellent all-weather field for all types of aircraft. 100-octane gas available.

Arica (El Buitre), used by air lines, DC–3's, B–18's. Dust and sand situation is bad. Solid overcast at 1,500 feet frequent; let down over ocean.

Santiago (Los Cerrillos), excellent all-weather field, suitable B–17 operations.

The military airports are:

Chillan (San Ramon), not suitable heavy bombardment aircraft.

Iquique (Los Londores), suitable B–17's

Puerto Montt (Chemiza), limited: a new field under development in this vicinity.

Quintero, capable of expansion: at present not suitable for heavy bombardment aircraft.

Santiago (El Bosque), not as large as Los Cerrillos, could be used by B–18's.

ECUADOR: 11 emergency fields; 4 military and civil airports. The civil airports are:

Guayaquil (Simon Bolivar), when this field is closed the one in Quito is open, and vice versa, in many instances. PANAGRA. Suitable for B–17's in dry weather, June to December.

Quito (Mariscal Sucre), all weather, suitable B–18's, B–17's. Outlying obstructions include high mountains on all sides but immediate approaches are good. December to May wet season but operable. Airport of entry; used by PANAGRA.

The military airports are:

Galapagos Islands, United States Army air base under construction.

Salinas (General Ulpiano Paez), United States Army air base under construction. Now usable by B–17's, B–24's.

PERU: 102 emergency fields; 6 military and civil airports. The civil airports are:

Arequipa (Chachani), ample for DC–3's, B–18's. B–17's could operate with right wind direction, usually found in A. M. Extension planned.

Lima (Limatambo), excellent field for all aircraft, all weather, could accommodate more than a group. PANAGRA main base facilities, including voice radio.

Talara, on sandy tablazo, approaches are excellent. Dust conditions bad. Fuel no problem, due presence of Talara refinery. A vital field.

Trujillo, in present state small, but used by air lines; DC–3's.

The military airports are:

Chiclayo, limited facilities; used by air lines.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

Lima (Las Palmas No. 1), Peruvian main base; not as large as Limatambo.

★ ★ ★

The following are explanatory notes on the manner of presenting the information:

NAME: Under this heading is given the name of the nearest town or city of any significance. This name is followed by the name of the airport in parentheses if different from the name of the city or town. For towns at which there are several airports, the name of the town is repeated in parentheses for the airport known by the town name in order to distinguish it from the other airports. In cases where the name of the airport transcends the name of the town in importance, the airport name appears first.

TYPE: Under this heading will be found a single letter having the following meaning:

M—Military airport of reasonable size and having at least the more important facilities.

C—Civil airport (private and commercial) of reasonable size and having at least the more important facilities.

E—Emergency field (military or civil) either of small size or having few facilities or both.

FACILITIES: Under this heading is given a brief listing of facilities known to exist. No details are given although in many cases more detailed information is available.

★ ★ ★

The Index is a straight alphabetical listing, by both town name and airport name of all fields in Bolivia, Chile, Ecuador, and Peru.

It is to be understood that in a directory of this character all detailed information cannot be included although on the majority of the fields the information presented here represents all that is available at this time. For many of the fields there are available sketches or photographs or both.

Caution in the use of this directory is advised inasmuch as some of the information used is not of recent date and there may be fields in existence of which this office has no knowledge. Perforated correction sheets will be found in the back of this directory. These sheets are to be completed by military personnel stationed in or traveling in the area.

New editions will be issued from time to time as more or better information becomes available.

DECLASSIFIED
CONFIDENTIAL

DECLASSIFIED
CONFIDENTIAL

INDEX

City and airport	Country	Page
Aiquile	Bolivia	1
Alejancho Velario Datete (see Cusco)	Peru	12
Algarrabal	Chile	3
Alto de Cachinal (see Pampa-Cachinal)	Chile	5
Alto Hospicio (see Iquique)	Chile	5
Alto Hospicio (see Pisagua)	Chile	6
Ancon (No. 1)	Peru	11
Ancon (No. 2)	Peru	11
Andacolla	Chile	3
Angol	Chile	3
Antofagasta (Cerro Moreno)	Chile	3
Antofagasta (Portezuelo)	Chile	3
Apolo	Bolivia	1
Arenillas (La Pitava)	Ecuador	9
Arequipa (Chachani)	Peru	11
Arequipa Porongoche	Peru	11
Argolla	Chile	3
Arica (El Bultre)	Chile	3
Atalaya	Peru	11
Atico	Peru	11
Ayacucho (Yanamilla)	Peru	11
Bahia Catalina (see Punta Arenas)	Chile	6
Baquedano	Chile	3
Barriles (see Tocopilla)	Chile	7
Bellavista	Peru	11
Cabo Negro (see Magallanes, Punta Arenas)	Chile	5
Cajabamba	Peru	11
Cajamarca (Shultin)	Peru	11
Calama	Chile	3
Caleta Buena	Chile	3
Camana	Peru	11
Canada Larga	Bolivia	1
Canete	Chile	3
Canete	Peru	11
Captain Alvarino (see San Ramon)	Peru	14
Caraz	Peru	11
Caravell (El Cascajo)	Peru	11
Carrero Pinto	Chile	4
Cartavio	Peru	11
Casa Grande	Peru	11
Casma	Peru	11
Castilla (Miraflores)	Peru	11
Cayalti	Peru	11
Cerro Moreno (see Antofagasta)	Chile	3
Chachapoyas (El Tapial)	Peru	11
Chachani (see Arequipa)	Peru	11
Chala	Peru	12
Challapata	Bolivia	1
Chanar	Chile	4
Chanaral	Chile	4
Chaquiminas (see Puto)	Peru	14
Charagua	Bolivia	1

CONFIDENTIAL
DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

City and airport	Country	Pass
Charana	Bolivia	1
Chemiza (see Puerto Montt)	Chile	6
Chiclayo	Peru	12
Chiclin	Peru	12
Chillan (San Ramon)	Chile	4
Chimbote	Peru	12
Chincha Alta (Pampa de Noso)	Peru	12
Chisa (see Pisagua-Tarapaca)	Chile	6
Choquehuanca (see Huancabamba)	Peru	12
Choreti	Bolivia	1
Choto	Peru	12
Chuguisaca	Bolivia	1
Chumpullo Valdivia (see Valdivia)	Chile	7
Cobija (see Pampa Agua Blanca)	Bolivia	1
Cochabama Hayhuayes	Bolivia	1
Coica Valley (see Lari)	Peru	13
Colina	Chile	4
Comarapa	Bolivia	1
Combarbala	Chile	4
Concepcion	Bolivia	1
Concepcion (Concepcion)	Chile	4
Concepcion (Hualpencillo)	Chile	4
Condebamba (Marcoc)	Peru	12
Copiapo	Chile	4
Corumba (See Puerto Suarez)	Bolivia	2
Cuenca (Mariscal Lamar)	Ecuador	9
Culebras	Peru	12
Curico	Chile	4
Curmaria	Peru	12
Cus Cus (see Illapel)	Chile	4
Cuseo (Alejancho Velario Datete)	Peru	12
Dos Rios	Ecuador	9
El Alto de La Paz (see La Paz)	Bolivia	1
El Arenal (see Talca)	Chile	6
El Belloto (see Quilpue)	Chile	6
El Bosque (see Santiago)	Chile	6
El Buitre (see Arica)	Chile	3
El Cascajo (see Caraveli)	Peru	11
El Tapial (see Chachapoyas)	Peru	11
El Vrompillio (see Santa Cruz)	Bolivia	2
Eloy Alfaro (see Manta)	Ecuador	9
Esmeraldas (La Propicia)	Ecuador	9
Eucaliptus	Bolivia	1
Galapagos Islands	Ecuador	9
General Ulpiano Paez (see Salinas)	Ecuador	9
Guayaquil (Simon Bolivar)	Ecuador	9
Guayaramerin	Bolivia	1
Heda Somate (see Somate)	Peru	15
Huacho	Peru	12
Huachog (see Huanuco)	Peru	12
Hualpencillo (see Concepcion)	Chile	4
Huamachuco	Peru	12
Huanacopancpa	Peru	12
Huancabamba	Peru	12
Huancabamba (Choquehuanca)	Peru	12
Huancayo	Peru	12

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

City and airport	Country	Page
Huanuco (Huachog)	Peru	12
Huara	Chile	4
Huarmey	Peru	12
Huascaran (see Yungay)	Peru	15
Ica	Peru	12
Illapel (Cua Cua)	Chile	4
Ilo	Peru	12
Iquique (Alto Hospicio)	Chile	5
Iquique (Iquique)	Chile	4
Iquique (Linea Nacional)	Chile	4
Iquique (Los Condores)	Chile	5
Iquitos	Peru	13
Jaqui	Peru	13
Jauja	Peru	13
Jorochito	Bolivia	1
Juanjui	Peru	13
Juliaca	Peru	13
Junin (see Ricran)	Peru	14
La Palma	Chile	5
La Palma (Teniente Bravo)	Chile	5
La Paz (El Alto de La Paz)	Bolivia	1
La Pitava (see Arenillas)	Ecuador	9
La Propicia (see Esmeraldas)	Ecuador	9
La Serena (Pan de Azucar)	Chile	5
La Serena (San Ramon)	Chile	5
La Tirana	Chile	5
La Union	Chile	5
La Union	Peru	13
Lake Piaz (see Piaz)	Peru	14
Lamas	Peru	13
Lari (Colca Valley)	Peru	13
Las Palmas 1 (see Lima)	Peru	13
Las Palmas 2 (see Lima)	Peru	13
Las Zorras	Peru	13
Latacunga	Ecuador	9
Lima (Las Palmas 1)	Peru	13
Lima (Las Palmas 2)	Peru	13
Lima (Limatambo)	Peru	13
Lima (Santa Cruz)	Peru	13
Limatambo (see Lima)	Peru	13
Linea Nacional (see Iquique)	Chile	4
Lobitos	Peru	13
Loja	Ecuador	9
Los Angeles (see Pintados)	Chile	5
Los Carrillos (see Santiago)	Chile	6
Los Condores (see Iquique)	Chile	5
Lurin	Peru	13
Magallanes, Punta Arenas (Cabo Negro)	Chile	5
Magdalena	Bolivia	1
Manco Capac (see Puno)	Peru	14
Manta (Eloy Alfaro)	Ecuador	9
Marsnon	Peru	13
Marcos (see Condebamba)	Peru	12
Maria Elena	Chile	5
Mariscal Lamar (see Cuenca)	Ecuador	9
Mariscal Sucre (see Quito)	Ecuador	9

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

City and airport	Country	Page
Masisea	Peru	13
Miraflores (see Castilla)	Peru	11
Misque	Bolivia	1
Mollendo	Peru	13
Moquequa	Peru	13
Motacucito	Bolivia	1
Moyobamba	Peru	13
Nasca	Peru	13
Negreiros	Chile	5
Nepena	Peru	13
Nivel (Pampa)	Chile	5
Obentani	Peru	13
Oficina Grutas	Chile	5
Oruro (Papel Pampa)	Bolivia	1
Oruro (Vinto)	Bolivia	2
Osorno	Chile	5
Ovalle (Tuqui)	Chile	5
Pacasmayo	Peru	13
Paita	Peru	13
Pampa (see Nivel)	Chile	5
Pampa Agua Blanca (Cobija)	Bolivia	1
Pampa Aragon (see Zapiga)	Chile	7
Pampa-Cachinal (Alto de Cachinal)	Chile	5
Pampa de Noco (see Cincha Alta)	Peru	12
Pan de Azucar (see La Serena)	Chile	5
Papel Pampa (see Oruro)	Bolivia	1
Paramonga	Peru	14
Parcoy	Peru	14
Parral	Chile	5
Patapo	Peru	14
Pias (Lake Pias)	Peru	14
Pica	Chile	5
Pijuayal	Peru	14
Pimental	Peru	14
Pintados (Los Angeles)	Chile	5
Pintados (Seronal)	Chile	5
Pisagua (Alto Hospicio)	Chile	6
Pisagua-Tarapaca (Chiza)	Chile	6
Pisagua-Tarapaca (Tana)	Chile	6
Pisco	Peru	14
Piura	Peru	14
Portezuelo (see Antofagasta)	Chile	3
Portoviejo	Ecuador	9
Poto (Chaquiminas)	Peru	14
Potosi	Bolivia	2
Potrerillos	Chile	6
Poso Almonte	Chile	6
Poso del Tigre	Bolivia	2
Pucallpa	Peru	14
Pueblo Hundido	Chile	6
Puerto Bermudez	Peru	14
Puerto Inca	Peru	14
Puerto Maldona do	Peru	14
Puerto Montt (Chemisa)	Chile	6
Puerto Ocopa	Peru	14
Puerto Siles	Bolivia	2

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

City and airport	Country	Page
Puerto Suarez (Corumba)	Bolivia	2
Puerto Victoria	Peru	14
Pulquina	Bolivia	2
Puno (Manco Capac)	Peru	14
Punta Arenas (Bahia Catalina)	Chile	6
Punta Colorada	Chile	6
Puyo (Shell-Mera)	Ecuador	9
Quilpue (El Belloto)	Chile	6
Quince Mill (under construction)	Peru	14
Quintero	Chile	6
Quito (Mariscal Suere)	Ecuador	9
Ramon Castilla	Peru	14
Reque	Peru	14
Riberalta	Bolivia	2
Rieran (Junin)	Peru	14
Rio Bueno	Chile	6
Rio Mulato	Bolivia	2
Riobamba	Ecuador	9
Rioja	Peru	14
Robare	Bolivia	2
Rosapata	Bolivia	2
Salinas (General Ulpiano Paez)	Ecuador	9
San Borja	Bolivia	2
San Ignacio	Bolivia	2
San Joaquin	Bolivia	2
San Jose (San Jose de Chiquitos)	Bolivia	2
San Jose de Chiquitos (*see* San Jose)	Bolivia	2
San Lorenzo	Bolivia	2
San Ramon (Captain Alvarino)	Peru	14
San Ramon (*see* Chillan)	Chile	4
San Ramon (*see* La Serena)	Chile	5
Santa Ana	Bolivia	2
Santa Cruz	Peru	15
Santa Cruz (El Trompillio)	Bolivia	2
Santa Cruz (*see* Lima)	Peru	13
Santa Rosa	Ecuador	9
Santiago (El Bosque)	Chile	6
Santiago (Los Cerrillos)	Chile	6
Saposa	Peru	15
Satipo	Peru	15
Schultin (*see* Cajamarca)	Peru	11
Seronal (*see* Pintados)	Chile	5
Shell-Mera (*see* Puyo)	Ecuador	9
Simon Bolivar (*see* Guayaquil)	Ecuador	9
Somate (Heda Somate)	Peru	15
Springhill (Tierra Del Fuego)	Chile	6
Sucre	Bolivia	2
Sullana	Peru	15
Suyo	Peru	15
Tacna	Peru	15
Talara	Peru	15
Talca (El Arenal)	Chile	6
Taltal	Chile	6
Tana (*see* Pisagua-Tarapaca)	Chile	6
Tarapoto	Peru	15
Tartija	Boliva	2

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

City and airport	Country	Page
Temuco	Chile	6
Teniente Bravo (see La Palma)	Chile	5
Tierra Del Fuego (see Springhill)	Chile	6
Tilma	Chile	7
Tinajones	Peru	15
Tingo Maria	Peru	15
Tocopilla (Barriles)	Chile	7
Todos Santos	Bolivia	2
Traiguen	Chile	7
Tres Cruces	Bolivia	2
Trinidad	Bolivia	2
Trujillo	Peru	15
Tucapel	Chile	7
Tuman	Peru	15
Tumbes	Peru	15
Uchisa	Peru	15
Uyuni	Bolivia	2
Valdivia (Chumpullo Valdivia)	Chile	7
Valle Grande	Bolivia	2
Vallenar	Chile	7
Vicuna	Chile	7
Villa Montes	Bolivia	2
Villason	Bolivia	2
Vinto (see Oruro)	Bolivia	2
Vitor	Peru	15
Yacuiba	Bolivia	2
Yanamilla (see Ayacucho)	Peru	11
Yanca	Peru	15
Yungay	Chile	7
Yungay (Huascaran)	Peru	15
Yurirhaguas	Peru	15
Zapiga (Pampa Aragon)	Chile	7
Zorritos	Peru	15
Zotzike	Peru	15

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

BOLIVIA

Name	Type	Position	Altitude	Location	Runways	Surface	Facilities
		° ′	Feet				
Alcalde	E	18 13 S. 65 11 W.	7,023		984' x 1,640' x 1,740' x 1,640'.		
Apolo	E	14 43 S. 68 30 W.	4,336	0.62 mi. E. of town	2,296' x 1,770' x 1,640' x 656'.	Sandy	Radio.
Canada Largo	E	17 07 S. 62 14 W.	1,443	Close by	3,070'		
Challapata	E	18 54 S. 66 50 W.	12,195	On W. side of R. R. ¼ mi. NW. of center of city.	Runways: N./S. 4,200' x 164', NW./SE. 4,921' x 164'.		None.
Charagua	E	19 46 S. 63 10 W.	2,788	1.3 mi. NE. of town	3,280' x 1,640'	Clay. Grass. May be muddy when wet. E./W. undulations in S. part of field. Slight decline from S. to N.	All communications.
Charana	E	17 36 S. 69 27 W.	12,317	At. NE. edge of town	4,920' x 656'	Gravel. Gradient of 0.5% to N.	All communications R. R.
Chevel	E	20 01 S. 65 35 W.	2,854	Immediately N. of town	2,656' x 1,640'	Hard clay. Slippery when wet.	Wind indicator. Telegraph, radio.
Chuquisaca	E	19 00 S. 65 25 W.	9,226	3 mi. W. of town	Small	Rocky. Slight gradient	None.
Pampa Aguo Blanco. (Cobija).	E	11 01 S. 68 44 W.	853	3 mi. S. of town	3,280' x 1,640'	Clay. Impossible to land during rainy season: Nov.-Mar.	Wind indicator. Radio. Limited fuel and oil.
Cochabamba Hayhuayan.	C	17 23 S. 66 09 W.	8,430	2 mi. SW. of town	Field: 3,510' x 2,015' x 2,755' x 1,395'. Runways: N./S. 5,118' E./W. 2,624'.	Dry, hard, may flood in wet weather.	Wind indicators. All communications. 1 large hangar. Repairs. Small weather station. Used by LAB. 80 and 87 oct. fuel.
Concepcion	E	17 52 S. 64 34 W.	2,265		2,617'		
Concepcion	E	16 09 S. 61 54 W.	1,301	0.5 mi. NW. of town	Field: 2,297' x 656'. Runway: N./S. 2,624.	Soft during rains	None.
Eucaliptus	E	17 35 S. 67 22 W.	12,221	½ mi. SE. of city	E./W. 4,429' x 656'	Sandy. Natural drainage.	None. Note: A marked area on the E. side of R. R., S. of town available in dry weather. Size NNW./SSE. 6,560' x 656'.
Guayaramerin	E	10 47 S. 65 21 W.					
Jorochito	E	18 08 S. 63 23 W.	1,640		2,296' x 1,312'		
La Paz (El Alto de La Paz).	M	16 30 S. 68 11 W.	13,325	8 mi. W. of city (military and commercial landing field).	2,297' x 1,969' NW./SE. with 4 intersecting runways, the best extending E./W. 6,562' x 164'.	Firm sod	Fuel, radio, small hangars, repairs. Used by Panagra.
Magdalena	E	13 19 S. 64 10 W.	1,312	0.25 mi. N. of town	2,624' x 984'	Hard sand. Some grass. Good drainage.	Telephone, limited fuel and oil.
Minguri	E	17 58 S. 65 19 W.	6,496		2,411'		
Motacusito	E	17 23 S. 61 30 W.	984		1,476'		
Oruro (Papel Pampa).	C	18 01 S. 67 08 W.	12,149	2 mi. S.	N./S. 6,562' x 1,640', runway: 6,562' x 656'.	Level, silt, not too good	Markers. All communications, some fuel in town. Field used by Panagra's DC-3's and by LAB.

CONFIDENTIAL
DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

BOLIVIA—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Oruro (Vista)	E	17 58 S. 67 05 W.	12,140	0.75 mi. E. of town	N./S. 4,920' x 600'	Level, sand, silt, not too good.	Minor repairs, some fuel, all communications in town.
Poiné	E	19 35 S. 65 45 W.	13,000	0.25 mi. from town	Small	Rocky	Negligible.
Pozo del Tigre	E	17 35 S. 62 02 W.	915		1,317' x 820'		
Puerto Siles	E	13 47 S. 65 06 W.	735	0.5 mi. W. of town	N./S. 2,256' x 328'	Clay, grass. Bad when wet.	Radio.
Puerto Suarez (Corumba).	E	18 59 S. 57 48 W.	355	1.5 mi. SW. of Puerto Suarez.	3,280' x 492'	Clay, grass	All communications. Some fuel in Corumba, Brazil nearby to E.
Pulquina	E	18 08 S. 64 29 W.	4,150		N./S. 2,722'		
Riberalta	E	10 59 S. 66 06 W.	525	2.5 mi. from town	2,788' x 2,187' x 1,476' (triangle).	Clay, grass, level	Telephone, radio. Some fuel.
Rio Mulato	E	19 41 S. 66 47 W.	12,513	1 mi. SW. of town	NE./SW. 3,600' x 1,640'.	Hard sand	None.
Robore	E	18 20 S. 59 45 W.	984	Adjacent to town	Field: 2,395'x984', runway: 2,300' x 246'.	Clay. Grass. Soft when wet.	Radio.
Rompato	E	17 09 S. 65 37 W.	12,907	On N. side of the Arica to La Paz R. R. about 5 mi. W. of Corocoro.	E./W. 6,560' x 656'	Sod, good	None.
San Borja	E	14 49 S. 66 51 W.	1,151	0.4 mi. S. of town	N./S. 2,952' x 394'	Level. Grass	All communications. Limited amount of fuel.
San Ignacio	E	16 22 S. 60 47 W.	1,312	0.5 mi. N. of town	Field: 2,624' x 1,312', runway: 2,296' x 410'.	Hard sand. Grass. Impossible in wet weather.	Radio.
San Joaquin	E	13 08 S. 64 30 W.		0.5 mi. W. of town	N./S. 2,296' x 984'	Clay. Grass. Bad in rain.	Telegraph.
San Jose (San Jose de Chiquitos).	E	17 50 S. 60 47 W.	984	1.2 mi. W. of town	Field: 2,280' x 656', runway: 2,624' x 328'.	Sandy	None.
San Lorenzo	E	21 25 S. 64 49 W.	841		1,640' x 1,312'		
Santa Ana	E	13 45 S. 65 35 W.	722	1 mi. S. of town	N./S. 2,624' x 1,312'	Clay. Grass	Radio. Limited fuel.
Santa Cruz (El Trompillo).	E	17 46 S. 63 11 W.	1,453	1 mi. W. of town	Field: N./S. 3,044' x1,640'. Runway: N./S. 2,788'x246'.	Clay. Grass. Very rough. Gravel. Often flooded.	All communications.
Sucre	E	19 04 S. 65 17 W.	9,774	1.2 mi S.	2,296' x 722'	Hard clay. Bad incline. Slippery when wet.	All communications. Very minor repairs.
Tarija	E	21 34 S. 64 47 W.	6,265	1.2 mi. SW. of town	1,968' x 1,640'	Sandy	Telegraph and radio.
Todos Santos	E	16 48 S. 63 05 W.	984	Adjacent to NE. edge of town.	1,706' x 1,181'	Clay. Grass. Very bad when wet.	Radio and telegraph.
Tres Cruces	E	17 39 S. 62 08 W.	984		1,312' x 492'		
Trinidad	C	14 45 S. 64 48 W.	330	0.5 mi. NW. of town	N./S. 4,265' x 2,297'	Sod. Grass	Radio, telephone. 1 large steel hangar. Minor repairs.
Uyuni	C	20 31 S. 66 53 W.		½ mi. NW. of city	NW./SE. 5,576' x 984'.	Sand	Fuel, radio, limited repairs.
Valle Grande	E	18 30 S. 64 07 W.	6,494	0.75 mi. SW. of town	2,296' x 1,312'	Sandy. Grass	Radio and telegraph. Limited fuel.
Villa Mejias	E	21 15 S. 62 30 W.	1,312	0.5 mi. NW. of town	3,100' x 3,100'	Is a hay field but good emergency site.	All communications.
Villazon	E	22 05 S. 65 30 W.	11,342	7 mi. E. of town, on N. side of R. R.	N./S. 4,920' x 328', NE./SW. 4,428' x 328'.	Sand, gravel. Natural drainage.	Fuel, radio.
Yacuiba	E	22 01 S. 63 43 W.	1,902	2 mi. N. of town	N./S. 1,968' x 820'	Clay, grass. Drainage fair, natural.	Limited fuel supply.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

CHILE

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Algarrobal	E	26 08 S. 70 41 W.	1,105		NW./SE. 3,650' x 325'	Sandy and rolling	None.
Andesita	E	26 10 S. 71 18 W.	3,200	4 mi. S. of town	N./S. 3,300' x 300'	Sandy and hard	None.
Angel	E	27 48 S. 72 42 W.	256	½ mi. E. of Angel, 20 mi. SW. of Los Angeles.	Fight 3,300' x 600'; runway, long way of [illegible] N/S.	Soil	Telephone and telegraph in Angel no teletype or weather service; one hangar 60' x 79' x 13'. Repair facilities; R. R. repair shop; Brown Foundry in Angel, gas and oil in drums; arrange supply R. R. on W. side of field; personnel accommodations; hotels in Angel; quarters at field.
Antofagasta (Cerro Moreno).	C	23 26 S. 70 26 W.	400	Located W. of highway and R. R. about 13 mi. NNW. of Antofagasta.	NNE./SSW. 3,627' x 226'.	White shell	Radio, fuel, limited repairs.
Antofagasta (Portezuelo).	E	23 41 S. 70 17 W.	1,322	On E. side of R. R. tracks, 9 mi. E. of Antofagasta.	Field 6,300' x 3,300', NE./SW. 6,300' x 300'; N./S. 4,200' x 300'; E./W. 3,300' x 300'.	Sandy	Hangars, fuel, radio, minor repairs.
Arguila	E	25 32 S. 70 20 W.	3,020 (approx.)				
Arica (El Buitre)	C	18 28 S. 70 18 W.		On S. side of R. R. tracks 2½ mi. SSE. of Arica.	E./W. 4,167' x 430'	Sandy, hard, and dry.	Radio, hangars, fuel, repairs.
Baquedano	E	23 19 S. 69 55 W. (est.)	3,325	½ mi. SE. of Baquedano Station, 41 mi. NE. of Antofagasta.	3,280' x 3,280' square	Sandy	No lighting, radio, or teletype; telephone and telegraph in Baquedano; no hangars, repair facilities, servicing or storage facilities; no fuel, oil, or weather service; corner markers; R. R. junction to NW.
Calama	E	22 26 S. 68 57 W.	7,200	1½ mi. S. of Calama on E. side of highway leading SW. of village of Calama; Andes Mountains to E.	3,620' x 1,475', rectangular.	Rock and sand	2 hangars; will accommodate Douglas DC-3; telephone and telegraph in Calama; no lighting, fuel, or oil, but possibly could arrange for supply with W. India Oil Co.; no weather service; electric power; corner markers.
Caleta Buena	E	19 33 S. 70 08 W.	328	Adjacent to and E. of Caleta Buena, halfway between Iquique and Pisagua.	1,969' x 1,969'	Sandy	None.
Canete	E	37 51 S. 73 22 W.	275 (approx.)	½ mi. SE. of Canete	2,000' x 1,312'; field runs N./S.		No radio, telephone, telegraph, teletype, or weather service; no fuel facilities or hangars; no lighting or electric power; R. R. and road W. of field.

CHILE

6/10/42

DECLASSIFIED CONFIDENTIAL

3

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CHILE—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
Carrero Pinto	E	° ′ 27 07 S. 69 55 W.	Feet 1,120	2 mi. SW. of Carrero Pinto.	Field 2,100′ x 6,300′, approximately rectangular; runway, long way of field NW./SE.		R. R. on SW. side of field; road on E. and E. sides; corner markers; no lighting, no radio or radio range; no hangars or storage facilities; no fuel or oil but could arrange with West Indis Oil Co.; telephone and telegraph; no teletype; no electric power.
Chanar	E	29 07 S. 70 35 W.	2,780	NE. of Chanar R. R. station.	1,900′ x 250′ NW./SE.	Gravel	None.
Chanaral	E	26 21 S. 70 41 W.	607	About 1¼ mi. NE. of Chanaral.	N./S. 1,640′ x E./W. 3,280′, rectangular.	Hard, level	Wind cone, telephone and telegraph in Chanaral; no teletype; no radio; no lighting; no repair or storage facilities; no fuel or oil; but could be arranged with West Indis Oil Co.; no electric power.
Chillan (San Ramon).	M	36 34 S. 72 04 W.	472	5 mi. NE. of Chillan	Field 4,920′ x 3,300′; runway unknown.	Sod and soil; do not use runways but rather smoother grass covered area in center of field.	Metal hanger 72′ x 120′ (Brost type) repair and servicing facilities by arrangement; fuel 63-67 octane; telephone and telegraph in Chillan; weather service by arrangement; water available; radio by arrangement; no lighting.
Collina	E	33 13 S. 70 42 W.	1,830	¼ mi. SW. of Colina and 12 mi. N. of Santiago.	6,000′ x 3,000′	Sod	Hangars, fuel, lighting, repairs, radio.
Combarbala	E	31 10 S. 71 01 W.	2,240	1¾ mi. NE. of Combarbala.	1,310′ x 330′	Hard clay, field swampy from May to September.	None.
Concepcion (Concepcion).	E	36 50 S. 73 01 W. (approx.)	33	2½ mi. W. of city	980′ x 1,640′ (approx.)		Field under construction on 9-20-40. To be ready about 1-1-41.
Concepcion (Huanpacillo).	E	36 47 S. 73 06 W.	30	2.7 mi. NW. of Concepcion.	N./S. (2,620′ ready 9-42) NE./SW.; 3,280′ ready 9-42.	Soft, grassy, without stones.	Fuel, oil, telephone, telegraph, and radio, road, R. R., repairs, markers.
Copiapo	E	27 21 S. 70 21 W.	1,213	Government field located on NE. side of R. R., ¼ mi. E. of Copiapo.	NW./SE. 2,351′ x 1,542′ to 2,122′.	Level, hard	Fuel, hangar, repairs, radio.
Curico	E	34 58 S. 71 11 W.	1,060	4 mi. E. of Curico	NW./SE. 3,937′ x 1,312′.		Radio.
Huaco	E	29 09 S. 69 45 W.	2,260	1¼ mi. NE. of city, about 47 mi. SE. of Pingus.	1,970′ x 1,970′ square	Fairly hard	Telephone, no telegraph or teletype, R. R. road, markers, no hangars or repair facilities.
Illapel (Las Cas).	E	31 39 S. 71 13 W.	1,010	1¼ mi. SW. of city	NW./SE. 1,800′ x 220′.	Rocky soft	None.
Iquique (Iquique).	E	20 14 S. 70 08 W.	20	Southern edge of city	3,000′ probably suitable for twin engine planes.		Telephone and telegraph, radio, no lighting, hangars, teletype, fuel, 87 oct., all grade No. 1B.
Iquique (Linea Nacional).	E	20 14 S. 70 09 W.	Sea level	1½ mi. SE. of Iquique	NW./SE. 3,937′ x 262′.	Smooth surface	Fuel, radio.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CHILE—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Iquique (Alto Hospicio).	E	20 16 S. 70 07 W.	.....	6 mi. SE. of town	2,300' x 2,300'	Gravel, hard sand	Hangar, fuel, minor repairs in town.
Iquique (Los Cardones).	M	20 16 S. 70 08 W.	1,200	Located on high plateau about 6¼ mi. SE. of Iquique.	6,000' x 2,300'	Arid, sandy soil	Fuel, hangars, repairs, lighting.
La Palma	E	20 12 S. 69 42 W.	.....	1 mi. E. of La Palma Station.		Sandy, but smooth	Corner markers.
La Palma. (Tucnato Base).	E	20 09 S. 69 46 W.	2,040	6¼ mi. NW. of La Palma airport.	1,310' x 1,310' E./W. approximately rectangular.	Firm sand	Telephone and telegraph, no hangars, repair facilities teletype, weather service.
La Serena (Puerto de Aseure).	E	29 55 S. 71 17 W.	197	7½ mi. S. of La Serena	2,300' x 2,300'	Hard clay	Radio.
La Serena (San Ramon).	E	29 54 S. 71 15 W.	197	Adjacent to SW. side of La Serena, S. of Coquimbo River.	2,300' x 2,300'	Rough rolling sandy surface, clay in center of field.	Telephone and telegraph, hotel, corner markers, no facilities.
La Tirana	E	20 21 S. 69 40 W.	2,252	1 mi. W. of city	Field 1,970' x 1,970' square; runway none; field muddy in spots.	Soft	No facilities, dangerous winds.
La Union	E	40 17 S. 73 00 W.	82	1¼ mi. SE. of city	1,970' x 2,460' N./S.	Soft sod	Telephone and telegraph, radio, no lighting or weather service.
Magallanes, Punta Arenas (Cabo Negro).	E	53 08 S. 70 49 W.	6	16.8 mi. N. of town, SW. of Isabel Island.	6,560' x 656'	Hard	None, road from Magallanes. Weather reports from Chilean air force.
Maria Elena	E	21 50 S. 69 34 W.	4,921	In angle between R. R. and highway, 3 mi. NW. of city, W. of Rio Loa.	2,625' x 1,968'; rectangular, runway E/W.	Asphalt runway, balance hard, sandy; only runway usable.	Telephone and telegraph hospital in city, R. R. and, road nearby, no facilities.
Negrahue	E	19 30 S. 69 32 W.	2,790	NE. of city	1,970' x 1,970'	Smooth, semihard	Telephone and telegraph, small amount of fuel, no facilities.
Nivel (Pampa)	E	19 34 S. 70 08 W.	3,020	1 mi. E. of city	1,970' x 1,970'	Semihard soil	Telephone and telegraph, no facilities, R. R.
Oficina Grutas	E	22 05 S. 69 34 W.	3,462	3 mi. E. of city, 20 mi. E. of Tocopilla, between R. R. lines which run N./S.	1,310' x 1,970' N/S.	Hard sand	No facilities, markers.
Osorno	E	40 40 S. 73 13 W.	89	7½ mi. SW. of city	2,625' x 2,625'	Sod, 40' slope from NE. corner to W. side of field.	Telephone and telegraph, no facilities, fuel by arrangement with W. Indis Oil Co.
Ovalle (Tuqui)	E	30 34 S. 71 11 W.	1,250	Tuqui field is 8¾ mi. NE. of city.	2,625' x 920'	Hard gravel	Hangar, fuel, radio.
Pampa - Cachinal (Alto de Cachinal).	E	26 03 S. 70 40 W.	1,900	.....	1,970' x 2,625' N./S.	Sand	None.
Parral	E	36 08 S. 71 51 W.	322	NW. of and adjacent to Parral.	Field 600' x 600', diamond shaped; runway longest NE./SW.	Sod	Telephone and telegraph, R. R., markers.
Pica	E	20 30 S. 69 21 W.	4,240	½ mi. W. of city	1,970' x 1,970'	Soil, sandy in spots, bad in rainy season, Dec.-Mar., high winds, summer.	Telephone in Pica, markers.
Pintados (Los Angeles).	E	20 41 S. 69 42 W.	3,940	7 mi. SW. of Pintados	1,970' x 1,970'	Fairly hard soil	Telephone in Nana Vikana. No facilities, R. R.
Pintados (Sesmos)	E	20 44 S. 69 30 W.	3,975	12½ mi. SW. of Pintados	1,970' x 1,970'	Hard soil	Telephone in Pando Azucar. No facilities. R. R.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

TABLE—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Pingun (Alto Hospicio).	E	19 25 S. 70 13 W.	1,015	½ mi. E. of Pingun	1,970′ x 1,970′	Hard soil	Telephone and telegraph, markers. R. R. W. of field. Field on coast line.
Pingun-Tarapon (Chile).	E	19 23 S. 69 58 W.	3,820	About 26 mi. NE. of Pingun, no towns nearby. N. of L. R. and S. of River Camerones.	1,969′ x 1,969′	Semihard and rocky	None. R. R. to S.
Pingun-Tarapon (Tana).	E	19 27 S. 69 58 W.	3,953	1¼ mi. to Tana, 17 mi. N. of Zapiga.	1,970′ x 1,970′	Gravel and sand	Telephone and telegraph in Zapiga. No facilities.
Potrerillos	E	26 29 S. 69 37 W.	5,200	2½ mi. NE. of Potrerillos Station.	3,280′ x 8,200′ N.–S.	Hard soil and level	Telephone and telegraph, markers.
Pozo Almonte	E	20 15 S. 69 48 W.	3,360	1¼ mi. SE. of city	1,970′ x 1,970′	Fairly hard	None. Markers. R. R. to W. Road to E.
Pueblo Hundido	E	26 24 S. 70 05 W.	2,750	Adjacent to and NW. of city.	Field 1,969′ x 1,969′; L-shaped; 2 strips 1,969′ x 656′ NW./SE., 1,969′ x 656′ NE./SW.	Hard and level	Telegraph, wind cone, R. R. along SE. side of field.
Punta Colorada	E	29 29 S. 70 36 W.	600	1 mi. S. of Tres Cruces	E./W. 1,970′ x 328′	Sandy but smooth	None.
Puerto Montt (Chamiza).	M	41 29 S. 72 54 W.	15	Appr. 5 mi. E. of city	3,117′ x 2,067′; landing area 1,650′ x 1,650′.	Soil and sod, usually wet, in fair condition.	Telephone and telegraph, fuel, radio, electric power, 2 large hangars, minor repairs.
Punta Arenas (Bahia Catalina).	E	53 10 S. 70 54 W.	7	3 mi. N. of city	Field circular 1,312′ radius; runways 3—2,624′ x 120′ NE.–SW., NW.–SE., E.–W.	Gravel and sod, flat	Telephone, meteorological station, 2 small hangars, minor repairs, some fuel, flares, wind cones.
Quilpue (El Belloto).	E	33 03 S. 71 26 W.	397	½ mi. NE. of Quilpue, 10 mi. E. of Valparaiso.	Field 2,625′ x 2,297′; runway E.–W. 328′ x 2,297′.	Sod, fairly soft, all-way field.	Telephone and telegraph, radio, no repair facilities, hangar under construction, fuel, electric power, hotels, doctors in city, R. R. and road to N.
Quintero	M	32 46 S. 71 30 W.	Sea level	½ mi. E. of city on S. side of Quintero Bay.	1,640′ x 1,640′ capable of expansion.	Sandy, SE. section swampy.	Telephone and telegraph, radio, 2 steel hangars, 150′ x 300′ each, wind cone, fuel, obstruction lights, electric power.
Rio Bueno	E	40 20 S. 73 06 W.	230	½ mi. W. of Rio Bueno	2,625′ x 1,310′ N.–S.	Sod	No facilities, fuel.
Santiago (El Bosque).	M	33 34 S. 70 44 W.	1,750	7½ mi. S. of Santiago, 1½ mi. N. of San Bernardo.	5,800′ x 2,600′ longest strip N./S.	Sod	Hangars, fuel, radio, repairs.
Santiago (Los Cerrillos).	C	33 31 S. 70 44 W.	1,660	On E. side of concrete highway, 2 mi. SSW. of Santiago.	NE./SW. 5,580′ x 5,280′.	Firm sod	All facilities.
Springhill (Tierra Del Fuego).	E	52 28 S. 69 30 W.	164	E. of Springhill, SW. of Bahia Lomas, 6 mi. inland from Bay of Lomas.	1,970′ x 985′ E./W.	Firm sod	None.
Talca (El Arenal)	E	35 26 S. 71 41 W.	340	½ mi. SW. of Talca	650′ x 1,410′ ENE./WSW.	Sand and soil	Telephone and telegraph, fuel, no facilities.
Talcal	E	35 20 S. 70 39 W.	1,570	On S. side of highway, 7 mi. SE. of city.	NE./SW. 3,214′ x 984′	Sandy soil	None.
Temuco	E	38 43 S. 72 38 W.	370	3 mi. SW. of city	3,300′ x 1,950′ NE./SW.	Soil and sod, soft on SE. side.	2 hangars, minor repairs, fuel, telephone and telegraph, radio, wind cone electric power, R. R., 1 mi. to N.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CHILE—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Tilma	E	22 04 S. 71 10 W.	1,375	1 mi. NE. of R. R. station.	240′ x 1,320′ NE./SW.	Soft during rainy season. Dangerous in winter months.	None, telegraph, house in Talaina, R. R. station 1 mi. SW.
Tocopilla (Barriles).	E	22 07 S. 70 08 W.	3,203	1¾ mi. SE. of Tocopilla.	3,330′ x 1,150′, N./S. strip.	Hard soil	Telephone and telegraph, radio, house in city, no facilities.
Tralgnen	E	38 15 S. 72 40 W.	880	2¼ mi. S. of city	950′ x 2,630′ N./S.	Hard soil	Telephone and telegraph, fuel, no facilities.
Tucapel	E	37 20 S. 71 59 W.	240	¼ mi. NW. of Tucapel	1,970′ x 1,970′	Fairly hard	Telephone and telegraph, markers, R. R. on one side, River Laja on other.
Valdivia (Chucapello Valdivia).	E	39 48 S. 73 13 W.	16	4.3 mi. N. of Valdivia, N. of Rio Calle.	990′ x 2,630′ E./W.	Firm sod	Telephone and telegraph, no facilities.
Vallenar	E	28 35 S. 70 46 W.	1,476	1¼ mi. SW. of city	3,000′ x 1,310′	Packed soil	Fuel, hangar, minor repairs, radio.
Vicuna	E	30 01 S. 70 39 W.	1,884	¼ mi. W. of Vicuna Station.	2,630′ x 990′, E./W. strip.	Soil, sembott	Telephone and telegraph markers, hotel.
Yungay	E	37 10 S. 72 02 W.	702	1¾ mi. S. of city, between Rivers Trilaico and Itata.	1,970′ x 990′ N./S.	Hard soil	Telephone and telegraph, R. R. to SW., corner markers.
Zapiga (Pampa Aragon).	E	19 36 S. 69 39 W.	3,260	1¼ mi. NE. of Zapiga, near the Station Aragon.	1,970′ x 1,970′	Hard soil	Accommodations in Zapiga, no facilities, field close to R. R.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

DECLASSIFIED
CONFIDENTIAL

ECUADOR

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Arenillas (La Fortuna).	E	3 30 S. 80 05 W.	0+				
Cuenca (Mariscal Lamar).	E	2 50 S. 78 59 W.	8,350	3 mi. N. of city	3,307' x 984'	Field; firm turf	No lighting, telegraph (in town), radio, 1 hangar, Panagra Radio, some fuel.
Dos Rios	E	1 00 N. 77 11 W.	1,000		Runway, 3,300'	Field, little slope; never soft.	
Esmeraldas (La Propicia).	E	0 58 N. 79 44 W.	Sea level	1 mi. S. of city	Field, 3,250' x 650'. Runway, 300' x 3,000'.	Field, grass. Runway, rough due to cattle tracks.	Radio, telephone, telegraph.
Galapagos Islands.	M	1 00 S. 91 00 W.			Runway: One 300' x 5,000' to be ready May 1 and extended to 300' x 7,000' rapidly.	Runway, hard surface	Army Air Base, complete facilities. Two auxiliary airdromes with no facilities to be constructed on other islands of group within 6 months.
Guayaquil (Simon Bolivar).	C	2 11 S. 79 53 W.		3 mi. N. of city	Runway, N./S. 4,300' x 300'.	Heavy rock base, fine stone top.	Hangars, fuel, radio, limited repairs.
Latacunga	E	0 55 S. 78 36 W.	9,130	1 mi. N. of city	N./S. 2,300' x 984'	Firm loam	Small hangar, wind cone, telephone and telegraph in town.
Loja	E	3 55 S. 79 13 W.	7,200		2,320' x 330'		
Manta (Eloy Alfaro).	E	0 57 S. 80 41 W.	16	2.5 mi. E. of city	2,467' x 330' x 1,115 x 330'	Field sandy, level	Telegraph.
Portoviejo	E	1 05 S. 79 27 W.	2,100	2 mi. SSW. of town	Field, 1,300' x 1,300'. 1,300' extension proposed or under construction. Runway; may be under construction.	Sandy	No lights, radio, weather service.
Puyo (Shell-Mera)	E	1 25 S. 78 00 W.	Sea level	2.1 mi. from city	2,300' x 1,300'	Mar. 15, 1941, field covered by small oil tanks to prevent unauthorized landings. Tanks can be easily removed.	Some storage facility.
Quito (Mariscal Sucre).	C	0 11 S. 78 29 W.	9,350	4½ mi. N. of city	Landing strip, 4,800' x 330'.	Sod	Fuel, limited repairs, radio, hangar.
Riobamba	E	1 38 S. 78 34 W.	9,000		Field, 2,624' x 600'		1 hangar.
Salinas (General Upham Post).	M	2 13 S. 80 58 W.	20	Adjacent to SSW. edge of town.	Runways: Two, 300' x 7,000' under construction (completed about July 1) 150' x 5,000' usable now.	Field, sand. Runways, hard surface.	
Santa Rosa	E	3 30 S. 79 58 W.	Sea level		Field 3,300' x 600'		R. R.

ECUADOR

DECLASSIFIED
CONFIDENTIAL

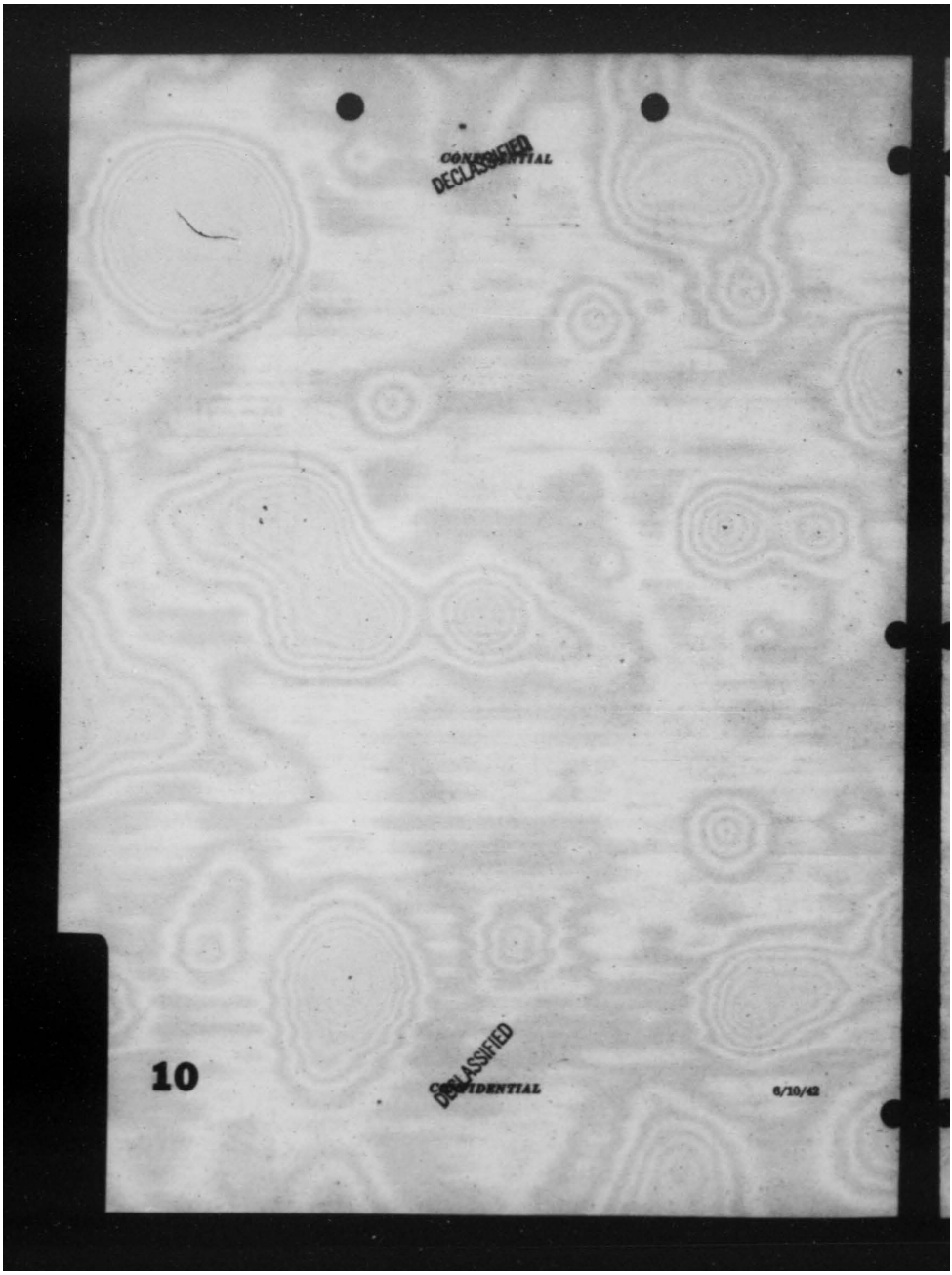
6/10/42

DECLASSIFIED
CONFIDENTIAL

6/10/42

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

PERU

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Ancon (No. 1)	E	11 46 S. 77 11 W.	49	1 mi. NE. of town	1,400′ x 1,130′	Hard sand, level, natural drainage.	Hangars, minor repairs, limited fuel supply.
Ancon (No. 2)	E	11 46 S. 77 11 W.	49	1 mi. NE. of town	N./S. 1,600′ x 400′	Hard sand, level, natural drainage.	Minor repairs, limited fuel.
Arequipa (Channel).	C	16 21 S. 71 35 W.	8,130	On NE. side of R. R., 4 mi. NNW. of city.	ENE./WSW. 4,365 x 670′.	Sandy, firm	Fuel, repairs, radio.
Arequipa Porvenir.	E	16 25 S. 71 31 W.	8,260	2 mi. SE. of center of city; close NE. of a prominent race track.	E./W. 2,250′ x 427′	Soft sand	Hangar, fuel.
Atalaya	E	10 43 S. 73 45 W.	325		2,600′ x 400′		
Atico	E	16 13 S. 73 35 W.	49	6 mi. SE. of town	WNW./ESE. 3,280′ x 200′.	Hard sand. Natural drainage.	None.
Ayacucho (Teanacilla).	E	13 06 S. 74 13 W.	8,252	1 mi. NE. of city	N./S. 3,340′ x 320′	Field, sod. Gradient to SW. Natural drainage.	Power. No fuel or oil.
Bellavista	E	5 26 S. 76 42 W.	1,450	1.5 mi. NE. Juan la 5 mi. SW.	2,500′ x 500′	Field, clay. Runway, hard earth. Safe in rain for Condors.	None.
Cajabamba	E	7 38 S. 78 03 W.	9,120	2 mi. N. of city	2,950′ x 320′	Field: rough, turf, gradient; 5° W. natural drainage.	None.
Cajamarca (Schultin).	E	7 08 S. 78 29 W.	9,450	2 mi. E. of city	N./S. 4,920′ x 1,800′	Natural drainage, level sod. Will hold 9 tons in rain, rolling.	Telegraph in town. 1 hangar 60′ x 60′ x 25′ (interior). General weather service.
Camana	E	16 38 S. 72 42 W.	443	2 mi. E. of town	2,600′ x 328′	Hard sand	None.
Canete	E	13 07 S. 76 29 W.	220	1 mi. SW. of city	NE./SW. 3,300′ x 330′	Sandy clay. Natural drainage.	Smaller hangar, limited fuel.
Cuzco	E	13 33 S. 71 48 W.	11,250	NE. side of Santa River, ½ mi. SE. of city.	2,300′ x 300′. Runway, N./S.	Field: sandy, sloping, natural drainage.	Fuel and oil in small quantities. No lights. Local phone, Government telegraph; radio—poor service.
Curayoll (El Cenajo).	E	15 46 S. 75 32 W.	6,450	½ mi. SE. of town	NW./SE. 3,000′ x 492′	Level hard sand. Natural drainage.	None.
Cutervo	E	7 04 S. 78 14 W.	270	¼ mi. W. of Hacienda Cartavio alongside sugarmill.	2,300′ x 600′	Firm loam	None.
Chan Grande	E	7 48 S. 79 19 W.	450	Chan SW. of town	N./S. 2,300′ x 600′	Sod	None.
Chanca	E	9 27 S. 78 17 W.	98	In valley about 2,500′ wide; 3¼ mi. NE. of Chanca.	NE./SW. 3,000′ x 1,312′ with a landing strip, 262′ wide, down the center. Approaches bad.	Sand. Fairly soft	None.
Chotilla (Miraflores).	E	5 11 S. 80 37 W.	105		2,132′ x 328′		
Chupilt	E	6 35 S. 79 24 W.	10	1 mi. SE. of city	Field, 2,640′ x 656. Runway, NE./SW. 2,640′ x 400′.	Field, sod, level	Weather at Chiclayo; no other facilities.
Chachapoyas (El Tingal).	E	6 13 S. 77 51 W.	8,650	2 mi. N. of city	2,000′ x 400′	Field, good turf. Gradient 5.5 percent Natural drainage.	None.

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

PERU—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Chala	E	15 49 S. 74 17 W.	163	2 mi. S. of town	WNW./ESE. 3,600' x 250'.	Hard sand. Natural drainage.	None.
Chiclayo	M	6 47 S. 79 50 W.		On S. side of R. R. about 1 mi. SE. of city.	N./S. 1,350' x 600'	Clay, firm	Fuel, hangars, repairs, radio.
Chiclin	E	7 48 S. 79 19 W.	320	1.25 mi. from city	2,640' x 250'	Field, hard sand	Phone in hacienda. No facilities.
Chimbote	E	9 04 S. 78 35 W.	65	Between highway to Nepena and R. R. ½ mi. NE. of city.	NE./SW. 2,700' x 500'.	Firm, natural drainage	None.
Chiscbe Alto (Pongo de Nasa)	E	13 26 S. 76 09 W.	326	2 mi. N. of city	NNW./SSE. 1,200' x 450'.	Hard sand. Natural drainage.	None.
Chota	E	6 34 S. 78 39 W.					
Condebamba (Sinsoal)	E	7 39 S. 78 10 W.	6,100		3,600' x 200'	Field, level sod. Natural drainage. Soft when wet.	None.
Cubbas	E	9 57 S. 78 13 W.	30	0.5 mi. W. of city	1,700' x 150'	Field, soft sand, no gradient.	None.
Cumarb	E	9 51 S. 74 01 W.					
Cuzco (Alejandro Velasco Dubois)	E	13 32 S. 71 58 W.	11, 400	0.75 mi. E. of city	NW./SE. 4,270' x 525'.	Field, sand, gravel, spill. Natural drainage.	Telephone and telegraph in town. General weather.
Huancabamba	E	7 51 S. 79 01 W.	10, 500	Adjacent to city	2,600' x 200'	Field, gravel, hard, sloping. Natural drainage. Runway, smooth.	No fuel or oil. Radio.
Huancapampa	E	14 10 S. 72 19 W.	13, 000	Mine is 12 mi. distant	E./W. 2,800' x 200'	Field, pampa. Irregular. Gradient, violent. Natural drainage. Runway, always hard, slants sideways, slopes, hump in center.	Radio at mine. Weather from mine at request. Use with extreme caution.
Huancabamba (Chaquibamba)	E	5 14 S. 79 32 W.	6, 420	1.5 mi. S.	2,420' x 200'	Field, hard turf. Gradient, 1 percent. Natural drainage.	None.
Huancabamba	E	13 37 S. 73 25 W.	9, 780	8.5 mi. S. of Andahuaylas.	4,920' x 325'		No fuel or oil.
Huancayo	E	12 05 S. 75 15 W.	10, 800	0.75-mi. WSW. of town on river.	N./S. 4,440' x 450'	Field, sand, gravel, natural drainage. Gradient, 1 percent to S.	Wind cone. Telephone, telegraph in town. 1 medium size hangar. Some fuel. Weather service at Carnegie Magnetic Observatory 10 mi. NNW.
Huaraz	E	17 07 S. 77 35 W.	95		3,540' x 490'		R. R.
Huayaco (Huacho)	E	9 08 S. 78 13 W.	6, 600	2 mi. E.	3,600' x 300'	Runway, smooth	Telephone and telegraph. Radio in town. Some fuel and oil. Weather service.
Huaraz	E	10 08 S. 78 08 W.	300	5 mi. SE. of town	N./S. 3,310' x 160'	Dirt. Natural drainage.	None.
Ica	E	14 05 S. 75 41 W.	1, 180	2 mi. NE. of city	NNE./SSW. 2,600' x 600'.	Field, level, hard sand. Natural drainage. Rough at N. end.	Telephone and telegraph in town.
Ilo	E	17 36 S. 71 19 W.	130	1½ mi. NE. of town	2,200' x 200'	Hard sand. Natural drainage.	None.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

PERU—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
Iquitos	E	° ′ 3 45 S. 73 14 W.	Feet 324	1 mi. NW.	3,450′ x 450′	Field, clay	Radio, telegraph. Minor repairs. Fuel and oil.
Jaqui	E	15 30 S. 74 20 W.	748	Adjacent to E. of city	N./S. 2,100′ x 600′	Field, level hard sand. Natural drainage.	No fuel or oil.
Juaja	E	11 45 S. 75 20 W.	10,000		3,300′ x 600′		
Jauaja	E	7 11 S. 76 42 W.	330	Adjacent to E. of city	2,600′ x 300′. Runway, N./S.	Field, turf, level, natural drainage. Runway, slightly rough.	None.
Juliaca	E	15 29 S. 70 08 W.	12,650	1.5 mi. N.	N./S. 2,940′ x 1,310′	Field, hard gravel, sand. Level. Natural drainage.	Telegraph. No fuel or oil.
Lamas	E	6 27 S. 76 28 W.	1,200	Adjacent to E. of city	1,600′ x 300′	Field, hard during all rains. Turf sloping 5 percent; natural drainage.	None.
Lari (Colca Valley)	E	15 30 S. 71 41 W.	10,200	130 mi. N. of Arequipa, outside of Lari.	2,600′ x 700′ approximate.	Hard clay, bad in wet weather.	None.
Las Borras	E	10 17 S. 75 04 W.	110	Adjacent to hacienda	N./S. 2,600′ x 250′	Hard sand	None.
La Union	E	9 21 S. 76 47 W.	13,200	6 mi. S.	4,000′ x 600′	Field, hard sod	None.
Lima (Las Palmas 1).	M	12 09 S. 77 01 W.	220	2 mi. S. of Barranco (SSE. of Lima).	N./S. 1,320′ x 600′ to eastward of hangars and buildings, N./S. 1,600′ x 600′ to the westward.	Sod	Fuel, hangars, repairs, radio.
Lima (Las Palmas 2).	E	12 10 S. 77 00 W.	80	0.5 mi. SE. of Barranco, SSE. of city.	ESE./WNW. 2,300′ x 250′.	Hard sand	None.
Lima (Limatambo).	C	12 06 S. 77 01 W.	462	3 mi. SSE. of city	5,500′ x 1,470′ with normal landing area N./S. 2,500′ x 600′.	Firm clay	All facilities.
Lima (Chorrin Cruz)	E	12 08 S. 77 02 W.	225	2 mi. SE. of city	NE./SW. 2,000′ x 250′.		Small hangar, fuel, repairs, radio.
Lobitos	E	4 26 S. 81 17 W.	98	1.25 mi. SE. of city	Field N./S. 2,300′ x 300′; runway 2,300′ x 250′.	Field, sandy, level, gradient 1 percent to N.	Telephone and telegraph, minor repairs in town.
Lurin	E	12 16 S. 76 50 W.	200	2.5 mi. E. of city	2,300′ x 250′	Field, hard sand; level; natural drainage.	No fuel or oil.
Maranon	E	5 55 S. 78 30 W.	1,475		1,300′ x 250′		
Medano	E	5 45 S. 74 55 W.	600	Adjacent to S. of city	NE./SW. 2,250′ x 250′	Field, firm sod; natural drainage; gradient; low in center.	Telegraph, some fuel and oil; weather at Iquitos.
Mollendo	E	17 02 S. 72 01 W.	270	1 mi. E. of city	NNW./SSE. 1,600′ x 1,312′.	Sand and gravel	None.
Moquegua	E	17 12 S. 71 02 W.	4,200	1 mi. NE. of city	2,400′ x 250′	Sand	None.
Moyobamba	E	6 02 S. 76 54 W.	2,850	1 mi. N. of city	N./S. 2,000′ x 300′	Field, rolling turf; natural drainage.	None.
Nasca	E	14 48 S. 74 43 W.	1,040	SE. side of road; nearly 2 mi. SW. of city.	Runway, NE./SW. 2,250′ x 250′.	Firm clay	Fuel.
Negrea	E	05 09 S. 78 32 W.	600	NE. side of highway; 1 mi. N. of city	NE./SW. 1,600′ x 600′.	Sandy	None.
Oconeal	E	10 45 S. 74 09 W.	1,200	Just E. of mission house.	N./S. 2,100′ x 600′	Field, hard sod but soft at N. end.	No fuel or oil.
Paramaya	E	7 25 S. 79 34 W.	20	2 mi. S. of town	N./S. 2,600′ x 300′	Soft sand	None.
Paita	E	5 06 S. 81 07 W.	60	S. edge of city	N./S. 1,200′ x 1,000′ to 1,500′.	Sand, soft	None.

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

PERU—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Paramonga	E	10 41 S. 77 50 W.	16	Parallel to and adjacent to coast; ¾ mi. W. of Hacienda Paramonga.	NW./SE. 3,010′ x 200′	Clay, firm	None.
Paruro	E	7 30 S. 77 30 W.	8,813		3,300′ x 600′		
Patapo	E	6 46 S. 79 40 W.	197	0.5 mi. SSW. of city	Field 2,300′ x 1,310′; runway N./S. 2,000′ x 1,310′.	Level, sod	Hangars, some repairs at plantation.
Pias (Lake Pias)	E	7 30 S. 77 27 W.	6,200	7 mi. N. of mine	E./W. 2,500′ x 200′	Gravel; natural drainage, gradient 8%; rough, sandy.	Radio at mine, no fuel or oil.
Pijuayal	E	3 10 S. 71 40 W. (Est.)					
Pimental	E	6 49 S. 79 56 W.	82	1 mi. NNE. of city	N./S. 1,640′ x 765′	Level sand	Telephone and telegraph in town; 1 small hangar.
Pisco	E	13 44 S. 76 13 W.	39	Between R. R. and ocean, 1¼ mi. S. of city, ¼ mi. SE. of San Andres.	2,300′ x 2,300′	Hard sand	Fuel, radio.
Pisco	E	5 11 S. 69 36 W.	105	E. edge of city	NNE./SSW. 3,130′ x 225′.	Sand and gravel, firm	Fuel.
Pole (Chaupbinzas).	E	14 43 S. 69 38 W.	13,420	1.5 mi. W. of city	E./W. 2,500′ x 450′	Hard clay, slope to E.; highest point of field on E. side of marker.	No fuel or oil.
Pomalca	E	6 36 S. 74 27 W.	620	Adjacent to W. of city	N./S. 2,600′ x 150′	Firm sod, no gradient, natural drainage, N. end rough.	Small amounts of fuel and oil; wind cone; radio installed or being installed.
Puerto Bermudez	E	10 19 S. 74 51 W.	820	Adjacent to W. of city	NW./SE. 1,770′ x 200′	Clay, partly firm, natural drainage, level.	No fuel or oil.
Puerto Inca	E	9 20 S. 74 55 W.	395	Adjacent to S. of city	NNW./SSE. 1,450′ x 200′.	Sod, soft after rain	None.
Puerto Maldonado.	E	12 35 S. 69 10 W.	300	Adjacent to city	N./S. 2,500′ x 200′	Field level, turf, natural drainage; runway rough and dangerous in wet weather.	Very unreliable radio.
Puerto Ocopa	E	11 09 S. 74 21 W.	1,310	Adjacent to N. of city	WNW./ESE. 2,400′ x 220′.	Firm clay, level, natural drainage.	Wind cone; no fuel or oil.
Puerto Victoria	E	9 53 S. 74 56 W.	985	Adjacent to N. of city	2,351′ x 220′	Level, sod, clay, natural drainage.	Radio; teletype in town; small amounts of fuel and oil.
Puno (Manco Capac).	E	15 49 S. 70 01 W.	12,556	2 mi. N.	Field 4,600′ x 900′, runway 300′ down center.		Telephone and telegraph in town, highways.
Quinoa Mill (under construction).	E	13 08 S. 76 43 W.			4,500′ x 250′		
Ramos Castillo	E	4 10 S. 70 10 W. (Est.)					
Reque	E	6 47 S. 79 50 W.	82		3,624′ x 600′		
Rioco (Junin)	E	10 50 S. 76 15 W.	13,975	9 mi. N. of Lake Junin, 9 mi. SE. of R. R.	NE./SW. 4,320′ x 600′	Hard sod, level, natural drainage.	Phone in town.
Rioja	E	6 02 S. 77 09 W.	2,714	0.25 mi. NW. of city	N./S. 2,250′ x 200′	Sod, natural drainage, gradient 2% to N.	No gas or oil.
San Ramon (Captain Alvarado).	E	11 07 S. 75 18 W.	2,461	0.3 mi. SE.	N./S. 3,115′ x 200′	Hard sod, gradient 2.5%, natural drainage.	Telephone in town, small hangar, some repairs, fuel and some oil, highway.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

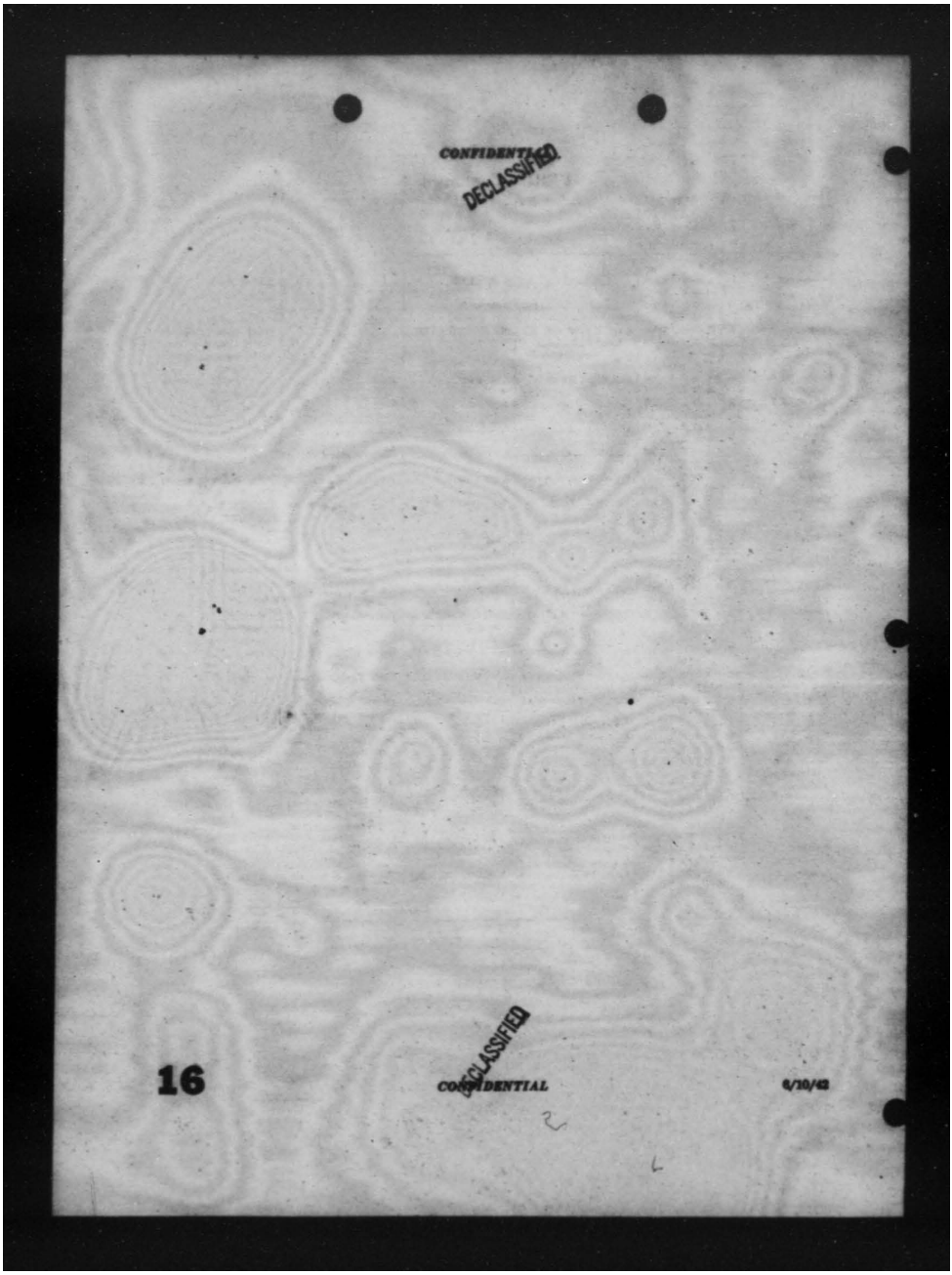
PERU—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Santa Cruz	E	6 35 S. 78 48 W.	6,000		4,400' x 1,200'		No fuel or oil.
Sayan	E	6 39 S. 76 51 W.	1,561		2,950' x 100'		
Saltpo	E	11 13 S. 74 32 W.	2,460	3 mi. NE. of city, Rio Negro on S.	NE./SW. 1,200' x 200'		Wind cone, radio on farm, weather (general) from experimental station.
Sumate (Huda Sumate).	E	4 45 S. 80 32 W.	220	6 mi. SE. of Hacienda	2,200' x 200'	Hard sod	Telephone in hacienda, no fuel or oil.
Sullana	E	4 53 S. 80 42 W.	220	½ mi. SE. of city	N./S. 2,600' x 150'	Sand, soft	None.
Say	E	4 31 S. 80 51 W.	10,000		2,200' x 200'		
Tacna	E	18 00 S. 70 17 W.	1,960	1 mi. NE. of town	2,200' x 200'	Sand and gravel	Fuel.
Talara	C	4 34 S. 81 15 W.		2½ mi. ENE. of town	2,200' x 600' NW./SE.	Sandy, level	Fuel, hangars, repairs, radio.
Tarapoto	E	6 28 S. 76 26 W.	2,100	1 mi. NW. of city	N./S. 2,200' x 200'	Turf, sloping, natural drainage, slightly rough, hillside.	Little fuel or oil.
Tinajones	E	6 40 S. 79 38 W.	220		1,040' x 200'		
Tingo Maria	E	9 17 S. 75 54 W.					
Trujillo	C	8 06 S. 79 03 W.	121	NW. edge of town	NE./SW. 2,200' x 600'	Sand, sod, level	Fuel, radio.
Tumbes	E	6 45 S. 79 43 W.	90	Immediately S. of city	Field 1,500' x 850'; runway N./S. 1,500' x 250'.	Sod, level	Telegraph in town, weather in Chiclayo, no fuel or oil.
Tumbez	E	3 33 S. 80 26 W.	157	W. side of R. R. about 1 mi. NE. of city.	NE./SW. 2,200' x 250'	Sandy, soft	None.
Uchiza	E	8 26 S. 76 20 W.	2,200		2,200' x 200'	Turf, level, natural drainage.	No fuel or oil.
Vitor	E	16 25 S. 71 39 W.		6 mi. W. of R. R. 18 mi. from Arequipa.	Runway NE./SW. 2,500' x 600'.	Gravel, loam, slightly sandy and covered with volcanic ash.	Hangars, repairs, fuel radio.
Yanac	E	15 40 S. 74 51 W.	640	4½ mi. NE. of town	N./S. 2,200' x 750'	Sand, partly firm, natural drainage.	
Yanguy (Huancavan).	E	9 11 S. 77 44 W.	8,200	1.5 mi. SE.		Firm, sandy	
Yarinacocha	E	8 24 S. 76 05 W.	600	9.5 mi. W.	2,600' x 150'.	Field rolling turf, natural drainage; runway flat for 1,000' with incline of 100' then level, very soft in rain.	Little fuel or oil.
Zorritos	E	3 44 S. 80 39 W.	164	4.2 mi. S. of city	N./S. 2,600' x 220'	Hard sod; gradient 1% to S.; natural drainage.	Weather at Talara.
Zotalla	E	10 57 S. 74 52 W.	2,438	0.6 mi. SE.	NW./SE. 1,400' x 200'	Hard sod; no gradient; natural drainage; soft in rain.	No fuel or oil.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

CORRECTION AND/OR ADDITION REPORT

SOUTH AMERICA, WEST COAST

(Report all fields omitted from this directory, including any under construction. Report also corrective information on fields included in this directory. Detach this sheet and mail to "Air Movements Unit, AFDIS, Headquarters Army Air Forces, War Department, Washington, D. C.")

TO: Air Movements Unit— AFDIS.

FROM:

The following corrections, additions and/or recommendations are suggested for this Airport Directory:

Name and Rank

Date and Place

(If more space is required use reverse side)

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

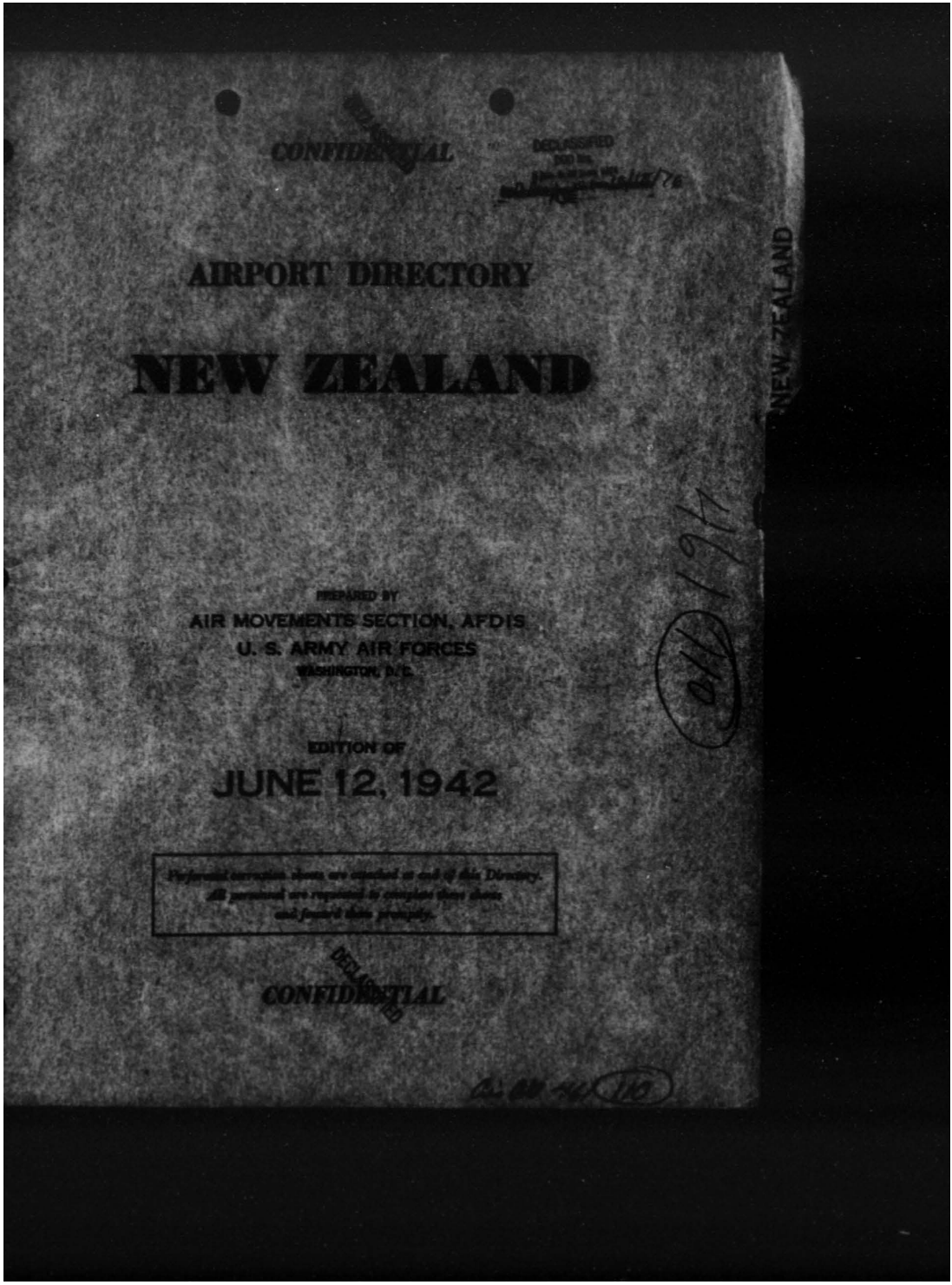
INDEX

FOREIGN AIRPORT DIRECTORIES

EASTERN HEMISPHERE

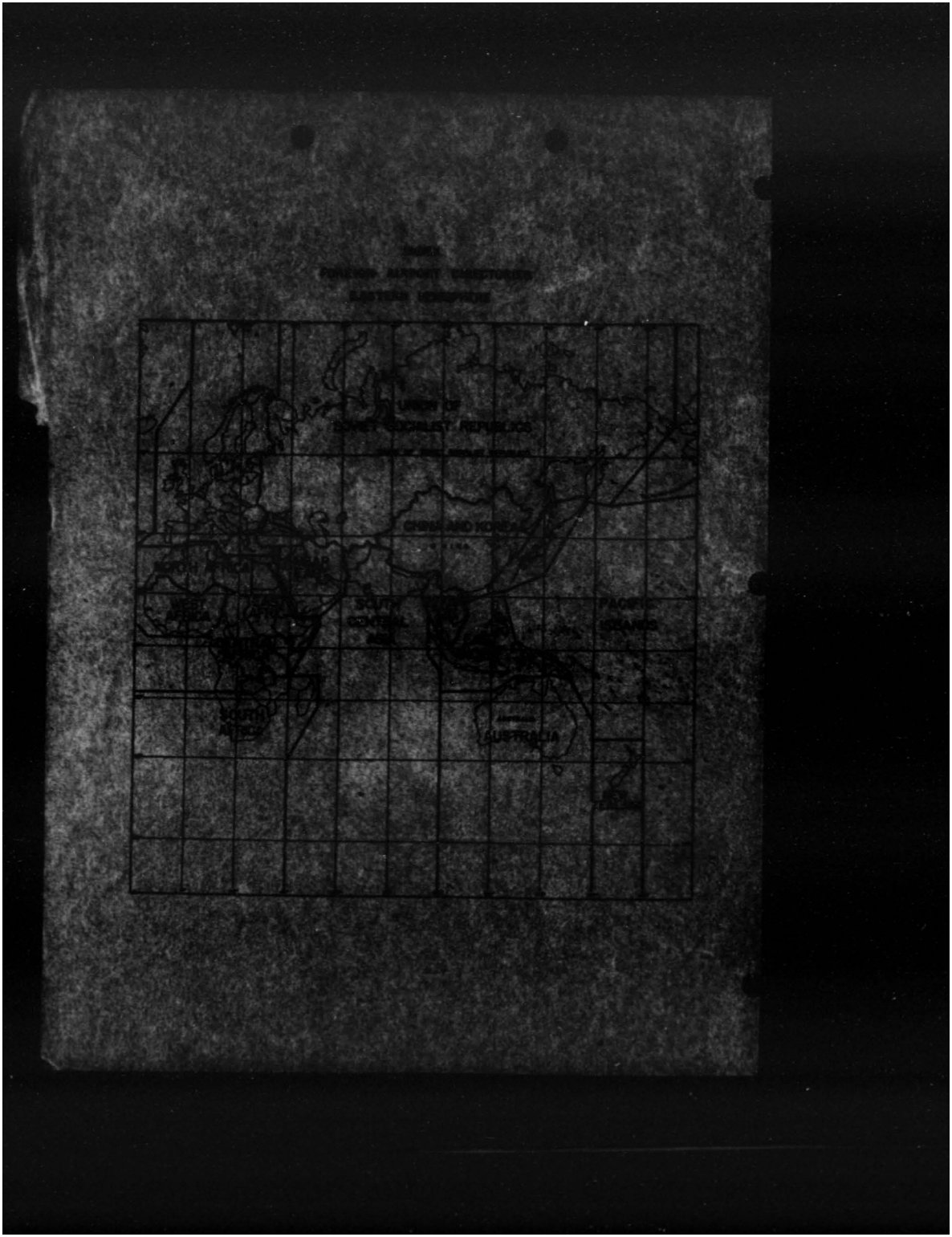
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED DOD Dir. 5 Nov. & 30 June 1978 By Date 9/18/76

CLASSIFIED

PREFACE

The Dominion consists of three principal islands, North Island, South Island, and Stewart Island, situated between latitude 34°30′ and 47°30′ S. and longitude 166°30′ and 178°45′ W. Also within the Dominion are the Chatham Islands, 480 miles east of Banks Peninsula in 43°–45° S. latitude, 176°–177° W. longitude; and the Auckland Islands. The three principal islands are about 1,200 miles east of Australia. They extend in length about 1,100 miles, but their breadth is extremely variable, ranging from 46 miles to 280 miles.

The islands of New Zealand resemble in many respects the British Isles. Their combined area is nearly the same (104,750 square miles), and South Island itself is about the same size as England and Wales.

The group lies on the summit of a broad submarine plateau, which also bears Lord Howe Island, 1,000 miles to the west and Chatham Island. From the northeast of the deeply drowned plateau extend two submarine ridges. One bears the volcanic islands of Tonga and Samoa, the other (to the west) appears to link up with New Caledonia.

The topography of New Zealand is controlled by these earth folds in a very definite manner. The major axis runs from the southwest of South Island to the northeast of North Island. Many names are given to this series of ranges which in places consist of parallel ridges. In the far south, the mountains rise to a height of about 8,000 feet. Past glaciers have grooved their flanks, giving rise to the "Thirteen Sounds" on the west, and the "Cold Lakes" on the east. Te Anu, Wakatip, and Wanaka are the largest of these lakes.

Running through the center of South Island are the Southern Alps, culminating in Mount Cook (12,349 feet). Here the snow line is reached at about 5,000 feet, and large glaciers are found. Tasman, Murchison, and Franz Joseph are the longest of these glaciers. The ranges decrease in size to the north at Arthur's Pass, the elevation there being only 3,100 feet above sea level. Further north, the ranges branch considerably, and four parallel ridges occur, the Lyell, Spencer, Inland, and Seaward Kaikoura Ranges.

In North Island these ranges are continued as the Tararua, Ruahine, Kaimanawa, and Raukumara Ranges which rarely rise above 4,000 feet. On their western side is a well-marked line of volcanic activity. The southern end is crowned by Ruapehu (9,100 feet) a dormant, glacier capped volcano. A few miles to the north are the active Ngauruhoe (7,000 feet) and the dormant Tongariro volcanoes. Lake Taupa, Lake Rotorura, and Mount Tarawero carry the line northward, and it ends at the volcano of White Island in the Bay of Plenty.

There is little room for large plains in these mountainous islands, and there are only four lowland areas of note. Of these, the most southern occurs in Southland around Invercargill. One of the largest is along the east coast of South Island, between Oamaru and Christchurch. In the North Island there is a large area of lowland between the mouths of the Wanganui and Manawatu Rivers. The lower Waikato Basin and much of the peninsula to the north of Auckland form a fourth narrow plain nearly 200 miles long.

In general, the high ranges run athwart of the general drift of the atmosphere from the west, so that rainfall is closely correlated with the topography. South Island is almost permanently swept by the steady westerlies, called the "Roaring Forties." As a result there is a heavy rainfall exceeding 100 inches on the high west coast of South Island. This falls off quite regularly to the east, where it is as low as 20 inches in the sheltered rain-shadow region behind Vamaru. In the North Island almost all the area receives over 40 inches of rain, while the ranges radiating from Ruapehu have about 70 inches. To the north rainfall becomes more seasonal.

Average New Zealand temperature is very much the same in its summer as that of the British Isles, but due to the great distance from large land masses, the winters are more mild than those in Britain. There is a temperature range of about 13° F. from north to south.

DECLASSIFIED

461299—42

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

Visibility is remarkably good and persistant fog is rare. Cloud is usually broken or scattered and the country receives a generous duration of bright sunshine. Snow is rare at sea level, the east coast of South Island receiving more than any other place. Severe hailstorms are also rare. Thunderstorms are more numerous in the north than in the south.

The following are the average number of days of strong winds [1] experienced per year at main meteorological centers throughout New Zealand:

Auckland 31.5 days.	Hokitika 38.3 days.
New Plymouth 25.7 days.	Dunedin 16.3 days.
Wellington 57.7 days.	

In general, flying conditions along the coastal routes are good; gustiness (especially in the Cook and Foveaux Strait areas) is the principal handicap.

Meteorological information for aviation purposes is derived from reports based on synoptic observations made at selected stations throughout the Dominion at the following hours: 6 a. m., 9 a. m., noon, and 3 p. m., and supplementary reports from these or other stations when special conditions require it. In addition, pilot balloon observations are made regularly at Wellington and Christchurch.

Civil aviation in New Zealand did not progress beyond the experimental stage until comparatively recently. Adequate, well-equipped landing fields were lacking, and the comparative smallness of the country did not encourage the early development of aviation. In 1933, the Government began the systematic planning of a chain of landing fields throughout the Dominion with a view to increasing the mobility of defense power, as well as to assisting in the development of civil aviation.

Since the area of plains is limited and coastal lowlands extremely narrow, especially on the west of South Island, and since population has tended to concentrate in these lowland areas, the landing fields tend to be distributed on the same areas. Occasional inland fields show the ability of the airplane to quickly traverse rough country and land at isolated level spots in the higher areas.

The established air routes of the Dominion follow the lowlands and nowhere cut across the high areas of the country. There are, in fact, only eight landing fields above 1,000 feet. These are Glenorchy (2) and Queenstown in the Lake Wakatipu area: Mount Cook Hermitage by L. Oahu; Ranfurly, to the north of Dunedin; Tophouse, on the Bullen River, in the northern part of the island. In the North Island, Karioi is at the edge of much higher country (Mount Ruapehu) to the north. Taupo is on the northern edge of Lake Taupo.

The recognized routes [2] run along the coasts of South Island from Mussel Point on the west and Invercargill on the east to Wellington. From Wellington to Palmerston North on North Island; thence the routes branch to Gisborne on the northeast, and to Auckland on the northwest. International connections are made from Auckland to Sydney, Australia, and the United States via PAA.

Civil airports in the Dominion are mostly small, only four having dimension in any one direction of 3,000 feet or over. They have turf surfaces, paved areas being conspicuous by their absence. The airports generally have good facilities.

The 12 military airports are larger, only one being under 3,000 feet. Facilities are excellent although surfaces are of turf. Reports of paved runways under construction for several of the airports have been received. At the present time the Dominion is undertaking the expansion of several of the northern airports for use by the United States Army Air Forces.

Radio facilities are well established on the islands. Most of the D/F stations are of the M/F type.

[1] A Beaufort scale of 7 or over.
[2] Subject to wartime suspensions.

DECLASSIFIED

DECLASSIFIED

SUMMARY

The airport data given herein is a consolidation of information available at Headquarters Army Air Forces. This information has been obtained chiefly from among the following sources:

Part 1: New Zealand and Chatham Islands, Report On Royal New Zealand Air Forces Operational Area, New Zealand and South Sea Islands (November 5, 1941), and *New Zealand Air Pilot* (1941).

The airports have been listed alphabetically for the islands as a whole.

The South Island Civil Airports are as follows:

Ashburton.
Glenorchy (Mount Earnslaw).
Waiho.
Westport (Carter's Beach).

Only Westport is over 3,000 feet long.

The South Island Military Airports are as follows:

Blenheim (Omaha).
Christchurch (Harewood).
Dunedin (Taieri).
Nelson.
Woodbourne.

The North Island Civil Airports are:

Auckland (Mangere).
Dannevirke.
Gisborne.
Hastings.
Hawera.
Napier (North Shore).
Palmerston North.
Rotorua.
Stratford.
Thames.
Waipukurau.
Wanganui.
Wellington.

Napier, Palmerston North, Waipukurau are over 3,000 feet long.

The North Island Military Airports are:

Hobsonville.
New Plymouth.
Ohakeau.
Tauranga.
Waipapakauri.
Whenuapai.
Wigram.

In all, there are 87 landing fields in the two islands. Of these 17 are civil airports, 12 military.

The following are explanatory notes on the manner of presenting the information:

NAME: Under this heading is given the name of the nearest town or city of any significance. This name is followed by the name of the airport in parentheses if different from the name of the city or town. For towns at which there are several airports, the name of the town is repeated in parentheses for the airport known by the town name in order to distinguish it from the other airports. In cases where the name of the airport transcends the name of the town in importance, the airport name appears first.

TYPE: Under this heading will be found a single letter having the following meaning.

M—Military fields of reasonable size and having at least the more important facilities.
C—Civil fields (Private and Commercial) of reasonable size and having at least the more important facilities.
E—Emergency fields (Military or Civil) either of small size or having few facilities or both.

FACILITIES: Under this heading is given a brief listing of facilities known to exist. No details are given although in many cases more detailed information is available.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

The Index is a straight alphabetical listing by both town name and airport name of all fields.

It is to be understood that in a directory of this character all detailed information cannot be included although on the majority of the fields the information presented here represents all that is available at this time. For many of the fields there are available sketches or photographs or both.

Caution in the use of this directory is advised inasmuch as some of the information used is not of recent date and there may be fields in existence of which this office has no knowledge. Perforated correction sheets will be found in the back of this directory. These sheets are to be completed by military personnel stationed in or traveling in the area.

New editions will be issued from time to time as more or better information becomes available.

DECLASSIFIED

DECLASSIFIED

INDEX

City and Airport	Province	Page
Alexandra	Otago Southland	1
Arawata	Otago Southland	1
Ashburton	Canterbury	1
Atiamuri	Auckland	1
Auckland (Mangere)	Auckland	1
Balclutha	Otago Southland	1
Blenheim (Omaka)	Marlborough	1
Burnham	Canterbury	1
Cape Compbell (Lake Grassmere)	Marlborough	1
Carter's Beach (see Westport)	Nelson	6
Christchurch (Harewood)	Canterbury	1
Clarence	Marlborough	1
Claris, Great Barrier Island	Auckland	1
Commonage (see Glenorchy)	Otago Southland	2
Conway	Marlborough	1
Cromwell	Otago Southland	1
Dannevirke	Hawkes' Bay	1
Dawson's Farm (see Invercargill)	Otago Southland	3
Delta	Marlborough	1
Dunedin (Taieri)	Otago Southland	2
Ellesmere	Canterbury	2
Eyreton	Canterbury	2
Feilding	Wellington	2
Galatea	Auckland	2
Gisborne	Auckland	2
Glenorchy (Commonage)	Otago Southland	2
Glenorchy (Mount Earnslaw)	Otago Southland	2
Gore	Otago Southland	2
Greymouth	Nelson	2
Haast	Westland	2
Hamilton-Waikato Airport (see Rukuhia)	Auckland	5
Harewood (see Christchurch)	Canterbury	1
Hastings	Hawkes' Bay	2
Hawera	Taranaki	2
Hobsonville	Auckland	2
Hokitika	Westland	2
Inchbonnie	Nelson	3
Invercargill	Otago Southland	3
Invercargill (Dawson's Farm)	Otago Southland	3
Jackson's Bay	Westland	3
Karial	Wellington	3
Kerikeri	Auckland	3
Kumeu	Auckland	3
Lake Grassmere (see Cape Campbell)	Marlborough	1
Landsborough	Westland	3
Levin	Wellington	3
Makarora	Canterbury	3
Mangere (see Auckland)	Auckland	1
Masterton	Wellington	3
Milton	Otago Southland	3
Mohaka	Hawkes' Bay	3
Momona	Otago Southland	3

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

City and Airport	Province	Page
Motueka	Nelson	3
Mount Cook Hermitage	Canterbury	4
Mount Earnslaw (*see* Glenorchy)	Otago Southland	2
Mussel Point (Okuru)	Westland	4
Napier (West Shore)	Hawkes' Bay	4
Nelson	Nelson	4
New Plymouth	Taranaki	4
North Beach (*see* Westport)	Nelson	6
Ohakea	Wellington	4
Okuru (*see* Mussel Point)	Westland	4
Omaka (*see* Blenheim)	Marlborough	1
Onerahi (*see* Whangarei)	Auckland	6
Opotiki	Auckland	4
Opoutama	Hawkes' Bay	4
Outram	Otago Southland	4
Palmerston North	Wellington	4
Paraparaumu	Wellington	4
Queenstown	Otago Southland	4
Ranfurly	Otago Southland	4
Rongotai (*see* Wellington)	Wellington	6
Rotorua	Auckland	4
Rukuhia (Hamilton—Waikato Airport)	Auckland	5
Stratford	Taranahi	5
Taieri (*see* Dunedin)	Otago Southland	2
Takaka	Nelson	5
Taupo	Auckland	5
Tauranga	Auckland	5
Te Kuiti	Auckland	5
Thames	Auckland	5
Timaru	Westland	5
Tophouse	Nelson	5
Upper Okuru	Westland	5
Waianakarua	Otago Southland	5
Waiho	Westland	5
Waikato Airport—Hamilton (*see* Rukuhia)	Auckland	5
Waimakariri	Canterbury	5
Waipapakauri	Auckland	5
Waipukurau	Hawkes' Bay	6
Waitaki	Canterbury	6
Wanganui	Wellington	6
Wataroa	Westland	6
Weheka	Westland	6
Wellington (Rongotai)	Wellington	6
Weraroa	Wellington	6
Westport (Carter's Beach)	Nelson	6
Westport (North Beach)	Nelson	6
West Shore (*see* Napier)	Hawkes' Bay	4
Whangarei (Onerahi)	Auckland	6
Whenuapai	Auckland	6
Wigram	Nelson	6
Woodbourne	Marlborough	6

DECLASSIFIED

DECLASSIFIED

NEW ZEALAND

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
Alexandra	B	45 14 S. 169 23 E.	Feet 850	About 2 mi. NW. of Alexandra.	1,410' N./S., 920' NE./SW., 650' E./W., 2,460' NW./SE.	Undulating, very rough outside defined landing strips.	Wind indicator. Limited fuel, hotels at Alexandra.
Ardmore	E	44 20 S. 169 24 E.	250	On sand bar in Arawata River.	600' x 150' NE./SW.	Fair, grassed and firm.	None.
Ashburton	C	43 54 S. 171 45 E.	200	2½ mi. E. of Ashburton.	3,420' N./S. x 3,255' E./W., 3,060' NE./SW. x 1,770' NW./SE.	Turf, firm and smooth gentle undulations.	Hangar, wind indicator. Fuel, hotels, weather reports, telegraph in town.
Athenree	E	37 34 S. 175 57 E.	865	On right bank of Waihou River, 3½ mi. SW. of Athenree Fishing Lodge.	1,800' NNE./SSW., 1,800' E./W.	Fair turf, firm but uneven, grade toward river. Greasy after heavy frosts.	Wind indicator.
Auckland (Mangere).	C	37 00 S. 174 48 E.	20	12 mi. S. of Auckland.	Irregular, 3,700' N./S., 2,310' NE./SW., 1,950' E./W., 1,800' NW./SE.	Good, smooth firm turf.	Fuel, hangars, markings, radio, repairs, weather reports. Telephone and telegraph, hotels in town.
Balclutha	E	46 15 S. 169 45 E.	17	Immediately S. of Balclutha.	600' N./S., 1,800' E./W., 600' NE./SW., 1,800' NW./SE.	Rough grass, bumpy but not dangerous.	Markings, wind indicator. Weather reports, telephone and telegraph, hotels in town.
Blenheim (Omaka)	M	41 33 S. 173 56 E.	90	About 3 mi. SW. of Blenheim on left bank of Taylor River.	3,330' N./S. x 2,340' E./W. 3,120' NE./SW. x 3,450' NW./SE.	Firm turf, dry and smooth but greasy after heavy frosts.	Fuel, markings, wind indicator, hangar, flares, radio, weather reports, telephone. Telegraph, hotels in town.
Burnham	E	43 37 S. 172 15 E.	272	About 4 mi. W. of Burnham Military Camp, 2½ mi. N. of Selwyn River.	3,600' N./S. x 3,000' E./W., 3,000' NE./SW. x 4,725' NW./SE.	Hard turf, generally hard, some soft places after heavy rain.	Wind indicator, markings, telephone. This is an auxiliary landing ground for RNZAF station, Wigram.
Cape Campbell (Lake Grassmere).	B	41 44 S. 174 12 E.	6	On right bank of Lake Grassmere, 6 mi. W. of Cape Campbell Lighthouse.	Irregular, 1,920' N./S., 1,800' NE./SW., 1,920' E./W., 1,920' NW./SE.	Good level turf, likely to be soft after rain.	Markings, wind indicator, telephone ½ mi. to E.
Christchurch (Harewood).	M	43 29 S. 172 32 E.	99	7 mi. NW. of Christchurch, 2½ mi. S. of Waimakariri River.	3,600' N./S. x 3,420' E./W., 3,600' NE./SW. x 4,200' NW./SE.	Weak turf, firm and smooth.	3 hangars, fuel, repairs, markings, wind indicator, radio, telephone and telegraph, lighting, weather reports, hotels in town.
Clarence	E	42 10 S. 173 56 E.	10	On N. side of Clarence River mouth, ¼ mi. SE. of Clarence Bridge P. O.	Irregular, 1,800' N./S., 1,200' NE./SW., 2,520' E./W., 1,200' NW./SE.	Smooth, even and firm, well graded.	Wind indicators, telephone at P. O.
Clarks, Great Barrier Island.	B	36 15 S. 175 30 E.	10	On E. coast of Island, ½ mi. ENE. of W. Sanderson.	1,800' N./S., 1,320 NE./SW., 1,800' E./W., 1,320' NW./SE.	Tufted turf, firm, level.	Telephone, wind indicator, weather reports at W. Sanderson.
Conway	E	42 28 S. 173 36 E.	35	On nearcoast, ¼ mi. S. of mouth of Conway River.	1,920' N./S., 920' NE./SW., 1,200' E./W., 1,200' NW./SE.	Smooth grass, slightly undulating. NW. corner soft in winter.	Wind indicator, telephone at homestead, ½ mi. SW.
Cromwell	E	45 03 S. 169 10 E.	715	1½ mi. W. of Cromwell.	1,200' N./S., 1,920' NE./SW., 2,400' E./W., 2,400' NW./SE.	Hard and dry, smooth with some undulations.	Wind indicator, telephone. Fuel, hotels, weather reports in Cromwell.
Dunevirke	C	40 14 S. 176 05 E.	620	1½ mi. SW. of Dunevirke.	2,700' N./S., 2,130' NE./SW., 1,320' E./W., 1,920' NW./SE.	Well graded, firm, dry and smooth.	Hangar, wind indicators, telephone. Telegraph, hotels, weather reports in town.
Dutie	E	41 31 S. 173 47 E.	210	5 mi. W. of Woodbourne, 9 mi. W. of Blenheim Borough.	1,320' N./S., 1,020' N.E./SW., 2,020' E./W., 1,020' NW./SE.	New turf, soft after rain.	None. This is an auxiliary landing ground for RNZAF station, Woodbourne.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

NEW ZEALAND—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
Dunedin (Taieri)...	M	° ′ 45 52 S. 170 23 E.	Feet 80	7 mi. WNW. of Dunedin, 1½ mi. NE. of Mosgiel.	3,300′ N./S., 3,000′ NE./SW., 4,200′ E./W., 3,900′ NW./SE.	Smooth, even firm turf.	Markings, wind indicators, 3 hangars, fuel, repairs, radio, telephone and telegraph, flares, weather reports. Hotels at Mosgiel and Dunedin.
Ellesmere...	E	43 49 S. 172 36 E.	8	At E. end of Lake Ellesmere, about 2 mi. SE. of Christchurch-Little River R. R.	2,580′ N./S., 4,320′ NE./SW., 3,900′ E./W., 3,600′ NW./SE.	Light turf, hard and solid.	Wind indicators. This is an auxiliary landing ground for RNZAF station, Wigram.
Eyreton...	E	43 26 S. 172 32 E.	240	Adjacent to Eyre River, 6½ mi. N. of Harewood Aerodrome.	1,540′ N./S., 2,350′ NE./SW., 2,850′ E./W., 3,000′ NW./SE.	Good turf, somewhat uneven.	Wind indicators. This is an auxiliary landing ground for RNZAF station, Christchurch (Harewood).
Feilding...	E	40 16 S. 175 36 E.	196	2 mi. SE. of Feilding.	2,200′ N./S., 1,440′ NE./SW., 1,830′ E./W., 2,100′ NW./SE.	Smooth, even turf, heavy except after dry weather.	Wind indicator, hangar, markings. Weather reports, hotels in Feilding.
Gaisto...	E	38 24 S. 176 45 E.	625	On right bank of Rangitaiki River, 20 mi. SE. of Moroia Island.	2,550′ N./S., 2,250′ NE./SW., 1,710′ E./W., 1,800′ NW./SE.	Weak pasture, smooth and level.	Wind indicator.
Gisborne...	C	38 40 S. 177 59 E.	25	3 mi. W. of town...	1,650′ N./S., 2,550′ E./W., 2,250′ NE./SW., 1,950′ NW./SE.	Smooth, firm and dry.	Hangar, telephone, radio, wind indicators. Fuel, hotels, telegraph, weather reports in town.
Glenorchy (Canterbury).	E	44 51 S. 168 24 E.	1,075	½ mi. NW. of Glenorchy P. O. on right bank of Rees River.	2,250′ N./S., 1,950′ NNE./SSW., 450′ E./W., 1,200′ NW./SE.	Very even, grass covered. Firm except after flood in river.	Fuel, repairs, telephone, telegraph, hotel, weather reports in Glenorchy.
Glenorchy (Mount Earnslaw).	C	44 45 S. 168 26 E.	1,300	9 mi. N. of Glenorchy.	1,950′ N./S., 1,950′ NE./SW., 2,100′ E./W., 2,250′ NW./SE.	Well grassed, firm, level, bumpy in parts.	Wind indicator. Fuel, telegraph, hotel, weather reports in town.
Gore...	E	46 03 S. 168 57 E.	250	4½ mi. N. of Gore...	1,200′ N./S., 2,130′ NE./SW., 1,200′ E./W., 1,230′ NW./SE.	Firm, dry and well-graded turf.	Wind indicators, hangar. Hotels, telephone, telegraph, weather reports in town.
Greymouth...	E	42 28 S. 171 12 E.	10	½ mi. W. of Greymouth.	1,200′ N./S., 1,230′ NE./SW., 900′ E./W., 840′ NW./SE.	Smooth, firm dry turf.	Wind indicators, fuel, hangar, repairs, radio. Weather reports, hotels in Greymouth.
Haast...	E	43 32 S. 169 03 E.	30	On left bank of Haast River, adjacent to town.	2,400′ N./S., 1,650′ WNW./ESE.	Smooth and well drained.	Fuel, wind indicators, telephone and telegraph, limited accommodations, weather reports in town.
Hastings...	C	39 39 S. 176 46 E.	72	5 mi. W. of Hastings.	2,700′ N./S., 1,200′ NE./SW., 1,200′ E./W., 1,200′ NW./SE.	Rough, weedy turf, firm, dry but uneven.	Wind indicators, markings, flares, fuel, repairs, weather reports, 2 hangars, telephone. Telegraph, hotels in town.
Hawera...	C	39 33 S. 174 16 E.	270	2 mi. N. of Hawera, 1¼ mi. S. of Normanby.	2,670′ N./S., 2,700′ NE./SW., 2,850′ E./W., 2,400′ NW./SE.	Well graded smooth turf.	Wind indicators, markings, fuel, hangar, telephone, flares. Hotels, telegraph, weather reports in Hawera.
Hobsonville...	M	36 48 S. 174 40 E.	55	6½ mi. NW. of Auckland, 2 mi. E. of Whenuapai Aerodrome.	2,400′ N./S., 3,000′ NE./SW., 3,600′ E./W., 2,400′ NW./SE.	Good smooth, firm turf.	Markings, wind indicators, hangars, fuel, repairs, telephone and telegraph, radio, lighting. Hotels in town.
Hokitika...	E	42 44 S. 170 57 E.	6	About ¾ mi. SW. of town.	2,100′ ENE./WSW., 1,770′ WNW./ESE., 1,800′ NNW./SSE.	Runways metalled, firm in all conditions.	Wind indicators, markings, 2 hangars, fuel, repairs, radio, obstruction lights. Hotels, telephone, telegraph, weather reports in town.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

NEW ZEALAND—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Inchbonnie	E	42 42 S. 171 27 E.	600	2½ mi. NW. of Inchbonnie, 2½ mi. S. of Lake Brunner.	2,150′ N./S., 1,200′ NE./SW., 1,170′ E./W., 1,820′ NW./SE.	Smooth, even and firm but spongy after rain.	Telephone and telegraph, R. R., weather reports at Inchbonnie. Accommodations at Mitchell's Hotel, ½ mi. NW.
Invercargill	E	46 26 S. 168 19 E.	Sea level	1 mi. E. of Invercargill.	1,575′ N./S., 2,550′ NE./SW., 1,575′ E./W., 1,575′ NW./SE.	Good turf, except for patches. Firm and smooth.	Markings, wind indicator, telephone. Fuel, hotels, weather reports in town.
Invercargill (Dawson's Farm).	E	46 23 S. 168 20 E.	130	4 mi. NE. of Invercargill.	1,200′ N./S., 1,800′ NE./SW., 1,800′ E./W., 1,800′ NW./SE.	Good turf, smooth, even.	Wind indicators, markings, hangars, weather reports, telephone and telegraph. Fuel, hotels in town.
Jackson's Bay	E	44 02 S. 168 40 E.	10	About 3 mi. SE. of settlement.	2 strips, 1,320′ x 125′ E./W., 1,440′ x 125′ WNW./ESE.	Smooth, firm and level.	Markings, wind indicator. Telephone and telegraph, radio, weather reports, accommodations at Jackson's Bay Aerodio station.
Karioi	E	39 39 S. 175 34 E.	2,200	2 mi. SE. of Karioi State Forest Service.	1,410′ N./S., 1,800′ NE./SW., 1,410′ E./W., 1,200′ NW./SE.	Grass, slight undulations.	Wind indicator. Telephone and telegraph, weather reports at State Forest Service.
Kerikeri	E	35 10 S. 173 56 E.	435	4 mi. SW. of Kerikeri.	1,320′ N./S., 1,320′ NE./SW., 1,320′ E./W., 2,610′ NW./SE.	Turf, firm, smooth and even. Steep grade at end of W. and NE. strips.	Markings, wind indicators, telephone, plane moorings, accommodations. Weather reports in town.
Kumeu	E	36 46 S. 174 34 E.	100 (approx.)	On E. side of R. R. line, about 3 mi. W. of Whenuapai Aerodrome.	1,575′ N./S., 1,650′ NE./SW., 1,200′ E./W., 1,920′ NW./SE.	Grassed, fair; minor undulation.	Markings, wind indicators. This is an auxiliary landing ground for RNZAF station, Whenuapai.
Landsborough	E	43 35 S. 169 20 E.	400	On W. bank of Landsborough River, 24 mi. ESE. of Haast.	1,200′ x 200′ N./S., 1,000′ x 150′ NE./SW.	Sparse grass, slightly bumpy. S. end rough.	Markings, bush hut.
Levin	E	40 39 S. 175 17 E.	130	1 mi. S. of Levin, 6 mi. from the coast.	2,750′ NNE./SSW., 2,700′ E./W., 2,750′ WNW./ESE., 2,750′ NW./SE.	Good turf.	Markings, wind indicators, telephone, tents and huts. This is an auxiliary landing ground for RNZAF station, Ohakea.
Makarora	E	44 16 S. 169 13 E.	900	4 mi. NNE. of Makarora, which is at the head of Lake Wanaka.	2,010′ NNE./SSW.	Undulating grass, wet patches after heavy rain.	Markings, wind indicator, weather reports, telephone at P. O., 800′ distant.
Masterton	E	40 59 S. 175 39 E.	200	1 mi. SW. of Masterton.	1,710′ N./S., 1,320′ NE./SW., 1,320′ E./W., 1,910′ NW./SE.	Well graded, generally smooth, firm turf.	Markings, wind indicators, hangar, telephone. Fuel, hotels in town.
Milton	E	46 09 S. 169 54 E.	35	2½ mi. SW. of Milton.	1,720′ N./S., 1,980′ NE./SW., 1,320′ E./W., 1,860′ NW./SE.	Firm, slightly undulating.	Wind indicator, telephone ½ mi. N. of field. This is an auxiliary landing ground for RNZAF station, Taieri.
Mohaka	E	39 08 S. 177 11 E.	284	1 mi. W. of Mohaka River mouth.	1,800′ N./S., 1,800′ NE./SW., 2,070′ E./W., 2,100′ NW./SE.	Well graded grass, slightly bumpy.	Wind indicators.
Momona	E	45 56 S. 170 13 E.	15	2 mi. W. of Allanton.	2,700′ N./S., 2,160′ NE./SW., 2,100′ E./W., 1,980′ NW./SE.	Smooth and in good order.	Markings, wind indicator, telephone. This is an auxiliary landing ground for RNZAF station, Taieri.
Motueka	E	41 08 S. 172 50 E.	30	Immediately W. of Motueka.	1,800′ N./S., 2,160′ NE./SW., 2,040′ E./W., 1,800′ NW./SE.	Smooth, level, firm, dry turf.	Wind indicator, markings, telephone and telegraph, weather reports, hotels in town.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

NEW ZEALAND—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Mount Cook Hermitage.	E	43 47 S. 170 06 E.	2,030	4¼ mi. SE. of Mount Cook Hermitage.	1,980′ x 264′ NE./SW., 1,980′ x 264′ NW./SE., 1,950′x 132′E./W.	Grassed strips, outfields rough.	Fuel, wind shelter for planes, markings, wind indicator, accommodations, telephone, weather reports at Mount Cook Hermitage.
Mussel Point (Okuru).	E	43 55 S. 168 53 E.	20	On left bank of Hapuka River, 3 mi. SW. of Okuru.	1,320′ N./S., 1,860′ ENE./WSW., 2,700′ NE./SW.	Excellent where grassed, bare patches soft.	Limited fuel. Telephone and telegraph, weather reports in town.
Napier (West Shore).	C	39 28 S. 176 52 E.	3	4 mi. NW. of Napier.	3,240′ N./S., 2,040′ NE./SW., 1,800′ E./W., 2,040′ NW./SE.	Sparse grass on smooth firm shingle bed, good in all but very wet weather.	Wind indicators, markings, shelter for plane, radio, weather reports, telephone and telegraph. Hotels in town.
Nelson	M	41 18 S. 173 14 E.	6	3½ mi. SW. of Port Nelson at S. end of Tasman Bay.	3,300′ N./S., 3,000′ NE./SW., 3,000′ E./W., 3,000′ NW./SE.	Smooth firm turf.	Markings, lighting, hangar, fuel, repairs, weather reports, telephone and telegraph, radio. Hotels in town.
New Plymouth	M	39 02 S. 174 11 E.	142	5½ mi. NE. of New Plymouth.	3,900′ N./S., 3,000′ NE./SW., 3,000′ E./W., 3,000′ NW./SE.	Well graded, excellent turf, firm, even and well drained.	Markings, lighting, hangars, fuel, repairs, radio, telephone, weather reports. Telegraph, hotels in town.
Ohakea	M	40 12 S. 175 23 E.	158	2 mi. S. of Bulls township, on S. bank of Rangitikei River.	3,900′ N./S., 4,200′ NE./SW., 3,900′ E./W., 4,200′ NW./SE. Three concrete runways under construction.	Smooth, firm turf.	Markings, wind indicators, fuel, repairs, hangars, weather reports, flares, radio, barracks. Hotels, telegraph, telephone in town.
Opotiki	E	38 02 S. 177 19 E.	25	About 1 mi. SE. of Opotiki.	1,950′ N./S., 2,340′ NE./SW., 3,060′ E./W., 2,340′ NW./SE.	Well graded grass, firm. Use caution when grass is wet.	Wind indicator, markings. Telephone, hotels, weather reports in town.
Opoutama	E	39 03 S. 177 53 E.	5	On E. side of Mahia Isthmus, 3 mi. NE. of Opoutama.	2,020′ N./S., 1,500′ NE./SW., 1,350′ E./W., 750′ NW./SE.	Smooth grass, heavy after rain.	Boundary markers, wind indicator, shelter shed. Telephone at homestead, ½ mi. W.
Outram	E	45 53 S. 170 15 E.	20	1 mi. SE. of Outram on W. bank of Taieri River.	1,860′ ENE./WSW., 1,950′ E./W., 1,860′ NNW./SSE.	In good order, undulating to rough.	Wind indicator, shed. This is an auxiliary landing ground for RNZAF station, Taieri.
Palmerston North	C	40 20 S. 175 37 E.	140	About 1 mi. N. of town.	2,100′ N./S., 2,400′ NE./SW., 3,150′ E./W., 2,400′ NW./SE.	Smooth firm turf in summer, heavy in winter.	Markings, flares, radio, hangars, fuel, repairs, telephone, weather reports. Hotels, telegraph in town.
Paraparaumu	E	40 55 S. 174 60 E.	15	1 mi. W. of Paraparaumu township, 30 mi. NNE. of Wellington.	2,850′ N./S., 1,950′ NE./SW., 2,820′ E./W., 2,040′ NW./SE.	Smooth level grass, firm and well drained.	Markings, wind indicators, telephone.
Queenstown	E	45 01 S. 168 45 E.	1,200	4 mi. ENE. of Queenstown.	3,150′ NNW./SSE., 2,160′ NNE./SSW., 1,950′ ENE./WSW., 2,250′ WNW./ESE.	Well graded, firm and dry. Sticky during thaws after heavy frosts.	Wind indicator, telephone. Fuel, hotels, weather reports in town.
Ranfurly	E	45 08 S. 170 07 E.	1,308	Immediately E. of Ranfurly.	1,350′ N./S., 1,200′ NE./SW., 810′ E./W., 1,500′ NNW./SSE.	Grassed strips, firm and even. Outfields rough.	Markings, wind indicator. Telephone and telegraph, fuel, hotel, weather reports in town.
Rotorua	C	38 10 S. 176 16 E.	980	At SE. edge of town.	2,550′ N./S., 2,850′ NE./SW., 3,300′ E./W., 2,520′ NW./SE.	Firm, dry, and smooth, grassy.	Markings, telephone, hangar, fuel, repairs. Hotels, weather reports in town.

DECLASSIFIED

CONFIDENTIAL

DECLASSIFIED

NEW ZEALAND—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Rukuhia (Hamilton-Waikato Airport).	E	37 52 S. 175 30 E.	165	7 mi. SE. of Hamilton, 3½ mi. E. of Rukuhia.	1,500′ N./S. x 2,100′ E./W.; 2,250′ NE./SW. x 2,010′ NW./SE.	Rough, bumpy with some undulations.	Markings, wind indicator, telephone, weather reports, fuel, repairs, hangar. Hotels, telegraph in Hamilton.
Stratford	C	39 19 S. 174 19 E.	925	2½ mi. NE. of Stratford.	1,800′ N./S., 1,800′ NE./SW., 2,250′ E./W., 2,700′ NW./SE.	Turf, rough in places. Caution should be exercised after heavy rain.	Wind indicators, telephone, hangar. Fuel, telegraph, hotels, weather reports in town.
Takaka	E	40 49 S. 172 47 E.	90	3½ mi. NW. of Taka township, 1 mi. from coast at mouth of Takaka River.	2,550′ N./S., 2,145′ NE./SW., 1,710′ E./W., 2,085′ NW./SE.	Weak turf, firm and dry except after heavy rain, slopes from S. to N.	Wind indicator, sheds, telephone.
Taupo	E	38 40 S. 176 00 E.	1,540	About 3 mi. NE. of Taupō.	1,440′ N./S., 2,340′ ENE./WSW., 1,950′ E./W., 1,800′ NW./SE.	Well graded, firm, smooth, patchy grass.	Markings, wind indicator. Fuel, hotels, weather reports, telephone and telegraph in town.
Tauranga	M	37 40 S. 176 12 E.	10	1 mi. E. of Tauranga, 3 mi. SSE. of Mt. Maunganui.	3,000′ N./S., 3,600′ NE./SW., 3,900′ E./W., 3,300′ NW./SE.	Well graded turf, firm and smooth.	Markings, wind indicators, radio, fuel, repairs, hangars, weather reports. Hotels, telephone and telegraph in town.
Te Kuiti	E	38 18 S. 175 09 E.	160	Approx. 2 mi. NW. of Te Kuiti.	2,100′ x 330′ N./S., 1,800′ x 330′ NE./SW., 1,950′ x 330′ NW./SE.	Strong level turf, spongy after heavy rains.	Markings, wind indicator, hangar, fuel. Telephone, telegraph, hotels, weather reports in town.
Thames	C	37 10 S. 175 33 E.	5	Approx. 1 mi. SE. of Thames, on Firth of Thames.	3 strips: 2,550′ x 165′ NE./SW.; 2,070′ x 165′ ENE./WSW.; 1,575′ x 165′ NW./SE.	Strips firm and smooth, other areas rough.	Markings, wind indicators, telephone. Fuel, telegraph, weather reports, hotels in Thames.
Timaru	E	44 25 S. 171 15 E.	10	On S. edge of town.	1,500′ N./S., 1,950′ NE./SW., 1,140′ E./W., 1,200′ NW./SE.	Unable area marked off, smooth, level and firm.	Markings, wind indicator, hangars, fuel, telephone. Hotels, weather reports in town.
Tophouse	E	41 46 S. 172 45 E.	1,630	22 mi. ENE. of Murchison township, on S. bank of Buller River.	2,370′ N./S., 1,650′ NE./SW., 2,400′ E./W., 2,400′ NW./SE.	Grassed, smooth, level and firm.	Markings, wind indicators, hut and shed, telephone.
Upper Okuru	E	43 55 S. 168 57 E.	30	On S. bank of Okuru River, adjacent to Upper Okuru.	1,500′ ENE./WSW., 1,200′ WNW./ESE.	Firm, smooth and level, spongy in wet weather.	Markings, wind indicator, sheds. Telephone, telegraph, weather reports in town.
Waiuakaruru	E	45 17 S. 170 49 E.	80	¼ mi. E. of Waiuakaruru R. R. station, 3½ mi. N. of Hampden, 3½ mi. SSW. of Herbert.	2,250′ NNW./SSE., 2,640′ NNE./SSW., 2,550′ WNW./ESE.	Smooth firm grass.	Wind indicator.
Waiho	C	43 23 S. 170 11 E.	430	On right bank of Waiho River, just N. of Waiho Hotel.	1,140′ N./S. x 600′ E./W., 2,520′ NNW./SSE. x 900′ NNE./SSW.	Strips are shingle with some grass, outfields rough.	Markings, wind indicators, fuel, hangars, hotel, weather reports, telephone, and telegraph.
Waiuakariri	E	43 27 S. 172 22 E.	340	On N. bank of Waimakariri River, adjacent to and E. of State forestry plantation.	2,850′ N./S. x 3,300′ E./W., 3,000′ NE./SW. x 3,000′ NW./SE.	Fairly good well-drained turf, somewhat stony in places.	Wind indicator. This is an auxiliary landing ground for RNZAF Station, Wigram.
Waipapakauri	M	35 01 S. 173 14 E.	5	6 mi. N. of Kaitaia township, on S. shore of Rangaunu Bay.	2,460′ N./S., 2,220′ NE./SW., 2,370′ E./W., 1,800′ NW./SE.	Generally level with some depressions, which form pools and become spongy after rain.	Wind indicators, markings, fuel, repairs, hangar, flares, obstruction lights, weather reports, telephone and telegraph. Hotel adjacent.

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

NEW ZEALAND—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Waipukurau	C	40 00 S. 176 32 E.	420	1 mi. W. of Waipukurau.	2,400′ N./S., 2,040′ NE./SW., 2,340′ E./W., 1,800′ NW./SE.	Smooth, firm and dry. E. end is rough.	Wind indicators, telephone. Fuel, weather reports, hotels, telegraph in town.
Waitaki	E	44 58 S. 171 05 E.	100	7½ mi. S. of Waitaki River, 2 mi. from coast, 2 mi. N. of Hilderthorpe station.	1,920′ x 480′ N./S., 2,520′ x 480′ NE./SW., 2,100′ x 480′ E./W., 2,470′ x 480′ NW./SE.	Smooth, firm and level, grassed.	Wind indicator, telephone.
Wanganui	C	39 58 S. 175 01 E.	15	3½ mi. S. of Wanganui.	2,400′ N./S., 2,400′ NE./SW., 2,700′ E./W., 2,340′ NW./SE.	Fair sandy turf, smooth except ends of NE./SW. strip and coastal side of NW./SE. strip.	Wind indicator, markings, fuel, hangar, weather reports. Telephone, hotels in town.
Wairoa	E	43 16 S. 177 23 E.	260	1 mi. E. of town of Wairoa.	1,350′ NNE./SSW., 1,800′ WNW./ESE., 2,040′ NW./SE.	Firm shingle, E. side loose.	Wind indicator. Telephone and telegraph, weather reports in town.
Waiuku	E	43 26 S. 169 55 E.	200	8 mi. WNW. of Waiuku.	1,800′ x 150′ NNE./SSW., 2,070′ x 220′ ENE./WSW.	S. side dry, N. side wet; NNE./SSW. strip liable to be soft in wet conditions.	Wind indicator. Hotel, telephone, telegraph, weather reports in town.
Wellington (Rongotai).	C	41 20 S. 174 49 E.	10	About 3 mi. S. of city.	2,340′ N./S., 1,920′ NE./SW., 1,920′ E./W., 2,520′ NW./SE.	Grassy, smooth, and firm. Ground becomes soft and heavy in wet weather.	Markings, flares, fuel, repairs, hangars, weather reports, radio, telephone and telegraph; hotel in town.
Woraroa	E	40 39 S. 175 11 E.					
Westport (Carter's Beach).	C	41 45 S. 171 36 E.	6	5 mi. NW. of Westport on left bank of Buller River.	No. 1—3,000′ x 330′ N./S.; No. 2—2,700′ x 330′ NE./SW.; No. 3—2,400′ x 330′ NW./SE.	No. 2 strip smooth, firm and level turf. Other strips emergency only.	Wind indicators, W/T, radio station, weather reports, telephone. Fuel, telegraph, hotels in Westport.
Westport (North Beach).	E	41 44 S. 171 36 E.	7	1 mi. N. of Westport on right bank of Buller River.	No. 1—1,540′ NE./SW.; No. 2—1,590′ x 330′ NW./SE.	No. 1 slightly bumpy. No. 2 fair.	Wind indicators, hangar W/T at Carter's Beach Aerodrome. Fuel, hotels, weather reports, telephone, and telegraph in town.
Whangarei (Onerahi).	E	35 46 S. 174 22 E.	122	7 mi. SE. of Whangarei.	2,190′ N./S., 1,845′ NE./SW., 2,880′ E./W., 2,280′ NW./SE.	Smooth firm turf, heavy near circle in winter.	Circle, wind indicators, markings. Fuel, hotels in town.
Whenuapai	M	36 47 S. 174 39 E.	85	8½ mi. NW. of Auckland.	Irregular, with 4 strips: 4,000′ NNE./SSW., 4,400′ ENE./WSW., 4,000′ NW./SE., 4,200′ WNW./ESE.; 6,000′ runway under construction.	Stabilised soil, suitable for heavy bombers except in very rainy periods. Concrete runways under construction.	Markings, radio, fuel, repairs, hangars, lighting, telephone, telegraph, weather reports. Hotels in Auckland.
Wigram	M	43 34 S. 172 33 E.	70	4 mi. SW. of Christchurch.	4,800′ N./S., 3,900′ NE./SW., 3,900′ E./W., 3,600′ NW./SE.	Good firm turf E. of circle. Becomes heavy in winter, S. of circle.	Markings, fuel, repairs, hangars, radio, weather reports, telephone, and telegraph. Hotels at Christchurch.
Woodbourne	M	41 31 S. 173 53 E.	90	4½ mi. W. of Blenheim, 2½ mi. S. of Wairau River.	2,700′ N./S., 3,600′ NE./SW., 3,600′ E./W., 3,000′ NW./SE.	Good turf, firm and smooth.	Markings, fuel, repairs, hangars, radio, weather reports, lighting. Telephone and telegraph, hotels at Blenheim.

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

CORRECTION AND/OR ADDITION REPORT

NEW ZEALAND

(Report all fields omitted from this directory, including any under construction. Report also corrective information on fields included in this directory. Detach this sheet and mail to "Air Movements Unit, AFDIS, Headquarters Army Air Forces, War Department, Washington, D. C.")

TO: Air Movements Section, AFDIS.

FROM:

The following corrections, additions and/or recommendations are suggested for this Airport Directory:

Name and Rank

Date and Place

(If more space is required use reverse side)

DECLASSIFIED

6/12/45 CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

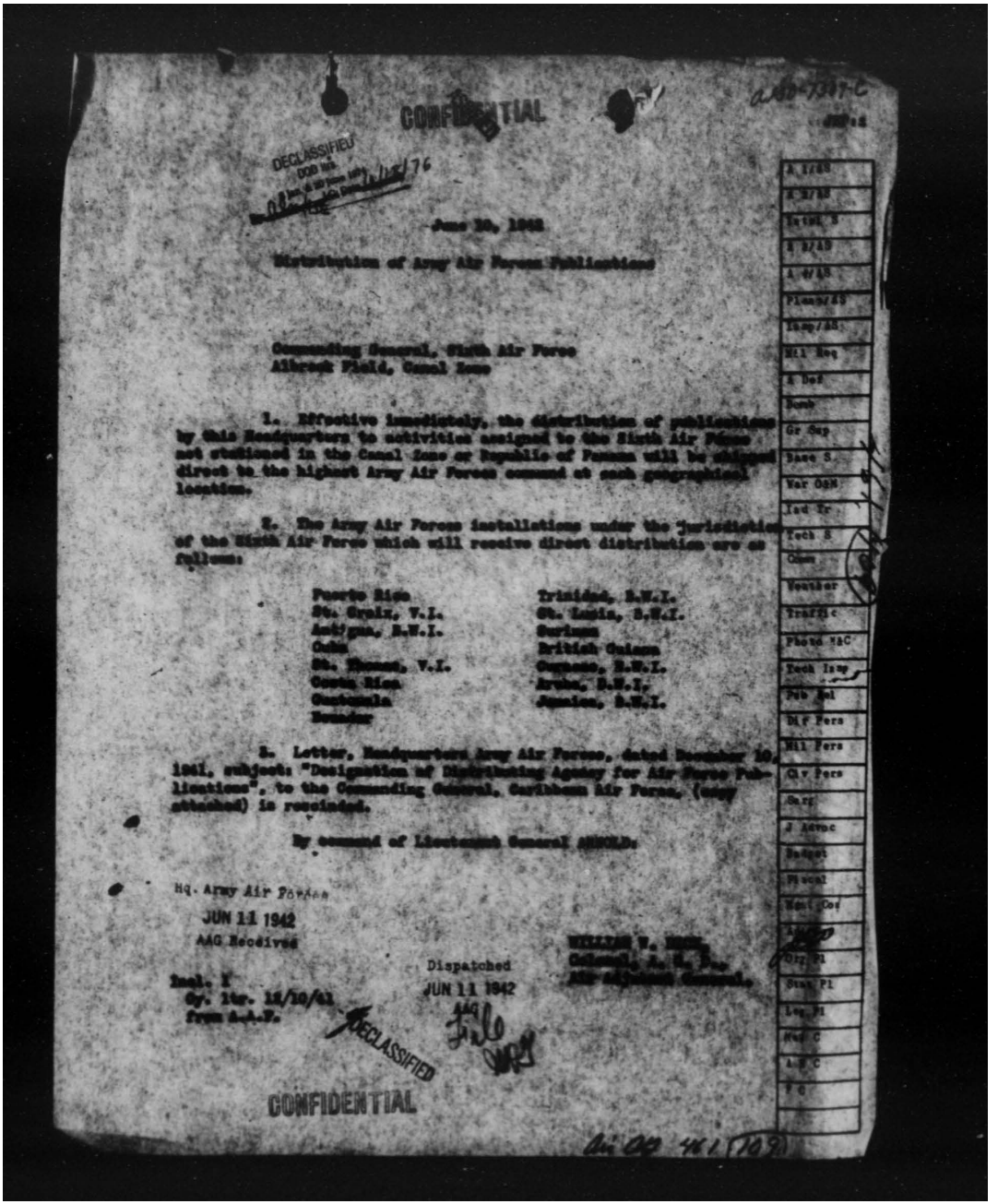
INDEX

FOREIGN AIRPORT DIRECTORIES

WESTERN HEMISPHERE

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



CONFIDENTIAL

AAG-7347-C

DECLASSIFIED DOD Ltr. dtd 30 June 1975 Washington Federal Records Center 76

June 10, 1942

Distribution of Army Air Forces Publications

Commanding General, Sixth Air Force
Albrook Field, Canal Zone

1. Effective immediately, the distribution of publications by this Headquarters to activities assigned to the Sixth Air Force not stationed in the Canal Zone or Republic of Panama will be shipped direct to the highest Army Air Forces command at each geographical location.

2. The Army Air Forces installations under the jurisdiction of the Sixth Air Force which will receive direct distribution are as follows:

Puerto Rico	Trinidad, B.W.I.
St. Croix, V.I.	St. Lucia, B.W.I.
Antigua, B.W.I.	Suriname
Cuba	British Guiana
St. Thomas, V.I.	Curacao, B.W.I.
Costa Rica	Aruba, B.W.I.
Guatemala	Jamaica, B.W.I.
Honduras	

3. Letter, Headquarters Army Air Forces, dated December 10, 1941, subject: "Designation of Distributing Agency for Air Forces Publications", to the Commanding General, Caribbean Air Force, (copy attached) is rescinded.

By command of Lieutenant General ARNOLD:

Hq. Army Air Forces
JUN 11 1942
AAG Received

WILLIAM W. [illegible]
Colonel, A. G. Dept.
Asst. Adjutant General.

Dispatched
JUN 11 1942
AAG

Incl. 1
Cy. ltr. 12/10/41
from A.A.F.

DECLASSIFIED

CONFIDENTIAL

A 1/AG
A 2/AG
Intel. S
A 3/AG
A 4/AG
Plans/AG
Insp/AG
Mil Req
A Def
Bomb
Gr Sup
Base S.
War OSR
Ind Pr
Tech S
Comm
Weather
Traffic
Photo MC
Tech Insp
Pub Rel
Dir Pers
Mil Pers
Civ Pers
Secy
J Advoc
Budget
Fiscal
Hist Sec
Admin
Org Pl
Stat Pl
Log Pl
Med C
A.F.C
F C

AG 400.41 (10-9)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

RECEIPT FOR NON-REGISTERED DOCUMENTS

Date: June 4, 1942

FROM: Chief of the Air Staff
Room 2E924
Munitions Bldg.
Washington, D. C.

TO: Operational Intelligence Section,
A-2 Division

1. Receipt is acknowledged of the following non-registered Confidential, Secret, Unclassified documents:

1 copy Airport Directory - Australia (May 28, 1942)

1 copy Airport Directory - Alaska (June 10, 1942)

1 copy Route Manual - Miami to Cairo (Part Two-May 27, 1942)

461 (108)

Please acknowledge receipt
and return immediately to:

Operational Intelligence Section, A-2
Room 2E924
Munitions Bldg.
Wash., D. C.
Attention: Major L. L. White

NOTE: The above documents need not be reported as required by AR 380-5 in the case of registered documents.

DECLASSIFIED

Air AG 461 (108)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

DECLASSIFIED
DOD Dir. 5200.9 and 10 June 1954
NAO Date 10/19/76

AIRPORT DIRECTORY

AUSTRALIA

PREPARED BY
AIR MOVEMENTS SECTION, AFDIS
U. S. ARMY AIR FORCES
WASHINGTON, D. C.

EDITION OF
MAY 25, 1942

Perforated correction sheets are attached at end of this Directory. All personnel are requested to complete these sheets and forward them promptly.

CONFIDENTIAL

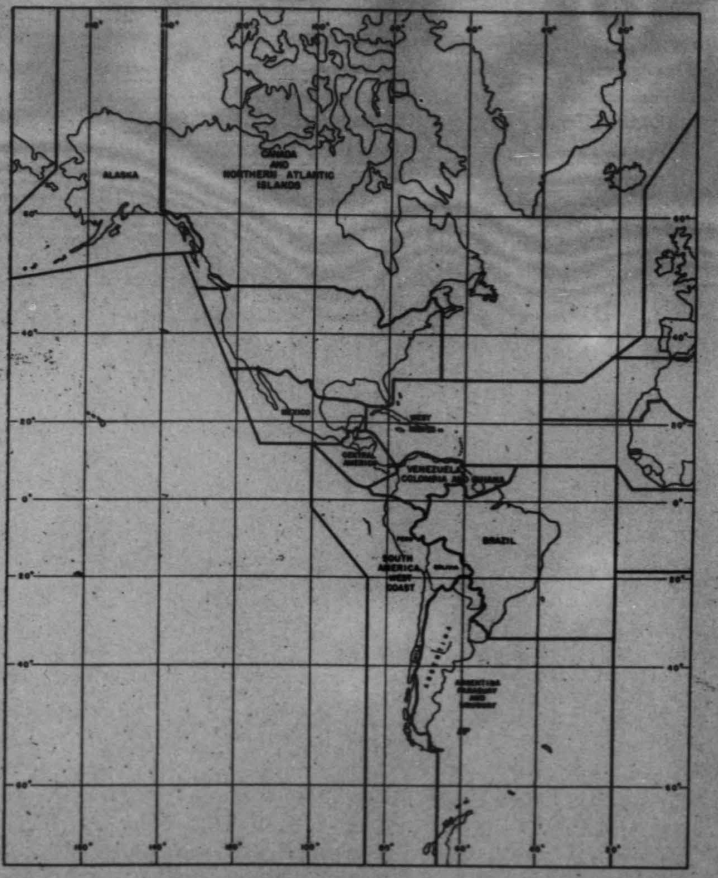
DECLASSIFIED

Qi AY 461 (108)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

INDEX
FOREIGN AIRPORT DIRECTORIES
WESTERN HEMISPHERE



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL
DECLASSIFIED
DOD Dir. 5 Jan. & 30 June 1974
By O.O. Comp. Ltr. 10/5 Date 6/18/76
OSD

PREFACE

Australia, with a population of less than 8,000,000 in an area about as large as the continental United States, has been an excellent field for the development of commercial aviation. The need for air transportation has been especially great, because large sections of the country have had very poor surface transportation. The constitutional right of the several States to control their own transportation systems has resulted in a multiplicity of railroad track gauges, thus handicapping a coordinated railroad net. In developing an air-transport system, Australia followed a policy of providing air services to the smaller centers of population where ground transportation was lacking. The Cloncurry mining area in northwest Queensland present an example of the concentration of small fields in an otherwise remote area.

Present day[1] local air routes in Australia completely ring the continent, and there are two transcontinental lines, one of which is operated from Adelaide to Darwin via Alice Springs and Daly Waters and the other from Sydney and Brisbane to Darwin via Charleville, Longreach, Cloncurry, and Daly Waters. In addition, three international tie-ups were in existence before the Pacific War.

Climatic and topographic conditions are notably favorable for air navigation in nearly all parts of Australia. The flat, treeless character of much of the continent, especially the dry interior, has facilitated the construction of many minor landing fields at low cost. The eastern highland belt is comparatively narrow and elevations are not great. The provision of landing fields, however, provides difficulties in many places along the east coast, where large tracts of level untimbered land are at a premium. This holds too, for much of Tasmania. The northern coast, though not heavily wooded, is covered with a savannah type vegetation which makes landings dangerous in other than established clearings; emergency or other fields must be hewn from the bush, and in summer (December–March) heavy rains brought by tropical hurricanes may impede construction.

In many of the remote sparsely populated areas away from the coasts, emergency fields lack supplies, gas, oil, and water. Emergency fields will often be hard to find for pilots inexperienced in flying the various routes; many consist of cleared strips having only elementary markings, such as corner or circle markings. Because of the uninhabited nature of great areas, topographic features form the main type of landmark. Any cultural features, such as ranch houses, roads, or telegraph lines should be carefully noted. In general the vast interior, west of the eastern highland is sparsely inhabited, which causes the lack of even emergency fields in great parts of the Western Territory, South Australia, Northern Territory, and Queensland. Off the Darwin-Adelaide route vast areas of the interior are devoid of landing fields or means of subsistence in case of a forced landing.

Radio and lighting facilities for aerial navigation are generally poor when the country as a whole is considered. The facilities available have been placed at the larger aerodromes of the more populous centers and at a few of the main points of established airlines.

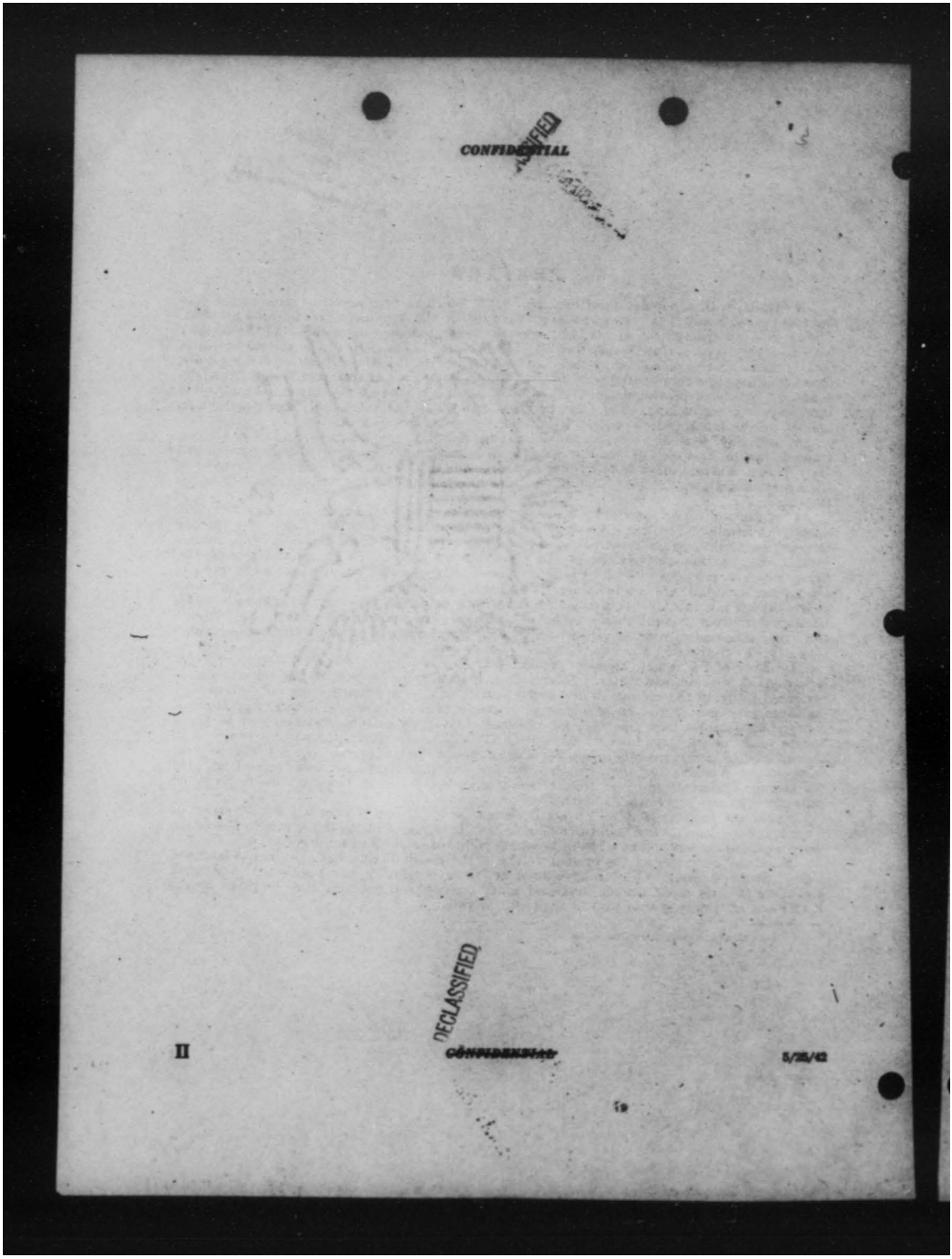
Since the beginning of the present action in the South Pacific, both the RAAF and the United States Army Air Forces have been active in developing key positions in the north and along the east coast. Some west and south coastal positions have been prepared by the RAAF but are thinly spaced west of the 130th Meridian.

[1] Data subject to wartime suspensions.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

SUMMARY

The airport data herein is a consolidation of information available at Headquarters Army Air Forces. This information has been obtained chiefly from among the following sources: Shell Oil Co. airport reports (1934–39), Vacuum Oil Co. airport reports (1936), report of the Australian Directorate of Air Intelligence—Principal Aerodromes and Seaplane Alighting Sites in the Australia Station (October 1941)—Airport data issued by the Civil Aviation Board, Melbourne (1938–41), Consular reports (various dates), and reports from military personnel stationed or travelling in the area.

The landing fields for the Directory have been grouped under—

NEW SOUTH WALES
NORTHERN TERRITORY
QUEENSLAND
SOUTH AUSTRALIA
TASMANIA
VICTORIA
WESTERN AUSTRALIA

Summarized, the data is as follows:

NEW SOUTH WALES—140 emergency fields. 13 military and civil airports. The civil airports are—

Sydney—Kingsford-Smith Aerodrome. An excellently equipped port of entry with full facilities for large aircraft.
Sydney—Camden Airfield, SW. of Sydney is also well equipped.

The military airports are—

Coffs Harbor	RAAF—Advanced Operational Base.
Nabiac	RAAF—AOB.
Williamtown	RAAF Station and U. S. Army Air Force Pursuit Field.
Richmond	RAAF Station and USAAF Pursuit Field.
Bankstown	USAAF Pursuit Field.
Nowra	RAAF—AOB.
Canberra	RAFF Station.
Moruya	RAAF—AOB.
Narromine	USAAF Pursuit Field.
Parkes	USAAF Pursuit Field.
Evans Head	RAAF Station.

NORTHERN TERRITORY—59 emergency fields. 13 military airports. No civil airports.
The military airports are:

Bathurst Island	RAAF—AOB.
Darwin	USAAF Pursuit Field.
Darwin	RAAF Station and USAAF heavy bombardment airfield.
Darwin	Unnamed pursuit field under construction.
Batchelor	RAAF Station and USAAF heavy bombardment airfield.
Millingimbi	RAAF—AOB.
Groote Eylandt	RAAF—AOB.
Alice Springs	USAAF Pursuit Field.
Kit Carson	USAAF heavy bombardment airfield under construction.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

Mataranka	USAAF heavy bombardment airfield under construction.
Daly Waters	USAAF heavy bombardment airfield.
Pine Creek	RAAF.
Tennant Creek	RAAF—AOB.

QUEENSLAND—148 emergency fields. 18 military airports. No civil airports. The military airports are:

Horn Island	RAAF—AOB.
Coen	RAAF—AOB.
Cooktown	RAAF—AOB.
Cairns	RAAF—AOB.
Townsville	RAAF Station and USAAF heavy bombardment airfield.
Bowen	RAAF—AOB.
Mackay	RAAF—AOB.
Rockhampton	RAAF—AOB and USAAF Pursuit Field.
Bundaberg	RAAF—AOB.
Woodstock	USAAF Pursuit Field under construction.
Reid River	USAAF Pursuit Field under construction.
Amberley	RAAF Station and USAAF Pursuit Field.
Archerfield	RAAF Station and USAAF Pursuit Field.
Lowood	USAAF Pursuit Field.
Charleville	USAAF Pursuit Field.
Cloncurry	USAAF heavy bombardment airfield.
Charters Towers	USAAF heavy bombardment airfield under construction.
Torrens Creek	USAAF heavy bombardment airfield under construction.

SOUTH AUSTRALIA—49 emergency fields. 10 military and civil airports. The civil fields are:

Ceduna—Near the military airport; large and well equipped.
Mount Ebo—Well equipped; can handle large planes.

The military airports are:

Ceduna	RAAF—AOB.
Port Lincoln	RAAF—AOB.
Kingscote	RAAF—AOB.
Parafield	RAAF Station.
Tintinara	RAAF—AOB.
Mount Gambier	RAAF—AOB.
Oodnadatta	USAAF Pursuit Field.
Port Pirie	RAAF Station.

TASMANIA—14 emergency fields. 4 military airports. No civil airports. The military airports are:

Currie	RAAF—AOB.
Flinders Island	RAAF—AOB.
Western Junction	RAAF Station.
Cambridge	RAAF—AOB.

VICTORIA—46 emergency fields. 3 military airports. No civil airports. The military airports are:

Mallacoota	RAAF—AOB.
Bairnsdale	RAAF—AOB.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

Yanakie	RAAF—AOB.
Laverton	RAAF Station.
Essendon	RAAF Station.
Point Cook	RAAF Station.
Warrnambool	RAAF—AOB.
Nhill	RAAF Station.

WESTERN AUSTRALIA—136 emergency fields. 17 military and civil airports. The five civil airports are:

Forrest—Full facilities for both day and night landing of large planes.
Hall's Creek—Fairly well equipped. No known facilities for night landing.
Onslow—Facilities for day landings of large planes.
Perth—(Maylands)—Main port of entry for Western Australia. It is fully equipped.
Port Hedland—Fully equipped airport near the military airport.

The military airports are:

Drysdale Mission	RAAF—AOB.
Wyndham	RAAF—AOB.
Derby	RAAF—AOB.
Broome	RAAF—AOB.
Port Hedland	RAAF—AOB.
Carnarvon	RAAF—AOB.
Geraldton	RAAF—AOB.
Pearce	RAAF Station.
Busseltown	RAAF—AOB.
Albany	RAAF—AOB.
Esperance	RAAF—AOB.
Kalgorrlie	RAAF—AOB.

NOTE: Advanced operational bases.—These military airports were prepared in order to have usable fields in strategic locations. Generally, fuel, refuelling equipment and ammunition are stocked, and sufficient ground preparation completed in order to handle at least medium-type aircraft. There is nothing to indicate that superior facilities are at hand in many of the bases. Expansion of the bases and construction of new ones is indicated.

RAAF stations.—These military airports are the general training and home bases for the flying forces. They have more complete facilities such as repairs, lighting, and communications than the A. O. B.'s. However, suitability for the landing and dispersal of large numbers of medium or heavy aircraft is not indicated. Most of them are intended as training and administration centers.

★ ★ ★

The following are explanatory notes on the manner of presenting the information.

NAME: Under this heading is given the name of the nearest town or city of any significance. This name is followed by the name of the airport in parentheses if different from the name of the city or town. For towns at which there are several airports, the name of the town is repeated in parentheses for the airport known by the town name in order to distinguish it from the other airports. In cases where the name of the airport transcends the name of the town in importance, the airport name appears first.

TYPE: Under this heading will be found a single letter having the following meaning:

M—Military airport of reasonable size and having at least the more important facilities.
C—Civil airport (private and commercial) of reasonable size and having at least the more important facilities.
E—Emergency field (military or civil) either of small size or having few facilities or both.

FACILITIES: Under this heading is given a brief listing of facilities known to exist. No details are given although in many cases more detailed information is available.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

The Index is a straight alphabetical listing, by both town name and airport name, of all fields in Australia.

It is to be understood that in a directory of this character all detailed information cannot be included although on the majority of the fields the information presented here represents all that is available at this time. For many of the fields there are available sketches or photographs or both.

In some few cases, omissions or differences in classification will be found between the map and the directory listings. The list was published subsequent to the map and in cases of doubt the list should take precedence. Fields listed on the map as Minor Commercial are classed as Emergency Fields in the list.

Caution in the use of this directory is advised inasmuch as some of the information used is not of recent date and there may be fields in existence of which this office has no knowledge. Perforated correction sheets will be found in the back of this directory. These sheets are to be completed by military personnel stationed in or traveling in the area.

New editions will be issued from time to time as more or better information becomes available.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

INDEX

City and airport	Province	Page
Abminga	South Australia	23
Abingdon	Queensland	13
Ackland Gardens	South Australia	23
Adelaide (Parafield)	South Australia	23
Agnew	Western Australia	33
Albany	Western Australia	33
Albury	New South Wales	1
Alexandria	Northern Territory	9
Alice Springs	Northern Territory	9
Alice Springs (Townsite Aerodrome)	Northern Territory	9
Amberly	Queensland	13
American River	South Australia	23
Angellala	Queensland	13
Anna Plains	Western Australia	33
Anthony's Lagoon	Northern Territory	9
Apollo Bay	Victoria	29
Arabella	Queensland	13
Ararat	Victoria	29
Archerfield (see Brisbane)	Queensland	13
Argyle Downs	Western Australia	33
Armidale	New South Wales	1
Arrino	Western Australia	33
Atherton	Queensland	13
Auld's Pond	Northern Territory	9
Auvergne	Northern Territory	9
Avon Downs	Northern Territory	9
Ayr	Queensland	13
Bairnsdale	Victoria	29
Ballarat	Victoria	29
Ballina	New South Wales	1
Balranald	New South Wales	1
Bang Bang	Queensland	13
Bankstown	New South Wales	1
Banongill (see Skipton)	Victoria	31
Bargo	New South Wales	1
Barmera	South Australia	23
Barringun	New South Wales	1
Barrow Creek	Northern Territory	9
Batavia (see Wenlock)	Queensland	21
Batchelor	Northern Territory	9
Bathurst Island Mission	Northern Territory	9
Battery Tank	New South Wales	1
Baynton	Victoria	29
Bealiba	Victoria	29
Beaac No. 1	Victoria	29
Beaac No. 2	Victoria	29
Beenleigh	Queensland	13
Bega	New South Wales	1
Belaringar	New South Wales	1
Belmont Common (see Geelong)	Victoria	30

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

City and airport	Province	Page
Benalla	Victoria	29
Benambra	Victoria	29
Bendigo (Myers Flat)	Victoria	29
Bernagui	New South Wales	1
Berwick	Victoria	29
Bettie	Western Australia	33
Beverley	Western Australia	33
Big Bell	Western Australia	33
Birchip	Victoria	29
Birdum	Northern Territory	9
Birdwood	South Australia	23
Birrindudu	Northern Territory	9
Blackall	Queensland	13
Black Spring	Northern Territory	9
Blackwater	Queensland	13
Bong Bong (*See* Moss Vale)	New South Wales	5
Bonnieville	Queensland	13
Boologooro	Western Australia	33
Boorabbin	Western Australia	33
Boorong	New South Wales	1
Boort	Victoria	29
Bordertown	South Australia	23
Bore No. 3	Northern Territory	9
Bore No. 4 (*See* Roderick)	Northern Territory	11
Borroloola	Northern Territory	9
Bourke	New South Wales	1
Bourke (*see* North Bourke)	New South Wales	5
Bowen	Queensland	13
Bowser	Victoria	29
Bradshaw	Northern Territory	9
Brewarrina	New South Wales	1
Bridport	Tasmania	27
Brighton Junction	Tasmania	27
Brisbane (Archerfield)	Queensland	13
Brocks Monument	Victoria	29
Broken Hill	New South Wales	1
Broome	Western Australia	33
Brunette Downs	Northern Territory	9
Bundaberg (Hinkler Airport)	Queensland	13
Burke River	Queensland	13
Burketown	Queensland	14
Bushy Park	Queensland	14
Busselton	Western Australia	33
Bute	South Australia	23
Byrock	New South Wales	1
Cairns	Queensland	14
Cambridge (Hobart)	Tasmania	27
Camden (Macquarie Grove)	New South Wales	1
Camooweal	Queensland	14
Campania	Tasmania	27
Camperdown	Victoria	29
Canally	New South Wales	1
Canberra	New South Wales	2
Cape Fourcroy	Northern Territory	10
Canobie	Queensland	14
Capella	Queensland	14

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

City and airport	Province	Page
Cape Gourdon	Western Australia	33
Carlton Station	Western Australia	33
Carnarvon	Western Australia	33
Carrick	New South Wales	2
Casino	New South Wales	2
Coduna (military)	South Australia	23
Coduna (civil)	South Australia	23
Cessnock	New South Wales	2
Charleville (Charleville)	Queensland	14
Charleville (Charleville Meat Works)	Queensland	14
Charleville (Charleville Racecourse)	Queensland	14
Charlton	Victoria	30
Charters Towers	Queensland	14
Childers	Queensland	14
Chinchilla	Queensland	14
Claypan (see Inkerman)	Queensland	16
Claraville Station	Queensland	14
Clermont	Queensland	14
Cleve	South Australia	23
Clonagh	Queensland	14
Cloncurry	Queensland	15
Clyde	New South Wales	2
Cobar	New South Wales	2
Coen	Queensland	15
Coff's Harbour	New South Wales	2
Colona	South Australia	23
Condobolin	New South Wales	2
Cook	South Australia	23
Cooke's Plains	South Australia	23
Coolabah (Yass)	New South Wales	2
Coolalie	New South Wales	2
Coonabarabran	New South Wales	2
Coonamble	New South Wales	2
Connemara	Queensland	15
Coode Island	Victoria	30
Cooktown	Queensland	15
Coolangatta	Queensland	15
Cootamundra	New South Wales	2
Corowa	New South Wales	2
Corunna Down Station	Western Australia	33
Cowell	South Australia	23
Cracow	Queensland	15
Cressy	Victoria	30
Crookwell	New South Wales	2
Croydon	Queensland	15
Cue	Western Australia	33
Cunderdin	Western Australia	34
Cunnamulla	Queensland	15
Currandooley	New South Wales	2
Currie (King Island)	Tasmania	27
Dalby	Queensland	15
Dalrye	New South Wales	2
Daly Waters	Northern Territory	10
Darlington Point	New South Wales	2
Dariot	Western Australia	34
Darwin (U. S. Aerodrome)	Northern Territory	10

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

City and airport	Province	Page
Darwin (RAAF Aerodrome)	Northern Territory	10
De Grey	Western Australia	34
Delta Downs	Queensland	15
Denham Island	Queensland	15
Deniliquin	New South Wales	3
Derby	Western Australia	34
Devoncourt	Queensland	15
District Park (See Newcastle)	New South Wales	5
Donald	Victoria	30
Donor's Hill	Queensland	15
Doyles Ridge	Northern Territory	10
Drysdale River Mission	Western Australia	34
Duaringa	Queensland	15
Dubbo	New South Wales	3
Duchess (Burke River)	Queensland	15
Duchess	Queensland	15
Dulbydilla	Queensland	15
Dunbar (all-weather)	Queensland	15
Dunbar (dry-weather)	Queensland	16
Dunk Island	Queensland	16
Dunolly	Victoria	30
Echuca	Victoria	30
Edjudina	Western Australia	34
Eenaweena Station	New South Wales	3
Emerald	Queensland	16
Engine Well	Queensland	16
Ennongonia	New South Wales	3
Esperance	Western Australia	34
Essendon (See Melbourne)	Victoria	30
Euston	New South Wales	3
Evans Head	New South Wales	3
Farina	South Australia	23
Fitzroy Crossing	Western Australia	34
Flinders Is. (see Pat's River)	Tasmania	27
Flora Valley Station	Western Australia	34
Forbes	New South Wales	3
Forrest	Western Australia	34
Forrest River Mission	Western Australia	34
Fort Constantine	Queensland	16
Fossil Downs	Western Australia	34
Ganmain	New South Wales	3
Garth	Victoria	30
Geelong (Belmont Common)	Victoria	30
Georgetown	Queensland	16
George Yard	Northern Territory	10
Geraldton	Western Australia	34
Gibb River Station	Western Australia	34
Gilbert River	Queensland	16
Gill Creek	Northern Territory	10
Gin Gin	Western Australia	34
Girilambone	New South Wales	3
Glenariff	New South Wales	3
Glenprairie	Queenstown	16
Goolring	New South Wales	3
Goondiwindi	Queensland	16
Gordon Downs	Western Australia	34

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

City and airport	Province	Page
Gosford (see Wamberal)	New South Wales	7
Goulburn	New South Wales	3
Grass Hat	New South Wales	3
Griffith (Lake View)	New South Wales	3
Groote Eylandt	Northern Territory	10
Gumin Gumin	New South Wales	3
Gunning	New South Wales	3
Haddon Rig Station	New South Wales	4
Hall's Creek	Western Australia	34
Hamelin Pool	Western Australia	35
Hamilton	Victoria	30
Hargrave (see Liverpool)	New South Wales	4
Hay	New South Wales	4
Hermansburg	Northern Territory	10
Highfields	Queensland	16
Hinkler Airport (see Bundaberg)	Queensland	13
Hobart (see Cambridge)	Tasmania	27
Holbrook	New South Wales	4
Horn Island	Queensland	16
Horse Creek	Queensland	16
Hughenden	Queensland	16
Ingham	Queensland	16
Inglewood	Queensland	16
Inkerman (Claypan)	Queensland	16
Innisfail	Queensland	17
Inverell	New South Wales	4
Inverleigh	Queensland	17
Inverway Station	Northern Territory	10
Ipswich	Queensland	17
Iron Knob	South Australia	24
Ivanhoe	Western Australia	35
Jamestown	South Australia	24
Jessievale	Queensland	17
Jimbour	Queensland	17
Johnston's Lagoon	Northern Territory	10
Julia Creek	Queensland	17
Junee	New South Wales	4
Junga	Western Australia	35
Kaniva	Victoria	30
Kalgoorlie	Western Australia	35
Karungie	Western Australia	35
Katanning	Western Australia	35
Katherine	Northern Territory	10
Kempsey	New South Wales	4
Kerang	Victoria	30
Kersbrook	South Australia	24
Kia Ora	South Australia	24
Kilcoy	Queensland	17
Killowen	Queensland	17
Kimba	South Australia	24
Kingaroy	Queensland	17
King Island (see Currie)	Tasmania	27
Kingscote	South Australia	24
Kingscote (RAAF Field)	South Australia	24
Kingsford Smith (see Sydney)	New South Wales	6
Kit Carson	Northern Territory	10

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

City and airport	Province	Page
Keolatah	Queensland	17
Kyancutta	South Australia	34
La Grange	Western Australia	35
Laguna Station	Queensland	17
Lake Stewart	New South Wales	4
Lakeview (*see* Griffith)	New South Wales	3
Lamboo	Western Australia	35
Latrobe	Tasmania	27
Laverton	Victoria	30
Laverton	Western Australia	35
Leeton	New South Wales	4
Legune	Northern Territory	10
Leonora	Western Australia	35
Limbunya	Northern Territory	10
Limestone	Northern Territory	10
Lismore	New South Wales	4
Lismore (Robinson's Ground)	New South Wales	4
Lissadell Station	Western Australia	35
Liverpool (Hargrave)	New South Wales	4
Lochnagar	Queensland	17
Longara	Queensland	17
Longreach	Queensland	17
Lotus Vale	Queensland	17
Louisa Downs	Western Australia	35
Louth	New South Wales	4
Lowood	Queensland	17
Low Head	Tasmania	27
Lurnea	Queensland	18
Lyndon	Western Australia	35
Macaroni	Queensland	18
Mackay	Queensland	18
Macquarie Grove (*see* Camden)	New South Wales	1
Magges	South Australia	34
Malbon	Queensland	18
Mallabah	Northern Territory	10
Mallacoota	Victoria	30
Mallala	South Australia	34
Mangalore	Queensland	18
Marabell	South Australia	34
Maranboy	Northern Territory	11
Marree	South Australia	34
Marble Bar	Western Australia	35
Mardie Station	Western Australia	35
Margaret River	Western Australia	35
Marimo	Queensland	18
Maroona	New South Wales	4
Marulan (*see* Urigalla Creek)	New South Wales	7
Maryborough	Queensland	18
Mascot (*see* Sydney)	New South Wales	6
Mataranka	Northern Territory	11
Mathison	Northern Territory	11
Maylands (*see* Perth)	Western Australia	37
McKinlay	Queensland	18
Meekatharra	Western Australia	35
Mellman	New South Wales	4
Melbourne (Essendon)	Victoria	30

5/25/42

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

City and airport	Province	Page
Menangle	New South Wales	4
Mandooran	New South Wales	4
Mia Mia	Western Australia	35
Mildura No. 1	Victoria	30
Mildura No. 2	Victoria	30
Milgarra	Queensland	18
Millingimbi	Northern Territory	11
Milner's Lagoon	Northern Territory	11
Minderoo	Western Australia	36
Minilya	Western Australia	36
Miranda Downs	Queensland	18
Mitchell River Mission	Queensland	18
Mittagong	New South Wales	4
Mogumber	Western Australia	36
Monmoona Bore	Northern Territory	11
Monto	Queensland	18
Moola Bulla	Western Australia	36
Moora	Western Australia	36
Moorara	New South Wales	4
Mooroopna	Victoria	31
Moree	New South Wales	4
Moruya	New South Wales	5
Morven	Queensland	18
Moscow	Queensland	18
Moss Vale (Bong Bong)	New South Wales	5
Mount Anderson Station	Western Australia	36
Mount Coolon	Queensland	18
Mount Doreen	Northern Territory	11
Mount Ebe	South Australia	24
Mount Gambier	South Australia	24
Mount Isa No. 1	Queensland	19
Mount Isa No. 2	Queensland	19
Mount Magnet	Western Australia	36
Mount Pleasant	South Australia	24
Mount Sir Samuel	Western Australia	36
Mount Wood Station	New South Wales	5
Mourilyan Station	Queensland	19
Moyen Station	Queensland	19
Mueheo	Western Australia	36
Muckety Bore	Northern Territory	11
Mudgee	New South Wales	5
Mullengudgery	New South Wales	5
Mulyie	Western Australia	36
Mundubbera	Queensland	19
Mungallala	Queensland	19
Munja	Western Australia	36
Murgon	Queensland	19
Myers Flat (see Bendigo)	Victoria	29
Nabiac	New South Wales	5
Nalya	Western Australia	36
Nanango	Queensland	19
Nandowra (see Scone)	New South Wales	6
Nannine	Western Australia	36
Narrabri	New South Wales	5
Naracoorte	South Australia	24

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL DECLASSIFIED

City and airport	Province	Page
Narrandera	New South Wales	5
Narrogin	Western Australia	36
Narromine	New South Wales	5
Natal Downs	Queensland	19
Nelly Waterhole	Northern Territory	11
Nelson Spring	Northern Territory	11
Nevertire	New South Wales	5
Newcastle (District Park)	New South Wales	5
Newcastle Waters	Northern Territory	11
New Norcia	Western Australia	36
Newry Station	Northern Territory	11
Nhill	Victoria	31
Nicholson Station	Western Australia	36
Nilli Bubbaca	Western Australia	36
Nindooinbah	Queensland	19
Ninety-five Mile	Western Australia	37
Nockatunga	Queensland	19
Noonkanbah	Western Australia	37
Normanton	Queensland	19
Norseman	Western Australia	37
Northam	Western Australia	37
Northampton	Western Australia	37
Northampton Downs	Queensland	19
North Bourke (Bourke)	New South Wales	5
Nowra	New South Wales	5
Nullagine	Western Australia	37
Nyngan	New South Wales	5
Old Bar	New South Wales	5
Old Willeroo	Northern Territory	11
One-hundred-fifteen Mile	Western Australia	37
One-hundred-twenty-six Mile	Western Australia	37
Onslow	Western Australia	37
Oodnadatta	South Australia	25
Orange	New South Wales	5
Ord Homestead	Western Australia	37
Ord River Station	Western Australia	37
Padthaway Station	South Australia	25
Palgarup	Western Australia	37
Parachilna	South Australia	25
Parafield (see Adelaide)	South Australia	33
Pardoo Station	Western Australia	37
Parkes	New South Wales	6
Pat's River (Flinders Island)	Tasmania	27
Pearce	Western Australia	37
Penneshaw	South Australia	25
Perth (Maylands)	Western Australia	37
Perth (see West Subiaco)	Western Australia	39
Pine Creek	Northern Territory	11
Pinnacles	Western Australia	37
Point Cook	Victoria	31
Poltalloch	South Australia	25
Point's Springs Plains	Western Australia	37
Port Hedland (Seven Miles)	Western Australia	38
Port Hedland (Three Miles)	Western Australia	38
Port Keats	Northern Territory	11
Port Lincoln	South Australia	25

DECLASSIFIED

CONFIDENTIAL DECLASSIFIED

City and airport	Province	Page
Port Neill	South Australia	25
Port Pirie	South Australia	25
Prairie Station	Queensland	19
Proserpine	Queensland	19
Pyramid Hill	Victoria	31
Quirindi	New South Wales	6
Quorn	South Australia	25
Rainding Plain	New South Wales	6
Ravensthorpe	Western Australia	38
Rawlinna	Western Australia	38
Readsdale	New South Wales	6
Reedy	Western Australia	38
Reid River	Queensland	19
Renmark	South Australia	25
Richmond	Queensland	19
Richmond	New South Wales	6
Roaring Bore	Queensland	20
Robe	South Australia	25
Robinson's Ground (see Lismore)	New South Wales	4
Rockhampton	Queensland	20
Roderick (Bore No. 4)	Northern Territory	11
Roebourne	Western Australia	38
Roma	Queensland	20
Rosevale	Queensland	20
Rottnest Island	Western Australia	38
Roy Hill Station	Western Australia	38
Runcorn	Queensland	20
Ruthland Plains	Queensland	20
Saint George	Queensland	20
Sale	Victoria	31
Sandstone	Western Australia	38
Scone (Nandowra)	New South Wales	6
Seven Mile (see Port Hedland)	Western Australia	38
Seymour	Victoria	31
Shovel Creek	Queensland	20
Skipton (Banongill)	Victoria	31
Smithton	Tasmania	27
Somers	Victoria	31
Somerset	Queensland	20
Southern Cross	Western Australia	38
South Grafton	New South Wales	6
Spring Creek	Queensland	20
Spring Plains	Victoria	31
Springsure	Queensland	20
Stawell	Victoria	31
Strathmore	Queensland	20
Sturt Creek	Western Australia	38
Summervale	New South Wales	6
Sunnybank	Queensland	20
Surat	Queensland	20
Swan Hill	Victoria	31
Swap Reach	South Australia	25
Swansea	Tasmania	27
Sydney (Kingsford Smith, formerly Mascot)	New South Wales	6
Tambo	Queensland	20
Tammin	Western Australia	38

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

City and airport	Province	Page
Tamworth	New South Wales	6
Tanami	Northern Territory	11
Taroom	Queensland	20
Tartna	New South Wales	6
Tumora	New South Wales	6
Tennant Creek	Northern Territory	12
Tenterfield	New South Wales	6
Texas	Queensland	20
Thangool	Queensland	21
Thargomindah	Queensland	21
The Granites	Northern Territory	12
Theodore	Queensland	21
Three Mile (see Port Hedland)	Western Australia	38
Tillare	New South Wales	6
Tilpa	New South Wales	6
Timber Creek	Northern Territory	12
Tintinara	South Australia	25
Tongy	Queensland	21
Toorawenah	New South Wales	6
Toowoomba	Queensland	21
Tor Downs	New South Wales	6
Torrens Creek	Queensland	21
Townsite Aerodrome (see Alice Springs)	Northern Territory	9
Townsville	Queensland	21
Tumut	New South Wales	6
Tunbridge	Tasmania	27
Turner River	Western Australia	38
Ulumbie (see Walgett)	New South Wales	7
Upper Liverings	Western Australia	38
Uranquinty	New South Wales	7
Uringalla Creek	New South Wales	7
Vanrok	Queensland	21
Vellum Downs	Queensland	21
Victoria River Downs	Northern Territory	12
Waddell's Tank	New South Wales	7
Wagga Wagga	New South Wales	7
Wagin	Western Australia	38
Waka Station	New South Wales	7
Walgett (Ulumbie)	New South Wales	7
Wallerawang	New South Wales	7
Wallaroo	South Australia	25
Wamberal (Gosford)	New South Wales	7
Wamberra	New South Wales	7
Wardercarrin	Western Australia	38
Warlock	Northern Territory	12
Warralong Station	Western Australia	38
Warrnambool	Victoria	31
Warwick	Queensland	21
Waterloo Station	Northern Territory	12
Wave Hill Homestead	Northern Territory	12
Wave Hill Police Station	Northern Territory	12
Weebo	Western Australia	39
Wenlock (Batavia)	Queensland	21
Wentworth	New South Wales	7
Western Junction	Tasmania	27
West Subiaco (Perth)	Western Australia	39

CONFIDENTIAL
DECLASSIFIED
5/25/42

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

City and airport	Province	Page
Westwood	Queensland	21
Whim Creek	Western Australia	39
Whyalla	South Australia	25
Wilcannia	New South Wales	7
William Creek	South Australia	25
Williamstown	New South Wales	7
Wills River	Queensland	21
Wilsons Promontory (Yanakie)	Victoria	31
Wiluna	Western Australia	39
Wingham	New South Wales	7
Winning Pool	Western Australia	39
Winton	Queensland	21
Wollal	Western Australia	39
Wondai	Queensland	21
Wondoola	Queensland	21
Woodbury	Tasmania	27
Woodstock	Queensland	21
Woorarnel	Western Australia	39
Wurung	Queensland	22
Wyandra	Queensland	22
Wyndham	Western Australia	39
Wyayard	Tasmania	27
Yalgoo	Western Australia	39
Yanakie (see Wilson's Promontory)	Victoria	31
Yanco Inna Creek	New South Wales	7
Yanrey	Western Australia	39
Yass (see Coolabah)	New South Wales	2
Yeeda	Western Australia	39
Youanmi	Western Australia	39
Young	New South Wales	7
Yuin Station	Western Australia	39
Yulleroo	Western Australia	39
Zanthus	Western Australia	39

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

NEW SOUTH WALES

Name	Type	Position	Alt. feet	Location	Dimensions	Surface	Facilities
Albury	R	° ′ 36 04 S. 146 57 E.	540 (approx.)	About 2 mi. NE. of Albury.	3 runways, each 3,120′ x 150′ N./S., E./W., and NE./SW.	Gravel runways	Wind indicator. Fuel in Albury. Telephone ¼ mi. S. at water works. Emergency night landing facilities.
Armidale	R	30 32 S. 151 39 E.	3,350′ (approx.)	About 2 mi. SW. of Armidale on New England Highway.	Irregular, 3,700′ NW./SE.; 2600′ E./W.; 3,180 N./S.; 3,700 NE./SW.		Telephone, boundary markers.
Dalton	R	34 32 S. 149 34 E.	4 (approx.)	On peninsula immediately E. of Dalton.	L-shaped, 2,320 NE./SW., 1,170 NW./SE.	Good level surface, firm, sandy, should be good in all weather.	White circle, boundary marks, wind indicator, telephone. Repairs, fuel, R. R., hotels in Dalton.
Balranald	R	34 37 S. 143 33 E.	330 (approx.)	Immediately NW. of Balranald township.	1,650 N./S. x 2,310′ E./W.	Fair	White cross and wind indicator. Limited repairs and fuel, telephone, R. R. at Balranald.
Bankstown	M	33 55 S. 150 59 E.					
Barga	R	34 17 S. 149 58 E.	1,160	¼ mi. NE. of Barga R. R. station.	2,040′ N./S. x 1,440′ E./W.	Fair	White cross, wind indicator. Minor repairs at homestead.
Barraba	R	30 23 S. 150 44 E.	950 (approx.)	Just S. of Queensland border about ¼ mi. W. of Barraba.	1,320′ N./S. x 1,320′ E./W.	Fair, rough in NW. corner.	Fuel, telephone in town.
Battery Tank	R	32 05 S. 141 47 E.	320 (approx.)	10 mi. SE. of Broken Hill, adjacent to Broken Hill-Menindie Rd.	1,320′ N./S. x 2,310′ E./W.	Good, gravel and soil	Fuel and repairs at Broken Hill. Telephone and R. R. at Wabratta, 8 mi. N.
Bega	R	36 41 S. 149 49 E.					
Belalingur	R	31 46 S. 147 36 E.	630	Adjacent to Belalingur R. R. siding, 9 mi. NW. of Nevertire.	3,120′ NNE./SW. x 1,560′ WNW./ESE.	Good, level	Markings, wind indicator. Facilities at Nevertire.
Berregrid	R	35 35 S. 150 04 E.	10	Immediately S. of town.	1,320′ NNE./SW. x 1,320′ WNW./ESE.	Level, grassy	Wind indicator, markings. Hotels, telegraph, and telephone in town.
Bourag	R	34 20 S. 142 22 E.	325	17 mi. E. of Mildura.	L-shaped, 1,320′ N./S. x 1,320′ E./W.	Good, sandy, slightly sloping.	Wind indicator, markings. Facilities at Mildura.
Bourke	R	30 05 S. 145 57 E.	330	S. of and adjoining Bourke.	2,640′ N./S. with runway 2,400′, 1,320′ E./W. with runway 1,320′.	Level, black soil, runways gravel.	White circle, wind indicator, fuel. Repairs, telephone, R. R. in Bourke.
Brewarrina	R	29 58 S. 146 51 E.	320 (approx.)	Just SW. of Brewarrina.	2,700′ N./S. x 2,100′ E./W.	Fair, sticky after rain	White circle, wind indicator, boundary marks. Telephone, fuel, repairs, R. R. in town.
Broken Hill	R	31 59 S. 141 28 E.	930 (approx.)	About 3 mi. SE. of Broken Hill on S. side of Menindie Rd.	2,100′ N./S. x 1,560′ E./W.	Sandy, partly grassed. Slightly undulating near SW. corner and loose along S. boundary.	White circle, wind indicator, boundary marks, hangar, fuel. Repairs, telephone and telegraph, hotel at Broken Hill.
Byrock	R	30 40 S. 146 26 E.	600 (approx.)	Adjoining SW. of Byrock and R. R.	2,520′ NW./SE. x 1,320′ NE./SW.	Fair	White circle, cross and wind indicator. R. R., telephone, fuel, minor repairs in town.
Camden (Narellan Gove).	C	34 02 S. 150 41 E.	200 (approx.)	About 1 mi. NW. of Camden.	Irregular. 2,720′ NW./SE. NE./SW. 2,250′	Good, grassed. All weather.	White circle and wind indicator, telephone, fuel, repairs, hangar. R. R. in town.
Casuly	R	34 35 S. 143 31 E.	300	12 mi. W. of Balranald.	1,650′ N./S. x 1,650′ E./W.	Level, fairly smooth	Wind indicator, markings. Facilities at Balranald.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

NEW SOUTH WALES—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
Canberra	M	35 19 S. 149 12 E.	Fnd 1,880	3½ mi. E. of Canberra.	5,300' N./S. x 5,700' E./W.	Good, but liable to be soft in wet weather.	White circle, wind indicator, lighting, hangars, repairs, fuel, communications, telephone, aeradio, W/T. Hotels, R. R. in town.
Carrick	E	34 42 S. 149 34 E.	2,040	12 mi. ENE. of Goulburn; 1 mi. NE. of Carrick siding.	1,320' N./S. x 1,320' E./W.	Generally good	Wind indicator, markings. Facilities at Goulburn.
Casino	E	28 52 S. 153 03 E.	70 (approx.)	1 mi. SE. of Casino R. R. station.	Irregular. 1,860' N./S., 2,170' E./W., 2,100' NW./SE.	Good. Swampy beyond S. boundary.	Circle, wind indicator, hangar, repairs, R. R. in Casino. Telephone, fuel at South Casino, ¾ mi. distant.
Cessnock	E	32 52 S. 151 22 E.	300 (approx.)	About 2 mi. S. of Cessnock, on E. side of Cessnock-Kitchener Rd.	2,000' NW./SE. x 2,240' E./W.	Good, loamy. E. portion boggy after rain.	Wind indicator, boundary marks. Repairs, fuel, telephone in town.
Clyde	E	29 31 S. 148 59 E.	700	16 mi. NE. of Merrywinebone R. R. station.	Irregular, 2,100' x 2,520'.	Red sandy loam, flat, all weather.	White circle, wind indicator, telephone at homestead, 1 mi. SW.
Cobar	E	31 30 S. 145 50 E.	805	1¼ mi. N. of Cobar....	Irregular, 2,175' E./W., 1,800' NW./SE. 2,540' NE./SW.	Fairly level	Circle, wind indicator, boundary marks. Fuel, repairs, telephone, R. R. in town.
Coff's Harbour	M	30 19 S. 153 08 E.	16	1 mi. SSW. of Coff's Harbour Jetty.	2 runways: 2,400' x 150' NNE./SSW., 2,140' x 150' WNW./ESE.	Runways gravel, very good, all weather. Sandy and heavy off runways.	Hangar, fuel, telephone, accommodation. Repairs, hotels, R. R., telegraph in town.
Condobolin	E	33 06 S. 147 10 E.	620	Approx. 1 mi. S. of town, across Lachlan River.	2,640' E./W. x 1,650' N./S.		Hangar, wind indicator, telephone.
Coolabah	E	31 01 S. 146 43 E.	740	¾ mi. NW. of Coolabah.	1,950' x 750' NW./SE.	One way ground, fair.	Wind indicator, markings. Minor repairs, fuel, hotel, telephone and telegraph in town.
Coolah (Tass)	E	31 47 S. 149 37 E.	1,970	About ¾ mi. NW. of Coolah siding, 5 mi. NNE. of Tass.	L-shaped; 1,320' N./S., 1,320 E./W.	Slightly rough, with gradual fall to SW. corner.	White cross and wind indicator. Telephone and R. R. at Coolah. Garage at Tass.
Coonabarabran	E	31 16 S. 149 17 E.	1,700 (approx.)	1 mi. N. of Coonabarabran.	Irregular, 2,640' NE./SW., 3,520' NW./SE.	Very loose	Repairs, fuel, R. R. at Coonabarabran.
Coonamble	E	30 58 S. 148 23 E.		1¼ mi. S. of Coonamble between R. R. line and Castlereagh River.	4,320' E./W. x 2,400' N./S.	Level, dry weather only. Depression at W. end.	Fuel, repairs, telegraph, R. R., hotel in Coonamble. Telephone, water ¾ mi. W. at farm.
Cootamundra	E	34 38 S. 148 03 E.	1,080 (approx.)	¾ mi. N. of Cootamundra.	2,200' NNE./SSW., 2,640' WNW./ESE.	Good level grassed surface.	2 hangars, circle, wind indicator, fuel, repairs, lighting, telephone. Telegraph, hotels in town.
Corowa	E	36 00 S. 146 22 E.	450	About 1 mi. N. of Corowa.	Square, with 2 intersecting runways, each 3,300', NE./SW. and NW./SE.	NE./SW. runway gravel, NW./SE. runway graded.	Wind indicator, telephone.
Crookwell	E	34 30 S. 149 30 E.	2,900	2½ mi. S. of city	1,500' E./W. x 1,320' N./S.	Good, sloping down from SE. to NW.	Markings. Repairs, fuel, telephone and telegraph, hotel in town.
Currandooley	E	35 11 S. 149 29 E.	2,220	About 25½ mi. E. of Lake George, 7 mi. N. of Bungendore.	Irregular, 2,700' E./W., 2,500' N./S., 2,850' NW./SE., 2,850' NE./SW.		
Dubyo	E	31 29 S. 147 00 E.	800 (approx.)	3 mi. SE. of Yarong Creek Township.	Square, 1,500' x 1,500'...	Good	Circle, markings, wind indicator. Limited fuel and repairs, R. R. at Yarong Creek.

DECLASSIFIED

5/25/42

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

NEW SOUTH WALES—Continued

Name	Type	Position	Alt. Feet	Location	Dimensions	Surface	Facilities
Darlington Point	R	34 33 S. 146 00 E.	400	1½ mi. S. of town	1,320' N./S. x 1,320' E./W.	Fair	Minor repairs, limited fuel, telegraph, hotel in town.
Dalligalla	R	29 34 S. 144 58 E.	510 (approx.)	About 2 mi. S. of Dalligalla.	2,310' N./S., 2,640' E./W.	Good level surface	Wind indicator, boundary marks, circle. Fuel, repairs, telephone and telegraph, R. R., hotel in town.
Dubbo	R	32 12 S. 148 34 E.	1,060	2 mi. W. of Dubbo	Irregular, 2,420' N./S., 2,310' E./W.	Good, level, falls gently from SE. corner.	Wind indicator, white circle. Repairs, fuel, hotel, telephone, telegraph, R. R. in town.
Emmaville (Inactive)	R	29 29 S. 151 31 E.	650 (approx.)	¾ mi. NW. of Emmaville station; 22 mi. NW. of Warren.	1,320' in all directions	Good, level	Circle and wind indicator. Telephone, limited fuel at homestead. Repairs, R. R. at Warren.
Enngonia	R	29 19 S. 145 15 E.	660	1 mi. E. of town	Irregular, 1,710' NE./SW., 1,650' E./W.	Good, red sandy loam	Wind indicator, markings. Minor repairs, fuel, telephone and telegraph, hotel in town.
Euston	R	34 34 S. 142 45 E.	150 (approx.)	2 mi. NE. of Euston	Minimum 2,640' in any direction, 3,135' NW./SE.	Good	Cross and wind indicator. Telephone, fuel, R. R. at Euston.
Evans Head	M	29 08 S. 153 28 E.	30 (approx.)	¾ mi. NW. of Evans Head Township.	Irregular, 2,700' x 2,550'.	Sand and marsh loam	Wind indicators, markings, hangar. Repairs, fuel, flares, W/T, telephone, accommodations in town.
Forbes	R	33 22 S. 147 58 E.	800 (approx.)	4½ mi. W. of Forbes	4 runways: 1,650' N./S., 1,650' E./W.; 1,650' NE./SW.; 2,050' NW./SE.	Claypan, short tufty grass. Runways gravel.	Circle and wind indicator, hangar. Fuel, repairs, telephone, R. R. at Forbes.
Gunnedah	R	30 58 S. 150 16 E.	650 (approx.)	2 mi. SE. of Gunnedah	1,320' N./S., 1,320' E./W.	Good	Circle, wind indicator, hangar. Repairs, fuel, telephone, R. R. at Gunnedah.
Grafton	R	29 34 S. 152 56 E.	120 (approx.)	About 2 mi. NW. of Grafton town.	1,320' NE./SW., 1,320' NW./SE.	Good red soil, all weather. Some trees on landing area.	Fuel, telephone, R. R. in town.
Glenariff	R	29 45 S. 148 51 E.	520	Adjoining Glenariff R. R. siding, 14 mi. SE. of Byrock.	1,320' x 660' NE./SW.	One way ground. Fair surface.	Wind indicator, markings. Facilities at Byrock.
Gooloog	R	29 27 S. 145 26 E.	320 (approx.)	5 mi. SW. of Gooloogong Homestead, about 15 mi. W. of Eumungerie.	2,310' NW/SE, 2,310' NE/SW	Level claypan	Circle, wind indicator, boundary marks. Limited fuel, telephone at homestead Fuel, R.R. at Eumungerie.
Goulburn	R	34 49 S. 149 44 E.	2,070	2½ mi. SSE. of Goulburn.	2,310' E./W. x 2,640' N./S.	Good	White cross, wind indicator, lighting, fuel, hangar, telephone. Repairs, telegraph, R. R., hotels in town.
Grass Hut	R	29 41 S. 145 53 E.	275 (approx.)	About ¼ mi. SW. of Grass Hut Hotel, 20 mi. N. of Bourke.	2,400' N./S., 900' E./W.	Good, sometimes rough and sandy.	White cross, wind indicator. Telephone at Grass Hut Hotel. Fuel, repairs, R. R. at Bourke.
Griffith (Lake View).	R	34 16 S. 146 03 E.	400 (approx.)	About 2 mi. N. of Griffith township.	Irregular, 2,400' NE./SW., 1,800'NW./SE. 2,310'E./W.	Loam, should be all-weather.	Wind indicator, circle, markings. Repairs, fuel in town.
Gunnedah	R	31 16 S. 149 47 E.	1,100	2 mi. W. of Gunnedah station.	1,320' N./S. x 1,320' E./W.	Level, grassy	Markings, wind indicators. Repairs, limited fuel, telephone at Gunnedah.
Gunning	R	34 45 S. 149 16 E.	1,020 (approx.)	½ mi. S. of Gunning.	2,100' N./S. x 1,320' E./W.	Fair	Wind indicator, cross, boundary marks. Fuel, repairs, telephone, R. R. at Gunning.

DECLASSIFIED

CONFIDENTIAL

5/25/42

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

NEW SOUTH WALES—Continued

Name	Type	Position	Alt. Elev.	Location	Dimensions	Surface	Facilities
Hadden Big Station.	R	° ′ 31 39 S. 147 32 E.	Feet 600 (approx.)	15 mi. N. of Warren, ½ mi. N. of homestead.	2,040' ENE./WSW. x 1,920' NNW./SSE.	Flat, a few low ridges.	White circle, wind indicator, hangar. Repairs, R. R. hotel in Warren. Telephone, fuel, at homestead.
Hay	R	34 31 S. 144 51 E.	300	2 mi. S. of town of Hay.	1,920' N./S., 1,920' E./W.	Fair, liable to be soft in wet weather.	Circle, wind cone. Repairs, fuel, hotel, telephone and telegraph, R. R. in town.
Holbrook	R	35 42 S. 147 20 E.	570 (approx.)	2½ mi. N. of Holbrook.	2,000' N./S. x 2,040' E./W. with 2 intersecting runways each 1,920' NE./SW. and NW./SE.	Grassy, runways gravel.	Lighted, wind indicator. Repairs, fuel, telephone and telegraph, hotel, R. R. in Holbrook.
Inverell	R	29 47 S. 151 10 E.	2,450 (approx.)	2 mi. E. of town.	2,100' x 2,520' with 3 runways, 2,100' E./W., 2,040' NE./SW., 2,100' NW./SE.	Good gravel runways, remainder soft and rough.	Circle, wind indicator, hangar, repairs, telephone. Fuel, R. R. in town.
Junee	R	34 52 S. 147 33 E.	1,000 (approx.	2 mi. W. of Junee.	2,220' N./S. x 2,100' E./W.	Smooth, good.	White cross, wind indicator, markings. Repairs, fuel, telephone and telegraph, R. R. in Junee.
Kempsey	R	31 04 S. 152 49 E.	30	2½ mi. WSW. of Kempsey.	2,610' N./S. x 2,310' E./W.	----	Complete lighting, radio, hangar, wind indicator. Telephone, limited fuel at Homestead.
Lake Stewart	R	29 34 S. 151 07 E.	1,000 (approx.	2½ mi. S. of Homestead, 4 mi. NE. of Stewarts Lake.	2,400' N./S. x 2,310' E./W.	Smooth, level, clay-pan, liable to be slippery after rain.	Repairs, fuel, telephone and telegraph, hotels, R. R. in Leeton.
Leeton	R	34 34 S. 146 23 E.	600 (approx.)	½ mi. S. of Leeton.	2,100' NNE./SSW. x 1,920' WNW./ESE.	Good hard surface, but S. portion will be slippery after heavy rain.	Repairs, fuel, telegraph, R. R., hotels in town.
Lismore (Lismore).	R	28 49 S. 153 15 E.	40 (approx.)	1½ mi. S. of Lismore, on W. of Richmond River.	----	----	Wind indicator, circle, telephone, repairs, hangar. Fuel, telegraph, R. R., hotels in town.
Lismore (Robinson's Ground).	R	28 50 S. 153 16 E.	40	2 mi. S. of Lismore on right bank of Richmond River.	1,920' N./S. x 2,220' E./W.	Fairly level, well grassed, brown sandy loam. Heavy after rain, but dries quickly.	Wind indicator, circle, telephone, repairs, hangar. Fuel, telegraph, R. R., hotels in town.
Liverpool (Hargrave.)	R	33 55 S. 150 55 E.	----	----	----	----	----
Louth	R	30 33 S. 145 06 E.	220	17 mi. SE. of Bourke, 4 mi. SE. of Marona R. R. siding.	T-shaped, 1,920' NE./SW., 1,920' NW./SE.	Good, all weather.	Wind indicator, markings. Facilities at Bourke.
Mallowa	R	34 32 S. 142 32 E.	220	10 mi. NE. of Euston.	L-shaped, 2,220' N./S. 1,920 E./W.	Good, all weather.	Wind indicator, markings.
Menangle	R	34 06 S. 150 45 E.	220	1½ mi. N. of Menangle	Oval, 2,040' N./S. x 1,140' E./W.	Field is on race course.	Wind indicator.
Mendooran	R	31 49 S. 149 05 E.	1,171	About 2 mi. W. of Mendooran on Castlereagh River.	2,160' N./S., 2,040' NW./SE.	Fair.	White circle, wind indicator, markings. Fuel, repairs, R. R. at Mendooran.
Mittagong	R	34 27 S. 150 30 E.	1,920	About 2 mi. E. of Mittagong.	2,020' x 670' NE./SW.	NE. end subject to washouts.	Wind indicator, boundary markers, telephone.
Moorara	R	33 13 S. 142 35 E.	475	2 mi. N. of Moorara Station Homestead.	1,520' N./S., 1,920' E./W.	Fair, limestone gravel and loam.	Wind indicator, markings. Limited fuel and telephone at Homestead.
Moree	R	29 30 S. 149 51 E.	690	Immediately SW. of Moree.	2,250' E./W. x 2,340' N./S. with 1,920' runway NE./SW.	Black soil. Use runway only in wet weather.	Hangar, telephone, wind indicator.

DECLASSIFIED

DECLASSIFIED

NEW SOUTH WALES—Continued

Name	Type	Position	Alt. Elev.	Location	Dimensions	Surface	Facilities
Moruya	M	° ′ 35 55 S. 150 05 E.	Feet 5	4 mi. NE. of Moruya.	3 runways, each 2,400' x 150', N./S. E./W., N.E./S.W.	Grassed sandy loam, runways gravel.	Fuel, W/T, R. A. A. F. hut. Limited repairs, telephone and telegraph in town.
Moss Vale (Berry Bong).	R	34 31 S. 150 24 E.	2,170	2½ mi. N. of town.	1,620' NE./SW. x 1,320' NW./SE.	Good. Area is within racetrack.	Wind indicator, markings. Minor repairs, hotel, telegraph in town.
Mount Wood Station.	R	30 28 S. 143 10 E.	330 (approx.)	¼ mi. SE. of Mount Wood station.	2,640' E./W. x 1,320' N./S.	Good. Liable to become slippery after rain.	Markings, wind indicator. Minor repairs, limited fuel, telephone at homestead.
Mudgee	R	32 34 S. 149 36 E.	1,600	2 mi. NE. of Mudgee.	Oval, 2,400' N./S. x 1,620' E./W.	Sheep fazy grass on field.	Markings.
Mullengudgery	R	31 41 S. 147 39 E.	600	15 mi. SE. of Nyngan immediately adjacent to NW. of Mullengudgery R. R. siding.	2,640' N./S. x 1,440' E./W.	Good, level.	Wind indicator, markings. Facilities at Nyngan.
Nabiac	M	32 02 S. 152 30 E.	27	4 mi. SE. of Nabiac township.	4 runways, all 2,640' x 150', NE./SW., N./S., E./W., NW./SE.	Soft sandy loam. Runways gravel.	Wind indicator, boundary markings, fuel, R. A. A. F. huts, W/T. Accommodation, minor repairs, R. R. in town.
Narrabri	R	30 19 S. 149 39 E.	700 (approx.)	2 mi. NE. of Narrabri.	2,640' N./S. x 2,400' E./W. with runway 1,920' NE./SW.	Good.	White circle, wind indicator, boundary marks. Repairs, fuel, telephone, R. R. in town.
Narrandera	R	34 44 S. 146 34 E.	378	1 mi. NNE. of Narrandera.	2,100' N./S., 2,400' E./W.	Good surface with a slight slope from W. to E.	Minor repairs, white circle, wind cone, fuel. Telegraph and telephone in town.
Narromine	M	32 13 S. 148 14 E.	700	1 mi. NW. of Narromine on NE. side of Dubbo-Nyngan R. R.	2,520' NE./SW. x 1,320' NW./SE.	Good red loam. Liable to be sticky after rains.	White circle, wind cone, hangar, telephone. Minor repairs, fuel, telegraph, R. R., hotel, in town.
Newerlie	R	31 51 S. 147 48 E.	600 (approx.)	Adjoining S. of town of Newerlie.	2,100' NNE./SW. x 1,320' WNW./ESE.	Fair.	White circle, wind indicator, markings. Repairs, R. R., fuel, water at Newerlie.
Newcastle (District Park).	R	32 55 S. 151 44 E.	26	Approx. 3 mi. W. of Newcastle town hall.	1,470' N./S., 2,100' E./W., 2,460' NE./SW.	Level surface; liable to be soft in places after heavy rain.	Hangar. Repairs at Goninan Foundary to N. Fuel, telegraph and telephone, hotels, R. R. in town.
North Bourke (Chesilea)	R	30 08 S. 145 57 E.	310 (approx.)	1 mi. N. of North Bourke, on W. side of Darling River.	1,920' NE./SW. x 1,920' NW./SE.	Fair; sand ridges, soft patches after rain.	White cross, wind indicator, markings. Telephone at North Bourke. Fuel, repairs, R. R. at Bourke, 4 mi. S.
Nowra	M	34 57 S. 150 33 E.	100	2 mi. S. of Nowra.	Irregular; 2,920' E./W., 4,020' N./S., 4,020' NE./SW., 2,720' NW./SE.	Clay with few inches of loam. Hard and dry but, boggy when wet.	Markings, fuel, flares, R. A. A. F. huts, W/T, telephone. Hotel, limited repairs in town.
Nyngan	R	31 33 S. 147 12 E.	570 (approx.)	Immediately N. of Nyngan R. R. station.	2,280' NE./SW. x 2,280' WNW./ESE.	Fair, hard and level.	Repairs, fuel, telegraph and telephone, R. R., hotel in town.
Old Bar	R	31 58 S. 152 35 E.	20 (approx.)	On coast, 10 mi. E. of Taree.	2,160' N./S. x 1,920' E./W.	Fairly smooth.	Circle, wind indicator, boundary marks. Fuel, telegraph and telephone at Old Bar, near aerodrome. Repairs and R. R. at Taree.
Orange	R	33 19 S. 149 08 E.	3,560 (approx.)	About 1 mi. S. of Orange.	Irregular, 1,920' E./W., 2,640' N./S., 2,220' NE./SW., 2,720' NW./SE.	Good.	Repairs, fuel, telephone, R. R. in Orange.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

NEW SOUTH WALES—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
Parkes	M	° ′ 33 09 S. 148 10 E.	Feet 1,080 (approx.)	1 mi. SSW. of Parkes.	2,400′ NNE./SSW. x 2,700′ WNW./ESE.	Fair	White circle, wind indicator, telephone. Fuel, repairs, hotel in town.
Quirindi	E	31 30 S. 150 41 E.	1,376 (approx.)	About 4 mi. S. of Quirindi, adjacent to Braefield R. R. siding.	2,600′ NW./SE. x 2,300′ NE./SW.	Good	White circle, wind indicator, markings. Telephone at nearby home. Fuel, repairs in Quirindi.
Rabbiting Plain	E	34 33 S. 142 33 E.	185	11 mi. W. of Euston	1,650′ NE./SW. x 1,650′ NW./SE.	Good	Wind indicator, markings. Telegraph at Euston.
Randobbs	E	31 34 S. 148 42 E.	750 (approx.)	14½ mi. ESE. of Gulgunbone, ½ mi. N. of homestead.	2,200′ N./S. x 2,370′ E./W.	Good, except for small hump in middle of white circle.	Repairs at Gulgunbone. Limited fuel, telephone at homestead.
Richmond	M	33 35 S. 150 47 E.	40 (approx.)		4 runways: 2,200′ N./S., 2,600′ NW./SE., 2,100′ E./W., 2,600′ NE./SW.	Grassed	Wind indicator, hangars, repairs, lighting, fuel, W/T, D/F, telephone, weather station, R. R., accommodation.
Scone (Nandowra)	E	32 05 S. 150 51 E.	700 (approx.)	About 6 mi. SSW. of Scone, ½ mi. N. of Nandowra homestead.	2,600′ N./S., 4,740′ E./W.	Good, firm in all weather.	Markings, wind indicator, fuel, hangar. Repairs at Scone, telephone at homestead.
South Grafton	E	29 42 S. 153 06 E.	30 (approx.)	1 mi. SW. of South Grafton R. R. station.	1,320′ N./S. x 1,980′ E./W.	Good grassy surface.	Wind indicator, markings, hangar, telephone. Repairs, fuel, telegraph, hotels in South Grafton.
Summervale	E	31 25 S. 147 03 E.	550	1 mi. NE. of Summervale R. R. siding, 12 mi. NW. of Nyngan.	2,700′ N./S. x 1,980′ E./W.	Level	Wind indicator, markings. Facilities at Nyngan.
Sydney (Kingsford Smith) (Formerly Mascot).	C	33 57 S. 151 11 E.	10 (approx.)	NW. of Botany Bay, S. of Sydney.	3 runways: 3,300′ NNW./SSE.; 3,700′ NE./SW.; 1,300′ NW./SE.	Good level surface. Prepared runways.	Hangar, repairs, lighting illuminated wind indicator, telegraph and telephone, D/F, radio, R. R. accommodation.
Tamworth	E	31 06 S. 150 55 E.	1,350	Immediately SW. of Tamworth.	2,310′ NW./SE., 2,787′ NE./SW.	Good level surface, should be suitable in all weather.	Wind indicator, white circle. Repairs, telegraph and telephone, fuel, R. R., hotels in town.
Tarcoola	E	32 36 S. 152 24 E.	220	28 mi. S. of Maitland.	1,710′ N./S., 1,320′ E./W.	Good, slightly sandy. Slopes from NE. to SW.	Wind indicator, markings. Facilities at Maitland.
Tarnora	E	34 20 S. 146 20 E.					
Tenterfield	E	29 01 S. 152 03 E.	2,400 (approx.)	About 2 mi. NNW. of Tenterfield.	4 runways: 2,640′ N./S.; 1,320′ E./W.; 2,640′ NE./SW.; 2,640′ NW./SE.	Rough off prepared runways.	White circle, wind indicator, markings. Fuel, telegraph and telephone, R. R., repairs, hotels in town.
Tilbuster	E	34 26 S. 148 07 E.	205	26 mi. W. of Balranald.	1,320′ N./S., 1,320′ E./W.	Good, level.	Wind indicator, markings. Facilities at Balranald.
Tilpa							
Toorawoonah	E	31 29 S. 148 34 E.	920	About ½ mi. SW. of Toorawoonah.	Strips, 2,310′ N./S., 1,320′ E./W.	Graded. Strips good.	White circle, wind indicator, markings, telephone.
Tor Downs	E	32 54 S. 141 30 E.	320 (approx.)	7 mi. NW. of homestead.	2,310′ NW./SE., 2,310′ WSW./ENE.	Fair	White circle, wind indicator, corner markings. Telephone. Limited fuel at homestead.
Tumut	E	35 20 S. 148 18 E.	920 (approx.)	About 4½ mi. ESE. of Tumut.	Irregular, 1,320′ N./S. 2,370′ E./W.	Fair, dry weather only.	White cross, wind indicator, boundary marks. Repairs, fuel, R. R. in town. Telephone 1½ mi. SE.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

NEW SOUTH WALES—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Unaipoidy	E	35 13 S. 147 10 E.					
Uringalla Creek (Marulan)	E	34 39 S. 150 05 E.	1,950 (approx.)	6 mi. NW. of Marulan, just SW. of Uringalla Creek.	2,100′ N./S. x 1,300′ E./W.	Fair, liable to be soft after rain.	White cross, wind indicator. Fuel, telephone in Marulan.
Waddell's Tank	E	30 39 S. 146 16 E.	400	Adjoining Waddell's tank.	L-shaped, 1,920′ ENE./WSW., 1,920′ NW./SE.	Good, level. All weather.	Wind indicator, markings. Facilities at Byrock, 14 mi. SE.
Wagga Wagga	E	35 07 S. 147 28 E.	620	4 mi. SE. of Wagga Wagga.	3,000′ N./S., 2,850′ E./W., 4,200′ NE./SW.	Good. SE. and SW. will probably be boggy after heavy rains.	Fuel, oil, workshops, and telephone in town.
Wain Station	E	29 17 S. 141 70 E.	1,020	About 1 mi. S. of homestead.	Irregular, 2,400′ N./S., 2,100′ E./W., 2,970′ NW./SE.	Dry weather only	Wind indicator, boundary markings.
Walgett (Ulumbie).	E	30 01 S. 148 09 E.	440 (approx.)	3 mi. E. of Walgett on S. side of Namoi River.	2,370′ WNW./ESE. x 2,370′ NNE./SSW.	Fair	White circle, wind indicator, boundary markings. Telephone at Ulumbie homestead. Repairs, fuel, R. R. at Walgett.
Walleroowang	E	35 25 S. 150 03 E.	2,020 (approx.)	1 mi. W. of Walleroowang.	Irregular, 1,500′ N./S. x 1,500′ E./W.	Fair with general fall to NE.	White circle, wind indicator, boundary marks. Telephone, fuel, repairs at Walleroowang.
Wambool (Gosford)	E	33 23 S. 151 28 E.	50 (approx.)	About ¼ mi. E. of coast, 7 mi. NE. of Gosford.	Irregular, 1,500′ N./S., 1,500′ NE./SW.	Good, gravelly	Repairs, fuel, R. R. at Gosford. Telephone at Tumbi Umbi, 1½ mi. W.
Wambeen	E	33 57 S. 142 19 E.	220	15 mi. NE. of Mildura.	1,650′ N./S., 1,320′ E./W.	Good. Slopes slightly from N. to S.	Markings. Facilities at Mildura.
Wentworth	E	34 05 S. 141 54 E.	150	About 3 mi. N. of Wentworth.	1,980′ NE./SW., 2,250′ NW./SE.	Dry weather only	Wind indicator, shed, telephone.
Wilcannia	E	31 32 S. 143 39 E.	220 (approx.)	1½ mi. N. of Wilcannia.	2,640′ x 2,640 square	Fair, red soil	Repairs, fuel, telephone and telegraph, R. R., hotel in town.
Williamtown	M	32 48 S. 151 51 E.	20	11 mi. to Newcastle by road.	4 runways, each 2,600′ x 150′, N./S., E./W., NE./SW., NW/SE., taxiway 40′ wide under construction	Gravelled runways. Sandy soil, not subject to bogging.	Wind indicators, fuel, lighting, repairs, W/T, telephone, accommodations. Hangars under construction.
Wingham	E	31 52 S. 152 23 E.	30 (approx.)	On race course about 1 mi. NE. of Wingham.	2,400′ E./W. x 700′ N./S. 1,200′ NW./SE.	Slightly rough	Markings, wind indicators. Repairs, fuel, telephone, R. R. at Wingham.
Yanconwinna Creek	E	32 10 S. 142 03 E.	220	35 mi. E. of Broken Hill.	L-shaped, 1,170′ N./S., 1,470′ E./W.	Fair. Hard, sandy loam.	Markings, wind indicator. Facilities at Broken Hill.
Young	E	34 16 S. 148 19 E.	1,520 (approx.)	2 mi. N. of town of Young.	1,800′ N./S. x 1,710′ E./W.	Fair	White circle, wind indicator boundary marks. Fuel, repairs, R. R., telephone in town.

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

NORTHERN TERRITORY

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
Alexandria	H	° ′ 19 03 S. 135 03 E.	Feet 600 (approx.)	9½ mi. NNW. of Alexandria station.	1,800′ N./S. x 1,800′ E./W.	Red soil, E. portion best landing area.	Wind sock, markings, minor repairs, fuel, radio.
Alice Springs	M	23 48 S. 133 53 E.	1,800	7 mi. S. of Alice Springs.	2 runways: 5,400′ x 150′ NE./SW., 3,600′ x 150′ NW./SE.	Runways gravel; remainder of field rough and bad.	Markings, lighting, hangar, limited repairs and fuel, aerodic, telephone telegraph, D/F. Accommodations, R. R. in town.
Alice Springs (Townsite).	H	23 42 S. 133 53 E.	1,800 (approx.)	1 mi. WSW. of Alice Springs.	2 strips, 3,300′ N./S., 2,400′ NW./SE.	Landing strips good, remainder rough.	Wind indicator, markings. Fuel, telephone and telegraph, R. R. in town.
Anthony Lagoon	H	18 01 S. 135 32 E.	300 (approx.)	2 mi. S. of police station.	Triangular, 2,100′ NE./SW., 2,100′ NW./SE., 2,100 WNW./ESE.	Good, levelled soil	Markings, wind indicator.
Auld's Ponds	H	18 39 S. 133 39 E.	600	Field is a prominent clearing in timber.	Cross-shaped, 2,100′ NW./SE., 1,200′ NE./SW.	Level, soft when wet	Facilities at Daly Waters, 18 mi. NE.
Avenger Station	H	15 42 S. 133 01 E.	20	Immediately S. of Avenger station.	1,800′ E./W., 2,100′ NW./SE.	Care should be exercised after rain.	
Avon Downs	H	20 05 S. 137 30 E.	700	About 1 mi. ESE. of Avon Downs homestead.	Irregular, 1,800′ E./W. x 1,500′ N./S.	Hard, slopes to SW. All weather.	Markings, minor repairs, fuel, telephone and telegraph at station homestead.
Beaver Creek	H	21 20 S. 133 53 E.	1,800 (approx.)	4 mi. N. of town	Irregular, 2,400′ NE./SW. x 2,100′ NW./SE.	Undulating and somewhat rough. In wet weather, strip along east should be used.	Wind indicator, fuel, telegraph.
Batchelor	M	13 04 S. 131 02 E.	300 (approx.)	42 mi. SSE. of Darwin, adjacent to Batchelor R. R. siding.	2 strips, each 3,600′ x 300′ NW./SE., and E./W.; E./W. strip prepared for additional 1,200′.	All weather gravel runways (except extension), surface off runways hard in dry weather.	Wind indicator, markings, fuel, hangar, rotating beacon. Telephone and telegraph, radio, accommodations being installed.
Bathurst Island (Milikapiti).	M	11 45 S. 130 43 E.	25	Adjacent to Minton Station on SE. corner of Bathurst Island.	4,800′ NE./SW., 3,300′ E./W., 3,780′ NW./SE.	Red sand, all weather	Wind indicator, limited fuel and accommodations, radio.
Birdum	H	15 38 S. 133 10 E.	300 (approx.)	W. of and adjacent to Birdum R. R. station.	2,400′ NE./SW., 1,200′ NW./SE.	Landing strips cut in grass and rolled.	Markings, wind cone. Fuel, telephone and telegraph at R. R. station.
Borroloola	H	17 39 S. 136 18 E.	1,000	105 mi. W. of Wave Hill.	1,200′ x 600′ WNW./ESE.	Gravelly soil, sloping gently E. Unable all seasons but probably heavy after rain.	Markings, wind indicator.
Bore No. 2	H	20 56 S. 132 34 E.	700	26½ mi. N. of Daly Waters.	1,800′ NNE./SSW. x 1,500′ NNW./SSE.	Good level surface of red sandy loam. All weather.	Markings, wind indicator.
Borroloola	H	16 04 S. 136 19 E.	30	About 2 mi. S. of Borroloola across Rocky Creek, W. of McArthur River.	Irregular, 1,650′ NE./SW. x 750′ N./S.	Fair, falls gently to N.	Wind indicator, hotel.
Brunette Downs	H	18 36 S. 135 46 E.	700 (approx.)	At the W. edge of Brunette Downs Station.	2,700′ N./S. x 2,100′ E./W.	Mostly gravel. Black soil portion unsuitable in wet weather.	Markings, minor repairs, fuel.

DECLASSIFIED
CONFIDENTIAL

5/25/42

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

NORTHERN TERRITORY—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Cape Fourcroy	E	11 47 S. 130 05 E.	30	Near SW. tip of Bathurst Island, ¼ mi. NE. of Cape Fourcroy.	2,040' NE./SW. x 1,320' NW./SE.	Good sandy loam, may be soft when wet.	Wind indicator, markings, fuel.
Daly Waters	M	14 16 S. 133 23 E.	700 (approx.)	Immediately E. of Daly Waters telegraph station.	4,500' x 300' NW./SE. 3,600' x 300' NE./SW.	Good, level and moderately gleazed. NW. corner liable to be boggy after heavy rain.	Wind indicators, markings, hangar, fuel, aerodio. Limited accommodations and minor repairs at rest house, ¼ mi. N. Telegraph and telephone in town.
Darwin (U. S. Aerodrome).	M	12 26 S. 130 30 E.	30	2 mi. N. of Darwin, adjacent and SW. of racetrack.	2 runways, 2,040' x 150' NW./SE., 2,250' x 150' N./S.	Smooth and hard.	Hangars, lighting, fuel, wind indicators, radio, D/F, telephone and telegraph. Hotels in Darwin.
Darwin (R. A. A. F. Aerodrome).	M	12 26 S. 130 30 E.	115	4¼ mi. NE. of Darwin.	Irregular with 4 strips all 900' wide: 4,070' N./S., 3,960' NW./SE., 3,400' E./W., 4,730' NE./SW.	Smooth and firm, but soft in wet weather.	Hangars, repairs, fuel, aerodio, D/F, W/T, telephone, accommodations.
Dayton Ridge	E	14 43 S. 135 19 E.	720	8 mi. SE. of Birdum	1,650' NW./SE. x 1,650' NE./SW.	Good level surface of red loam and gravel. All weather.	Markings.
George Yard	E	15 55 S. 131 30 E.	700 (approx.)	2 mi. NE. of George Yard.	2,310' NW./SE. x 660' NE./SW.	Gently sloping, grassy surface. All weather.	Markings.
Gill Creek	E	17 20 S. 130 25 E.	1,000 (approx.)	8 mi. SW. of Gill Creek, along track.	2,310' NW./SE. x 660' NE./SW.	Hard red sand and limestone gravel. All weather.	Markings.
Groote Eylandt	M	14 05 S. 136 26 E.	30	Near SW. extremity of Groote Eylandt, ½ mi. E. of Mission station.	2 runways each 4,800' x 600' NW./SE. and NE./SW. Latter is under construction.	Light soil, grass in some parts, hard graded runways.	Markings, fuel, minor repairs, aerodio, W/T, D/F, emergency accommodations.
Hermannsburg							
Inverway Station	E	17 21 S. 129 26 E.	900 (approx.)	About ¼ mi. NE. of Inverway homestead.	2,100' E./W. x 2,220' N./S.	Hard red gravel falling to SE. All weather.	Minor repairs, telephone, radio at homestead.
Johnston's Lagoon	E	16 22 S. 132 36 E.	800	14 mi. S. of Dunmarra homestead.	Cross-shaped 2,640' NE./SW. x 2,640' NW./SE.	Good, level.	Wind cone, markings, Telephone and telegraph at Dunmarra homestead.
Katherine	E	14 27 S. 132 16 E.	300	On E. side of Katherine River, 1 m. NNE. of Katherine P. O.	1 runway, 2,625' x 60' NW./SE.; 2 strips, 2,730' N./S. and 1,620' E./W.	Gravel runway, mown strips. Ground off runway soft in wet season.	Wind indicators, markings. Minor repairs, fuel, telegraph and telephone, hotel, R. R. in town.
Kit Carson	M						U. S. air base, under construction.
Lagoon							
Limbunya	E	17 14 S. 129 51 E.	1,100	4 mi. E. of Limbunya homestead.	3 strips: 2,730' NW./SE.; 2,250' WNW./ESE.; 1,410' NE./SW.		Water at homestead.
Limestone	E	14 30 S. 131 57 E.	700	30 mi. SW. of Katherine, on S. bank of Limestone Creek.	2,310' NW./SE. x 660' NE./SW.	Level sandy soil, liable to sandhills in wet season.	Wind indicator, markings.
Mallalbah	E	17 23 S. 129 55 E.	700	14 mi. SSE. of Limbunya station, 8 mi. SSE. of Mallalbah Nyabirbala.	2,310' NW./SE. x 660' NE./SW.	Hard light soil over limestone. All weather.	Wind indicator, markings.

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

NORTHERN TERRITORY—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Maranboy	E	14 39 S. 132 36 E.	650 (approx.)	S. of Maranboy R. R. siding.	T-shaped, 1,920′ NE./SW., 1,310′ NW./SE.	Gravel, sand and clay	Wind indicator, markings, R. R.
Matarnka	M	14 56 S. 133 06 E.	650 (approx.)	Immediately SW. of R. R. siding.	2,370′ NW./SE., 1,960′ NE./SW.	Good red sandy soil. N. end of NW. liq soil after heavy rain.	Wind indicator, markings, fuel, R. R. (U. S. ely base under construction).
Mathison	E	13 08 S. 131 42 E.	700 (approx.)	4 mi. SW. of Mathison Creek. 14 mi. NE. of Willeroo.	2,310′ NW./SE. x 600′ NE./SW.	Good level surface, all weather.	Wind indicator, markings.
Millingimbi	M	12 01 S. 134 53 E.	10	On the SE. end of the southernmost of the Crocodile Islands in the Arafura Sea.	2 runways, each 4,320′ x 600′ N./S. and NW./SE.	Red sandy surface. When established should be suitable in all weather.	Wind indicators, markings. Minor repairs and AWA radio, at mission; fuel, emergency accommodation.
Milner's Lagoon	E	16 40 S. 133 24 E.	800 (approx.)	1½ mi. N. of Dunmara homestead.	T-shaped, 1,320′ NE./SW., 2,640′ NW./SE.	Good, level, all weather.	Markings, telephone and telegraph at homestead.
Mommoona Bore	E	15 03 S. 134 14 E.	600	6 mi. E. of Mommoona waterhole.	1,320′ N./S. x 1,320′ E./W.	Good gravel, all weather.	Markings, wind indicator.
Mount Doreen	E	22 00 S. 131 17 E.	1,000	About 1½ mi. NW. of homestead, 6 mi. NW. of Mt. Doreen.	Irregular, 2,310′ NW./SE., 1,650′ NE./SW.		Wind indicator.
Muckaty Bore	E	15 40 S. 133 07 E.	600 (approx.)	3½ mi. SE. of Muckaty Bore.	2,310′ N./S. x 1,650′ E./W.		Wind indicator, markings.
Nelly Waterhole	E	16 10 S. 132 06 E.	720 (approx.)	1½ mi. NE. of Nelly Waterhole, 32 mi. NE. of Montgomery outstation.	1,320′ x 600′ NW./SE.	Ironstone gravel, undulating 1-way ground.	Markings, wind indicator.
Nelson Spring	E	17 10 S. 129 18 E.	700 (approx.)	2 mi. NW. of Nelson Spring, 21 mi. SE. of Mistake Creek station.	2,310′ NW./SE. x 2,310′ NE./SW.	Hard reddish soil over limestone. Safe in all weather, but may be slippery after rain.	Wind indicator, markings.
Newcastle Waters	E	17 25 S. 133 26 E.	600	1 mi. SE. of Newcastle Waters.	1 runway, 2,112′ NW./SE., 3 strips 2,300′ NE./SW., 2,467′ N./S.	Runway gravel, strips graded.	Wind indicator, markings. Minor repairs, fuel, telegraph, hotel in town.
Newry Station	E	16 02 S. 130 13 E.					
Old Willeroo	E	15 26 S. 131 35 E.	700 (approx.)	14¾ mi. S. of Willeroo station, 25½ mi. E. of Old Willeroo station.	2,310′ NW./SE. x 600′ NE./SW.	Red sandy soil, good in all weather.	Markings, wind indicator.
Pine Creek	M	13 50 S. 131 50 E.	600	Immediately NE. of township and R. R.	Irregular, 2,640′ NW./SE. x 1,650′ NE./SW.	Yellow gravel loam, good in dry weather, likely to be boggy in wet weather.	Markings, wind indicator, hangar, airway rotating light, emergency repairs, fuel, W/T, telegraph and telephone, R. R.
Port Keats	E	14 14 S. 129 34 E.	100	Adjacent to new Mission site, 10 mi. S. of Mission station.	2,310′ NW./SE.		
Roderick (Bore No. 4)	E	16 08 S. 133 24 E.	700 (approx.)	12½ mi. N. of Daly Water, just S. of Roderick water hole (No. 4 Bore).	Cross-shaped, 1,320′ x 1,320′.	Red gravel, treacherous when wet.	Markings, wind indicator.
Tennant	E	16 37 S. 130 21 E.					

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

NORTHERN TERRITORY—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
Tennant Creek	M	° ′ 19 39 S. 134 13 E.	Feet 600	Just W. of town of Tennant Creek.	2 runways, 1,600′ x 100′ NE./SW., 1,370′ x 100′ NW./SE.	Liable to be boggy after heavy rains.	Wind indicators, markings, emergency repairs, fuel, W/T, telegraph and telephone. Hotels in town.
The Granites							
Timber Creek	E	15 38 S. 130 28 E.	80	3½ mi. SE. of Victoria River depot, on Timber Creek.	2,100′ NW./SE.		Markings, wind indicator.
Victoria River Downs.	E	16 24 S. 131 00 E.	700 (approx.)	Across Wickham River, and 1 mi. S. of Victoria River Downs station.	3 strips, 2,100′ NW./SE., 2,000′ NE./SW., 2,100′ E./W.	Level red soil. Care should be exercised after rain.	Wind indicators, markings, repairs, fuel, radio and telephone.
Warlock	E	15 15 S. 129 09 E.	700	13 mi. S. of Warlock Ponds, 36 mi. NW. of Birdum.	Cross-shaped, 2,200′ NW./SE. x 1,600′ NE./SW.	Lightly grassed, good all weather.	Wind indicator, markings.
Waterloo Station.	E	16 42 S. 129 30 E.					
Wave Hill Homestead.	E	17 30 S. 130 57 E.	700	Immediately W. of homestead buildings.	Irregular, 1,600′ E./W. x 2,600′ NW./SE.	Black soil and numerous small stones with soft patches filled in. Probably heavy after rain.	Markings, repairs, W/T.
Wave Hill Police Station.	E	17 28 S. 130 50 E.	700	Adjacent to Wave Hill police station, W. of Victoria River.	2,100′ N./S. x 1,600′ E./W.	Good level, all weather.	

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

QUEENSLAND

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Abingdon	E	17 46 S. 143 23 E.					
Amberley (Ipswich).	M	27 38 S. 152 43 E.	80	1 mi. W. of Ipswich	5,400′ N./S., 4,800′ E./W., 4,800′ NW./SE., 4,800′ NE./SW., with 3 runways, 3,600′ x 150′ each.		Hangars, wind indicator, lighting, fuel, repairs, telephone, accommodations. R. R. at Ipswich.
Angellala	E			18 mi. W. of Morven, alongside R. R. siding.	1,600′ x 1,200′		
Arabella	E	26 34 S. 148 28 E.	2,000	1 mi. N. of Arabella R. R. siding, 18 mi. E. of Charleville.	1,320′ NW./SE., 1,320′ E/W.	Good, sand and gravel, slopes slightly from W. to E.	White cross, wind indicator; facilities at Charleville.
Atherton	E	17 15 S. 145 30 E.	2,450	3½ mi. ENE. of Atherton.	2,178′ x 1,320′ N./S. with 2,400′ strip NW./SE.	Smooth, level. Should be all weather. Strip graded.	Circle, wind indicator; hotels, fuel, repairs in town, telegraph and telephone.
Ayr	E	19 34 S. 147 23 E.	24 (approx.)	Approx. 1 mi. NW. of Ayr.	2,100′ x 1,320′ NE./SW. maximum dimensions.	Hard, suitable all weather, except NW. corner which is liable to be soft after heavy rain.	Repairs, fuel, telephone, hotels, R. R. in town.
Barg Barg	E	24 23 S. 149 49 E.	200	About 2½ mi. SE. of Homestead.	2,100′ x 1,320′ E./W.	Level, black soil on N. half, red on S. half. S. portion all weather.	Boundary, circle, wind indicator, telephone, minor repairs at Homestead.
Bandleigh							
Bishop's Creek	E	20 47 S. 140 41 E.	600	12 mi. SE. of Cloncurry.	L-shaped, 1,600′ x 1,440′	W. end of field soft when wet.	White cross and wind indicator. Facilities at Cloncurry.
Blackall	E	24 26 S. 145 26 E.	600 (approx.)	Immediately S. of town on S. bank of Barcoo River.	Two strips: 2,200′ NW./SE., 2,200′ NE./SW.	Strips are graded. Grass fairly long on rest of field.	White circle, wind indicator, boundary marks. Repairs, fuel, telegraph, and telephone, hotels in Blackall.
Blackwater	E	23 36 S. 148 53 E.	600 (approx.)	Immediately S. of Blackwater.	Irregular, 1,320′ E./W.	Fair, good only for E./W. run.	Wind indicator, cross and boundary marks. Fuel, telephone, R. R. in town.
Bumberella	E	26 20 S. 146 13 E.	1,000 (approx.)	About 6 mi. NNW. of Charleville.	L-shaped, 1,320′ N./S., 1,480′ E./W.	Fairly long grass, but soft.	Shed and house on W. White cross and wind indicator. Telephone, repairs, fuel at Charleville.
Bowen	M	20 01 S. 148 13 E.	20	1½ mi. SW. of Bowen.	Triangular, 5,100′ x 4,800′ x 3,600′ with runway 3,600′ x 150′ NW./SE.	Fair, soft in wet season.	White boundary marks, wind indicators, R. A. A. F. huts, fuel, telephone, R. R; hotels in town.
Brisbane (Archerfield).	M	27 35 S. 153 01 E.	50 (approx.)	7 mi. S. of Brisbane	Irregular, 3,720′ x 3,600′	Grassed	Hangars, circle and wind indicators, boundary and obstruction lights. Fuel, telephone, R. R., accommodations in town.
Bundaberg (Rubber Airport).	M	24 54 S. 152 19 E.	40 (approx.)	About 2½ mi. SW. of Bundaberg.	Irregular, 4,800′ x 3,600′, runway 3,600 NW./SE.	Sandy loam, firm surface; runway hard surfaced.	Wind indicator, circle, hangar, telephone, fuel, repairs; accommodations in town.
Burke River (Duchess).	E.	21 19 S. 139 36 E.	1,220	6 mi. NNW. of Duchess.	1,740′ NW./SE., 1,770′ N/S.	Good, all weather.	White cross, wind indicator. Telegraph and telephone, fuel, hotel in Duchess.

DECLASSIFIED

5/25/42

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

QUEENSLAND—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Barkstown	E	17 46 S. 139 39 E.	30 (approx.)	½ mi. W. of Barkstown.	3 runways: No. 1, 1,600′ NE./SW., No. 2, 1,350′ E./W., No. 3, 900′ NW./SE.	Field outside of runways very rough and may be boggy. No. 1 gravelled, No. 2 and No. 3 graded.	White circle, boundary marks, wind indicator. Telephone, fuel in town.
Bucky Park	E	21 16 S. 139 44 E.	1,300	12 mi. WNW. of Duchess.	Irregular, 1,650′ NNE./SSW, 1,500 NNW./SSE.	Fair	White cross, wind indicator. Facilities at Duchess.
Cairns	M	16 55 S. 145 45 E.	3 (approx.)	About 2 mi. NW. of Cairns.	4 runways: 2,600′ x 100′; 2,600′ x 150′; 2,600′ x 150′; 2,250′ x 150′; 1,750′ x 150′ (under construction).	River gravel binding on decomposed granite. Area off runway must not be used.	White circle, wind indicator, lighting, radio, hangars, repairs, fuel, accommodations, telegraph and telephone.
Camooweal	E	19 55 S. 138 06 E.	630 (approx.)	Adjoining N. boundary of town of Camooweal.	Maximum run of 2,600′. 2 intersecting runways: 2,200′ E./W., 2,100′ NW./SE., 2,000 N./S.	Black soil, generally slightly rough. Use runways in wet weather.	White circle, wind indicator, fuel, hospital. Telephone, repairs in town.
Cannington	E	19 39 S. 140 34 E.	260 (approx.)	Just W. of Cannington station.	Irregular, 2,250′ NW./SE. x 2,250 NE./SW. x 2,700′ N./S.	Dry weather only	There is a cleypan emergency landing ground, about 600′ N. of this field, 1,000′ E./W. with fewer marks.
Capella	E	23 04 S. 148 03 E.	710	½ mi. NE. of town	1,650′ x 60′ NE./SW. 1,320′ x 60′ NW./SE.	Soil	Boundary markers, wind indicator. Fuel, repairs, telegraph and telephone in town.
Charleville (Charleville).	M	26 25 S. 146 16 E.	900	1 mi. E. of town, S. of Charleville-Brisbane R. R. and Charleville Racecourse 1 landing ground.	2,600′ x 300′ with 3 runways: 2,400′ x 75′ NW./SE., 2,400′ x 100′ NE./SW., 2,400′ x 75′ E./W.	Runways gravel. Red sandy soil. After rain liable to be soft except on runways for heavy machines.	Radio, wind indicator, markings, hangar. Repairs, fuel, telegraph, and telephone, accommodations in Charleville.
Charleville (Charleville Meat Works).	E	26 25 S. 146 19 E.	1,000 (approx.)	4 mi. E. of Charleville, to N. of Brisbane-Charleville R. R.	1,650′ NE./SW., 1,650′ WNW./ESE.	Good, sand and gravel. Should be suitable in all weather.	White cross and wind indicator. Repairs, fuel, telephone in Charleville.
Charleville (Charleville Racecourse).	E	26 26 S. 146 16 E.	900 (approx.)	Immediately N. of Charleville military field on N. side of R. R. about 1 mi. E. of town.	2 strips: 1,650′ N./S., 1,320′ E./W.	Fair. Prepared strips are within racetrack in form of a cross.	Facilities at Charleville military field.
Charters Towers	M						U. S. base under construction.
Childers	E	25 15 S. 152 20 E.	60	2½ mi. ESE. of Childers.	1,320′ N./S., 1,320′ E./W.	Level, hard grassed surface.	White circle. Fuel, repairs, telegraph and telephone, R. R., hotel in Childers.
Chinchilla	E	26 43 S. 150 37 E.	1,000	About 1¼ mi. NW. of Chinchilla.	Irregular, 2,100′ N./S., 2,300′ NW./SE., 2,100′ E./W., 1,500′ NE./SW.	Good, all weather	Circle, wind indicator. Telegraph and telephone, minor repairs, fuel, hotel, R. R. in town.
Clermont Station	E	22 41 S. 147 43 E.	800 (approx.)	¾ mi. SSW. of Clermont Homestead.	Irregular, 1,650′ N./S., 1,340′ SW./NE.	Claypan, fairly good wet weather surface.	Telephone, repairs at Croydon, 55 mi. NE. Limited fuel and minor repairs at homestead.
Clermont	E	22 49 S. 147 37 E.	870	1¼ mi. WSW. of town	1,320′ x 2,640′ (oval)	Red soil and grass, all-way field.	Repairs, R. R., fuel, telephone in town.
Clonagh	E	20 10 S. 146 41 E.	850	1½ mi. S. of Clonagh station	1,710′ x 1,320′ N./S.	Hard, smooth	Wind indicator, markings. Telephone, fuel, repairs at Clonagh homestead.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

QUEENSLAND—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Chesterton	M	20 41 S. 139 21 E.	630 (approx.)	Approx. 2 mi. N. of Chesterton.	Triangular, with 3 runways, maximum run 4,200'.	Runways all weather, in good condition.	Wind indicator, marking lighting, hangar, fuel telephone, radio, repairs. Hotels in town.
Cues	M	27 28 S. 117 07 E.			2 runways, each 3,600' x 150' N./S. and NE./SW.	Good, gravel	Limited fuel, R. A. A. F. hut, flare.
Cunnamore	E	24 14 S. 149 36 E.	850	About 1 mi. SE. of Cunnamore.	3,420' NE./SW. x 1,260' NW./SE.	Good, except for swamp, which is marked off.	Wind indicator, markings.
Cooktown	M	15 28 S. 145 13 E.	9	2 mi. W. of Cooktown.	3,150' x 200' NW./SE., 2,550' x 150' NE./SW., 2,130' x 150' E./W.	Good but boggy in wet season, December-March.	Wind indicator, lighting, fuel, radio, D/F, R. A. A. F. huts. Hotels, workshops in town.
Cockatiella	E	25 10 S. 149 21 E.	15 (approx.)	About 1½ mi. W. of Cockatiella.	Three runways: 3,330' E./W., 2,340' N./S., 2,700' NW./SE.	Landings should be confined to runways.	Water, telephone, fuel in town.
Cravo	E	26 23 S. 150 16 E.	1,200 (approx.)	Immediately S. of Cravo homestead, about 5 mi. S. of Cravo township.	Irregular, 1,200' N./S., 3,750' NE./SW.	Fair	Circle, wind indicator. Fuel at homestead. Telephone, limited repairs at Cravo.
Croydon	E	18 14 S. 142 15 E.	200	1½ mi. SE. of town	Irregular, 3,600' x 2,100'	All weather	Circle and boundary markings, wind indicator. Telegraph and telephone, fuel, repairs in Croydon.
Cunnamulla	E	28 04 S. 145 42 E.	617	Adjoining the R. R., N. of the town.	2,610' E./W., 2,700' N./S.	Good level claypan surface, liable to be heavy and sticky after heavy rain, but dries quickly.	Hangar, wind indicator. Telegraph and telephone, repairs, fuel, hotels in town.
Dalby	E	27 13 S. 151 16 E.	1,130 (approx.)	1 mi. SE. of Dalby	3,300' NW./SE., 2,300' NE./SW. maximum.	Black soil becomes soft and boggy after rain. Rough but not dangerous.	Hangar, lighting. Fuel, repairs, telephone, R. R., hotels in town.
Delta Downs	E	16 29 S. 141 18 E.	200 (approx.)	Immediately N. of Delta Downs Homestead, 7 mi. NW. of Lotus Vale field.	Irregular, 2,100' x 1,650' NE./SW.	Good	Markings, wind indicator. Wireless at homestead.
Denham Island	E	24 49 S. 159 14 E.	20 (approx.)	NW. corner of Denham Island, ¼ mi. across channel from Mission station.	2 runways intersecting: 1,110' WNW./ESE.; 930' NW./SE.; 780' NE./SW.	Fair, sandy soil. In dry weather, claypan S. of aerodrome should be used.	Wind indicator. Wireless, minor repairs, limited fuel, at Mission.
Devonport	E	41 14 S. 146 15 E.	1,000	12 mi. S. of Melbon	1,650' N./S. x 1,050' E./W.	Good, all weather	White cross, wind indicator.
Dieppe Hill	E	18 48 S. 146 28 E.					
Duaringa	E	23 44 S. 149 41 E.	270 (approx.)	About ½ mi. S. of Duaringa.	Two runways, 2,010' N./S., 1,650' E./W.	Good	Fuel, telephone, R. R. in town.
Dunbeam (Dunbeam)	E	21 21 S. 139 34 E.	1,100	2½ mi. NE. of Dunbeam	1,200' NE./SW. x 1,200' NW./SE.	Generally level	Wind indicator, white cross. Fuel, telegraph and telephone, hotel, R. R. in town.
Dulhydilla	E	26 76 S. 147 23 E.	1,400 (approx.)	Adjacent to Dulhydilla R. R. station on S. side of R. R.	Two runways, 1,710' N./S., 1,710' E./W.	Good	Repairs, fuel at Morven 16 mi. W. R. R., telephone, water at Dulhydilla.
Dunbar (all weather field).	E	15 60 S. 142 22 E.	300 (approx.)	2½ mi. NE. of Dunbar Homestead, about 5½ mi. S. of Mitchell River.	2,100' x 1,440' E./W.	Hard and smooth	Telephone, limited fuel and repairs at homestead.

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED from CONFIDENTIAL

QUEENSLAND—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
Dunbar (dry weather field).	E	15 49 S. 145 22 E.	Feet 320 (approx.)	Immediately S. of Homestead, about 6 mi. S. of Mitchell River.	Two intersecting runways, 2,100' NE./SW.; 1,800' NW./SE.	Good. Use all weather site in wet weather.	Telephone, limited fuel and repairs at homestead.
Dunk Island	E	17 57 S. 146 08 E.	10 (approx.)	14 mi. E. of Lower Tully on mainland, at nook of W. point of Dunk Island.	1,500' x 150' NW./SE.	Fair.	Limited fuel, hotel.
Emerald	E	23 31 S. 148 10 E.	820 (approx.)	1 mi. N. of Emerald	3 strips: 1,650' x 300' NE./SW.; 1,500' x 300' NW./SE.	Level and sandy loam, strips graded.	Machines, telephone. Repairs, fuel, hotels in Emerald.
Eagles Well	E	21 34 S. 139 29 E.	1,200	3 mi. E. of Dunboon	1,800' NNW./SSE., 1,800' NNE./SSW.	Good	White cross, wind indicator. Facilities in Dunboon.
Fort Constantine	E	20 35 S. 140 27 E.	600	3 mi. NE. of Homestead, W. of Cloncurry River.	Irregular, 1,800' x 1,400'	Bad claypan, smooth, hard.	White circle, wind indicator. Telephone, repairs, limited fuel at homestead.
Georgetown	E	18 14 S. 143 39 E.	600 (approx.)	6 mi. NW. of Georgetown.	L-shaped, 2,325' WNW./ESE.; 2,100' NNE./SSW.	Fair	White circle, wind indicator, boundary marks. Telephone, repairs, fuel in Georgetown.
Gilbert River	E			2 mi. N. of Gilbert River telegraph station.	Cross-shaped, 1,500' NE./SW. x 1,500' NW./SE.		Wind indicator, markings.
Glenprairie	E	22 57 S. 140 07 E.	20 (approx.)	19 mi. N. of Marlborough R. R. station.	Irregular, 2,700' N./S. maximum.	Generally good green silica somewhat heavy. E. and S. drain out in wet weather.	White cross, wind indicator, boundary marks, telephone, limited fuel.
Grandchester	E	28 31 S. 152 20 E.	700	2½ mi. NE. of town.	2,400' x 2,400' with 2 strips, 1,500' NE./SW., 2,100' NW./SE.	Level claypan; might be unserviceable in wet weather. Strips graded and grassed.	White circle, wind indicator, boundary marks. Repairs, fuel, telephone, R. R. in town.
Highdale	E	21 13 S. 148 09 E.	1,200	About 1 mi. N. of Highdale.	Irregular, 1,700' NE./SW. x 1,500' N./S. x 2,000 NW./SE.	Black soil and claypan.	Hangar.
Horn Island	M	10 36 S. 142 16 E.	10	On N. side of Horn Island across the bay and about 2 mi. E. of Thursday Island.	4,000' x 150' NW./SE., 4,140' x 150' ENE./WSW.	Gravel surface in good condition.	Telephone, fuel, wind indicator, huts, W/T.
Horse Creek	E	20 39 S. 139 29 E.	1,100	10 mi. N. of Mt. Isa.	1,450' x 200' N./S.		White cross, wind indicator. Telegraph and telephone at Mt. Isa.
Hughenden	E	20 49 S. 144 12 E.	1,200 (approx.)	About 2 mi. NNE. of Hughenden.	L-shaped, 1,200' N./S.; 1,200' WNW./ESE.	Claypan with soil patches in wet weather.	White circle, wind indicator, boundary marks. Telegraph and telephone, fuel, repairs in town.
Ingham	E	18 40 S. 146 09 E.	30 (approx.)	Adjacent to SW. of Ingham.	No. 1, 2,200' x 100' NE./SW., No. 2, 2,100' NNE./SSW.	No. 1 gravel runway good, unusable in wet weather.	Boundary marks, wind indicator. Repairs, fuel, telephone in town.
Inglewood	E	28 26 S. 151 06 E.	650	½ mi. E. of city	L-shaped, 1,600' N./S. x 1,100' E./W.	Fair, boggy after continuous rain.	White circle. Repairs, fuel, telegraph and telephone in town.
Inkerman (Claypan).	E	19 39 S. 147 23 E.	20 (approx.)	On claypan about 15½ mi. SW. of Inkerman homestead.	2,340' NW./SE., 2,700' NE./SW.	Smooth level surface, not suitable in wet weather. Dangerous from December to April. Use one-way landing strip on gravel ridge 2 mi. SE. of homestead in emergency.	Circle, corner markings and wind indicator. Limited repairs and fuel at homestead.

DECLASSIFIED CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

QUEENSLAND—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
Innisfail	H	17 34 S. 146 01 E.	10 (approx.)	About 1 mi. S. of Innisfail, W. of Mourilyan R. R. station.	Rectangular, 2,310' NW./SE., 1,650' SW./NE.	Graded surface, good in all weather.	White circle, wind indicator. Telephone at Mourilyan. Repairs and fuel at Innisfail.
Innisfail	H	16 49 S. 146 04 E.	50 (approx.)	About 1 mi. N. of Innisfail on "L" Creek.	3 intersecting strips. 1,320' NNW./SSE., 1,320' WNW./ESE., 1,320' NE./SW.	Strips are in good order.	Circle, wind indicator. Tele phone, repairs, fuel, water, at homestead.
Ipswich	H	27 37 S. 152 45 E.	50 (approx.)	On racecourse immediately E. of Bundamba-Redbank R. R., about ¼ mi. S. of Bundamba R. R. station.	Irregular, 1,320' NW./SE.; 1,320 NE./SW.; 1,320 E./W.	Rough in parts. Falls from center to E. boundary.	White cross and wind indicator. Fuel at Ipswich or nearby garages. Telephone at Bundamba P. O.
Jandowae	H	26 75 S. 150 37 E.	400	½ mi. S. of homestead.	Irregular, 1,320' x 1,320' NE./SW.	Level and smooth.	Circle, boundary markers, wind indicator. Water, telephone and limited fuel at homestead.
Jimboomba	H	27 51 S. 153 12 E.	1,100 (approx.)	12 mi. N. of Dalby, ¾ mi. W. of Jimboomba Haven.	1,320' x 1,320' NW./SE.	Black soil, smooth.	Hangar, water. Fuel and repairs at Dalby. Telephone at Jimboomba Haven.
Julia Creek	H	20 40 S. 141 45 E.	624	Adjacent to SW. side of town.	4 strips from 1,320' to 2,310'.	Fair, dry weather only.	White circle, wind cone. Telephone and telegraph, fuel, repairs, R. R. in town.
Kilcoy	H	26 57 S. 152 32 E.	320	1½ mi. W. of town.	Irregular, 1,320' x 1,320'.	Soft when wet.	Wind indicator, white semi-circle. Limited repairs, telegraph and telephone, fuel, R. R. in town.
Kilkivan	H	26 06 S. 152 44 E.	600 (approx.)	12 mi. N. of Cooroora.	Irregular, 2,310' NW./SE., 2,310' NE./SW.	Good, level, likely to be slightly after heavy rains.	Circle, wind indicator, hangar. Telephone, fuel, at homestead adjacent to N. of field. Repairs and R. R. at Cooroora.
Kingaroy	H	26 32 S. 151 51 E.	1,400 (approx.)	About 2 mi. S. of Kingaroy.	4 strips, 2,310' N./S.; 2,310' E./W.; 2,700 NE./SW.	Graded strips good.	White circle, wind indicator. Fuel, telephone, repairs, R. R., telegraph in town.
Kirkcaldy	H	21 34 S. 149 20 E.	60 (approx.)	Adjacent to W. of homestead, about 6 mi. N. of Mirbelli River.	2,310' N./S., 1,650' SW./NNE.	Smooth, level surface, all weather.	White circle, boundary markings, wind indicator. Repairs, limited fuel, water at homestead.
Laguna Station	H	22 32 S. 149 28 E.	1,300 (approx.)	1½ mi. WNW. of homestead and between Ward and Mitta Rivers.	1,320' N./S. x 1,320' NW./SE.	Good, smooth level claypan.	Circle, wind indicator, boundary marks. Telephone at homestead.
Lakinger							
Langton	H	26 05 S. 149 39 E.	320	16 mi. SW. of Chinchilla.	T-shaped, 1,440' N./S., 1,320' E./W.	Fair, slightly rough.	White cross, wind indicator. Fuel, facilities at Chinchilla.
Longreach	H	23 26 S. 144 15 E.	600	1 mi. N. of town.	2,310' N./S. x 2,310' E./W., 3 runways: 2,310' NE./SW.; 2,310' E./W.; 2,310' NW./SE.	Rough and heavy off runways after rain.	Circle, wind indicator, lighting, hangar, fuel, telephone. Hotels, repairs in town. Aerodrome being constructed.
Lotus Vale	H	21 01 S. 141 36 E.	50	S. of homestead buildings.	Rectangular. 1,320' x 2,310'.	All weather.	White circle and wind indicator. Limited fuel at homestead.
Lowood	M	27 28 S. 152 40 E.					

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

QUEENSLAND—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
Lorne	R	° ' 20 23 S. 140 41 E.	Feet 1,500 (approx.)	20 mi. E. of Charleville on S. side of R. R. at Lorne siding.	1,500' N./S. x 1,500' E./W.	Good level, red sandy soil.	White cross, boundary markers, wind indicator. Fuel and repairs at Charleville. Telephone and water at adjoining homestead.
Maxwell							
Mackay	M	21 10 S. 149 11 E.	4	1½ mi. S. of town.	4,000' x 4,000' with runway, 4,500' x 100' NW./SE.	Good, runway maintained. Boggy in wet weather.	Hangars, fuel, wind indicator, flares, R. A. A. F. hut, telephone, aerodio. Hotels, limited repairs in town.
Malkin	R	21 06 S. 149 19 E.	600	¾ mi. S. of town.	1,500' N./S. 1,500' E./W.	Good, all weather.	White cross, wind indicator. Fuel, hotel, telegraph and telephone in town.
Mangalore	R	28 47 S. 148 08 E.	870 (approx.)	On NW. side of Mangalore siding.	Irregular, 1,710' x 1,020'.		White cross, wind indicator, telephone, water at R. R.
Marlow	R	20 49 S. 149 24 E.	750	12 mi. SW. of Clonmorry.	L-shaped. 1,170' N./S., 1,350' E./W.	Fair.	White cross, wind indicator. Facilities at Clonmorry.
Maryborough	R	25 31 S. 152 43 E.	30 (approx.)	2 mi. N. of Maryborough.	Irregular with 2 strips. 2,250' N./S. and 1,720' NW./SE.	Level, sticky when wet.	Hangar, wind indicator, sleds. Fuel, telegraph and telephone, repairs, R. R., hotel in town.
McKinlay	R	21 17 S. 141 17 E.	625 (approx.)	¾ mi. E. of McKinlay.	2,100' x 1,020' with 3 runways, 1,020' ENE./WSW.; 920' N./S.; 1,020' NW./SE.	Runways good, may be soft after heavy rain, balance of field, rough.	White cross and wind indicator, beacon, water. Telephone, fuel in town.
Milgarra	R	25 15 S. 149 59 E.	100 (approx.)	Immediately NE. of Milgarra station homestead.	1,510' N./S. x 1,020' E./W.	Gravel surface, all weather.	Repairs, telephone, water, limited fuel at homestead.
Miranda Downs	R	17 23 S. 141 54 E.	30 (approx.)	3 mi. SSW. of Miranda Downs homestead, 35 mi. ENE. of Normanton.	2,370' NW./SE., 2,310' E./W.	Hard claypan, good in all weather.	Circle, wind indicator. Limited fuel at homestead.
Mitchell River Mission	R	15 29 S. 141 46 E.	30 (approx.)	About 1½ mi. S. of Mission, 10 mi. NW. of Rutland Plains station.	3 runways: 1,020' WNW./ESE, 1,080' NE./SW.	One runway only as other ground is covered with stumps.	Limited repairs and fuel, window at Mission.
Monto	R	24 54 S. 151 06 E.	770 (approx.)	About 2 mi. SSW. of Monto.	3 runways: 2,020' N./S.; 2,040' NW./SE.; 4,020' NE./SW.	Soil, graded strips good.	White circle, wind indicator, hangar. Repairs, fuel, telephone in town.
Morven	R	26 24 S. 147 07 E.	1,450 (approx.)	½ mi. NNW. of Morven station.	1,020' x 1,020' with runways 1,320' N./S., 1,320' E./W.	Black soil, a little rough, but soft. Runways, graded.	White cross, wind indicator, boundary marks. Fuel, repairs, telegraph and telephone, R. R. at Morven.
Mosney	R	21 49 S. 149 27 E.	800	W. of Mosney homestead.	2 strips, 1,020' x 600', NE./SW. and NW./SE.	Black soil. Dry weather only.	Repairs, white circle and wind indicator. Telegraph and telephone. Limited fuel at homestead.
Mount Coolon	R	21 34 S. 147 31 E.	800 (approx.)	About 2 mi. NW. of town of Mount Coolon.	Almost circular, 1,020' x 1,020'.	Level, grass. S. portion black soil, N. portion clay and loam.	White circle. Telegraph and telephone, fuel, repairs at Mount Coolon.

CONFIDENTIAL
DECLASSIFIED
5/25/42

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

QUEENSLAND—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Mount Isa No. 1	N	20 43 S. 139 30 E.	1,010	1½ mi. SSE. of Mount Isa, township on S. side of Leichhardt River.	4 graded strips: 3,120′ x 150′ NE./SW.; 1,320′ x 150′ E./W.; 2,520′ x 150′ N./S.; 2,520′ x 150′ NW./SE.	Good; E. side inferior in wet weather.	Hangar, boundary marks, wind indicator, clock, fuel, telegraph and telephone, minor repairs, R. R., hotel in town.
Mount Isa No. 2	N	20 43 S. 139 30 E.	1,020	2½ mi. SSE. of town.	1,320′ N./S., 1,440′ NW./SE.	Firm, level.	Wind indicator, markings. Fuel, telegraph and telephone, minor repairs in town.
Mundjen Station	N	17 46 S. 147 39 E.	600	On S. side of homestead buildings.	2,700′ x 2,000′. Cross-shaped.	Fair, heavy at southern end. Good in all weather.	Telephone at homestead.
Mayne Station	N	19 04 S. 142 44 E.	500 (approx.)	Between washout and Mayne station, 12 mi. SSW. of Pandah.	1,320′ x 1,410′ NW./SE.	Fairly smooth and level; not suitable in wet weather. Boundfence in N. corner.	White circle, wind indicator, boundary marks, telephone at homestead.
Mandubbera	N	21 25 S. 141 33 E.	600 (approx.)	Immediately N. of town.	2,400′ E./W. x 2,200′ NE./SW.	Soil; steep slope of ground renders landings to SE. and take-off into NW. and SW. extremely difficult.	White circle, wind indicator, telephone, Repairs, R. R., fuel, telegraph in town.
Mungallala	N	26 39 S. 147 33 E.	1,200 (approx.)	1 mi. NW. of town.	2 strips, 1,600′ E./W., 1,320′ N./S.	Level, all weather.	Fuel in town. Telephone and telegraph. R. R. in town. Repairs at Miles 31 mi. NE.
Mungia	N	26 13 S. 151 55 E.	1,020	1 mi. SW. of city.	2,160′ N./S. x 1,770′ E./W.	Hard, smooth, sloping to N. and S.	White circle. Repairs, fuel, telegraph, and telephone, R. R. in town.
Munaga	N	26 42 S. 151 49 E.	1,140	1½ mi. S. of Munaga R. R. station.	2,000′ N./S., 2,700′ NW./SE., 2,300′ NE./SW.	Hard, slightly rough, general slope to E.	Wind indicator, markings. Minor repairs, fuel, telegraph and telephone, hotel in town.
Natal Downs							
Nindooinbah	N	28 02 S. 153 04 E.	900	4½ mi. ESE. of Beaudesert.	Irregular, 1,320′ x 2,640′.		White circle, boundary markers, wind indicator. Telegraph and telephone at Nindooinbah homestead; R. R. at Beaudesert.
Nobelvale	N	27 42 S. 145 41 E.					
Normanton	N	17 40 S. 141 04 E.	40 (approx.)	About 1 mi. SW. of town of Normanton.	2,200′ N./S. x 2,640′ E./W., 2,100′ NE./SW.	Slightly undulating, inclined to be soft and smooth after heavy rain.	White circle, wind indicator, hangar. Repairs, fuel, telegraph and telephone, hotel, R. R. in town.
Northampton Downs	N	24 39 S. 145 45 E.	1,000	2 mi. SSW. of Northampton Downs homestead.	2,400′ N./S. x 2,400′ E./W.	Red claypan with patches of black soil.	Wind indicator, markings. Facilities at Rinkhall, 25 miles NW. Wind indicator.
Pebble station	N	27 31 S. 144 24 E.	600	2½ mi. NE. of Pebble station homestead.	1,440′ x 1,240′ NE./SW.		
Prenzplus	N	20 31 S. 145 37 E.	20 (approx.)	Approx. 6 mi. SE. of Prenzplus.	Irregular, 1,700′ NW./SE.; 1,200′ WNW./ESE.; 2,000′ WSW./ENE.	Smooth black soil. Liable to be soft after heavy rain.	Wind nearby. Telephone, repairs, fuel, R. R. in town.
Reid River	M						U. S. base under construction.
Richmond	N	20 43 S. 143 08 E.	700 (approx.)	2 mi. W. of Richmond.	Triangular, 1,320′ NW./SE., 1,320′ E./W., 1,320′ N./S.	Strips graded, good. Liable to be soft after rain.	Markings, wind indicator. Fuel, repairs, telephone, R. R. in town.

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

QUEENSLAND—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
Bowling Bore	R	° ′ ″ 21 18 S. 140 05 E.	Feet 1,000	43½ mi. SE. of Dunda Rd. R. R. station.	1,600′ x 60′ N/S.	One way only, hilly.	Wind indicator, rotating. Facilities at Duchess, 17 miles W.
Buckingham	M	20 20 S. 139 29 E.	15 (approx.)	15½ mi. W. of Buckingham.	2 intersecting runways, 3,600′ x 150′ NW./SE., 3,600′ x 150′ NE./SW.	Good level, all weather surface.	Rotating machine, wind indicator, fuel, oils, telephone, commanding elevation, R. R.
Burra	R	20 35 S. 140 49 E.	600 (approx.)	12½ mi. E. of Burra on S. side of R. R.	3,700′ x 2,100′ with 3 runways, 1,500′ NE./SW., 2,100′ NW./SE.	Hard, ground falls to SW. Slope graded.	White circle, boundary markers, wind indicator. Telegraph and telephone, fuel, hotels, other supplies in town.
Burrowie	R	27 09 S. 140 04 E.	600 (approx.)	6 mi. NNW. of Wyandra; 9½ mi. SW. of homestead.	Square, 1,500′ x 1,500′.	Flat, soft when wet.	Limited fuel, telephone. Water at homestead, R. R., telegraph at Wyandra.
Bunnera	R	27 25 S. 143 09 E. (approx.)	———	3½ mi. SE. of Bunnera R. R. station, 4 mi. SE. of Archerfield Aerodrome.	1,200′ x 600′.		
Bulloo Plains	R	25 38 S. 142 39 E.	600 (approx.)	5½ mi. E. of Bulloo Plains station.	Irregular, 2,000′ NW./SE., 2,000′ E./W.	Caution to be exercised after rain.	Wind indicator.
St. George	R	28 03 S. 148 30 E.	600 (approx.)	1½ mi. SE. of town.	2,000′ NE./SW. x 2,000′ NW./SE.	Fair, soft when wet.	Wind indicator, circle, hangars. Repairs, fuel, telegraph and telephone in town. Emergency landings possible on a runway about 1½ mi. SE.
Sheard Creek	R	20 51 S. 139 54 E.	1,100	12 mi. S. of Mt. Isa.	1,110′ x 300′ NW./SE.	One-way ground, good.	Wind indicator, markings. Facilities at Mt. Isa.
Somerset	R	10 44 S. 142 30 E.	100 (approx.)	½ mi. NNE. of homestead, on NE. corner of Cape York Peninsula.	1,110′ x 300′ NW./SE.	Gravel and dirt, all weather.	White cross and wind indicator. - Telegraph and telephone at Cape York.
Spring Creek	R	22 25 S. 139 39 E.	1,100	9 mi. N. of Mt. Isa.	1,200′ NW./SE, 600′ NE./SW.	Fair.	Wind indicator, markings. Facilities at Mt. Isa.
Springvale	R	24 08 S. 142 06 E.	1,100	15½ mi. S. of town.	1,600′ NW./SE., 1,200′ NE./SW., 1,600′ E./W.	S. portion is of black soil and is not usable during and after rain.	Wind indicator, boundary markers.
Strathmore	R	22 30 S. 147 33 E.	600 (approx.)	½ mi. SW. of Strathmore homestead.	2 intersecting runways, 2,400′ x 90′ NE./SW., 2,400′ x 90′ NW./SE.	Red soil, strips graded, remainder of ground. Rain to be soft after rain.	Wind indicator, white circle, limited fuel, and repairs at homestead.
Stonybank	R	27 20 S. 143 05 E.	300	2 mi. SE. of town.	1,200′ N./S. x 600′ E./W.	Hard black clay, well grassed.	Markings. Facilities at Archerfield, 4 mi. NW. For small types only.
Strut	R			Adjoining SW. corner of town.			
Tambo	R	24 52 S. 146 16 E.	1,100	½ mi. E. of Tambo.	Irregular, 2,000′ N./S. x 2,000 E./W., with strips, 1,200′ N./S. x 1,000 E./W. on E. side.	Ridge is hard gravel and should be used in wet weather.	White circle, wind cone. Fuel, minor repairs, telegraph and telephone, R. R. in town. Wind indicator.
Taroom	R	25 39 S. 149 49 E.	1,100 (approx.)	1 mi. NE. of Taroom.	1,600′ x 2,000′ NW./SE. with graded strip in centre.	Not suitable after heavy rain.	
Texas	R	28 51 S. 151 09 E.	1,100	1 mi. NW. of town.	2,000′ x 2,000′ x 2,000′ triangular.	Good.	White circle, boundary markers, wind indicator. Repairs, telegraph and telephone in town.

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

QUEENSLAND—continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
Thargomindah	R	27 59 S. 143 49 E.	Feet 480	Immediately S. of Thargomindah.	2 landing strips intersecting, 2,400' each, NW./SE. and NE./SW.		Circle and wind indicator.
Thargomindah	R	27 59 S. 143 49 E.	480 (approx.)	About 2 mi. W. of town.	2,200' E./W., 2,000' N./S.	Dry weather only	Wind indicator.
Thedore	R	24 29 S. 148 00 E.	600 (approx.)	About 2½ mi. NW. of town.	2 strips, 3,200' N./S., 2,400' NW./SE.	Strips graded	Wind indicator, sheds.
Tenty	R	27 37 S. 147 19 E.	600 (approx.)	Adjoining SW. of Tenty station homestead.	Irregular, 2,100' x 2,400'	Good	White circle, wind indicator, boundary marks. Limited fuel and repairs, telephone, water at homestead.
Toowoomba	R	27 32 S. 151 55 E.	1,600	About 2½ mi. W. of Toowoomba.	2,400' N./S. x 2,400' E./W.	Undulating, fair	White circle, wind indicator. Repairs, fuel, telephone, hotels in town. U. S. Base major construction.
Tyson Creek	M						
Townsville	M	19 15 S. 146 46 E.	20 (approx.)	2mi. W. of Townsville R. R.	Runways, 4,000' NNE./SSW., 3,000 NE./SW., 4,000 NW./SE.	Good, hard surfaced. All weather.	Wind indicator, markings, flares, lamps, repairs, fuel, accommodations, radio, telephone, R. R.
Tunnel							
Yellow Downs	R	21 30 S. 140 34 E.	1,000 (approx.)	To NE. of Yellow Downs homestead.	1,600' NW./SE., 1,600' NE./SW.	Sod, dry weather ground.	Wind indicator. Telephone, telegraph, limited fuel, and repairs at homestead, R. R.
Warwick	R	28 16 S. 152 02 E.	1,000 (approx.)	About 2 mi. SSE. of Warwick.	2,000' N./S., 1,600' E./W.	Fair	Circle and wind indicator, boundary markings. Telephone, repairs, fuel, R. R. at Warwick.
Wentworth (Stoke's)	R	34 06 S. 142 09 E.	200	N. of Darling River, 2½ mi. SE. of Wentworth (Historic Settlement).	Approx. 2,100' WNW./ESE.	Narrow gravel strip	Shed.
Westwood	R	22 37 S. 139 00 E.	521 (approx.)	N. mi. W. of Westwood R. R. station.	Irregular, 2,200' x 700' NW./SE.	Fair	Fuel, wind indicator, cross and boundary markers. R. R. in town.
White River	R	21 04 S. 139 36 E.	1,200	24 mi. ESE. of Mt. Isa.	T-shaped, 1,600' ENE./WSW. x 1,600' SSE./NNW.	Fair, gravel and loam	Wind indicator, markings. Facilities in Mt. Isa.
Winton	R	22 22 S. 143 02 E.	620	1½ mi. NW. of town.	4 runways: No. 1, 1,600' ENE./WSW.; No. 2, 2,150' NNE./SSW; No. 3 2,040' NE./SW; No. 4, 2,040' NW./SE.	Runways No. 1 and No. 2, gravel, all weather; No. 3 and No. 4 graded, dry weather only.	Wind indicator, beacon, 1½ mi. SE. of field. Repairs, hotel, telephone, telegraph in town.
Windal	R	26 19 S. 151 59 E.	1,000 (approx.)	½ mi. N. of town.	Irregular, 2,100' E./W., 2,000' NE./SW., 2,000' N./S.	Fair	Repairs, fuel, telegraph and telephone, R. R. in town.
Woodstock	R	19 34 S. 146 46 E.	100 (approx.)	S. of and adjacent to Woodstock homestead.	Irregular, 2,200' NW./SE., 1,200' NE./SW. 1,000' N./S.	Gravelly black soil	White circle and wind indicator. Limited repairs and fuel at homestead. U. S. base under construction.
Woolstock	M						

RECLASSIFIED

CONFIDENTIAL

1/25/62

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

QUEENSLAND—Continued

Name	Type	Position	Altitude	Location	Directions	Notes	Position
Wurung	R	° ′ 19 12 S. 149 39 E.	Feet 320	NW. of adjoining Wurung station.	1,000' NE.,NW. x 1,000' NW.,NE.	Hard grey-black earthen, with stone red ground. May be soft after very wet weather.	Limited repairs and fuel, telephone at homestead.
Wyandra	R	27 14 S. 145 58 E.	770 (approx.)	N. ad. NW. of Wyandra station.	1,000' N./S. x 1,000' E./W.	Black soil	Wind indicator, R. R. to Charleville.

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SOUTH AUSTRALIA

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
Aberdeen	S	33 07 S. 138 42 E.	Feet 710	Just N. of Aberdeen siding and Aberdeen River.	Irregular, 2,000' N.S./ E.W., 2,000' N.W./S.E.		Wind indicator, markings.
Ashford Gardens	S	34 58 S. 138 34 E.		4¼ mi. S. of Adelaide.	2,000' x 1,000'		
Adelaide (Parafield).	M	34 43 S. 138 38 E.	69	½ mi. S. of Parafield siding, about 9 mi. N. of Adelaide and 2½ mi. S. of Salisbury.	2,000' N.E./S.W., 4,000' N.S., 2,000' N.W.E./ S.E., 2,000' N.W./S.E.	Gold, grassy, all weather.	Wind indicators, markings, complete lighting, repairs, fuel, hangars, W/T, D/F, telephone, accommodations.
Aberdeen Mines	S	33 43 S. 137 43 E.					
Barunga	S	34 16 S. 138 27 E.	300	8¼ mi. SW. of Barunga.	2,000' N.W./S.E., 1,000' N.E./S.W.	Loam, red sand and small limestone cobbles, liable to blow in ridges in dry weather.	White circle, wind indicator. Repairs, hotels, fuel, R. R., telegraph in Barunga.
Birdwood	S	34 59 S. 138 50 E.	1,100	1 mi. E. of Birdwood.	1,000' N.W./S.E., 700 N.E./S.W.	Fair, slopes to N. and W., usable all seasons.	White cross and wind indicator. Repairs, hotels, telegraph, R. R. to Adelaide in town.
Bordertown	S	36 19 S. 140 48 E.	400 (approx.)	1 mi. SE. of Bordertown.	1,000' N./S., 1,000' E./W.	Grassed, sandy soil, undulating, falling off toward the N.	Wind indicator, markings. Repairs, fuel, telegraph and telephone, hotel in town.
Bute	S	33 59 S. 138 01 E.	400	½ mi. N. of Bute.	1,000' N./S. x 1,000' E./W.	Brown sandy loam, probably heavy after rain.	Circle, wind indicator. Repairs, fuel, telegraph and telephone, R. R., hotel in town.
Coburn	M	32 05 S. 139 43 E.	20	2 mi. E. of Coburn.	4,000' E./W. x 4,000' N./S.	Loam and dusty sand, being grassed.	Wind indicator, complete lighting, hangar, telephone, minor repairs, W/T, fuel, rest house.
Coburn	C	32 07 S. 139 46 E.	70	4 mi. ENE. of Coburn.	2,000' E./W. x 2,000' N./S.	Grassed, sandy loam.	Wind indicator, markings, W/T, telephone, rest house. Repairs, fuel, telegraph, hotel, R. R. in town.
Clare	S	33 49 S. 138 39 E.	600	Immediately SE. of town of Clare.	2,000' E./W. x 2,000' N./S.	E. extension may be heavy after rain.	Markings, wind indicator, telephone.
Cobar	S	31 27 S. 145 46 E.	900 (approx.)	E. and adjacent to Cobar homestead.	2,000' NW./SE. x 1,000' NE./SW.	Good, but may be boggy after rain.	White circle, markings. Telephone, limited fuel, and repairs at homestead.
Cook	S	32 43 S. 130 56 E.	404	S. and adjacent to Cook R. R. station.	2,000' in all directions.	Brown loamy soil with small stony patches, probably soft after rain.	Markings, wind indicator. Fuel, repairs, telegraph and telephone, R. R. in town.
Cooke's Plains	S	32 32 S. 130 58 E.	60	About ¼ mi. SE. of Cooke's Plains R. R. station.	Triangular, 2000' NE./ SW. x 1,500 NW./SE. x 1,000 E./W.	Level, light irrigation.	Wind indicator, markings, R. R., fuel.
Cowell	S	33 40 S. 136 56 E.	300	About 1¼ mi. NW. of Cowell and Franklin Harbor.	2,000' E./W. x 2,000' N./S.	Good, sandy loam and gravel.	2 wind indicators, markings, telegraph and telephone.
Parna	S	30 02 S. 136 30 E.	200	1¼ mi. E. of Parna.	Irregular, 1,000' N.E./ S.W.; 1,000' NW./SE.; 1,400 E./W.	Level stumpus, soft after rain.	Wind indicator, markings. Fuel, minor repairs, telegraph and telephone, hotel in town.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

SOUTH AUSTRALIA—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
Iron Knob	E	° ′ 32 43 S. 137 10 E.	Feet 850 (approx.)	About 1½ mil. SE. of Iron Knob.	3,000′ N./S. x 2,100′ E./W.	Good, probably boggy after heavy rain.	Wind indicator, markings. Repairs, fuel, telephone, and R. T. in Iron Knob.
Jamestown	E	33 12 S. 138 33 E.	1,350 (approx.)	About 1½ mil. S. of Jamestown.	3,150′ N./S. x 1,800′ E./W.	Good	Wind indicator, white cross. Repairs, fuel, telephone, R. T. in town.
Kanbrook	E	34 47 S. 139 01 E.	1,100	About 1 mil. S. of Kanbrook.	1,110′ E./W. x 1,200′ N./S.	Rough to SW. sloping from E. to W.	Wind indicator, markings; telegraph and telephone in town.
Kilo Ore	E	32 34 S. 139 39 E.					
Kimba	E	33 09 S. 136 24 E.	1,625 (approx.)	About 3 mil. W. of Kimba.	3,450′ NW./SE. x 2,250′ NE./SW.	Good heavy soil, falls from W. to E.	Wind indicator, markings. Repairs, telegraph and telephone, R. T., hotel in Kimba.
Kingscote	E	35 39 S. 137 38 E.	100	1¼ mil. WSW. of Kingscote.	1,500′ NNW./SSE.; 1,100′ ENE./WSW.	Undulating, falling generally to E.	Wind indicator, markings. Repairs, fuel, telegraph and telephone, hotel in town.
Kingscote (R. A. A. F. Relief).	M	35 42 S. 137 39 E.	30	3 mil. SW. of Kingscote.	1,500′ N./S. x 1,000′ E./W. with 3 runways each 1,000 x 100′, NE./SW., NW./SE. and ENE./WSW.	Gravel, all weather	Wind indicator, markings, W/T, fuel, R. A. A. F. hut.
Kyancutta	E	33 07 S. 135 37 E.	220	About 2 mil. NE. of Kyancutta.	2,400′ E./W. x 2,250′ N./S. with 300′ narrow extension to NE.	Sandy loam, grassed. Slopes down from N. and NE.	Markings, houses, limited repairs, fuel, telegraph and telephone, R. T., accommodations in town.
Lenton	E	34 30 S. 135 33 E.	120	Immediately E. of Lenton.	600′ N./S., 2,100′ E./W.	Narrow tapering ground, red sand and grassy surface. Limestone	White cross, garages, hotel, fuel. Telegraph and telephone in Lenton. Wind indicator.
Maggea	E	34 30 S. 140 39 E.	200	3 mil. SE. of Maggea, 1 mil. E. of homestead.	1,200′ NW./SE. x 1,440′ NE./SW.		
Mallala	E	34 34 S. 138 29 E.					
Marshall	E	34 55 S. 138 55 E.	1,000	Immediately E. of town.	1,200′ N./S., 1,320′ E./W.	Level grass, slight undulation in SE. corner. Good all seasons.	Markings. Minor repairs, hotel, telegraph and telephone in town.
Marree	E	29 40 S. 138 04 E.	120	Within race track, ¼ mil. W. of Marree.	2,000′ N./S. x 2,000′ E./W.	Level, but boggy after rain.	Wind indicator. Fuel, repairs, telegraph and telephone, R. T., hotel in town.
Mount Ebo	C	30 11 S. 135 41 E.	700	Adjacent to Mount Ebo homestead, 60 mil. NNE. of Kingoonya.	4 strips: 2,000′ ENE./WSW.; 2,000′ NW./SE.; 2,000′ NNW./SSE.; 2,000′ NE./SW.	Strips graded, should not be used immediately after heavy rain.	Wind indicator, markings, smoke, D/F. Fuel, limited supplies at homestead.
Mount Gambier	M	37 45 S. 140 46 E.	220	About 6 mil. N. of Mount Gambier.	4 runways all 2,000′, running N./S., E./W., NE./SW., NW./SE.	Good, all weather	Ramps, wind indicator, markings, fuel, lighting. Limited repairs, telephone, accommodations, W/T.
Mount Pleasant	E	34 49 S. 139 08 E.	1,600	3 mil. E. of town	1,770 N./S., 1,320′ E./W.	Undulating, general fall to N.	White cross and wind indicator. Repairs, hotel, telegraph and telephone in town.
Naracoorte	E	36 56 S. 140 46 E.	320	3½ mil. NW. of Naracoorte.	N./S. x 2,250′ E./W.	Level, grassed surface, slightly rough.	Wind indicator, markings. Repairs, fuel, telegraph and telephone, R. T., hotels in town.

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

SOUTH AUSTRALIA.—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
Cadnaburta	M	27 34 S. 135 27 E.	Flat 450 (approx.)	About ¼ mi. SSW. of Cadnaburta township.	2 strips, 4,500' x 100' E./W. and 4,500' x 100' N./S., with 2 runways each 3,600' x 100', NE./SW. and NW./SE., both being extended.	Strips graded, runways hard surfaced.	Markings, wind indicator, tel. Telephone, R. R., hotel, in town.
Pedirka Siding.	R	26 37 S. 135 20 E.	500	About ½ mi. S. of Pedirka siding.	Irregular, 2,000' NW./SE., 1,500 NE./SW.	Well grassed, sloping to N. and E., rough on edges.	Hangars, wind indicator, markings. Repairs at homestead.
Pandulna	R	26 07 S. 135 20 E.	495	About ½ mi. NW. of Pandulna R. R. station.	Irregular, 2,500' E./W., 2,000' N./S.		Wind indicator, markings.
Pannikan	R	26 42 S. 137 02 E.	500	2½ mi. SE. of Pannikan.	Irregular, 1,500' E./W. x 1,710' N./S.	Flat gravelly loam, overlying clay.	Wind indicator, markings, telephone. Hotel, telegraph in town.
Pelindaba	R	25 28 S. 135 20 E.	50	2 mi. E. of Lake Alexandrina.	1,000' NE./SW. x 1,000' NW./SE.	Level, grassed, undulating at N. end, probably heavy in wet weather.	Wind indicator, markings.
Port Lincoln	M	34 36 S. 135 52 E.	60 (approx.)	About 6¼ mi. N. of Port Lincoln R. R. station.	4,100' E./W., 3,000' N./S., 4,000 NE./SW., 4,000' NW./SE.	Pair, partly grass, rough in parts.	Wind indicator, markings, fuel, W/T. Telegraph and telephone, limited repairs, hotel, R. R. in town.
Port Neill	R	34 07 S. 135 21 E.	200	About 3 mi. SW. of Port Neill, 2 mi. W. of coast.	Irregular, 2,000' E./W., 2,000' NW./SE., 2,000' NE./SW.	Rough on N. end	Markings, wind indicator.
Port Pirie	M	33 11 S. 138 03 E.	50	2 mi. E. of Port Pirie.	2 runways each 4,000', N./S. and NW./SE.	Runways asphalt	Fuel, radio, accommodations. Repairs in town.
Quorn	R	32 20 S. 138 02 E.	900 (approx.)	1½ mi. E. of Quorn	1,500' E./W. x 1,500' N./S.	Good, level	Wind indicator, markings. Fuel, repairs, telegraph and telephone, R. R., hotels in Quorn.
Renmark	R	34 12 S. 140 45 E.	60	About 4 mi. SW. of Renmark.	Circular, 1,500' in all directions.	Generally good, heavy N. to S.	Wind indicator, markings. Fuel, repairs, telegraph and telephone, hotel in town.
Robe	R	37 10 S. 139 46 E.	30	3 mi. E. of Robe	1,750' N./S. x 1,500' E./W.	Level, grassed	White circle. Fuel, hotel, minor repairs, telegraph and telephone at Robe.
Swan Reach	R	34 34 S. 139 37 E.	100	1½ mi. SSE. of Swan Reach.	2,000' NW./SE., 1,600' NE./SW.	Good, limestone gravel.	Wind indicator, markings. Repairs, limited fuel, hotel, telegraph and telephone in town.
Tintinara	M	35 55 S. 140 04 E.	60	2 mi. E. of Tintinara homestead.	Irregular, 2,300' NE./SW., 2,200' NW./SE.	Good except for SW. leg, which is sandy and flagged off.	Rotating light, markings, W/T, R. A. A. F. fuel, fuel. Limited repairs and telephone at homestead.
Wallaroo	R	33 56 S. 137 36 E.	60	Immediately NE. of Wallaroo.	2,100' NE./SW., 2,000' N./S.	Good, limestone gravel and short grass; falls slightly to N. and W.	White circle. Fuel, repairs, hotel, telegraph and telephone in town.
Whyalla	R	33 03 S. 137 34 E.	30	1½ mi. W. of Whyalla.	Runway 2,100' x 50', with taxiway.	Runway tar-sealed, remainder soft gravelly soil.	Hangars, markings, wind indicator. Minor repairs, telegraph and telephone, hotel, R. R. in town.
Wilkins Creek	R	32 05 S. 135 31 E.	250	Just NW. of Wilkins Creek R. R. station.	Irregular, 2,000' E./W. x 1,000 N./S.		Markings, wind indicator, hotel, R. R.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

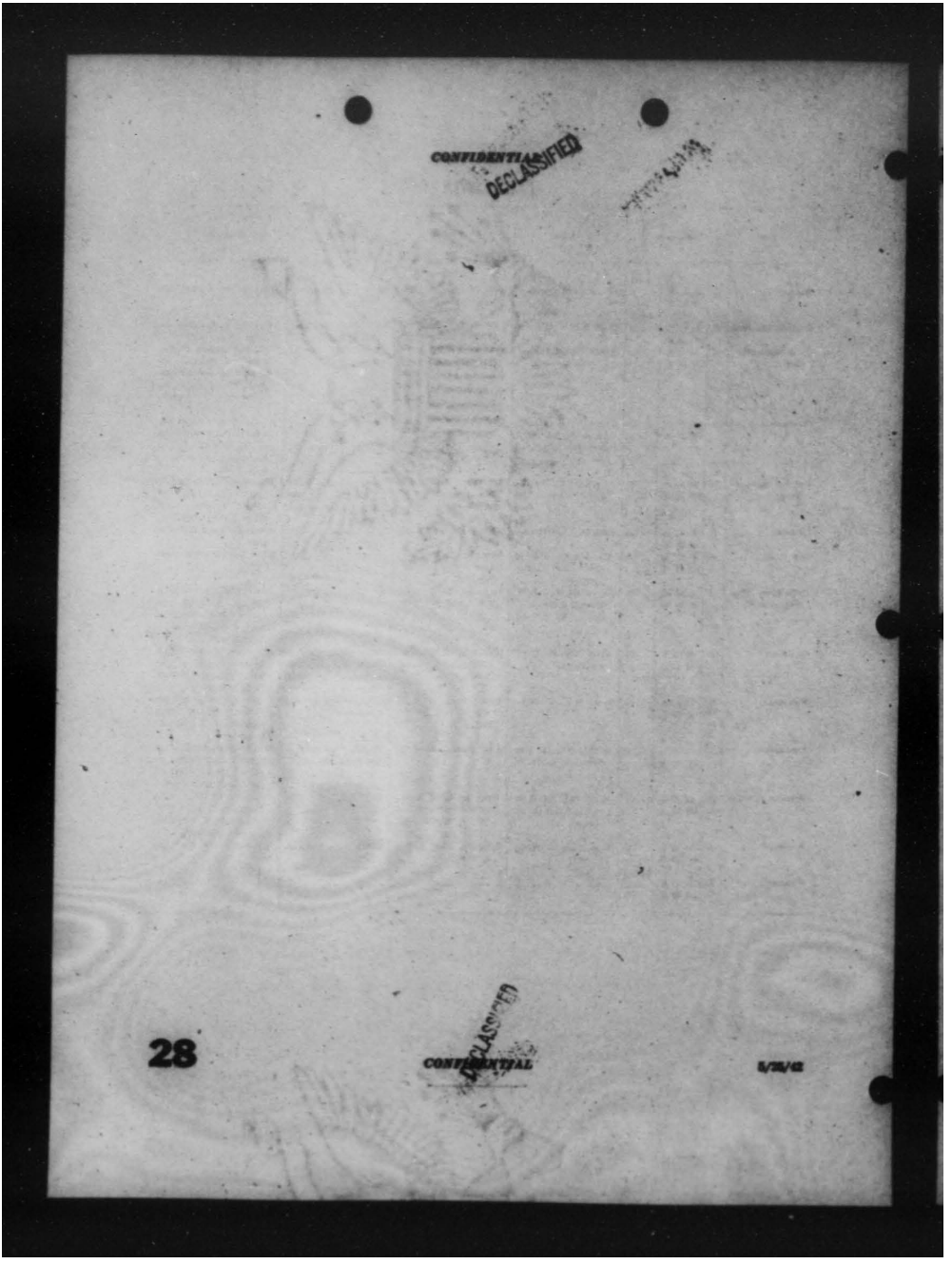
TASMANIA

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Bridport	R	41 01 S. 147 20 E.	10 (approx.)	1 mi. E. of Bridport	1,320′ E./W. x 1,320′ N./S.	Good; may graze on field.	Wind indicator, markings.
Brighton Junction	R	42 41 S. 147 16 E.	100	15 mi. NNW. of town.	1,320′ N./S. x 1,320′ E./W.	Fair; sandy surface; sticky after rain.	Markings, fuel, telephone. Hotel.
Cambridge (Hobart)	M	42 29 S. 147 30 E.	20	About 1½ mi. NE. of Cambridge.	2 runways: 2,320′ x 320′ NW./SE.; 1,320′ x 320′ E./W.; 1,320′ x 320′ NE./SW. All runways to be extended to 2,320′.	Runways clay loam, slight fall to N.	Complete lighting, beacon, markings, hangar, repairs, fuel, accommodations.
Campania	R	42 39 S. 147 33 E.	800	1½ mi. NNE. of Campania, ½ mi. E. of Lowdina homestead.	1,320′ N./S., 1,320′ E./W., 2,320′ NW./SE.	Good	Wind indicator, markings, minor repairs, telephone. R. R., limited fuel at homestead; telegraph, hotel in town.
Currie (King Island)	M	39 55 S. 143 52 E.	200	About 4½ mi. NNE. Currie Lighthouse.	2 runways: 2,320′ x 320′ N./S.; 1,320′ x 320′ WNW./ESE.	Runways solid stone and composite, remainder soft in wet weather.	Markings, fuel, R. A. A. F. hut, radio, telephone. Minor repairs, hotel, telegraph at Currie.
Latrobe	R	41 13 S. 146 29 E.	20	2 mi. E. of Latrobe	2,320′ E./W. x 1,320′ N./S.		Markings, wind indicator, fuel. q
Low Head	R	41 03 S. 146 49 E.	60	About 4 mi. NE. of Low Head Lighthouse.	Irregular: 2,320′ E./W., 1,320′ N./S., 2,320′ NW./SE.		Wind indicator, markings.
Pat's River (Flinders Island)	M	40 05 S. 148 01 E.	20	About 2½ mi. NNW. of white mark on W. shore of Pat's River.	Irregular: 2,320′ NW./SE., 4,320′ NE./SW., 1,320′ N./S., 2,320′ E./W.	Grass, all weather	Wind indicator, markings, fuel, R. A. A. F. hut, radio, telephone. Repairs, hotel, telegraph at Whitemark.
Smithton	R	40 52 S. 145 05 E.	15 (approx.)	About 1½ mi. W. of Smithton.	3 strips: 2,320′ NE./SW., 1,320′ N./S., 1,320′ NW./SE.	Sandy soil, may be soft for heavy machines after rainy weather.	Markings, wind indicator, hangar. Repairs, fuel, telegraph and telephone. R. R. in Smithton.
Swansea	R	42 08 S. 148 03 E.	20	½ mi. NW. of town	2,320′ N./S. x 2,320′ WNW./ESE. x 1,320′ NE./SW.	Good except in wet weather.	Wind indicator, markings. Minor repairs, hotel, telegraph and telephone in town.
Tunbridge	R	42 09 S. 147 46 E.	700	¼ mi. SE. of Tunbridge R. R. station.	1,320′ N./S. x 1,320′ E./W.	Porous trachyte gravel; slight fall to SE.; good all seasons.	Wind indicator, markings, limited fuel. Minor repairs, hotel, telegraph and telephone in town.
Western Junction	M	41 29 S. 147 13 E.	800	½ mi. NW. of Western Junction R. R. station.	Irregular: 2,320′ E./W., 2,320′ N./S., 2,320′ NE./SW., 2,320′ NW./SE.	Black soil, well grassed	Complete lighting, radio, markings, hangars, fuel, minor repairs, accommodations, telephone.
Woodbury	R	42 11 S. 147 27 E.	650 (approx.)	2 mi. NE. of Woodbury.	Irregular; 2,320′ E./W. x 2,320 N./S.	Sheep may graze on field.	Wind indicator, markings.
Wynyard	R	41 01 S. 145 39 E.					

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

VICTORIA

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
Apollo Bay	M	38 47 S. 143 40 E.	Feet 10 (approx.)	1½ mi. S. of town	1,320' E./W. x 1,320' N./S.	Sandy loam with soft patches after rain.	Markings, wind indicator, telephone. Minor repairs, hotel, telegraph in town.
Avenel	M	37 13 S. 145 08 E.	1,020 (approx.)	2 mi. SE. of city	2,320' E./W. x 1,320' N./S.	Smooth and level	Wind indicator, markings, hangar. Fuel, hotel, minor repairs, telegraph and telephone in town.
Balmoral	M	37 14 S. 147 36 E.	120	About 3 mi. S. of Balmoral.	2 runways, each 2,000' x 120', E./W. and NW./SE.	Runways good, remainder reservation in wet weather.	Markings, wind indicator, fuel, radio, telephone. Minor repairs, hotels, R. R. in town.
Ballarat	M	37 32 S. 143 45 E.	1,420	3 mi. WNW. of town	1,710' N./S. x 1,320' E./W.	Rather rough, all weather.	Markings, wind indicator, hangar, fuel. Hotel, telegraph in town.
Bayston	M	37 58 S. 144 27 E.	1,020	1½ mi. SE. of Bayston.	1,320' N./S. x 1,320' E./W.	Fair surface, all weather.	Markings, wind indicator. Minor repairs, telegraph and telephone in Bayston. Fuel, hotel, R. R. in Kyneton, 11 miles SW.
Benalla	M	36 45 S. 145 59 E.	480 (approx.)	1 mi. W. of Benalla	1,710' N./S. x 2,310' E./W.	Good	Markings, wind indicator, telephone. Limited fuel, repairs, R. R., hotels in town.
Bonnie No. 1	M	36 13 S. 145 45 E.	420 (approx.)	4 mi. E. of Bonnie railway station.	1,320' E./W. x 1,170' N./S.	Level, well grassed, all weather surface.	Markings, wind indicator, telephone. Hotel, minor repairs, telegraph in town.
Bonnie No. 2	M	36 12 S. 145 44 E.	420	4 mi. E. of Bonnie, 1 mi. NE. of Mingwells homestead.	1,650' N./S. x 2,640' E./W.	SE. portion rough, liable to be soft after rain.	Markings, wind indicator. Minor repairs, hotel, telegraph in town. Fuel, telephone at homestead.
Bonnie	M	36 39 S. 146 01 E.	800 (approx.)	1½ mi. E. of Bonnie	2,000 NE./SW. x 1,320' NW./SE.	Good, except small marked off areas in NE. and E.	Markings, lighting, telephone. Repairs, fuel, telegraph, R. R., hotel in town
Bonnie	M	36 38 S. 147 48 E.	2,120 (approx.)	½ mi. SW. of Bonnie P. O. on NE. end of Lake Omeo.	2,640' NW./SE. x 2,640' NE./SW.	Level, grassed sandy loam. Probably boggy during wet weather.	Markings, wind indicator. Repairs, fuel, telephone in town.
Bendigo (Myers Flat)	M	36 41 S. 144 13 E.	600	8 mi. NW. of Bendigo	2,460' NW./SE., 1,020' NE./SW.	Good, well grassed. All weather.	Wind indicator, hangar. Repairs, telegraph, telephone, hotels in Bendigo.
Berwick	M	38 03 S. 145 21 E.	120 (approx.)	1 mi. SW. of Berwick	Irregular, 2,640' E./W. x 2,200' N./S.	May be soft after rain.	Wind indicator, markings. R. R.
Birchip	M	36 00 S. 142 57 E.	360	1½ mi. NE. of town	2,310' N./S., 1,320' E./W.	All season, level, and mostly smooth except in N. portion.	Markings, wind indicator. Repairs, hotel, fuel, telegraph and telephone in town.
Boort	M	36 07 S. 143 46 E.	360	1 mi. E. of Lake Boort.	2,310' E./W. x 2,310' N./S.	May become sticky after rain.	Hangar, wind indicator, markings.
Bower	M	36 35 S. 146 28 E.	800	¼ mi. E. of R. R. station, 4 mi. NE. of Wangaratta.	2,310' NW./SE., 1,320' NE./SW.	Grassy smooth surface. Soft after heavy rain. Slight dip at center.	Markings, hangar, fuel. Telegraph and telephone at Bower. Repairs, hotel, R. R. in Wangaratta.
Brett's Mountain	M	37 30 S. 144 41 E.	1,320	2½ mi. WNW. of Romsey.	1,650' E./W. x 1,470' N./S.	Level, lightly grassed; wet but not boggy in winter. Best in E./W. direction.	Markings, wind indicator. Minor repairs, telegraph and telephone in Romsey.
Camperdown	M	38 14 S. 143 13 E.	880	2½ mi. E. of town	1,320' N./S. x 1,770' E./W.	Level, tussocky, all seasons.	Hangars. Fuel, minor repairs, telegraph and telephone, hotel in town.

DECLASSIFIED

CONFIDENTIAL

5/22/42

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

VICTORIA—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Charlton	R	36 16 S. 143 39 E.	480	14 mi. S. of Charlton	Irregular, 1,800' E./W. x 1,440' N./S.		Markings, wind indicator.
Coode Island	R	37 49 S. 144 56 E.	10	Between Footscray and Melbourne on right bank of Yarra River.	2,100' NW./SE. x 1,500' NE./SW.	Some rough patches in S. half of ground are flagged off.	Hangar, markings, wind indicator.
Casey	R	38 06 S. 145 49 E.					
Donald	R	36 23 S. 143 00 E.	370 (approx.)	½ mi. NW. of town	2,600' N./S. x 2,300' E./W.	Level, soft patches after rain.	Markings, wind indicator. Fuel, repairs, hotel, telegraph and telephone in town.
Dunolly	R	36 52 S. 143 43 E.	600	1 mi. SW. of town	1,750' N./S. x 1,320' E./W.	Grassed, sloping slightly to N. and E; N. portion liable to be soft after rain.	Markings, wind indicator, telephone ½ mi. E. Hotel, minor repairs, telegraph in town.
Echuca	R	36 09 S. 144 46 E.	220	1¼ mi. S. of town	2,400' E./W. x 2,100' N./S.	Flat, soft after rain	Markings, wind indicator. Fuel, repairs, hotel, telegraph and telephone in town.
Garth	R	37 15 S. 144 22 E.	1,020	2½ mi. E. of Carbrake.	1,800' N./S. x 1,710' E./W.	Fair, covered with heavy grass. In wet weather, last S. portion.	Markings, wind indicator. Minor repairs, hotel, R. R., telegraph and telephone in town.
Geelong (Belmont Common).	R	38 11 S. 144 22 E.	10	Immediately S. of Geelong, on right bank of Barwon River.	2,640' N./S., 1,650' E./W.	Good level surface	Hangar, markings, repairs, telegraph, telephone. Hotel, R. R. in town.
Hamilton	R	37 44 S. 142 01 E.	710	About 1½ mi. N. of Hamilton.	2,160' E./W. x 2,000' N./S.	Fair	Wind indicator, markings, hangar, telephone, repairs, fuel.
Kaniva	R	36 21 S. 141 15 E.	470 (approx.)	¾ mi. N. of Kaniva R. R. station.	1,800' N./S. x 1,800' E./W.	Undulating falling from S. to N. Boggy in places after very heavy rain.	Markings, wind indicator, repairs, fuel, telegraph and telephone. R. R., hotel in town.
Kerang	R	35 43 S. 143 59 E.	220	About 1 mi. S. of Kerang	3 runways, each 1,000' NE./SW., NW./SE.	Runways hard, remainder boggy after rain.	Hangar, markings, wind indicators, R. R.
Laverton	M	37 51 S. 144 45 E.	30	16 mi. SE. of Melbourne.	4,200' N./S., 4,400' NW./SE., 4,200' E./W., 4,800' NE./SW.	Grassed	Wind indicators, lighting, major repairs, hangars, R. A. A. F., hut, W./T., D./F., telephone, accommodation.
Melbourne	M	37 39 S. 145 04 E.	30	6¼ mi. SW. of Melbourne. South Pacific Ocean on S. and SE.	Irregular with 3 runways: 2,600' x 150' N./S., 2,600' x 150' NE./SW.	Good, may become boggy off runways in winter or wet weather.	Markings, wind socks, fuel, W./T., telephone, R. A. A. F. hut. Hotel in town.
Melbourne (Essendon).	M	37 44 S. 144 54 E.	320	3 mi. NW. of Melbourne.	Irregular, 3,450' N./S., 4,600' E./W., 3,600' NE./SW., 4,140' NW./SE.	Grassed, good.	Complete lighting, radio range, D./F., hangars, fuel, markings, accommodation, telephone, major repairs.
Mildura No. 1	R	34 14 S. 142 05 E.	130	About 5 mi. SW. of Mildura.	4 strips: 3,120' N./S., 3,720' E./W., 3,600' NW./SE., 3,300' NE./SW.		Repairs, fuel, telegraph and and telephone, hotels in town.
Mildura No. 2	R	34 11 S. 142 11 E.	170	1¾ mi. WNW. of Mildura P. O.	3,510' NW./SE., 1,500' NE./SW.	Good, level grassed surface.	Markings, wind indicator. Repairs, fuel, telegraph and telephone, hotels in town.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

VICTORIA—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Mungeegie	H	36 24 S. 145 21 E.	393	About 2 mi. SW. of Shepparton.	L-shaped. 2,000′ E./W., 1,000′ N./S.	Swamp patches in NE portion are rough and after heavy rain are boggy.	Wind indicator.
Nhill	M	36 19 S. 141 39 E.	420 (approx.)	1¼ mi. N. of Nhill	4,000′ N./S., 2,000′ E./W., 1,600′ NW./SE. 4,000′ NE./SW.	Well grassed, undulating, few rough patches in NE. corner.	Hangars, lighting, markings, fuel, repairs, telephone, accommodations, aerodic and beam.
Point Cook	M	37 56 S. 144 45 E.	20	4 mi. SE. of Laverton, 20 mi. SW. of Melbourne.	4,000′ in all directions	Grassed	Wind indicators, markings, minor repairs, lighting, hangars, fuel, accommodations, W./T., telephone.
Pyramid Hill	H	36 03 S. 144 08 E.	380	2 mi. NW. of town	2,400′ N./S. x 1,000′ E./W.	Good level surface, usable all seasons.	Markings. Fuel, minor repairs, hotel, telegraph and telephone, R. R. in town.
Sale	H	38 07 S. 147 04 E.	25	About ¾ mi. S. of Sale.	1,600′ N./S., 1,000′ E./W.	Level. S. portion subject to flooding.	Markings, wind indicator. Minor repairs, telegraph and telephone, R. R., hotels in town.
Seymour	H	37 01 S. 145 10 E.	320	2 mi. E. of Seymour	2,000′ N./S. x 2,000′ E./W.	Good, smooth	Markings, wind indicator, telephone. Limited repairs, fuel, R. R., hotels in town.
Shipton (Benalla).	H	37 41 S. 145 51 E.	900	6 mi. SW. of Shipton, adjacent to Benalla Homestead.	1,200′ NW./SE. x 1,200′ NE./SW.	Fair	Hangar, markings, wind indicator. Repairs, hotel, telegraph, R. R. in Shipton.
Sunset	M	36 00 S. 147 00 E. (approx.)					
Spring Plains	H	37 02 S. 144 28 E.	1,150 (approx.)	2 mi. SE. of Mia Mia, 4 mi. ESE. of Redesdale.	Irregular, 2,100′ N./S. x 1,320 E./W.	Good quartz gravel, well grassed, all weather.	Wind indicator, markings. Fuel, hotel at Redesdale. Telegraph at Mia Mia.
Stawell	H	37 03 S. 142 47 E.	700	3½ mi. NNE. of Stawell.	2,400′ NNE./SSW., 1,320′ NNW./SSE.	Slightly uneven, falls from center to E. and W.	Wind indicator, markings, minor repairs, telegraph and telephone. R. R., hotel in Stawell.
Swan Hill	H	35 32 S. 143 39 E.	230	1½ mi. E. of Swan Hill.	2,000′ NW./SE. x 4,000′ NE./SW.	Good surface, very sticky after heavy rain.	Markings, wind indicator, hangar, fuel. Repairs, R. R., hotels at Swan Hill.
Warrnambool	M	38 18 S. 142 26 E.	200	7 mi. from Warrnambool.	Irregular, 4 strips: 4,500′ NE./SW., 4,410′ E./W., 3,150′ N./S., 3,100′ NW./SE.	Good and solid, N. end of N./S. strip might be boggy in wet weather.	Wind indicator, markings, fuel, limited accommodations, W./T., telephone. Repairs, hotels, R. R. at Warrnambool.
Wilson's Promontory (Tidalkie).	M	39 07 S. 146 17 E.	50	2½ mi. N. of Darby Chalet, on W. side of Promontory	4,500′ N./S. x 2,400′ to 3,300′ E./W. Being extended.	Fair to rough, long grass. Boggy in wet weather.	Wind indicator, fuel, limited accommodations, W./T., telephone.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

DECLASSIFIED
CONFIDENTIAL

WESTERN AUSTRALIA

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
Agnew	R	° ′ 27 59 S. 120 00 E.	Feet 1,400	About 2 mi. NW. of Agnew.	Irregular, 3,000' N./S., 3,000' E./W., 3,450' NW./SE., 3,450' NE./SW.		Wind indicator.
Albany	M	34 59 S. 117 51 E.	320	6 mi. NW. of Albany.	4 runways all 3,000' x 150', N./S., E./W., NE./SW., NW./SE.	Runways gravel, re-mainder clay, boggy in wet weather.	Markings, wind indicator, fuel, limited accommodations, taxiwalks, telephone. Minor repairs, hotels in town.
Anna Plains	R	19 17 S. 121 39 E.	30	1½ mi. SSW. of homestead.	1,320' NNW./SSE. x 1,320' ENE./WSW.	Good. Gentle fall to E.	Wind indicator, markings, Limited fuel, minor repairs, telegraph and telephone at homestead.
Argyle Downs	R	16 13 S. 128 49 E.	500	About 1½ mi. SE. of homestead.	Irregular, 1,000' NW./SE. x 2,100' N./S. x 700' E./W. x 1,200' NW./SE.	NW. portion is rough, remainder good except after heavy rain.	Wind indicator, markings. Windsock, fuel, minor repairs at homestead.
Arthur	R	20 26 S. 115 56 E.	600	5 mi. NE. of town.	3,300' N./S. x 4,770' E./W.	Good, level. SE. section may be bad in wet weather.	Wind indicator, markings. Garage, R. R. in Arthur.
Battle	R	27 33 S. 114 10 E.	150	4 mi. N. of Battle which is on Murchison River.	3,300'NW./SE. x 1,650' NE./SW.	Generally good, but crab-holey at N. end.	Markings, wind indicator.
Beverley	R	33 07 S. 116 55 E.	650	Immediately S. of Beverley.	3,300'NW./SE. x 2,625' NE./SW.	Undulating sandy loam, best portion on E.	Wind indicator, markings. Fuel, minor repairs, hotel, telegraph, and telephone in town.
Big Bell	R	27 20 S. 117 40 E.	1,000	About ½ mi. N. of Big Bell.	1,320' square.		Markings, wind indicator. R. R. at Big Bell.
Buckgoora	R	26 26 S. 114 42 E.	300	4 mi. S. of Buckgoora homestead.	T-shaped, 2,625' E./W., 2,640' N./S.	Good, level surface, soft after heavy rain.	Markings, wind indicator. Telephone, limited fuel at homestead. Facilities at Carnarvon, 35 miles SW.
Bunnibiddy	R	31 12 S. 120 21 E.	1,000	2 mi. E. of Bunnibiddy R. R. station.	T-shaped, 2,100' N./S. x 2,100' E./W.	Hard, sandy formation, all weather.	Markings, wind indicator.
Bunnu	M	27 37 S. 120 13 E.	30	½ mi. N. of Bunnu Township.	T-shaped, 2 runways, each 2,500' x 100' N./S. and E./W.	Good sandy loam suitable for dry weather. Caution needed during wet season, Jan.-March.	Markings, fuse, acetylene, D/F, telephone, hangars, fuel, limited accommodations. Repairs, hotels, R. R. in town.
Busselton	M	33 40 S. 115 20 E.	12	1¼ mi. SW. of township of Busselton.	2 strips, each 1,320' x 600', E./W., N./S., NE./SW.; 1 strip NW./SE. 1,320'x600'.	Sandy soil, all weather	Markings, fuel, R. A. A. F. hut, W/T, telephone. Minor repairs, hotels, R. R. in Busselton.
Cape Gourdon	R	15 25 S. 123 09 E.	125	4 mi. Inland from Gourdon Cape.	1,320' N./S. x 1,770' E./W.	Rough but usable.	White cross, wind indicator.
Carlton Station	R	15 32 S. 126 30 E.	150	About 2½ mi. S. of homestead, 1 mi. N. of Ord River.	2,310' ENE./WSW., 1,320' WNW./ESE., 2,310' NE./SW.	Use caution after rains.	Markings.
Carnarvon	M	24 52 S. 113 40 E.	20	½ mi. ENE. of town.	Irregular, 1,700'-2,700' E./W., 3,150' N./S., 1,320' NW./SE. under construction.	Clay soil, firm underneath, will not bog.	Markings, fuel, hangar, telephone, beacon, R. A. A. F. hut. Minor repairs, hotels in town.
[illegible] Downs	R	21 27 S. 119 49 E.	800	About 4 mi. NW. of Carnoon Downs station.	2 intersecting strips, 1,320' E./W., 1,320' N./S.	Strips graded.	Wind indicator, markings.
Cue	R	27 27 S. 117 55 E.	1,400	2 mi. SE. of Cue.	1,320' N./S. x 1,760' E./W.	Red loamy gravel.	Markings, wind indicator. Fuel, minor repairs, hotel, telegraph and telephone. R. R. in town.

CONFIDENTIAL
5/22/42

5/22/42
CONFIDENTIAL
DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

WESTERN AUSTRALIA—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Cunderdin	E	31 39 S. 117 35 E.					
Dudal	E	27 46 S. 121 17 E.	1,200	About 1 mi. W. of Dudal village.	Irregular, 2,250′ N.S. x 1,740′ E./W.	To be used only in favorable winds.	Wind indicator.
De Grey	E	20 11 S. 119 10 E.	25	1½ mi. SW. of De Grey homestead.	2,400′ NE.SW., 1,650′ NW.SE.	Clayey, loose and deeply of bongs. Trash eaten field.	Markings, wind indicator. Telephone, limited fuel at homestead. Facilities at Port Hedland.
Derby	M	17 22 S. 123 40 E.	4	About 5 mi. SSE. of Derby.	2 runways each, 2,650′ x 300′ NE./SW., NW./SE. 1 runway 2,650′ x 150′ E./W.	Good all weather, iron stone gravel.	Markings, wind indicator, fuel, R. A. A. F. hut, W/T, telephone. Minor repairs, hotels, telegraph, and telephone in Derby.
Drysdale River Mission	M	14 19 S. 125 39 E.	12	½ mi. NW. of Drysdale River station.	2 runways 2,250′ x 150′ NW./SE., 4,250′ x 150′ NE./SW.; 4,250′ x 250′ E./W. (under construction).	Sandy surface, fairly good.	Markings, wind indicator, W/T, telegraph, limited accommodations.
Edjudina	E	29 47 S. 122 15 E.	1,020	About 1 mi. E. of Edjudina Mine, and 5 mi. E. of Yarri Township.	1,500′ N.S., 1,200′ E./W., 1,650′ NE./SW.		Wind indicator, markings, moorings.
Esperance	M	33 41 S. 121 49 E.	450	14 mi. N. of Esperance Bay.	2,200′ N.S. x 1,750′ E./W. x 4,250′ NE./SW. x 2,750′ NW./SE.	Sandy	Markings, wind indicators fuel, R. A. A. F. hut, W/T. R. R., hotels in town.
Fitzroy Crossing	E	18 10 S. 125 33 E.	420	¼ mi. SSW. of Fitzroy Crossing P. O.	Lethogrid, 2,250′ E./W. x 2,250′ N.S.	Red loam, ironstone gravel. Western log unsuitable after rain (black soil).	Markings, wind indicator. Hotel, minor repairs, telegraph, and telephone in town.
Fitzroy Valley Station	E	18 19 S. 125 00 E.	1,000	1 mi. NE. of homestead.	1,770′ N.S. x 1,800′ E./W.	Good hard gravel	Markings, wind indicator. Minor repairs at homestead. Facilities at Hall's Creek, 30 mi. W.
Forrest	C	30 50 S. 128 06 E.	820	1,500′ NE. of railway siding.	2,250′ N.S. x 2,250′ E./W.	Good red loamy soil	Revolving beacon, lighting, markings, fuel, radio, D/F, hangar, railway, telegraph, and telephone.
Forrest River Mission	E	15 10 S. 127 50 E.	100	½ mi. N. of Mission station.	2,250′ N.S. x 1,650′ E./W.		Wind indicator, markings.
Fraser Downs	E	18 09 S. 125 47 E.	400	½ mi. SE. of homestead, on right bank of Margaret River.	2,250′ NW./SE., 1,650′ NE./SW.		Markings, wind indicator.
Geraldton	M	28 48 S. 114 42 E.	100 (approx.)	6 mi. E. of Geraldton, S. of Chapman River.	Irregular, 2,250′ N./S., 4,250′ NE./S W., 4,650′ NW./SE.	Very good, level, smooth sandy loam.	Markings, flares, fuel, hangars, corradio, W/T, telephone, accommodations.
Gibb River Station	E	16 27 S. 126 19 E.	1,000	Immediately N. of homestead.	2,400′ x 300′ NE./SW.	May be heavy after heavy rain.	Wind indicator, markings.
Gin Gin	E	31 21 S. 115 54 E.	200	1½ mi. SW. of town of Gin Gin.	Irregular, 1,250′ N./S., 1,250 E./W.	Sandy soil, firm	Markings, wind indicator. Telegraph and telephone, hotel, R. R. in town.
Gordon Downs	E	18 45 S. 128 35 E.	900 (approx.)	About 2 mi. WSW. of Gordon Downs Homestead, 75 mi. SE. of Hall's Creek Township.	2,250′ NE./SW., x 2,750′ NW./SE.	Smooth red soil	Wind indicator, markings. Limited fuel and repairs, wireless telephone at homestead.
Hall's Creek	C	18 13 S. 127 38 E.	1,400	8 mi. W. of Hall's Creek.	2,250′ N.S. x 2,750′ E./W.	All weather, level surface. SE. corner soft after rain.	Markings, wind indicator, radio, weather reports, fuel. Hotel, telegraph and telephone in town.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

WESTERN AUSTRALIA—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Hamelin Pool	H	26 26 S. 114 11 E.	20	1 mi. E. of homestead, about 1¼ mi. E. of Hamelin Pool.	Square, 2,100′ N./S. x 2,100′ E./W.		Wind indicator, telegraph.
Ibanbra	E	25 29 S. 120 41 E.	900	Immediately E. of homestead, about 1 mi. W. of Ord River.	3 intersecting strips, 2,850′ N./S., 960 E./W.	Strips are graded. Caution should be exercised after rain.	Wind indicator, markings.
Jonga	E	27 41 S. 114 19 E.			1,500′ N./S. x 2,100′ E./W.		Markings, wind indicator, sled.
Kalgoorlie	M	30 46 S. 121 28 E.	1,100	Between towns of Kalgoorlie and Boulder, 3¼ mi. W. of racecourse.	2,500′ N./S. x 2,500′ E./W. x 4,110′ NE./SW.	Good, slightly undulating.	Hangar, wind indicator, markings, fuel, lighting, empire, D/F, telephone, weather reports. Hotels, repairs in Kalgoorlie.
Karonga	E	26 17 S. 127 22 E.	1,450	1 mi. N. of homestead.	2,250′ x 600′ NW./SE.	When landing after rain, aircraft should keep to SW. boundary.	
Katanning	E	33 39 S. 117 33 E.	1,100	2 mi. N. of town.	Irregular, 2,100′ N./S., 2,100′ E./W.	Undulating, gravelly. All seasons.	Wind indicator, markings. Fuel, garage, hotel, telegraph and telephone, R. R. in town.
La Grange	E	18 41 S. 121 46 E.	25	Immediately SW. of La Grange telegraph station.	1,320′ in any direction.	Sandy, somewhat soft.	Wind indicator, markings. Nearest facilities at Broome, 91 mi. N.
Lambro	E	33 22 S. 127 19 E.	800	On N. bank of Mary River, immediately to E. of homestead.	1,650′ NE./SW., one-way field.	Sandy loam, fair except for washouts which may occur near boundaries.	Markings, wind indicator. Nearest facilities at Hall's Creek, 55 mi. E.
Laverton	E	28 38 S. 122 25 E.	1,400	About 1¼ mi. NE. of Laverton.	Irregular, 2,000′ N./S., 2,500′ NE./SW.		Wind indicator, markings.
Leonora	E	28 48 S. 121 19 E.	1,320	About 1¼ mi. NW. of Leonora.	Irregular, 2,250′ NW./SE., 2,475′ N./S.	Good, level surface of red sandy loam. May be soft after rain.	Markings, wind indicator. Fuel, telegraph and telephone, repairs, hotels, R. R. in town.
Limekiln Station	E	24 23 S. 120 49 E.	800	About 1 mi. E. of Limekiln, on left bank of Ord River.	Irregular, 1,500′ NE./SW., 1,400′ N./S., 1,750 E./W.		Wind indicator, markings.
Locine Downs	E	18 42 S. 126 42 E.	500	¾ mi. W. of homestead, about 2 mi. S. of Margaret River.	1,000 NE./SW., 1,320 N./S., 2,100 E./W.	Level, sandy loam, all weather.	Nearest facilities at Hall's Creek, 98 mi. E.
Lyndon	E	22 39 S. 115 13 E.	100	Across Lyndon River, about 1 mi. S. of homestead.	1,500′ x 600′ NE./SW., 1,500′ x 600′ NW./SE.		Wind indicator, markings.
Marble Bar	E	21 10 S. 119 46 E.	850 (approx.)	On racecourse, 2 mi. E. of Marble Bar R. R. station.	1,320′ N./S., 1,500′ WNW./ESE.	Good, gravel and red sandy loam.	Markings, wind indicator. Fuel, repairs, telegraph and telephone, R. R. at Marble Bar.
Mardie Station	E	21 07 S. 116 02 E.	30	7 mi. NE. of homestead.	Irregular; 1,650′ N./S., 1,650′ E./W.	Red soil with ironstone gravel, soft after heavy rain.	Limited fuel, telegraph, and telephone at homestead.
Margaret River	E	18 38 S. 125 39 E.	600	1¼ mi. NE. of Margaret River homestead, about 1 mi. S. of Margaret River.	3,700′ NE./SW., 1,320′ E./W.	Level ironstone gravel, all weather.	Markings, wind indicator. Nearest facilities at Hall's Creek, 95 mi. E.
Meekatharra	E	26 36 S. 118 34 E.	1,250 (approx.)	About 2 mi. E. of Meekatharra.	2,400′ E./W. 1,320′ N./S. on E. side, 2,640′ N./S. on W. side.	Good, level and smooth ironstone gravel.	Markings, wind indicator. Repairs, fuel, telegraph and telephone, hotel, R. R. in Meekatharra.
Mia Mia	E	26 36 S. 124 16 E.	800	11 mi. NW. of homestead; about 1¼ mi. N. of Lyndon River.	Irregular; 2,650′ NW./SE.; 1,600′ E./W., 2,250′ NE./SW.		Markings, wind indicator.

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

WESTERN AUSTRALIA—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
Mindarra	E	° ′ 31 39 S. 115 03 E.	Fnd 30 (approx.)	2 mi. N. of Mindarra Homestead on E. side of Ashburton River.	1,200′ NW./SE., 1,200′ N./S.	Fair, hard claypan surface.	Marking, wind indicator. Telephone, limited fuel at homestead. Facilities at Onslow, 30 mi. N.
Mindya	E	22 52 S. 113 58 E.	100	2 mi. S. of Mindya River, 1½ mi. SSE. of homestead.	2,100′ E./W. x 2,000′ N./S.	Smooth claypan, boggy after rain.	Marking, wind indicator. Limited fuel, telephone, minor repairs at homestead.
Mogumber	E	31 04 S. 116 03 E.	575	1¾ mi. N. of Mogumber, 1 mi. N. of Moore River.	1,500′ E./W. x 1,410′ N./S.	Sand plain, heavy in summer (Nov.-Apr.).	Marking, wind indicator. Minor repairs, fuel, hotel, telegraph and telephone, R. R. in town.
Monte Bello	E	20 11 S. 117 30 E.	1,400	About 1 mi. SW. of homestead.	1,500′ NE./SW. x 1,320′ NW./SE.	Good, level, limestone gravel.	Marking, wind indicator, fuel. Minor repairs in town.
Moore	E	29 36 S. 115 39 E.	600	About 1 mi. W. of Moore.	2,400′ N./S. x 2,000′ E./W.	W. half gravelly, E. half sandy and wind eroded.	Marking, wind indicator. Minor repairs, fuel, telegraph and telephone, hotel, R. R. in town.
Mount Andrews Station	E	18 39 S. 125 56 E.	200	1 mi. SE. of homestead, 65 mi. SW. of Derby.	L-shaped, 1,600′ N./S., 1,600′ E./W.	Level, sandy loam	Marking, wind indicator. Nearest facilities at Derby.
Mount Magnet	E	28 05 S. 117 51 E.	1,400	1 mi. NE. of Mt. Magnet township.	2,500′ NE./SW. x 2,700′ NW./SE.	All weather, level surface.	Fuel, markings. Repairs, telegraph and telephone, hotel in town. Compass is disturbed near Mt. Magnet.
Mt. Sir Samuel	E	27 27 S. 120 35 E.	1,500	3½ mi. ENE. of town.	2,700′ ENE./WSW. x 2,000′ NW./SE.	Level ironstone gravel and loam. May be soft after rain.	Wind indicator, markings. Telegraph and telephone, hotel at Mt. Sir Samuel.
Moulen	E	31 32 S. 115 59 E.	170	2 mi. N. of city	1,500′ N./S., 1,600′ E./W.	Generally fair, patches inclined to be boggy after rain.	Wind indicator, markings. Fuel, hotel, telegraph and telephone in town.
Mulyie	E	20 37 S. 119 39 E.	275 (approx.)	About 2 mi. NW. of Mulyie Homestead, ½ mi. S. of De Grey River.	1,200′ NW./SE. x 1,000′ NE./SW.	Good, but may be boggy in parts during wet season.	Wind indicator. Telephone, very limited fuel and repairs at homestead.
Mungle	E	16 29 S. 124 48 E.	10	On left bank of Walcott Inlet, ½ mi. N. of homestead.	1,000′ NE./SW. x 700′ NW./SE.		Marking, wind indicator.
Nalya	E	22 28 S. 117 13 E.	600 (approx.)	¼ mi. W. of Nalya siding, N. of R. R. line.	1,200′ E./W. x 1,440′ N./S.	Good, but liable to burrows on N. side.	Wind indicator, marking. Limited repairs, telephone, R. R. at Nalya siding. Fuel at Brockton, 12 miles W.
Nanutarra	E	22 31 S. 115 23 E.	1,500	2 mi. NE. of Nanutarra.	2,000′ E./W. x 2,310′ N./S.	Good, except for few ruts and trees in SE. corner.	Marking, wind indicator.
Narraloo	E	22 56 S. 117 11 E.	1,100	Adjacent to NE. of city.	2,100′ E./W. x 1,710′ N./S.	Liable to be soft after rain.	Marking, wind indicator. Minor repairs, fuel, telegraph and telephone, hotels in town.
New Norcia	E	30 56 S. 116 13 E.	900	2 mi. NE. of homestead.	2,100′ N./S. x 1,920′ E./W.		Marking, wind indicator.
Nicholson Station	E	18 40 S. 128 48 E.	2,000 (approx.)	½ mi. S.W. homestead, 125 mi. E. of Hill's Creek.	Irregular, 2,500′ E./W., 2,000′ NE./SW.	Spinifex, smooth when dragged.	Marking, wind indicator. Limited fuel and repairs, telephone at homestead.
Nill Rubben	E	17 39 S. 125 16 E.	75	¼ mi. S. of Nill Rubben well.	Lozenged, 1,200′ NW./SE., 1,200 NE./SW.	Firm. Dangerous soft-bills may develop quickly.	Marking, wind indicator. Nearest facilities at Broome.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

WESTERN AUSTRALIA—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
66 Mile	E	27 55 S. 114 16 E.	150	On Stock Route, 66 mi. N. of Mundiwa River.	T-shaped, 1,500' NW./SE., 1,000' NE./SW.	Sandy and loose	Wind indicator, markings.
Nanutarra	E	22 39 S. 114 46 E.	400	Immediately N. of Nanutarra station, N. of Fitzroy River.	2,700' N.S., 2,200' NE./SW.	Gravel and limestone, S. portion best after rain, when care must be exercised.	Limited fuel, repairs at homestead.
Nullagine	E	23 53 S. 120 45 E.	827	About 1 mi. E. of Nullagine.	2,500' NE./SW., with 2,500' E./W. at S. end.		Wind indicator, markings, hangar.
Northam	E	31 38 S. 116 40 E.	600	2 mi. NE. of Northam.	1,600' E./W. x 2,100' N./S.	Smooth, all weather	Markings, telephone. Fuel, minor repairs, telegraph, hotel in Northam.
Northampton	E	28 19 S. 114 35 E.	100	6 mi. NW. of Northampton.	2 landing areas on each side of road, 2,100' N./S. x 2,100' E./W. on N. side, 1,600' N./S. x 1,600' E./W. on S. side.	Fields are cropped alternately. Ground mark is placed on area to be used.	Wind indicator. Garage, fuel, hotel, telegraph, and telephone in town.
Nullagine	E	21 53 S. 120 07 E.	1,327	9¼ mi. S. of town	Irregular, 1,200' N./S., 2,200' NE./SW., 1,200' E./W., 1,600' NW./SE.	Stony gravel, falls slightly to W.	Markings, wind indicator. Telegraph and telephone, hotel in town.
111 Mile	E	26 49 S. 114 13 E.	150	On Stock Route, 69 mi. W. of Mundiwa River.	1,200' NE./SW., 1,200' NW./SE., 1,000' N./S.	Loam, sandy	Markings, wind indicator.
128 Mile	E	25 38 S. 114 09 E.	150	On Stock Route, 15 mi. S. of Hamelin Pool.	1,500' NE./SW., 1,200' NW./SE., 1,200' N./S.	N. portion boggy after rain.	Markings, wind indicator.
Onslow	O	21 38 S. 115 08 E.	3	2 mi. SE. of Onslow	Irregular, 2,200' NNE./SSW. x 1,920' WNW./ESE.	Coral	Markings, aerodio. Fuel, telegraph and telephone, repairs in Onslow.
Ord Homestead	E	17 28 S. 128 48 E.	700	¼ mi. NE. of Ord River station.	Irregular, 1,800' E./W., 1,200' N./S.	Slightly rough, few loose stones.	Markings, wind indicator, fuel, telephone.
Ord River Station	E	17 21 S. 128 54 E.	700	5 mi. NE. of Ord River station.	Square 1,200', diagonal 1,700' NE./SW.	During and after rain glide should use the area near ground mark.	Markings. Minor facilities at homestead.
Palgarup	E	34 11 S. 116 10 E.	600	Adjoining Palgarup Siding, 4 mi. N. of Manjimup.	1,750' N./S., 1,750' E., W.	Level, grass covered	Markings, wind indicator. Fuel, garage, hotel, telegraph and telephone, R. R. in Manjimup.
Pardoo Station	E	20 07 S. 119 36 E.	5	¼ mi. NW. of Pardoo homestead.	1,200' N./S. x 1,840' E./W.	Dry weather only	Markings, wind cone.
Pearce	M	31 40 S. 116 01 E.	200	10 mi. NNE. of Perth	4,000' N./S., 4,400' NW./SE., 3,400 E./W., 4,000' NE./SW.	Gravel and grass	Markings, lights, hangars, repairs, fuel, W/T, D/F, telephone. R. R. to Perth.
Perth (Maylands)	C	31 57 S. 115 56 E.	5	3½ mi. NE. of Perth	1,000' E./W., 2,000' NW./SE., 2,100' NE./SW.	Fair, boggy after rain	Markings, lighting, beacon, fuel, radio, D/F, hangars, repairs. Hotel, telegraph, and telephone in town.
Pinnacles	E	29 12 S. 120 36 E.	1,400	To W. of Pinnacles homestead, E. of Lawlers Creek.	Irregular, 2,500' E./W. x 2,100' N./S.	Level, grassed red sandy loam. Liable to be boggy after rain.	Markings, wind indicator. Limited fuel, garage, telephone at homestead. Telegraph, hotel at Lawlers, 9 mi. NE.
Peat's Springs Pinke	E	19 30 S. 126 35 E.	800	20 mi. NW. of Louis Downs station.	1,000' x 600' NE./SW.	Hard, good limestone gravel.	Markings, wind indicator. Nearest facilities at Louis Downs.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

WESTERN AUSTRALIA—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Port Hedland (3 Mile).	M	20 22 S. 118 37 E.	10	6 mi. SE. of Port Hedland.	2 runways, 3,600' x 100' each, N./S., E./W., NW./SE.	All weather, use runways only.	Markings, fuel, flares, R. A. A. F. hut, aerodb, D/F. Repairs, telephone, limited accommodation in Port Hedland.
Port Hedland (5 Mile).	C	20 69 S. 118 36 E.	10	1¼ mi. E. of Port Hedland.	Irregular, 3,150' N./S., 2,700' NE./SW., 1,350' NW./SE.	Good level claypan, gravelly. Swampy area marked off.	Markings, wind indicator, radio, D/F, lighting, hangar, telephone. Fuel, hydr. repairs, telegraph in town.
Ravensthorpe	E	33 35 S. 120 04 E.	900	2 mi. NE. of Ravensthorpe.	Irregular, 2,310' NW./SE., 2,178' N./S.		Markings, wind indicator, R. R.
Rawlinna	E	31 01 S. 125 19 E.	600	S. side of Trans-Australian R. R. line, 200' S. of R. R. station.	3,000' N./S. and E./W.	Fair, poor immediately after rain.	Markings, airway light, fuel, repairs, telegraph and telephone, R. R. at station.
Reedy	E	27 16 S. 119 16 E.	1,000 (approx.)	About 2½ mi. S. of Reedy.	2,100' NW./SE. x 2,700' NE./SW.	Good, level	Markings, wind indicator. Fuel, minor repairs, hotel in Reedy.
Roebourne	E	20 47 S. 117 08 E.	50	1 mi. SSE. of Roebourne.	2,100' N./S. x 2,000' E./W. with runway 1,200' E./W.	Level, smooth; after rain use runway.	Markings. Fuel, repairs, hotel, telegraph and telephone in town.
Rottnest Island	E	32 00 S. 115 32 E.	30	On Rottnest Island, 11 mi. W. of Fremantle.	1,600' N./S., 2,300' E./W.	E./W. strip graded.	Minor repairs, telephone, limited fuel at hotel, 1 mile W.
Roy Hill Station	E	22 41 S. 119 58 E.	1,400	4 mi. S. of Roy Hill homestead.	2,100' N./S. x 1,500' E./W.	Good, level red sandy gravel. May be soft after heavy rains.	Wind indicator. Limited fuel, minor repairs, telegraph and telephone at Roy Hill station.
Sandstone	E	27 59 S. 119 18 E.	1,700	About 1 mi. N. of Sandstone.	Irregular, 3,150' NW./SE., 2,400' N./S., 2,100' E./W.		Markings, wind indicator.
Southern Cross	E	31 13 S. 119 20 E.	1,100	1 mi. NE. of Southern Cross.	2,100' E./W. x 2,047' N./S.	Some trees on landing area.	Markings, wind indicator.
Sturt Creek	E	19 39 S. 128 30 E.	1,200	About 1 mi. SW. of homestead on W. bank of Sturt Creek.	2,400' NNE./SSW., 2,100' ENE./WSW.	Liable to be soft after rain.	Markings, wind indicator (will be removed if ground is made fit for use).
Tammin	E	31 39 S. 117 39 E.	800	1 mi. S. of Tammin.	2,100' NW./SE. x 2,100' NE./SW.	Sandy soil, usable in wet weather, but burrows appear quickly.	Markings, wind indicator. Fuel, repairs, hotel, telegraph and telephone. R. R. in town.
Turner River	E	17 46 S. 126 20 E.	800	3 mi. E. of homestead.	2,100' E./W. x 1,500' N./S.	Good, level, red and sandy loam.	Wind indicator, markings. Minor repairs, fuel, telephone at homestead.
Upper Liveringa	E	18 03 S. 124 11 E.	400	½ mi. S. of homestead, about 2½ mi. N. of Fitzroy River.	2,100' E./W. x 1,600' N./S.	Level and well grassed. Liable to be soft after rain.	Markings, wind indicator. Minor repairs, limited fuel at homestead.
Wagin	E	33 19 S. 117 21 E.	840	¼ mi. E. of Wagin, adjacent to R. R. line.	2,475' E./W. x 2,100' N./S.	Level, sandy loam, well grassed.	Wind indicator, markings. Fuel, hotel, garages, telegraph and telephone in town.
Wardarnarla	E	33 33 S. 118 34 E.	800	½ mi. NE. of town.	3 runs: 2,625' E./W. x 1,200' N./S.; 2,250' E./W. x 1,350' N./S.; 1,950' E./W. x 2,250' N./S.	Sandy loam, with some shallow claypans. Areas used in rotation, ground mark placed on area to be used.	Markings, wind indicator, limited fuel, minor repairs.
Warralong Station	E	20 49 S. 119 36 E.	100	1 mi. SW. of Warralong homestead, on Fitz Creek.	Irregular, 1,650' NW./SE., 1,350' NE./SW.		Wind indicator, markings.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

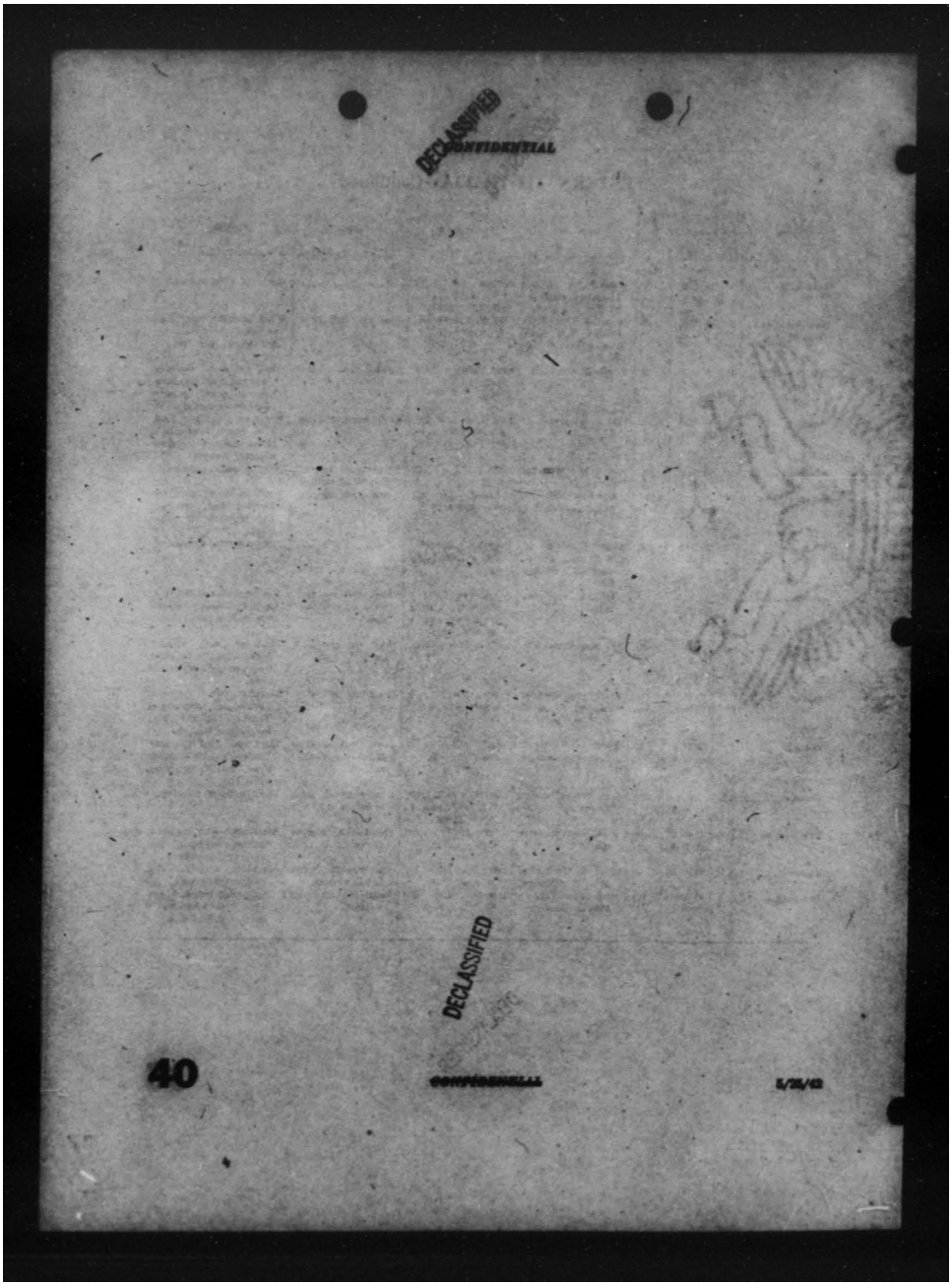
WESTERN AUSTRALIA—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Wubo	R	28 03 S. 121 05 E.	1,600	About 1 mi. N. of homestead, about 15 mi. SW. of Dorini.	Irregular, 2,000′ NE./SW., 2,000′ NW./SE., 1,710′ E./W.		Markings, wind indicator.
West Subiaco (Perth).	R	31 57 S. 115 47 E.	40	1½ mi. NW. of West Subiaco R. R. station, 4 mi. W. of Perth.	1,350′ N./S., 1,000′ E./W., 1,710′ NW./SE.	Sand soil, undulating.	Wind indicator, markings, repairs, hangars, fuel. Hotels in town and Perth.
White Creek	R	29 30 S. 117 49 E.	70	1½ mi. W. of town	1,000′ E./W. x 2,710′ N./S.	Graded, of heavy soil	Wind indicator, markings. Telegraph and telephone, hotel in town. Nearest field Beebourne, 46 mi. W.
Wilma	R	29 35 S. 120 13 E.	1,600	3 mi. S. of Wilma	2,100′-2,640′ NW./SE. x 1,320′-2,640′ NE./SW.	Level; heavy after rain.	Markings, airway light. Fuel, hotels, telegraph in town. Repairs, telephone adjacent to mine.
Wiluna Pool	R	26 39 S. 114 28 E.	100	¼ mi. NE. of Wiluna Pool station.	1,000′ E./W. x 1,000′ N./S.	Limestone gravel, smooth all weather.	Wind indicator, markings.
Wollal	R	19 47 S. 120 43 E.	20	About 1 mi. NNE. of Wollal homestead.	L-shaped, 1,000′ E./W., 1,000′ N./S.	Level sandy loam	Wind indicator, markings. Limited fuel, telegraph and telephone at homestead.
Woorumel	R	25 48 S. 124 18 E.	25	About 5 mi. S. of Woorumel homestead and Woorumel River.	Irregular, 1,000′ NE./SW. x 1,000′ NW./SE.		Markings, wind indicator.
Wyndham	M	15 30 S. 128 09 E.	15	6 mi. SE. of Wyndham.	3 runways, 2,000′ x 100′ N./S.; 2,150′ x 100′ E./W.; 2,600′ x 100′ NW./SE.	Good, but un runways only in wet weather.	Markings, hangar, fuel, R. A. A. F. hut, aerodic. Hotels, telephone, repairs in town.
Yalgoo	R	28 21 S. 116 40 E.	1,021 (approx.)	SE. and adjacent to Yalgoo.	1,000′ in all directions	Good red gravel or loam.	Markings, wind indicator. Repairs, fuel, R. R., hotel, telegraph and telephone in town.
Yanrey	R	22 30 S. 114 49 E.	25 (approx.)	About 2 mi. ENE. of Yanrey, about 65 mi. S. of Onslow.	1,000′ NE./SW. x 1,710′ NW./SE.	Good, but soft when wet.	Markings, wind indicator. Limited fuel, telephone at Yanrey. Repairs, fuel, telegraph at Onslow.
Yeeda	R	19 38 S. 120 36 E.	25	About 1 mi. SW. of Yeeda River station.	1,320′ NE./SW. x 1,000′ NW./SE.	Level, not suitable immediately after rain.	Markings, wind indicator. Limited repairs at homestead. Facilities at Derby, 25 mi. N.
Yeneenl	R	25 36 S. 118 30 E.	1,600	½ mi. NE. of Yeneenl Township.	1,000′ NW./SE., 1,000′ NE./SW., 2,070′ WNW./ESE.	Loamy gravel, liable to be soft at N. end of ground.	Wind indicator, markings.
Yuin Station	R	27 39 S. 116 03 E.	1,200 (approx.)	½ mi. S. of Yuin homestead.	1,000′ N./S., 1,000 E./W.	Sandy loam, rough in places.	Markings, wind indicator. Limited fuel, repairs, telephone at homestead.
Yulleroo	R	17 48 S. 122 36 E.	25	½ mi. W. of Yulleroo. 80 mi. E. of Broome.	L-shaped, 1,320′ E./W. 1,440′ N./S.	Rather rough. Boggy in wet weather.	Markings, wind indicator. Facilities at Broome.
Zanthus	R	31 09 S. 120 04 E.	900	Immediately S. of Zanthus station.	L-shaped, 2,100′ E./W., 2,100′ N./S.	Level red sand, all weather.	Circle, wind indicator, beacon. Fuel, telegraph, at Zanthus R. R. station.

DECLASSIFIED

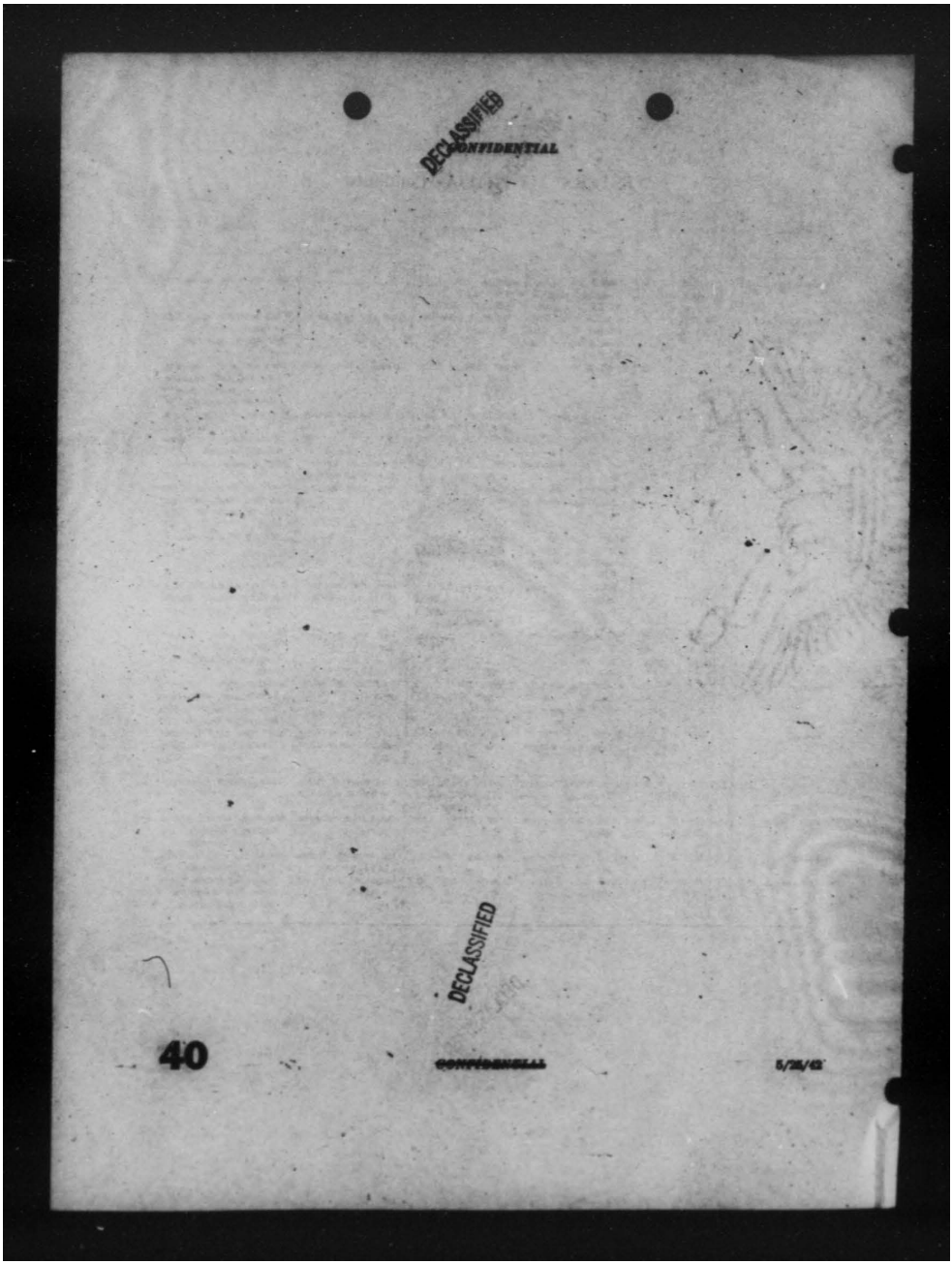
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

CORRECTION AND/OR ADDITION REPORT

AUSTRALIA

(Report all fields omitted from this directory including any under construction. Report also corrective information on fields included in this directory. Detach this sheet and mail to "Air Movements Unit, AFDIS, Headquarters Army Air Forces, War Department, Washington, D. C.")

TO: Air Movements Unit, AFDIS.

FROM:

The following corrections, additions and/or recommendations are suggested for this Airport Directory:

Name and Rank

Date and Place

(If more space required use reverse side)

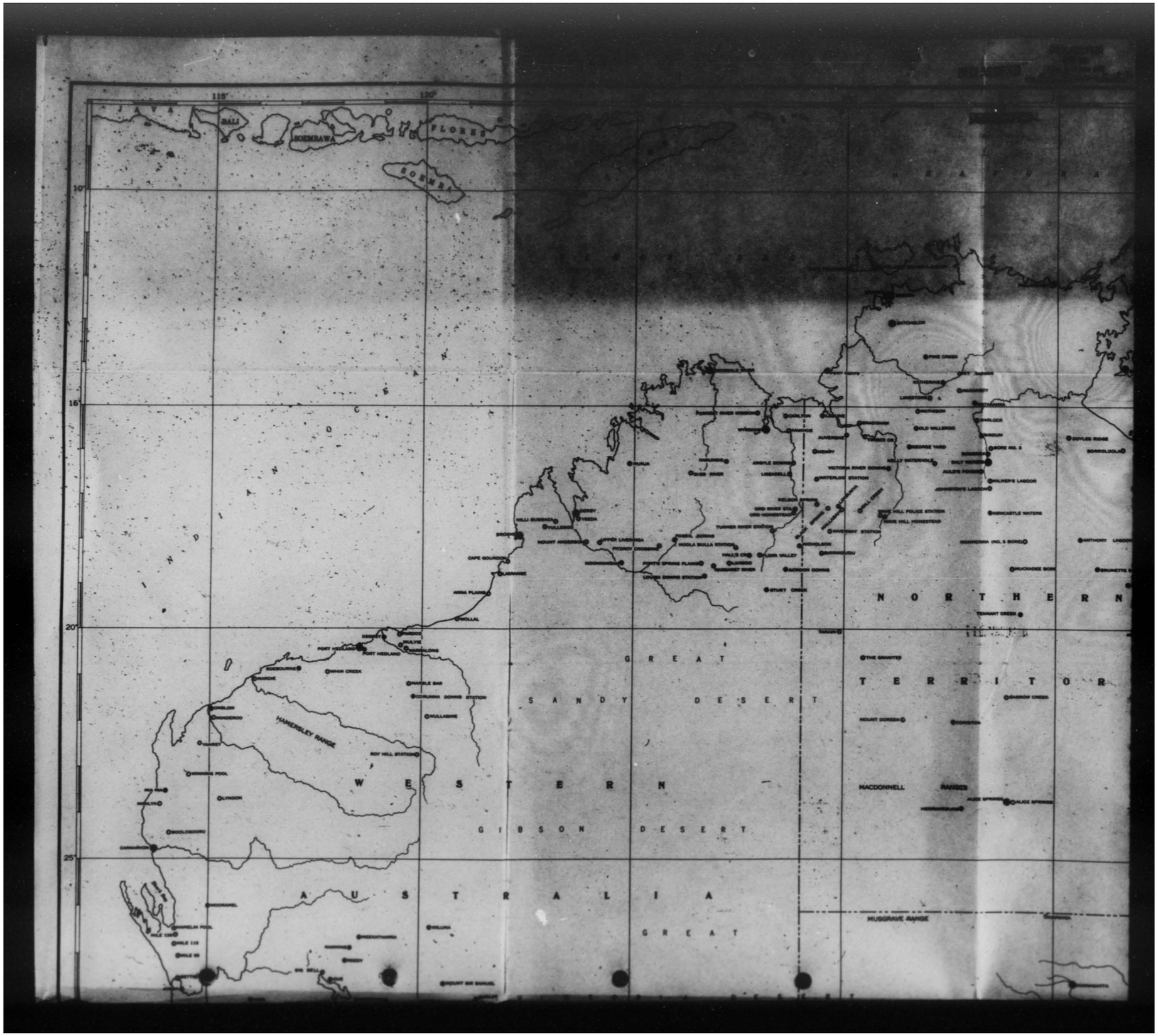
5/25/42

CONFIDENTIAL

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

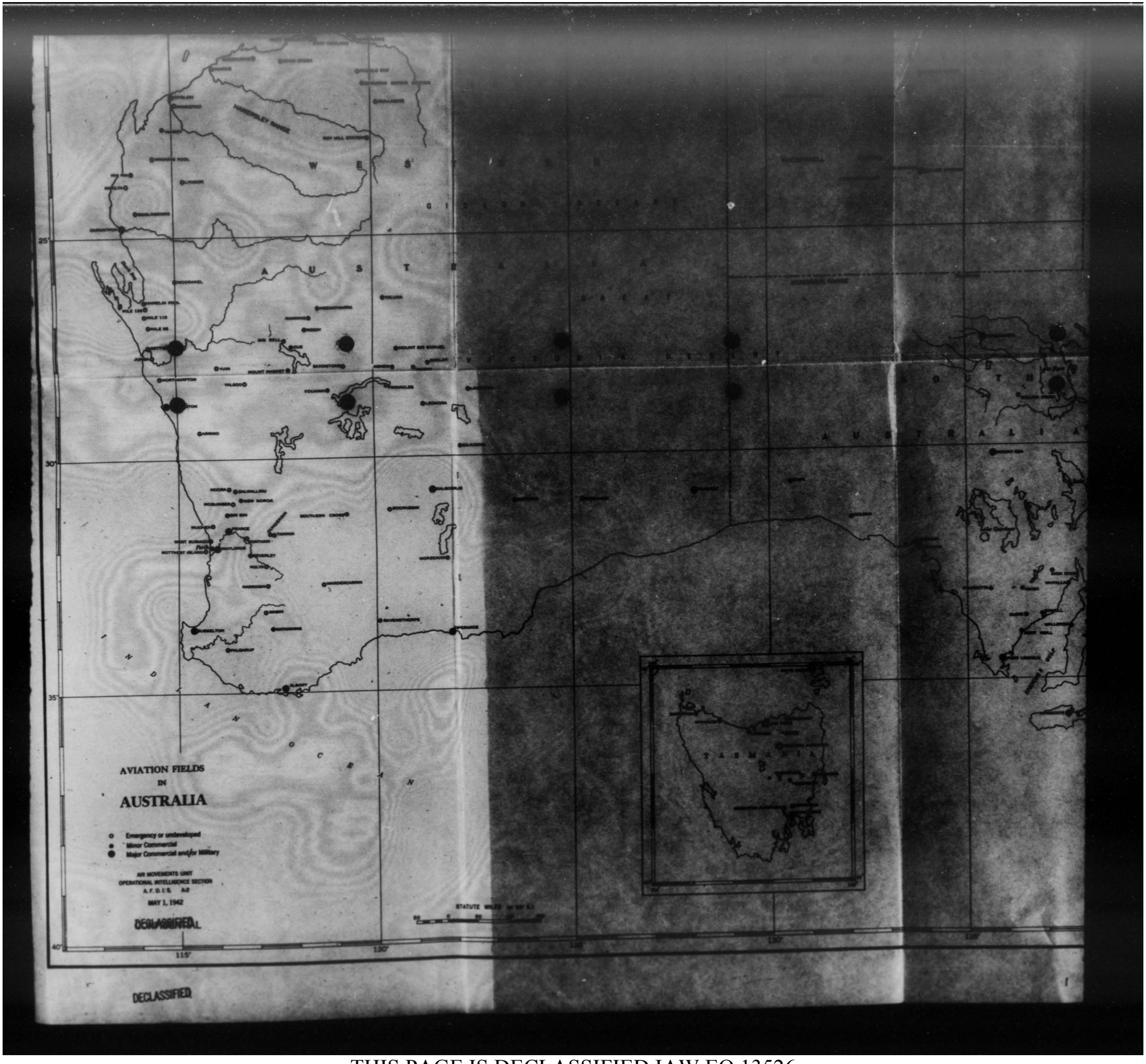


THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

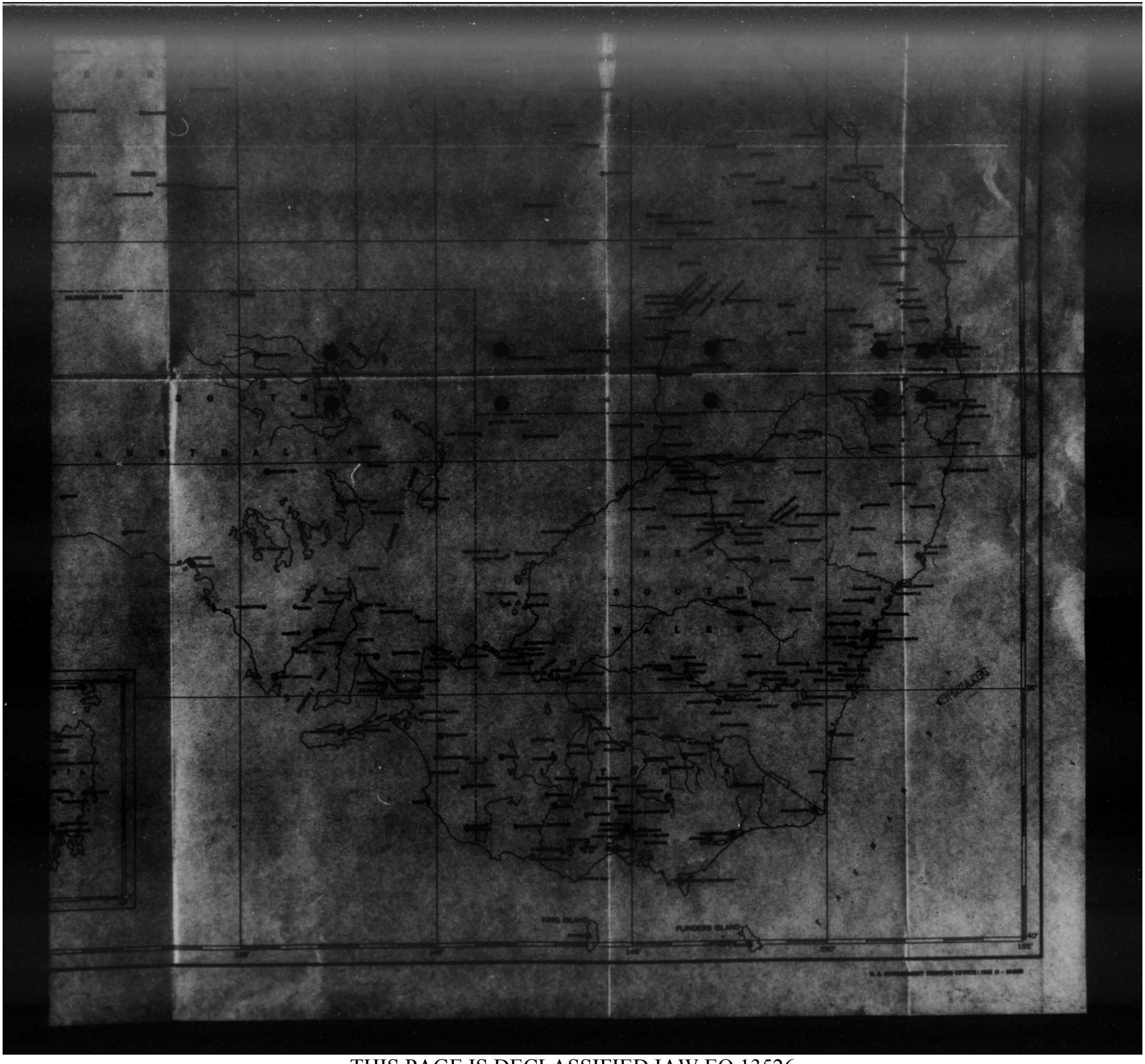
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



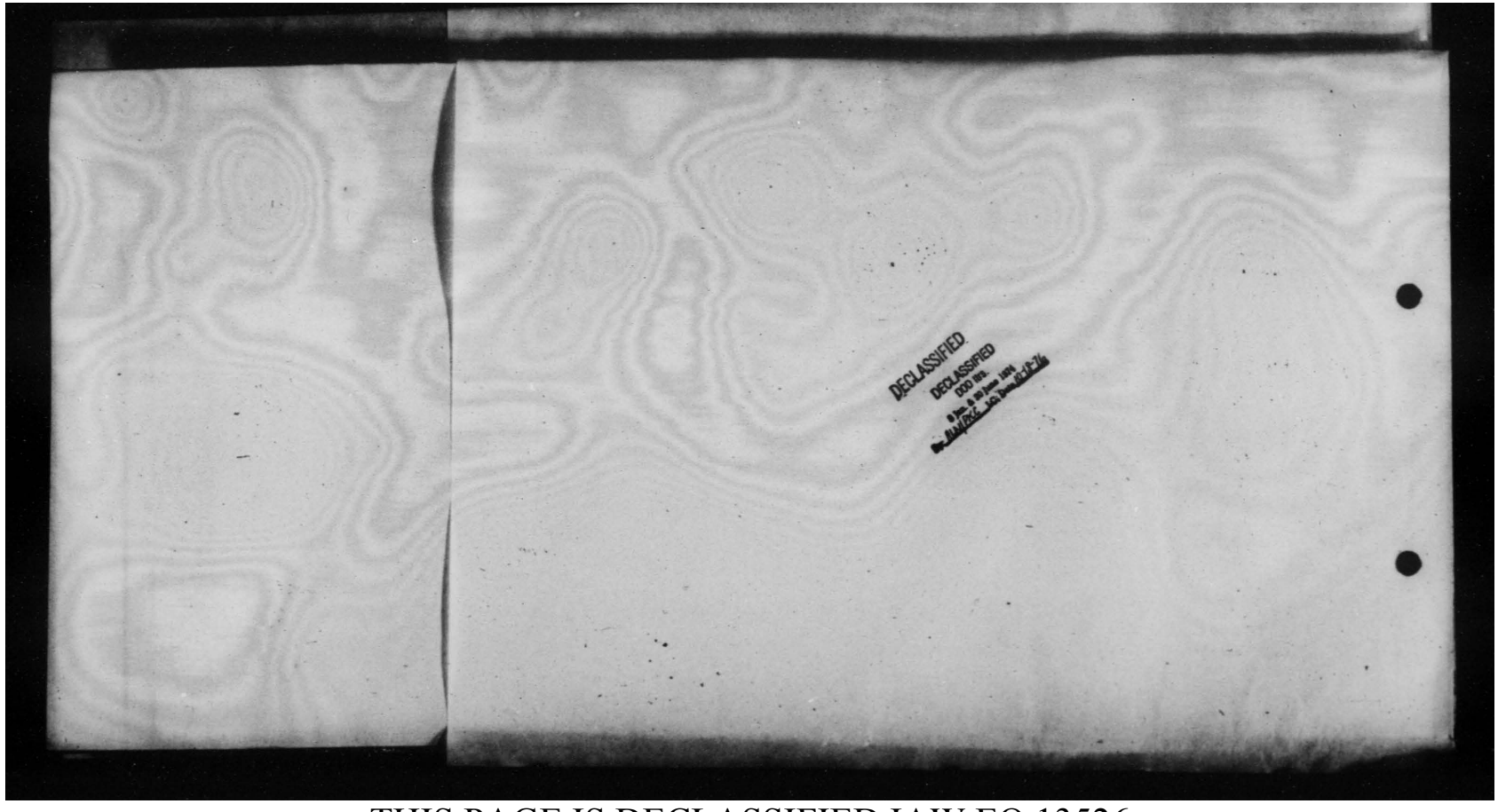
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



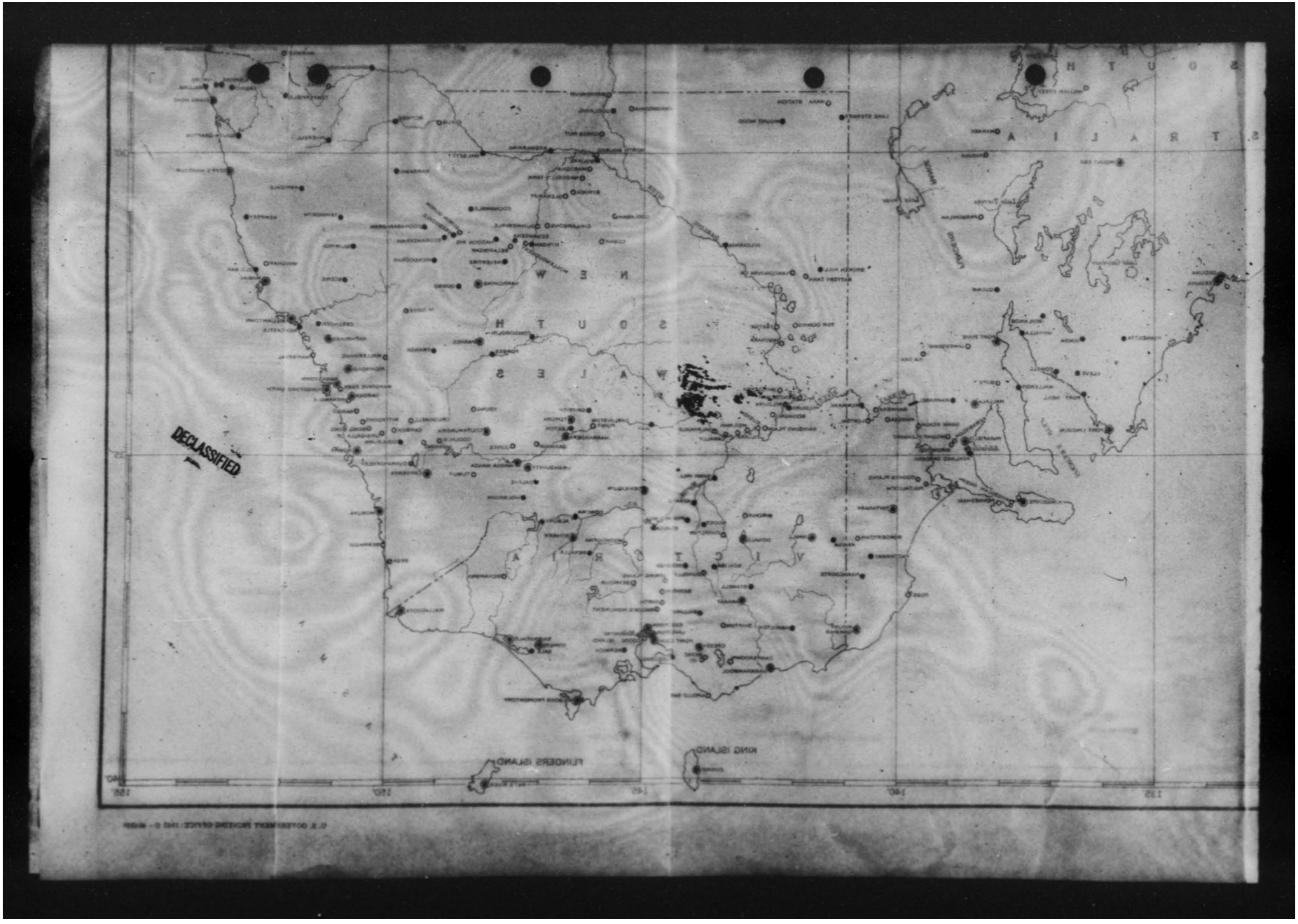
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



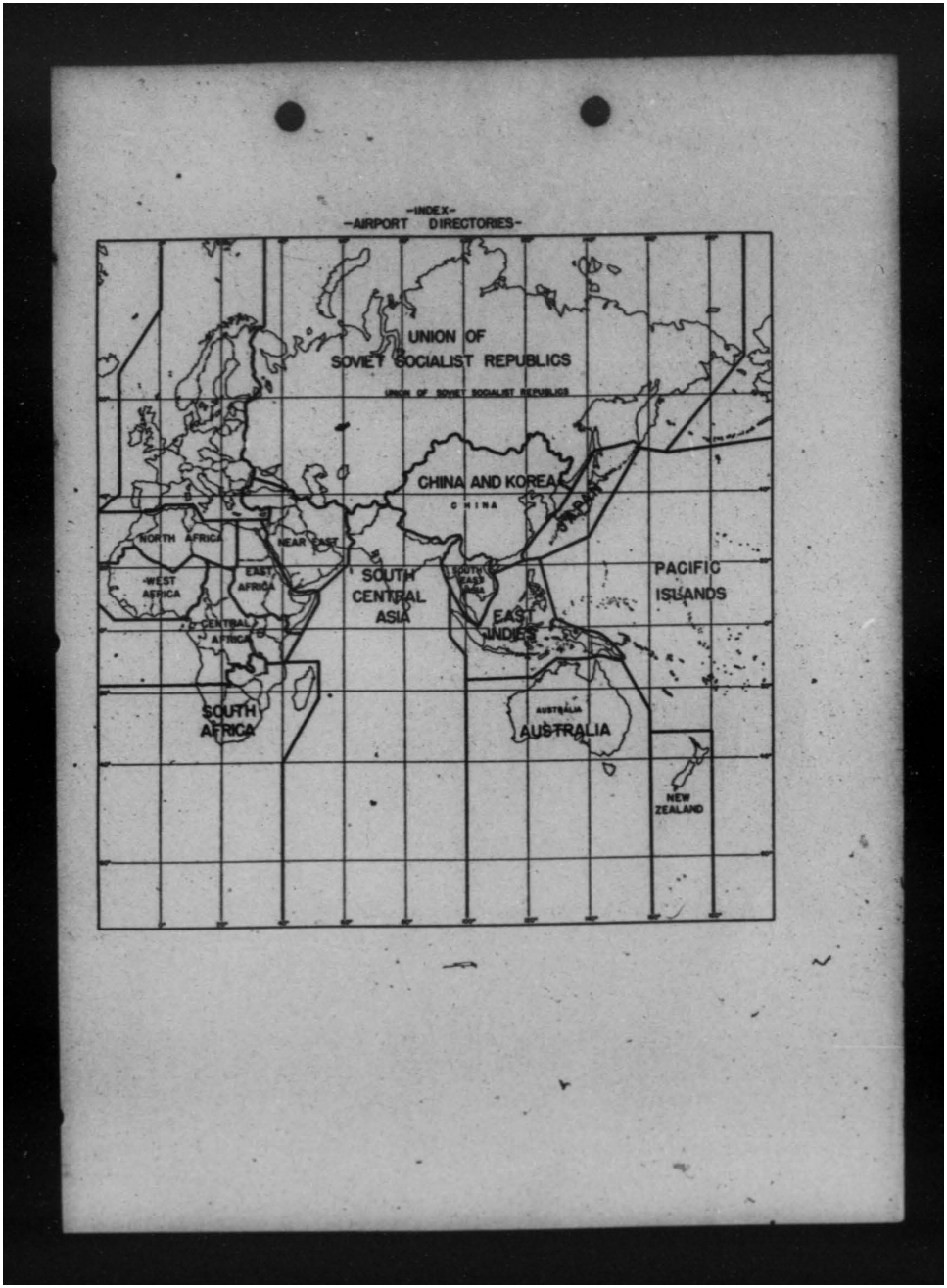
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

DECLASSIFIED
DOD Dir. 5200.9 & 30 June 1972
NSC Memo, Dec. 10/18/76

ROUTE MANUAL

U. S. ARMY AIR FORCES

MIAMI TO CAIRO

PART TWO

NATAL—MARSHALL—CAIRO

MAY 27, 1942

CAUTION

This publication is compiled from the latest and most reliable information available in this office. However, conditions change rapidly and pilots are warned to obtain, whenever possible en route, information relative to existing conditions at all staging points.

PREPARED BY
AIR MOVEMENTS SECTION
OPERATIONAL INTELLIGENCE DIVISION
A. F. D. A. S.—A-2

DECLASSIFIED

CONFIDENTIAL

AU OO 461 (108)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir. 5200.9 and 30 June 1972
Date 10/15/76

CONFIDENTIAL

DECLASSIFIED

ROUTE MANUAL

U. S. ARMY AIR FORCES

MIAMI TO CAIRO

PART TWO

NATAL—MARSHALL—CAIRO

MAY 27, 1942

CAUTION

This publication is compiled from the latest and most reliable information available in this office. However, conditions change rapidly and pilots are warned to obtain, whenever possible en route, information relative to existing conditions at all staging points.

PREPARED BY
AIR MOVEMENTS SECTION
OPERATIONAL INTELLIGENCE DIVISION
A. F. D. I. S.—A-2

DECLASSIFIED

CONFIDENTIAL

DECLASSIFIED

CONFIDENTIAL

TABLE OF CONTENTS

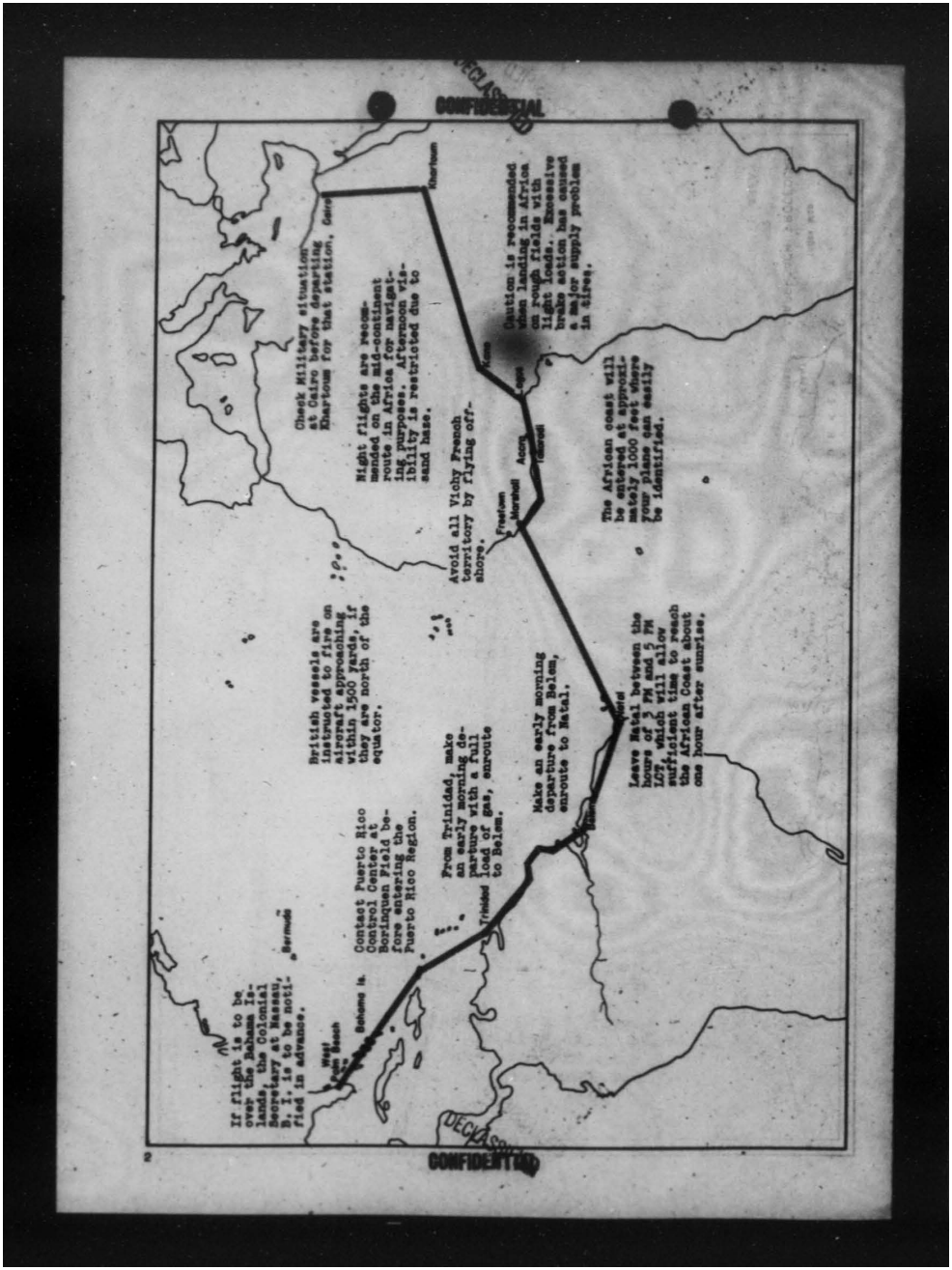
		Page
Chapter I.	General	1 - 7
Chapter II.	Airport Descriptions, Restricted Areas and Approach Procedures (In route order)	8 - 56
	Accra, Gold Coast	24
	Ascension Island	12
	Bathurst, Gambia (Restricted Area)	14
	Cairo, (Almaza) Egypt	52
	Cairo, (Heliopolis) Egypt	54
	El Fasher, Anglo-Egyp. Sudan	40
	El Geneina, Anglo-Egyp. Sudan	38
	El Obeid, Anglo-Egyp. Sudan	42
	Fernando de Noronha, Brazil	10
	Fort Lamy, Fr. Eq. Africa	36
	Freetown, Sierra Leone (Restricted Area).	15
	Freetown, (Hastings) Sierra Leone	16
	Freetown, (Waterloo) Sierra Leone	18
	Kano, Nigeria	32
	Khartoum, Anglo-Egyp. Sudan	44
	Lagos (Apapa) Nigeria	26
	Lagos (Ikeja) Nigeria	28
	Luxor, Egypt	50
	Maidugari, Nigeria	34
	Marshall, Liberia	20
	Natal, Brazil	8
	Oshogbo, Nigeria	30
	Takoradi, Gold Coast	22
	Wadi Halfa, Anglo-Egyp. Sudan	48
	Wadi Seidna(South Field) Anglo-Egyp. Sudan.	46
	Special Signals for Anglo-Egyp. Sudan	56
Chapter III.	Weather Summary	57
	Lightning	59
Chapter IV.	Radio Facilities	
	Africa	61 - 67
	Brazil	68
Chapter V.	Emergency Procedures, Correction Sheets and Last Minute Revisions	
	Emergency Procedures	69
	Last Minute Revisions	77

DECLASSIFIED

CONFIDENTIAL

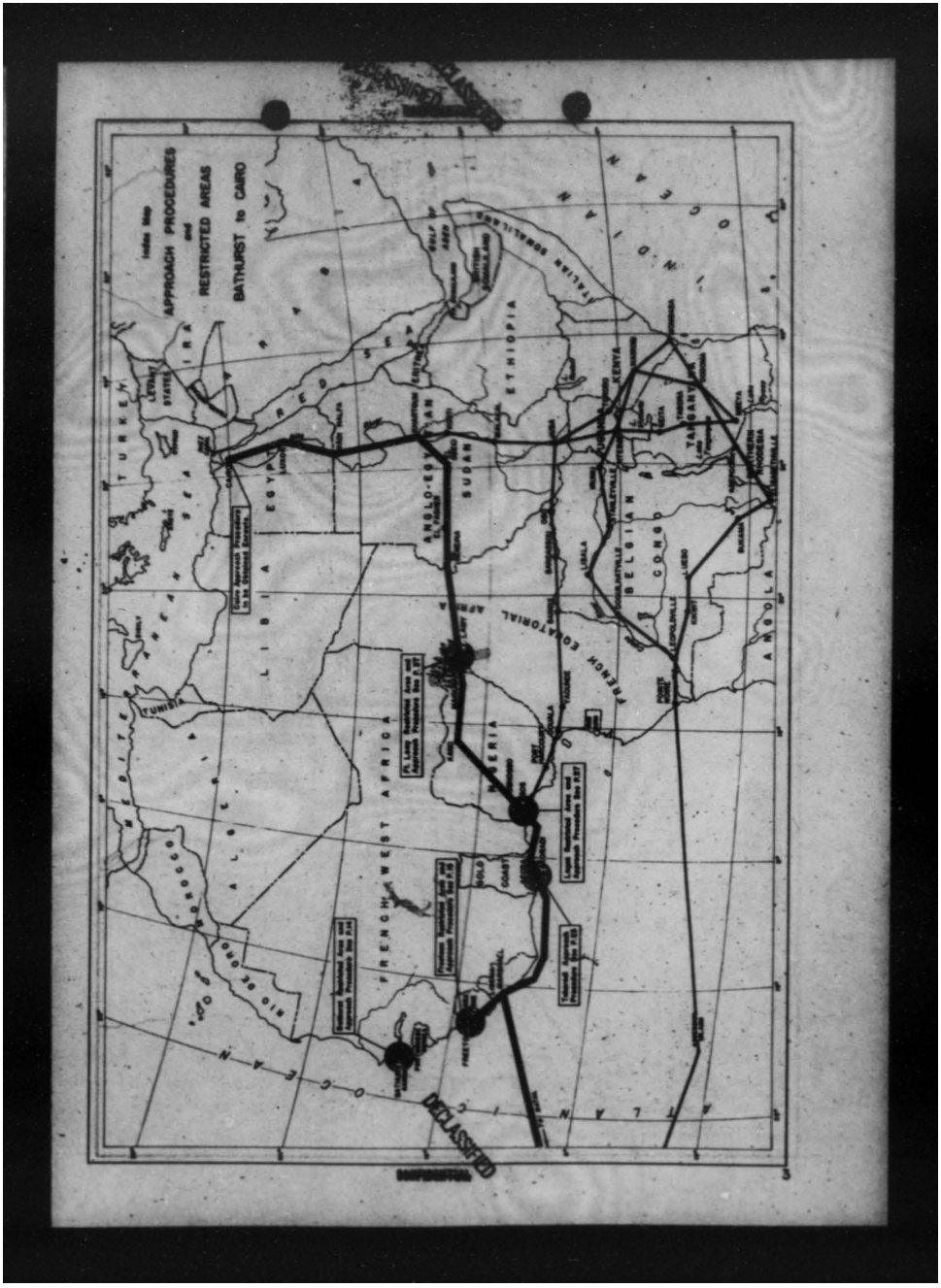
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

QUARANTINE INSPECTION AND TREATMENT OF AIRCRAFT IN THE MILITARY FORCES OF THE UNITED STATES

The following measures will be observed in connection with the quarantine inspection and treatment of aircraft of the military forces of the United States:

Class I. In the absence of quarantinable diseases or epidemic conditions at any point of departure or call, flights of military aircraft of the U. S. may be made non-stop to and from the following areas without quarantine restrictions:

United States
Puerto Rico
Canal Zone
Virgin Islands
Cuba and Bahama Islands (All other islands of the Caribbean areas where U.S. air bases may be established, are included.)

Class II. Flights having contact with all other areas - The officer in charge of the flight should communicate with the quarantine authority in the area where landing is contemplated in ample time to permit this official to be on the field to carry out such procedures as may be indicated.

All personnel on the field must be confined to the landing field, or to such areas as may be designated by the quarantine officer, until released by him.

DISINFECTIZATION OF AIRCRAFT:- Disinfectization procedure may be carried out on the ground immediately prior to the take-off from the last field en route to the United States or immediately after landing on U.S. soil. Planes coming from areas where yellow fever is endemic or epidemic should be sprayed on departure from such areas and on arrival in the U.S.A.

(a) Using compressed air spraying mechanism

All enclosed spaces of the planes must be sprayed with insecticide of a strength not less than standard pyrethrum extract (2 grams pyrethrins per cubic centimeter) using not less than 5 cubic centimeters of the mixture per 1000 cubic feet of enclosed space. Compartments occupied by passengers and aircraft personnel should be kept tightly closed for at least two minutes after the insecticide is introduced.

(b) Using hand-type spraying mechanism

When a handpump type of spray apparatus is used, the quantity of insecticide should be increased to not less than 8 cubic centimeters of the standard pyrethrum extract per 1000 cubic feet with the plane closed for not less than two minutes.

SPECIAL TEMPORARY PROVISIONS: The senior medical officer of an Army or a Navy air base may serve as quarantine officer for the inspection and treatment of military aircraft, carrying only military personnel, which may be proceeding on confidential missions.

YELLOW FEVER - MALARIA WARNING

You are advised that the yellow fever mosquito -- the gambiae, deadliest of all malaria-carrying mosquitoes -- are dreaded by the Health Services of the various countries through which you will pass, particularly after passing the West Coast of Africa.

You are advised to use your spray guns while in the air before landing at points after passing through Accra.

It is the duty of the crews of each aircraft to take all precautions against transporting any mosquitoes from one country to another.

You will do well to take all precautions while on the West Coast of Africa from being bitten by mosquitoes at night. Westbound ships must also use precautions when entering Brazil.

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

ROUTE INSTRUCTIONS AND INFORMATION

1. Radio communications along the entire route are unreliable.

2. Secret code will be used for transmission of all messages.

3. No passport is necessary.

4. The flight plan may be altered so as to proceed to such additional places or countries, including belligerent countries, as may be deemed necessary. Authority is granted to make such variations in this itinerary and to proceed to such other places as may be necessary.

5. The Chief of the Army Air Forces will be notified, where practicable, of the arrival and departure of the flights by secret code, using Ferry Command facilities for this purpose until after departure from Natal.

6. Strict secrecy throughout. Several stops will be made where there are unfriendly elements. At least one member of the crew will guard each airplane at all times unless U. S. Army forces are available for guard duty.

7. All personnel are warned to obtain immunization shots when due, if possible.

8. British vessels are instructed to fire on anything approaching within 1500 yards in the area north of the equator and west of 35 degrees.

9. Leave Natal with calculated ETA at African coast approximately 1 hour after daylight. (Leave at approx. 3 P.M. to 5 P.M. LCT.) Do not clear for Bathurst because of military situation.

10. Do not use Pan American facilities for transmission of messages after take-off from Natal. Use RAF facilities until further notice.

11. Lose 1 hour of time in crossing the ocean.

12. Fly at 9000 to 11,000 feet altitude to avoid cumulus clouds and water spouts.

13. Front lying about 500 miles east of African coast. Probably be necessary to fly under it. Reports that only heavy rain encountered in flying under. Avoid thunder storms along the African coast.

14. German Interceptor fighter planes are using two radio code bands in Interceptor work as follows:

One band - .3 to .6 Megacycles
Other band - 3.0 to 6.0 Megacycles

To confuse radio interception, German operators frequently change from one band to the other and it will be necessary for your radio man to cover both bands frequently to pick up German messages with reference particularly to possible information they may have concerning your ships.

15. Wherever possible make landings on runways and stay on runways. Fields are soft.

16. Flight will come under command of General Adler upon arrival in Africa.

17. All B 17's landing at Freetown will land at Hastings Field and not at Waterloo, also stops should be made at Accra and Kano and not at Takoradi and El Fasher.

18. Waterloo or Hastings - service quickly and depart for Accra. No more than three planes on ground at one time.

19. Contact RAF on use of night navigation in mid-continental flights over Africa.

20. Daily visibility at El Fasher and Khartoum good only in morning. Reduces to less than one-half a mile in later afternoon.

21. Check military situation wherever possible, particularly at Khartoum and Cairo. Take every opportunity to learn situation at next stop.

22. Flight commander will obtain information as to the military situation in Cairo at either El Fasher or Khartoum prior to departure for Cairo. In the event this information is not available, the American legation in Cairo will be contacted for this information.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

CONDENSATION OF PILOT WARNINGS

SHIPS AT SEA:

Aircraft will avoid flying over ships at sea as a misunderstanding of identification signals may cause anti-aircraft fire.

DAKAR-CAPE VERDE: Keep off a distance of 25 miles.

FREETOWN: Use the corridor approach for Hastings or Waterloo Airport, flying at an altitude of 500' wheels down. Other areas are restricted. Identification challenge may be made by Cape Sierra Leone Station in the north and Waterloo airdrome in the south. (See P. 15)

VICHY FRENCH TERRITORY: You will avoid all Vichy French territory in West Africa by flying off-shore as land observers may report you to German authorities. Our aircraft have been reported.

ROBERTS FIELD, LIBERIA: No night landing facilities.

TAKORADI: Takoradi Harbor is restricted one mile therefrom. Approach will be made under 3000' from the west along the coast and turn north 9000 yards west of Takoradi. (See P. 23)

PORT LAMY: An area within 10 miles of center of Port Lamy is restricted unless landing there when lov approach is made. (See P. 37)

ANGLO-EGYPTIAN SUDAN: Entry should be made along a corridor five miles either side of a line running due east of El Geneina. (Latitude 13° 26' N. Longitude 22° 26' E.)

KHARTOUM: Obtain information on approach to Cairo.

ASSIUT (ASYUT): Aircraft are to avoid the vicinity of the aerodrome and town, unless it is desired to land.

ASWAN DAM: Aircraft are not to approach within five miles of Aswan Dam. When requiring to land aircraft are not to pass directly over the dam.

HELWAN: Area of 5 miles on all sides of Helwan Airport is restricted.

CAIRO: Approach Heliopolis Aerodrome through corridor on the Suez-Cairo Road. Obtain recognition signals before leaving Khartoum.

GENERAL:

Aircraft flying along corridors are to do so at 1000 ft. or below cloud base, whichever is the lower, and are not to exceed 2000 ft. above ground level at any time, weather conditions permitting.

All aircraft will fire current recognition signals on entering transit corridors and before landing at any aerodrome.

UNAUTHORIZED FLIGHT OF FOREIGN AIRCRAFT OVER THE FRENCH TERRITORY

The French Government promulgated the following regulations on Oct. 29, 1941:

"In the event foreign aircraft shall fly over the national territory without having previously obtained the authorization for such flight, the air and anti-aircraft forces shall apply the following regulations:

(1) Aviation
Pursuit planes must challenge them, over the territory as well as over the territorial waters to a distance of three miles at sea, in order to cause them to land on the nearest national airdrome.

In the event the aircraft would avoid this measure, force of arms must be resorted to; except, however, when aircraft which are challenged on the limits of the territory or territorial waters shall turn to leave the latter as soon as possible.

(2) D.C.A. (Anti-aircraft artillery)
Warning shots must be fired during the daytime, at any aircraft of this class which enters a zone defended by batteries of medium caliber.

These warning shots shall consist of two rounds of explosive shells fired at an interval of five seconds and in such a manner that they will burst on the path of the plane and 800 meters ahead of the latter. If, fifteen seconds after the second shell bursts, the plane has not complied with the warning by changing its course in such a way as to leave the prohibited zone, it shall be fired upon by all the batteries which are able to open fire upon it."

On March 21, 1942, the Vichy government revised these regulations with regards to the African territories.

The difficulties of identifying modern planes have induced the French Government to forbid, in certain zones, the opening of fire without previous warning. The number and limits of these zones may vary according to circumstances. It would be advisable, in order to avoid all danger, to conform strictly with the general rules concerning the prohibition of flights without prior authorization.

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

The list of forbidden localities for Africa follows:

1. Fort Etienne (Mauretania), Kati, Bamako, Gao (Sudan), Conakry, Kindia (Guinea) Abidjan, Port Bouet, Bobo Dioulasso (Ivory Coast), Cotonou, Porto-Novo, Lome (Dahomey and Togoland), Niamey, Zinder (Niger).

2. St. Louis (Senegal), Dakar, Ouakam, Rufisque, Thies, Diourbel (Senegal).

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

NATAL, BRAZIL

NAME AND LOCATION

Pitimbu Field is on the eastern side of the railroad (Natal-Sao da Miguba), 6½ miles SSW of Natal, and 6½ miles W of the Atlantic Ocean.
Position - Lat. 5° 53' S. Long. 35° 15' W.
Magnetic Variation - 20° W.
Altitude -169'.
Landmarks - Lake Parnamirin ENE of field. Airport stands out from neighboring landscape.

DESCRIPTION

Dimensions - Field:
Runways: (c) NW/SE 5000'x200' (Being extended to 6000'). (a) ENE/WSW 5000'x200' (Being extended to 6000').
Surface - Field:
Runways: Asphalt
Markings - 2 orange cone-shaped markers at each end of runway. Wind cone.
Lighting - White runway boundary lights and 2 yellow lights 300' past end of each runway on all night. Mobile floodlights at north end of runway. Revolving beacon (alt. green and white flashes. Period 10 secs. vis. 30 miles).
Obstructions - NE-98'Radio towers; SW - Hangars and 98' Radio towers. W - HR and telegraph line. E of runway - small tile roofed buildings.

FACILITIES

Hangars - 3 hangars: 85'x98'x18', 98'x141'x26'; and a double nosed hangar all located on the old airport which is on the S edge of the new field.
Repair Facilities - Limited emergency repairs.
Fuel and Oil - Bulk supplies. 2 refuel pits, two 3" pump units (100 g.p.m.) available. 3 more being installed.
Communications - Telephone and telegraph in town. Radio, Beacon and D/F available. See chapter on radio.

Weather Reports - Facilities for oceanic and coastwise aircraft available at PAA meteo. station with observation of Army and Navy personnel.
Transportation - Dirt auto road, poor condition, to city.
Personnel Accommodations - Hotels in city. Passenger station on field. A scarcity of quarters is usual. Six tents and a few rooms available at the field. Barracks are to be constructed.

WEATHER

Prevailing Winds - Surface Winds ENE-17-21 knots during day. SE-15 knots after sunset.
Precipitation - 40" annually. Rainy season March to May. Frequent showers and occasional torrential showers.
Visibility - Strato-cumulus clouds overland with cumulus forming to seaward and moving inland during early morning hours, increasing cumulus activity toward noon. Afternoons - decreasing cloudiness to seaward with increasing cumulus activity inland. Visibility approximately 15 miles except for showers reducing it to a minimum of 2 miles.

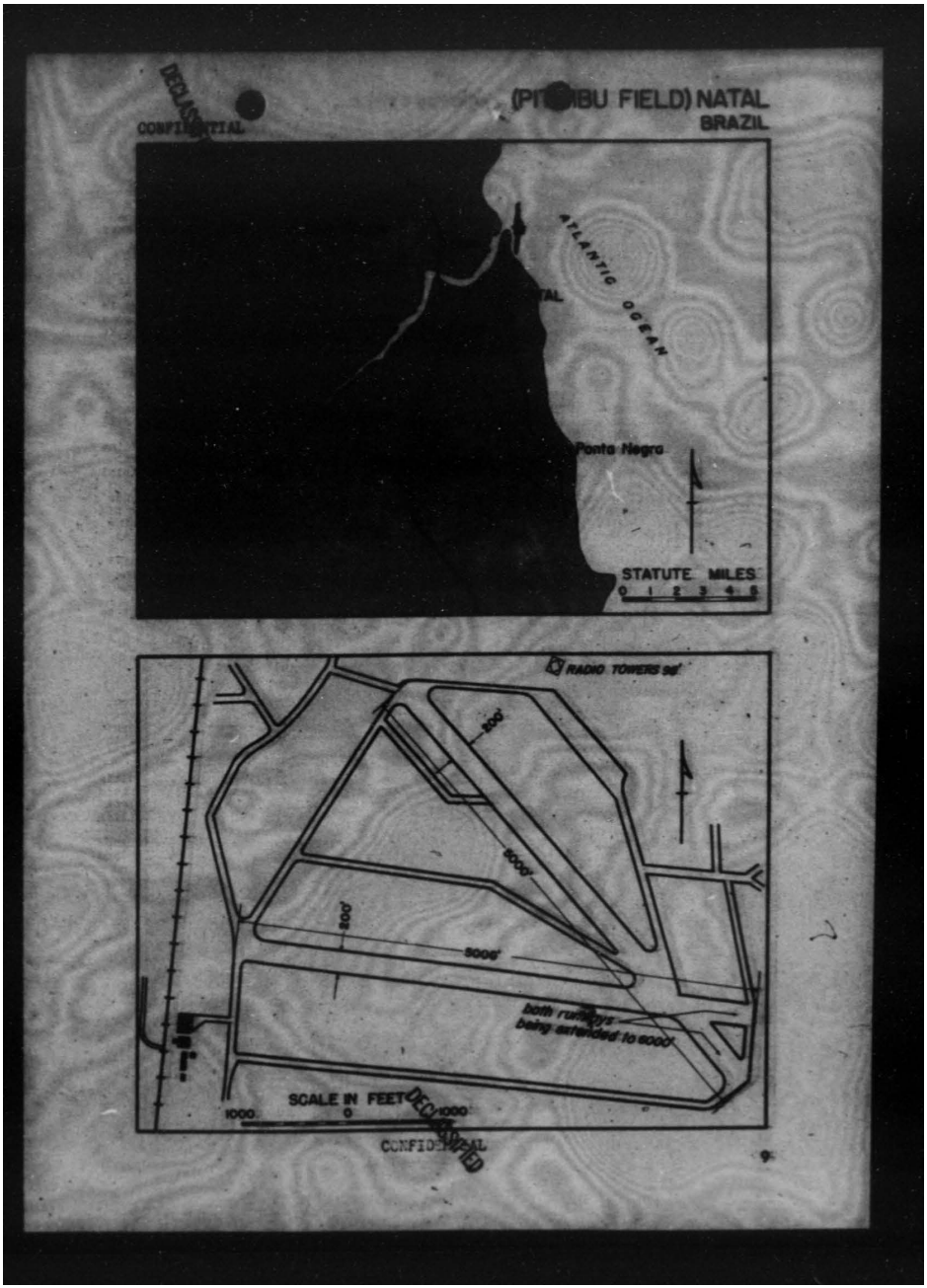
GENERAL INFORMATION

Operated By - Government.
Warning: Account of construction, field should be circled before landing. 200' graded shoulders on each side of runways still in construction and should NOT be used.
Remarks: Pilots should make initial approach from north, circle field once at 1000', make turn to left and land to SE (due to prevailing winds). Caution is advised in landing account light cross winds with easterly component. On landing use taxi strip at south end of runway and taxi to parking area.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

FERNANDO-DE-NORONHA, BRAZIL

NAME AND LOCATION

Fernando de Noronha Civil Airport is located near the center of Fernando do Noronha Island which is 238 miles NE of Natal.
Position - Lat. 03° 51' N. Long. 32° 26' W.
Magnetic Variation 21° W.
Altitude - 150'.
Landmarks -

DESCRIPTION

Dimensions - Field: 900'x4921'
Runways: 2950'x130' SSE/NNW.
Surface - Field - Earth soft when wet. Runways - (Concrete in poor shape).
Markings - Yellow and black boundary markers. Illuminated "T".
Lighting - Boundary lights, floodlights at NW end of runway.
Obstructions - NE-hill (1053'), 1 mile distant; SE-hill (354').

FACILITIES

Hangars -
Repair Facilities - Machine shop at prison.
Fuel and Oil - Available. 87 and 100 octane.
Communications - Radio available. See chapter on radio.
Weather Service - Government weather station 3 miles from field.
Transportation - Prison owned boat from Island to mainland. Autos for transportation on the Island. Fair roads.
Personnel Accommodations - Health conditions excellent. Poor hospital facilities. Houses adjacent to field.

WEATHER

Prevailing Winds - SE
Precipitation -
Temperature - Average 77°
Visibility -

GENERAL INFORMATION

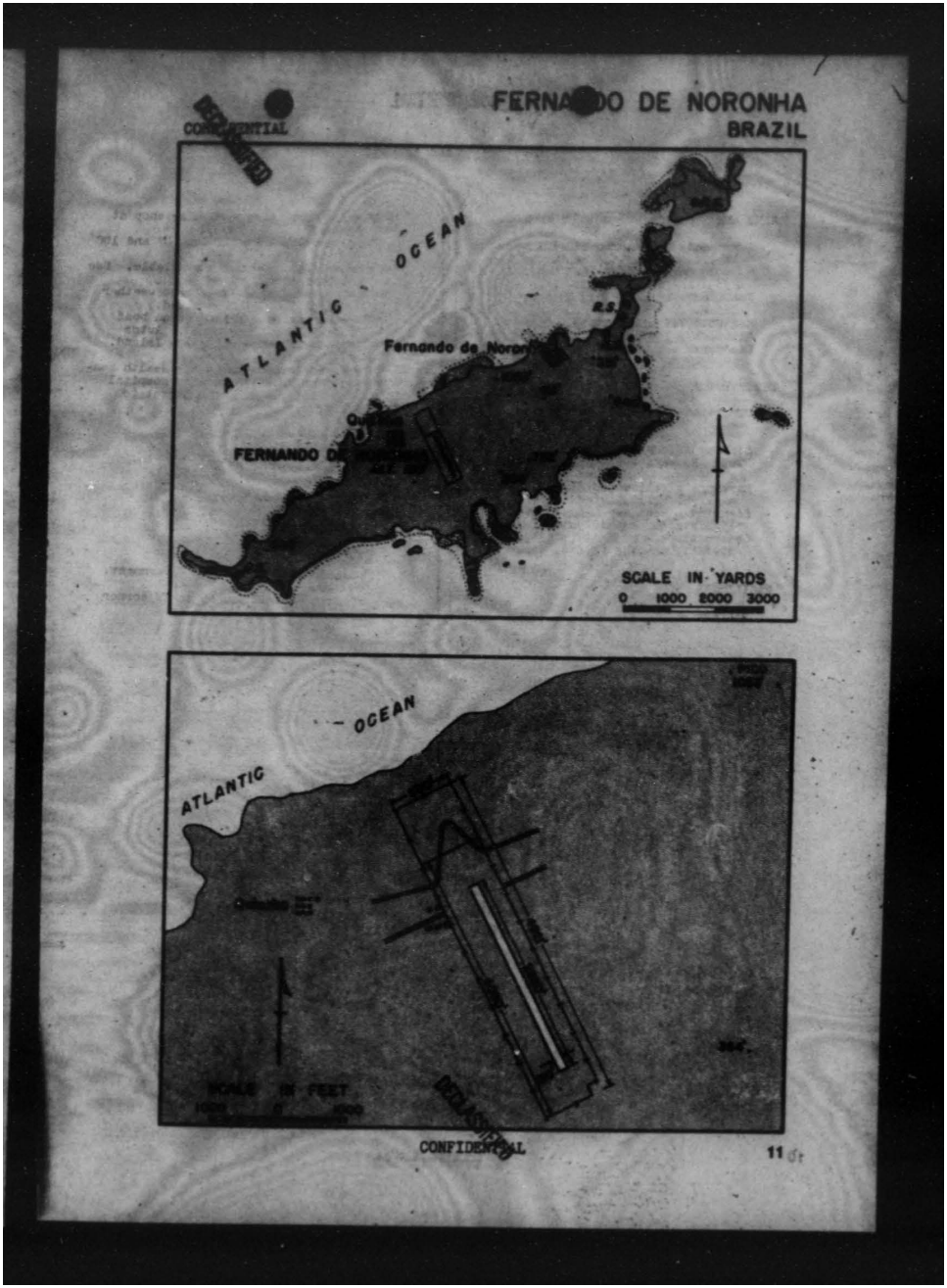
Operated By - Brazilian Government.
Customs -
Remarks - Penal colony in NE corner of Island.

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

ASCENSION ISLAND

NAME AND LOCATION

Ascension Island emergency field is 3 miles S of Georgetown.
Position - Lat. 7° 58' S. Long 14° 24' W.
Magnetic Variation - 23° W.
Altitude - 260'.
Landmarks - Field is on SW corner of the Island and approximately 1/2 mile E of the western shore line.

DESCRIPTION

Dimensions - Field:
Runways: 6000'x150'SE/NW with 50' shoulders on each side. (To be graded by 6/15/42).
Surface: Field -
Runways - To be paved. (3000' will be ready by 6/15/42)
Markings -
Lighting -
Obstructions - 450' hill at SE end of runway. Approach is clear, but hemmed in by hills on both sides.

FACILITIES

Hangars-
Repair Facilities -
Fuel and Oil - Bulk supplies of gas and oil available in dispersed tanks.
Communications - Cable service at Georgetown. Radio Navigation - Marine radio station ZBI on 500 kcs. British Navy D/F and detector station.
Weather Service -
Transportation - Dirt road leads N to Georgetown on Clarence Bay.
Personnel Accommodations - Water is very scarce.

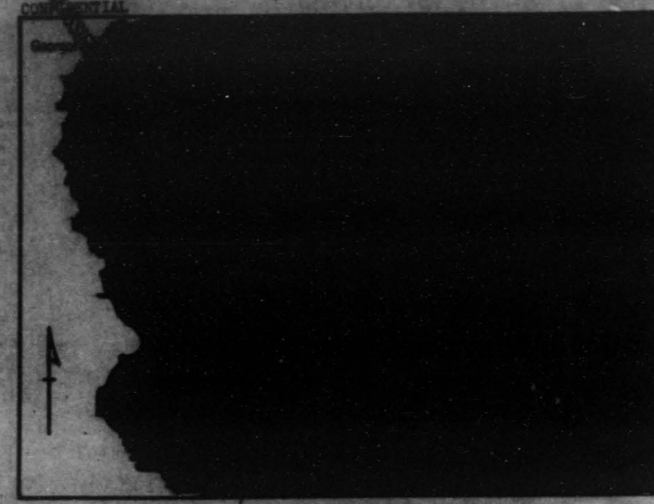
WEATHER

Prevailing Winds - SE trade winds (18 m.p.h.)
Precipitation - 5" annually at airport but Green Mt., on E side of the Island has 26" annual rainfall.
Temperature - Mean temp. range 70° to 90° F. Max. 91°, min. 63° F.
Visibility - Excellent

GENERAL INFORMATION
Operated By -
Customs -
Remarks -

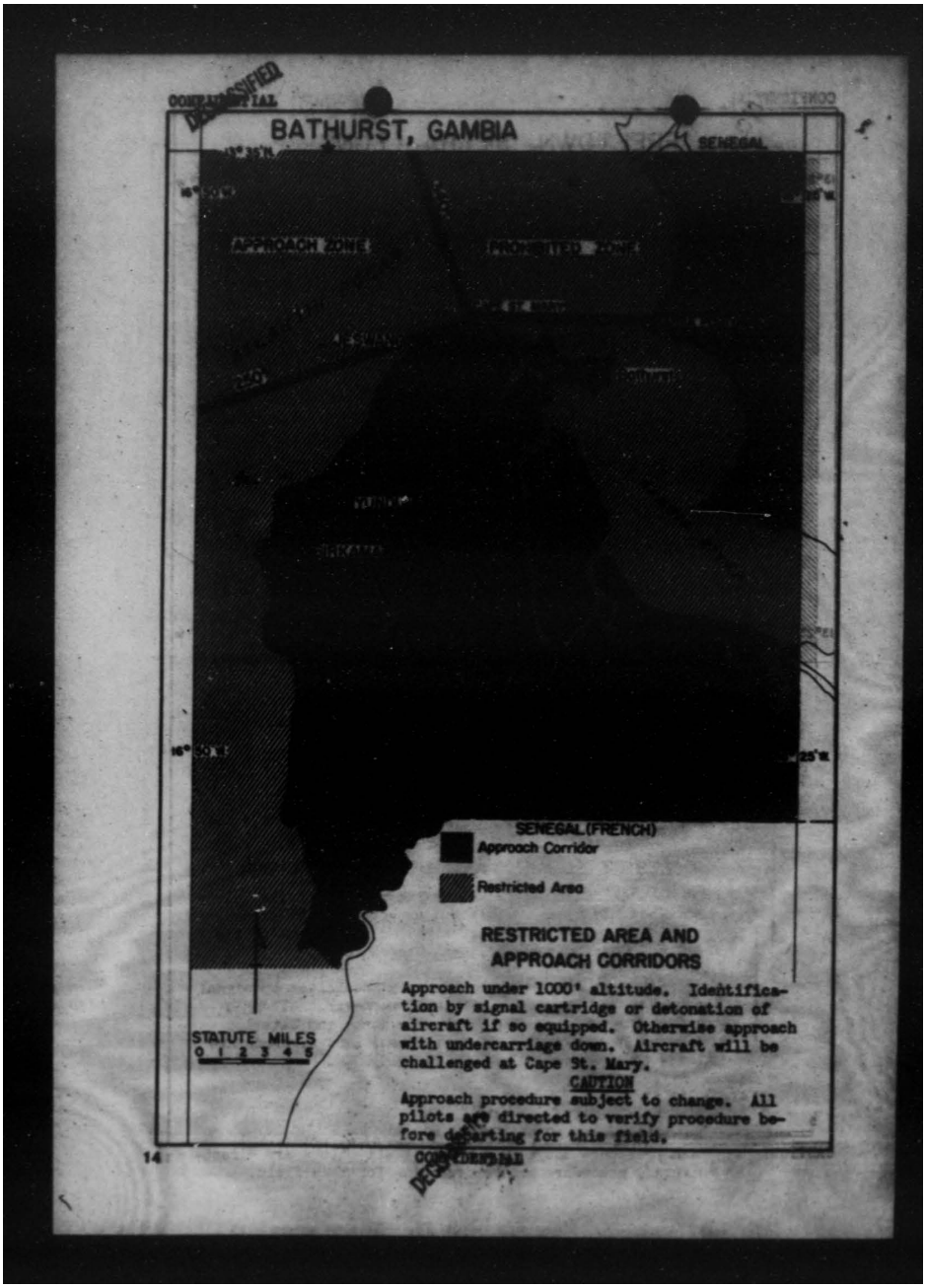
DECLASSIFIED
CONFIDENTIAL

ASCENSION ISLAND



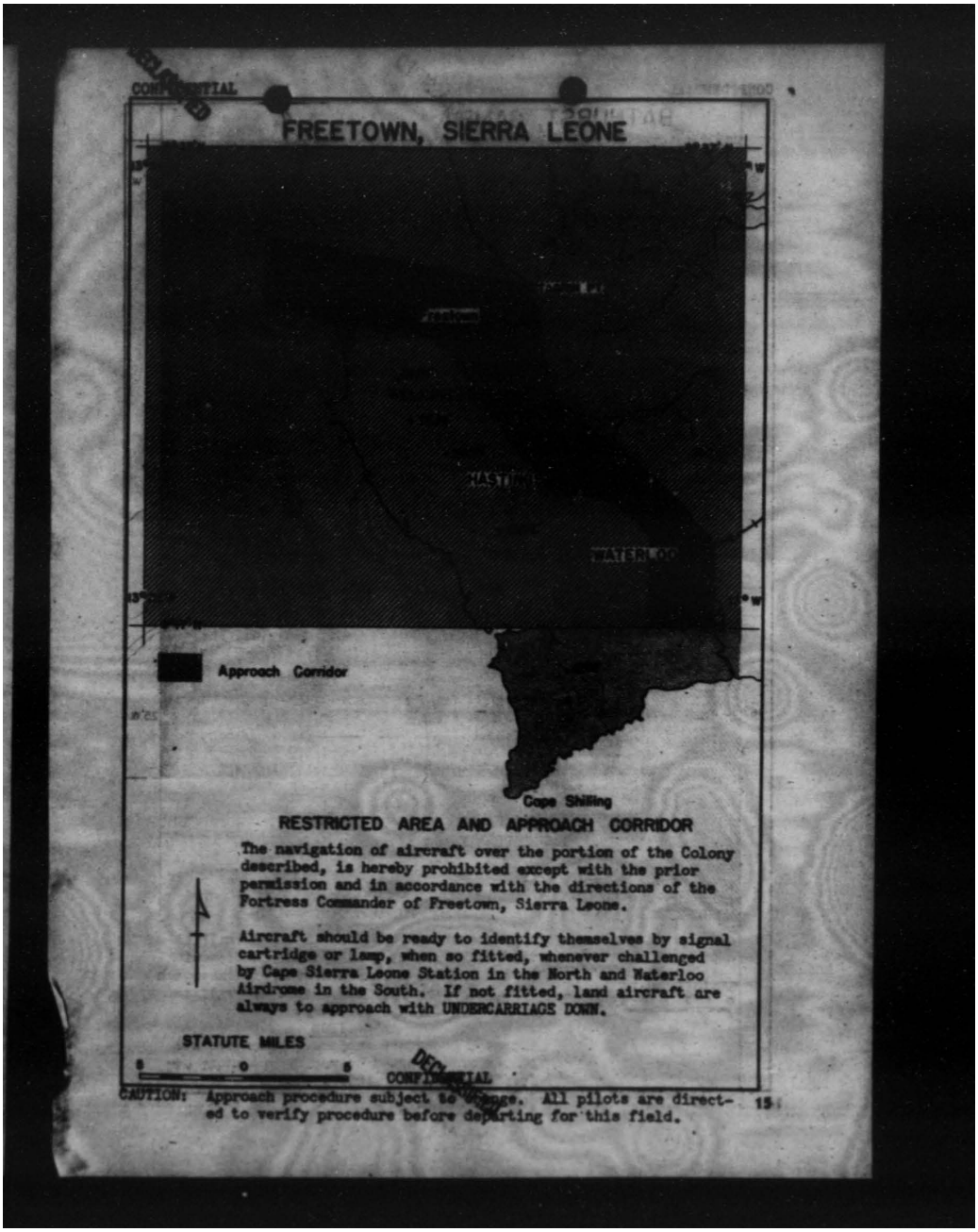
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL DECLASSIFIED

FREETOWN (HASTINGS), SIERRA LEONE

NAME AND LOCATION

Hastings Airport, 11 miles SE. of Freetown and 1 mile NE. of Hastings.
Position - Lat. 08° 24' N., Long. 13° 08' W.
Magnetic Variation - 17° 25' (1940)
Altitude - 20'.
Landmarks - Bunce River 1 mile N. Railroad adjacent on S.

DESCRIPTION

Dimensions - 3 runways-NNW/SSE 3500'x 450'; NE/SW 3900'x450'; NW/SE 3000'x 450'.
Surface - Runways of laterite gravel. One runway has a bitumen surface. All are rough and full of pot holes.
Markings -
Lighting - Marine light - Cape Sierra Leone - (Fl. W. vis. 14 mi. fl. once ev. 15 sec.); also a fixed red light, vis. 12 mi. position 08° 30' N., 13° 18' W.
Obstructions - North -1000' hills, 2 miles distant. Mangrove trees between airport and Bunce River. Only open approaches are from NE., E and SE. 2500' hills to W., NW., and SW.

FACILITIES

Hangars - 1 RAF Bellman hangar. 2 hangars for Navy Air Arm.
Repair Facilities - Available.
Fuel and Oil - Limited stocks, refueling by hand. 1 tank truck with fuel pump of 2 gal. per minute capacity.
Communications - Telephone and telegraph in Freetown. Radio, beacon and D/F (for details see Chapter on Radio).
Weather Reports - Main forecasting station for Bathurst, Cape Palmas flying boat route (B.O.A.C.).
Transportation - Railroad (Freetown to Makeni) adjacent to S. edge of field. Road from Hastings to Freetown. Steamer service at Freetown.
Personnel Accommodations - R.A.F. wooden cantonments. Health conditions poor; typhoid and malarial fever prevalent. Hotels and hospitals in Freetown.

WEATHER

Prevailing Winds - SW. monsoons May to Oct.; NE. trades from Nov. to April. Harmattan winds from the E. Dec. to Feb. Since winds are light and variable, wind direction is usually disregarded for landing and take-off.
Precipitation - About 150" annually. Rain from May to October with tornadoes at the beginning and end of the season.
Visibility - During harmattans (Dec. to Feb.) visibility is around 1500' and sometimes drops almost to zero. Heavy rain squalls occur during the rainy season in which visibility is about 150'. Cloud coverage is from .5 to .7. Summits of adjacent hills are often obscured by clouds. Morning fogs 1 day a week during dry season.

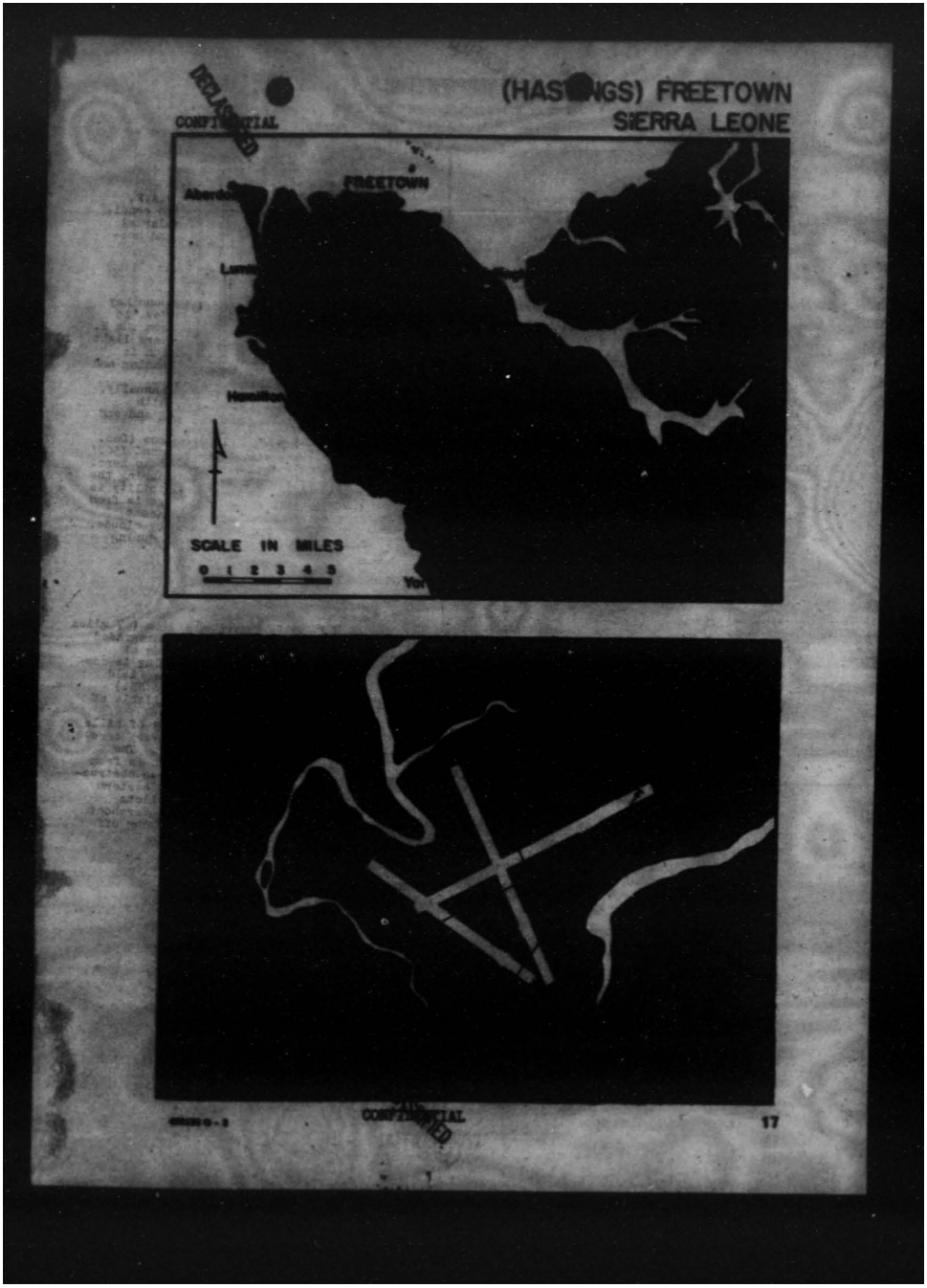
GENERAL INFORMATION

Operated By - RAF
Remarks - Airport at Waterloo (7 miles SE. of Hastings) is being regraded and landings should be made at Hastings until the regrading is completed. A small emergency field is at Wellington (5 miles NE.) A seaplane station is available at Freetown.
CAUTION: Owing to proximity of hills on west side of airdrome very careful approach must be made. The best direction to approach is from the east where there are no obstructions and to touch down at eastern end of No. 2 runway and pilots should be careful not to overshoot owing to difficulty of taking off again towards the hills.

CONFIDENTIAL DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

FREETOWN (WATERLOO), SIERRA LEONE

NAME AND LOCATION

Waterloo Airport, 15 miles SE of Freetown, 2 miles E. of Waterloo.
Position - Lat. 08° 20' N. Long. 13° 02' W.
Magnetic Variation - 17° 30' W (1940)
Altitude -
Landmarks -

DESCRIPTION

Dimensions - 4 runways, each 150' wide with a 225' wide grass strip along each side.
No. 1. NE/SW- to be 4500' long (being regraded March 1, 1942).
No. 2. NNE/SSW - not yet started.
No. 3. WNW/ESE - to be 4500' long(should be completed).
No. 4. NW/SE - 4500' long (not available).
Surface- Runway No. 3 is asphalt. Others are laterite.
Markings -
Lighting - Marine lights; Cape Sierra Leone, (white; vis. 14 mi. fl. once every 15 sec.) also a fixed red light (vis. 12 miles) position 08° 30' N. 13° 18' W.
Obstructions -

FACILITIES

Hangars- None.
Repair Facilities- Complete facilities by Jan. 1, 1942.
Fuel and Oil- Small gas truck with very poor pumping unit.
Communications- Telegraph and telephone in Freetown. Service between coastal towns extremely slow. Radio, D/F and Beacon available. See chapter on radio.
Weather Reports-
Transportation- 2' gauge railroad and macadam road to Freetown.
Personnel Accommodations- Nissen huts on field; hotels and hospitals in Freetown. PAA quarters under construction.

WEATHER

Prevailing Winds - SW monsoons May to Oct.; NE trades from Nov. to April. Harmattan winds from the E. Dec. to February.
Precipitation - About 150" annually. Rain from May to Oct. with tornadoes at the beginning and end of the season.
Visibility - During harmattans (Dec. to Feb.) the visibility is around 1500' and sometimes drops to almost zero. Heavy rain squalls occur during the rainy season in which visibility is about 150'. During this season cloud coverage is from .5 to .7. Summits of adjacent hills are often obscured by clouds.

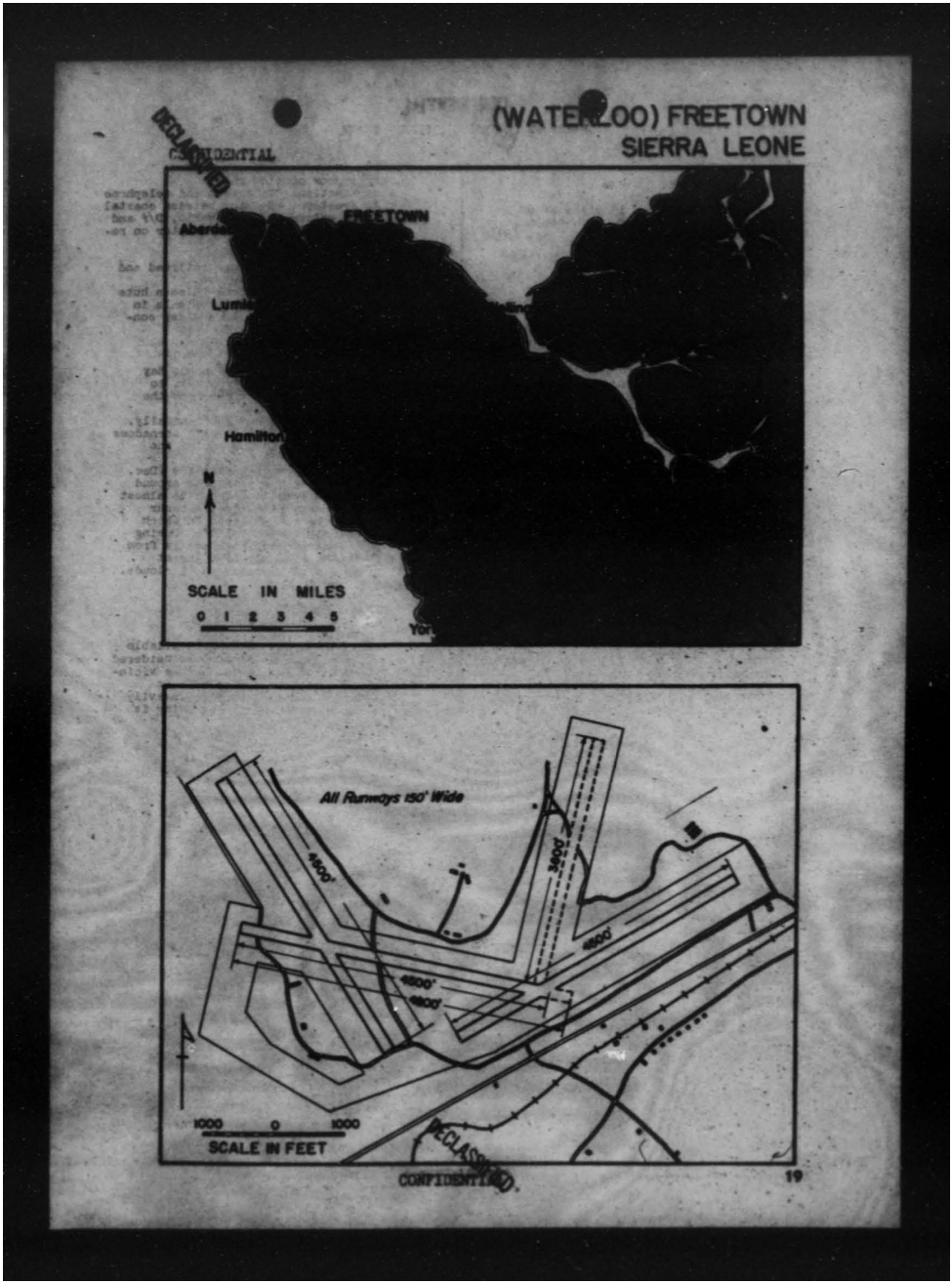
GENERAL INFORMATION

Operated By - RAF
Remarks - Seaplane base is available at Freetown. Waterloo is considered the best of the fields in the vicinity of Freetown. Take-offs at Waterloo are dangerous for heavily laden aircraft until regrading is completed.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

MARSHALL, LIBERIA

NAME AND LOCATION

J. J. Roberts' Field, located 7 miles NNE of Marshall and 35 miles SE of Monrovia.
Position - Lat. 6° 12' N. Long. 10° 22' W.
Magnetic Variation - 17° W. (1940)
Altitude - 20'.
Landmarks - Junction of Fish Creek and Farmington River immediately NE. Firestone plantation can be seen on the N.

DESCRIPTION

Dimensions - NE/SW runway under construction. NW/SE runway 6200'x200' available. Both to be 7000'x200'.
Surface - Asphalt on NE/SW runway. Other runway of rolled laterite.
Markings - Barbed wire fence surrounds field.
Lighting - Obstruction lights available. Runway boundary lights being installed.
Obstructions - Radio masts 1 mile SW.

FACILITIES

Hangars -
Repair Facilities - 3 PAA mechanics. No spares, no shops.
Fuel and Oil - 50,000 gals. in underground tanks. Gas truck. 100 oct gas
Communications - MRL radio range station, also transmitter and beacon. See chapter on radio.
Weather Reports - PAA Meteorological Station to be in operation on 4/15/42.
Transportation - River boats on Farmington River. Road to Harbel Plantation. No port facilities at Marshall. Ships unload into lighters. Local transportation is scarce.
Personnel Accommodations - Barracks available. Officers are quartered in building 12 miles from field. Mess building on the field. Food cost $2.60 for 3 meals but is good.

WEATHER

Prevailing Winds - During rainy season SE to SW. During dry season NE to NW.
Precipitation - Rainy season June to October, inclusive, 144" per annum.
Visibility - Occasional early morning fogs which burn out about 10 AM. Rainy season - visibility 1 mile, ceiling 1000' to 3000'.

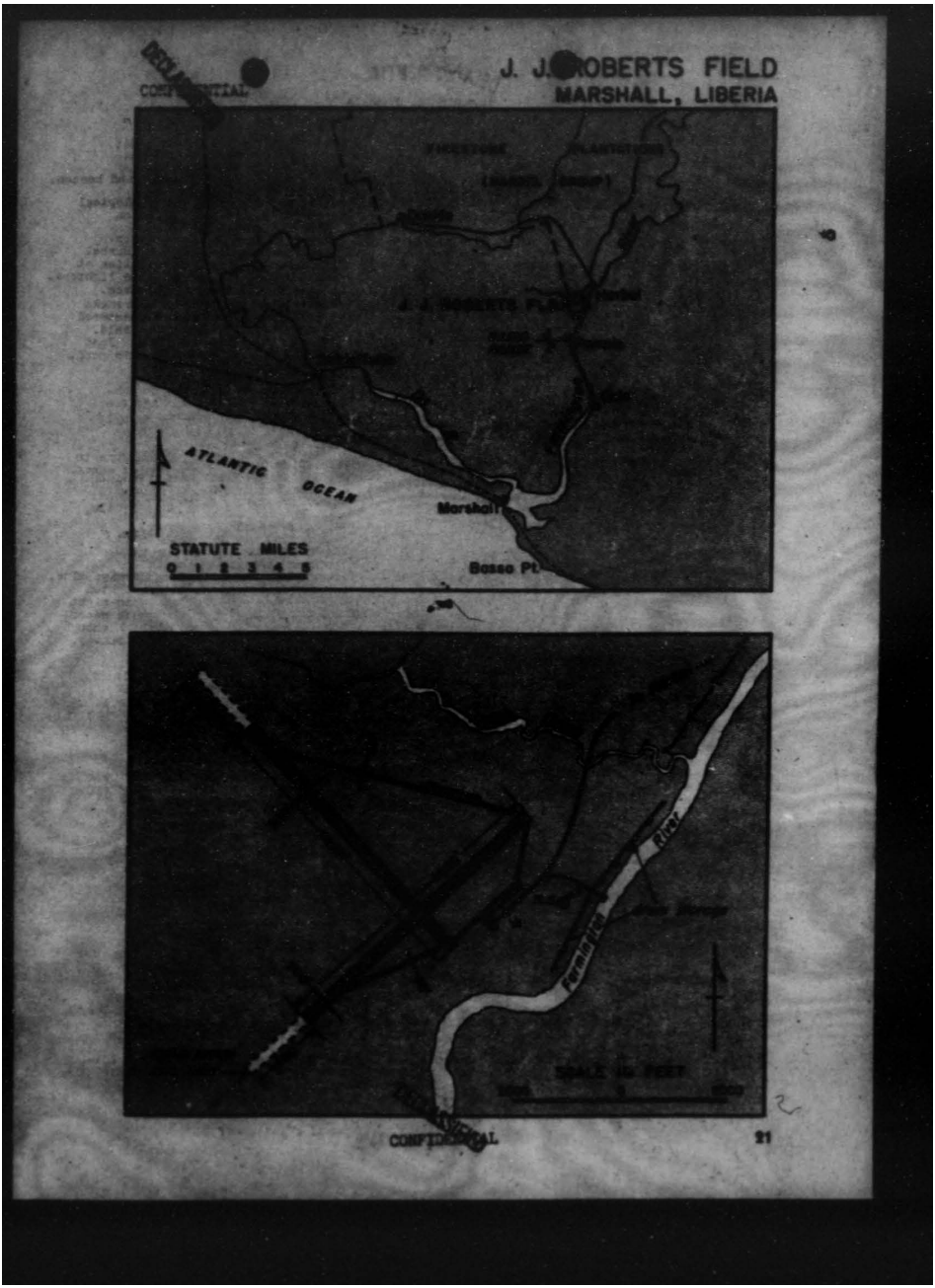
GENERAL INFORMATION

Operated By - Pan American Airways, Inc.
Warning: Although field is lighted at night, planes should avoid night landing. If night landing is necessary, be sure to come in high enough to miss the trees at end of runway. They are hard to see.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED CONFIDENTIAL

TAKORADI, GOLD COAST

NAME AND LOCATION

Takoradi Aerodrome, adjacent on the W to the native section of Takoradi. Harbor is 2 miles ESE.
Position - Lat. 04° 54' N. Long. 01° 46' 30" W.
Magnetic Variation- 13° W(1941).
Altitude- 20'
Landmarks- Very large circular market place of native village is ¼ mile E of field; railroad 2 miles E. Whin River 2 miles S.

DESCRIPTION

Dimensions- 3 runways: NE/SW 2940' x200'; E/W 3000'x200', ENE/WSW 3300'x200'(being extended to 4200').
Surface- Rough surface, slightly concave, serviceable in all weather. Slightly upward slope in SW direction. Bitumen runways. Not suitable for B-17's.
Markings- White boundary marker. Windsleeve.
Lighting- Emergency flares are always ready for immediate use.
Obstructions- NE - Hill 90' from commencement of main runway, and in direct line of approach(being removed); E - Two W/T masts, 2500 yards distant, 200' high on 150' high hill. SE - W/T Station; two masts 100' high, 1200 yards distant. S - Airport buildings and five W/T masts, (70'). SW - Hill.

FACILITIES

Hangars- Six hangars- largest 180' x58'x25'. Capable of accommodating large aircraft.
Repair Facilities- RAF maintenance crews with experience on American aircraft and engine servicing. Major repairs. RAF and PAA mechanics. Compass base. Radio repair and maintenance section has experience on Bendix equipment. Garage and railroad workshops at Sekondi.
Fuel and Oil- Bulk supplies gas and oil available. 100 octane available in quantity. Power and hand pumps and refueling tank trucks. RAF servicing facilities. Unlimited quantity 120 grade oil. Storage capacity is 2,650,000 gallons of gasoline. Refueling slow.
Communications- Telephone and telegraph at the airport. Radio, radio beacon and D/F available. (See chapter on radio).
Weather Reports- RAF duty pilot arranges for reports to be given to aircraft before take-off. Main forecasting station for Takoradi-Lagos section of ferry route and Cape Palmas flying boat route.
Transportation- All local transportation is provided by the RAF. BOAC airplane services between Lisbon and Lagos, calls at Takoradi. HR to Accra, 350 miles. Steamship service to Europe and Great Britain. PAA stop.
Personnel Accommodations- Accommodations are provided by the RAF. Officers at #2 Officers' Mess, and N.C.O's at the Sgt.'s Mess Quarters. Health conditions poor. Hospital in Takoradi. Government Technical School accommodates 750 airmen. Additional room for 1000 personnel.

WEATHER

Prevailing winds- NW to SW.
Precipitation- Rainy season April to October. Tornadoes all year, most frequently March to May. 42" mean annual rainfall.
Temperature- 80° F. average. Mean min. 75° F.
Visibility- Mists over the valley render visibility poor in the early morning. Harmattan from December through February.

GENERAL INFORMATION

Operated By - Owned by the Gold Coast Government and operated by the secretariat and RAF.
Customs- Yes.
Remarks- Takoradi is used as an assembly port for air reinforcements to the Middle East. There are gantries, railway lines, trolleys and other equipment for handling crated aircraft.

Land and take off in SW direction on ENE/WSW runway unless otherwise indicated. At least one left hand circuit required, at a distance of 1000' from field. Anti-smeryl station.
WARNING: Concrete drainage ditches (with black and white grilles) along runways may be uncovered. Field is not safe for B-17 operations due to thin runways. Flight over Takoradi Harbor is prohibited.

APPROACH PROCEDURE FOR TAKORADI AIRPORT

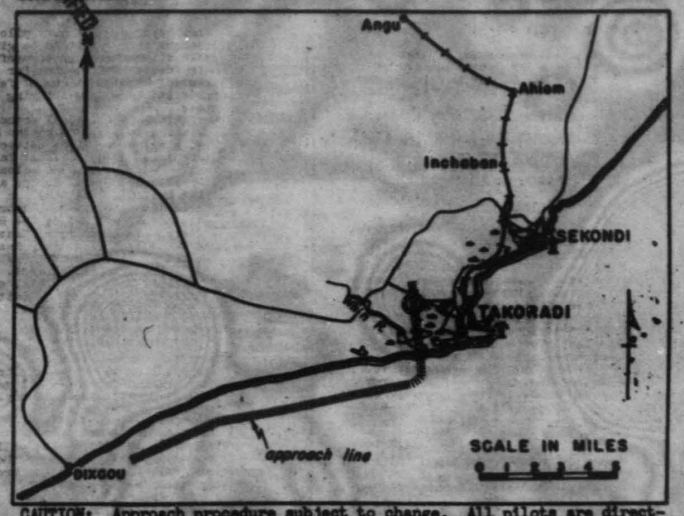
Aircraft should approach along the coast from a westerly direction at under 3000 feet and proceed to the entrance of the WHIN River some 3000 yards west of Takoradi. They should then fly due north along a line to Takoradi Aerodrome. Aircraft desiring to land at Takoradi should approach the aerodrome, turn into a normal left hand circuit and land.

It is pointed out that aircraft should not fly directly over Takoradi Harbor. Aircraft should display the correct recognition signal of the hour with a signal cartridge or failing this, they should approach with undercarriage down.

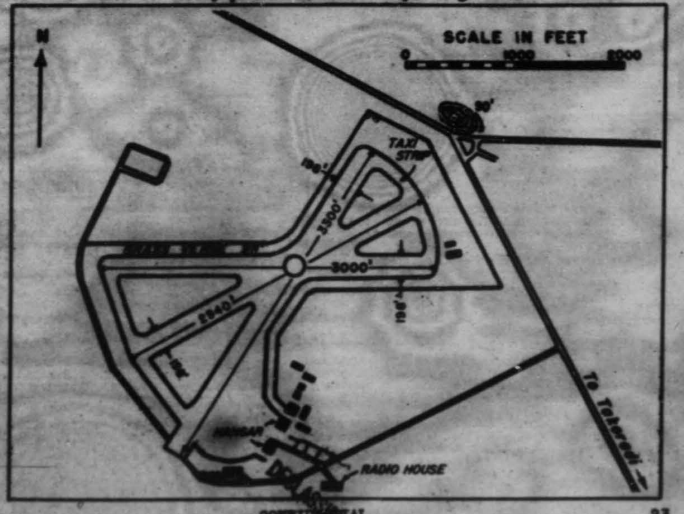
DECLASSIFIED CONFIDENTIAL

DECLASSIFIED CONFIDENTIAL

TAKORADI
GOLD COAST



CAUTION: Approach procedure subject to change. All pilots are directed to verify procedure before departing for this field.



CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

NAME AND LOCATION

Accra Civil Airport, 3½ miles NE. of Accra.
Position - Lat. 05° 36' N., Long. 00° 10' W.
Magnetic Variation - 12° 10' W. (1940)
Altitude - 200 feet.
Landmarks - Accra-Dodowa Road on W. edge of field. Accra-Kumasi RR. is 2 miles W. Mt. Zahrtman, 3 miles N. of airport, is an isolated peak 540' high.

DESCRIPTION

Dimensions - 3 runways connected by a gravel taxiing strip. NNE/SSW 4350'x225' available. NE/SW 4350'x225' under construction. E/W 4350'x225' under construction. The last two runways will be completed by Sept. 1, 1942.
Surface - The NNE/SSW runway is bitumen surfaced and the other two are of laterite gravel. Bitumen surface planned for the last two. Area between runways is cleared, type of surface unknown.
Markings - Concrete drain around perimeter is painted black and white. Wind cone in SW. corner.
Lighting - Emergency kerosene flares for outlining runway. A line of white lights is shown at point of contact and red lights at end of runway. Red obstruction lights, which operate only on advance request.
Obstructions - N. - 54' control tower and anemometer mast; police station. Mt. Zahrtman (540'). E. --100' radio masts (painted black and white) about 1500' from field. S. - cantonment buildings ¼ mile from field. W. - 40' hangar and 41' windsock adjacent to W. side of NNE/SSW runway. Radio masts (105') about 1½ miles SW. of field.

FACILITIES

Hangars - 1 steel hangar 125'x90'; door 125'x25'. Apron between hangar and NNE/SSW runway. 2 hangars under construction.
Repair Facilities - Very few spare parts. Detachment of PAA mechanics. Compass base. PAA radio mechanics.
Fuel and Oil - Unlimited amount of 100 octane gas and plenty of oil. Gas trucks.
Communications - Telephone and telegraph, radio, radio beacon, and D/F (For radio procedure see chapter on Radio).
Weather Reports - PAA meteorological station. Reports can be obtained before take-off from the aerodrome control office. Reports sent to aircraft will be in ATIMOC code.
Transportation - Provided by PAA. B.O.A.C. airline stop en route Lisbon to Lagos. PAA stop Natal to Khartoum. BW to Takoradi via Kumasi. Regular port of call for steamships.
Personnel Accommodations - Administrative building on the Field; Sea View hotel in Accra; PAA camp is 2 miles from field. Hospitals in town.

WEATHER

Prevailing Winds - Surface winds SW. through SW all year. Calms are frequent. Harmattan winds occurring from Dec. to Feb. blow up from the E. and NE.
Precipitation - 27" annually. Rainy season from April to November with tornadoes occurring at the beginning and end of the season.
Visibility - Fogs are rare. Cloud coverage varies from .3 in January to .7 in June. Harmattan (dust storms) may last from three to four days and reduce visibility to 1500' or less extending to an altitude of 10,000'.

GENERAL INFORMATION

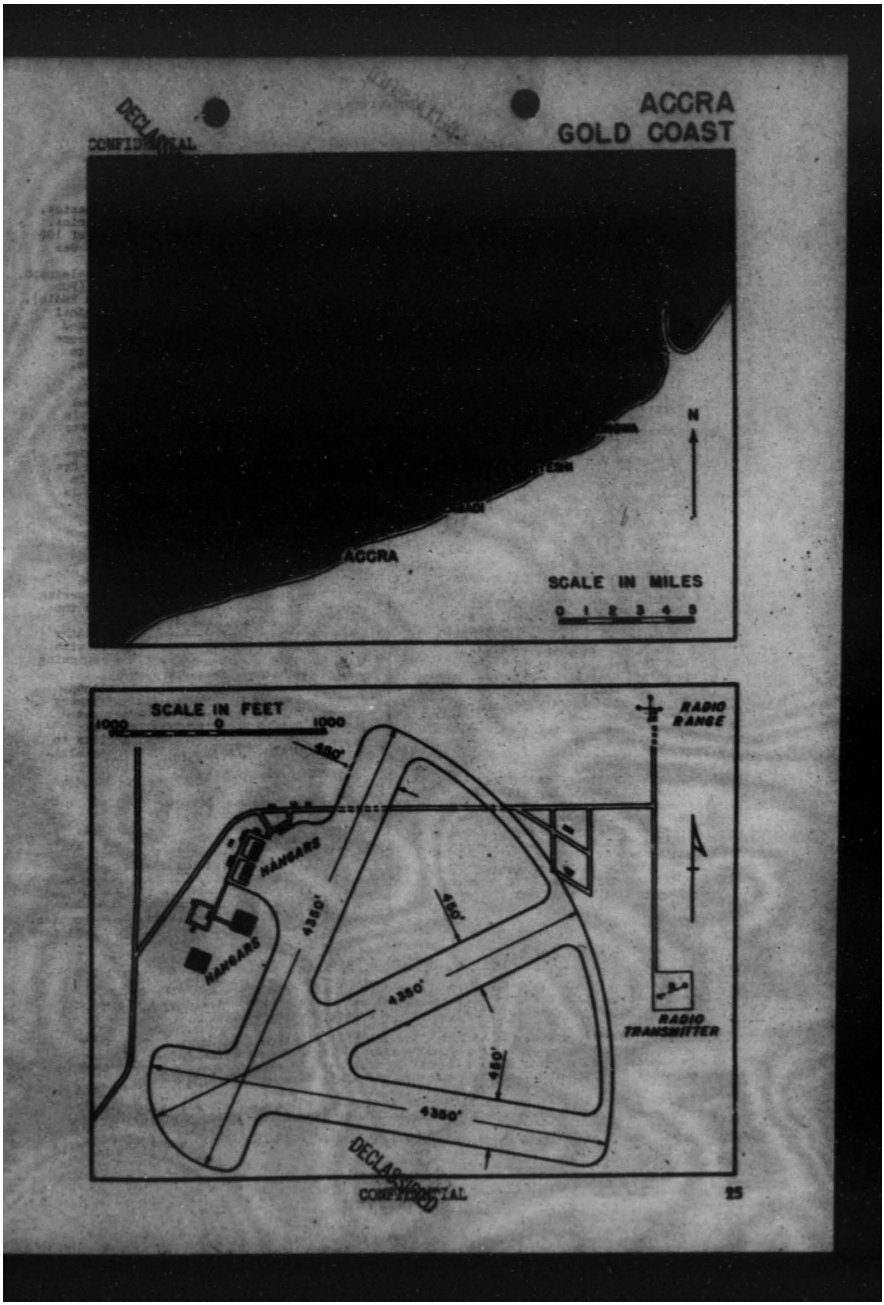
Operated By - B.O.A.C. and P.A.A.
Owned by Gold Coast Government.
Remarks - Anti-smeryl station at field. Guards available for aircraft. Airport suitable for B-24 operation but brakes should be used sparingly.
Warning! Field is under construction. Red flags and white crosses will mark unserviceable area.

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

LAGOS (APAPA), NIGERIA

NAME AND LOCATION

Lagos (Apapa) Airport is located 1 mile W of Lagos across Lagos Harbor on Apapa Point, adjacent to and SE of Apapa.
Position- Lat. 6° 26'N. Long. 3° 23'E.
Magnetic Variation- 10°15'W(1940).
Altitude- 16'.
Landmarks- Lagos Harbor, Apapa Wharf and the railroad terminus at Apapa Point; at night, Lagos Light, 2½ miles SSE and harbor lights.

DESCRIPTION

Dimensions- Two runways, ENE/WSW 3480'x525'; NW/SE 3000'x525'. Each has a 150' gravel center strip for its entire length. Parking strip 2400'x81' E/W.
Surface- Laterite gravel runways; sandy off runways; all weather.
Markings- White boundary and corner markings; white circle with "LAGOS" in center of main runway, wind cones.
Lighting- Emergency flares available. Rockets and Very lights are fired during fogs. Normally flying is confined to daylight.
Obstructions- NE - wharf buildings and 80' cranes, also 105' W/T masts; S - hangars, 40' masts and 30' wind indicator; 200' W/T masts 1 mile S. W - 75' wind cone and hangars. Approaches clear except for trees on SW.

FACILITIES

Hangars- Government hangar of corrugated iron 75'x60'x15'-20' with door 60' wide, and 2 Bellman hangars 90'x120'x 25' clearance.
Repair Facilities- RAF mechanics, BOAC repair base. RAF radio maintenance.
Fuel and Oil- Shell and Intava bulk supplies available. - All octanes. Modern fueling equipment.
Communications- Telephone and telegraph on field. Radio, radio beacon and D/F available. (See chapter on radio)
Weather Reports- Main forecasting station on field for Lagos-Kano ferry route and Lagos- Freetown flying boat route. BOAC and PAA service.
Transportation- Railroad from Lagos NE to interior. Taxi and ferry to Lagos.. Cars and buses.
Personnel Accommodations- Hotels in city. RAF quarters for 300 men on airport. Doctors and hospitals in town. (Population 158,500 (1940). Fresh water available.

WEATHER

Prevailing Winds- WSW . From November to February and occasionally in March, dry NE winds penetrate from the interior. Frequent calms.
Precipitation- 72" of rain per year. Rainy season from April to October with tornadoes common the two months before and after.
Temperature- Mean 81°, minimum 69° maximum 96° F.
Visibility- Severely restricted during tornado season by thunder and rain. Coastal fog and harmattan haze with NE winds. Harmattan haze reduces visibility to 1500'. Heavy cumulus cloud most of day.

GENERAL INFORMATION

Operated By - Director of Civil Aviation, Lagos and RAF.
Customs- Yes.
Remarks- Permission to land or take off given by white flag; red flag prohibits landing or taking off. Left hand circuits required. B-24 planes can use this field. An alternate landing strip is under construction at Ikeja, 11 miles NNE of Lagos.

APPROACH PROCEDURE FOR LAGOS AIRPORT

North approach must be directly to Ikeja Airport and from there directly to Apapa Airport. East, south and west approaches must be on a clockwise circle at a distance of 5 miles from Apapa Airport until an approach corridor is reached.

Approach corridors are: (1) along a line bearing 275° true from Lagos lighthouse, and from the lighthouse NE along a line bearing 30° true from the lighthouse to either Lagos Lagoon or to a point where a normal approach can be made to Apapa Airport. (2) Along a straight line between Ikeja Airport and Apapa Airport.

Approach must be made under 1000' or below clouds, whichever is lower. Have landing gear lowered or be ready to flash identification by signal lamp or Very pistol.

WARNING: Check this approach procedure before using. The description was garbled in transit.

DECLASSIFIED

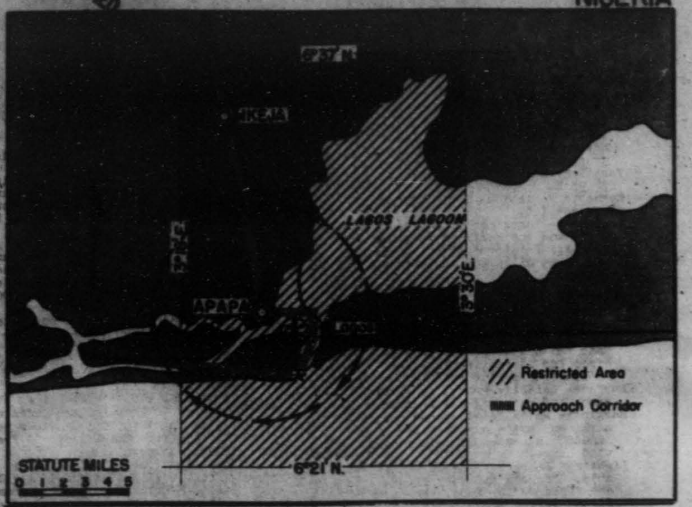
CONFIDENTIAL

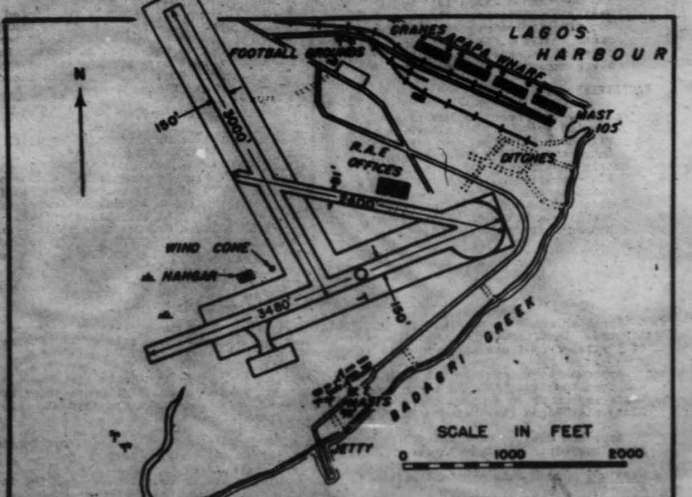
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

(APAPA) LAGOS NIGERIA





CAUTION: Approach procedure subject to change. All pilots are directed to verify procedure before departing for this field.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

LAGOS (IKEJA), NIGERIA

NAME AND LOCATION

Ikeja Military Airport is immediately W of Ikeja Railroad Station and is 11 miles NNW of Lagos.
Position- Lat. 06° 36' N. Long. 03° 24' E.
Magnetic Variation- 10° W. (1940)
Altitude- 120'.
Landmarks- RR from Lagos is on the E edge of this field. Field is a distinctive cleared area in dense forest surroundings.

DESCRIPTION

Dimensions- Runway - 4200' NE/SW (Being enlarged to 4800' on 3-6-42).
Surface- Sand. Runway - laterite base with asphalt top.
Markings-
Lighting- Emergency flare pots.
Obstructions- Approaches from SW and NE are clear. High trees on all other sides.

FACILITIES

Hangars-
Repair Facilities- Minor.
Fuel and Oil-
Communications-
Weather Service- Main forecasting station at Lagos.
Transportation- Hard surfaced road and a railroad to Lagos.
Personnel Accommodations- Hodgson barracks on the field. Medical dispensary at Ikeja. Hospitals in Lagos.

WEATHER

Prevailing Winds- WSW. Harmattan winds from the NE occur frequently from November through February.
Precipitation- 52" annually. Rainy season April to October. Tornadoes occur at beginning and end of rainy season.
Temperature- Max. 95° F.; minimum 70° F.; average 81° F.
Visibility- Drops to zero in a heavy rain and is restricted to 1500' by harmattan haze during the dry season.

GENERAL INFORMATION

Operated By - PAA and U.S. Ferry Command.
Remarks- This field is used as a staging point on the Ferry route. Apapa Airport will be used by BOAC.

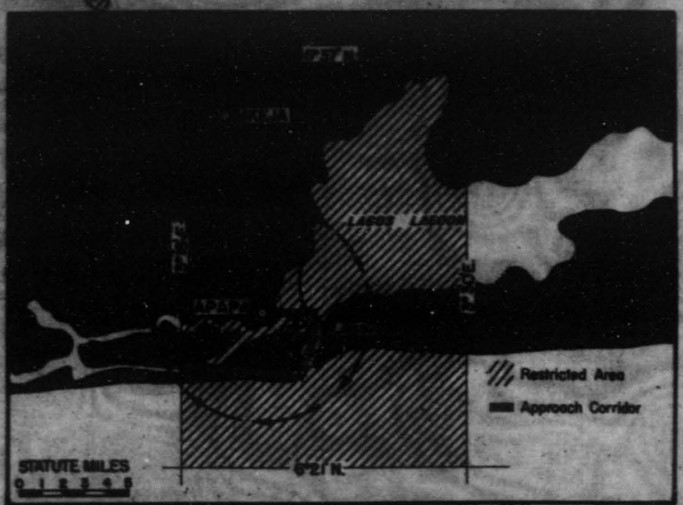
DECLASSIFIED

CONFIDENTIAL

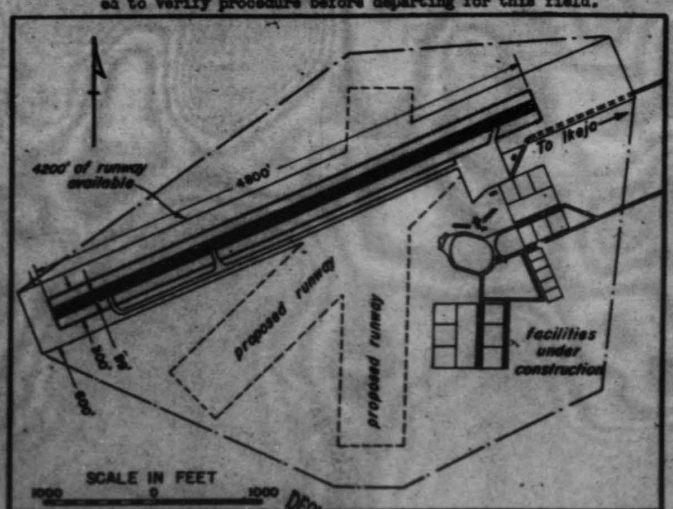
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

(IKEJA) LAGOS
NIGERIA



CAUTION: Approach procedure subject to change. All pilots are directed to verify procedure before departing for this field.



29

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

OSHOGBO, NIGERIA

NAME AND LOCATION

Oshogbo Civil and Military Airport is 5 miles W of Oshogbo and 4 miles ENE of Ede.
Position- Lat. 07° 46'N. Long. 04° 30' E.
Magnetic Variation- 09° 40'W(1941)
Altitude- 989'.
Landmarks- Oshogbo-Ede Road on N side and RR on S edge of field. Awahun River along S side of RR.

DESCRIPTION

Dimensions- Irregular shaped field with two runways. E/W 3000'x225'; NE/SW 4650'x225'.
Surface- Grass and laterite. A sod strip 150' wide borders each side of both runways.
Markings- White circle. White boundary marks along runways at 300 foot intervals. White wooden markers 3' high at ends of each runway. Landing "T" at intersection of runway.
Lighting- Emergency flares available.
Obstructions- N - 150' trees, 1200' distant; NE - 50' W/T masts; SW - 150' trees, 900' distant; E - 160' trees. Surrounding country is hilly.

FACILITIES

Hangars- None.
Repair Facilities- RAF mechanics.
Fuel and Oil- RAF maintains a good supply. Hand servicing.
Communications- Telephone and telegraph on field. Radio station ZJW. (See chapter on radio).
Weather Reports- Meteorological station on field. Reports and forecasts from Lagos by telephone. Broadcasts over ZJW on request.
Transportation- Lagos-Kano RR on S edge of field. All weather road to Lagos and other points.
Personnel Accommodations- RAF quarters on field. Resthouses. Native doctor and hospital in Oshogbo. European hospitals in Ibadan. First aid on field.

WEATHER

Prevailing Winds- Dry season - NE and E for surface winds and upper winds. Rainy season- surface winds are SE to SW, upper winds NE to E.
Precipitation- Approximately 50" annually. Rains from April to October; tornadoes at beginning and end of season.
Temperature- Mean max. 93° F. mean minimum 66° F.
Visibility- Rainy season; full cloud coverage at 1000' altitude or less during rains, breaking to 0.6 coverage in afternoon. Dry season - Harmattans from November to February bring a dust haze which reduces visibility to 1500' or less and extends to an altitude of 10,000'. 18 days of fog from December to March.

GENERAL INFORMATION

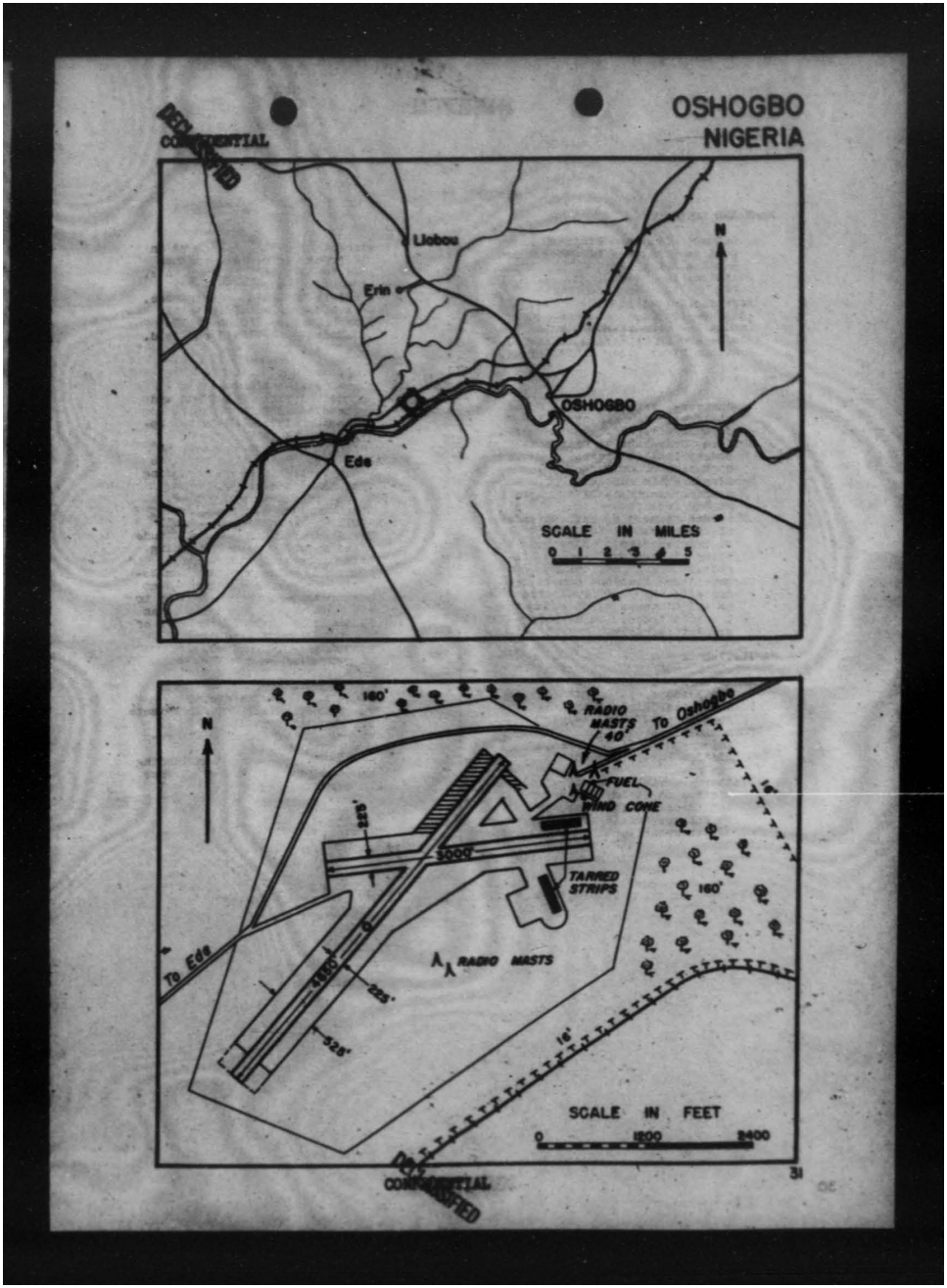
Operated By - Director of Civil Aviation, Lagos, Nigeria.
Customs- Yes. Health Officer meets all planes.
Remarks- Left hand circuits required.
WARNING: Use caution when landing and taking off. Runway surface is wavy.

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

KANO, NIGERIA

NAME AND LOCATION

Kano Civil Customs and Military Aerodrome is 3 miles NNE of Kano.
Position- Lat. 12° 03' N. Long. 08° 32' E.
Magnetic Variation- 07°40' W.('41)
Altitude- 1550'.
Landmarks- Road on SW side of airport. Railway(Nguru-Zaria) two miles S. Walled city of Kano.

DESCRIPTION

Dimensions- Field cross shaped. 2 runways with turning circles at each end. NW/SE 5390'x525', NE/SW 4400'x525' (under construction. To be 6300' when completed).
Surface- Laterite gravel. Concourse at ends of runways and turning circles are bitumen surfaced. After a storm field may be completely flooded.
Markings- 2 wind cones. White circle inscribed "KANO" at intersection of runways. White boundary marks.
Lighting- Flare pots outline runways. Red lanterns across one end of runway. Approach from other end. Red lanterns on obstructions. Lighted 1 hour before ETA and left burning 1 hour after departure.
Obstructions- W - four 100' radio masts 1800' W of intersection of runways. S - 40' anemometer masts and airport buildings, W/T masts are 70' S of hangar. Good approaches.

FACILITIES

Hangars- 1 hangar 50'x70'. Normally not available to RAF.
Repair Facilities- Major repair jobs by RAF personnel. Capacity seven major repair jobs per month. About 50 mechanics available.
Fuel and Oil- Bulk supplies available. Airport short of mechanical fueling devices. Mobile refueling pump.
Communications- Telephone on airport; telegraph in Kano. Radio station ZIR and D/F available. See chapter on radio.

Weather Reports- A subsidiary forecasting station for Lagos-Maiduguri Ferry route.
Transportation- Nguru-Zaria RR. passes through Kano. Roads from Kano leading to all points in Nigeria. Dirt road to town. Cars available at field.
Personnel Accommodations- Railroad rest camp 4 miles S of field has six cottages available. RAF quarters available for 20 officers; other buildings under construction for housing 120 men. Housing will be available for 240 men.

WEATHER

Prevailing Winds- Dry season winds are from the E and NE; wet season surface winds are from the SW.
Precipitation- 20" annually. Rainy season from May to September. Tornadoes occur at the beginning and end of the season. Thunder storms in August.
Temperature- 36° F. minimum; 110° F. maximum.
Visibility- Harmattans frequent from November until March and may last 3 or 4 days, bringing heavy dust haze and reducing visibility to 1500' or less and extending to an altitude of 10,000'. During the wet season heavy clouds may cover most of the sky.

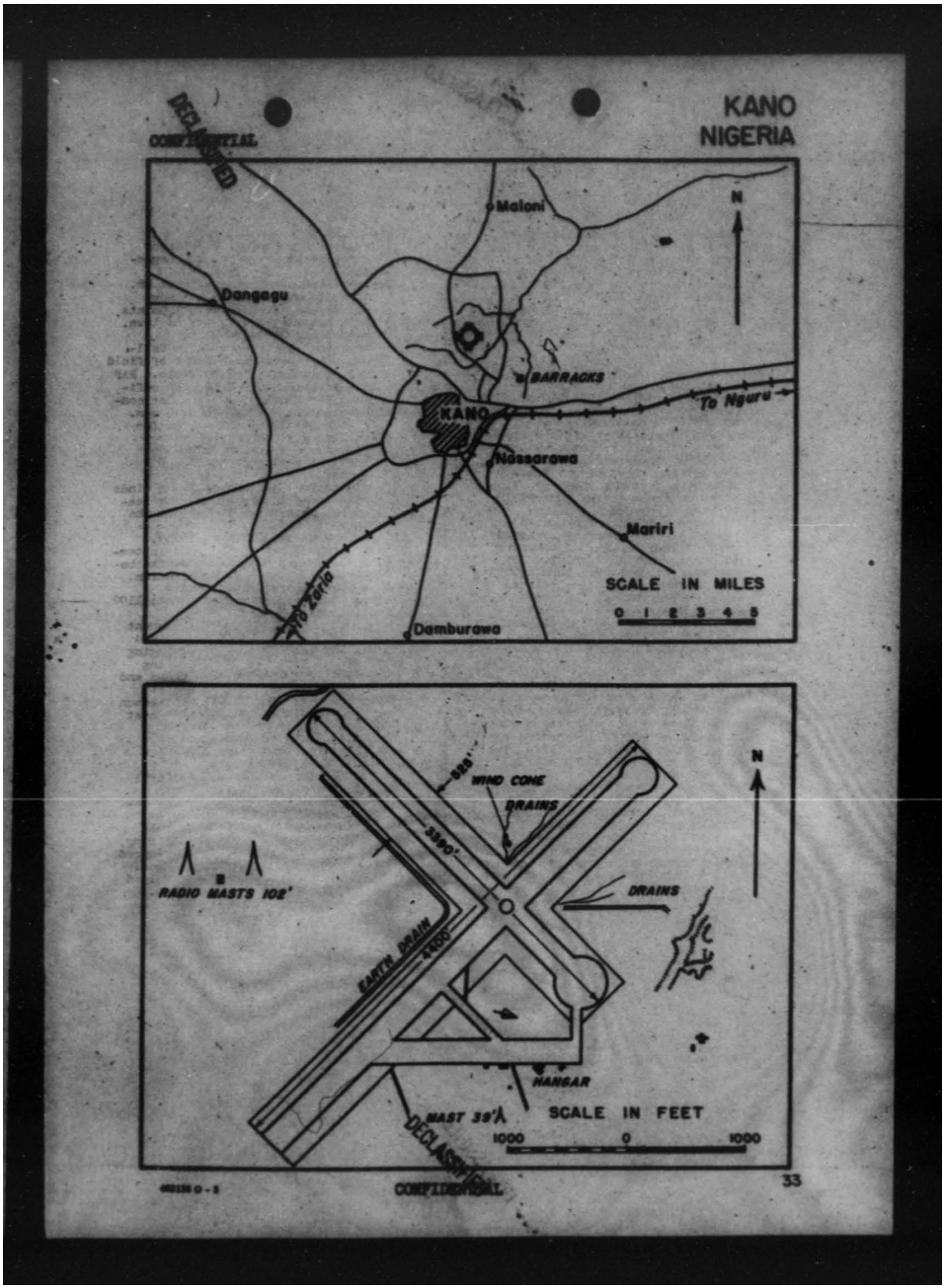
GENERAL INFORMATION

Operated By - Director of Civil Aviation, Lagos.
Remarks- Left hand circuits required.
WARNING: Runway surface liable to be soft and to avoid miring, tire pressure should be reduced to 45 pounds on heavy planes. Short runway limits gross load on take-offs to 50,000 lbs. Runways may be wavy.

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED CONFIDENTIAL

MAIDUGARI, NIGERIA

NAME AND LOCATION

Maiduguri Civil Customs Airport is 4½ miles W of town.
Position- Lat. 11° 51' N. Long. 13° 05' E.
Magnetic Variation- 6° W.(1941)
Altitude- 1150'.
Landmarks- Kano-Maiduguri Road on S. edge of field.

DESCRIPTION

Dimensions - Field approximately 3600'x3800'. Runway NE/SW 3690'x150'; E/W 3450'x150'; N/S 3600'x90'. Turning circles at end of each runway.
Surface- Field: Flat and grassy. Runway: Packed clay and laterite center strip with grass shoulders on each side. Runway cannot be used for one hour after a shower during rainy season. Turning circles and concourse have crushed stone surface.
Markings- White boundary marks and strips along runway. "T" markers at end of turning circles. Leading marks to runway. Landing "T".
Lighting- Emergency flare pots outline proper runway if advance notice given.
Obstructions- S - 30' trees, 120' distant; 15' telegraph wires along road; 70' mast.

FACILITIES

Hangars- None.
Repair Facilities- PAA mechanics and PAA workshops and stores available. About 30 RAF mechanics perform minor repairs on field. Major repairs serviced by mobile parties from Kano.
Fuel and Oil- Bulk supplies available. Gas obtained from Buburu, 400 miles away, by truck. Gas trucks and mobile refueling pump available.
Communications- Telephone on field; telegraph. Radio station, D/F and beacon available. See chapter on Radio.
Weather Service- Main forecasting station for Kano-El Genaina ferry route on field. PAA service.
Transportation- Dry weather roads to Fort Lamy and Kano. All weather road to Joss. Local transport by arrangement.
Personnel Accommodations- RAF quarters for 40 officers and 60 airmen. Resthouse at Maiduguri. Doctor and hospital in town. Fresh water available.

WEATHER

Prevailing Winds- Dry season surface winds NE, upper winds SW. Rainy season - surface winds SW, upper winds E.
Precipitation- 30" annually. Rainy season May to September. Thunderstorms frequent. Tornadoes occur in April and May.
Temperature- 53° minimum; 105° F. maximum.
Visibility- Dry season- Harmattans lasting 3 to 4 days bring heavy dust haze, reducing visibility to 1500' and extending to 10,000' altitude.

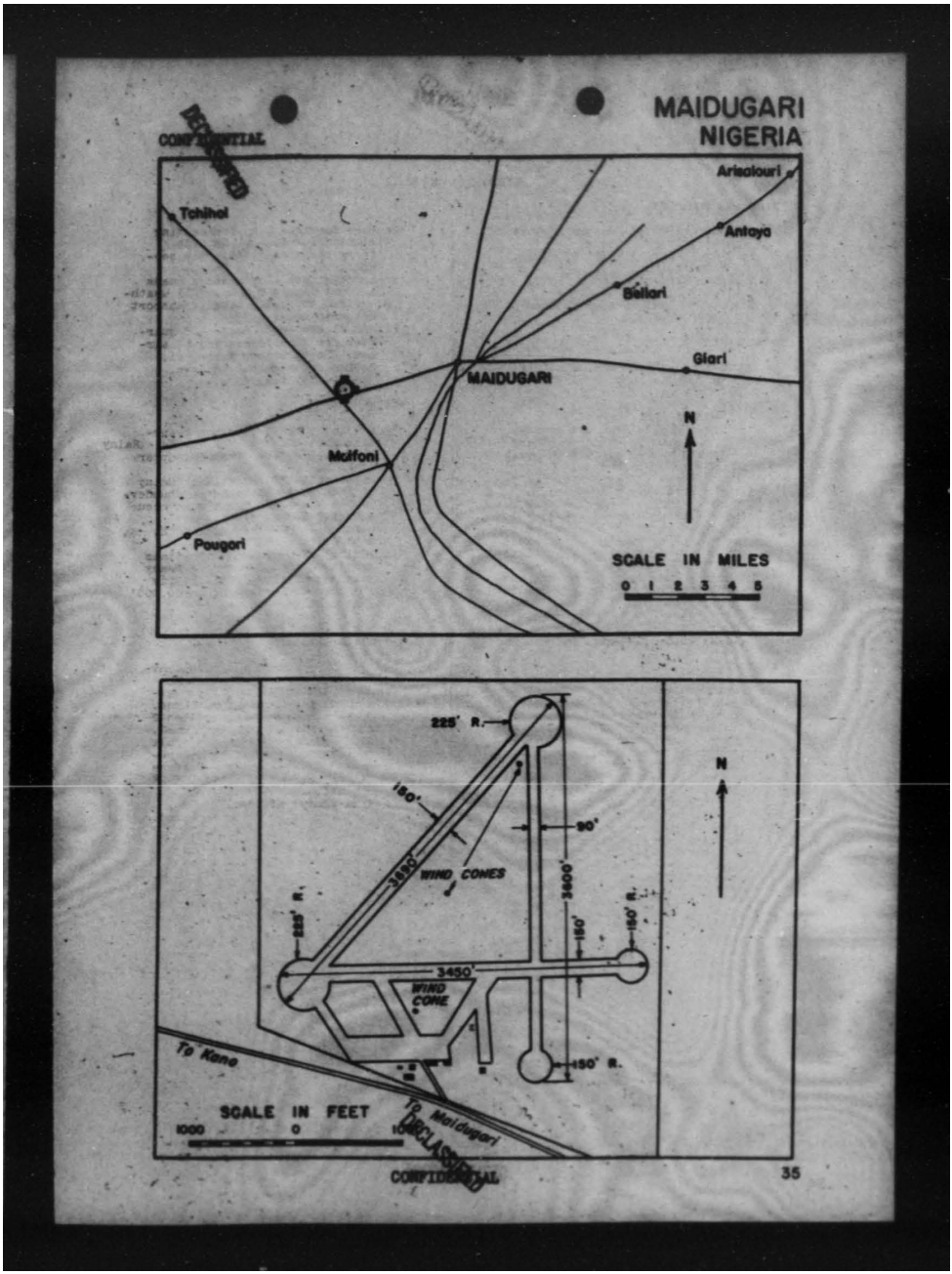
GENERAL INFORMATION

Operated By- Director of Civil Aviation, Lagos.
Customs- Yes. Health Officer attends arrivals and departures.
Remarks- Old aerodrome located 2 miles south of town abandoned.
WARNING: Food and water difficult to obtain; 24 hours notice required for rationing. Surface of runways inadequate for B-24 operation.
Anti-smaryl station.
Left handed circuits required.

DECLASSIFIED CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

PORT LAMY, FRENCH EQUATORIAL AFRICA

NAME AND LOCATION

Port Lamy Military and Civil Aerodrome is 1 mile N of town and 1500' E of River Chari.
Position- Lat. 12° 08'N. Long. 15° 03'E.
Magnetic Variation- 5° 06'W(1941).
Altitude- 984'.
Landmarks- Confluence of rivers Chari and Lagone immediately S of town. New road to Bokoro on W side of field.

DESCRIPTION

Dimensions- Field: 3270'x2295'. Runways: ENE/WSW 3900' x132'. Dry weather landing strip 3900' long adjacent to the NW side of runway.
Surface: Sod over clay. Soft when wet. Brick runway.
Markings- Wind cone on top of new hangar. "PORT LAMY" inscribed in white circle in center of field. Boundary marks.
Lighting- Limited lighting facilities available.
Obstructions- S - 50' radio masts, hangar. SW - 50' hangar, 600' distant. 40' building on 56' hill, 600' distant, in line with approach to runway.

FACILITIES

Hangars- 2 hangars, one 82'x82'; door 82'x18'.
Repair Facilities- Minor repairs by RAF mechanics.
Fuel and Oil - Emergency supplies held by Shell Co. for RAF and civilian use.
Communications- Telephone on field; telegraph at Pt. Lamy. Radio and D/F available. See chapter on radio.
Weather Reports- Weather forecasts and reports obtained from flight officers. A fully equipped meteorological station at Pt. Lamy.
Transportation- Dry weather road to Abeche, Kano and Fort Archambault.
Personnel Accommodations- Hotels in Pt. Lamy. RAF quarters for 12 men; barracks are available for considerable personnel. Food sometimes scarce. Doctors and hospitals in town.

WEATHER

Prevailing Winds- October to April- surface winds from NE, velocity 12 to 20 m.p.h. Upper winds from S or W. May to September, SW monsoons with an E wind above 6000'
Precipitation- Rainy season from May to September with squalls occurring in the afternoons accompanied by thunder and rain storms.
Temperature-
Visibility- During the dry season dust haze and smoke from grass fires generally reduce visibility to less than one half mile. Morning fogs are frequent, especially near rivers, but usually break up by 9 a.m. Wet season - visibility good with cloud coverage 0.5 to 0.8.

GENERAL INFORMATION

Operated By - Commanding Officer Free French Forces.
Remarks- Field considered inadequate for B-24's. An additional cross runway is reported under construction.
WARNING: Area for 10 miles around Pt. Lamy is restricted.

APPROACH PROCEDURE FOR PT. LAMY AIRPORT

Aircraft are not to fly within ten miles of center of Pt. Lamy unless landing there. The aerodrome is to be approached at a height of not more than 500 metres (1640'). Aircraft will lower landing gear 3 miles out, then will cross the runway at this height immediately over the circle on a course of 135 degrees (at right angles to the runway) and then circle to the left and come in for a landing. This procedure applies to daylight hours. In case of formations of aircraft wishing to land at Pt. Lamy, the leader only is to conform to this procedure, other aircraft remaining outside the forbidden zone until the leader has landed. No night landings are authorized at Pt. Lamy unless prior authorization has been granted and the estimated time of arrival given. Aircraft not conforming with the above instructions will be fired upon by anti-aircraft.

If not landing at Pt. Lamy, pass at least ten miles to north of it.

DECLASSIFIED
CONFIDENTIAL

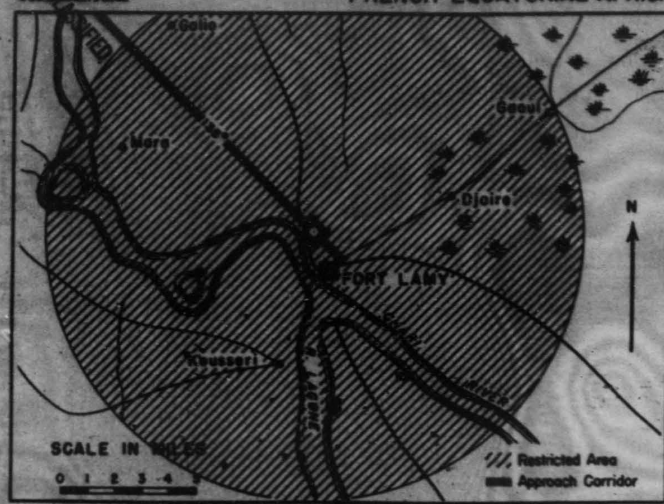
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

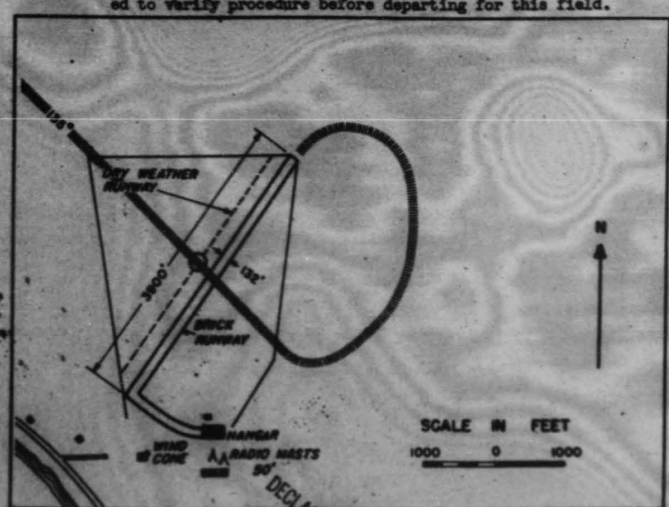
CONFIDENTIAL

FORT LAMY

FRENCH EQUATORIAL AFRICA



CAUTION: Approach procedure subject to change. All pilots are directed to verify procedure before departing for this field.



CONFIDENTIAL

37

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED CONFIDENTIAL

EL GENEINA, ANGLO-EGYPTIAN SUDAN

NAME AND LOCATION

El Geneina Military and Civil Customs Airport 1 mile N of El Geneina and ¼ mile W of the Fort and European cantonments.
Position- Lat. 13° 29'N. Long. 22° 27' E.
Magnetic Variation- 2° 40' W(1941).
Altitude- 2800'.
Landmarks- Wadi Kaja (dry river course) 1½ miles E.

DESCRIPTION

Dimensions- Field: 3280'x2624'; shape irregular.
Runways: NE/SW 4500'x 150'; WNW/ESE 3900'x150'.
Surface- NE/SW runway - 2400' bitumen and 2100' gravel. WNW/ESE runway gravel; turning circles at ends of runway gravel; concourse- brick underlay with gravel top. May be unserviceable after heavy rains.
Markings- 2 wind socks, each with white circle around it; white stripe along edges of runways.
Lighting-
Obstructions- Runways surrounded by thorn fence 3' high. E- 40' W/T masts; 26' buildings and trees. W - buildings. SW - D/F masts.

FACILITIES

Hangars -
Repair Facilities- Minor repairs.
Fuel and Oil - Full RAF supplies. Tank trucks available.
Communications- Telegraph at El Geneina Fort; telephone at airport. Radio and D/F available. See chapter on radio.
Weather Reports- Forecasts obtained from RAF offices. Fully equipped meteorological station 1 mile from airport.
Transportation- Dry weather roads not usable from May to November.
Personnel Accomodations- RAF quarters for 18 officers and 36 airmen. Resthouse. Hospital and native doctor at fort.

WEATHER

Prevailing Winds- Dry season- surface winds are N and NE; the upper winds SW. Rainy season - surface winds S and SW; upper winds E and NE. During haboobs (sand storms) 50 m.p.h. velocity gusts may occur.
Precipitation- Rainy season- approximately 12" annually- mid-July through October; thunder frequent.
Temperature-
Visibility- Sand storms infrequent during dry season but occur 5 to 7 days a month in June and July.

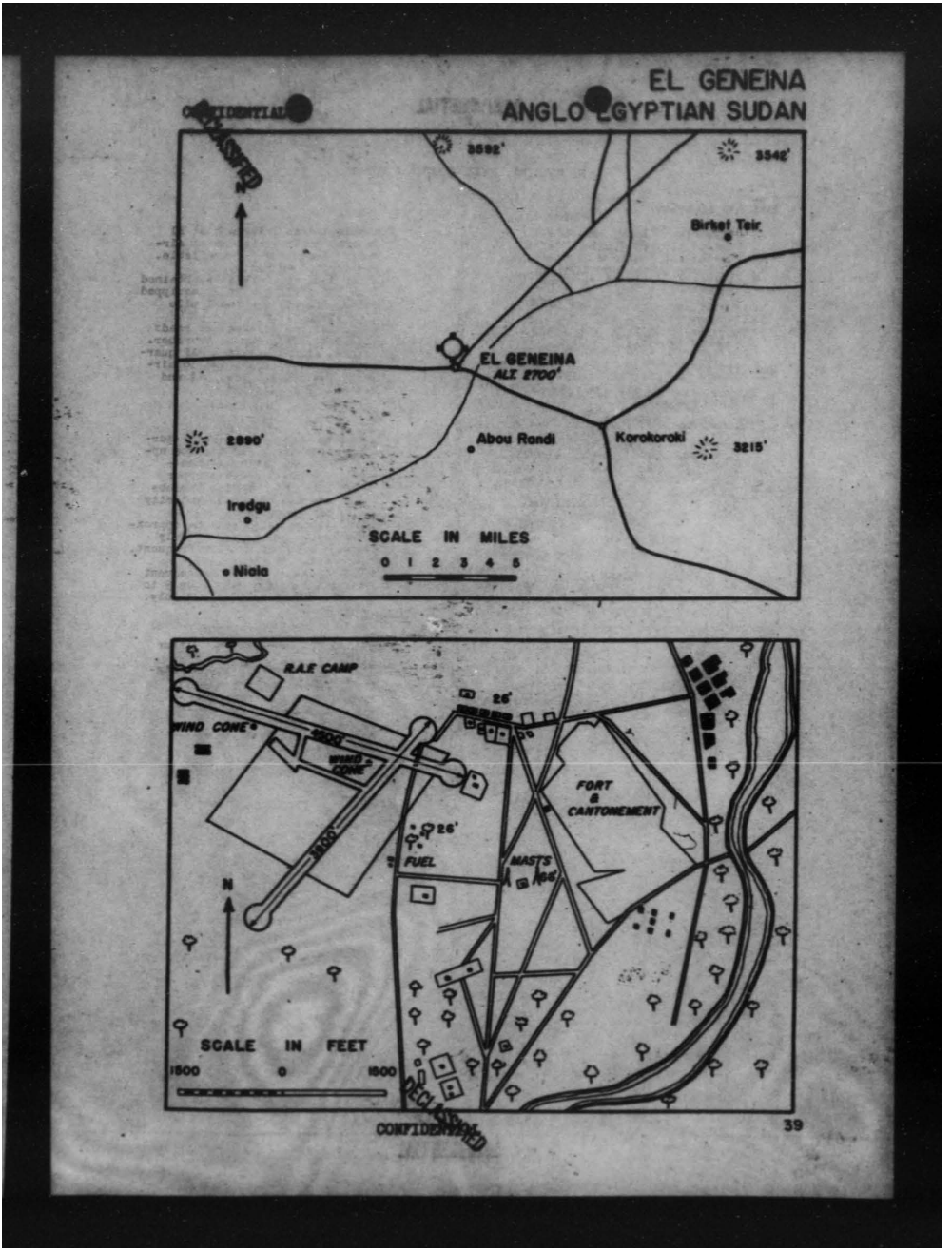
GENERAL INFORMATION

Operated By - Governor of Darfur Province.
Remarks- See page of special signals (P. 56).

DECLASSIFIED CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

EL FASHER, ANGLO-EGYPTIAN SUDAN

NAME AND LOCATION

El Fasher Civil and Military Aerodrome is 1½ miles W of town.
Position- Lat. 13° 38' N. Long. 25° 20' E.
Magnetic Variation- 2° 15' W(1941).
Altitude- 2581'.
Landmarks- High ridge of hills running SW/NE on E side of town. Stream on E edge of field.

DESCRIPTION

Dimensions- Size of field: 2624'x 3116'. Runways - E/W 3600'; NE/SW 4500'; N/S 3600'.
Surface- Smooth, sandy soil. Runways of brick. Keep to runways.
Markings- White strips along edges of runways. Bad ground marked with white crosses. Wind sleeve on E. side. Corner and boundary marks.
Lighting-
Obstructions- Isolated peaks, elevation about 2800', are scattered on all sides of El Fasher, the closest being about 5 miles NW of field. NE - 70' W/T masts, ½ mile distant, gas hut; E - rest-house.

FACILITIES

Hangars- None.
Repair Facilities- Minor repairs on field; major repairs serviced by mobile party from Khartoum.
Fuel and Oil- Full supplies held by RAF. Replenishment is difficult and often is accomplished by camel back. Underground fuel tanks and high speed pumps are planned for the near future. Present refueling by hand pumps.
Communications- Telephone on field; telegraph in town. Radio and D/F available. (See chapter on radio).
Weather Reports- Fully equipped meteorological station in town.
Transportation- Dry weather road W to El Geneina with motor transport possible only from November 15 to May 15. All weather road E.
Personnel Accommodations- BOAC anti-amaryl resthouse. Doctor in El Fasher.

WEATHER

Prevailing Winds- Dry season - surface winds N and NE; wet season - surface winds S and SW.
Precipitation- Rainy season May to October.
Temperature-
Visibility- Sand storms frequent during rainy season.

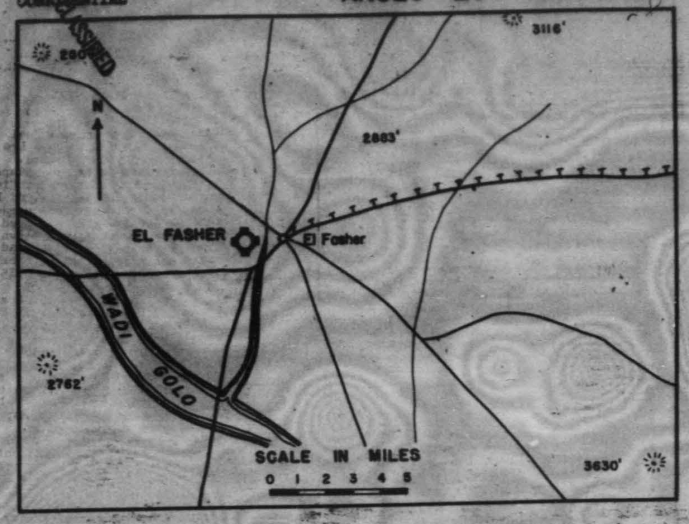
GENERAL INFORMATION

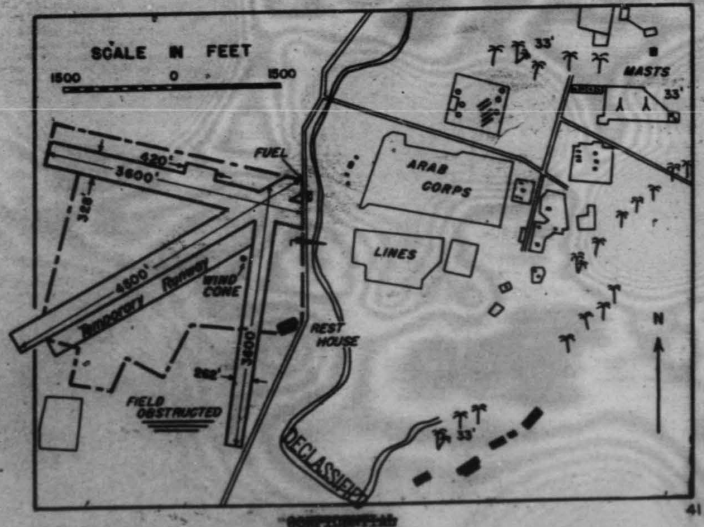
Operated by- Governor of Darfur Province and RAF.
Remarks- Because of difficulty in supplying gasoline, large aircraft should avoid using this field, except in emergency. Field is suitable for B-24's.
WARNING: White crosses mark portion of field that is not serviceable.

DECLASSIFIED
CONFIDENTIAL

DECLASSIFIED
CONFIDENTIAL

EL FASHER
ANGLO EGYPTIAN SUDAN





THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

EL OBEID, ANGLO- EGYPTIAN SUDAN

NAME AND LOCATION

El Obeid Military and Civil Landing Ground located 2 miles SE of El Obeid on the W side of the railroad.
Position- Lat. 13° 10' N. Long. 30° 14' E.
Magnetic Variation- 1° 30' W(1941)
Altitude- 1860'.
Landmarks- Town of El Obeid, NW; Jebel Cordofah SE. A railway on E side of field.

DESCRIPTION

Dimensions- Irregular shape with two gravel runways, both 300' wide. N/S 4500'; NE/SW 4200'.
Surface- Mixture of red sand and cotton soil; affected for 12 hours after a heavy rain. Runways are gravel. Use runways only.
Markings- Center circle, corner markings, windsleeve on W boundary.
Lighting- None.
Obstructions - Low wire fence (3½') surrounds landing ground. NE - Huts and fuel storage; SE - Stores and resthouse; NW - Mud and grass buildings; NE - telegraph wire (15' to 25')' W/T masts 200' high 1 mile NW.

FACILITIES

Hangars- None. Mooring facilities.
Repair Facilities- Minor repairs can be effected in RAF shop and at SDF mechanical transport workshop.
Fuel and Oil- Available. Refueling unit on field.
Communications- Telephone on field; telegraph in town. Radio and D/F available. (See chapter on radio.)
Weather Service- Weather station in town.
Transportation- Railroad to Khartoum via Kosti and Wad Medani; road to Kosti.
Personnel Accommodations- Resthouse at aerodrome; second class hotel and hospital in town. RAF quarters. (population 35,000).

WEATHER

Prevailing Winds- Winter N to NE; summer S to SW.
Precipitation- Average annual rainfall 14", mostly July to September.
Temperature- 31° F. in January to 11°8 F in August.
Visibility- Mean cloud amount 0.2 with 0.5 in August; mists after heavy rains; occasional sandstorms, generally in April.

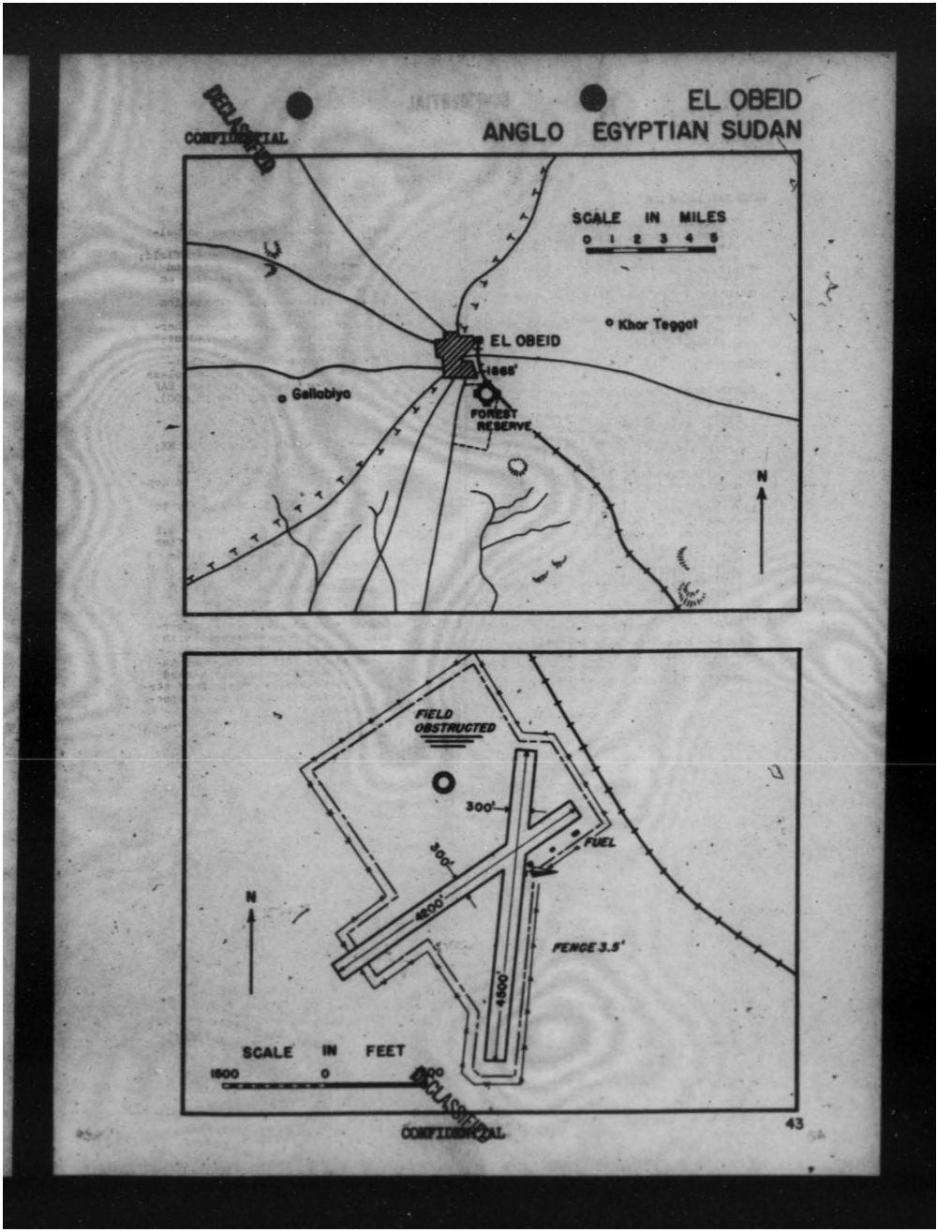
GENERAL INFORMATION

Operated By - RAF.
Remarks- When aerodrome is unserviceable a red square panel with yellow diagonals is displayed. Field may be soft in July and August. Unserviceable area marked with white crosses. Left hand circuits required. See page of special signals (P. 56).

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

KHARTOUM, ANGLO-EGYPTIAN SUDAN

NAME AND LOCATION

Khartoum Military and Civil Airport adjacent to SE edge of town.
Position - Lat. 15° 36' N. Long. 32° 33' E.
Magnetic Variation - 00° 48'W (1941)
Altitude- 1250'.
Landmarks- Junction of White Nile and Blue Nile, 2 miles west of field. Wadi Medani-Khartoum-Wadi Halfa RR on W edge of field.

DESCRIPTION

Dimensions- Field: Very irregular, divided into two main sections- western half 4800'x2025' NE/SW; eastern half 2250'x2025' N/S. Runways- N/S 2450'; E/W 2150'; NW/SE 2200'; NE/SW 2200'.
Surface- Field: hard sand; runways bitumen. W area not to be used for landing or taking off.
Markings- White circle and corner marks; white strips along edges of runways; two windsocks, one on hangar, the other on SE side of field.
Lighting- Night flying facilities available on advance request.
Obstructions- N- 95' W/T masts and water tower; 40' hangar; E- 20' telegraph line; W - 30' W/T masts and 24' telegraph line; NW - 95' W/T masts. SW - trees and 4' fence.

FACILITIES

Hangars - 4 hangars.
Repair Facilities - Large RAF workshops for aircraft and instrument repair. Compass base. Radio repair base.
Fuel and Oil- Full RAF supplies. Tank trucks available.

Communications- Telephone on field; telegraph in town. Radio and D/F available. (See chapter on radio).
Weather Reports- Main forecasting station for El Genaina-Khartoum-Wadi Halfa ferry route and BOAC route from Cairo to Kisumu. Khartoum is the central meteorological and forecasting station for the Sudan.
Transportation- Railroad siding into field; dry weather roads leading N, E, and S from Khartoum connecting with all points in Anglo-Egyptian Sudan. Nile River boats stop in town. Local transport provided by RAF.
Personnel Accommodations- RAF quarters. Hotels and hospital in Khartoum. Ambulance on aerodrome during flying operations.

WEATHER

Prevailing Winds- Dry season - surface winds E. Wet season - surface winds W or SW.
Precipitation- Rainy season July to September. Rainfall 6" annually.
Temperature- Average 84° F., maximum 106° F., minimum 59° F.
Visibility- Dust storms about every three days May to July.

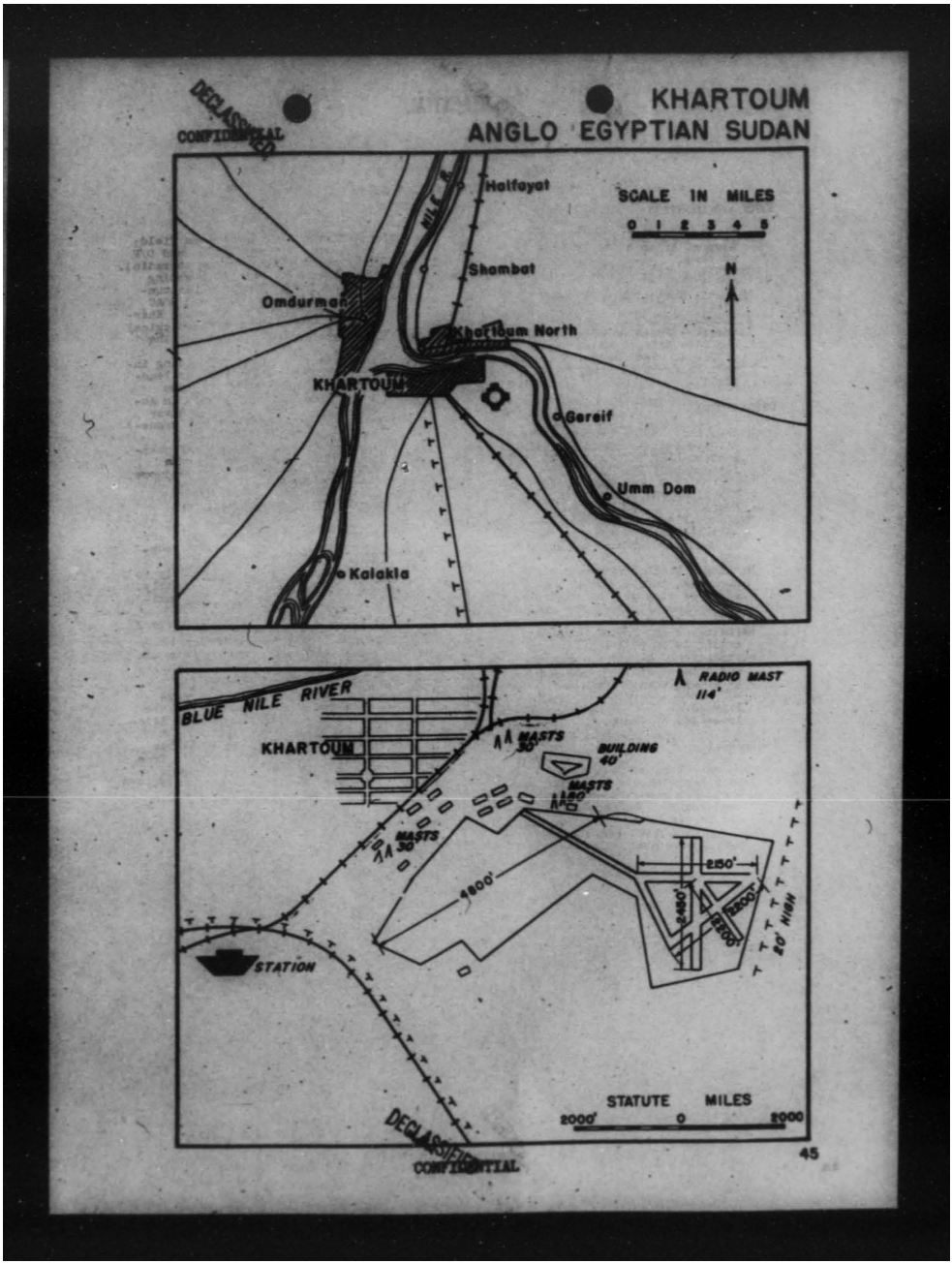
GENERAL INFORMATION

Operated by - RAF.
Remarks- Field is small for B-24 operation. All ferry planes are to use the new field at Wadi Seidna, 20 miles N of Khartoum. A seaplane anchorage is available on the Nile River. Gordon's Tree airfield is 8 miles S of town.
See page of special signals (P. 56).

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

WADI SEIDNA, ANGLO-EGYPTIAN SUDAN

NAME AND LOCATION

Wadi Seidna South Aerodrome is 20 miles N of Khartoum on bank of Nile River.
Position - Lat. 15° 47' N. Long. 32° 32' E.
Magnetic Variation- 1° W.
Altitude- 1250'.
Landmarks- Nile River is on the east side of the field.

DESCRIPTION

Dimensions- 4 runways: N/S 3600', NE/SW 4200', E/W 3600', NW/SE 3000'.
Surface- Hard gravel, level. May be soft for one day after rain. Concrete run up blocks at ends of runway.
Markings- White runway markers.
Lighting- Emergency flare pots along runways and across windward ends. Full lighting to be installed soon.
Obstructions- N - Camp and W/T mast. Telegraph wires running N/S, 3000' away.

FACILITIES

Hangars- One under construction as of April 1942.
Repair Facilities- Minor. Major repairs at Khartoum. PAA and U. S. Army mechanics and workshops.
Fuel and Oil- Available. Fueling via gas trucks. U. S. 100 octane and Aromatic 100 octane gas.
Communications- Telephone. Radio, radio beacon and D/F available. See chapter on Radio.
Weather Reports- Obtained from Khartoum.
Transportation- Poor road to Khartoum. Local transport by PAA.
Personnel Accommodations- Transient Officers' Mess. Water. Doctor and medical quarters on field. Accommodations for 350 men. PAA hotel has good, cool clean quarters. Food is good.

WEATHER

Prevailing Winds- November to April - surface winds N. May to October - surface winds S or SW.
Precipitation- Approximately 6" annually. Rainy season July - September.
Temperature- Average 84° F., maximum 106° F., minimum 59° F.
Visibility- Sand storms about every 3 days from May to July. Clear and hot from November to April.

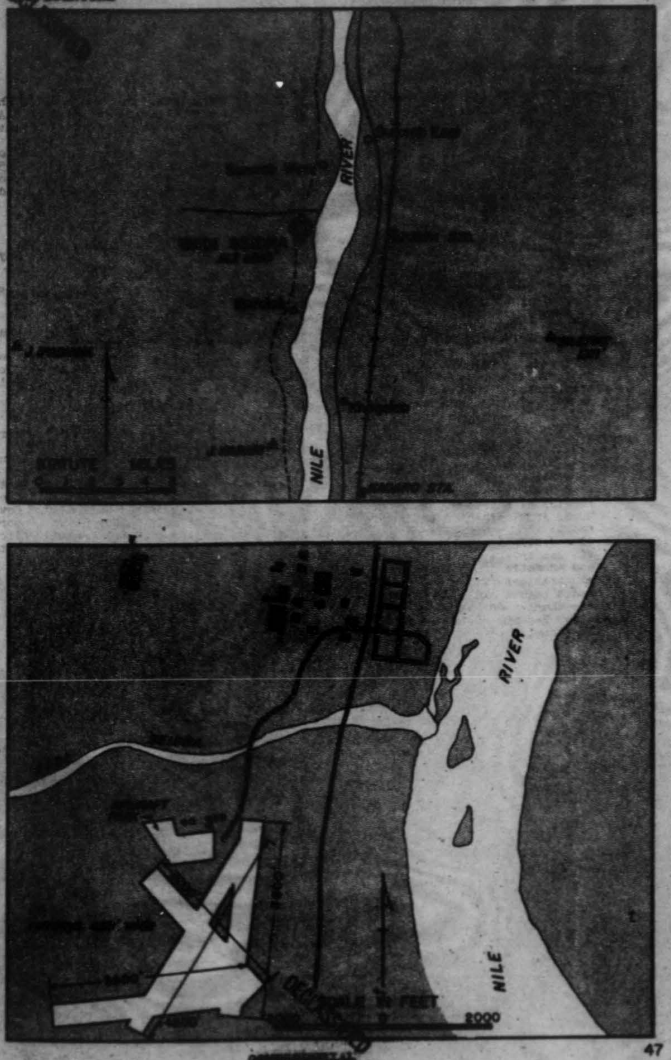
GENERAL INFORMATION

Operated By - PAA and U.S. Ferry Command.
Remarks- All aircraft have to use aprons at the end of runways for warming up. Wadi Seidna North Airport used by the RAF, is on the N side of the Wadi, and a few miles N of Wadi Seidna South Airport. A safe in Ferry Command Office is available for documents. Native guards are on 24 hour duty.

DECLASSIFIED CONFIDENTIAL

CONFIDENTIAL

WADI SEIDNA
ANGLO EGYPTIAN SUDAN



CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

WADI HALFA, ANGLO-EGYPTIAN SUDAN

NAME AND LOCATION

Wadi Halfa Military and Civil Customs Airport is 6 miles S of Wadi Halfa town, 3/4 mile W of the main railway line to Atbara.
Position- Lat. 21° 50'N. Long. 31° 20' E.
Magnetic Variation- 000 04' W.
Altitude- 400'.
Landmarks- Town of Wadi Halfa and Nile River.

DESCRIPTION

Dimensions- 3600'x3600'.
Surface- Hard smooth sand.
Markings- White circle, inscribed with name, corner boundary markings, wind sleeve.
Lighting- None.
Obstructions- Pylons at each corner (3'); E - telephone line (13'); SE - Cavalry Hill(150'); S - 50' hill, 1350' distant.

FACILITIES

Hangars- None.
Repair Facilities- Limited repair facilities at Sudan Railway dockyard.
Fuel and Oil- Shell supplies. Tank-trucks available. Drum storage.
Communications- Telephone and telegraph in town. Radio, radio beacon and D/F available. (See chapter on radio).
Weather Reports- Meteorological station in Wadi Halfa.
Transportation- Railroad to Atbara and Khartoum. Steamer service.
Personnal Accommodations- Sudan Railways. Hotel in town of Wadi Halfa. (Population 2,700 people).

WEATHER

Prevailing Winds- Northerly almost the entire year.
Precipitation - Almost rainless desert.
Temperature- July and August hottest months, when the mean temperature is 91° F.
Visibility- Sandstorms. Fog rare.

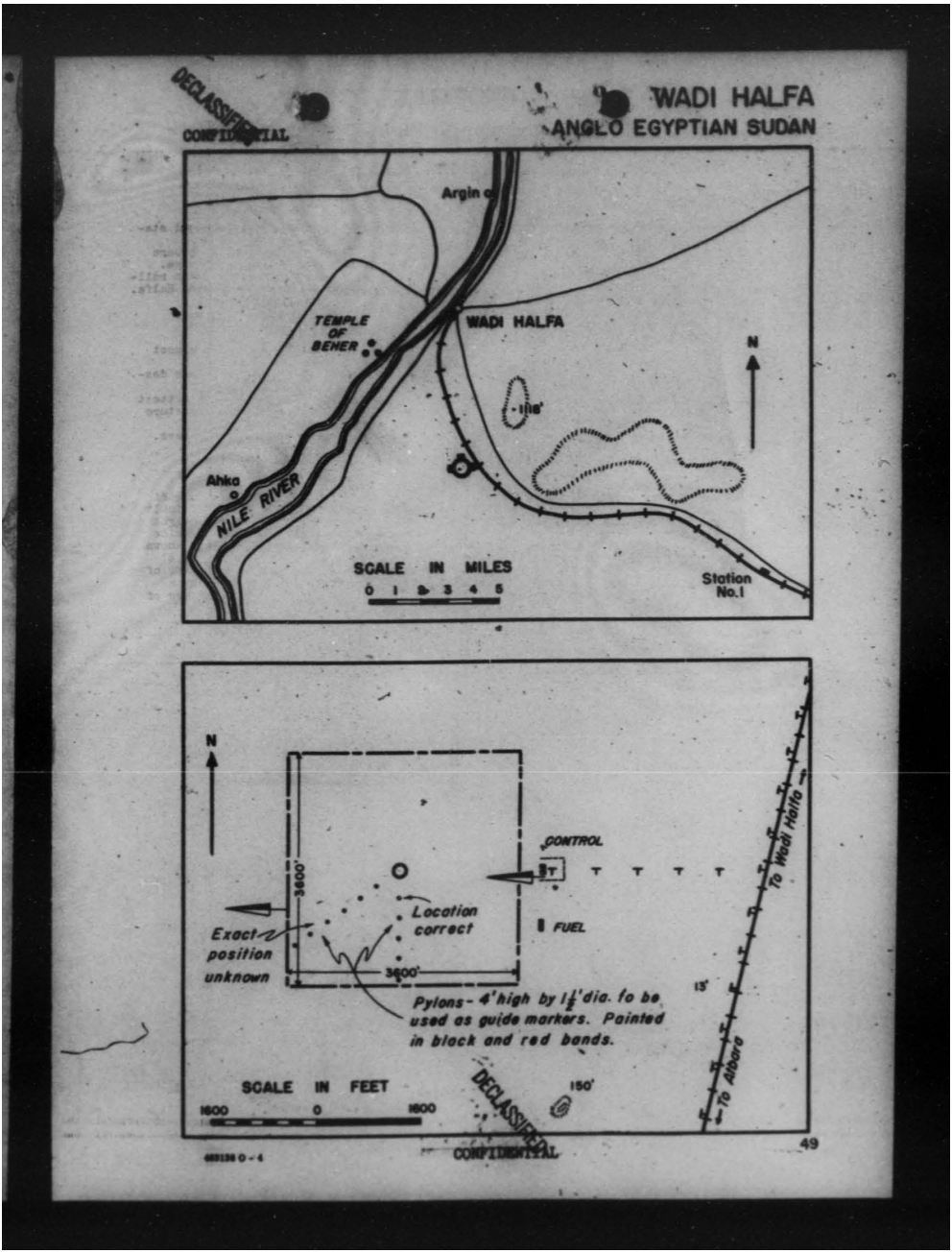
GENERAL INFORMATION

Operated by - Government.
Remarks - Glare and mirage on Wadi Halfa aerodrome make it difficult for pilots to gauge their height when landing. A series of guide pylons have been erected as shown on sketch. These pylons are 4' high, 1½' in diameter and made of light wooden slats, painted in black and red bands. See page of special signals (P. 56).

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED CONFIDENTIAL

LUXOR, EGYPT

NAME AND LOCATION

RAF Emergency Field, 4 miles SE of Luxor Station.
Position - Lat. 25° 41' N. Long. 32° 42' E.
Magnetic Variation - 00° 30' E.
Altitude- 280'.
Landmarks- Town 4 miles NW of landing ground. Nile River. Edge of cultivation lies immediately NW; field is on desert ground.

DESCRIPTION

Dimensions- Field is irregular shaped - 3300'x2520'. Two runways 3000'x120' NW/SE and NNW/SSE available on 24 hours notice.
Surface- Mainly firm sand but soft and uneven, S and SW sides. Serviceable all weather. Runway of stabilized sand.
Markings- Corner markings, black and white circle raised slightly above field surface. Windsleeve.
Lighting- Nil.
Obstructions - N - 26' telephone line, small trees, hut, and wind indicator. E - hills; S - low hills; NW - hut. Landing circle is raised and constitutes an obstruction.

FACILITIES

Hangar- None.
Repair Facilities- BOAC mechanic.
Fuel and Oil - Shell supplies.
Communications- Telephone and telegraph in Luxor. Radio available. See chapter on radio.
Weather Reports- Forecasts by telegraph from Cairo.
Transportation- Railroad to Cairo and Aswan. Nile River.
Personnel Accommodations- In winter several hotels in Luxor. (Population 20,757).

WEATHER

Prevailing Winds-NNW. Khamsins and sand storms from March to May.
Precipitation - Negligible.
Temperature- Hottest months July mean minimum 50° F. and August with 91° mean temperature.
Visibility - Occasional mist over Nile Valley. Dust haze frequent in summer.

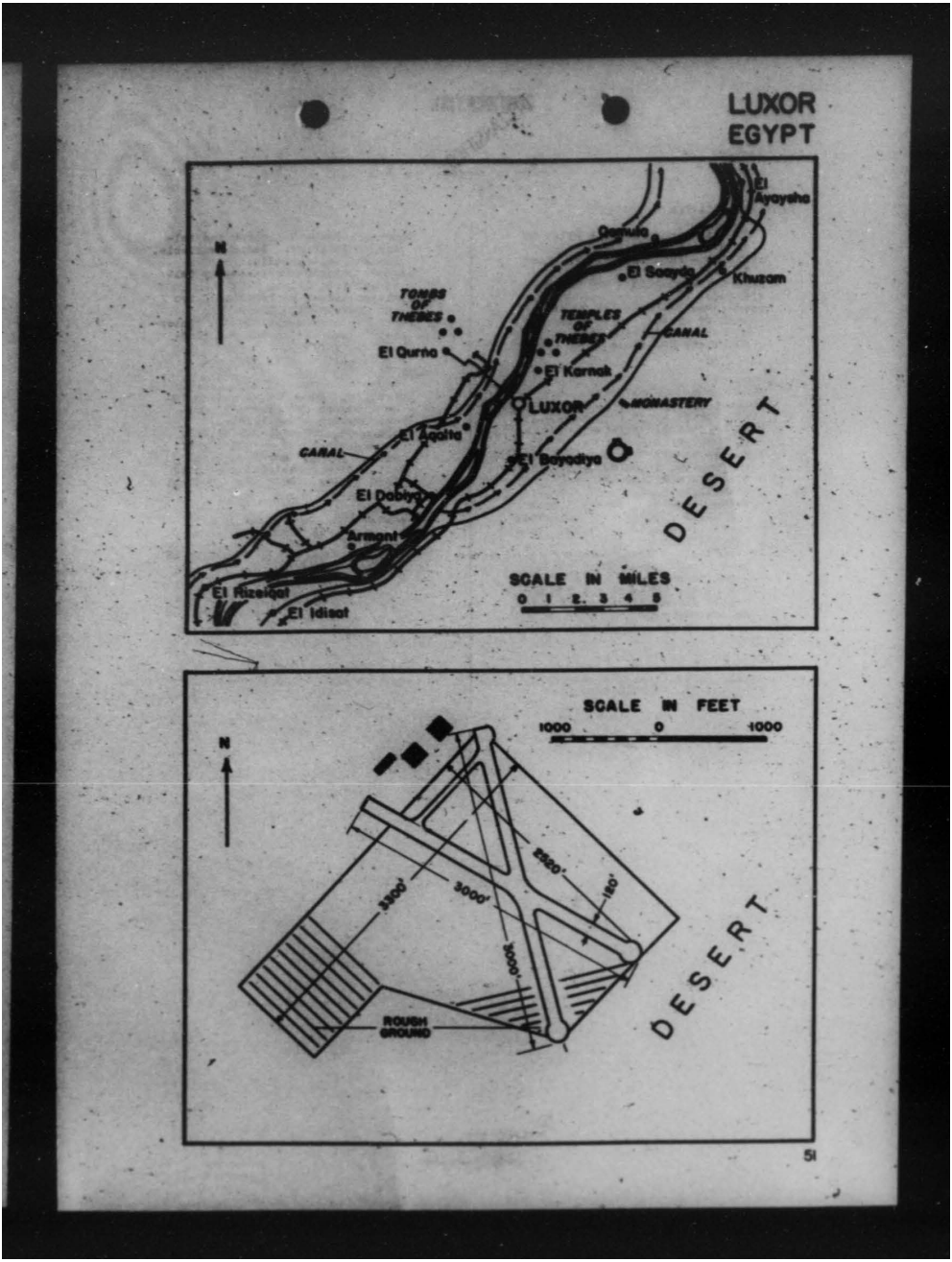
GENERAL INFORMATION

Operated By - RAF.
Remarks- Best landing direction SE to NW.

DECLASSIFIED CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

CAIRO(ALMAZA), EGYPT

NAME AND LOCATION

Almaza Civil Customs Airport is 6 miles NE of Cairo and 2 miles E of Heliopolis.
Position- Lat. 30° 06'N Long. 31° 22' E.
Magnetic Variation- 00° 08'E.
Altitude- 262'.
Landmarks- City of Cairo, race track west of field.

DESCRIPTION

Dimensions- 3900'x2700'.
Surface- Hard sand. Serviceable throughout the year. NW end low.
Markings- Circle and concrete bases of boundary light posts. Windsleeve. Luminous Landing "T".
Lighting- Neon beacon, obstruction, boundary and floodlights.
Obstructions- 64' concrete wall surrounds field; SW - 98' water tower; 75' mosque; W - aerodrome buildings.

FACILITIES

Hangars- Nine. Largest is 175'x164'.
Repair Facilities- Misr-Airworks workshop. Compass base. Service only fair.
Fuel and Oil- Shell service station. Tank trucks available.
Communications- Telephone and telegraph on field. Radio, radio beacon and D/F available. See chapter on radio.
Weather Reports- Station on field. Provides forecasts for Wadi-Halfa-Cairo route.
Transportation- Railway, roads, and Nile River.
Personnel Accommodations- Clubhouse on field. Hotels in Heliopolis and others in Cairo. (Population of Cairo 1,307,422 - Europeans 71,479). Accommodations only fair.

WEATHER

Prevailing Winds- Northerly. Occasionally SW or SE in winter.
Precipitation- 1" to 2" a year.
Temperature- Warmest months July and August with 82° F mean temperature. Mean minimum 50° F. December-March.
Visibility- Fogs most common between November and February (3 to 5 per month). They generally disappear before 0900 hours. Dust haze frequent in summer. Sand storms may reduce visibility to zero.

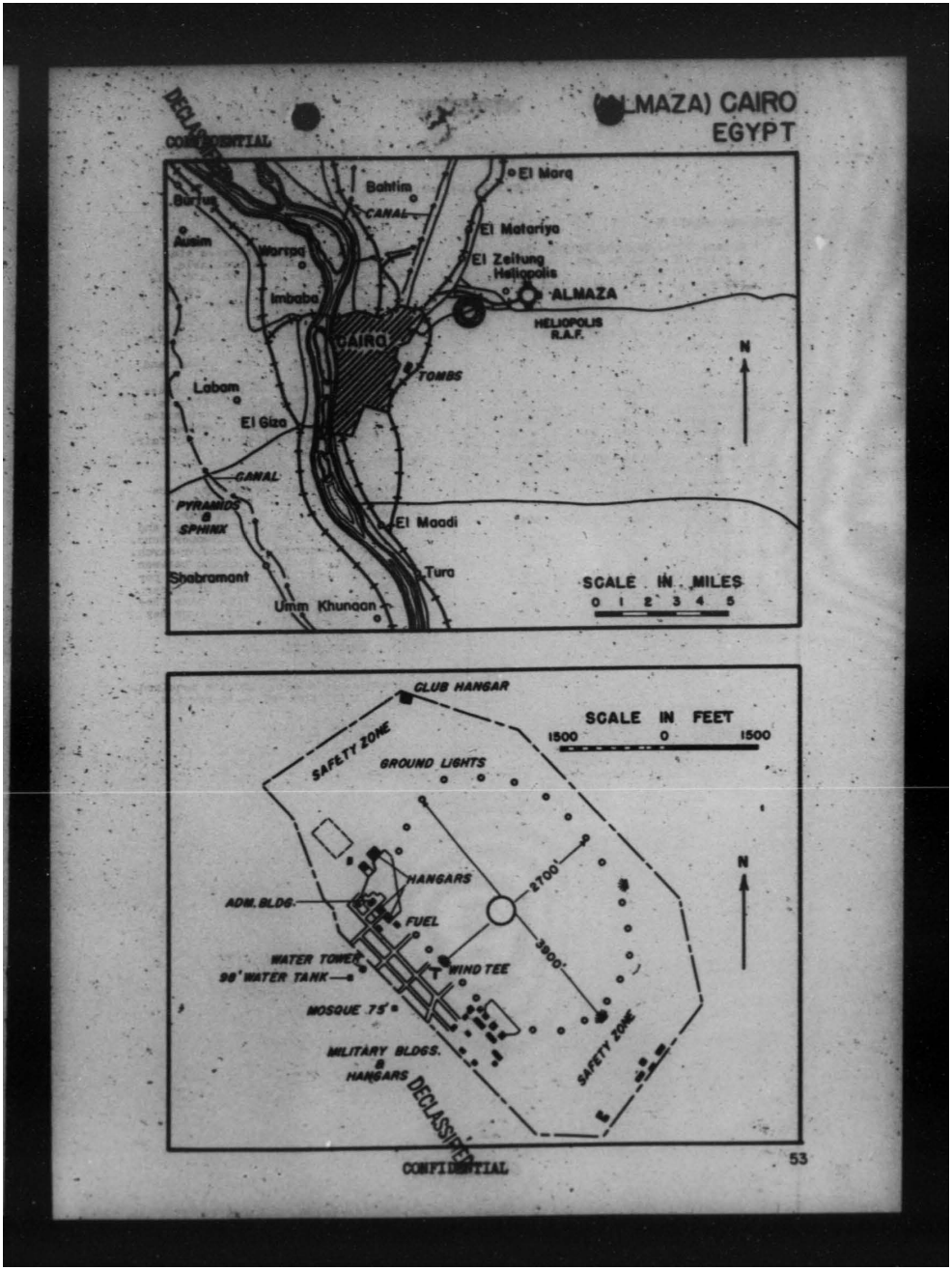
GENERAL INFORMATION

Operated By - Government.
Remarks- Left hand circuits required. Dust in air hampers radio service.

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

CAIRO (HELIOPOLIS), EGYPT

NAME AND LOCATION

Cairo(Heliopolis) Military Airport is 5 miles NE of Cairo; ½ mile S of Heliopolis. Suez Road passes between northern and southern halves of airport.
Position- Lat. 30° 06' N. Long. 31° 19' E.
Magnetic Variation- 00° 25' E.(1937)
Altitude- 200'.
Landmarks- Race course on NW side of Heliopolis. Town of Heliopolis and city of Cairo.

DESCRIPTION

Dimensions- Field is irregular in shape and split in two by the Suez-Cairo Road. The northern half is 2550' N/S x 1650' E/W; the southern half is 2550' N/S x 3000' E/W, giving a combined usable area of 5100' N/S x 3000' E/W.
Surface- Good hard sand. All weather.
Markings- Circle and corner marks. Red obstruction lights on W/T masts. Landing "T". Windsleeve.
Lighting- Flares used if advance notice is given. Obstruction lights on W/T masts. Floodlights.
Obstructions- N and NE - hangar and squadron buildings; E - squadron buildings; SE - hangars; S - 200' hills; SW - rifle range; NW - 70' W/T masts.

FACILITIES

Hangars- Eight hangars (7 RAF and 1 BOAC).
Repair Facilities- Full RAF facilities and workshops, compass base. Service only fair.
Fuel and Oil- Full facilities for RAF and BOAC. Tank trucks available.
Communications- Telephone on field; telegraph and teletype in Cairo. Radio, radio beacon and D/F available. (See chapter on radio).
Weather Reports- Observer on field.
Transportation- Railway station at Abbasia. BOAC to Europe and India.
Personnel Accommodations- In Cairo and at Heliopolis. RAF mess and barracks on field. Accommodations in town are poor.

WEATHER

Prevailing Winds- N - (occasionally SW or SE in winter.) Khamsins (dust storms) March to May.
Precipitation- Occasional in winter. Approximately 2" annually.
Temperature- Mean minimum 50° F. mean maximum 82° F.
Visibility- Early morning fog and mist August-April; most frequent September-January. Dust haze frequent in summer. Sandstorms may extend to an altitude of 8000' and reduce visibility to zero.

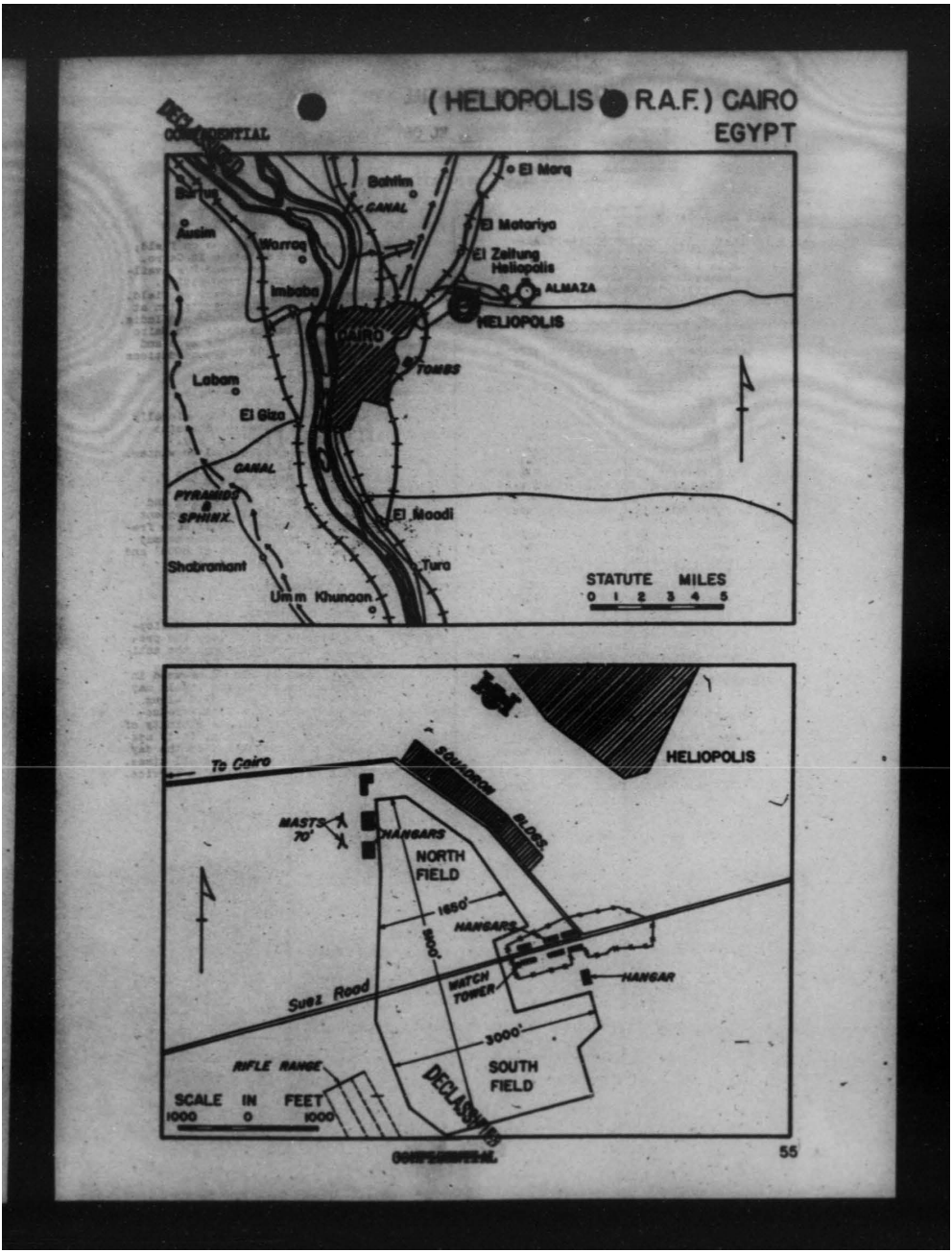
GENERAL INFORMATION

Operated By - RAF.
Remarks- Planes approaching Heliopolis Airport must follow the prescribed corridor through the anti-aircraft defenses of Cairo.
WARNING: Caution should be used in applying brakes as the wheels may lock and continue to skid along the sand with very little reduction in speed. In the vicinity of Cairo and North Africa, it is necessary that the signal of the day be obtained and used at all times. Dust in air hampers radio service.

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

DECLASSIFIED SIGNALS at WADI HALFA, KHARTOUM, EL OBEID and EL OBEIDIYA

Pilots of aircraft about to take-off or land at any of the aerodromes mentioned above must conform to the following signals, which will be displayed (1) on the ground in close proximity to the watch office in a signal area 40 ft. square and bordered on each side by a white strip 1 ft. wide, or (2) on a mast on or close to the watch office.

SIGNAL	MEANINGS	REMARKS
1. Red square on signal area ten ft. square.	Special rules for air traffic in vicinity of an aerodrome open to the public are not in force.	Permanently displayed. If unaccompanied by the arrow mentioned in signal 2 left hand circuits will be made before landing or after taking off. If this signal is not displayed, left hand circuits will be made.
2. Right hand. Red arrow near corner of signal area.	Right hand circuits to be made before landing or on taking off.	
3. A yellow diagonal cross superimposed on signal 1.	Landing totally prohibited.	WARNING
4. A single yellow diagonal strip superimposed on signal 1.	Temporary obstruction, aerodrome partly unserviceable, message picking up in progress or other reason necessitating special care in landing.	These signals were in force on March 1, 1942. Pilots must verify this list en route as changes may have been effected since that date.
5. White cross on ground within signal area.	Parachute dropping in progress.	
6. White "T" on ground within signal area.	Wind indicator is to be ignored and landing or take-off to be made in direction of long arm of "T" and toward short arm.	
7. Black ball 2 ft. in diameter on mast.	Signal 6 is displayed and pilots must not take off until they have ascertained direction of "T".	
8. Red ball 2 ft. in diam. on mast	Parachute dropping in progress.	
9. A white dumbbell 18½' long.	Aerodrome unserviceable except for the runways.	

CONFIDENTIAL DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

WEATHER SUMMARY FOR THE SPRING SEASON
MARCH 21 to JUNE 21

ATLANTIC AREA

Winds: Winds are constantly from the southeast over most of this route. In the vicinity of the African coast they swing to the south and near Freetown may be southwest. The velocity in the Natal area is about 12 to 14 m.p.h. and near the African coast about 6 to 8 m.p.h.

Storms: Tornadoes do not occur in this area.

Rain: A rain center with precipitation occurring about 1 day in 4, is located 700 miles NNW of Natal during the first part of the season. It moves toward Africa and centers about 400 miles west of Freetown in June.

The course from Natal to Accra in June will skirt the southern edge of this area and very little rain need be expected.

Temperature:

Visibility: A haze hangs over the West African coast from Cape Palmas to Casablanca, but moves north toward the end of the season. Cumulus clouds cover about .7 of the sky.

AFRICAN COASTAL AREA

Winds: Land and seabreeze effects cause a fairly strong on-shore wind in the afternoon and late morning, with a light off-shore breeze arising about midnight. This influence is seldom felt more than 20 miles from the coast and affects surface winds only. Prevailing winds vary from north at Bathurst to southwest from Freetown to Lagos. The upper winds are constantly east to northeast between the altitudes of 3000' to 10,000'.

Storms: West African tornadoes (a squall accompanying a thunder storm) blow up from the east at this season. Gust velocities as high as 50 m.p.h. have been noted, but usually range about 20 to 30 m.p.h. The storms last about three hours and are generally foretold by a well-defined and regular arch of dark clouds from which thunder and lightning constantly issue. The first squall lasts 30 minutes and is followed by a heavy rain.

Rains: Rainy season begins in April. A steady, heavy downpour lasting a day or more at a time is characteristic. During the height of the season at Freetown, 20" of rain falls in one month. Average annual fall varies from 114" at Freetown to 26" at Accra and 72" at Lagos.

Temperature: Average of 85° F. Maximum 105° F. Minimum 62° F. Humidity very high.

Visibility: Haze during March and April is washed out of the sky by the rains. During a heavy rainfall visibility drops to almost zero, but after rain is over, visibility is good. Heavy, low clouds are frequent during this portion of the year.

CENTRAL AFRICA

Winds: Surface winds are SE to SW along the western half of this area. For the eastern half they are E to NE in March, West in April and then SW. Upper air winds are in several layers, i.e.

(1)	0	- 4500'	SW to W
(2)	4500'	- 8000'	N to E
(3)	8000'	- 13000'	E
(4)	13000'	- up	SW to W

Storms: Thunder is frequent near Ft. Lamy and the West African Tornado is experienced until past Kano. The tornado condition occurs only during the months of March and April.

Rain: Rainy season starts in April. After passing Kano, the rainfall is in the form of thunder showers with greatest annual fall at Ft. Lamy (35") and tapering off sharply as the Sudan is approached.

Temperature: Very hot. Maximum of 117° at Maiduguri but cooling as rainy season progresses.

Visibility: Fogs may occur near forest areas during rains. Visibility generally is very good except for a temporary deterioration during heavy rain.

EGYPT AND THE SUDAN AREA

Winds: Surface winds are in the north at first, but in the Khartoum area swing over to west and southwest during May and June. The Wadi Halfa-Cairo stretch has north and northwest winds predominating all year. Surface wind velocities average 5 to 13 m.p.h.

Upper winds: Khartoum

(1)	0	-	SSW
(2)	5000'	- 10,000'	NE
(3)	10000'	- and up	E

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

Wadi Halfa and Cairo

(1) 0 - 3000' N
(2) 3000' - 8000' NW
(3) 8000' - up W - SW

Speeds generally increase with height, averaging about 15-20 m.p.h. and occasionally reaching 50 m.p.h.

Storms: Haboob season begins in May and continues on for the summer. They occur in the late afternoon and can be seen from a distance of 50 miles. Their appearance is that of a huge cumulus cloud of sand, 50 miles or more wide and over 6000' deep, rolling along the ground. They are easily visible and should be avoided by flying around them. Thunder storms are rather frequent around Khartoum.

Rain: Very little rain falls along this route and that which does is in the form of thunder showers and may be quite heavy for a short time. Annual precipitation varies from 3" at Cairo to 14" at El Obeid.

Temperature: Hot season is approaching. Temperatures are close to freezing point at night on the desert.

Visibility: Dust haze is had all the time, frequently obscuring the ground at heights over 3000'. Sand storms reduce visibility to zero. West of Khartoum local mists form during and after heavy rains.

Low clouds may hide the mountain tops between El Geneina and El Fasher.

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED
LIGHTNING

The following article on lightning was extracted from Pan American Ferries Route Manual. It is a timely article, inasmuch as thunder and lightning storms occur frequently along this route.

"With regard to a number of cases in which aircraft in flight have been affected by lightning, pilots should note the following information:

In nearly all cases recorded, the following appear to have been the determining circumstances:

(a) Meteorological reports indicated the possibility of thundery conditions.

(b) The aircraft flew into or close below the clouds before being struck.

(c) The aircraft had the radio aerial trailing.

In order to avoid danger, the following precautions are advised, whenever the circumstances permit of their adoption:

(a) (i) Avoid all large cloud masses from which showers of rain, hail or snow are falling, especially when meteorological reports give indications of thundery weather; hail is always to be regarded as dangerous.

(ii) When radio is being used in the aircraft, an increase in the number and strength of atmospherics will generally indicate that a dangerous area is being approached. When the radio apparatus is being operated by a radio operator, he should inform the pilot of such an increase. The pilot should consider this information in conjunction with the weather conditions which he can see ahead of him, in deciding if conditions are actually dangerous.

(b) If it is not possible to avoid dangerous areas, the trailing aerial should be earthed and wound in, the aircraft being kept clear of dangerous areas such as those mentioned in sub-para. (a) above, until this is done; little danger is to be expected after the trailing aerial has been wound in.

NOTE: Should the aircraft already be in a dangerous area, e.g., in a hail storm, winding in the aerial may be dangerous to the radio operator. In such a case, the aerial should merely be earthed and the aircraft flown out of the storm as quickly as possible; if necessary the aircraft should be flown back on its course to give the operator an opportunity to wind in the trailing aerial before proceeding through the storm. It is also recommended that the connection of the aerial to earth should be made to the aircraft structure outside the fuselage.

(c) Whenever possible, the aircraft (with trailing aerial wound in) should be flown well below the lowest layer of any cloud masses encountered."

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CLASSIFIED

CONFIDENTIAL

RADIO FACILITIES

BATHURST-TAKORADI-CAIRO ROUTE

IT IS EXTREMELY IMPORTANT TO OBTAIN THE LATEST RADIO INFORMATION BEFORE STARTING ON A FLIGHT. THE FERRY COMMAND OFFICER IN CHARGE AT THE AIRPORT WILL BE ABLE TO SUPPLY THIS DATA.

General procedure calls for advance notification to all radio stations along the proposed route that planes are on the way and of the temporary call signals assigned to these planes. In cases where flight operations are to take place outside of normal watch hours, or where changes in itinerary become necessary, arrangements must be made through the local RAF radio in time to reach all affected stations during their normal operating periods.

RAF stations maintain an aircraft watch on 4575 kcs.(6500 kcs. for some stations) from 0830 to 1630 GMT daily, and during other periods upon request. Civil stations keep the same watch hours but use 333 kcs. with 6595 kcs. as an alternate channel. To insure cooperation, it is essential that prior information concerning times of watch, the civil stations required, the frequencies to be used, and the airplane call sign to be passed to the local RAF radio station for transmittal through channels to the stations affected.

D/F facilities and radio beacons generally operate only upon request by 3 code through RAF or civil channels (i.e. 333, 6595, 4575, or 6500 kcs.) Before using D/F facilities, be sure an understanding is reached as to what service will be given. In some cases the stations will transmit the direction or "BEARING" from the station; at other times they will transmit "COURSE TO STEER TO REACH THIS STATION" which is the reverse of "BEARING".

Confidential call signs for RAF stations are in use throughout the route except in the Anglo-Egyptian Sudan where only civil call signals are used. Occasionally confidential frequencies are also used by the RAF. Civil stations maintain a constant frequency and call sign and will respond to aircraft which they have been notified to expect.

The standard method of communication is through SYKO cards. SYKO machines are picked up in Washington before leaving for Africa while the proper cards for each flight will be obtained from the Ferry Command Officer in charge at the airport immediately before departure. Codes for meteorological reports are picked up with the SYKO cards. If non-current SYKO cards are used, the message should be preceded by "SY" and the date of the cards.

SUMMARY:

At each stop along the Trans-African Ferry Route, the radio operator should obtain:

(1) Current SYKO card.

(2) Current weather code.

(3) List of call signs and frequencies for the stations to be used.

(4) Temporary call signals for his plane.

(5) Aircraft recognition signals.

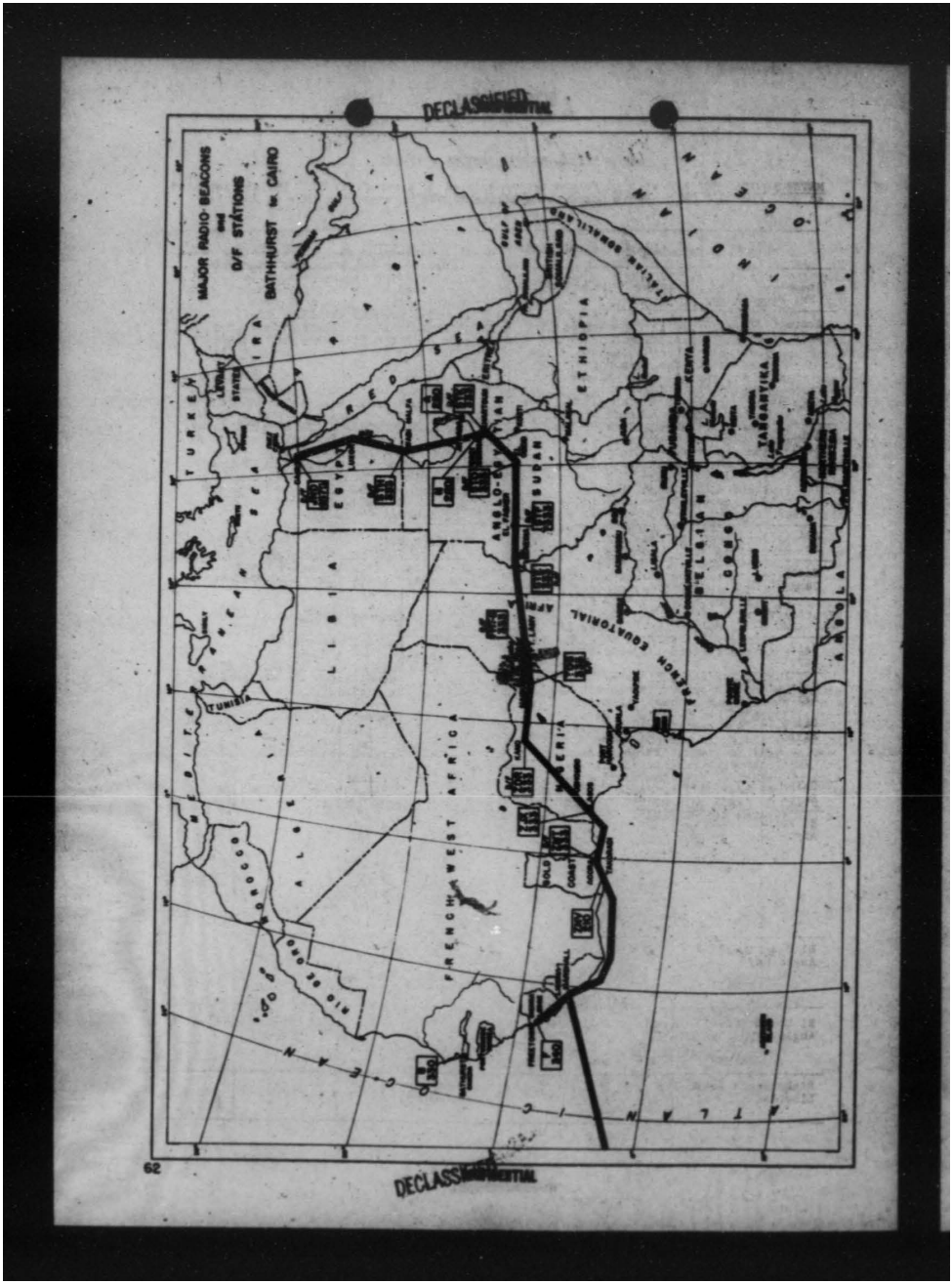
(6) Information as to whether "BEARINGS" or "COURSES TO STEER" will be transmitted by D/F stations.

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

AERONAUTICAL RADIO STATIONS - AFRICA

METEOROLOGICAL REPORTS will in future be transmitted to aircraft at 0700 GMT and repeated at 0800 and 0900 GMT. Crews approaching Africa should be expecting this on 8885 Ks.

	CALL	COORDINATES	TRANSMISSION Freq.	TRANSMISSION Type	RECEPTION Freq.	RECEPTION Type
Abeche Fr. Eq. Africa	FHU2	13-49-00N 20-51-15E	333	-		
Accra, (PAA) Gold Coast	BOE2	5-35-45N 0-09-44W	380, 1658	-		
			4575, 8885, 5662	A1 A3	4575, 8885 5662	A1 A3
			6375, 6593	-	6500	-
			8561, 12824	-		
(Civil)	ZNT	05-35-45N 00-09-44W	333, 6593	A1 A2	333, 6593	A1 A2
Atbara (Civil) Anglo-Egyp. Sudan	BJX (BJY)		4575, 6500	-	4575, 6500	-
(RAF)	7CP (IKP)		4575, 6540	-	4575	-
	STT	17-41-19N 33-58-27E	333	A1	333	A1
Ati (Civil) Fr. Eq. Africa	FHV2	13-13-00N 18-27-15E	333	-	333	-
Bathurst Gambia	MHU	13-27-54N 16-35-16W	4815, 6500 6510, 8885	- -		
(RAF)	VBA	13-37-13N 16-34-23W	333, 6597	-	333, 6590	-
Cairo (Abu Zabal) Egypt		30-16-18N 31-2356E	620	-	620	-
Cairo (PAA) Egypt	GHR2		5365 8969	A1 A3	5365 8969	A1 A3
Cairo (Almaza) Egypt	SUN1 SUN4 SUN2	30-00-00N 31-16-22E	333 333 5170, 6593, 6730	A1 A3 A1	333 333 6590	A1 A2 A3 A1 A2
Cairo (Heliopolis) Egypt	JTD (TWH)	30-05-00N 31-19-00N	4575	-	4575	-
El Fasher (PAA) Anglo-Egyp. Sudan	BJA2		360, 1678 5662	- A3	5662	A3
	BJA		6500, 6597	-		
(Civil)	SYF	13-37-33N 25-21-11E	333, 6593	A1	333, 6593	A1 A2 A3
(RAF)	XXT		4575	-	4575	-
El Geneina (RAF) Anglo Egyp. Sudan	MXV		6500	-	6500	-
(Civil)	SYE	13-26-00N 22-27-00E	333, 6593	A1	333, 6593	A1 A2 A3
El Obeid (Civil) Anglo-Egyp. Sudan	SYO	13-10-34E 30-13-59E	333, 6593	A1	333, 6593	A1 A2 A3
(RAF)	VIS		4575	-	4575	-
Fisherman's Lake Liberia			Arrange frequency.			

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

	CALL	COORDINATES	TRANSMISSION Freq.	TRANSMISSION Type	RECEPTION Freq.	RECEPTION Type
Ft. Lamy (Free Fr.) Fr. Eq. Africa	FHE	12-06-36N 15-02-05E	333, 6593 16440	A1 A2	6590	A1 A2
Freetown Sierra Leone	BJC		4575	-	4575	-
(RAF)	VFU	08-27-00N 13-16-30W	365, 4875, 6500	A1 A2	4575, 6500 8885	A1 A2
	"SLATA"		4530	A3		
Kaduna (RAF) Nigeria	MKP	10-38-34N 07-26-58E	6500	-		
(Civil)	KDU	10-35-34N 07-26-58E	333, 6593	A1 A2	333,6593	A1 A2
Kano (PAA) Nigeria	KGK-2		5365, 8571 11,890 8561, 5662	A1 A3	6593, 8561 18,884, 17,319 5,662	A1 A3
(Civil)	KDN	12-00-14N 08-32-32E	333 6593	A1 A2 A1	333, 6590	A1 A2
(RAF)			4575	-	4575	-
Kareima Anglo-Egyp. Sudan	KRR	18-32-37N 31-51-05E	333, 6593	A1	333, 6594	A1 A2 A3
Khartoum (PAA) Anglo-Egyp. Sudan	KRU		380, 8561	-		
(Civil)	KTK	15-36-30N 32-33-10E	333,380 6593	A1	333, 6590	A1 A2 A3
(RAF)	KRY (KRT)		4575, 6500	-	6590	-
Lagos (PAA) Nigeria	KRD-2		316, 1678 5662	A3	5662	A3
(RAF)	KRD		6500	-	6500	-
(Civil)	LJX	06-37-00N 03-26-13E	333 6593	A1 A2 A1	333, 6590	A1 A2
Luxor (RAF) Egypt	MRG		6500	-		
	SUL	25-40-30N 32-38-30E	333, 6593	A1	333, 6590	A1 A2
Maiduguri Nigeria	KDG		6590, 8561	-		
(Civil)	KDG-2	11-49-04N 13-09-34E	333 6593	A1 A2 A1	333, 6590	A1 A2
(RAF)	MRG		4575	-	4575	-
(PAA)	MRG2		400, 1608 5365, 8561 5662	A1 A3	5365, 8561 5662	A1 A3
Marshall Liberia	MLR	06-14-00N 10-21-00W	419, 500	-		
	FLP-2	06-14-00N 10-21-00W	3404	-	3404	-
	FLR	06-19-00N 10-49-00W	7580	-	500, 8800	-

DECLASSIFIED CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

	CALL	COORDINATES	TRANSMISSION Freq.	TRANSMISSION Type	RECEPTION Freq.	RECEPTION Type
Marshall Liberia	ELH	06-19-00N 10-49-00W	8425	-	8425	-
	ELP	06-19-00N 10-49-00W	10310	-	10310	-
	WLI	06-19-00N 10-49-00W	18460	-	18460	-
	ROB		5662, 8561 5662+	- A3	8200	-
Monrovia Liberia	ELC	06-18-00N 10-48-58W	333	A2		
Oshogbo (Civil) Nigeria	ZJW	07-46-15N 04-29-59E	272, 330, 333, 456 6593	A1 A2 A1	333, 6590	A1 A2
Takoradi (RAF) Gold Coast	BJW (YA9)		4575, 8885	-	4575, 8885	-
(Civil)	ZNV	04-53-23N 01-45-44W	333, 6593	-	6590	-
Wadi Halfa (RAF) Anglo-Egyp. Sudan	BJD (V6S)	21-54-00N 31-19-00E	4575	-	4575 (or other - on request)	
(Civil)	STH	21-55-00N 31-19-38E	333, 6594	A1	333, 6590	A1 A2 A3
Wadi Seidna (RAF) Anglo-Egyp. Sudan	SOA		4575, 6500	-	4575, 6500	-
(RAF)	BJN	15-51-00N 32-38-00E	4575, 6500	-	4575, 6500	-
(FAA)	BJN-2		380, 1698, 5365 5662, 8569	A1 A3	5365 5662, 8569	A1 A3

DIRECTION FINDING STATIONS - AFRICA

Accra (Civil) Gold Coast	ZET	05-36-00N 00-10-00W			333	
Bathurst (RAF) Gambia	VBA	13-27-34N 16-35-16W			4575	
Cairo (RAF) Heliopolis, Egypt	JTD (TWH)	30-06-00N 31-19-00E			4575	
El Fasher (RAF) Anglo-Egyp. Sudan	XX7				4575	
(RAF)	STF	13-37-33N 25-21-11E			333	
El Gemaina (Civil) Anglo-Egyp. Sudan	STE	13-27-00N 22-26-00E			333	
(RAF)	MRV				4575	
El Obeid (RAF) Anglo-Egyp. Sudan	VYS				4575	
(Civil)	STO	13-10-00N 30-14-00E			333	
Ft. Lamy (Free Fr.) Fr. Eq. Africa	FRT2	12-15-00N 15-05-00E			333	

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED CONFIDENTIAL

	CALL	COORDINATES	TRANSMISSION Freq.	TRANSMISSION Type	RECEPTION Freq.	RECEPTION Type
Freetown Sierra Leone	BJC				4575	
(RAF)	VPU1	08-27-00N 13-16-30W			4875 6500 8885	
Kano (Civil) Nigeria	ZDR	12-09-14N 08-32-35E			333	
Kareima Anglo-Egyp. Sudan	SSR	18-33-51N 31-51-15E			333	
Khartoum (Civil) Anglo-Egyp. Sudan	STK	15-37-06N 32-28-20E			333	
(RAF)	NH7	15-36-00N 32-34-00E			4575	
Lagos (Civil) Nigeria	ZJX (MKD)	06-27-29N 03-26-13E			333	
Maidugari (Civil) Nigeria	ZDS	11-51-00N 13-10-00E			333	
(RAF)	MRG	11-51-00N 13-10-00E			4575	
Takoradi (RAF) Gold Coast	BJV				4575	
Wadi Halfa (Civil) Anglo-Egyp. Sudan	STH	21-54-44N 31-19-34E			333	
(RAF)	V6S				4575	
Wadi Seidna (RAF) Anglo-Egyp. Sudan	BJN	15-51-00N 32-58-00E			4575	

RADIO BEACON STATIONS - AFRICA

Accra Gold Coast	A		380 1658			
Atbara Anglo-Egyp. Sudan	A		280			
Bathurst (RAF) Gambia	B	13-27-54N 16-35-16W	330			
Cairo (Heliopolis) Egypt	TWH		333			
Freetown (RAF) Sierra Leone	F		340			

(Operates for 2 minute periods commencing 5, 20, 35, 50 minutes past the hour)

Lagos (Civil) Nigeria	ZJX		333			
Marshall (PAA) Liberia	R**		316 1638	A3 A3		
Takoradi (RAF) Gold Coast	ZNV		310			
Wadi Halfa Anglo-Egyp. Sudan	W		300			
Wadi Seidna (RAF) Anglo-Egyp. Sudan	N	15-51-00N 32-50-00E	260			

DECLASSIFIED CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

NOTE: PAA Stations in Africa: to get 3482 kcs. ask for Channel #6
to get 1600-1700 kcs. - ask for Channel #8
(operates 0700-1900 GMT)
to get 300 - 400 kcs. ask for Channel 8A (operates
1900-0700 GMT).

* Tower
** Signal is a 5 second dash followed by letters MO.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

AERONAUTICAL RADIO STATIONS - BRAZIL

	CALL	COORDINATES	TRANSMISSION Freq.	TRANSMISSION Type	RECEPTION Freq.	RECEPTION Type
Belem (PAA) Brazil	PVQ	01-23-26S 48-29-08W	2870* 4635, 6430	A3 -	2870* 6500, 8885	A3 -
	PNC5	01-26- S 48-30- W	1450	-		
	PNK7	01-26-00S 48-29-36W	2870P	-		
(PAA)	PVL	01-26-00S 48-29-36W	3070, 3082, 5610, 5692 8895	A1	3082, 5692	-
Fortaleza (PAA)	PVC	03-41- S 38-36- W	1708, 3070, 5610, 8895	A1 A2	3000 (Day) 3000 (Night)	- -
Natal (PAA)	PUR	05-45-46S 35-12-06W	1698, 3070 3082, 5610 5670, 5692 6500	A1 A2 - -	3000 (night) 3082 3000 (day) 5610, 5692	A1 A2
(PAA)	PND	05-54-03S 35-14-51W	2870* 3070, 5610	A3 -	5610, 5692 6585 (part time)	-
Recife (PAA)	PVR	08-04-00S 34-54-00W	1708, 3070 5610, 8895 12295, 16240	A1 A2	3000 (Night) 5000 (Day)	A1
Sao Luis (PAA)	PNJ9	02-35-00S 44-14-00W	1490	-		
(PAA)	PVE	02-35-00S 44-14-00W	1708, 3070 3082, 5610 5692, 8895	A1 A2	3082, 5692 5000 (Day) 5000 (Night)	- - -

DIRECTION FINDING STATIONS - BRAZIL

Fortaleza (PAA)	PVC	03-41-00S 38-36-00W			1708	
Natal	PUR	05-49-00S 35-12-00W			1698	

RADIO BEACON STATIONS - BRAZIL

Belem	PVL	01-26-03S 48-29-08W	1708	A1 A2		
Belem (Val de Caes) (PAA)	PVQ	01-23-26S 48-29-08W	275, 375	A1 A2		
Fortaleza (PAA)	PVC	03-41-00S 38-35-40W	1708			
Natal	PEP	05-45-00S 35-12-00W	1618, 8895	A1		
	PUR	05-49-00S 35-12-00W	1698, 6500	A1 A2		
(PAA)	PND	05-49-00S 35-12-00W	375 (on request) 1698			
Recife (PAA)	PVR	08-04-16S 34-52-32W	1708	A1		
Sao Luis (PAA)	PVE	02-35-00S 44-14-00W	1708	A1 A2		

* Control Tower

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

EMERGENCY PROCEDURES

1. For communication between personnel of a plane forced to land and the accompanying aircraft, or aircraft engaged in search when radio communication is not possible, the following visual signals will be used:

A. NEED (MEDICAL) ASSISTANCE—URGENT. (USED ONLY WHEN LIFE IS AT STAKE.) LIE PRONE. (RED SIGNAL.)

B. ALL O. K. DO NOT WAIT. WAVE ONE ARM OVERHEAD. (WHITE SIGNAL.)

C. CAN PROCEED SHORTLY. WAIT IF PRACTICABLE. ONE ARM HORIZONTAL.

D. NEED MECHANICAL HELP, OR PARTS—LONG DELAY. TWO ARMS LATERALLY HORIZONTAL.

E. PICK US UP. PLANE ABANDONED. BOTH ARMS VERTICAL.

F. DO NOT ATTEMPT TO LAND HERE. TWO ARMS WAVED ACROSS FACE.

G. LAND HERE. TWO ARMS FORWARD HORIZONTALLY, SQUATTING AND POINTING IN DIRECTION OF LANDING.

H. OUR RECEIVER IS OPERATING. CUP HANDS OVER EARS.

I. USE DROP MESSAGE. MAKE THROWING MOTION.

J. AFFIRMATIVE. WHITE CLOTH WAVED VERTICALLY DIP NOSE OF PLANE SEVERAL TIMES.

K. NEGATIVE. WHITE CLOTH WAVED HORIZONTALLY FISHTAIL PLANE.

AIRPLANE CREWS PROJECT X

1. In case of capture by enemy or by hostile forces no person will give any information of any nature concerning Project X or any other military information. Information given in such cases will include name, rank, and army serial number only. NO OTHER INFORMATION WILL BE GIVEN.

2. Any classified documents or papers carried by the airplane or crew, whether secret, confidential, or restricted will be destroyed, preferably by burning, in the event of mishap or the likelihood of its falling into enemy or hostile hands.

3. All personnel will be informed that allotments in force at time of capture to dependents will be continued and dependents will draw such allotments during the entire period of captivity.

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

CORRECTION AND/OR ADDITION REPORT

MIAMI-CAIRO ROUTE MANUAL

(Report all corrective information on fields included in this manual. Detach this sheet and mail to "Air Movements Section, AFDIS, Headquarters Army Air Forces, War Department, Washington, D. C.")

TO: Air Movements Section, AFDIS.

FROM:

The following corrections, additions and/or recommendations are suggested:

Name and Rank

Date and Place

(If more space is required use reverse side)

CONFIDENTIAL
DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

LAST MINUTE REVISIONS

1. Roberts Field, Marshall, Liberia.
   Radiobeacon is again operating on 316 kc. See chapter on radio for details. (5-16-42.) (Page 66.)

   The NW./SE. runway is closed. The NE./SW. runway is available for a length of 6,200'. (Page 20.)

2. Belem, Brazil.
   Radio D/F has resumed operation. Range is 50 to 100 miles. (5-16-42.) (Page 68.)

3. Takoradi, Gold Coast.
   Runways are under repair but field is available. (5-2-42.) (Page 22.)

4. Natal, Brazil.
   Radio control tower in operation by Army personnel. Transmits and receives on 5662 kc. (5-21-42.) (Page 68.)

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

DECLASSIFIED
DOD 5200.1-R, 12 June 1986, 1/1/76

AIRPORT DIRECTORY

ALASKA

PREPARED BY
AIR MOVEMENTS SECTION, AFDIS
U. S. ARMY AIR FORCES
WASHINGTON, D. C.

EDITION OF
JUNE 10, 1942

Perforated correction sheets are attached at end of this Directory. All personnel are requested to complete these sheets and forward them promptly

DECLASSIFIED

CONFIDENTIAL

Air Ref 461 (108)

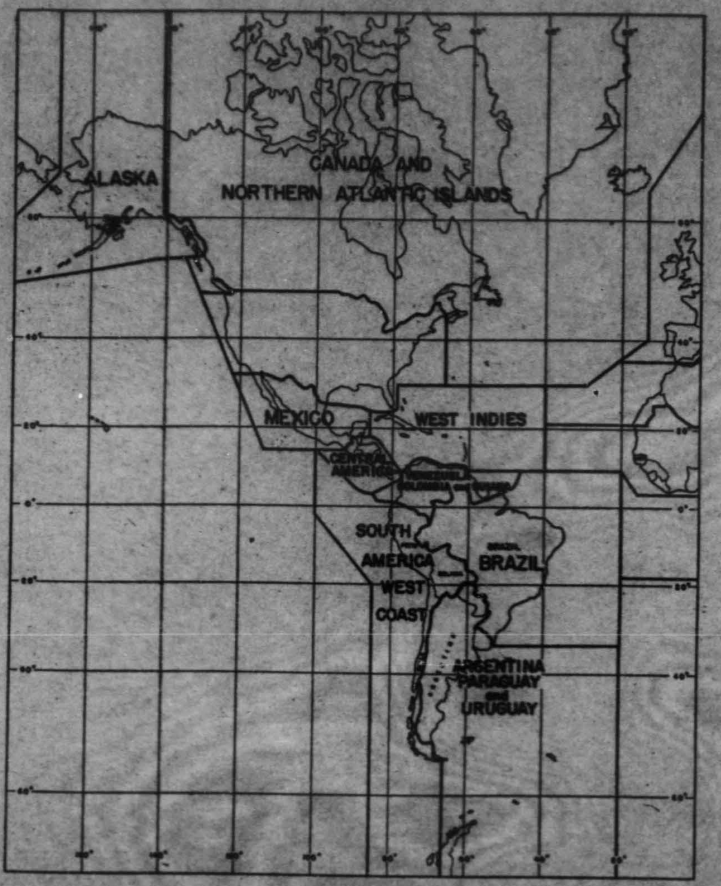
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

INDEX

REIGN AIRPORT DIRECTORIES

WESTERN HEMISPHERE



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL
DECLASSIFIED
DOD Dir. 5200.10 Date 6/12/76

PREFACE

The airport data given herein is a consolidation of information available at Headquarters Army Air Forces. The sources of this information are numerous but consist chiefly of the following:

Progress reports on construction by the C. A. A. and the Corps of Engineers.

Airport descriptions compiled by the Alaska Road Commission and the Alaskan Division of Pan American Airways.

Photographs and reports from U. S. Army Air Force units operating in the area.

There are at least 207 landing fields of all classes and types in Alaska. These fields may be classified according to the following runway lengths:

Less than 1,499 feet	64
1,500 to 2,499 feet	84
2,500 to 3,499 feet	20
3,500 to 4,499 feet	13
4,500 to 5,499 feet	14
5,500 to 6,499 feet	5
Over 6,500 feet	2
No record	5
	207

The most important fields are five military airports, the construction of which was begun in 1940–41. These airports have been geographically selected so as to afford the maximum amount of strategic military value to the United States. Four of these airports are fully-provisioned Army air bases (Ladd, Elmendorf, Yakutat, and Annette Island) and the fifth is a fully-provisioned Naval air station (Kodiak) with adequate landing areas to accommodate the heaviest of the Army aircraft. The location of these airports provides for the shortest line of communication between the United States and every corner of Alaska. Annette Island Air Base, some 670 miles from Seattle, is strategically located at the southern tip of southeastern Alaska. From this base a straight line flight may be effected to the Yakutat Military Air Base at the northernmost tip of southeastern Alaska, an air line distance of some 440 miles from Annette Island. From Yakutat, aircraft can fly 370 miles directly to Elmendorf Field, Anchorage, the largest military air base in the Territory. From this center of Air Corps operations, aircraft dispersal can be effected either to the Kodiak Naval Air Station, 260 miles to the southwest, or to Ladd Field, 270 miles to the northeast.

To augment the use of these military airports which have been developed by the U. S. Corps of Engineers and the U. S. Bureau of Yards and Docks (Kodiak Naval Air Station), the Civil Aeronautics Administration is constructing some 25 airports, with extensive runways and facilities to be maintained by the Administration. These airports, with their maximum dimensions, are as follows:

	Feet
Aniak	2,900
Bethel	5,000
Big Delta	5,300
Cold Bay	5,000
Cordova	4,500
Farewell	4,300
Galena	6,000
Gulkana	5,200
Homer	5,000
Iliamna	5,000
Juneau	5,000
Kenai	5,500
McGrath	5,000
Minchumina	3,700
Moses Point	3,200
Naknek	5,000
Nenana	3,000
Nome	4,800
Northway	5,300
Seward	2,600
Summit	4,000
Talkeetna	3,900
Tanacross	4,000
Tanana	4,000
Yakataga	4,300

In addition to the military airports and those under development by the C. A. A. there are several airports with reasonably good facilities which are used exclusively by commercial and

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

private operators. These airports with their maximum dimensions are as follows:

	Feet
Anchorage (Merrill Field)	4, 800
Fairbanks (Weeks Field)	5, 000
Flat	3, 000
Gakona	4, 000
Nome (old field)	3, 200
Platinum	3, 400
Valdez	2, 200

Additional surveys for new landing field sites are still under way by the Army and the Civil Aeronautics Administration.

The remaining 177 fields, not mentioned above, were primarily developed by local community interests to serve the mining, fishing, packing, and fur industries. These fields fairly evenly dot the Territory, except in the north, and are served by some 25 registered aircraft charter services using all types of small aircraft, which makes it possible for them to get into areas of rugged nature and difficult terrain. These aircraft services are utilized by men in the activities of the Federal Government in providing for the health, education, and welfare of the people of Alaska, aerial mapping, law enforcement, supervision of fisheries and wildlife, forest resources, mineral resources, activities of the U. S. Coast Guard, survey parties interested in the development of the Territory, as well as by men in the mining, fishing, packing, and fur industries. Because the type of aircraft used is such as not to require extensive runways, and because the demand for service is widely scattered throughout the country with too infrequent repeat business, these landing fields have not been extensively developed.

In addition to these aircraft charter services, there are regularly established operating air transport services, the most important of which is the Pan American Airways System. At the present time they offer a service five times a week between Seattle and Fairbanks, via Juneau and Whitehorse, extra service twice a week between Juneau and Fairbanks, via Whitehorse, three times a week between Fairbanks and Nome, via Manly Hot Springs, Tanana, Ruby, Galena, Nulate, Golovin, and once a week between Fairbanks and Bethel, via McGrath, Ophir, and Flat.

All of the Army air bases have been constructed with concrete runway strips. All of the C. A. A. intermediate landing fields are being constructed with asphalt runway strips. The remaining landing fields in the Territory of Alaska consist of hard-surfaced gravel in a great majority of cases. Only in the fields where runway lengths have been considerably extended or constructed has the problem of artificial drainage been considered and developed. In a great number of cases the fields of Alaska have natural surface drainage, a condition which must be fairly closely watched during the thaw period.

Arrangements have been completed to provide full night-lighting facilities such as rotating beacons, boundary lights, contact lights, floodlights, illuminated wind tees, and obstruction lights for all military airports and C. A. A. fields under construction. In addition, extensive repair facilities, aviation fuel and oil storage, radio and weather-reporting facilities are now available at these same fields. Runways are being numbered to conform to established practice in the United States by using the first two numbers of the magnetic bearing.

The following are explanatory notes on the manner of presenting the information:

NAME: Under this heading is given the name of the nearest town or city of any significance. This name is followed by the name of the airport in parentheses if different from the name of the city or town. For towns at which there are several airports, the name of the town is repeated in parentheses for the airport known by the town name in order to distinguish it from the other airports. In cases where the name of the airport transcends the name of the town in importance, the airport name appears first.

TYPE: Under this heading will be found a single letter having the following meaning:

M—Military fields of reasonable size and having at least the more important facilities.

C—Civil airports (Private and Commercial) of reasonable size and having at least the more important facilities.

MC—Airports of reasonable size and having at least the more important facilities which the C. A. A. is constructing, improving and maintaining, but which are used primarily by the U. S. Army Air Forces.

E—Emergency fields (Military or Civil) either of small size or having few facilities or both.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

FACILITIES: Under this heading is given a brief listing of facilities known to exist. No details are given although in many cases more detailed information is available.

The Index is a straight alphabetical listing by both town name and airport name of all airports and emergency fields in Alaska.

It is to be understood that in a directory of this character all detailed information cannot be included although on the majority of the fields the information presented here represents all that is available at this time. For many of the fields there are available sketches or photographs or both.

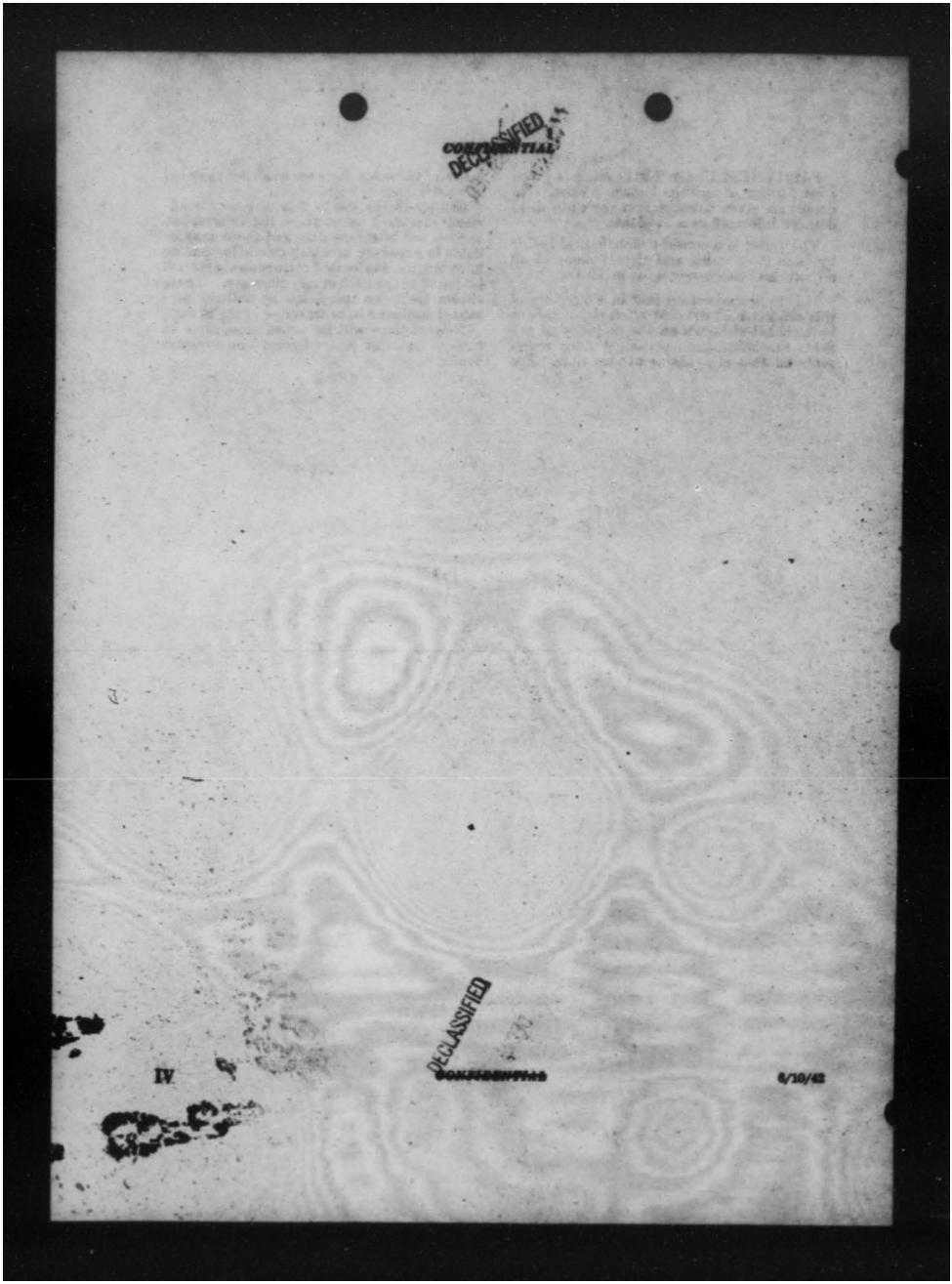
Caution in the use of this directory is advised inasmuch as some of the information used is not of recent date and there may be fields in existence of which this office has no knowledge. Perforated correction sheets will be found in the back of this directory. These sheets are to be completed by military personnel stationed in or traveling in the area.

New editions will be issued from time to time as more or better information becomes available.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

INDEX

City and Airport	Page
Agiapuk (see Windy Creek)	9
Alatna	1
Alder Creek	1
American Creek	1
American Creek (Nome)	1
Anchorage (Elmendorf Field)	1
Anchorage (Lake Spenard)	1
Anchorage (Merrill Field)	1
Aniak	1
Annette Island (Metlakatla)	1
Arolic (see Snow Gulch)	7
Baldwin	1
Barrow	1
Bear Creek (Nyac)	1
Beaver	1
Beaver Creek (Nome)	1
Bethel (New)	1
Bethel (Old)	1
Bettles River (Wiseman)	1
Big Delta (E./W. runway)	1
Big Delta (N./S. runway)	1
Big Delta (New)	1
Bonnifield (see Grubstake)	8
Brenner	1
Brooks (Livengood)	1
Cache Creek	1
Candle (Kotzebue)	1
Cantwell	2
Caribou	2
Caribou Mine	2
Casadepaga (see Ruby Creek)	7
Central House	2
Chandalar	2
Chena Hot Springs	2
Chicken	2
Chisana	2
Chistochina	2
Chitina	2
Circle	2
Circle Hot Springs	2
Clearwater (Kantishna)	2
Cliff Mine	2
Coffee Creek	2
Cold Bay	2
Colorado Creek (Folger)	2
Colorado Station	2
Conrad	2
Copper Center	2
Cordova (New)	2
Cordova (Old)	2
Council	2
Council (see Melsing Creek)	5
Cripple Creek (Folger)	2
Crooked Creek	2
Deacon Field (see Long Creek)	5
Deering	2
Dick Creek	3
Eagle (New)	3
Eagle (Old)	3
Eagle Creek	3
Elim (see Moose Creek)	5
Elmendorf Field (see Anchorage)	1
Eureka	3
Eureka (see Omega Creek)	6
Eva Creek	3
Fairbanks (Ladd Field)	3
Fairbanks (Weeks Field)	3
Farewell	3
Fishhook (see Willow Creek)	9
Flat	3
Flat (Hill Field)	3
Folger (see Colorado Creek)	2
Folger (see Cripple Creek)	2
Ft. Yukon	3
Fox Bar	3
Franklin	3
Gakona (Gulkana)	3
Galena	3
Ganes Creek (Takotna)	3
Gold Creek	3
Gold King Creek	3
Golden Zone	3
Golovin	3
Goodpaster	3
Grubstake (Bonnifield)	3
Gulkana	3
Gulkana (see Gakona)	3

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

City and Airport	Page
Haines	4
Harris Creek (Taylor)	4
Haycock	4
Healy	4
Hill Field (see Flat)	3
Hog River	4
Homer	4
Hot Springs (see Miller Creek)	5
Iliamna	4
Jack Wade	4
Jack Wade Lower (see Lassen)	5
Jackson (see Totalanika)	9
Joseph	4
Juneau	4
Kako	4
Kaltag	4
Kantishna	4
Kantishna (see Clearwater)	3
Kasilof	4
Keenans (Kougarok) (Taylor)	4
Kenai	4
Kivalina	4
Kiwalik	4
Kobuk	4
Kodiak	4
Kotsebue	4
Kotzebue (see Candle)	1
Kougarok (Dahl)	4
Kougarok (see Keenans)	4
Kougarok (see Noxapaga)	6
Koyuk	4
Kuskokwim (see McGrath)	5
Ladd Field (see Fairbanks)	3
Lake Spenard (see Anchorage)	1
Lammers & Fitzpatrick	5
Lassen (Jack Wade Lower)	5
Livengood (see Brooks)	1
Long Creek (Deacon Field)	5
Lopp Lagoon (Wales) (Tin City)	5
Lost River	5
Lucky Shot (Willow Creek Mines)	5
Lucky Shot (see Willow Creek)	9
Macklin Creek	5
Madison Creek	5
Manley Hot Springs	5
Marshall	5
May Creek (McCarthy)	5
McCarthy (see May Creek)	5
McGrath (Candle) (Kuskokwim)	5
McGrath (New)	5
McGrath (Old)	5
McKinley Park	5
Madiva	5
Mahing Creek (Council)	5
Merrill Field (see Anchorage)	1
Metlakatla (see Annette Island)	1
Miller Creek (Hot Springs) (Tofty)	5
Minchumina	5
Moore Creek	5
Moose Creek (Elim)	5
Moses Point	6
My Creek	6
Myrtle Creek	6
Nabesna	6
Nabesna Mine (see Reeve Field)	7
Naknek	6
Napamute	5
Nation	6
Nenana	6
Neshik (see Port Heiden)	7
Neva Creek	5
Newhalen	6
Ninilchick	6
Nostak	6
No Grub	6
Nome (New)	6
Nome (Old)	6
Nome (see American Creek)	1
Nome (see Beaver Creek)	1
Noorvik	6
Northway (Tetlin)	6
Noxapaga (Kougarok)	6
Nulato	6
Nyac	6
Nyac (see Bear Creek)	1
Omega Creek (Eureka)	6
Ophir	7
Palmer Creek	7
Peters Creek	7
Pilgrim Hot Springs	7
Placerville	7
Platinum	7
Platinum (see Salmon River)	7
Point Hope (Tigara)	7
Poorman	7
Port Heiden (Neshik)	7
Portage	7
Pyne Creek	7
Quartz Creek (Shelton)	7
Rainy Creek	7
Rampart	7
Rapids	7

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

City and Airport	Page
Reeve Field (Nabesna Mine)	7
Ruby	7
Ruby Creek (Casadepaga)	7
Salmon River (Platinum)	7
Selawik	7
Serpentine Hot Springs	7
Seward	7
Shelton (see Quartz Creek)	7
Shishmaref	7
Skagway	7
Slate Creek	7
Snow Gulch (Arolic)	7
Solomon (1)	8
Solomon (2)	8
Squirrel River	8
Stevens Village	8
Stuyahok	8
Summit	8
Susitna Station	8
Takotna	8
Takotna (see Ganes Creek)	3
Talkeetna (New)	8
Talkeetna (Old)	8
Tanacross	8
Tanana (New)	8
Tanana (Old)	8
Tatina	8
Taylor (see Harris Creek)	4
Taylor Creek	8
Telida	8
Teller (1)	8
Teller (2)	8
Tetlin	8
Tetlin (see Northway)	6
Thompson Pass (Valdez)	8
Tigara (see Point Hope)	7
Tin City	8
Tin City (see Lopp Lagoon)	5
Tofty	8
Tofty (see Miller Creek)	5
Tonsina (Lower)	9
Tonsina (Upper)	9
Totatlanika (Jackson)	9
Unalakleet	9
Ungalik	9
Utopia Creek	9
Valdez	9
Valdez (see Thompson Pass)	8
Valdez Creek	9
Wales	9
Wales (see Lopp Lagoon)	5
Walkers Fork	9
Wasilla	9
Wattamuse	9
Weeks Field (see Fairbanks)	3
White Mountain	9
Willow Creek (1) (Lucky Shot)	9
Willow Creek (2) (Fishhook)	9
Willow Creek Mines (see Lucky Shot)	5
Willow Station	9
Windy Creek (Agiapuk)	9
Wiseman	9
Wiseman (see Bettles River)	1
Woodchopper	9
Yakataga	9
Yakutat	9

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

ALASKA

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Alatna	E	66 33 N. 152 47 W.		S. of river, SW. of town.		Sand beach	
Alder Creek	E	64 45 N. 142 23 W.		1 mi. NE. of town.			
American Creek	E	65 05 N. 151 14 W.	225	Approximately 20 mi. W. of Hot Springs, adjacent to camp.	NE./SW. 1,400′ x 80′.	Sod; hard ground; all weather.	Fuel, telephone, limited quarters at mining camp.
American Creek (Nome).	E	64 56 N. 164 25 W.	1,000 (est.)	Approximately 40 mi. NE. of Nome, 25 mi. N. of Solomon.	1,150′ x 120′	Soft	None.
Anchorage (Elmendorf Field)	M	61 15 N. 149 51 W.	300	4 mi. NE. of Anchorage	E./W. 7,500′ x 200′, N./S. 5,500′ x 150′.	Concrete	Fuel, repairs, radio, hangars, lighting, weather reports hazards, markings, control tower. U.S. Army air base.
Anchorage (Lake Spenard).	E	61 09 N. 149 58 W.	100	4 mi. SW. of town	WNW./ESE. 1,650′ x 100′.	Sandy loam	Repairs, fuel, radio, hangar, wind cone, weather reports.
Anchorage (Merrill Field).	C	61 12 N. 149 52 W.	135	1 mi. E. of Anchorage	NE./SW. 4,500′ x 300′, E./W. 3,940′ x 400′-300′, N./S. 3,300′ x 400′-300′.	Sandy loam and clay; NE./SW. strip unimproved.	Fuel repairs, radio, radio range, beacon, hangars, weather reports, accommodations.
Anisk	MC	61 40 N. 159 43 W.	200	¾ mi. SW. of village. S. of Kuskokwim River.	NW./SE. 2,500′ x 300′.	Sand and silt	Radio, wind cone, fuel, weather reports.
Annette Island (Methakatla).	M	55 03 N. 131 37 W.	30	6 mi. SW. of Methakatla.	NW./SE. 5,000′ x 150′.	Soil; will be concrete.	Under construction. Lighting, fuel, minor repairs, radio range control tower. U. S. Army air base.
Baldwin	E	66 15 N. 161 10 W.			1,100′ x 100′		
Barrow	E	71 18 N. 156 30 W.	13	1 mi. NE. of village	2,000′ x 300′	Sand spit or frozen lagoon.	Radio, limited fuel, weather reports, markings.
Bear Creek (Nyac).	E	61 02 N. 159 48 W.	1,000	NE. edge of Nyac village.	1,700′ x 150′	Soil; for summer use only.	Repairs, radio, fuel, quarters.
Beaver	E	66 20 N. 149 37 W.	650	1,500′ NW. of village, on Yukon River.	NE./SW. 1,600′ x 150′.	Sand and earth	Limited fuel, markings, roadhouse.
Beaver Creek (Nome).	E	64 37 N. 164 45 W.	250 (est.)	16 mi. NE. of Nome on Beaver Creek.	1,100′ x 100′		Weather reports at Nome.
Bethel (New)	MC	60 45 N. 161 47 W.	30	2 mi. SSE. of town, across river.	NE./SW. 3,500′ x 300′, 1,000′ x 400′	Sand, to be oiled	Under construction. Fuel telegraph, radio range, weather reports.
Bethel (Old)	E	60 47 N. 161 48 W.	35	½ mi. W. of town, on N. shore of Kuskokwim River.	NNW./SSE. 1,200′ x 125′, NNE./SSW 2,200′ x 165′.	Sand and silt	Fuel, telegraph, radio, weather reports, wind cone.
Bettles River (Wiseman).	E	67 25 N. 149 28 W.	4,400	Approximately 30 mi. NE. of Wiseman.	E./W. 600′ x 250′; can be expanded.	Sand and gravel; natural drainage.	Limited accommodations at mining camp.
Big Delta (E./W. runway).	E	64 09 N. 145 50 W.	900 (est.)	1,500′ up Tanana River from Big Delta.	E./W. 2,500′ x 200′	River silt	Wind cone, telephone.
Big Delta (N./S. runway).	E	64 09 N. 145 50 W.	900 (est.)	1 mi. S. of Big Delta	N./S. 2,500′ x 250′	Gravel, rough	Wind cone, telephone, weather reports.
Big Delta (New).	MC	64 02 N. 145 45 W.	1,200	12 mi. SSE. of settlement	ENE./WSW. 4,000 x 500′; NE./SW. 3,300′ x 500′.	Silt and gravel, level, smooth.	Under construction, radio range, telephone.
Bronson	E	61 03 N. 142 25 W.	2,300	N. edge of Miles Camp; 30 mi. NE. of Cordova.	N./S. 1,200′ x 100′	Rocky, dirt	Wind cone, radio.
Brooks (Livengood).	E	65 33 N. 149 33 W.	940 (est.)	N. edge of village	1,500′ x 200′	Sod	Weather reports, wind cone, radio, limited fuel.
Carbo Creek	E	62 28 N. 151 02 W.	1,000	40 mi. W. of Talkeetna	NE./SW. 1,600′ x 175′.	Gravel bar	Wind cone, limited fuel.
Candle (Kotzebue).	E	66 56 N. 161 57 W.	20	Along Kivalik River, opposite town of Candle.	NW./SE. 1,350′ x 100′.	Gravel, level; usable in summer only.	Wind cone, minor repairs, fuel, radio, accommodations, weather reports.

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

ALASKA—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Eastwell	E	63 35 N. 145 59 W.	2,213	¼ mi. NW. of R. R. station.	NE./SW. 1,850′ x 150′.	Gravel and loam	Wind cone, weather reports, R. R.
Caribou	E	64 40 N. 145 44 W.	1,300 (est.)	1 mi. S. of Caribou Mining Co.	1,800′ x 100′	Turf and sand	2 wind cones, minor repairs.
Caribou Mine	E	63 37 N. 150 44 W.					
Central House	E	65 34 N. 144 48 W.	1,300 (est.)	¼ m. N. of Central P. O. on E. side of Steese Highway.	E./W. 2,000′ x 150′	Silt	Weather reports.
Chandalar	E	67 35 N. 148 16 W.	2,300	Approximately 6 mi. NE. of northern tip of Chandalar Lake.	NE./SW. 732′ x 250′ x 300′.	Soil; natural drainage.	Limited accommodations.
Chena Hot Springs.	E	65 04 N. 146 05 W.	1,500 (est.)	NE. edge of village	1,500′ x 400′	Sandy, rough on ends.	Wind cone.
Chicken	E	64 05 N. 141 55 W.	2,000 (est.)	1 mi. S. of Chicken	NNE./SSW. 1,800′ x 120′.	Gravel, level	Wind cone, corner markings.
Chisana	E	62 06 N. 142 04 W.	4,000 (est.)	N. edge of village	NW./SE. 1,000′ x 150′.	Gravel	Wind cone, corner markings.
Chistochina	E	62 35 N. 144 42 W.	1,980	Along road, between river and road.	NNE./SSW. 1,760′ x 150′-250′.	Soil and gravel	Roadhouse near field, telephone, markings.
Chitina	E	61 35 N. 144 28 W.	630 (est.)	3 mi. NNW. of town	NNW./SSE. 1,320′ x 120′-160′.	Gravel	Fuel in town, radio, wind cone, weather reports.
Circle	E	65 49 N. 144 05 W.	500 (est.)	Adjacent to and NW. of village.	NW./SE. 2,500′ x 150′.	Gravel	
Circle Hot Springs.	E	65 31 N. 144 34 W.	800	½ mi. NE. of town	ENE./WSW. 2,200′ x 200′-300′.	Sod, sand, and rock	Limited fuel, telephone, cabins.
Clearwater (Kantishna).	E	63 43 N. 150 32 W.	2,000 (est.)	24 mi. NE. of Kantishna	1,500′ x 150′		
Cliff Mine	E	61 07 N. 145 35 W.	6	Adjacent to mining camp	WNW./ESE. 720′ x 80′.	Sand, sod, gravel	
Coffee Creek	E	65 19 N. 164 43 W.	200	8 mi. NW. of Bunker Hill	N./S. 1,000′ x 100′; E./W. 1,000′ x 100′.	Soil and rock. E./W. runway only available.	Wind cone, limited fuel, accommodations at mining camp.
Cold Bay	MC	55 12 N. 162 44 W.	80	20 mi. NW. of King Cove	N./S. 5,000′ x 300′	Sand, to be asphalt.	Weather reports, fuel. Radio range under construction.
Colorado Creek (Folger).	E	63 34 N. 155 57 W.	1,000 (est.)	35 mi. NE. of Ophir; 3 mi. N. of Folger P. O.	NW./SE. 1,800′ x 250′.	Gravel, natural drainage.	Weather reports, fuel, minor repairs.
Colorado Station	E	63 00 N. 149 27 W.	1,904	Adjacent to Alaska R. R., NE. of town.	NE./SW. 1,700′ x 140′.	Clay and gravel, mossy sod.	Wind cone, telephone and telegraph, R. R.
Conrad	E	63 45 N. 146 28 W.		W. side of Delta Creek			
Copper Center	E	61 58 N. 145 21 W.		NW. edge of town	N./S. 1,600′ x 100′	Gravel and sod	Hangar, telephone, wind cone, markings, fuel, limited repairs.
Cordova (New)	MC	60 29 N. 145 30 W.	20	12 mi. E. of town	E./W. 4,000′ x 100′ temp. 4,500′ x 300′ will be asphaltic concrete.	Sand and silt	Weather reports, radio, lighting, radio range and field under construction.
Cordova (Old)	E	60 32 N. 145 44 W.	25	1 mi. E. of town on edge of lake.	E./W. 2,000′ x 200′	Loam and gravel	Beacon, wind cone, fuel, minor repairs, weather reports, radio.
Council	E	64 55 N. 163 44 W.	100 (est.)	2½ mi. NW. of town	NW./SE. 1,800′ x 150′.	Gravel; level and smooth.	Wind cone, telephone in town.
Cripple Creek (Folger).	E	63 31 N. 156 01 W.	800 (est.)	Adjacent to mining camp and Folger P. O.	NW./SE. 2,000′ x 150′.	Gravel	Limited repairs, fuel, quarters, radio in summer.
Crooked Creek	E	61 45 N. 159 23 W.					
Deering	E	66 05 N. 162 46 W.	10	½ mi. NW. of town	NE./SW. 250′ x 50′; NW./SE. 2,200′ x 150′.	Grassy beach, sand	Fuel, telephone, weather reports, radio.

CONFIDENTIAL
DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

ALASKA—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Dick Creek	R	63 45 N. 164 27 W.	2,000 (est.)	NE. of Kougarok Mt.	1,100′ x 60′		
Eagle (New)	R	64 48 N. 141 13 W.	600 (est.)	½ mi. N. of Eagle	NW./SE. 3,000′ x 150′.	Sod and fine sand	Weather reports, wind cone, limited fuel, minor repairs.
Eagle (Old)	R	64 48 N. 141 13 W.	600 (est.)	N. edge of town	NE./SW. 1,800′ x 200′.	Sod and fine sand	Wind cone, radio, weather reports, minor repairs.
Eagle Creek	R	65 26 N. 143 34 W.	4,600 (est.)	Approximately 40 mi. SW. of Circle on Steese Highway.	1,700′ x 120′		
Eureka	R	65 11 N. 150 14 W.	1,000	1 mi. S. of town	NE./SW. 1,180′ x 150′.	Clay	Telephone, wind flag.
Eva Creek	R	64 48 N. 145 30 W.	2,200 (est.)	On S. side of Eva Creek, 32 mi. SSE. of Nenana.	E./W. 1,600′ x 100′	Gravel, natural drainage.	Wind cone.
Fairbanks (Ladd Field).	M	64 49 N. 147 36 W.	440	4 mi. E. of town	E./W. 5,000′ x 200′	Sod, concrete runway.	Lighting, hangars, accommodations, major repairs, fuel, radio, radio range, under construction. U. S. Army air base.
Fairbanks (Weeks Field).	C	64 50 N. 147 44 W.	427	½ mi. SW. of town	E./W. 4,000′ x 150′—500′; NW./SE. 1,200′ x 150′.	Sod, sandy loam	Wind cone, lighting, hangars, repairs, fuel, radio-weather reports.
Farewell	MC	62 32 N. 153 31 W.	800 (est.)	NW. end of Rainy Pass on W. side of South Fork of Kuskokwim River.	E./W. 4,000′ x 300′; N./S. 4,200′ x 300′. Under construction.	Gravel	Wind cone, fuel, radio, weather reports, caretaker, snow-controlled. Radio range under construction.
Flat	C	62 26 N. 158 03 W.	200	¼ mi. E. of town	E./W. 3,000′ x 150′	Gravel	Fuel, repairs in town, telephone, radio.
Flat (Hill Field)	R	62 30 N. 158 05 W.	600 (est.)	On outskirts to N. of town	1,500′ x 400′	Gravel, rolled	Fuel, repairs in town, telephone, radio.
Ft. Yukon	R	66 34 N. 145 19 W.	700	½ mi. N. of Ft. Yukon	E./W. 1,600′ x 300′; NE./SW. 1,100′ x 150′.	Firm, level sod, natural drainage.	Fuel, radio, wind cone weather reports, markings.
Fur Bar	R	65 21 N. 164 25 W.	1,000 (est.)			Soft when wet	None.
Franklin	R	64 16 N. 141 45 W.	1,000	SE. of village	NE./SW. 1,600′ x 100′.	Rocky, natural drainage.	Wind cone.
Gakona (Gulkana).	C	62 18 N. 145 17 W.	1,700 (est.)	1,000′ E. of Gakona; 4 mi. NE. of Gulkana	NE./SW. 4,000′ x 200′.	Sod and gravel	Radio, hangar, wind cone, telephone, fuel.
Galena	MC	64 43 N. 156 54 W.	50	¾ mi. N. of Galena	E./W. 4,000′ x 300′—6,000′ x 300′ under construction.	Gravel	Radio range; under construction.
Ganes Creek (Tahoma).	R	63 39 N. 158 21 W.	1,000 (est.)	¼ mi. W. of Tahoma	NNE./SSW. 1,600′ x 120′.	Gravel	Wind cone; radio at camp.
Gold Creek	R	64 58 N. 149 47 W.		On S. side of Slate Creek			
Gold King Creek	R	64 05 N. 163 56 W.	2,000 (est.)				
Golden Zone	R	63 14 N. 145 30 W.		8 mi. NW. of Colorado Station.			
Galena	R	64 33 N. 156 05 W.	8	¼ mi. NW. of town	NE./SW. 2,100′ x 150′; NE./SW. 800′ x 120′.	Sandy	Wind cone, fuel, telephone, weather reports, minor repairs.
Goodpaster	R	64 25 N. 144 07 W.	2,000	100 mi. E. by S. of Fairbanks.	1,150′ x 70′	Gravel and dirt	Radio, wind indicator cabin ½ mile away.
Grubstake (Bonnifield).	R	64 03 N. 149 13 W.	2,000 (est.)	6 mi. NW. of Bonnifield	900′ x 60′		
Gulkana	MC	62 07 N. 145 28 W.	1,500	12 mi. S. of village	NW./SE. 1,800′ x 500′. 5,500′ x 150′ under construction.	Silt over clay	Radio range and field under construction.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED CONFIDENTIAL

ALASKA—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Haines	E	59 14 N. 135 27 W.		Approximately 15 mi. S. of Skagway.	N./S. 3,000' x 200'	Gravel	Under construction, radio
Harris Creek (Taylor).	E	65 33 N. 164 24 W.	600	7 mi. SE. of Taylor, on right limit of Harris Creek.	N./S. 1,200' x 150'	Soil and gravel, level.	Wind cone, weather reports, limited accommodations.
Hayreach	E	68 13 N. 161 05 W.	300	½ mi. SE. of town	N./S. 1,400' x 150'	Tundra covered with gravel (ballings).	Wind cone, fuel, weather reports, minor repairs.
Healy	E	63 52 N. 148 59 W.	600	1 mi. W. of town	N./S. 600' x 300'; E./W. 700' x 200'.	Soil, natural drainage.	Fuel, telephone, telegraph, weather reports, R. R.
Hog River	E	66 15 N. 155 43 W.					
Homer	MC	59 38 N. 151 30 W.	70	2 mi. E. of town	Proposed; NE./SW. 5,000' x 500', WNW./ESE. 3,000' x 300'.	Gravel	Radio range and field under construction.
Illiamna	MC	59 46 N. 154 52 W.	100	3 mi. NW. of Illiamna.	Proposed runway 5,000' x 300' with possible cross-runway of 3,000'.	Gravel	Radio range and field under construction.
Jack Wade	E	64 07 N. 141 22 W.	1,700	¼ mi. NE. of camp	ENE./WSW. 2,000' x 150'.	Tailings, level	Wind flag, limited quarters at camp.
Joseph	E	64 22 N. 143 06 W.		S. side of Middle Fork, E. of town.			
Juneau	MC	58 22 N. 134 36 W.	20	Near base of Mendenhall Glacier, 9½ mi. NW. of Juneau.	WNW./ESE. 1,600' x 300'; E./W. 2,750' x 200'; taxi strip N./S. 2,200 x 400'.	Sod and gravel on silt.	Radio, radio range, fuel, repairs, hangar, weather reports, wind cone.
Koke	E	61 54 N. 161 28 W.	1,000	On Buster Creek, 4 mi. from its mouth at the Yukon River.	1,200' x 150'		
Koliug	E	64 30 N. 158 43 W.	120 (est.)	E. of village, on an old river bar.	2,000' x 200'	Sand, level, field subject to overflow in spring break-up.	Fuel in town, wind indicator, weather reports.
Kotzebue	E	66 52 N. 162 09 W.	1,000 (est.)	NW. edge of settlement	NW./SE. 1,700' x 150'.	Gravel	Radio, wind cone, shelter cabin.
Kodiak	E	57 22 N. 152 17 W.	100	S. edge of town	NE./SW. 1,200' x 150'.	Sod, level	Limited accommodations.
Kosuane (Kenganek) (Taylor).	E	65 43 N. 164 40 W.	1,000 (est.)	4 mi. above Taylor Creek Field.	1,400' x 200'		
Koyuk	MC	64 54 N. 161 15 W.	100	1,500' NE. of town	NE./SW. 4,500' x 400'.	Clay loam	Lighting, wind cone, radio; under construction.
Kwethluk	E	60 48 N. 161 45 W.	6	½ mi. SE. and across lagoon from town.	4,000' x 200'	Sand and gravel, level.	Limited fuel, radio, corner marks.
Kwiuk	E	66 01 N. 161 18 W.	15	¼ mi. NW. of town	NW./SE. 1,800' x 200'.	Gravel and sod, level.	Telephone, wind cone, quarters in town.
Kobuk	E	66 57 N. 156 58 W.	200	3½ mi. NW. of Kobuk P. O. on right bank, of Kobuk River.	E./W. 1,200' x 240'	Sod, natural drainage.	Wind cone, repairs at adjacent camp.
Kodiak	M	57 48 N. 152 24 W.	40	5 mi. SW. of Kodiak	NE./SW. 4,000' x 150'; E./W. 2,000' x 300'; NW./SE. 4,200' x 150'.	Concrete	Hangar, radio, fuel, weather reports, wind cone; under construction, radio range, repairs. U. S. Naval Air Station.
Kotzebue	E	66 52 N. 162 39 W.	15	S. edge of village	N./S. 1,200' x 150'; E./W. 1,000' x 150'; 720' x 150'.	Tundra on gravel. Dry, well drained.	Hangar, radio, wind cone, weather reports, markings, fuel.
Koyuuk (Dahl).	E	65 54 N. 156 54 W.	150 (est.)	Along edge of river, 6 mi. NE. of Dahl, 1 mi. SE. of mining camp.	NW./SE. 1,500' x 150'.	Gravel, level. Natural drainage.	Wind cone, limited accommodations.
Koyuk	E	64 55 N. 161 05 W.	10	½ mi. SE. of Koyuk	E./W. 1,600' x 200'	Smooth sod. Part of field covered with water at extreme high tide.	Wind cone, radio, weather reports, markings.

DECLASSIFIED CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

ALASKA—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Lanzman & Fitzgerald.	E	65 32 N. 155 45 W.	.....	Near town of Kobuk	1,500' x 200'		
Lanzon (Jack Wade Lower).	E	61 04 N. 142 27 W.	1,320	1½ mi. S. of camp	E./W. 1,700' x 150'	Sand and gravel	Radio, telephone, limited quarters at camp.
Long Creek (Dawson Field).	E	64 35 N. 155 33 W.	1,020 (est.)	1 mi. N. of Long Creek, approximately 17 mi. S. of Ruby.	NE./SW. 3,600' x 150'; N/W./S E. 1,800' x 150'.	Gravel	
Lopp Lagoon (Wales) (Tin City).	E	65 39 N. 167 45 W.	30	6 mi. NE. of Wales, 6 mi. NW. of Tin City.	E./W. 1,500' x 200'	Sandy and grassy, level.	Wind cone, limited quarters at mining camp.
Lost River	E	65 55 N. 167 16 W.	30	¼ mi. W. of mouth of Lost River and town, on high gravel bar.	NE./SW. 1,500' x 200'.	Gravel, level, natural drainage.	Markings, wind cone, limited accommodations at bunkhouse near field.
Lucky Shot (Willow Creek Mines).	E	61 44 N. 149 25 W.	2,700	14 mi. N. of Wasilla	1,500' x 150'	Gravel and loam	Hangar, radio, wind flags.
Machlis Creek	E	65 44 N. 158 30 W.	1,000 (est.)	Near Kuguzuk Mountain (3,787').	1,200' x 100'		
Madison Creek	E	63 11 N. 159 45 W.	.....				
Manley Hot Springs.	E	64 53 N. 150 39 W.	325	Adjacent to town. 30 mi. E. of Tanana.	NE./SW. 1,500' x 150'.	Sod	Wind cone, minor repairs, fuel, radio, telephone. Roadhouse ½ mi. from field.
Marshall	E	61 52 N. 162 06 W.	200	NE. of town	E./W. 1,400' x 200'	Clay and sod natural drainage.	Wind cone, weather reports, minor repairs, fuel.
May Creek (McCarthy).	E	61 29 N. 142 03 W.	1,300 (est.)	10 mi. SE. of McCarthy	N./S. 1,500' x 200'	Soil, level	Wind flags, roadhouse.
McCarthy	E	61 26 N. 142 55 W.	1,500 (est.)	¼ mi. S. of town	E./W. 2,000' x 100', N./S. 600' x 100'.	Gravel, loam	Wind cone, radio, fuel, hangar, weather reports.
McGrath (new)	MC	62 57 N. 155 37 W.	330	W. edge of town	N./S. 2,000' x 200' (to be extended to 4,000'), E./W. 2,500' x 200'.	Sandy loam	Wind cone, fuel, radio, radio range, minor repairs, weather reports. Under construction. Snow controlled.
McGrath (old)	E	62 58 N. 155 34 W.	100	¼ mi. E. of town	NNE./SSW. 2,000' x 150'.	Sand and silt	Wind cone, fuel, radio, minor repairs, weather reports.
McGrath (Candle)—(Kuskokwim).	E	62 54 N. 154 43 W.	1,300	6 mi. SW. of McGrath	NE./SW. 1,500' x 150'.	Shale, natural drainage.	Weather reports, minor repairs, lighted fuel, telephone.
McKinley Park	E	63 43 N. 148 54 W.	1,700	On E. side of railroad station.	N./S. 1,500' x 100'	Loam. Several rolling humps.	Wind cone, telephone, minor repairs.
Medfra	E	63 06 N. 154 27 W.	420	N. of town, 25 mi. ENE. of McGrath.	NNE./SSW. 2,000' x 200'-150'.	Sandy loam	Wind sock, fuel.
Mining Creek (Council).	E	64 54 N. 163 39 W.	.....	3 mi. E. of Council	1,200' x 100'	Gravel	Weather reports.
Miller Creek (Hot Springs) (Tofty).	E	65 05 N. 150 57 W.	.....	1 mi. SW. of Tofty	1,600' x 200'		
Minchumina	MC	63 54 N. 152 19 W.	325	W. edge of Lake Minchumina.	NE./SW. 3,700' x 200'	Gravel	Radio, quarters, fuel, weather reports. Under construction. Snow controlled.
Moore Creek	E	62 34 N. 147 10 W.	1,000 (est.)	24 mi. NE. of Flat	NW./SE. 1,500' x 150'	Gravel	Wind cone, fuel, radio.
Moose Creek (Elliot).	E	64 43 N. 150 07 W.	600	15½ mi. N. of R. R. junction.	NW./SE. 1,000' x 200'	Sod	Wind cone, telephone and quarters at coal mine camp ¼ mi. N.

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED CONFIDENTIAL

ALASKA—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
Moore Point	MC	64 45 N. 162 05 W.	Feet 16	¾ mi. W. of mouth of Kwiguk River, 13 mi. W. of Hlen.	WNW./ESE.3, 200' x 200' NE./SW. 1,200' x 200'. Under construction.	Sand and earth	Radio, weather reports, quarters, fuel. Snow controlled. Radio range under construction.
My Creek	E	64 08 N. 142 32 W.		On E. side of middle fork of the Forty Mile River.	600' x 50'		
Myrtle Creek	E	67 46 N. 152 05 W.		On Slate Creek near the mouth of Myrtle Creek.	2,000' x 200'		
Nabesna	E	62 26 N. 142 52 W.	3,050	4 mi. NE. of Nabesna	N./S. 1,200' x 200'-120', NW./SE. 2,000' x 200'; NE./SW. 600' x 200'.	Gravel, loam	Wind cone, shelter hous, corner markings.
Naknek	MC	58 46 N. 157 46 W.	250' (est.)	30 mi. S. of	NW./SE. 4,000' x 200'; NNE./SSW. 1,600 x 200'.	Gravel. To be asphalt.	Under construction. Radio range nearing completion.
Nagamute	E	61 20 N. 158 47 W.		2 mi. SSE. of town on island in Kuskokwim River.			
Nathe	E	63 12 N. 161 20 W.	200	1 mi. S. of village	NW./SE. 1,700' x 150'	Earth, with salt spot flagged.	Flag boundary markers, limited quarters at roadhouse.
Nenana	MC	64 33 N. 149 05 W.	387	1 mi. S. of town	Under construction NNE./SSW. 3,000' x 200'. NW./SE. 2,000' x 200'.	Sandy loam and gravel.	Fuel, telephone and telegraph, Alaska R. R. Under construction. Snow controlled.
Nova Creek	E	63 38 N. 164 45 W.		At junction of Nova Creek and Kongenik River.	600' x 150'		
Newhalen	E	59 43 N. 154 55 W.	70	2 mi. SW. of Illamna roadhouse.	ENE./WSW. 1,200' x 150'.	Gravel, loam, usable by light planes only.	C. A. A. range under construction.
Nicholoth	E	60 05 N. 151 49 W.	20	SW. of town, across stream.	N./S. 2,000' x 200'	Gravel, flat	Wind cone, corner markings.
Nunak	E	67 34 N. 158 04 W.	100 (est.)	On island of Nunak River, just below Nunak village.	NW./SE. 1,200' x 150'.	Sandy loam, level	Radio, wind cone, quarters at airport.
No Grub	E	64 30 N. 165 29 W.		S. side of stream			
Nome (Old)	C	64 30 N. 165 31 W.	60	½ mi. NNE. of Nome	NE./SW. 3,200' x 150'.	Gravel, uneven	Fuel, hangars, repairs, radio, weather reports, wind cone.
Nome (New)	MC	64 32 N. 165 25 W.	27	1 mi. NW. of Nome	NNE./SSW. 4,800' x 300'; E./W. 4,200' x 300'.	Gravel. To be asphalt.	Wind cone, limited repairs, hotels in town, radio range, radio. Under construction.
Nourvik	E	68 39 N. 166 57 W.	30 (est.)	½ mi. NE. of Nourvik, on an island.	1,800' x 150'	Sandy and level	Amateur radio, wind cone.
Northway (Tetlin).	MC	62 58 N. 141 55 W.	1,650 (est.)	25 mi. SE. of Tetlin	NE./SW. 3,300' x 300'.	Sand and silt	Fuel, wind cone, lighting. Under construction. Snow controlled. Experimental radio range.
Nunapaga (Kougarok).	E	65 35 N. 165 15 W.	1,100	2½ mi. NW. of camp, on Nunapaga River.	E./W. 1,400' x 100', 1,100' x 70'.	Shale, natural drainage.	Radio, wind cone. Accommodations at mining camp.
Nulato	E	64 44 N. 158 06 W.	425 (est.)	1 mi. NE. of town, 30 mi. W. of Ruby.	NE./SW. 2,600' x 150'.	Earth, natural drainage.	Limited fuel, radio, wind cone, weather reports. Hotel in town.
Nyac	E	60 30 N. 160 48 W.			2,800' x 150'		Weather reports, radio.
Omega Creek (Eureka).	E	65 11 N. 150 28 W.	1,600	8 mi. W. of Eureka	NE./SW. 900' x 200'.	Gravel, gumbo	Telephone, wind cone.

DECLASSIFIED CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

ALASKA—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
Ophir	E	63 10 N. 158 35 W.	Feet 325 (est.)	W. edge of village	WNW./ESE. 1,500' x 100'	Gravel, natural drainage.	Fuel, radio, weather reports, wind cone, telephone.
Palmer Creek	E	63 02 N. 145 31 W.	1,150	60 mi. E. of Fairbanks	E./W. 600' x 200'	Gravel and sand	
Paxson Creek	E	62 59 N. 145 43 W.	1,520 (est.)	At mining camp 35 mi W. of Tallcotna.	N./S. 1,600' x 150'	Gravel, natural drainage.	Wind cone.
Pilgrim Hot Springs	E	64 55 N. 164 25 W.	50	¼ mi. SE. of Mission	E./W. 1,200' x 200'	Sod and sand	Telephone, wind cone, weather reports, corner markings.
Platinum	E	59 01 N. 165 49 W.	1,650 (est.)		2,000' x 200'	Gravel	Quarters at mining camp.
Pleasant	C	59 01 N. 161 47 W.	10 (est.)	W. edge of town	N./S. 2,400' x 60', NW./ SE. 2,100' x 100'	Runway 1 not well packed, gravel and clay.	Wind cone, radio, fuel, hangar.
Point Hope (Tigara)	D	68 20 N. 166 50 W.	20	¼ mi. E. of Tigara village	E./W. 4,000' x 200'	Sandy, level	Limited fuel, wind cone, radio, weather reports.
Poorman	E	64 59 N. 163 20 W.	1,600	2½ mi. N. of Poorman	NE./SW. 1,600' x 100'.	Sandy loam	Roadhouse in Poorman.
Port Heiden (Meshik).	MC	57 09 N. 158 40 W.	60	Adjacent to Port Heiden, 3 mi. N. of Meshik.	Under survey; may not be constructed.		Radio range under construction.
Portage	E	60 33 N. 147 10 W.					
Pyne Creek	E	64 44 N. 165 25 W.		Top of ridge near S. fork of Chena River.			
Quartz Creek (Shelton).	E	63 31 N. 164 40 W.	1,600 (est.)	9 mi. NNE. of Shelton	800' x 75'		
Ruby Creek	E	60 12 N. 155 29 W.					
Rampart	E	65 31 N. 150 09 W.	600	1 mi. E. of town	NW./SE. 2,500' x 300'.	Earth	Telephone, wind cone, limited fuel.
Rapids	E	63 32 N. 145 30 W.	2,100	On Richardson Highway, just N. of Rapids Roadhouse.	NW./SE. 2,400' x 100'.	Gravel, natural drainage.	Telephone, weather reports, wind cone, roadhouse.
Reeve Field (Nabesna Mine).	E	62 23 N. 142 35 W.	2,200	76 mi. ENE. of Cahoma	N./S. 2,700' x 150', E./W. 2,000' x 100'.	Gravel and sand	Fuel, wind cone.
Ruby	E	64 42 N. 155 27 W.	1,000 (est.)	1 mi. SE. of Ruby	NE./SW. 2,500' x 300'.	Muddy loam, badly eroded.	Fuel in town, wind cone, radio, telephone, weather reports. Radio range.
Ruby Creek (Candagaga).	E	64 47 N. 154 15 W.		On Ruby Creek	600' x 50'		Field serves mining interests in vicinity.
Salmon River (Platinum).	E	59 05 N. 161 40 W.	200	6 mi. SE. of Platinum (Goodnews Bay).	NE./SW. 1,600' x 125'.	Gravel, level. Natural drainage.	Minor repairs, radio.
Selawik	E	66 36 N. 159 57 W.	25 (est.)	E. of village, just across Selawik River.	E./W. 1,000' x 100'	Sandy loam	Limited fuel, radio, telegraph, weather reports, minor repairs.
Serpentine Hot Springs	E	65 01 N. 164 40 W.	1,000 (est.)	NE. of Kougarok Mt. (3,787').	1,400' x 100,' 1,000' x 50'.		
Seward	MC	60 07 N. 149 24 W.	12	1½ mi. NE. of Seward, adjacent to and E. of Alaska R. R.	N./S. 2,600' x 200'	Gravel and shale	Fuel, radio, radio range, hangar, minor repairs.
Shishmaref	E	66 10 N. 166 14 W.	20 (est.)	2 mi. SW. of village			Weather reports.
Shugnak	E	68 27 N. 155 10 W.	20	NE. edge of town	NE./SW. 2,700' x 200'.	Loam and gravel	Fuel, repairs, hangars, weather reports, radio.
Slate Creek	E	65 11 N. 164 54 W.	2,200 (est.)	SE. of village	NE./SW. 1,700' x 100'.	Gravel, natural drainage.	Wind cone, limited accommodations at mining camp in summer only.
Snow Gulch (Anvil).	E	59 52 N. 161 32 W.		35 mi. N. by E. from Platinum.	1,200' x 300'		

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

ALASKA—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
Solomon (1)	R	64 27 N. 164 34 W.	Feet 100	6½ mi. N. of Solomon	N./S. 1,800' x 300'	Gravel	Wind cone, limited fuel.
Solomon (2)	R	64 34 N. 164 35 W.	15 (est.)	E. edge of town	E./W. 1,800' x 300'	Gravel	
Spafford River	R	67 07 N. 159 36 W.	450 (est.)	8 mi. N. from mouth of river.	E./W. 1,400' x 140'	Gravel	Limited accommodations at camps.
Stevens Village	R	66 02 N. 149 05 W.	500	700' N. of village	3,150' x 150'	Sand and earth	Limited fuel, radio, wind cone, weather reports.
Stuyahok	R	61 05 N. 160 51 W.	600	Adjacent to camp 9 mi. from Tucker's slough on Yukon River.	E./W. 1,100' x 150'	Gravel	Radio, flag wind indicator.
Summit	MC	63 20 N. 149 07 W.	2,426	NW. of and adjacent to Alaska R. R. station.	NNE./SSW. 4,000' x 600'.	Silt, bare	Wind cone, weather reports, telephone, radio, accommodations. Radio range under construction.
Sunfish Station	R	61 33 N. 159 23 W.	150	1 mi. SW. of town on an island.	NE./SW. 1,800' x 300'.	Sand and gravel	Wind cone, telephone, use in emergency only.
Takotna	R	62 59 N. 156 05 W.	1,405	½ mi. N. of town, 15 mi. W. of McGrath.	E./W. 1,800' x 300'	Shale, rock, and clay	Wind cone, fuel, telephone.
Talkeetna (New)	MC	62 18 N. 150 06 W.	355	1 mi. E. of town	N./S. 3,000' x 300'	Gravel	Beacon, wind cone, fuel, weather; radio range and field under construction.
Talkeetna (Old)	R	62 19 N. 150 07 W.	354	In town	N./S. 2,100' x 300'	Loam on gravel	Wind cone, beacon, fuel, radio, telephone and telegraph.
Tanacross	MC	63 24 N. 143 20 W.	1,425	Adjacent to SE. and across river from town.	NW./SE. 3,300' x 300'. 2 other runways under construction.	Gravel and loam	Fuel, radio, radio range, weather reports.
Tanana (New)	MC	65 11 N. 152 02 W.	220	¼ mi. NW. of town	Two strips under construction: NE./SW. 3,300' x 300', with 1,600' available for winter landings. E./W. 4,000' x 300'.	Silt	Radio range and field under construction.
Tanana (Old)	R	65 10 N. 152 04 W.	220	1 mi. E. of town	1,400' x 300'	Sod, level	Telephone and telegraph, radio, minor repairs, corner markings, limited fuel, weather reports. Radio range under construction.
Teller	R	65 10 N. 166 26 W.	1,800	10 mi. W. of Rainy Pass	ENE./WSW. 2,000' x 100'.	Gravel	Wind cone, shelter cabin.
Taylor Creek	R	64 40 N. 164 45 W.	250 (est.)	Immediately W. of Taylor, across river.	N./S. 1,800' x 150'	Gravel spread	Limited radio, wind cone, weather reports, minor repairs.
Telida	R	62 30 N. 152 35 W.	900	½ mi. SE. of Telida	NE./SW. 800' x 200'	Sod	
Teller (1)	R	65 15 N. 166 20 W.	10	NE. of village	N./S. 1,200' x 200'	Gravel	Fuel, weather reports, minor repairs.
Teller (2)	R	65 15 N. 166 20 W.	10	S. across lagoon from village.	E./W. 1,400' x 200'	Gravel, E. end sometimes soft.	Fuel, weather reports, minor repairs.
Tetlin	R	63 08 N. 142 30 W.		Adjacent to village of Tetlin.	2,800' x 400'		
Thompson Pass (Valdez)	R	61 30 N. 145 46 W.	1,075	10½ mi. ENE. of Valdez, 23½ mi. N. of Thompson Pass.	NW./SE. 1,700' x 200'.	Gravel	Telephone, corner markings, shelter cabin.
Tin City	R	65 33 N. 167 55 W.	200 (est.)	5 mi. SE. of Cape Prince of Wales.	2,400' x 300'; 1,800' x 300'.	Level broken limestone, some sharp rocks.	Wind cone, amateur radio.
Tofty	R	65 08 N. 150 55 W.		S. edge of town	1,800' x 150'		

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

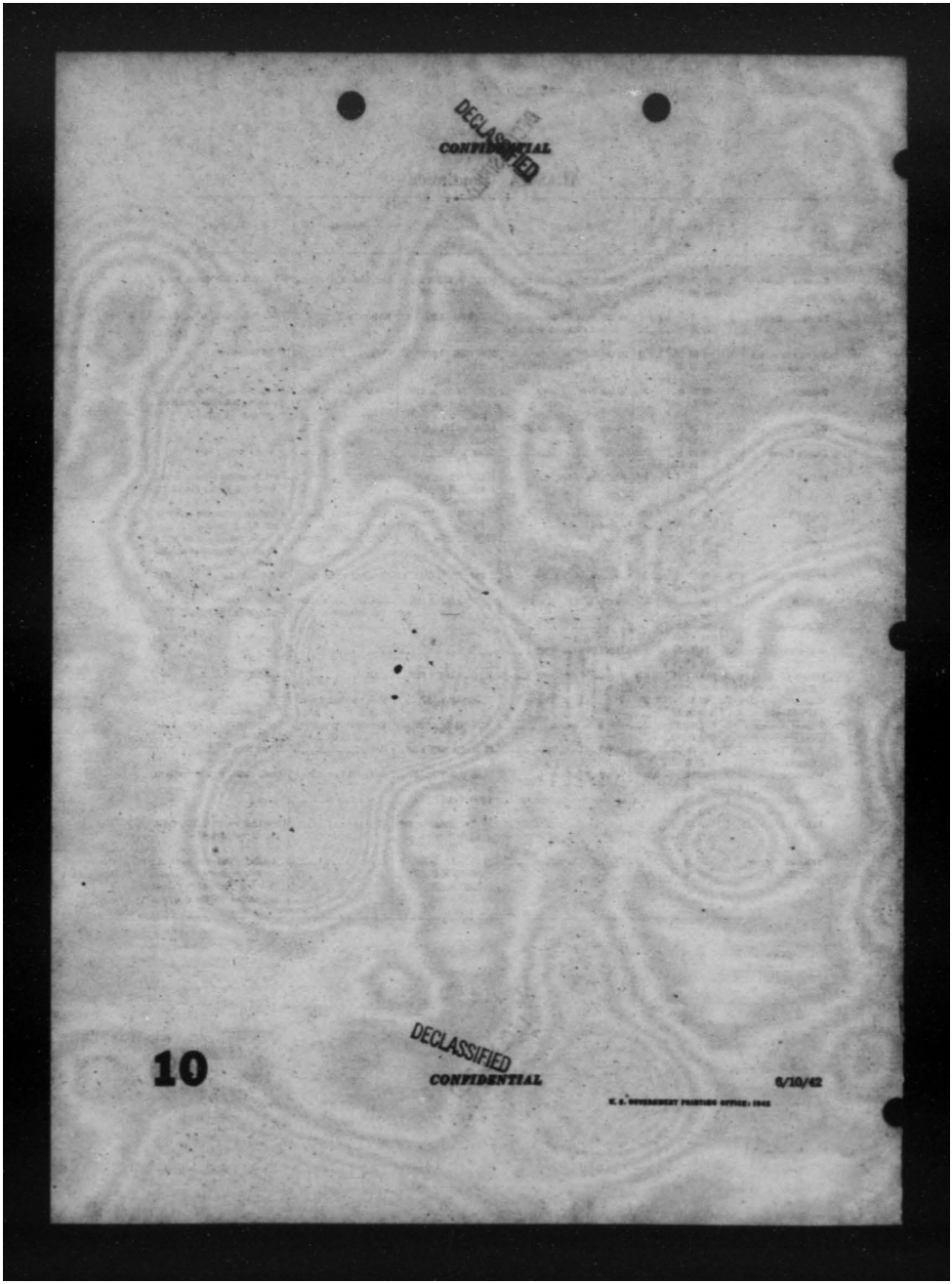
ALASKA—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Tanana (Lower)	R	64 37 N. 156 43 W.	1,084	12 mi. NW. of Chitina, on SE. edge of Lower Tanana.	NE./SW. 900' x 150'; NW./SE. 900' x 150'.	Level loam	Wind cone, telephone, roadhouse.
Tanana (Upper)	R	63 23 N. 145 13 W.	1,624	30 mi. N. of Valdez, on W. side of Richardson Highway.	NE./SW. 1,500' x 170'.	Natural soil	Fuel, telephone, wind cone, minor repairs.
Totatlanika (Jackson)	R	64 03 N. 149 31 W.	2,000	30 mi. SSE. of Nenana, ¼ mi. E. Totatlanika Creek.	NW./SE. 1,500' x 200'.	Clay	Wind indicator.
Umiaktuk	R	69 24 N. 160 49 W.	30	¼ mi. NW. of town	N./S. 2,000' x 200'; NE./SW. 1,750' x 200'.	Sod and gravel, level	Fuel, telephone, radio, weather reports, wind cone, corner markings.
Ungalik	R	64 24 N. 160 49 W.		W. bank of Ungalik River	1,700' x 150'; 1,200' x 150'.		
Ungalik Creek	R	64 03 N. 159 44 W.			2,100' x 100'		
Valdez	C	61 08 N. 146 16 W.	20	SE. edge of town	NE./SW. 2,200' x 200'; NW./SE. 1,200' x 200'.	Gravel	Fuel, hangar, repairs, radio, telegraph, corner markings.
Valdez Creek	R	63 11 N. 147 28 W.	2,000	Adjacent to right bank of Creek.	NE./SW. 1,500' x 200'.	Sod, natural drainage.	Wind cone; mining camp ¼ mi. SE. of field.
Wales	R	65 36 N. 168 04 W.	30	½ mi. NW. of village	N./S. 1,000' x 200'	Sod, soft; natural drainage.	Weather reports, wind cone, markings, quarters at mission.
Walkers Fork	R	64 05 N. 141 08 W.	2,000	1 mi. N. of Cowden camp.	2,000' x 225'; 1,575' x 150'.	Crushed rock, level	Wind flag. Accommodations at camp.
Wasilla	R	61 35 N. 149 30 W.	365	¼ mi. WNW. of town	E./W. 1,500' x 150'	Soil over gravel; soft in spring.	Minor repairs, fuel, telephone and telegraph.
Wattamane	R	59 19 N. 161 10 W.					
White Mountain	R	64 41 N. 163 25 W.		11 mi. NE. of Bluff			
Willow Creek (1) (Lucky Shot)	R	61 47 N. 149 24 W.	1,700	3½ mi. W. of Lucky Shot	E./W. 1,300' x 150'	Gravel	Hangar.
Willow Creek (2) (Fishhook)	R	61 47 N. 149 30 W.	2,400	20 mi. NE. of Wasilla	N./S. 900' x 150'	Sod; natural drainage.	
Willow Station	R	61 43 N. 150 03 W.	125	400' E. of depot	N./S. 1,000' x 120'	Top soil over gravel; soft in spring.	Telephone, wind cone, roadhouse.
Windy Creek (Agbopak)	R	62 36 N. 165 30 W.	200	24 mi. NE. of Teller	NW./SE. 900' x 70'	Gravel	Wind cone.
Wiseman	R	67 26 N. 150 15 W.	2,000	¼ mi. W. of town	N./S. 2,000' x 150'	Sod, good condition	Fuel, radio, weather reports.
Woodchopper	R	65 18 N. 163 25 W.		Adjacent to town	1,700' x 100'		
Yakutago	MO	60 05 N. 142 29 W.	20	On the shore of Gulf of Alaska, 2 mi. W. of Yakutago.	WNW./ESE. 4,200' x 300'.	Gravel	Weather reports, ML radio; under construction.
Yakutat (Army Air Base)	M	59 31 N. 139 43 W.	10 (est.)	1½ mi. S. of village	NW./SE. 5,000' x 150', NE./SW. 7,200' x 150'.	Concrete	Limited fuel, radio range, weather reports, wind cone, under construction, equipped for night flying.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

CORRECTION AND/OR ADDITION REPORT

ALASKA

(Report all fields omitted from this directory, including any under construction. Report also corrective information on fields included in this directory. Detach this sheet and mail to "Air Movements Unit, AFDIS, Headquarters Army Air Forces, War Department, Washington, D. C.")

TO: Air Movements Unit, AFDIS.

FROM:

The following corrections, additions and/or recommendations are suggested for this Airport Directory:

Name and Rank

Date and Place

(If more space is required use reverse side)

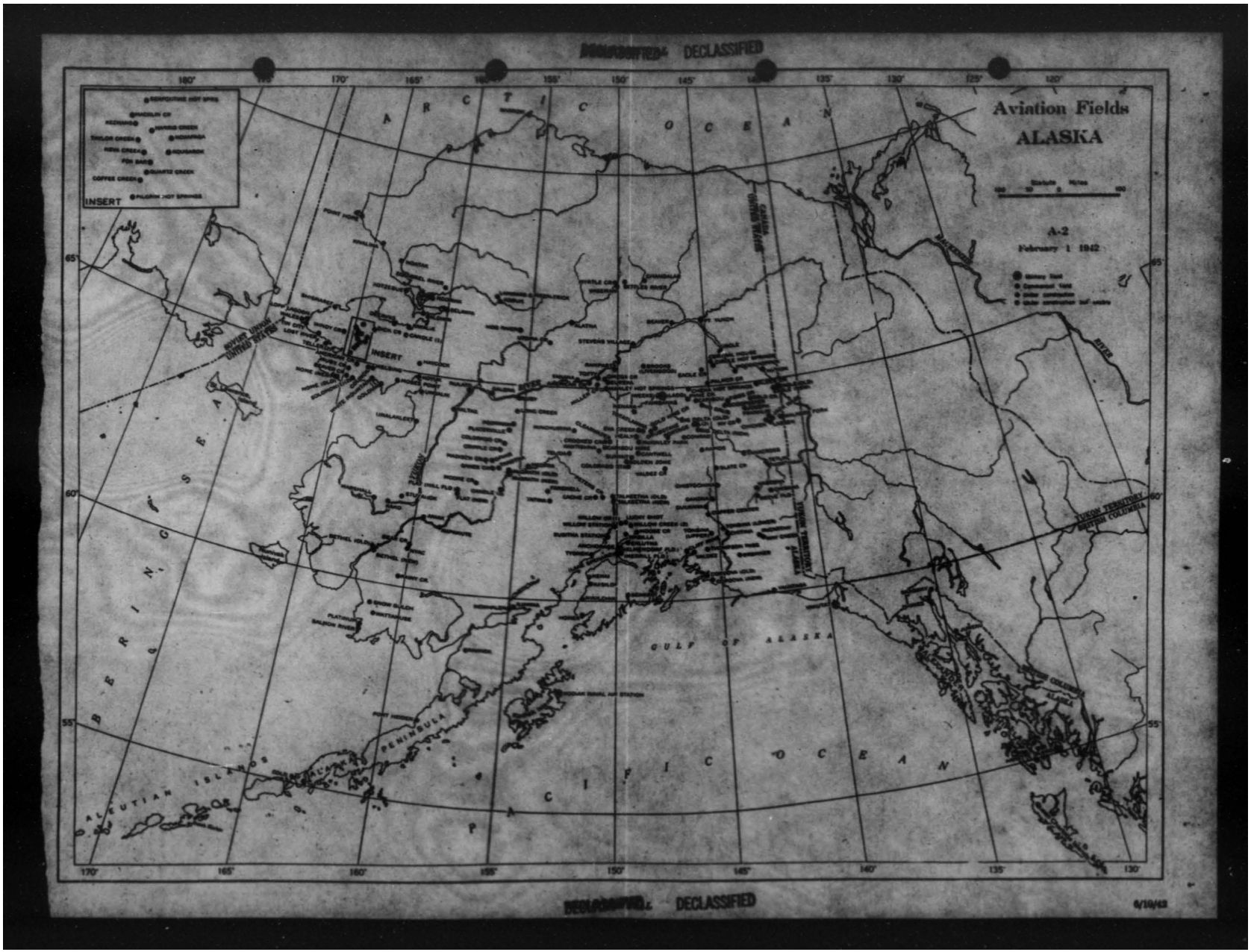
DECLASSIFIED

6/10/42

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

INDEX

FOREIGN AIRPORT DIRECTORIES

EASTERN HEMISPHERE

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

RECEIPT FOR NON-REGISTERED DOCUMENTS

Date: [redacted]

FROM: Chief of the Air Staff
Room 2236
Munitions Building

TO: Operational Intelligence Section,
A-2 Division

1. Receipt is acknowledged of the following non-registered Confidential, [redacted] documents:

1 copy Airport Directory - West Indies (April 27, 1942)

1 copy Route Manual - Miami to Cairo (May 20, 1942) Copy returned

Please acknowledge receipt and return immediately to:

Major E. E. White
Room 2E2
Munitions Building

NOTE: The above documents need not be reported as required by AR 380-5 in the case of registered documents.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

DECLASSIFIED
DOD Dir. 5 200.10 June 1986
NSA/CSS Form 3-16 5/11/76
NSE

AIRPORT DIRECTORY

WEST INDIES

BAHAMA ISLANDS
CUBA
DOMINICAN REPUBLIC
HAITI
JAMAICA
LESSER ANTILLES
PUERTO RICO
TRINIDAD and TOBAGO
VIRGIN ISLANDS

PREPARED BY
AIR MOVEMENTS UNIT, AFDIS
U. S. ARMY AIR FORCES
WASHINGTON, D. C.

EDITION OF
APRIL 27, 1942

Perforated correction sheets are attached at end of this Directory. All personnel are requested to complete these sheets and forward them promptly.

DECLASSIFIED

CONFIDENTIAL

Air 0846 K 107

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL DECLASSIFIED

DECLASSIFIED DOD Dir. 5 200.10 Date 10/13/76

PREFACE

The airport data given herein is a consolidation of information available at Headquarters Army Air Forces. This information has been obtained chiefly from Pan American Airways, the Naval Air Pilot H. O. No. 194, and reports of Army Air Force observers traveling in the area. The airports are listed by island or island group as follows:

BAHAMA ISLANDS
CUBA
DOMINICAN REPUBLIC
HAITI
JAMAICA
LESSER ANTILLES
PUERTO RICO
TRINIDAD AND TOBAGO
VIRGIN ISLANDS

The distribution of airports and emergency fields is as follows:

BAHAMA ISLANDS, one airport, and one emergency field reported abandoned. The airport is Oakes Field civil airport located at Nassau.

CUBA, six airports and thirty-one emergency fields. Airports are located at the following places:

Camaguey, an excellent civil airport known as Genual Agramonte. Used by P. A. A.

Guantanamo, two airports. The principal one is the U. S. Naval Air Station known as McCalla Field. The other is the U. S. Naval auxiliary field known as Carter Field.

Havana, two airports. The better of the two is Rancho Boyeros, a civil field used by P. A. A. The other is Campo Columbia used by the Cuban Air Force.

Mariel, one airport under construction by U. S. Navy.

DOMINICAN REPUBLIC, one airport and twenty-two emergency fields. The airport is Miraflores civil airport located at Ciudad Trujillo.

JAMAICA, two airports, no emergency fields. One is a British Naval Air Station known as Palisadoe Field located near Kingston. The other is Vernam Field under construction by the U. S. Army.

LESSER ANTILLES, five airports and four emergency fields. Airports are located on the following islands.

Antigua. Coolidge Field, U. S. Army Air Base.
Aruba. U. S. Army auxiliary airdrome.
Barbados. Civil airport known as Sewall Field.
Curacao. U. S. Army auxiliary airdrome.
St. Lucia. Beane Field, U. S. Army Air Base.

PUERTO RICO, nine airports and three emergency fields. The nine airports are as follows:

Two U. S. Army air bases, Borinquen and Losey.
Six U. S. Army auxiliary airdromes located at Arecibo, Mayeguez, Salinas, Santa Isabel, and Vegabaja.
One U. S. Naval Air Station near San Juan.

TRINIDAD and TOBAGO, four airports and two emergency fields. The airports are as follows:

One U. S. Army air base, Waller Field.
Two U. S. Army auxiliary airdromes at La Brea and Edinburgh.
One civil field known as Piarco.

VIRGIN ISLANDS, two airports and two emergency fields. One of the airports is the U. S. Army air base, Benedict Field on St. Croix, the other is the U. S. Naval Air Station, Bourne Field on St. Thomas.

The following are explanatory notes on the manner of presenting the information:

NAME: Under this heading is given the name of the nearest town or city of any significance. This name is followed by the name of the airport in parentheses if different from the name of the city or town. For towns at which there are several airports, the name of the town is repeated in parentheses for the airport known by the town name in order to distinguish it from the other airports. In cases where the name of the airport transcends the name of the town in importance, the airport name appears first.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

TYPE: Under this heading will be found a single letter having the following meaning.

M—Military fields of reasonable size and having at least the more important facilities.

C—Civil fields (Private and Commercial) of reasonable size and having at least the more important facilities.

E—Emergency fields (Military or Civil) either of small size or having few facilities or both.

FACILITIES: Under this heading is given a brief listing of facilities known to exist. No details are given although in many cases more detailed information is available.

The Index is a straight alphabetical listing by both town name and airport name of all fields in the West Indies.

It is to be understood that in a directory of this character all detailed information cannot be included although on the majority of the fields the information presented here represents all that is available at this time. For many of the fields there are available sketches or photographs or both.

Caution in the use of this directory is advised inasmuch as some of the information used is not of recent date and there may be fields in existence of which this office has no knowledge. Perforated correction sheets will be found in the back of this directory. These sheets are to be completed by military personnel stationed in or traveling in the area.

Supplements and/or new editions will be issued from time to time as more or better information becomes available.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL DECLASSIFIED

INDEX

City and Airport	Island or Island Group	Page
Agramonte	Cuba	3
Aguadilla (see Borinquen)	Puerto Rico	15
Alturas de Leyva (see Manzanillo)	Cuba	4
Anse-a-Galets	Haiti	9
Anse-a-Pitre (see Hispaniola)	Haiti	9
Antigua Island (Coolidge)	Lesser Antilles	13
Antigua Island (St. Johns)	Lesser Antilles	13
Antilla	Cuba	3
Arecibo	Puerto Rico	15
Aruba Island (Oranjestad)	Lesser Antilles	13
Azua	Dominican Republic	7
Baracoa	Cuba	3
Barahona	Dominican Republic	7
Barbados Island (Bridgetown, Seawall Field)	Lesser Antilles	13
Basseterre (see St. Kitts/St. Christopher Is.)	Lesser Antilles	13
Bayamo (General Milanes)	Cuba	3
Beane Field (see St. Lucia)	Lesser Antilles	13
Benedict Field (see St. Croix)	Virgin Islands	19
Bonaire Island (Subi Blanco)	Lesser Antilles	13
Borinquen (Aguadilla)	Puerto Rico	15
Bourne Field (see St. Thomas)	Virgin Islands	19
Bowen (see Port au Prince)	Haiti	9
Bridgetown (see Barbados Island, Seawall Field)	Lesser Antilles	13
Calderas	Dominican Republic	7
Calixto Garcia (see Manati)	Cuba	4
Camaguey (General Agramonte)	Cuba	3
Campo Columbia (see Havana)	Cuba	4
Canada Field (see Moron)	Cuba	5
Cap Haitian	Haiti	9
Carahatas (Colonel Deeds)	Cuba	3
Carter Field (see Guantanamo)	Cuba	3
Catano Field (see San Juan)	Puerto Rico	15
Cayo Mambi	Cuba	3
Central Almeida (see Macurijes)	Cuba	4
Central Palma (Estrada Palma)	Cuba	3
Central Senado	Cuba	3
Cayes la Source	Haiti	9
Christiansted (St. Croix)	Virgin Islands	19
Ciego de Avila	Cuba	3
Cienfuegos (Jaime Gonzales)	Cuba	3
Ciudad Trujillo (Colon)	Dominican Republic	7
Ciudad Trujillo (Miraflores)	Dominican Republic	7
Colon (see Ciudad Trujillo)	Dominican Republic	7
Colonel Deeds (see Carahatas)	Cuba	3
Consuelo (see San Pedro de Macoris)	Dominican Republic	8
Culebra	Puerto Rico	15
Coolidge (see Antigua Island)	Lesser Antilles	13
Cumuto (Waller Field)	Trinidad and Tobago Islands	17
Cunagua	Cuba	3
Curacao Island (Willemstad-Hato)	Lesser Antilles	13
Dajabon	Dominican Republic	7

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

City and Airport	Island or Island Group	Page
Dan Q (see Ponce)	Puerto Rico	15
Dorado	Puerto Rico	15
Edinburg	Trinidad and Tobago Islands	17
Ensenada de Lazas (see Mariel)	Cuba	4
Estrada Palma (see Central Palma)	Cuba	3
Frederiksted (St. Croix, Frederiksted Field)	Virgin Islands	19
General Agramonte (see Camaguey)	Cuba	3
General Milanes (see Bayamo)	Cuba	3
General Montegudo (see Santa Clara)	Cuba	5
Gonaives	Haiti	9
Grave B. Peralta (see Holquin)	Cuba	4
Guane (see San Julian)	Cuba	5
Guantanamo (Carter Field)	Cuba	3
Guantanamo (McCalla Field)	Cuba	4
Guantanamo (Teniente Moriote Field)	Cuba	4
Guipuzcoa Field (see Marti Field)	Cuba	4
Havana (Compo Columbia)	Cuba	3
Havana (Rancho Boyeros)	Cuba	4
Hinche	Haiti	9
Hispaniola (Anse-a-Pitre)	Haiti	9
Holquin (Grave B. Peralta)	Cuba	4
Isabell Rubio (see San Julian) (Guane)	Cuba	5
Isla Grande Air Base (see San Juan)	Puerto Rico	15
Isla Saona	Dominican Republic	7
Jaime Gonzales (see Cienfuegos)	Cuba	3
Jesus Maria (see Santiago de Cuba)	Cuba	5
Jaronu	Cuba	4
Jeremie	Haiti	9
Kingston (Palisadoes)	Jamaica	11
Kingston (Vernam Field)	Jamaica	11
La Brea	Trinidad and Tobago Islands	17
La Isabela	Dominican Republic	7
La Romana	Dominican Republic	7
La Vega	Dominican Republic	7
Las Lajas	Dominican Republic	7
Losey Field (see Ponce)	Puerto Rico	15
Maqeo (see Yaguaramas)	Cuba	5
Macurijes (Central Almeida)	Cuba	4
Manati (Calito Garcia)	Cuba	4
Manzanillo (Alturas de Loyca)	Cuba	4
Mariel (Ensenada de Lazas)	Cuba	4
Marti (Guipuzcoa Field)	Cuba	4
Mayaguez	Puerto Rico	15
Maury Roberts Co. Field (see Settlement Point)	Bahama Islands	1
McCalla Field (see Guantanamo)	Cuba	4
Media Luna	Cuba	4
Mole St. Nicholas	Haiti	9
Monte Cisti	Dominican Republic	7
Milligan (see Victoria de Las Tunas)	Cuba	5
Miraflores (see Ciudad Trujillo)	Dominican Republic	7
Monte Llano	Dominican Republic	7
Moron	Cuba	5
Moron (Canada Field)	Cuba	5
Moron (Pina Field)	Cuba	5
Nassau (Oakes Field)	Bahama Islands	1
NuevaGerona (Presidio Modelo)	Cuba	5
Oakes Field (see Nassau)	Bahama Islands	1

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

City and Airport	Island or Island Group	Page
Canaanistha	Haiti	9
Oranjestad (see Aruba Island)	Lesser Antilles	13
Palisadoes (see Kingston)	Jamaica	11
Pedernales	Dominican Republic	7
Pierce Field (see Port of Spain)	Trinidad and Tobago Islands	17
Pignon	Haiti	9
Pilon	Cuba	5
Pina Field (see Moron)	Cuba	5
Ponce (Don Q)	Puerto Rico	15
Ponce (Losey Field)	Puerto Rico	15
Port au Prince (Bowen)	Haiti	9
Port de Paix	Haiti	9
Port of Spain (Pierce Field)	Trinidad and Tobago Islands	17
Presidio Modelo (see NuevaGerona)	Cuba	5
Preston	Cuba	5
Princes Town	Trinidad and Tobago Islands	17
Puerto Plata	Dominican Republic	8
Rancho Boyeros (see Havana)	Cuba	4
St. Barthelemy Island (St. Jean Bay)	Lesser Antilles	13
St. Croix (Benedict Field)	Virgin Islands	19
St. Croix (see Christiansted)	Virgin Islands	19
St. Croix (see Frederiksted)	Virgin Islands	19
St. Jean Bay (see St. Barthelemy Island)	Lesser Antilles	13
St. Johns (see Antigua Island)	Lesser Antilles	13
St. Kitts/St. Christopher Island (Basseterre)	Lesser Antilles	13
St. Lucia Island (Beane Field)	Lesser Antilles	13
St. Thomas (Bourne Field)	Virgin Islands	19
Salinas	Puerto Rico	15
San Francisco de Macoris	Dominican Republic	8
San Juan (Catano Field)	Puerto Rico	15
San Juan de La Maguana	Dominican Republic	8
San Juan (Isla Grande Air Base)	Puerto Rico	15
San Julian (Isabell Rubio) (Guane)	Cuba	5
San Pedro de Macoris (Consulo)	Dominican Republic	8
San Pedro de Macoris	Dominican Republic	8
Santa Clara (General Montegudo)	Cuba	5
Santa Isabel	Puerto Rico	15
Santa Lucia	Cuba	5
Santiago	Dominican Republic	8
Santiago de Cuba (Jesus Maria)	Cuba	5
Santiago de Los Caballeros	Dominican Republic	8
Scarborough (see Tobago Island)	Trinidad and Tobago Islands	17
Settlement Point (Maury Roberts Co. Field)	Bahama Islands	1
Subi Blanco (see Bonaire Island)	Lesser Antilles	13
Tenicute Morlote Field (see Guantanamo)	Cuba	4
Tobago Island (Scarborough)	Trinidad and Tobago Islands	17
Toco	Trinidad and Tobago Islands	17
Valverde	Dominican Republic	8
Vega Baja	Puerto Rico	15
Vernam Field (see Kingston)	Jamaica	11
Victoria de Las Tunas (Milligan)	Cuba	5
Villa Elias Pina	Dominican Republic	8
Waller Field (see Cumuto)	Trinidad and Tobago Islands	17
Wilhemstad-Hato (see Curacao Island)	Lesser Antilles	13
Yaguaramas (Masso)	Cuba	5

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

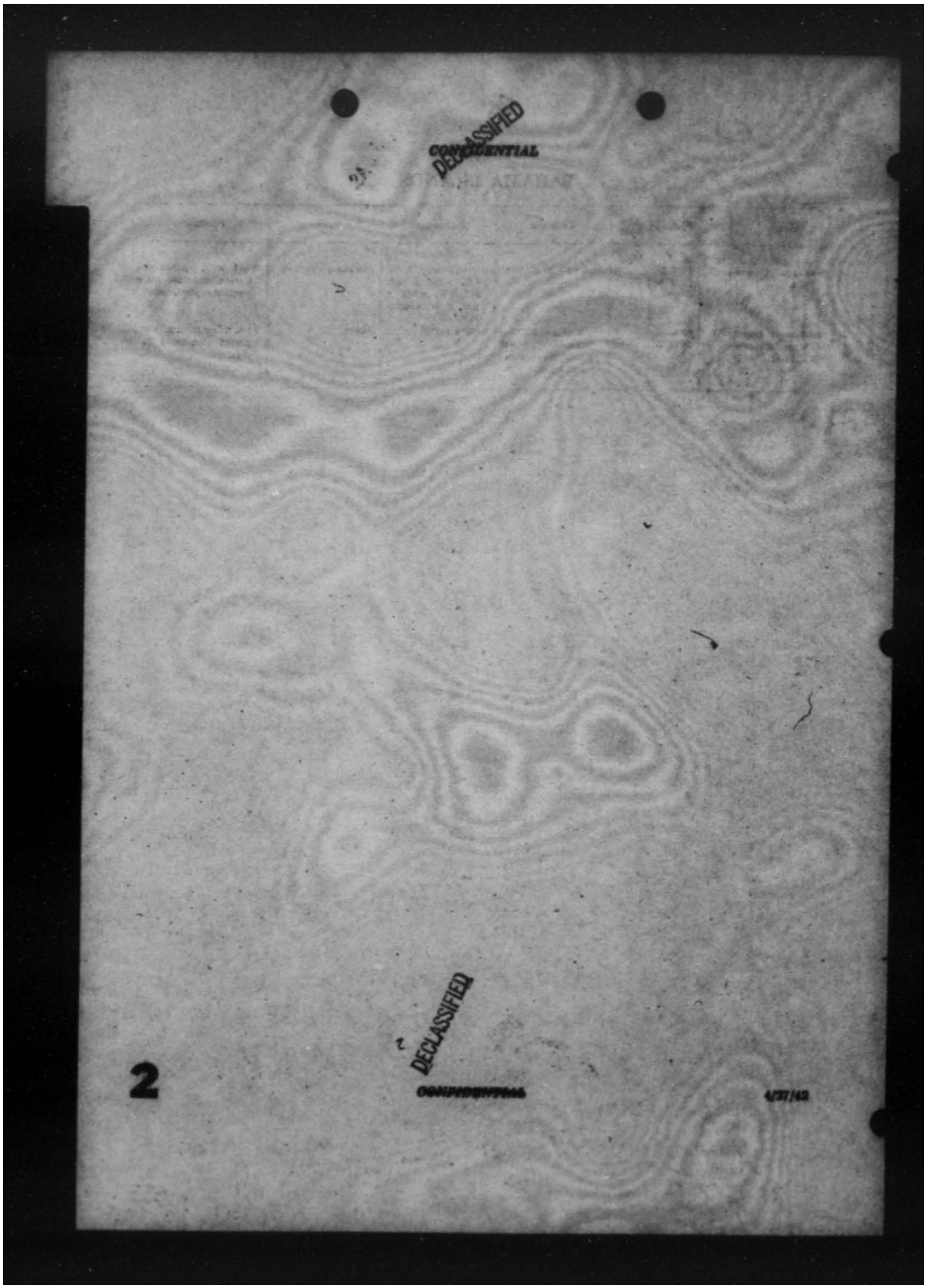
BAHAMA ISLANDS

Name	Type	Position	Alt. feet	Location	Dimensions	Surface	Facilities
Nassau, (Oakes Field.	C	25 03 N. 77 28 W.	Sea level	2 mi. SSW. of Nassau.	Runways only. NW./SE. 4,500' x 300', NE./SW. 4,500' x 300', E./W. 4,500' x 300'.	Macadam runways.	Wind sock, passenger station, 65-octane gas, weather reports, radio.
Settlement Point. (Henry Roberts Co. Field).	B	26 42 N. 78 58 W.	6	On S. side of Gr. Bahama Island, about 4 mi. from Settlement Point.	5,000' x 300'	Sandy.	Fuel, minor repairs. Reported abandoned in 1942.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
CUBA

	Type	Position	Alt. (feet)	Location	Dimensions	Surface	Facilities
		° '	Feet				
	S	22 45 N. 82 7 W.	60	6½ mi. S. of Agramonte sugar mill.	2,500' x 200' NE./SW., 2,500' x 200' NW./SE. Runways, turf.	Sod, soil when wet.	Minor repairs, telephone and telegraph, fuel and oil, railroad to town.
	S	22 51 N. 82 54 W.	75	¾ mi. NNE. of Arcilla.	2,500' x 200' NE./SW., 1,200' x 200' N.S. Runway 2,500' x 150' NE./SW.	Sod, rough. Runways, hard surface.	Transient visitors, telephone, road, and railroad to city, wireless repairs, fuel, oil, minor repairs, and cable at P. A. A. Marine Base at Arcilla.
	S	22 52 N. 82 37 W.	220	In valley adjacent to river, about 4½ mi. NNE. of Banaguises.	2,400' x 200'. Runways: 1,200' x 60' N.S.	Sod, gravel runway.	Fuel and oil, minor repairs. Fuel, bar, hotel in city.
	U	22 55 N. 79 48 W.	100 (est.)	2 mi. NE. of city.	NE./SW., 2,200' x 200' NW./SE. 2,200' x 200', E./W. 2200' x 200'.	Clay and grass.	City town hangar. Field abandoned in 1938.
	C	22 59 N. 77 49 W.	845	6½ mi. NE. of Camagüey.	6,000' x 2,000'. Runways: 1,800' x 200', E./W., and N.S.	Grass with concrete runways.	Complete testing equipment, revolving beacon, approach, flood and runway control lights, radio, aerophare telephone, complete meteorological station, terminal building.
	S	22 59 N. 80 17 W.	3 (est.)	11 mi. NNW. of San Isidro Sugar Mill on NW. edge of Ciénaguilla.	Circular, 1,000 ft. dia.	Flat and smooth.	Telephone, narrow gage railroad. No hangar. Fuel.
	S	23 03 N. 79 35 W.	10	¼ mi. NE. of Central Tinguaro and town of Cay's Manuel.	2,600' x 200' E./W.	Gravel.	Telegraph. No hangar or fuel.
	S	23 05 N. 79 09 W.	420 (est.)	¾ mi. NW. Central Palmillo sugar mill.	Triangular, 2,600' x 600' x 1,800'. Runway: 2,600' NW./SE.	Rock 2 inches deep on runway. Field partly under cultivation.	Non hangar, railroad, telephone and telegraph at sugar mill. No fuel.
	S	23 20 N. 77 58 W.	200	¾ mi. NE. Central Senado.	1,200' x 200'.	Sod.	Telephone. No hangar. Wind cone, telegraph.
	S	23 23 N. 79 48 W.		1 mi. N. of city.	2,400' x 200' N.S., 1,200' x 200' WSW./ENE.	Grass and clay.	Terminal building, meteorological equipment, emergency fuel supply in town. No hangar. P. A. A. seaplane base 1½ mi. N. of town.
	S	23 29 N. 82 22 W.	20 (est.)	1½ mi. NE. of center of Ciudad.	2,500' x 200' N.S. 2,500' x 200' NE./SW.	Grass.	Fuel available, telephone. Wind cone.
	S	23 33 N. 79 35 W.	10	1 mi. SE. of town.	3 landing strips: 1,600' NE./SW., 1,600' NW./SE.	Hard clay and grass.	Telephone and telegraph, railroad
	M	23 33 N. 79 23 W.	60 (est.)	¼ mi. W. of McCalla Field on W. side of entrance to Guantanamo Bay.	Runways 1,500' NE./SW., 1,400' E./W., each 200' wide, shoulders W.	Hard surface runways.	Hangar 200' x 200', large fuel supply and full facilities. Operated by U.S.N.

DECLASSIFIED
CONFIDENTIAL

CUBA

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

CUBA—Continued

Name	Type	Position	Alt. (feet)	Location	Dimensions	Surface	Facilities
Guantanamo (Ma-Caiki Field).	M	20 08 N. 75 09 W.	Sea level. 100	On N. shore of inshet to Guantanamo Bay; 6 mi. E. of Santiago.	Runways 500' x 5,000' NNE.-SSW.; 500' x 5,000' E./W.; 500' x 5,000' NW.-SE.	Runways, paved.	1 hangar 300' x 500', depot facilities, bulk stocks of Aviation fuel, telephone and telegraph, radio, DAY, weather service, airport station (6) mi. S. U.S. N. hospital here.
Guantanamo (Tiendita Marianao Field).		20 09 N. 75 11 W.	75	3 mi. NNE. of Guantanamo.	1,500' x 500'.	Sod.	Wind cock, fuel, oil, transportation to town. Mess, quarters and fuel oil in Guantanamo.
Havana, (Campo Columbia).	M	23 01 N. 82 25 W.	30	3 mi. SW. of Havana, 1 mi. from coast.	5,000' x 5,000'.	Grass.	2 hangars, repair shops, fuel and oil; telephone, telegraph, radio, complete weather service, signal lights and quarry beacon; several barracks, administration bldg. Operated by Cuban Air Force.
Havana (Rancho Boyeros).	C	22 59 N. 82 25 W.	300	5 mi. S. of Havana.	5,000' all way. 4,000' N.-S., 5,000' NW.-SE., 4,000' NE.-SW.	Hard turf.	Passenger station, hangar, repairs, fuel, radio, telephone and telegraph, wind cone, airline control, domestication.
Holguin, (Gran B. Parada).	E	20 52 N. 76 14 W.	300	On E. edge of Holguin.	2,500' x 300' NE.-SW., 1,500' x 300' N.-S.	Gravel.	Small adm. building, railroad, fuel, oil, telephone and telegraph. No hangar or repairs. Wind cone.
Jovero.	E	21 30 N. 77 08 W.	15	1 mi. E. of Jovero.	1,500' x 300', NNW.-SSE., 1,500' x 300' ENE./WSW.	Grass on clay.	Telephone, limited fuel and oil. No hangars. Repairs, besides tires.
Manzillon, (Conde Alcalde).	E	20 13 N. 75 30 W.	300	2. of Manzillon, 1 mi. NNE. of sugar mill at Central Alcalde.	1,500' x 300' N.-S., 1,500' x 300' NE.-SW.	Hard gravel and clay.	Cloth station, fuel and oil, fuel oil and quarters at sugar mill.
Manati, (Cellato Garcia).	E	21 21 N. 76 36 W.	25	½ mi. E. of sugar mill at Manati.	1,500' x 300'. Strips: E./W. and NE./SW. 1,500' x 300'	Smooth, rolled.	Cloth and landing strip markers, wind socks, telephone and telegraph. Quarters, mess, fuel oil at sugar mill. Reported to house medical unit.
Mancanillo, (Alcazar de Leyva).	E	22 52 N. 77 05 W.	224	1 mi. SW. center of Mancanillo, near coast.	2,500' x 1,500'. Roughly triangular.	Sod, level.	Telephone and telegraph, weather reports, small wooden building, fuel by oil from Santiago. No hangar. Wind cone.
Morbi, (Manzanillo de Leiva).	M	22 01 N. 83 46 W.		On north peninsula of W. side of bay just S. of Manzanillo de Leiva.	Runway 1,500' x 600' NE./SW.		1 hangar. Field under const. by U. S. Navy, 1942; completion date unknown.
Morti. (Colgazar Field).	E	22 50 N. 83 47 W.	50	½ mi. W. of Morti.	Strips: 2,500' x 300', 1,500' x 300'.		Cloth station, telephone and telegraph, transportation to town.
Motta Leon.	E	20 48 N. 77 30 W.	Unknown	1½ mi. SE. of Motta Leon.	1,500' x 300'.		None.

CONFIDENTIAL DECLASSIFIED 4/25/62

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

Name	Type	Position	Elevation	Location	Dimensions	Surface	Facilities
Matanzas (Canasi Field).	R	23 03 N. 81 41 W.	Feet 36	2 mi. SW. of Matan...	3,000' x 1,500', may be longer.	Natural level ground.	Hangar, telephone and telegraph, check meteor. wind cone, hotel in Matan. auto to Matan.
Matanzas (Manzo).....	R	23 07 N. 81 40 W.	24	3 mi. SW. of Matan. 1½ mi. W. of Canasi Field.	2,000' x 1,000'.....	Natural level ground, soft after rain.	This field probably abandoned. With 2 cons. fred, transportation.
Matanzas (Pan Field).	R	23 02 N. 81 34 W.	144	6½ mi. SW. of Matan.	2,000' x 200' N.S., 2,000' x 200' E./W.	Hard red clay.....	Sixty workers, cons and white circle, telephone and transportation. Gasoline, smoke, and fuel old oil refil. Pilot.
Matanzas Caverna (Double Mirable).	R	23 03 N. 81 44 W.	Near sea level.	3½ mi. E. of Matanzas Caverna, 2 mi. NW. Matanzas Prison.	1,000' x 1,000' NW./SE.	Grass.....	Telephone. No hangar. Wind cone, white circle. Not repaired, take-off only.
Pinar.....	R	22 25 N. 77 19 W.	80	1½ mi. NW. of Pinar....	1,000' x 200' N.E., 2,000' x 200' NW./SE., 1,000' x 2,100' fenced grss.	Sandy loam.....	Circle marker, cons on roof, wind cock, fuel and oil, telephone and telegraph, transportation, accommodations at sugar mill.
Preston.....	R	20 46 N. 75 20 W.	Unknown	12½ mi. S. of Preston....	1,000' x 700'.....	Level.....	Transportation to Preston, D/F.
San Julian (General Gerhard Stubbe).	R	22 03 N. 84 58 W.	101	9 mi. SW. of Guane....	2,000' x 2,000'.....	Smooth gravel and red clay.	Fuel, telephone and telegraph, radio, D/F, weather service, railroad 4 mi. away, small terminal, bldg. Reported being enlarged, March '42.
Santa Clara (General Manaigalde).	R	22 25 N. 79 55 W.	.....	W. of and adjacent to Santa Clara on N. side of Central Highway.	2,000' x 600' x 1,200'. Two landing strips 1,200' NE./SW., 1,200' E./W.	Level red sand and clay.	Wind cone, fuel, telephone and telegraph. Reported not in use in 1942.
Santa Lucia.....	R	22 02 N. 82 56 W.	30	¼ mi. SE. of Santa Lucia.	1,000' x 1,700'.....	Firm red.....	Fuel, repairs, wind cone, telephone and telegraph in town.
Santiago de Cuba (Santa Maria).	R	20 00 N. 75 50 W.	20 (est.)	1 mi. N. of city.....	2,000' x 600'. Runway NNW./SSE. 2,100' x W.	Grass, except runway, which is soft after rain. Runway gravel overgrown with grass. Slopes.	1 hangar, fuel and oil, telephone and telegraph, radio, electric power, railroad. Transportation in town.
Victoria de Las Tunas (Milagro).	R	20 58 N. 76 58 W.	200 (est.)	¼ mi. E. of city.....	2,000' NE./SW., 2,000' NW./SE.	Grass.....	Telephone and telegraph. Bulad fuel and oil. No hangar. Market, wind cone.
Yaguajaya (Manuel).	R	22 12 N. 80 25 W.	.....	4½ mi. SE. of Yaguajaya.	1,000' x 1,000'.....	Sod.....	Wind cone.

DECLASSIFIED

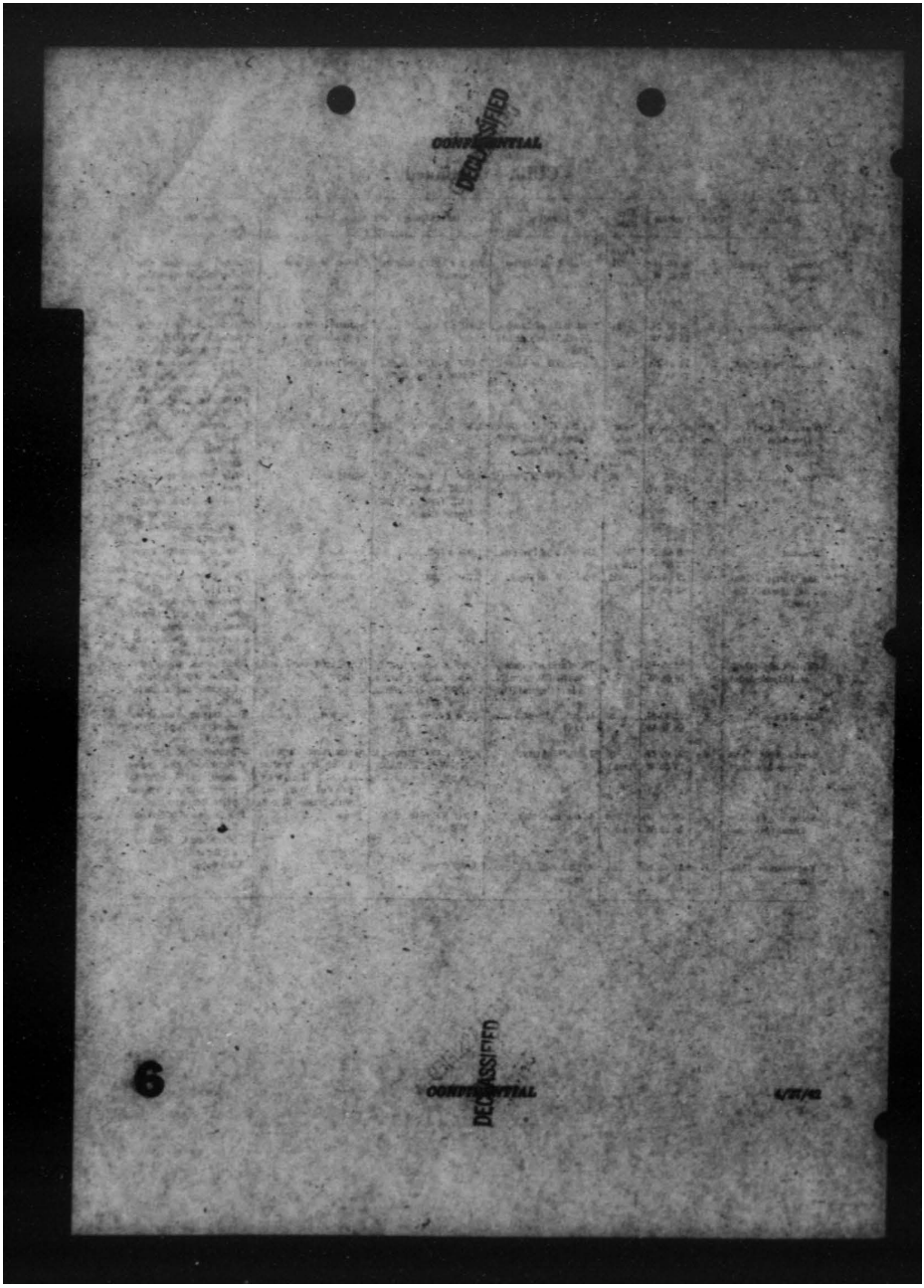
4/27/42

CONFIDENTIAL

5

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

DOMINICAN REPUBLIC

Name	Type	Position	Alt. Mag.	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Azua	E	18 26 N. 70 44 W.	150	W. edge of Azua, W. of cemetery.	N./S. 3,000' x 600'.	Dirt, with some grass, clear and flat, drainage poor.	No facilities; water and telephone in town; personnel and hospital accommodations in town.
Barahona	E	18 12 N. 71 09 W.	20 est.	N. edge of town, right mill to NE. on waterfront.	NW./SE. 1,500' x 200'	Hard earth, grass.	Markings, hangar, small supply fuel and oil, telephone and radio. Accommodations in town for 30.
Caldera	E	18 13 N. 70 39 W.	30 est.	1 mi. E. of Caldera Bay Naval Base.	E./W. 1,500' x 100'.	Hard dirt, well drained.	No supply or repair; no accommodations at field, at town about 30; radio in town; wind cone.
Ciudad Trujillo (Colon).	E	18 29 N. 69 52 W.	20 est.	E. edge of city, near E. bank of Ozama River. Curved road W. and S. of field.	N./S. 1,400' x 150', NW./SE. 1,500' x 150'.	Grass.	Hangar; wind cone; no fuel, accommodations in city, telephone, telegraph, radio in city.
Ciudad Trujillo (Miraflores).	M	18 29 N. 69 54 W.	150 est.	At NW. edge city. Large water tank ¼ mi. E.	Runways: 2,100' x 150', 2,000' x 150'.	Field: earth with grass. Runways: paved.	Runway lights, obstruction lights, beacon, hangar, repairs, fuel and oil (100 oct.), radio, weather reports, telegraph, cable, telephone, hotels. Used as P. A. A. base.
Dajabon	E	19 34 N. 71 42 W.	200 est.	NE. edge of town, W. of School of Agriculture on a hill, S. of road.	N./S. 1,600' x 600'.	Level, covered with high grass.	No supply, repair, or accommodations at field or town. Telephone in town. Radio at barracks ¼ mi. from field.
Isla Saona	E	18 10 N. 68 40 W.		N. central coast of island.			
La Isabela	E	19 55 N. 71 3 W.	10 est.	¼ mi. N. of town, Isabella River flows into ocean 1¼ mi. W.	Triangular, 2,000' x 1,500' x 1,200'.	Hard ground, no grass.	No communications, poor road, no accommodations.
La Romana	E	18 25 N. 68 58 W.	70 est.	NW. edge of town.	N./S. 1,600' x 150', NE./SW. 2,100' x 150', which is being lengthened to 3,000 ft.	Level, limb earth, wet O. K.	No supply or repair; accommodations for 20 in town; telephone, telegraph in city; obstructions high tension wires at E.
La Vega	E	19 14 N. 70 32 W.	800	2 mi. S. of town. High hill to W.; trees on N.	N./S. 1,600' x 150'.	Flat, rough, poor drainage, bushes in wet weather.	Telephone in city. Limited accommodations in city.
Las Lajas	E	18 30 N. 71 45 W.	300	On Haitian frontier near SE. end of Etang Saumatre and 2 mi. SE. of town.	NE./SW. 2,400' x 600'.	Practically no grass, natural drainage.	Telephone and telegraph in town; no facilities; no obstructions.
Monte Cristi	E	19 52 N. 71 39 W.	20	West edge of town.	NE./SW. 2,100' x 200'.	Hard ground, slight slope.	Telegraph and radio, markings.
Monte Limon	E	19 44 N. 70 30 W.	300 est.	N. of town, between town and sugar mill.	5,000' x 300', NE./SW.	Level dirt and grass, wet weather O. K.	Accommodations for 20, telephone.
Pedernales	E	18 04 N. 71 45 W.	20	On Haitian frontier, 1½ mi. N. of town on crescent, 16 mi. N. of Pulo Cupo.	1,100' x 300', N./S.	Sand and grass, fairly smooth.	Cart road, radio.

DOM. REP.

4/27/42

CONFIDENTIAL

DECLASSIFIED

7

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

DOMINICAN REPUBLIC—Continued

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Puerto Plata	E	19 48 N. 70 41 W.	20	E. edge of city, close to ocean.	1,350' x 150', E./W.	Level, grass	Telephone, telegraph, radio in city. Accommodations in city.
San Francisco de Macoris	E	19 19 N. 70 15 W.	300 (est.)	34 mi. NW. of town, in a long wide valley (Silbo).	N./S. 1,200' x 300', NW./SE. 1,000 x 300'.	Level, dirt	No facilities. Telephone at city.
San Juan de La Maguana	E	18 48 N. 71 14 W.	1,100	Just N. of town; road at E. edge; woods W.; large trees S.	N./S. 1,800' x 600'	Level, earth with grass, landings may be made in wet weather.	Telephone and telegraph in town. Accommodations for 50 in town.
San Pedro de Macoris (Consuelo)	E	18 32 N. 69 17 W.	100 (est.)	3 mi. N. of town; sugar mill and settlement 34 mile NW., 2 black chimneys of mill.	Triangular 2,150' x 1,450' x 1,800'.	Well drained, cut grass.	Hangar, fuel and oil (100-oct.), telephone, radio, telegraph within 5 mi. road.
San Pedro de Macoris	E	18 27 N. 69 18 W.	20 (est.)	N. edge of town, small houses S., Higuamo R. 34 mi. W.			Limited fuel and oil, telephone, radio; telegraph. Accommodations for 100 in town.
Santiago	E	19 30 N. 70 42 W.	600	1 mi. N. of city	NW./SE. 1,800' x 300'.	Sod, rough, drainage, gradient 3 percent.	Hangar, fuel and oil on advance notice, telephone and telegraph.
Santiago de Los Caballeros	E	19 29 N. 70 42 W.	800	N. edge of city, Yaque River about 600' W.	NW./SE. 1,300' x 400'.	Level, hard dirt and grass. Wet weather O. K.	Supply and repair, none; 1 hangar; accommodations in city for 1,000; telephone, radio, telegraph, cable in city.
Valverde	E	19 34 N. 71 05 W.	400 (est.)	N. edge of town	E./W. 1,000' x 600'	Level, hard earth, good.	No supply or repair; no accommodations; telegraph in town.
Villa Elisa Pino	E	18 53 N. 71 35 W.	4,000 (est.)	6 mi. E. of town, road on S. edge.	1,000' x 200' E./W.	Hard earth and grass, level.	No supply or repair; no accommodations; no communications. Radio in town; marked by white cross in center of field.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

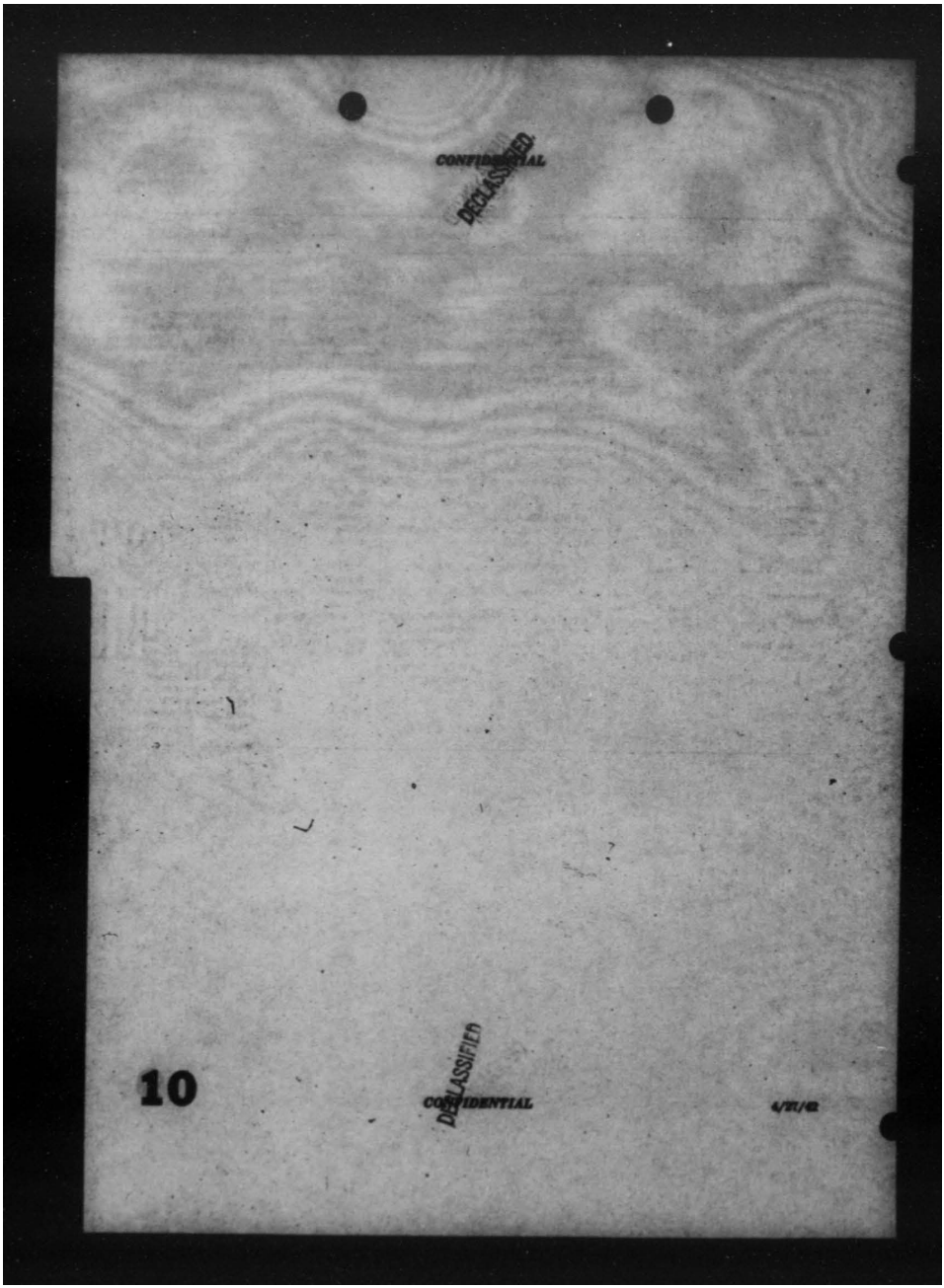
DECLASSIFIED

Name	Type	Position	Altitude	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Anse-a-Galets	E	19 51 N. 72 42 W.	Sea level	½ mi. NE. of town; N. side of island.	N./S. 2,000' and E./W. 1,700'.	Level, firm sand, good drainage. E. side soft after rains.	Wind cone.
Cap Haitien	E	19 45 N. 72 11 W.	10	2 mi. SE. of town; Fort St. Michel on hill at NW. corner of field.	2,700' x 900'—Rect.	Level sod and sand, natural drainage, floods NW. corner October–February.	Fuel limited, minor repairs, radio, telephone, wind cone.
Cayes in Seaton	E	18 10 N. 73 46 W.	1,200	On plateau, in valley between 2 mountain ranges, ¾ mi. W. of town, ¼ mi. E. of Hinche.	E./W. 1,750' x 140'	Hard sand clay, drainage good.	None.
Gonaives	E	19 26 N. 72 42 W.	3	S. edge of town	NE./SW. 2,600' x 700'	Level, sandy clay, drainage poor, flooded during rainy season.	Wind cone, telephone in city.
Hinche	E	19 8 N. 72 1 W.	1,000	½ mi. SW. of town	NNE./SSW. 1,800' x 200'.	Sod, slope, drainage good.	Telephone, wind cone.
Higuanide, (Anse-a-Pitre).	E	18 4 N. 71 45 W.	30	1½ mi. N. of town. Low hills to NW.	2,400' x 60'	Hard, sandy, level, drainage natural.	None.
Jacmel	E	18 20 N. 72 7 W.	20	N. edge of town, on bluff overlooking bay.	NW./SE. 600' x 250'	Drainage fair, sand and sod.	Wind cone, telephone.
Mole St. Nicholas	E	19 51 N. 73 31 W.	Sea level	2½ mi. NNE. of town, on isthmus.	N./S. 1,200' x 200'	Sandy, level, natural drainage.	Telephone in town, white circle marking.
Ouanaminthe	E	19 33 N. 71 44 W.	Sea level	¼ mi. SW. of town	NE./SW. 2,700' x 300'	Sand and clay, natural drainage.	Telephone.
Pignon	E	19 21 N. 72 6 W.		S. side of road, ¼ mi. E. of town.	NE./SW. 1,200' x 1,200', irregular.	Clay and sod, natural drainage.	None.
Port au Prince. (Bowen).	C	18 32 N. 72 20 W.	35	½ mi. NE. of city	4,600' x 1,800', irregular; runway 4,600' x 300' E./W. being extended to 4,800'.	Grass. Paved runway.	Hangars, markings, fuel (100-octane), lighting radio, meteorological station, auto, railroad, accommodations in city, wind cone, U. S. Army airways detachment.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

JAMAICA

Name	Type	Position	Alt. Ft.	Location	Dimensions	Lights	Facilities
Kingston (Palisadoes)	M	17° 56' N. 76° 49' W.	Sea Level	1 mi. S. of city, among bay; on peninsula.	2 runways: NW.-SE. 4,000' x 150', S.-W. 3,600' x 150'.	Rotating beacon.	Wind vane, 2 hangars, light, radio, telephone, telegraph, communications line, Radio navaid transponder beacon.
Vernam Field	M	17° 54' N. 77° 10' W.	150	Approximately 16 mi. W.S.W. of Kingston.	Runways: NNE.-SSW., NW.-SE., NE.-SW., 4,000'. Under construction.	Paved.	U. S. standard. Complete facilities being installed. 4,000' available for landing now. Fuel (100 oct.), oil, radio and minor repairs available now.

JAMAICA

11

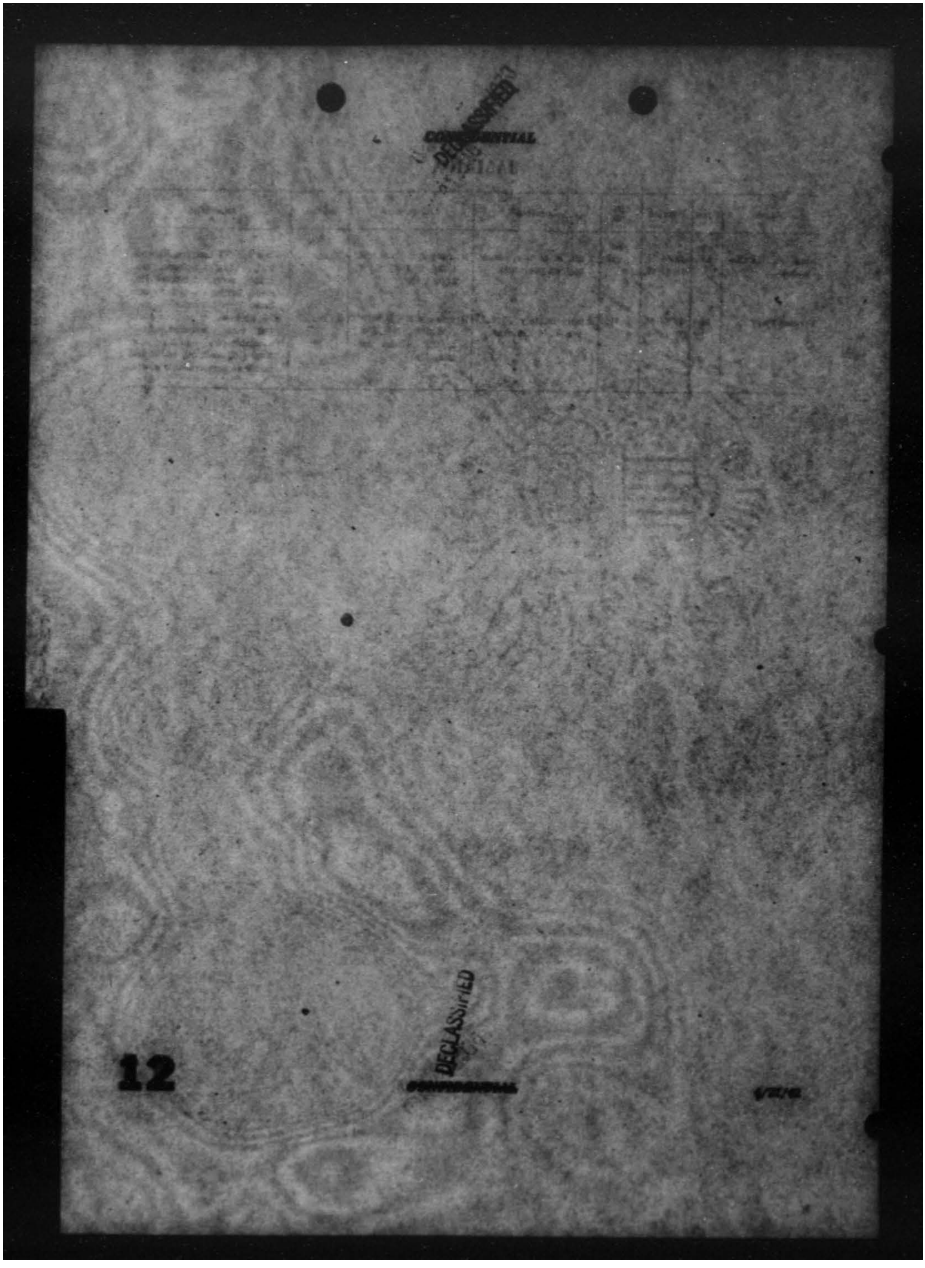
4/21/42

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

LESSER ANTILLES

Name	Type	Position	Alt. feet	Location	Dimensions	Surface	Facilities
Antigua Island (Coolidge).	M	° ′ 17 1 N. 61 47 W.	Fld 82	3 mi. NE. of St. John.	3 runways, 4,000' x 150' S./N. Groundcloth, N.E./S.W. and N.W./S.E. Under construction.	Soiled soil. Hardstand road.	U. S. Army air base under construction. Fuel (80 oct.), oil, radio and minor repairs available now.
Antigua Island (St. John's).	S	17 4 N. 61 49 W.	75	3 mi. E. of town.	1,500' x 150' N./S., 150' x 150' NE./SW., 750' x 150' ENE./WSW.	Turf.	Fuel, radio.
Arube Island (Oranjestad) (Dutch Navy).	M	12 32 N. 70 02 W.	20	3½ mi. SE. of town.	Runway, 150' x 5,000' S./W. 5,000' completed.	Asphalt.	U. S. Army auxiliary airbase. All services.
Barbados Island (Bridgetown, Seawell Field).	C	13 4 N. 59 30 W. (est.)	120	About 7 mi. E. of town.	2 runways 5,000' x 150' S./W. and NE./SW.	Asphalt.	Marines, 120 oct. fuel. Taxi to town, telephone, weather reports.
Bonaire Island (Dutch Navy).	S	12 12 N. 68 16 W.	167	4 mi. NNE. of Kralendijk on island of Bonaire. Marked by light tower at night.	1,500' x 1,500'	Sand, will during rainy season. Occasional.	Boundary markings, radio, wind cone.
Curacao Island (Willemstad-Dutch).	M	12 10 N. 68 58 W.	59	On W. coast of island, 4½ mi. NNW. of Willemstad.	2 runways, S./W. 3,000' x 98', WNW./ESE. 3,000' x 98' being extended to 4,711'.	Hard surface (unconsolidated).	U. S. Army auxiliary airbase. All services.
St. Bartholomy Island (St. Jean Bay).	S	17 54 N. 62 51 W.	----	600 yards from beach.	NE./SW. 1,200' x 400', S./W. 1,400' x 250'.	Level ground, grass.	None.
St. Kitts (St. Christopher Island (Basseterre).	S	17 18 N. 62 43 W.	----	3½ mi. N. of town, on S. coast of island, between Middy Pt. and Cobbs Landing.	N./S. 1,317' x 330' (est.).	Sod and peat.	None.
St. Lucia Island (Beane Field).	M	13 45 N. 60 56 W.	35	At E. end of island.	2 E./W. runways now under. One temp. 3,000', other permanent, 4,000' x 150'. Two strips 4,000' x 150' NW./SE. and NE./SW. under construction.	Temp. E./W. and permanent E./W. paved.	Hangar, minor repair, fuel, radio, weather, road, dock, communications, wind cone. Only lighting on temp. runway at present. U. S. Army air base.

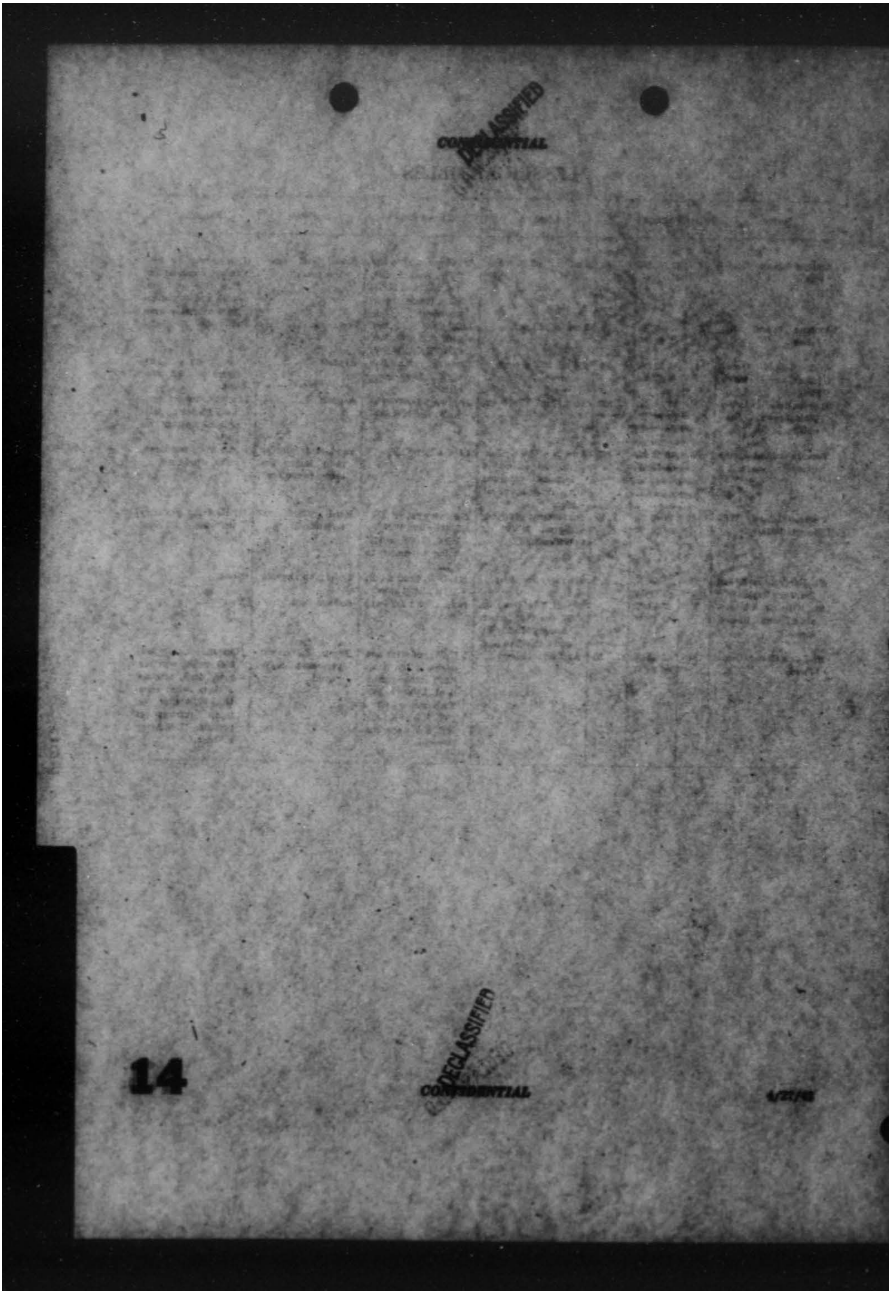
DECLASSIFIED CONFIDENTIAL

6/27/42

13

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

PUERTO RICO

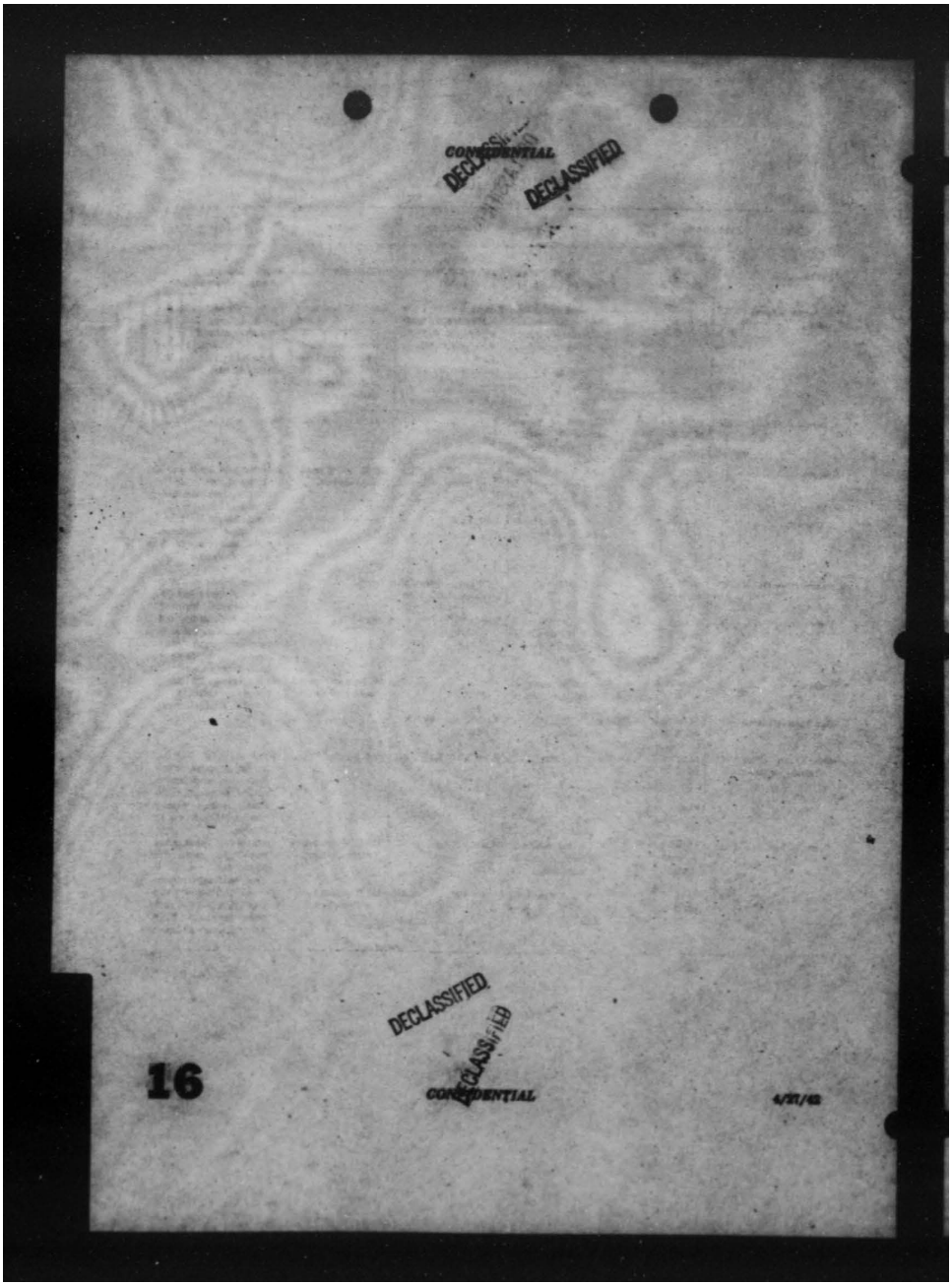
Name	Type	Position	Alt. msl	Location	Dimensions	Surface	Facilities
		° ′	Feet				
Aguadilla	M	18 29 N. 67 09 W.		½ mi. N. of Santa Anna, 2½ mi. SE. of Aguadilla.	4,200' x 200', runway 4,200' x 150'.	Asphalt runway	Radio, lighting. U. S. Army auxiliary airdrome.
Ramey (Aguadilla).	M	18 29 N. 67 08 W.		NW. corner of Puerto Rico, west coast, NE. of railroad, 4 mi. N. of Aguadilla.	Runways 5,000' x 150' ENE./WSW., 4,000' x 150' NNW./SSE., 4,000' x 150' NNE./SSW.	Concrete and macadam. 2, 4,000' of ENE./WSW. now available with concrete surface. W. 3,000' and other runways under construction.	Radio, railroad, road, repair, lighting, fuel, accommodations. Teletype weather reports, 3 concrete hangars. U. S. Army air base.
Culebra	E	18 19 N. 65 18 W.	Sea level	NW. end of Great Harbor on western part of Culebra Field.		Sod, slope to E.	None.
Dorado	M	18 28 N. 66 17 W.	70	1½ mi. W. of Dorado, N. of railroad.	3,700' x 200'. 2,650' x 200' completed.	100 ft. width paved with asphalt.	Portable field lights and 2 runway lights. Radio. U. S. Army auxiliary airdrome.
Mayaguez	M	18 14 N. 67 08 W.	30	2½ mi. N. of Mayaguez, E. of railroad and highway.	3,300' x 200'	150 ft. width, asphalt.	Portable field lights, 2 runway lights, telephone, radio, and fuel. U. S. Army auxiliary airdrome.
Ponce. (Mun Q).	C	18 1 N. 66 35 W.	75	1 mi. E. of town	4,000' x 600' triangular, runway 3,300' x 150'.	Level	Lighting, wind cone, hangar, telephone, telegraph, fuel, repairs, highway.
Ponce (Lenny Field).	M	18 01 N. 66 30 W.	75	7 mi. W. of Ponce, 3 mi. E. of Punta Diez. Along railroad, 1 mi. from coast.	4,000' x 300' E./W.	Macadam	Repairs, fuel, radio, railroad, weather, barracks, portable lights, telephone, and teletype. U. S. Army air base.
Salinas	M	17 58 N. 66 16 W.	46	N. of railroad and road, 1½ mi. E. of Salinas.	4,000' x 250'	150 ft. width paved with asphalt.	Radio, portable field lights, 2 runway lights. U. S. Army auxiliary airdrome.
San Juan (Caribbean Field).	E	18 26 N. 66 5 W. (est.)		2 mi. WSW. of naval air station.	1 paved runway 3,200' x 150'.		
San Juan (Isla Grande Air Base).	M	18 27 N. 66 6 W.	6	1 mi. SE. of city	3,500' x 200' E./W.	Sod, firm	Wind indicator, lighting, hangar, supplies, accommodations, servicing, telephone, telegraph, radio, signal, mats, weather bureau. U. S. Naval Air Station.
Santa Isabel	M	17 58 N. 66 24 W.	27	N. of railroad and highway, ¼ mi. E. of Santa Isabel.	4,000' x 200'	150 ft. width paved with asphalt.	Portable field lights, 2 runway lights, radio, telephone and fuel. U. S. Army auxiliary airdrome.
Vega Baja	M	18 29 N. 66 20 W.	45	On N. side of road, 2½ mi. NW. of Vega Baja.	4,000' x 200'	150 ft. width paved with asphalt.	Portable lights and 2 runway lights, fuel and radio being installed. U. S. Army auxiliary airdrome.

P. RICO

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

TRINIDAD AND TOBAGO ISLANDS

Name	Type	Position	Alt. feet	Location	Dimensions	Surface	Facilities
		° ′					
Cumuto (Waller Field).	M	10 39 N. 61 12 W.	Fut 150	Approximately 10 mi. E. of Port of Spain.	Runways: E/W. 5,100′ x 150′ completed, 4 other runways under construction.	Concrete	Hangars, repairs, fuel, lighting, radio, railroad, road, communications. U. S. Army air base.
Edinburg (Longoville).	M	10 31 N. 61 24 W.		At Longoville, 1 mile S.	3 runways: 600′ x 7,000′, 300′ x 7,000′ under construction. One strip 6,000′ x 150′ ready by April, '43.	Hard surface	Complete with hangar. U. S. Army air base, with all facilities, under construction.
La Brea	M	10 14 N. 61 37 W.			150′ x 4,000′	Hard surface	U. S. Army auxiliary airdrome. All services, under construction.
Point Spain (Piarco Field).	C	10 35 N. 61 20 W.	10	12 mi. ENE.	3 runways, 5,000′ x 150′ E./W., 5,400′ x 150′ NE./SW. and NW./SE.	E./W. runway asphalt, others sod.	Hangars, fuel, radio, road, lighting, accommodations, servicing, weather reports, P. A. A. facilities.
Tobago Island (Scarborough).	E	11 8 N. 60 50 W.	25 (est.)	At Sandy Point on SW. tip of Tobago Island.	2,000′ x 300′—Sand	Rough sod	Wind sock, telephone, taxi, small ship. No fuel, hangar or lights.
Toco	E	10 49 N. 60 55 W.	15	NE. tip of Trinidad, near lighthouse.	2,000′ x 300′	Clay	None. Not usable July-Sept.

DECLASSIFIED

4/27/43

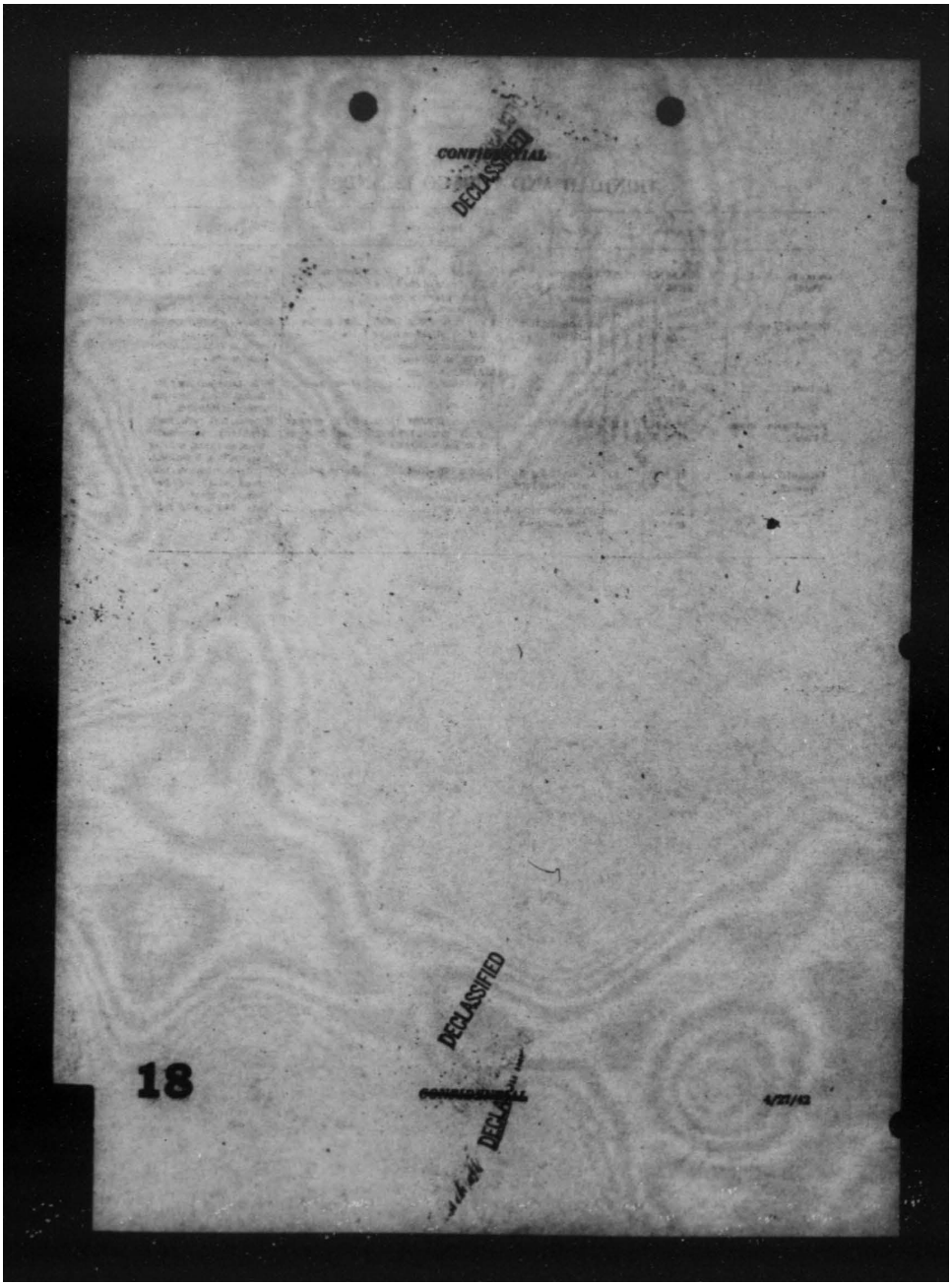
CONFIDENTIAL

17

TRIN.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

VIRGIN ISLANDS

Name	Type	Position	Alt. (ft.)	Location	Dimensions	Surface	Facilities
St. Croix (Rosaldo Field).	M	° ′ 17 45 N. 64 47 W.	Fld 10	On E. shore of St. Croix Island, 14 mi. from Caribbean Sea, 6 mi. SE. of Frederiksted.	2 R./W. runways, 4,000' x 150' with 50' taxi strip.	Soil cement.....	Minor repairs, fuel and oil, radio, weather reports, lighting, and personnel accommodations. U. S. Army air base.
St. Croix (Christiansted).	E	17 45 N. 64 42 W.	10	3½ mi. NW. of Christiansted.	4,000' x 600'.....	Dirt and sand.....	None.
St. Croix (Frederiksted).	E	17 43 N. 64 53 W.	10	1 mi. N. of town.....	600' x 100'.....	Soil.....	Boundary markings.
St. Thomas (Reserve Field).	M	18 21 N. 64 58 W.	1-10	A4 head of Lindberg Bay, 5½ mi. W. of Charlotte Amalie.	X-shape, 3 paved runways: 3,000' NNW./SSE., 3,600' ENE./WSW.	Sod, slops, and natural Caribbean.	Complete facilities, U. S. Naval Air Station.

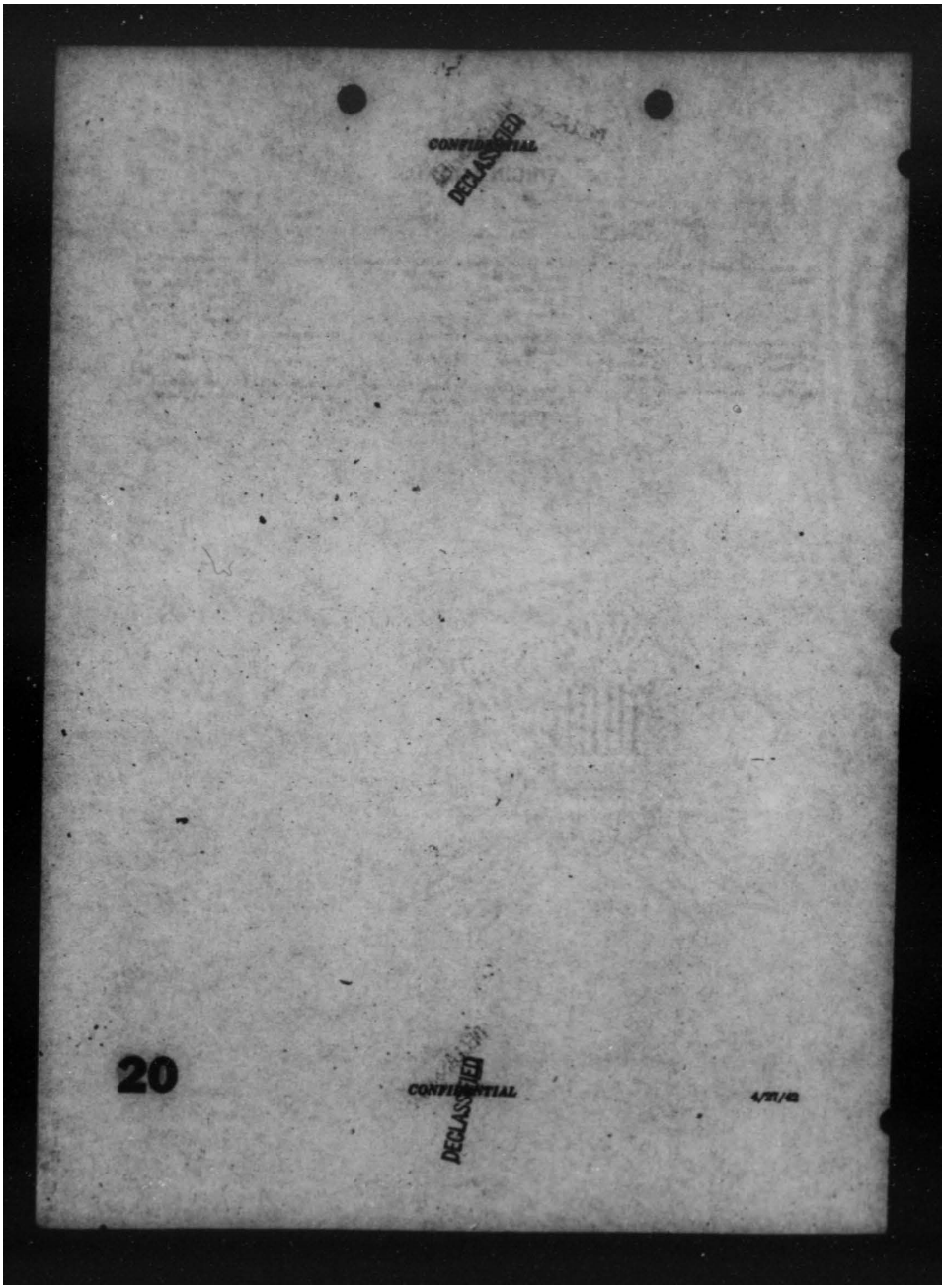
DECLASSIFIED
CONFIDENTIAL

4/27/42

VIR. IS.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

CORRECTION AND/OR ADDITION REPORT

WEST INDIES

(Report all fields omitted from this directory, including any under construction. Report also corrective information on fields included in this directory. Detach this sheet and mail to "Air Movements Unit, AFDIS, Headquarters Army Air Forces, War Department, Washington, D. C.")

TO: Air Movements Unit, AFDIS.

FROM:

The following corrections, additions and/or recommendations are suggested for this Airport Directory:

_____
Name and Rank

_____
Date and Place

(If more space is required, use reverse side)

DECLASSIFIED

4/27/42 CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

RECEIPT FOR NON-REGISTERED DOCUMENTS

Date: May 4, 1942

FROM: Chief of the Air Staff
Main Navy Munitions Building
Washington, D.C.

TO: Operational Intelligence Section,
Army Division

1. Receipt is acknowledged of the following non-registered Confidential documents:

1 copy Ferrying Route Marrakech - Kolombo
Colombo - Calcutta

1 copy Route Manual - United States to Great Britain

1 copy Ferrying Route Aden to Marrakech

1 copy Ferrying Route - Cairo to Marrakech

1 copy Ferrying Route - Khartoum to Aden

Hq. Army Air Forces
MAY 6 1942
AAG Received

Please acknowledge receipt
and return immediately to:
Room 834
Maritime Building.

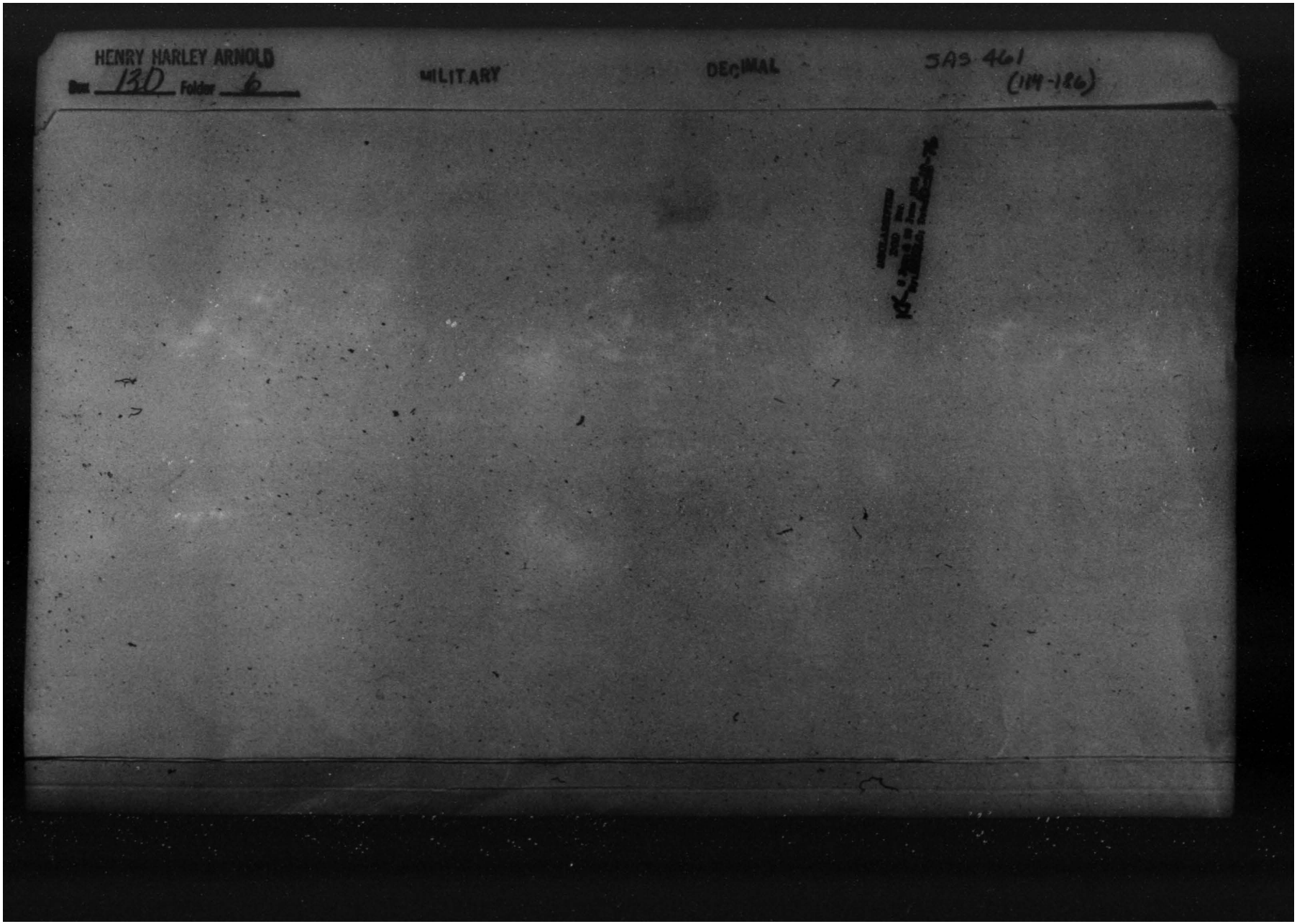
NOTE: The above documents need not be reported as required by AR 380-6 in the case of registered documents.

DECLASSIFIED

(3) 194

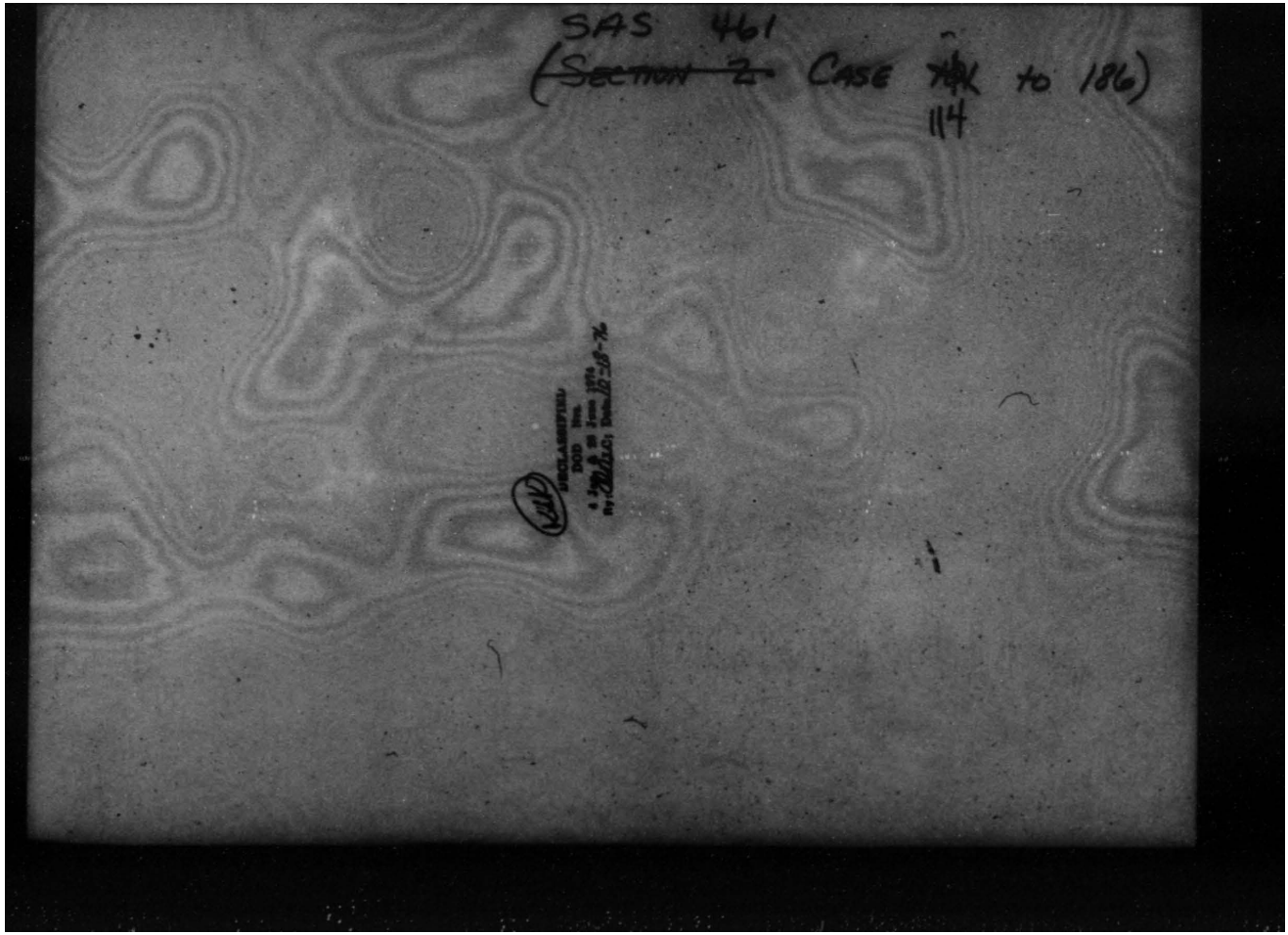
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



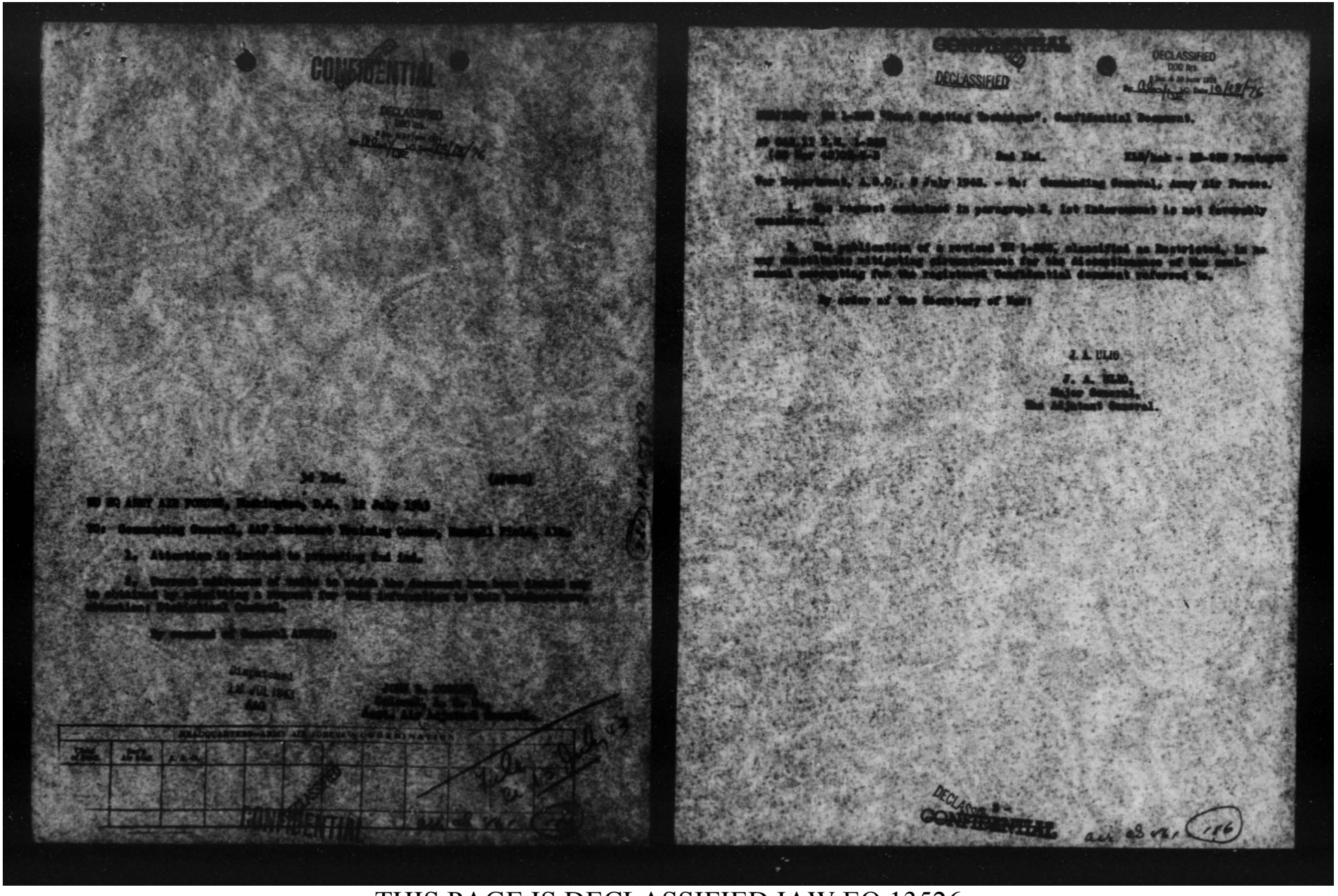
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



CONFIDENTIAL

DECLASSIFIED
DOD Dir.
5200.10 EO Sec. 1.6
By [illegible] Date 10/28/76

DECLASSIFIED

[illegible] "Night Fighting Techniques", Confidential Document.

AG 353.11 A.C. 1-MIS
(18 Mar 43)MS-D

2nd Ind. MIS/hmk - MS-459 Pentagon

War Department, A.G.O., 9 July 1943. - To: Commanding General, Army Air Forces.

1. The request contained in paragraph 2, 1st Indorsement is not favorably considered.

2. The publication of a revised TM 1-455, classified as Restricted, is in any case subject to mitigating circumstances for the discontinuance of the manual according to the registered Confidential document referred to.

By order of the Secretary of War:

J. A. ULIO

J. A. ULIO,
Major General,
The Adjutant General.

DECLASSIFIED
CONFIDENTIAL

3rd Ind. (AFMSC)

HQ AAF AIR FORCES, Washington, D.C., 12 July 1943

To: Commanding General, AAF Instrument Training Center, Bunnell Field, Fla.

1. Attention is invited to preceding 2nd Ind.

2. Request reference of Index to which the document has been issued may be obtained by submitting a request for such information to War Department, Classified Document.

By command of General ARNOLD:

Distributed
12 JUL 1943
AAG

JOHN B. CRESSY,
Colonel, A.G.D.,
Asst. AAF Adjutant General.

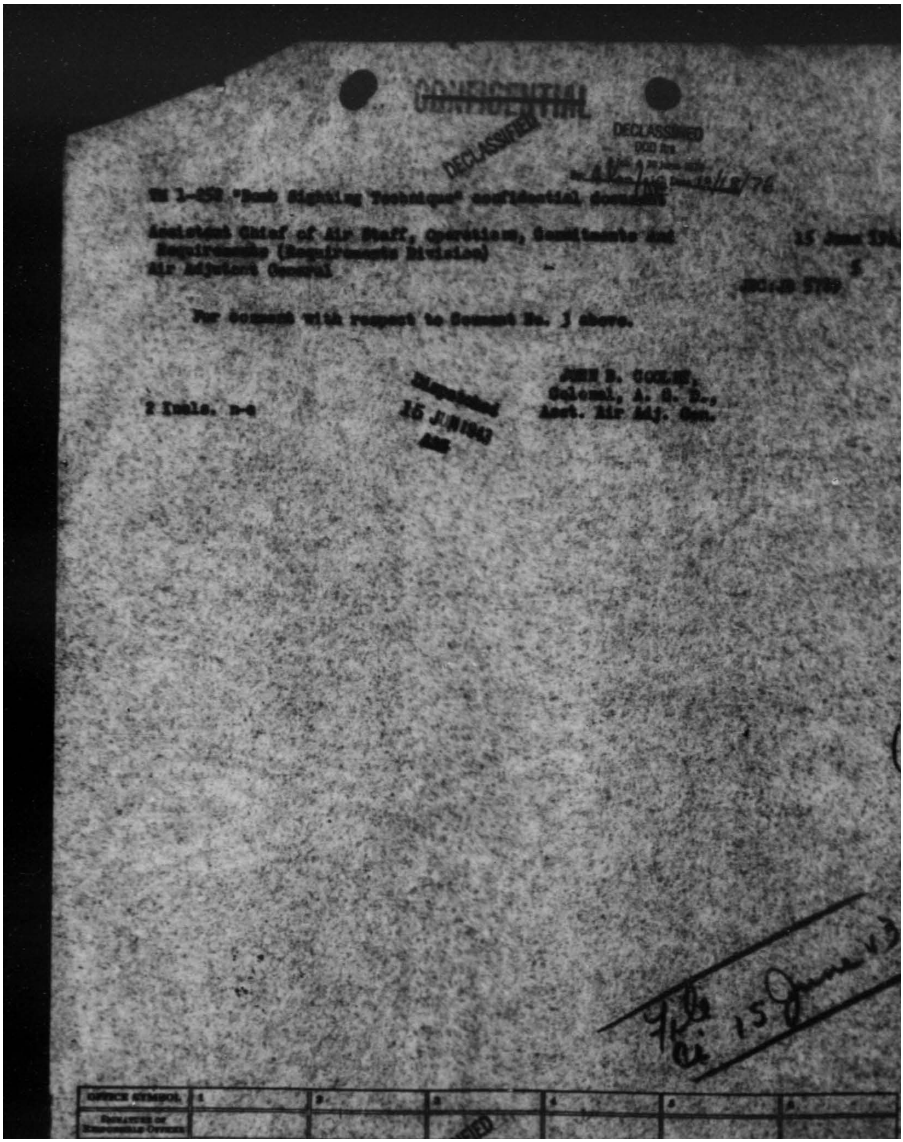
HEADQUARTERS ARMY AIR FORCES COORDINATION

Date of Doc.	Date Rec'd	A.A.G.								

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

DECLASSIFIED
DOD Dir
By [illegible] NLC Date 9/28/76

TO: Air Adjutant General

DATE June 14, 1943

FROM: Assistant Chief of Air Staff, Training

COMMENT NO. 4
JHHeath 73472

1. Abolishing accountability on subject manual is recommended for the following reasons:

a. Revision of subject manual, now practically complete has been classified tentatively as RESTRICTED By the AAF Flying Training Command and the Training Aids Division.

b. This change in classification is based on lower security necessary rather than on the deletion of material from the existing publication.

c. This office understands that a proposal has been considered to lower the classification on all training materials dealing with bombsight.

2 Incls.
1 - n/c
2 - Cpy Memo to TAD 5-10-43
& 1st Memo Ind. 6-7-43

ROBERT W. HARPER
Brig. General, U. S. Army
Assistant Chief of Air Staff,
Training

DECLASSIFIED

CONFIDENTIAL

Air AG 461 (15)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

DECLASSIFIED

Re 1-AFF "Tank Fighting Destroyer", Confidential Status.

Assistant Chief of Air Staff, Training — May 3, 1943

Air Adjutant General

1. On February 12, 1943, the Chief of the Air Corps requested approval of TR 1-AFF for publication as a restricted, confidential document. That request was approved by 3rd Ind., AG 580.11 TR 1-AFF (2-12-43) M (C) dated Feb. 16, 1943 to the Chief of the Air Corps. Accordingly, it appears that the War Department authority would be required to abolish the necessity for requiring semi-annual accountability reports on the documents.

2. Your comments are requested with respect to the advisability of rescinding that accountability at the present time. In this connection, attention is invited to comment No. 2 above.

JOHN E. COOLEY,
Colonel, A.G.D.
Asst. Dir A. G.

1 Incl. n-c

Registered
MAY 4 1943

Item No. 1 read from Air A.G. to AC/AS Intelligence 4-5-43

For Comment.

/s/ J.E.Cooley

1 Incl. Ltr fr AAFHQTG 3-23-43

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED
DOD Dir.
10/15/76

To: Air Adjutant General

Date APR 27 1943

From: Deputy Assistant Chief of Air Staff, Intelligence

Comment No. 2
AFAGE-AM/4
CUBC/vr/76880

1. This office has been informed by office of Assistant Chief of Air Staff, Training, that a new and revised edition of TM 1-222 "Night-sighting Technique" is in process of preparation by Flying Training Command, Fort Worth, Texas. It is believed that this manual will carry a "Restricted" classification.

2. This office has no authority to change present restrictions placed on TM 1-222. It is recommended that when new manual is issued efforts be made to reduce classification of present edition of TM 1-222 to conform with revised edition.

3. Statistical Control, Office of Management Control, can provide current addresses of all organizations within the United States except those at singing areas, and since the addresses of units located at singing areas and overseas points may be secured from The Adjutant General, it is further recommended that Southeast Army Air Forces Training Center be advised to make efforts to obtain the desired addresses from the above sources.

1 Encl: n/c

A. V. [illegible], Jr.
Colonel, G. S. C.

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

DECLASSIFIED

Reports Required by Headquarters A.A.F.

DECLASSIFIED
DOD Dir.
Sec. 5.3(b) June 1972
By [illegible] Date 10/18/76

To: Management Control

FROM: Deputy Chief of the Air Staff

DATE: April 27, 1943
COMMENT No. 1
FILE: AP 5370

1. General Arnold noted your Comment No. 1 with extreme interest and was very favorably impressed with paragraph 1.

2. He directed, however, that your division take whatever action was necessary to reduce with the least possible delay the reports now required by our subordinate Air Forces and other Commands.

3. Request that I be furnished a progress report on May 3, 1943.

Dispatched
APR 28 1943
AAG

WILLIAM E. HALL,
Brigadier General, U. S. Army,
Deputy Chief of the Air Staff.

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir. 5200.9 and AR 380-5 Sec. 5(c) Date 12/13/76

Distribution Lists

Chief, Statistical Control

Chief of the Air Staff

5/3/43

MAL/lw 5265 4

1. Approved for one (1) copy only.

2. For necessary action.

H. A. LIBBY
Colonel, G. S. C.
Secretary of Air Staff

TO: Office of Air Adjutant General

FROM: Statistical Control Division

DATE May 24, 1943

COMMENT NO. 5
ACM/wet/71910

1. Basic communication from War Department General Staff has been acknowledged.

2. Reports SC-5A and SC-5B will be forwarded in accordance with recommendations in Comment 3.

incl: w/d

BRANDON BARRINGER
Lt. Colonel, Air Corps
Acting Chief, Statistical Control Division

May 26/43. To Classified file for file. O.K. for here completed.

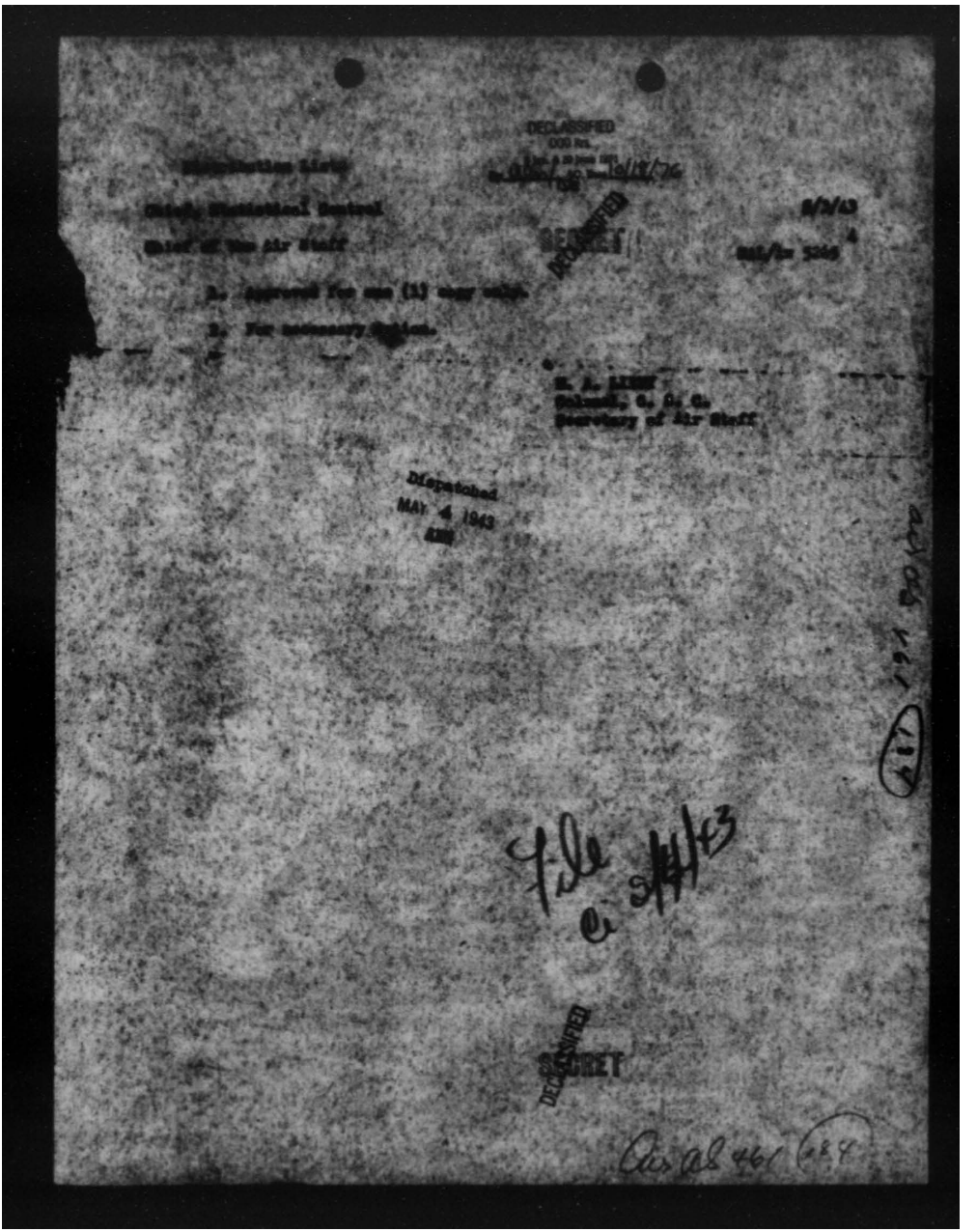
H. A. Craig
Air Adj Gen

File
SK
5/26/43.

DECLASSIFIED
SECRET

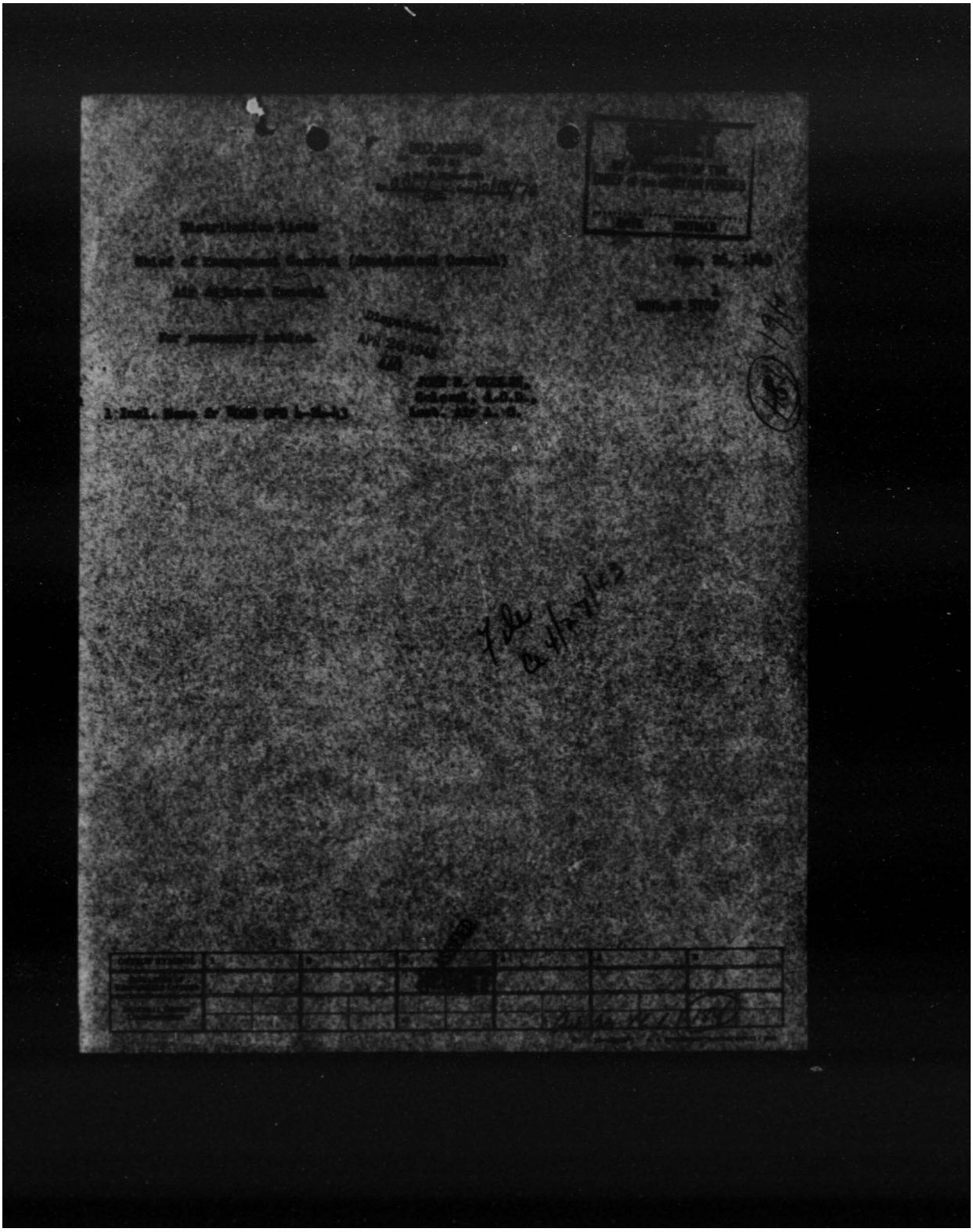
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



Distribution Lists

Chief of Management Control (Management Council)

Air Defense Council

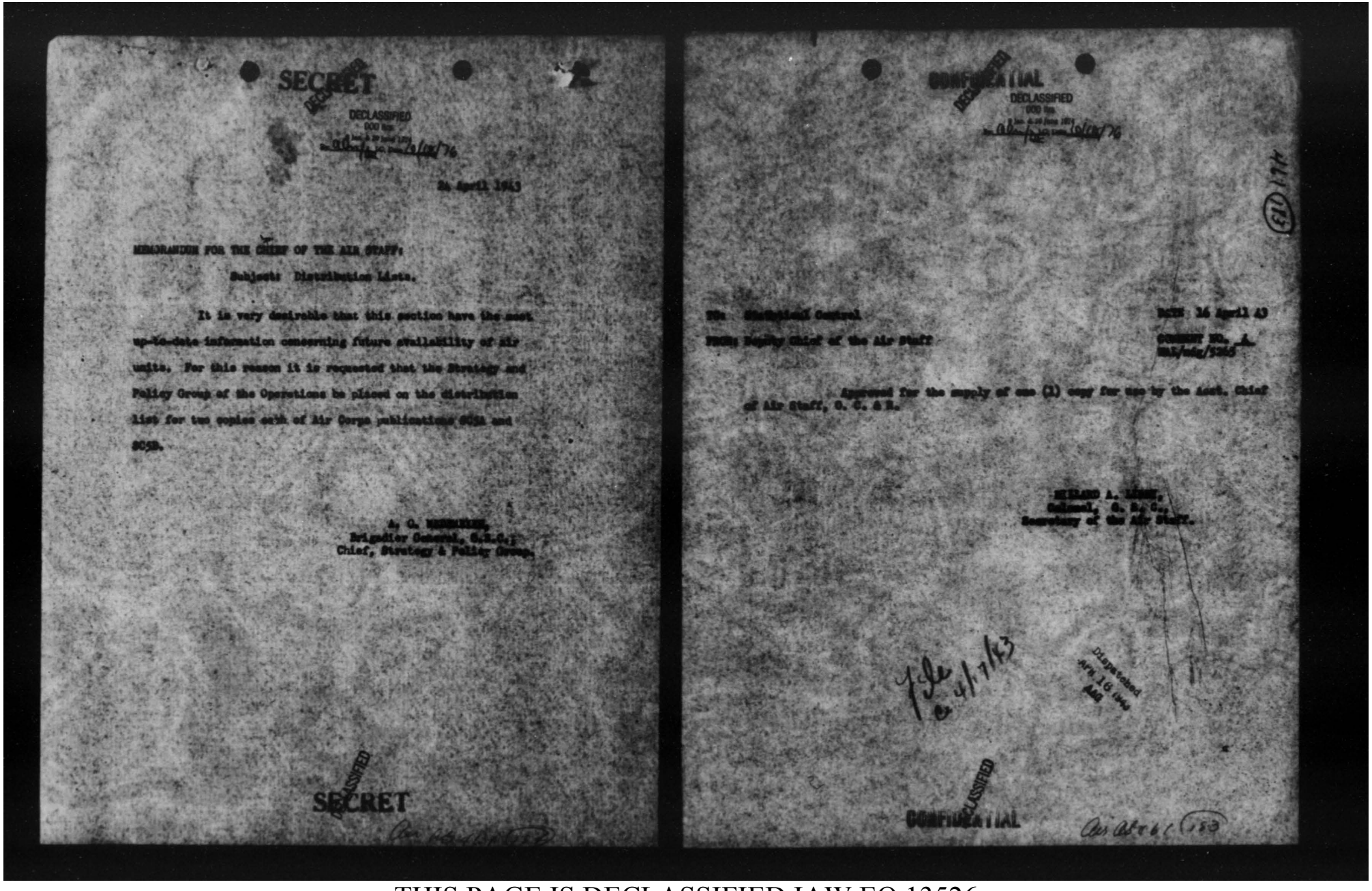
For necessary action.

Disposition
APR 26 1948
AFR

1 Incl. None

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



SECRET

DECLASSIFIED
000 file
Auth: E.O. 12958
By: ADC/Plans Date: 5/6/76

24 April 1943

MEMORANDUM FOR THE CHIEF OF THE AIR STAFF:

Subject: Distribution Lists.

It is very desirable that this section have the most up-to-date information concerning future availability of Air units. For this reason it is requested that the Strategy and Policy Group of the Operations be placed on the distribution list for two copies each of Air Corps publications SCSA and SCSB.

A. G. MCNARNEY,
Brigadier General, G.S.C.;
Chief, Strategy & Policy Group.

DECLASSIFIED

SECRET

CONFIDENTIAL

DECLASSIFIED
000 file
Auth: E.O. 12958
By: ADC/Plans Date: 5/6/76

(FD) 1174

TO: Distribution Control

DATE: 16 April 43

FROM: Deputy Chief of the Air Staff

CONCURRENCE NO. A-
AAG/adg/5265

Approved for the supply of one (1) copy for use by the Asst. Chief of Air Staff, O. C. & R.

RICHARD A. LEIGH,
Colonel, G. S. C.,
Secretary of the Air Staff.

7 Ile 4/7/43

Dispatched
Apr. 16 1943
AAG

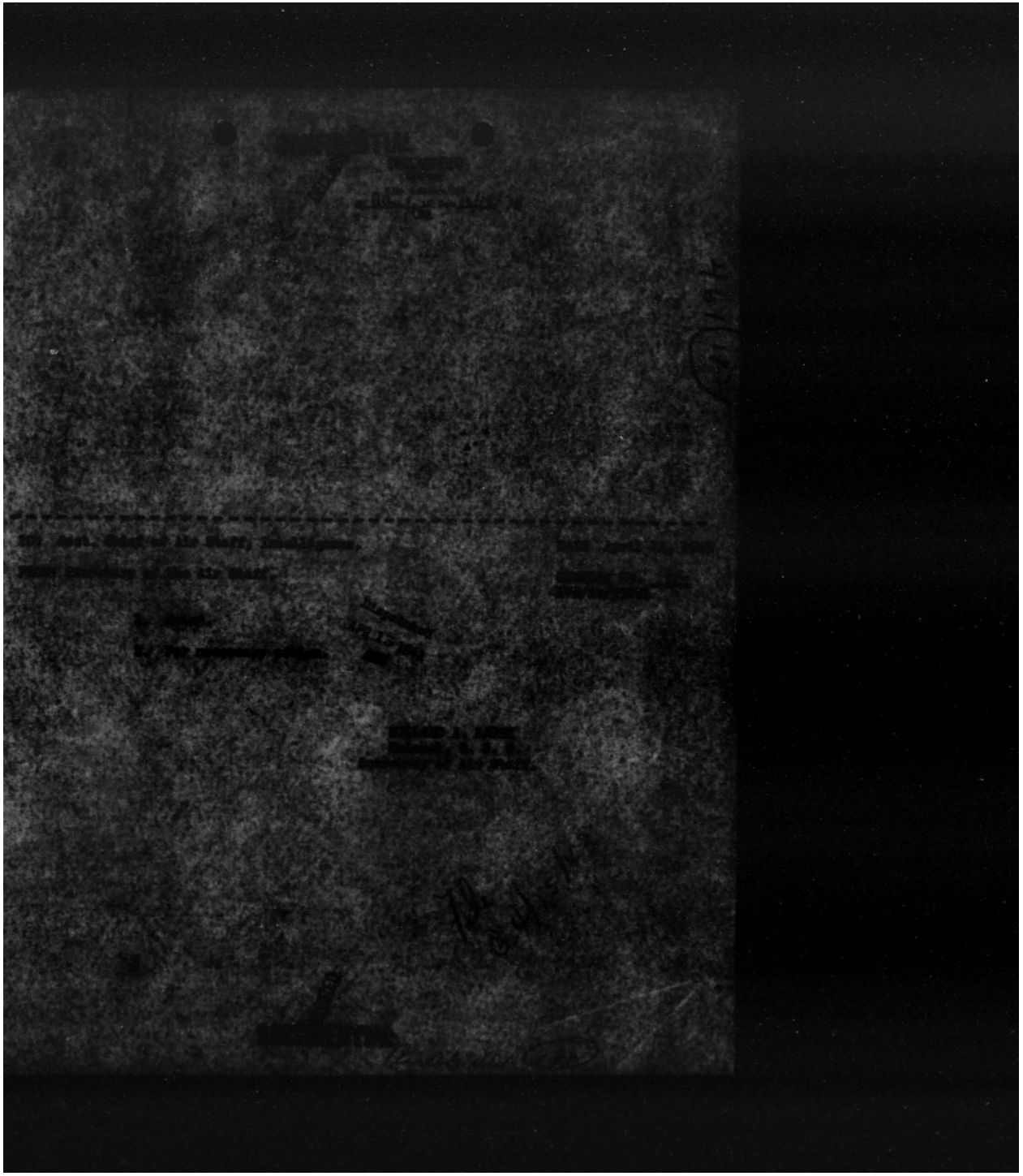
DECLASSIFIED

CONFIDENTIAL

Air Adv 6 (183)

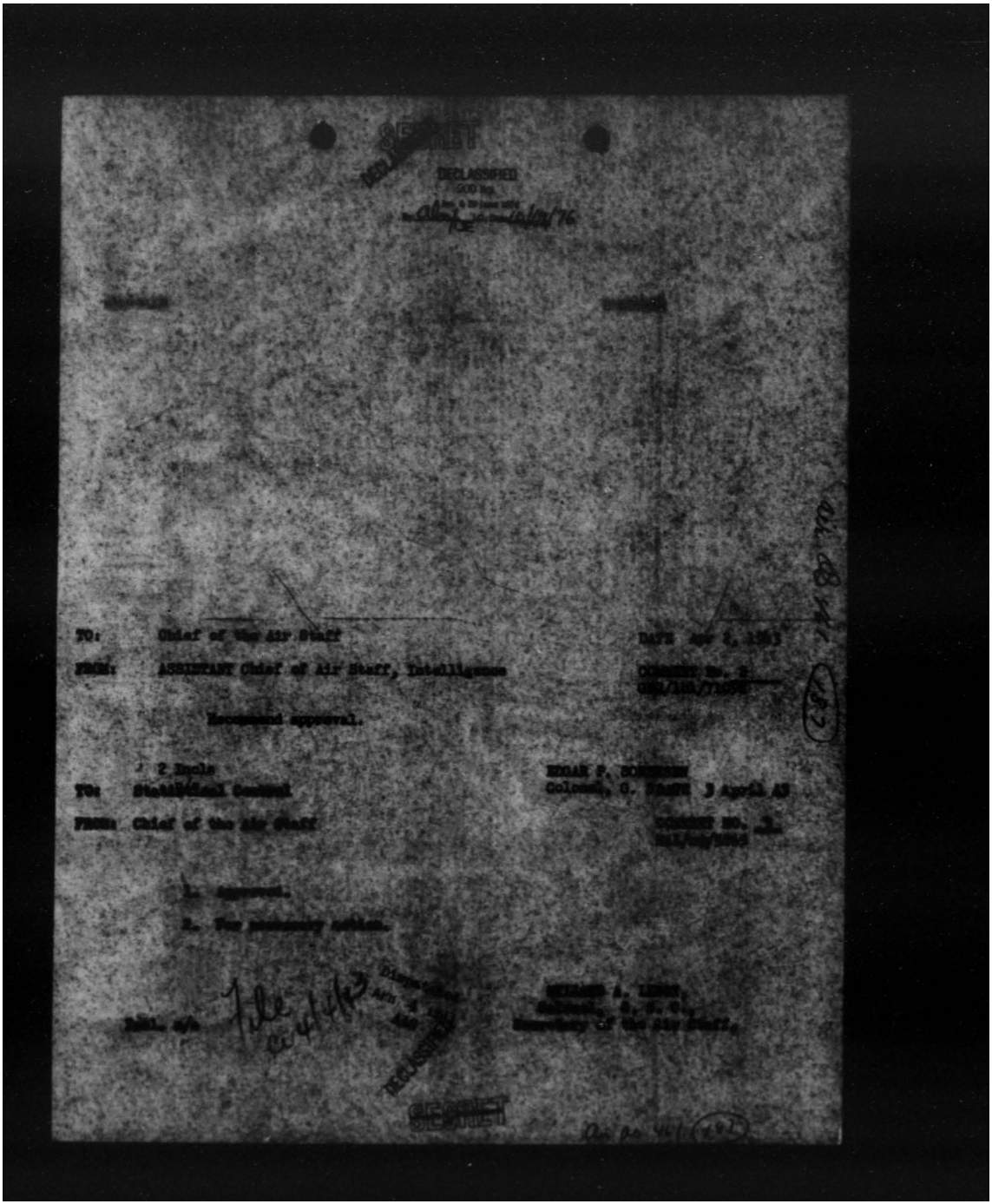
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



SECRET

DECLASSIFIED

TO: Chief of the Air Staff

FROM: ASSISTANT Chief of Air Staff, Intelligence

Recommend approval.

2 Incls

TO: Chief of the Air Staff

FROM: EDGAR P. [illegible]
Colonel, G. [illegible] 3 April 48

1. Approval.

2. [illegible]

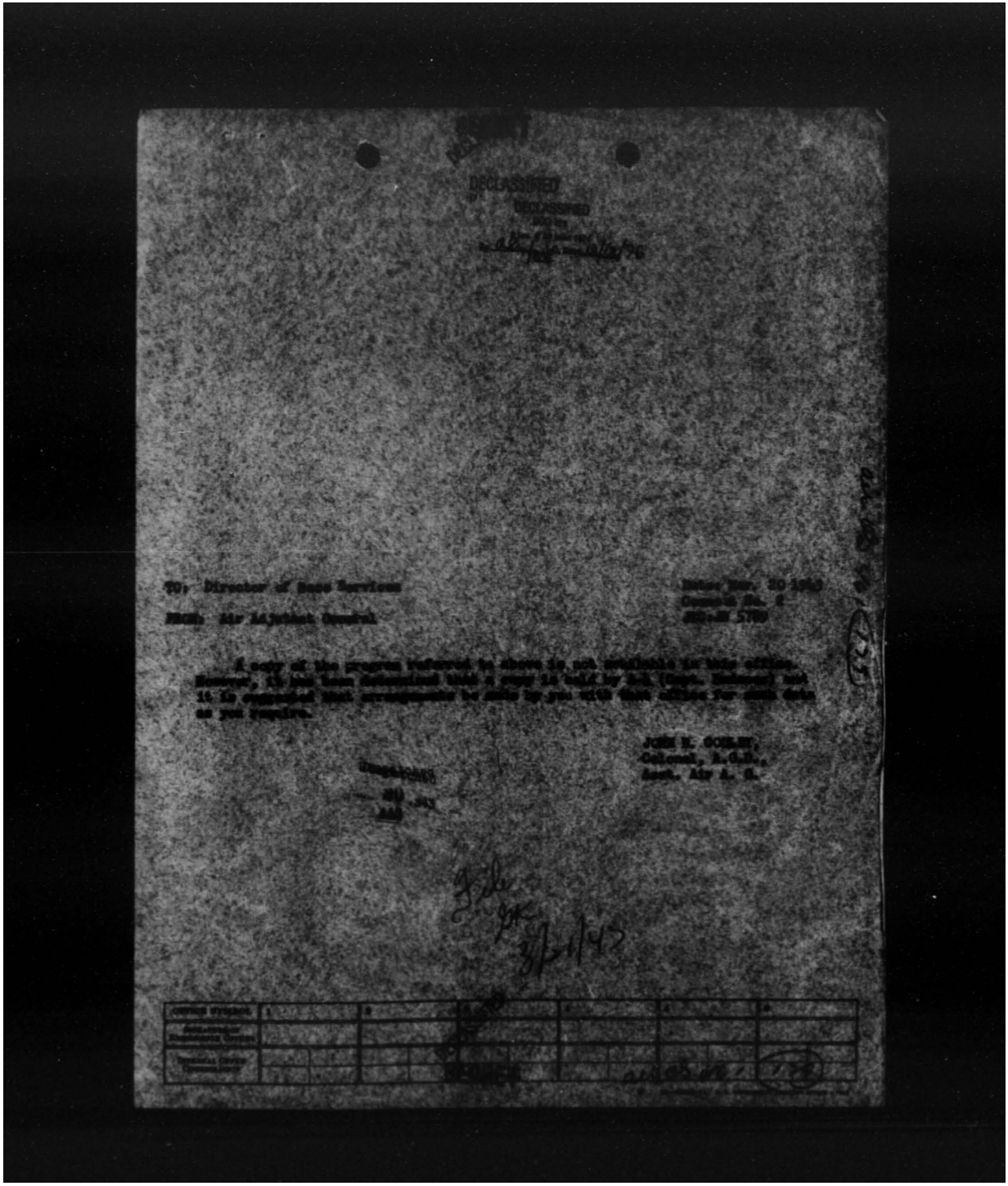
[illegible] a/s

[illegible]
Secretary of the Air Staff.

SECRET

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



DECLASSIFIED

To: Director of Base Services

From: Air Adjutant General

Subject: Nov. 20 1943
Channel No. 2
AGO-AF 5709

A copy of the program referred to above is not available in this office. However, it has been determined that a copy is held by A-3 (Capt. Hubbard) and it is suggested that arrangements be made by you with that office for such data as you require.

JOHN E. HOBLIT,
Colonel, A.G.D.,
Asst. Air A. G.

3/2/43

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir
E.O. 12958, as amended
By Alan Rowe, Date 10/19/76

AAF AIR

Victory Program.

Air Adjutant General.

Victory Program.

[SECRET]

DECLASSIFIED

1

1. It is requested that the Air Adjutant General be furnished a copy of the "Victory Program Temp Basis," for Planning the Army Supply Program--revised December 15, 1942.

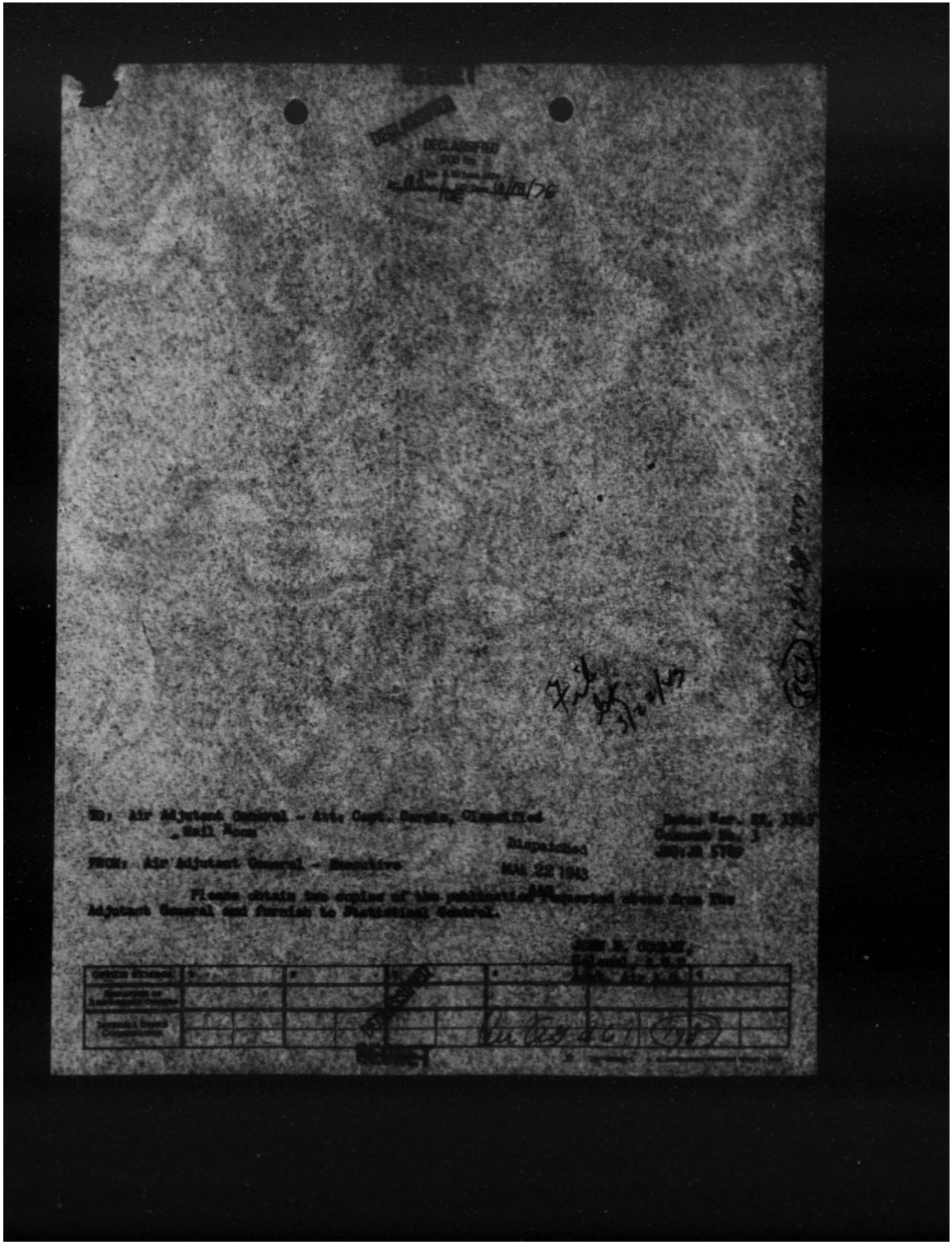
2. The above publication is requested in order to compute and check requirements for the Army Air Forces.

L. P. Hancock,
Brig. Gen., U. S. Army.

DECLASSIFIED
SECRET

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



TO: Air Adjutant General - Air, Capt. Service, Classified Mail Room

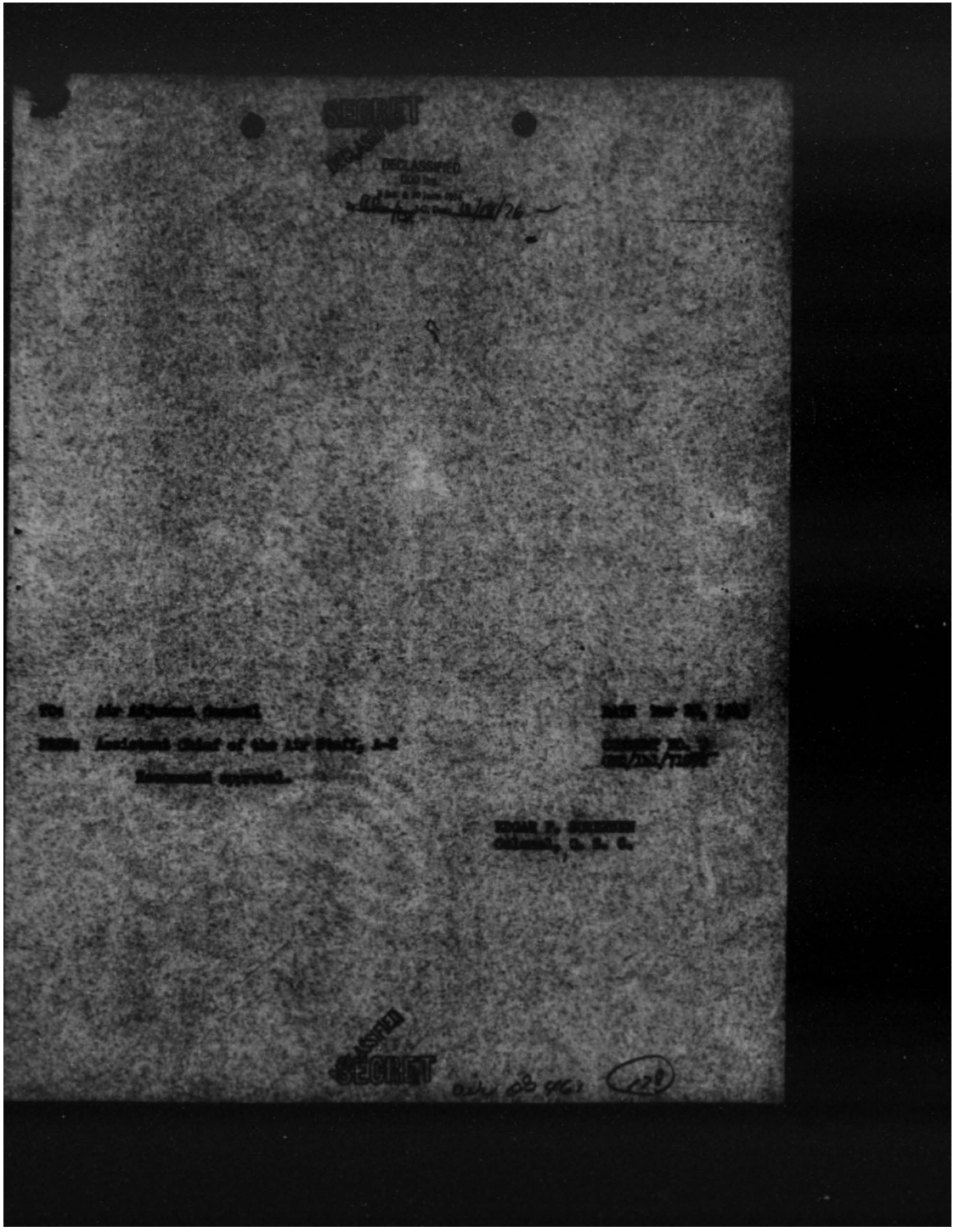
Dispatched MAR 22 1943

FROM: Air Adjutant General - Executive

Please obtain two copies of the publication requested above from the Adjutant General and furnish to Personnel General.

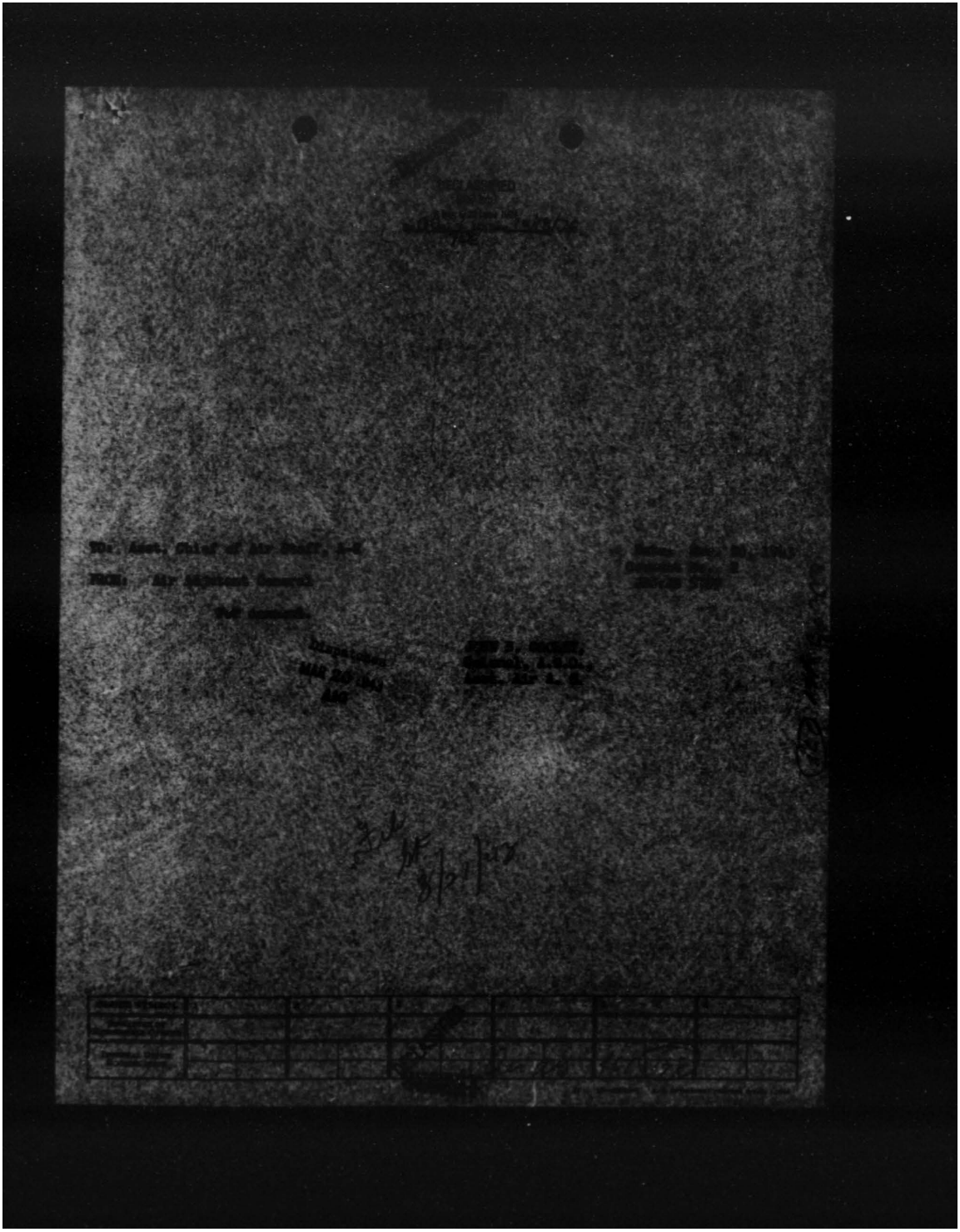
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



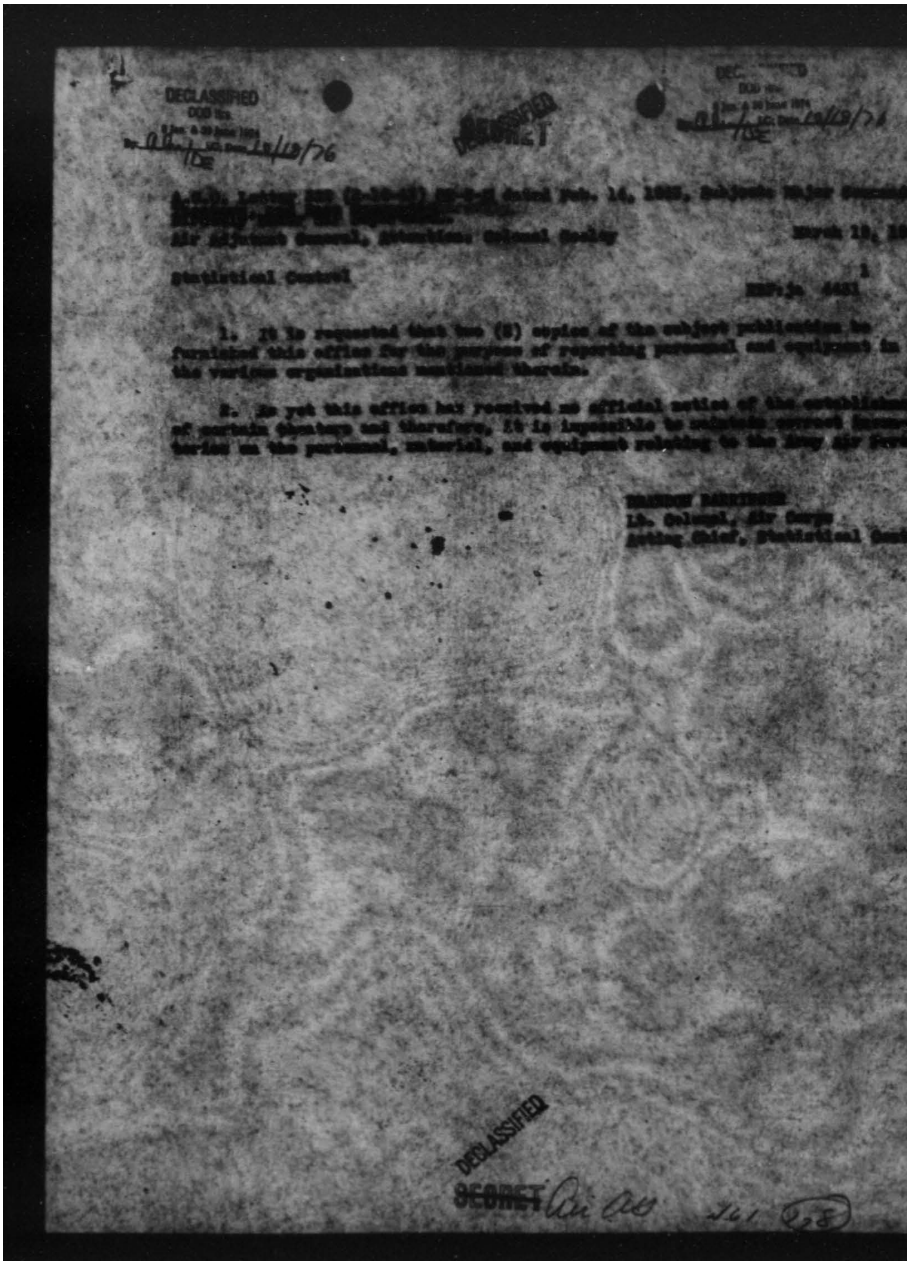
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



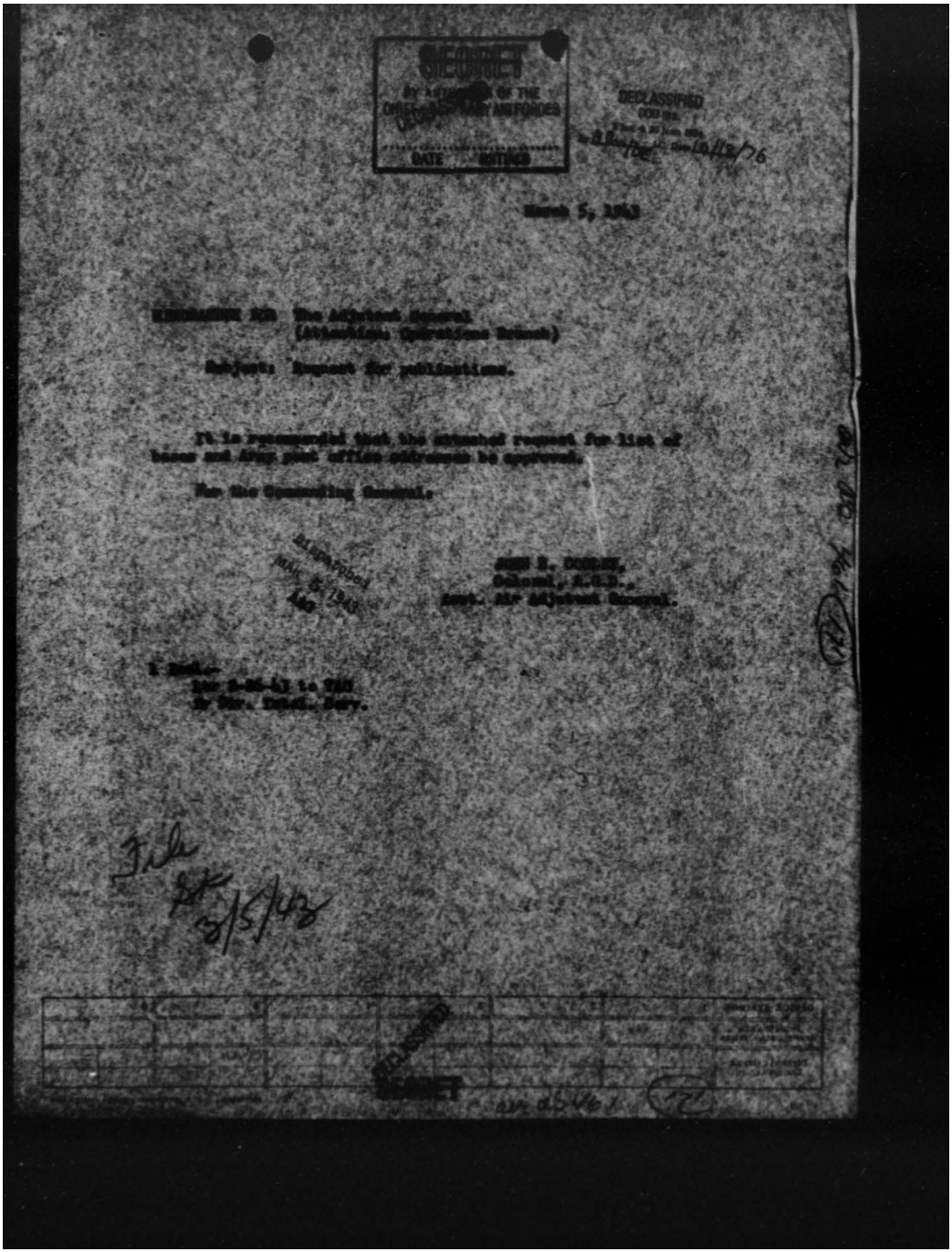
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



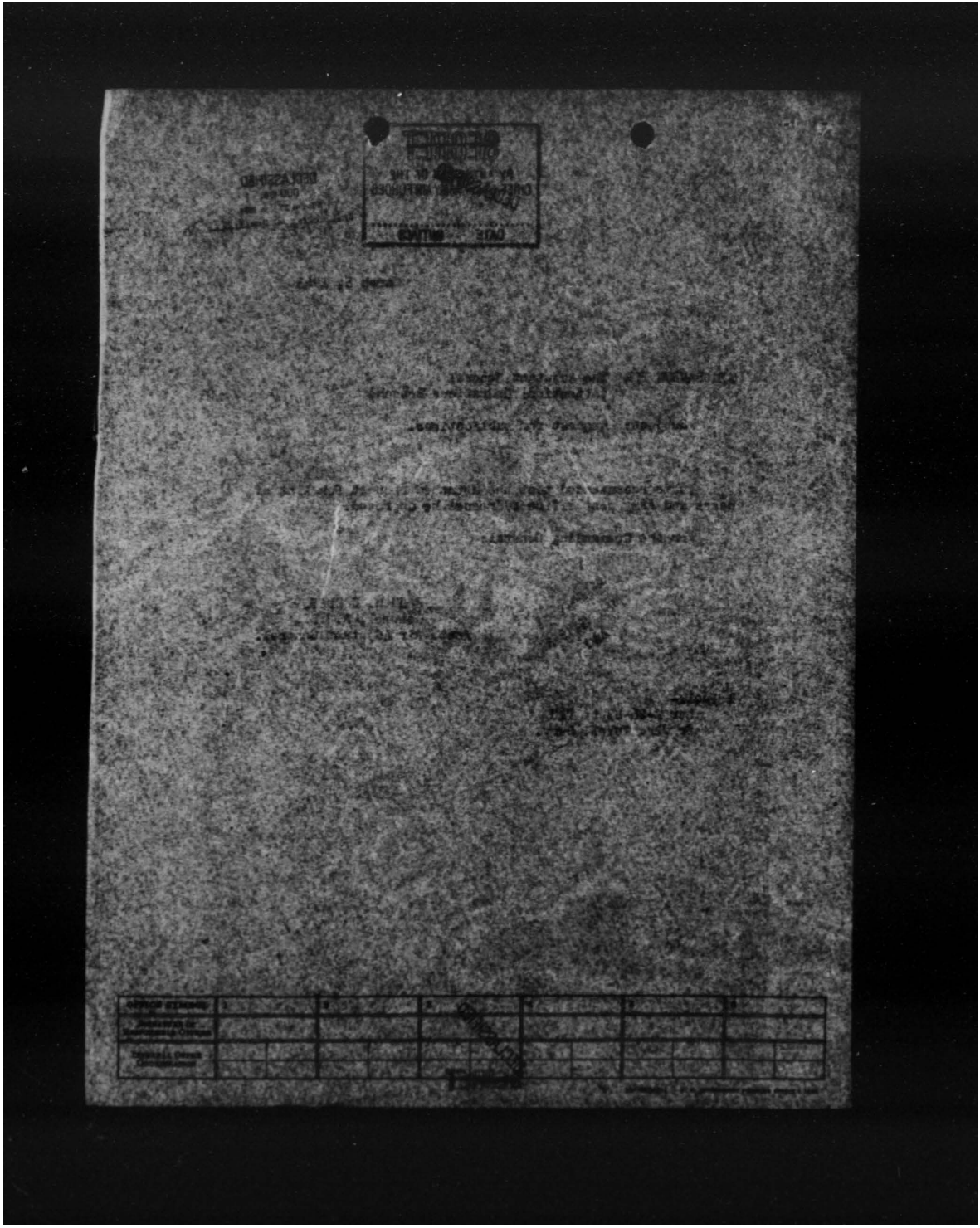
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

ROUTING AND RECORD SHEET OF THE ARMY AIR FORCES

FILE NO.

SUBJECT: Request for publications.

TO: Asst. Chief of Air Staff, A-2

FROM: Air Adjutant General

DECLASSIFIED
DOD Dir. 5200.9 Sec. 4 or 5 June 1979
By OSD/WHS Ltr. Date 10/28/76

DATE 3-3-43

COMMENT NO. 1

JBC:JB 5789

For comment.

JOHN B. COOLEY,
Colonel, A.G.D.
Asst. Air Adj. Gen.

1 Incl.-
Ltr to TAG fr AFUIS
2-26-43 subj as abv

To: Air Adjutant General

From: Asst. Chief of Air Staff, A-2.

Date: Mar 4-43

Comment No. 2

WB:esm 4700

Recommend approval.

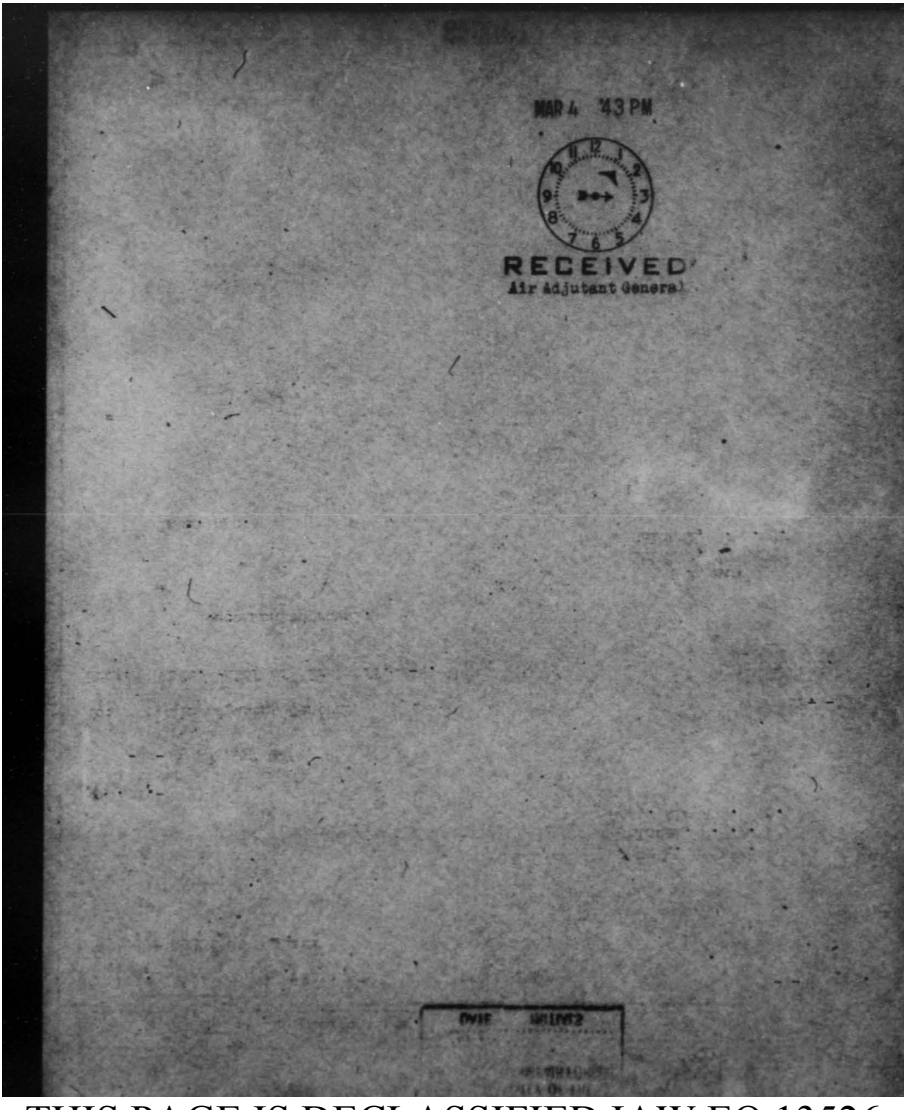
EGLIN P. SORENSEN,
Colonel, G. S. C.

Incl. n/c.

DECLASS

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

Request for publications.

To: Air Adjutant General

From: Asst. Chief of Air Staff, A-2.

Date: [illegible]-43

Comment No. 2
Whitcomb 4700

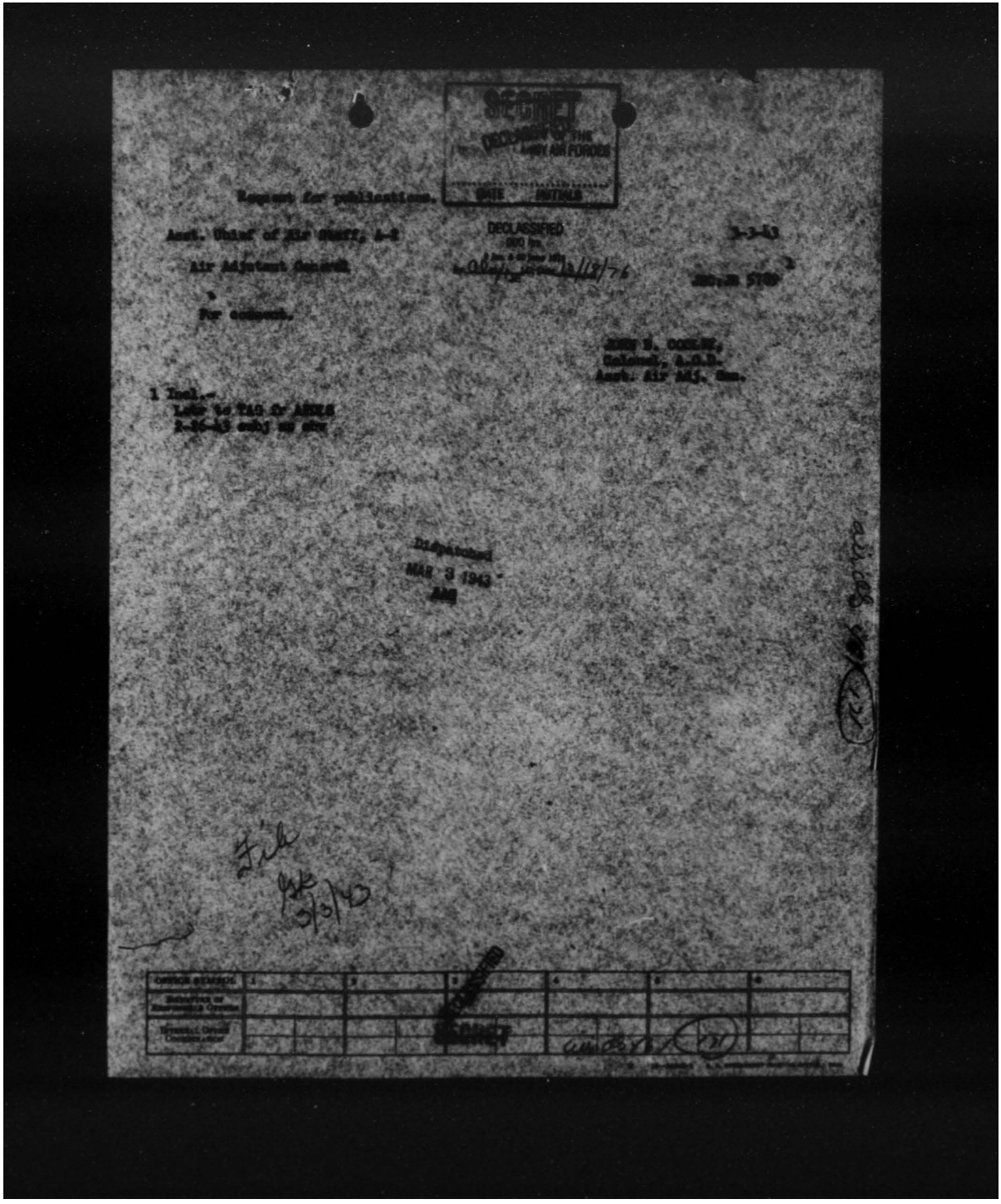
Recommend approval.

EDGAR P. SORENSEN,
Colonel, G. S. C.

Incl. n/c.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir. 5 200 June 1972
By [illegible] Date 10/18/76

SECRET

Refer to: 250-1288

War Dept
Hdq of the AAF
Washington.

SECRET
By Authority of
The Commanding General
Army Air Forces
24/7/43 [illegible]
Date Initials

FEB 26 1943

Request for Publications.

The Adjutant General,
War Department,
Washington, D. C.

Attention: Lt. Col. Ronald E. Van Sickles,
Classified Record Section.

1. It is requested that the Director of Intelligence Service be furnished, for use by the AAF Technical Censor, copies of the following publications:

a. Secret AG letter 322 (8-13-42) MR-M dated September 12, 1942.
Subject: List of Bases (with 2 inclosures). Any memorandum on the same subject dated subsequent to September 12, 1942.

b. Secret AG letter 311.1 (12-2-42) MR-S-M dated December 2, 1942.
Subject: Army Post Office Addresses.

2. The publications requested above are required to expedite the work of technical censorship. One copy of this publication has been furnished to the Assistant Chief of Air Staff, A-2, but that office and the Director of Intelligence Service are located in different buildings and because of the classification of the document, it is not possible for these two offices to make efficient use of one copy.

3. It is further requested that the office of the AAF Technical Censor be placed on the mailing list of the Classified Record Section for any further publications on the above subjects.

For the Commanding General, Army Air Forces:

A. W. [illegible], Jr.,
Colonel, G. S. C.,
Director of Intelligence Service.

19 AGO
FEB 27 1943
Received
OB-S-6

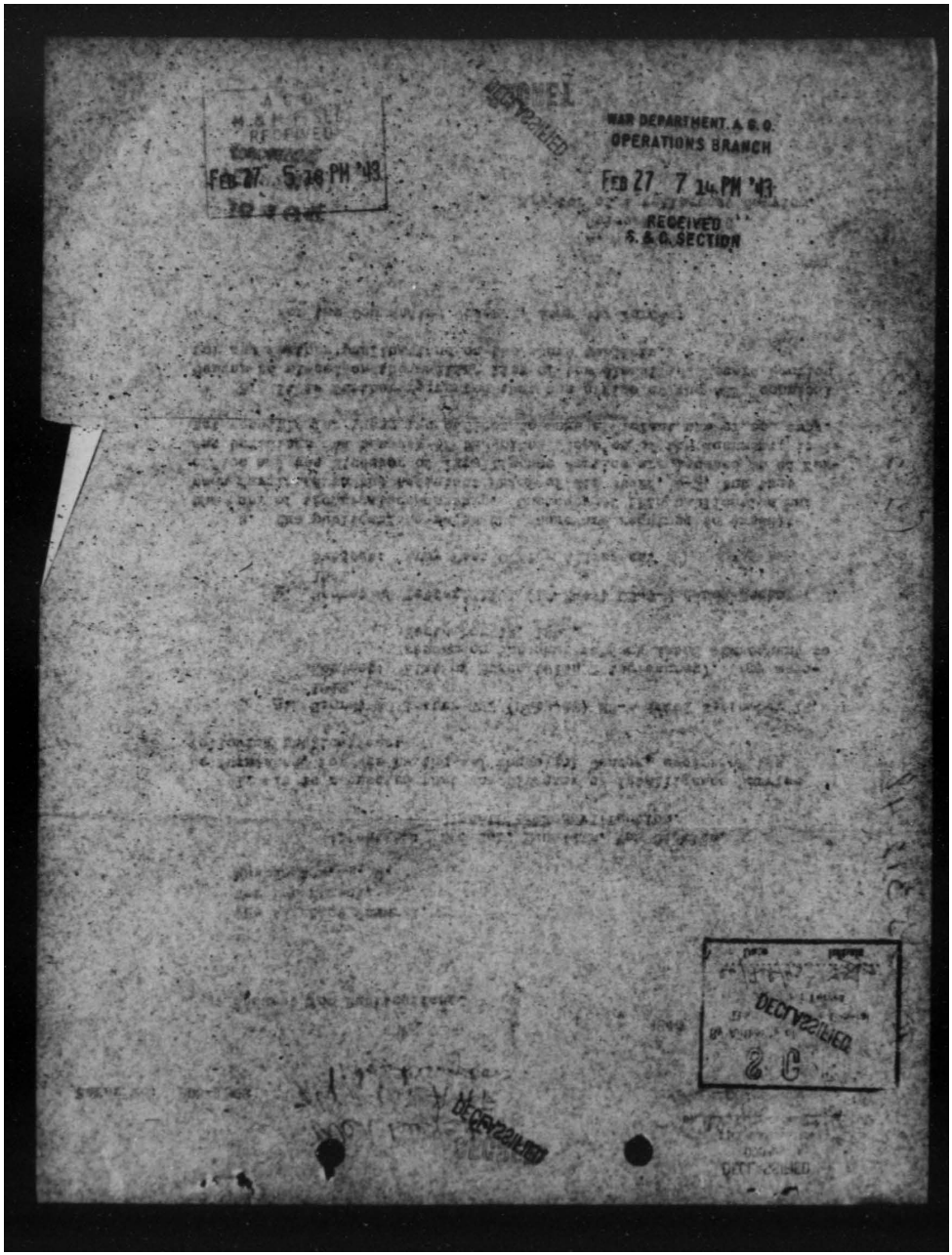
DECLASSIFIED
SECRET

WDGS 312 48

(2-26-43)

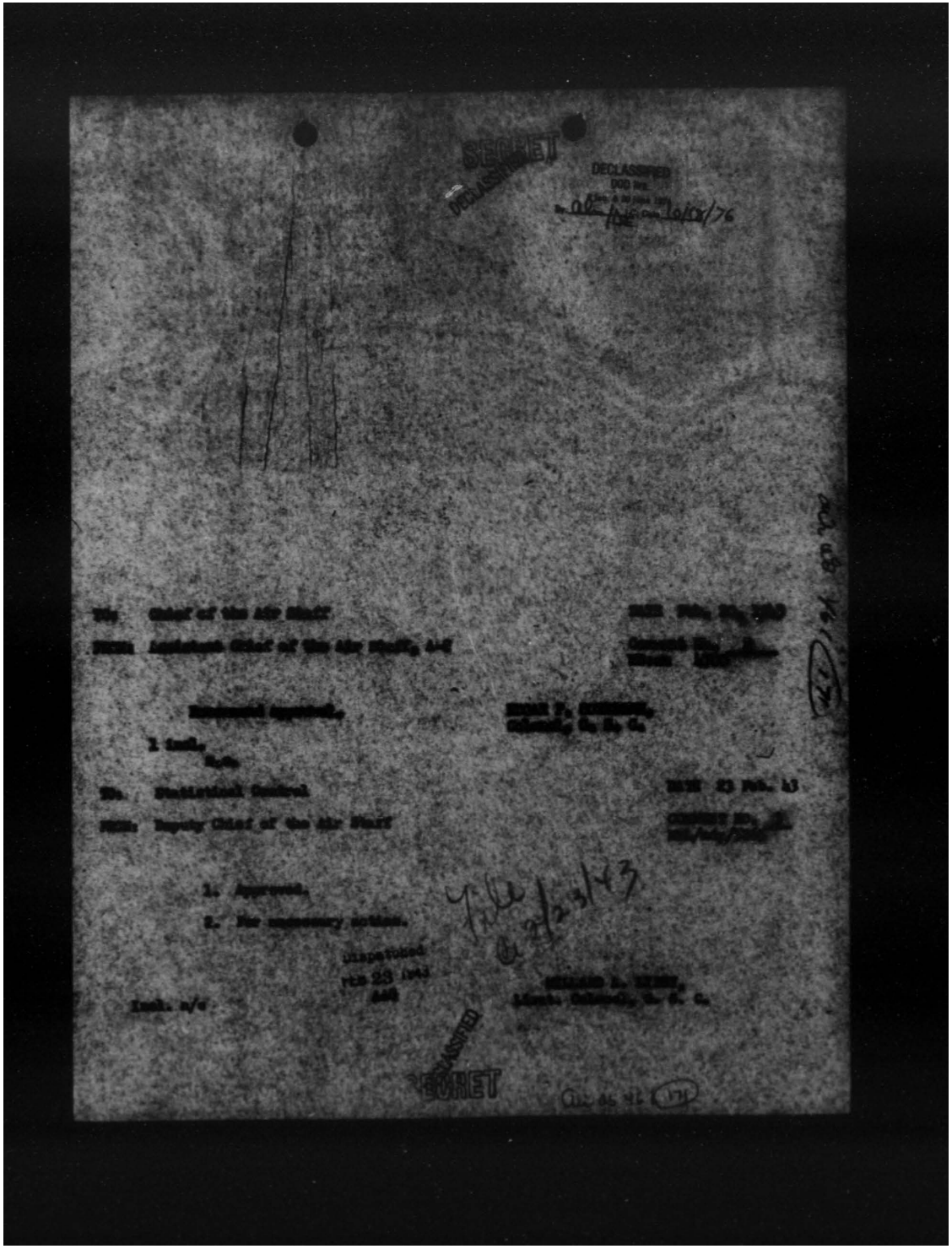
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

~~CONFIDENTIAL~~

DECLASSIFIED
DOD ltrs
8 Jan. & 20 June 1974
By [illegible] IC, Date 10/18/76

February 6, 1943

MEMORANDUM FOR THE COMMANDING GENERAL, Air Transport Command.

Subject: Non-delivery of Periodicals to Tenth Air Force, New Delhi.

1. An investigation of the complaint made by the Commanding General, Tenth Air Force, of non-delivery of periodicals to the Tenth Air Force has been made by The Air Inspector. This investigation disclosed that a directive from the Director of Personnel dated December 10th was forwarded to your Command prescribing the disposition and shipment of various magazines to overseas headquarters, among which was the requirement for 150 pounds of such material to be shipped from Miami by the Air Transport Command, marked for the Commanding General, Tenth Air Force. However, instructions contained therein were not forwarded to the control officer at Miami. The directive, classified as "SECRET," was receipted for in your Headquarters by Miss G. A. Ziegler in the office of Major H. P. Blake, and there is no record to show what disposition has been made of this communication.

2. The loss of "SECRET" documents and the non-compliance of directives from the Commanding General, Army Air Forces, is a serious reflection upon your Command. It is desired that disciplinary action be taken against Major Blake for improper supervision of his office and indirect responsibility for the loss of official classified documents. It is further desired that the authority of Miss Ziegler to receipt for and receive classified material be revoked and that if her services are to be retained she be placed in a position of less responsibility than the one occupied by her at the time of this incident.

By command of Lieutenant General ARNOLD:

Dispatched
FEB 7 1943
AAG

GEORGE E. STRATEMEYER,
Major General, U.S.A.,
Chief of the Air Staff.

File
GSK
2/7/43

Air A G

DECLASSIFIED

~~CONFIDENTIAL~~

Ai 23461 (167)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED
DECLASSIFIED
DOD 8/5
By alm NLC, Date 10/18/76

Investigation of Shipments to 10th Air Force

Asst. Chief, Air Staff, A-1, THRU: Chief, Air Staff — January 29, 1943

The Air Inspector — 2

JFRS:EMS
3653

1. In accordance with the request of AFAAP, investigation was made of message Aquila J-423-D, dated January 11, 1943, from New Delhi, India, in which an inspection was requested to investigate the non-receipt of overdue or weekly shipments to the 10th Air Force of periodicals under REC-50 and the forwarding of second class mail matter addressed to the 10th Air Force.

2. Investigation disclosed that a Directive from the Director of Personnel dated December 10, 1942, was forwarded to the Commanding General, Air Transport Command, on that date, setting forth the disposition and shipment of various magazines to overseas headquarters under REC-50, among which was the requirement for 150 pounds of such material to be shipped from Miami by the Transport Command and marked for the Commanding General, 10th Air Force, New Delhi, India. Arrangements had previously been made with the American News Company to distribute to various control officers, including the one at Miami, specified periodicals packed in ten pound units. It appears that these periodicals were duly delivered but that the control officer at Miami had never received any instructions as to their distribution and shipment, and in the absence of any proper directive had used his own discretion and shipped them to some thirty-seven overseas staffs, but of course in no case properly addressed as required by the Directive of December 10 and in no proper proportions.

3. Investigation disclosed that the above-mentioned Directive was duly received in the Office of the Commanding General, Air Transport Command and after passing through other offices within that Command was sent to the office of Major N. P. Blake, A.C., Chief, Traffic and Aircraft Control Sub-Unit, S-3, of the Air Transport Command. This classified communication was receipted for by Miss G. A. Ziegler, duly authorized to receipt for such communications. This young lady admitted her initials on the receipt, but could not recall ever having seen the Directive. She was unable to explain what had become of it and there was no record in that office to show what disposition had been made of it. Major Blake never had seen the Directive, hence no action was ever taken on this lost paper, although it had been previously classified as "Secret".

4. This matter of the disposition of various periodicals to certain overseas headquarters now appears to have been completely adjusted and an order has been issued by the Air Transport Command dated January 19, 1943, complying with the requirements of the lost Directive of December 10, 1942. It is believed that this difficulty will

CONFIDENTIAL
DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

not again occur, as the shipments have also been given a class 2 priority.

5. The matter of non-delivery of second class mail matter was independently investigated by a Major M. B. Hahn, A. C. of the Postal section of the Office of the Air Adjutant General. Major Hahn was out of town and will remain so until February 3rd next, but as the result of his investigation, message No. 2148, dated January 16, 1943 was sent to the Commanding General, 10th Air Force, New Delhi, India, which message indicated that the complaint regarding the non-delivery of second class mail matter was apparently in error, in view of the various reports from Karachi and asked for specific cases of delay or loss. In view of this action by Major Hahn, no further action was taken by this Office.

6. It is recommended that the authority of Miss G. A. Ziegler to receipt for and receive classified material be revoked and that she be replaced on that duty by a more competent employee. It is further recommended that the matter of disciplinary action for her neglect of duty be called to the attention of and left in the hands of Major M. P. Blake, under whose supervision she is serving.

JOHN F. WHITELEY,
Colonel, Air Corps,
The Air Inspector

TO: Asst. Chief of Air Staff, A-1.

DATE 2/2/43

FROM: Chief of the Air Staff

COMMENT NO. 3
MAL/mdg/5265

1. The recommendations of the Air Inspector are approved.

2. For necessary action.

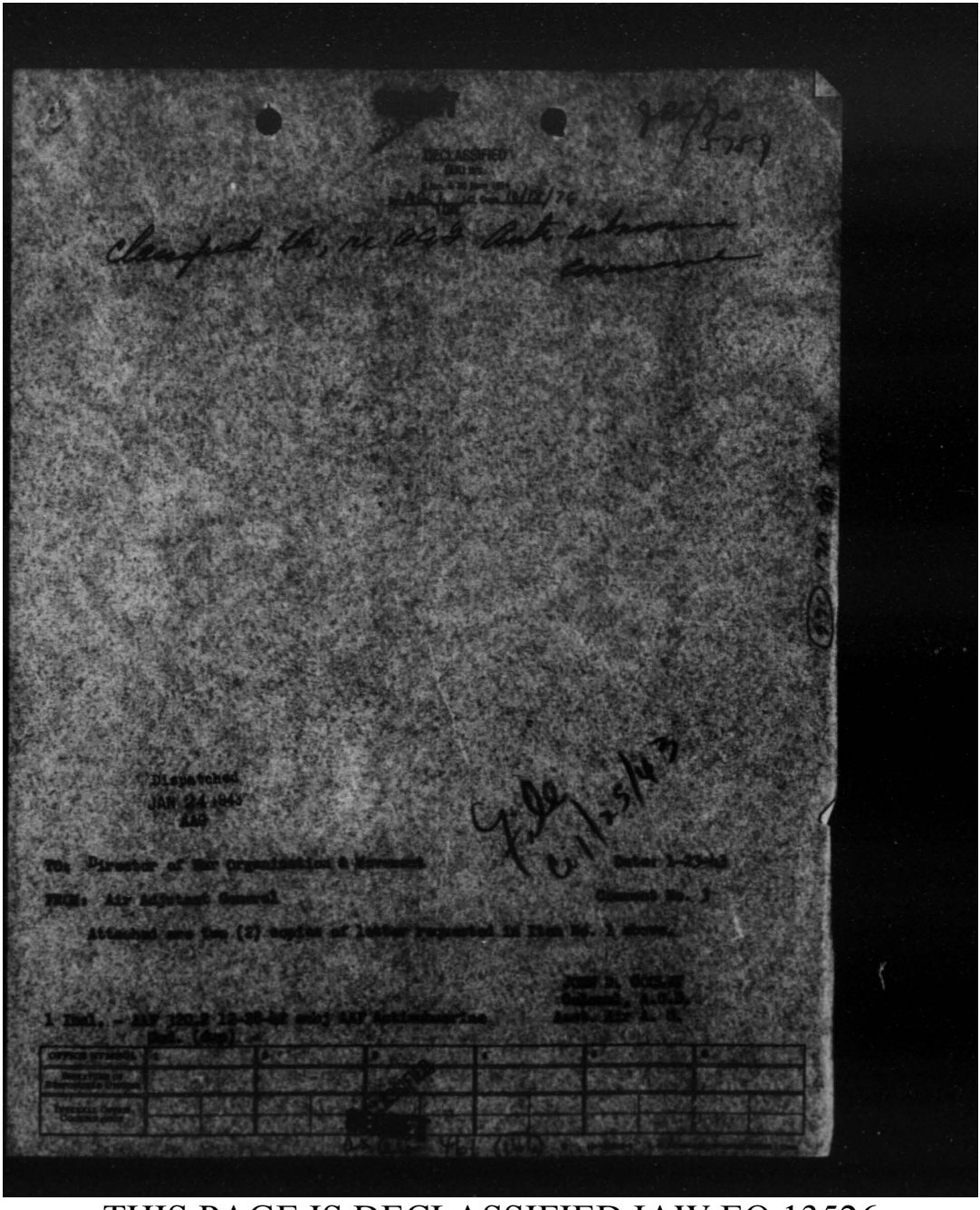
CONFIDENTIAL
DECLASSIFIED

MILLARD A. LIBBY,
Lieut. Colonel, G. S. C.

Air AG 461 (16)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



DECLASSIFIED

Cleared for release

Dispatched
JAN 24 1943

To: Director of War Organization & Movement

Date: 1-23-43

FROM: Air Adjutant General

Channel No. 3

Attached are two (2) copies of letter requested in Item No. 1 above.

1 Incl. - AAF [illegible] 12-22-42 subj: AAF Reimbursing.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

TO: Air Adjutant General, Washington: Col. J. P. Cooley. DATE: 1/21/43

FROM: Publications Section, Air Adjutant General. COMMENT NO. 2

RE: [illegible]

Forwarded for recommendation and reply. The letter requested in Comment 1 received a limited distribution and additional copies are not available in this office.

J. P. PUMA,
Captain, Air Corps.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET

DECLASSIFIED
DOD Dir 5 200.9 and 10 June 1971
By [illegible] NSC, Date 10/12/76 AHRAG

2nd Ind.

WD HQ ARMY AIR FORCES, Washington, D. C. January 9, 1943. TO: Commanding General, Material Command, Washington, D. C.

1. All publications requested in basic communication are being furnished the Material Center under separate cover, except the following.

a. AG 320.5 (11-11-42) OB S AF M dated 11-13-42
Movement orders, Shipment AFR-059.

b. AG 320.2 (11-15-42) OB I AF M dated 11-17-42
Constitution and activation of certain AAF units.

2. With respect to 1a, records of this office indicate that copy #92 was furnished the Material Command (Washington, D. C.) on November 16, 1942, and that copy #92 of Amendment No. 1 to that letter was furnished on December 12, 1942. In view of the limited number of copies received by this office, an additional copy is not available for distribution. In the event, however, that such a copy is essential, this office will procure it upon receipt of a request setting forth the necessity for the letter. Attention is invited to the fact that the letter bears a special classification.

3. The communication referred to in paragraph 1b cannot be identified either in this office or in the files of The Adjutant General.

By command of Lieutenant General ARNOLD:

Dispatched
JAN 9 1943
AAG

JOHN D. COOLEY
Colonel, A.G.D.,
Assistant Air Adjutant General.

File
1/10

DECLASSIFIED
SECRET

NND 963196

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SUBJECT: Request for A. G. Letters.

By OAI Date 10/18/76

TO: Air Adjutant General (Att: Col. Cooley)

DATE 1/7/43

FROM: Air Adjutant General (Publications Section)

COMMENT NO. 1

RS/cm 71907

1. Enclosed herewith is Secret letter from Materiel Center, Wright Fie Dayton, Ohio dated December 18, 1942 with 1st indorsement thereto.

2. All publications requested in letter referred to above are being fo warded to the Materiel Center under separate cover with the following excep tions:

a. AG 370.5 (11-11-42) OB S AF M dated 11-13-42
Movement orders, Shipment AFA-069.

b. AG 320.2 (11-15-42 OB I AF M dated 11-17-42
Constitution and activation of certain AAF units.

3. Subject letter is forwarded for necessary action on item 2a, inasmu as this letter has a Secret Security classification.

4. This office is not furnishing item 2b as this letter cannot be locat either in our files or in the files of The Adjutant General.

JAN 8 - 43 AM

RECEIVED
Air Adjutant General

J. E. PUBG,
Captain, Air Corps.

Incls -
1 Sec. Ltr. from Materiel Center
dated 12/18/42

DECLASSIFIED
SECRET

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED
DOD Dir. 5200.1 and 5200.10
By [illegible] NSC Date 12/20/76

AFAGE
WD:cam 4709
Re: 381.50
w/1/20/43

War Department, Headquarters, Army Air Forces, Washington, D. C.
To Commanding General, Services of Supply, Washington, D. C. (Through: Assistant Chief of Staff, G-2).

1. There is no objection on the part of this Headquarters to the translation of OKW's 1-200 and 1-500 Lake Synoth for use in connection with training French personnel in North Africa provided that the confidential classification is maintained.

2. For your information, it is requested that these manuals will be revised within about two months and that the revised editions will be classified as RESTRICTED.

For the Commanding General, Army Air Forces:

coordination by: (AFDMR _____)
(AFACT _____)

E. J. HARLEY, JR.,
Brigadier General, U.S.A.,
Deputy Chief of Air Staff.

Ltr Sig'd
JAN 22 1943
AAG

File
CI/22/43

Copy: Deputy Chief of Air Staff.

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

DECLASSIFIED
DOD Dir. 5200.9
Per A.S.D. Memo
By OADR/ISE Date 10/28/76

SRC/am
Ext:72602
JAN 7 1943

SPTSY AGR (1-7-43)

MEMORANDUM FOR THE COMMANDING GENERAL, ARMY AIR FORCES:

Subject: Translation of Confidential Manuals into French.

1. The French Military Mission has requested American equipment for the French forces in North Africa. To use this equipment effectively requires our field and technical manuals to be translated into French.

2. The Training Division, S.O.S., has received several lists of technical and field manuals desired by the French Military Mission. Included in this list are two "confidential" Air Corps publications.

TM 1-252 (Bomb Sighting Technique)
TM 1-260 (Dive Bombing)

3. It is understood that French Air Forces in North Africa are to receive American planes and equipment, and that French pilots are now being trained in our air squadrons. In view of this, authority is requested to translate and issue to the French forces in North Africa, the above two "confidential" technical manuals.

For the Commanding General:

W. L. Weible
Brigadier General, G.S.C.
Deputy Director of Training, S.O.S.

OUT
JAN 7 1943
WAR DEPARTMENT
SERVICES OF SUPPLY
TRAINING

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

DECLASSIFIED

DECLASSIFIED

Ltr Hdq,

AFMSE
WB:cem 4700
Re 33150 w/1/12/42

Headquarters, Army Air Forces, Washington, D. C.
To: Commanding General, Services of Supply, Washington, D.C.
(Through: Assistant Chief of Staff, G-2).

1. There is no objection on the part of this Headquarters to the [illegible] of TM's 3-250 and [illegible] dated [illegible] for use in connection with training French personnel in [illegible], provided that the confidential classification is maintained.

For the Commanding General, Army Air Forces:

T. J. HANLEY, Jr.,
Brigadier General, U.S.A.,
Deputy Chief of Air Staff.

Coordination by: (AFDMR _____)
(AFACT _____)

DECLASSIFIED

CONFIDENTIAL

Copy: Deputy Chief of Air Staff.

Air AG 46/(39

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

TO: Asst Chief of the Air Staff, A-2, & Asst Chief of Air Staff, A-3. 1/6/43
(10 Items)

FROM: Air Executive Council.

For comment, direction being invited in Remarks Column.

Incls 9/o.

JAN 17 1943
AAG

Asst Air Adj. General.

CONFIDENTIAL

File 6-11-7-43

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

DECLASSIFIED
DOD Dir
5 200.9 & 29 June 1979
By 08 NLG Date 10/18/76

Translation of Confidential Manuals into French.

Air Adjutant General. 1-16-43

Director of Military Requirements

1. Training Manuals 1-262 and 1-260 are both in the process of revision, which will require a bout 2 months. Classification of these revisions will be reduced to RESTRICTED. Suggest the proposed 1st Indorsement reflect the above.

DAVENPORT JOHNSON,
Major General, U.S.Army

Incl:n/c

DECLASSIFIED

CONFIDENTIAL AG 095 (1-16-43) (167)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
NARA Date 10-18-76

TO: Director of Military Requirements,
& Asst. Chief of Air Staff, A-3 [illegible]

Memo, S-113-43
Document No. 3
WDGS, S 3705

FROM: Air Adjutant General

For coordination on green file copy of proposed Circle Intelligence.
Please expedite.

Dispatched
JAN 13 1943
AGO

Encl. n-g

JOHN A. CODE, JR
Colonel, A.G.D.
Asst. Air Ad. Gen.

Filed 1/14/43

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

A-10
AAF 350.05

Translation of Confidential Memo [illegible] into French.

DECLASSIFIED
DOD Dir. [illegible]
By [illegible] Date 5/12/76

TO: Air Adjutant General.

DATE JAN 13 1943

FROM: Assistant Chief of Air Staff, A-2.

COMBINED NO. 2
WDGAN AFHQ

Reply to basic memorandum is attached hereto.

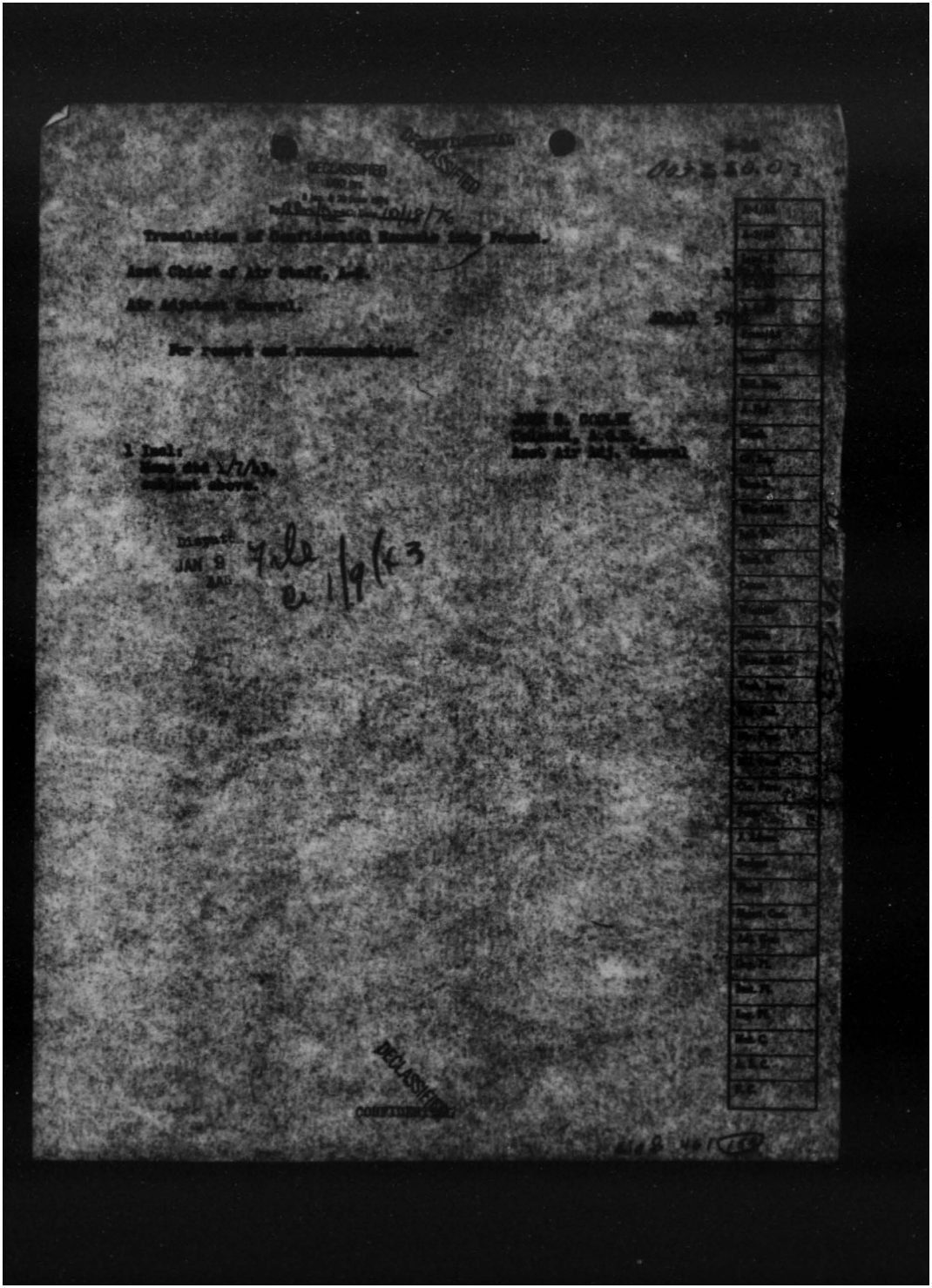
[illegible] P. [illegible],
Colonel, G. S. C.

1 Incl:
Memo dtd 1/7/43, subj. above
with 1st Ind.

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



Translation of Secretariat Russian Army Transl.

Asst Chief of Air Staff, Intl.

Air Attache General.

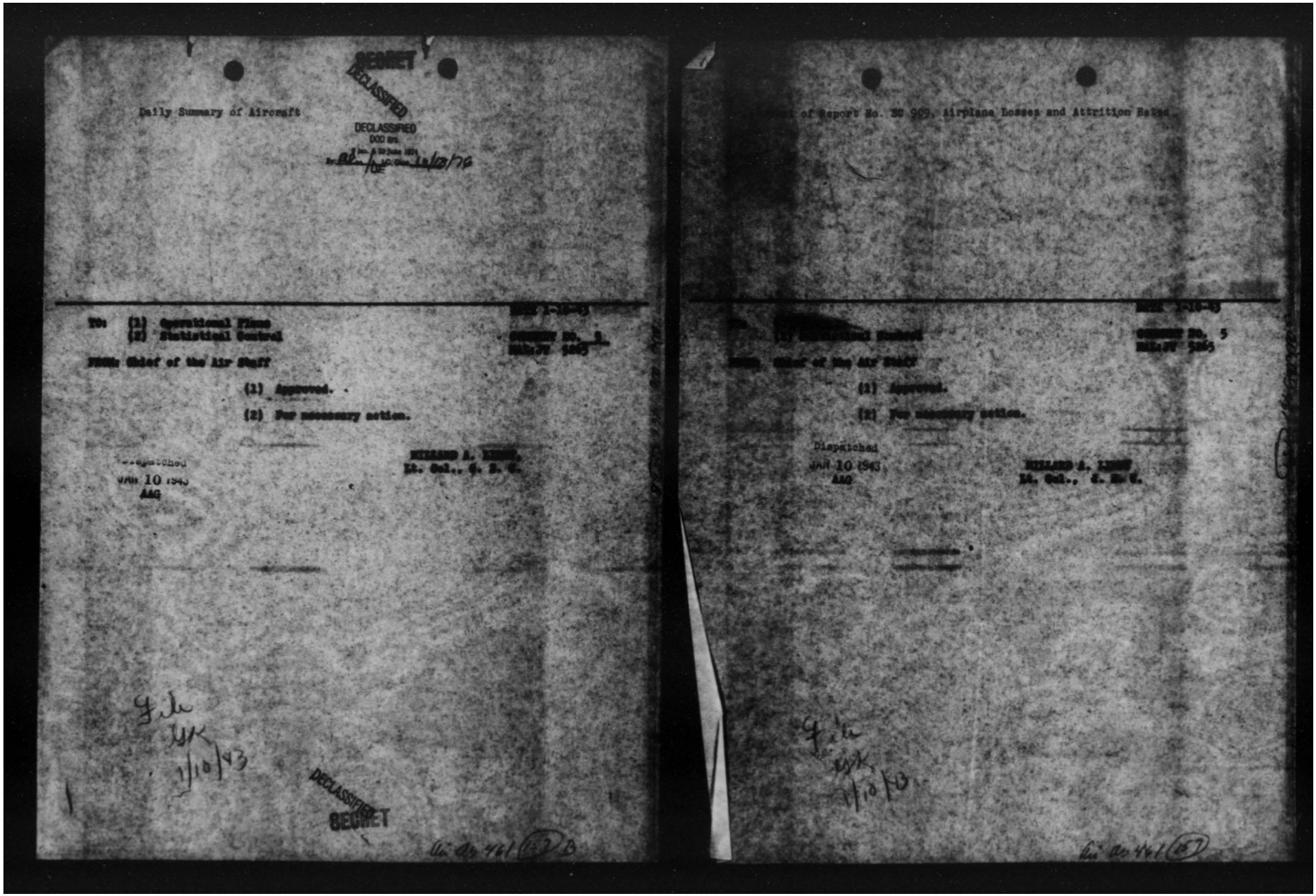
For report and recommendation.

1 Incl:
Trans dtd 1/7/43,
subject above.

JAN 9

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



SECRET

DECLASSIFIED

Daily Summary of Aircraft

DECLASSIFIED
DOD Dir.
By [illegible] NSC, Date 12/23/76

To: (1) Operational Plans
(2) Statistical Control

From: Chief of the Air Staff

(1) Approved.

(2) For necessary action.

Dispatched
JAN 10 1943
AAG

HILLARD A. [illegible]
Lt. Col., G. S. C.

File
WK
1/10/43

DECLASSIFIED
SECRET

Authority NND 761 (1) (2) B

of Report No. SC 903, Airplane Losses and Attrition Rates

To: (1) Operational Plans
(2) Statistical Control

From: Chief of the Air Staff

(1) Approved.

(2) For necessary action.

Dispatched
JAN 10 1943
AAG

HILLARD A. [illegible]
Lt. Col., G. S. C.

File
WK
1/10/43

Authority NND 761 (1) (2)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SUBJECT: Secret Documents.

NO.	FROM	TO	DATE	COMMENTS
1.	AFASC	AFDAS Attn: Gen. Hanley	1942 12/9	1. General Frank requested that the attached documents be delivered to your office today. The keys for the attached folder are herewith enclosed. 1 Incl. Secret documents in lock-folder. SCOTT L. FREBASCO Colonel, Air Corps Executive Officer

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET

SECURITY INFORMATION

SUBJECT: Estimated number and square feet board and weight of records, this Headquarters.

1st Ind. (AFHAG)

WD HQ ARMY AIR FORCES, Washington, D.C. November 30, 1942
TO: Commanding General, Army Air Forces First Concentration Command.

1. Unclassified records will be shipped to:

"Commanding General, Army Air Forces,
For Central Mail Unit,
Room 3147, Munitions Bldg.,
Washington, D.C."

2. Publications of The Adjutant General, viz., manuals, regulations, circulars, etc., will be shipped to:

"Commanding Officer, Columbus A.G. Depot,
Buckingham & Grant Streets,
Columbus, Ohio".

That agency should be advised of the purpose of the shipment.

3. Army Air Forces Regulations and similar publications will be carefully examined and those in condition for reissue and worth the cost of transportation and handling will be shipped to:

"Commanding General, Army Air Forces, Washington, D.C.
For Publications Division,
Room B-302, Alf Annex, Gravelly Point"

Others will be disposed of locally or destroyed.

4. Classified records will be transmitted as prescribed in AR 380-5, September 26, 1942, to:

"Commanding General, Air Forces,
For Air Adjutant General,
Room 3147, Munitions Bldg.,
Washington, D.C."

In view of the quantity of these records indicated, consideration should be given to the utilization of an officer courier for that purpose.

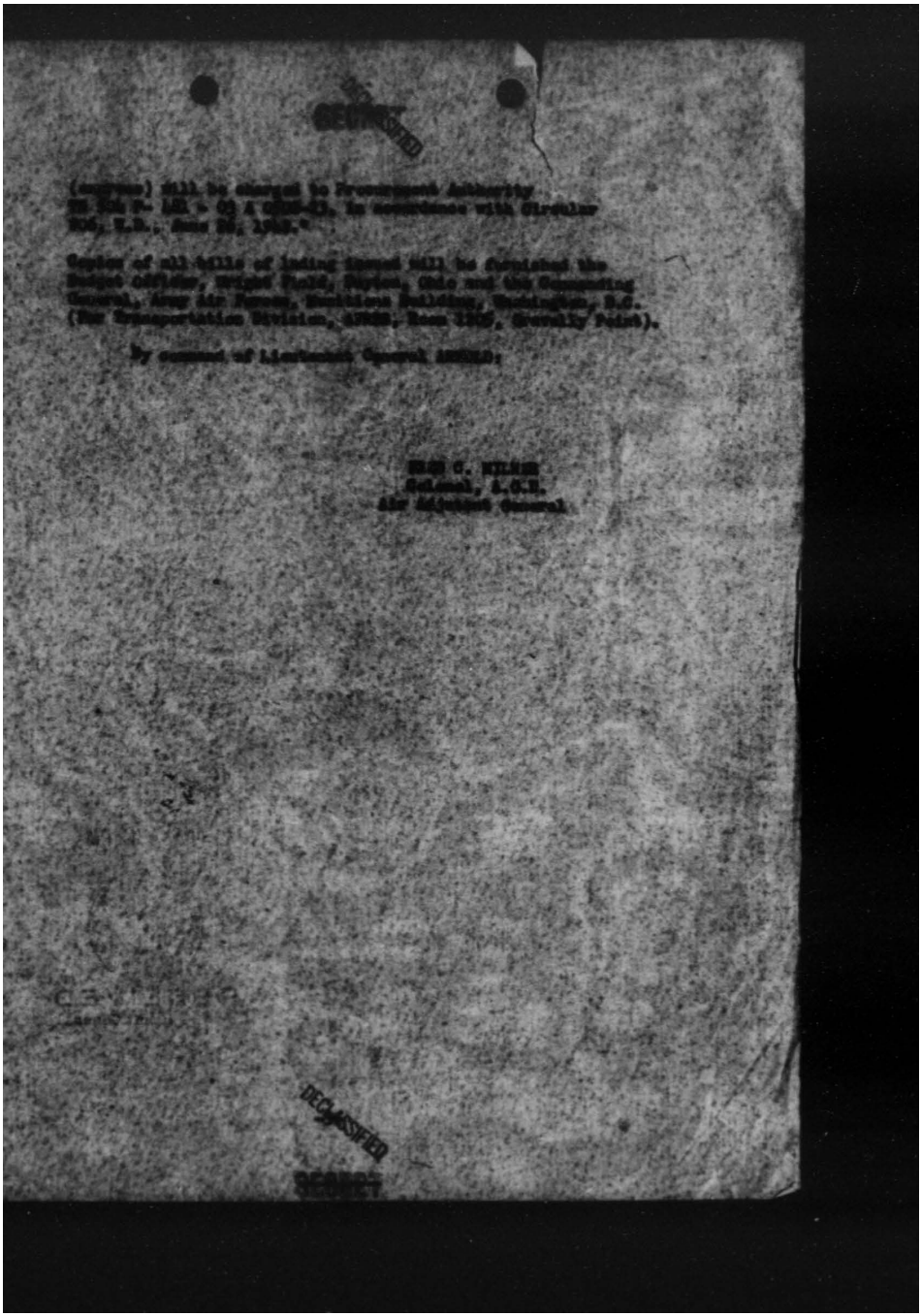
5. The following statement will be quoted on all bills of lading:

"The transportation charges on these shipments by freight

SECRET

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



(suspense) will be charged to Procurement Authority
AC 504 P- 148 - 03 A 0000-03, in accordance with Circular
#56, W.D., dated May 26, 1942."

Copies of all bills of lading issued will be furnished the
Budget Officer, Wright Field, Dayton, Ohio and the Commanding
General, Army Air Forces, Munitions Building, Washington, D.C.
(Air Transportation Division, ATSUR, Room 1065, Gravelly Point).

By command of Lieutenant General ARNOLD:

H.H.C. WILSON
Colonel, A.G.D.
Air Adjutant General

DECLASSIFIED
SECRET

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

~~SECRET~~

AFMSC JBC:JB 5709

DECLASSIFIED
DOD Dir. 5200.9 and 5200.10
By [illegible] NLC Date 10/29/76

SUBJECT: Estimated cubage and square feet board and weight of records, this Headquarters.

1st Ind. (AFMAG)

WD HQ ARMY AIR FORCES, Washington, D.C. November 30, 1942
TO: Commanding General, Army Air Forces First Concentration Command.

1. Unclassified records will be shipped to:

"Commanding General, Army Air Forces,
For Central Mail Unit,
Room 1147, Munitions Bldg.,
Washington, D.C."

2. Publications of The Adjutant General, viz., manuals, regulations, circulars, etc., will be shipped to:

"Commanding Officer, Columbus A.G. Depot,
Buckingham & Grant Streets,
Columbus, Ohio".
That agency should be advised of the purpose of the shipment.

3. Army Air Forces Regulations and similar publications will be carefully examined and those in condition for release and worth the cost of transportation and handling will be shipped to:

"Commanding General, Army Air Forces, Washington, D.C.
For Publications Division,
Room 6-302, AAF Annex, Gravelly Point"
Others will be disposed of locally or destroyed.

4. Classified records will be transmitted as prescribed in AR 380-5, September 28, 1942, to:

"Commanding General, Air Forces,
For Air Adjutant General,
Room 1147, Munitions Bldg.,
Washington, D.C."

In view of the quantity of these records indicated, consideration should be given to the utilization of an officer courier for that purpose.

5. The following statement will be quoted on all bills of lading:

"The transportation costs on these shipments [illegible] freight

DECLASSIFIED
~~SECRET~~

A-1/AS
A-2/AS
Asst. S.
A-3/AS
A-4/AS
Plans/AS
Insp/AS
Mil. Req.
A. Def.
Bomb.
Gr. Sup.
Base S.
War O&M
Ind. Y.
Tech. S.
Comm.
Weather
Traffic
Photo. M&C
Tech. Insp.
Pub. Rel.
Dir. Pers.
Mil. Pers.
Civ. Pers.
Secy.
I. Admin.
Budget
Fiscal
Misc. Div.
Adj. Gen.
Org. Pl.
Stat. Pl.
Log. Pl.
Mat. C.
A. S. C.
S. C.

dtd 12 Dec 42

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

(illegible) will be charged to Procurement Authority
[illegible] AAF - 20 A 4000-25, in accordance with Circular
No. 4, W.D., June 26, 1942."

Copies of all bills of lading issued will be furnished the
Budget Officer, Wright Field, Dayton, Ohio and the Commanding
General, Army Air Forces, Munitions Building, Washington, D.C.
(For Transportation Division, AFDMS, Room 1E925, Brewster Point).

By command of Lieutenant General ARNOLD:

[illegible]
Colonel, A.G.D.
Air Adjutant General

Dispatched
NOV 30 1942
AAF

DECLASSIFIED

SECRET

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

25711

DECLASSIFIED
DOD Dir
Auth: E.O. 11652 Sec 5(B)(2)
By [illegible] NLT Date 16 Jul 76

DECLASSIFIED
E.O. 12356, Sec. 3.3
NARA, Date 7-24-97

SUBJECT: Authorized Change and Square Foot Areas and Weight of Records, this Headquarters.

TO: Commanding General, Army Air Forces, Washington, D. C.
Attention: AFDMR.

1. Reference your classified message WD 1467, dated November 21, 1942, it is estimated that records to be shipped from this Headquarters are as follows:

No. Boxes	Cubage	Estimated Weight	Class
2	50	1200 lbs.	Classified
4	100	2000 lbs.	Unclassified

2. In addition to the above, it is estimated that there is approximately the same amount of publications, including Field Manuals, Training Manuals, Army Regulations, Army Air Forces Regulations, War Department Circulars, etc.

For the Commanding General:

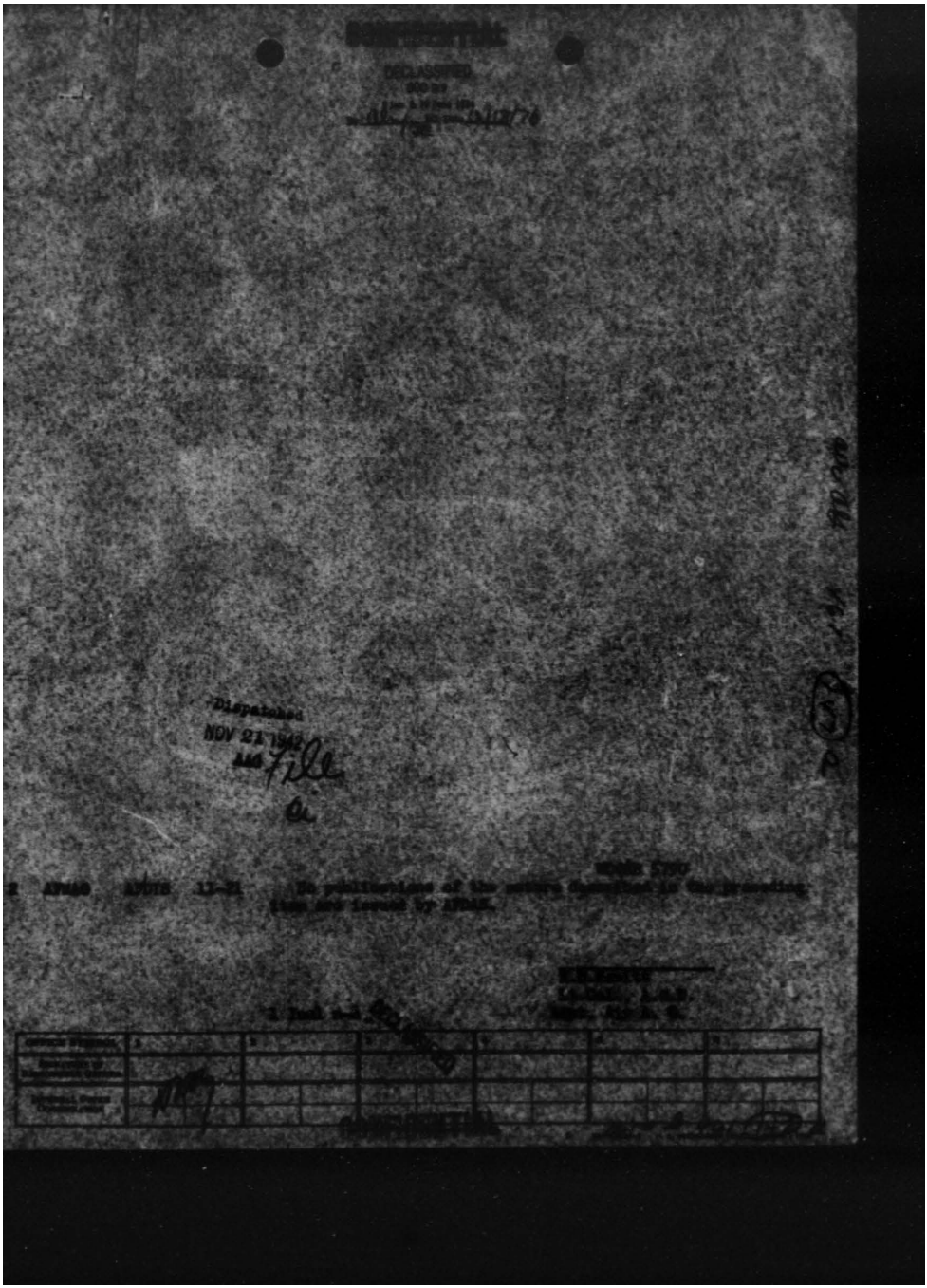
L. S. BOWEN,
Lt.Col., A.G.D.
Adjutant General.

DECLASSIFIED

Auth: E.O. 13526 (HP)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



Dispatched
NOV 21 1942
AAG Fille

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

Subject: Lists of Publications.

AFDIS/ID-3
CHW/ss 72789

1 AFDIS AFCAS 11-20-42

1. This Directorate has been required to compile a list of publications being made by various government agencies, including our Army Air Forces agencies.

2. It is requested that a list of all publications, as distinguished from normal orders, administrative memoranda and such, now being released by AFCAS, be furnished this Directorate for use in assembling the required information. The tabulation, when complete, is to show under separate headings the following:

a. Title
b. Scope of publication
c. Purpose
d. Authority
e. Distribution

The sample attached shows the form desired.

3. This list should not contain itemized titles. Only a brief general description of each separate series or type of publication is desired. If no publications of this type are being released by your component it should be so stated in answering R&R

A.W.B.
A.W.Brock Jr.
Col., G.S.C.

1 Incl.
Sample Form

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

DECLASSIFIED

Supply of Training Ammunition.

Asst. Chief of Air Staff, Material, Maintenance and Distribution.

30 March 43

Deputy Chief of the Air Staff

Mit/mlg/3465

General Hanley directed that the attached be furnished for your information and following to inform that the unsatisfactory supply situation existing in the items shown is corrected.

MILLARD A. LIBBY,
Colonel, G. S. C.,
Secretary of the Air Staff.

Att: Memo to DC/AS fm.
MID, 3-22-43.

Dispatched
MAR 30 1943
AAG

File
BK
3/30/43

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET

November 16, 1942

AAF 4th.

SUBJECT: Translation of Classified Documents.

TO : Commanding Officer,
Army Air Base
Syracuse, New York

1. Enclosed extracts of SECRET Special Orders No. 76, Air Base Headquarters, Syracuse, New York dated 10 November, 1942, are returned for compliance with paragraph 18g, Army Regulations 380-5.

2. In order that the receipt form itself may be unclassified, the fact that the orders are secret should not be indicated thereon. Attention in this connection is directed to par. 20, AR 380-5.

3. Subject documents were not transmitted in accordance with paragraph 18g (2), Army Regulations 380-5.

By command of Lieutenant General ARNOLD:

[illegible]
Colonel, A.G.D.,
Assistant Adjutant General

93 Incls.-
30 copies Par. 2, S.O. 76.
30 copies Par. 3, S.O. 76.
30 copies Par. 4, S.O. 76.
1 Receipt (in dupl)
2 Envelopes.

Dispatched
NOV 18 1942

	AFAAF					
	[illegible]					
				761		

THIS PAGE IS DECLASSIFIED IAW EO 13526

Receiving Officer,
Army Air Mail,
Syracuse, New York.

WAR DEPARTMENT
HEADQUARTERS, ARMY AIR FORCES
WASHINGTON

Date NOV. 27, 1945

Received from Headquarters, Army Air Forces, Office of Air Adjutant General, the documents listed below:

Transmission of Classified Documents:

20 Copies Mar. 5, S.O. 78
20 Copies Mar. 5, S.O. 78

PLEASE ACCOMPLISH AND RETURN IMMEDIATELY TO:
Headquarters, Army Air Forces,
Office of Air Adjutant General,
Classified File Unit

DATE RECEIVED _____

BY _____
(Name)

_____
(Rank) (Branch)

OFFICE OF _____

REG. MAIL NO. _____

W-7966,AF

a-2 d 461. 943

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

(AFDAS-Pubs. Sec.)

WAR DEPARTMENT
HEADQUARTERS ARMY AIR FORCES
WASHINGTON

IN REPLY REFER TO:
AAF 461.

November 17, 1943.

SUBJECT: Classification of Publications

TO: J. E. COOLEY, Colonel, A.G.
Assistant Air Adjutant General

There is attached letter of transmittal together with classified documents. It is requested that the authorization for classifying the letter of transmittal as secret, be affixed, together with necessary signature.

[redacted]
Lt. Co[redacted], Major, A.G.
Chief, Publications Section

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

November 14, 1942

SUBJECT: Classification of Publications

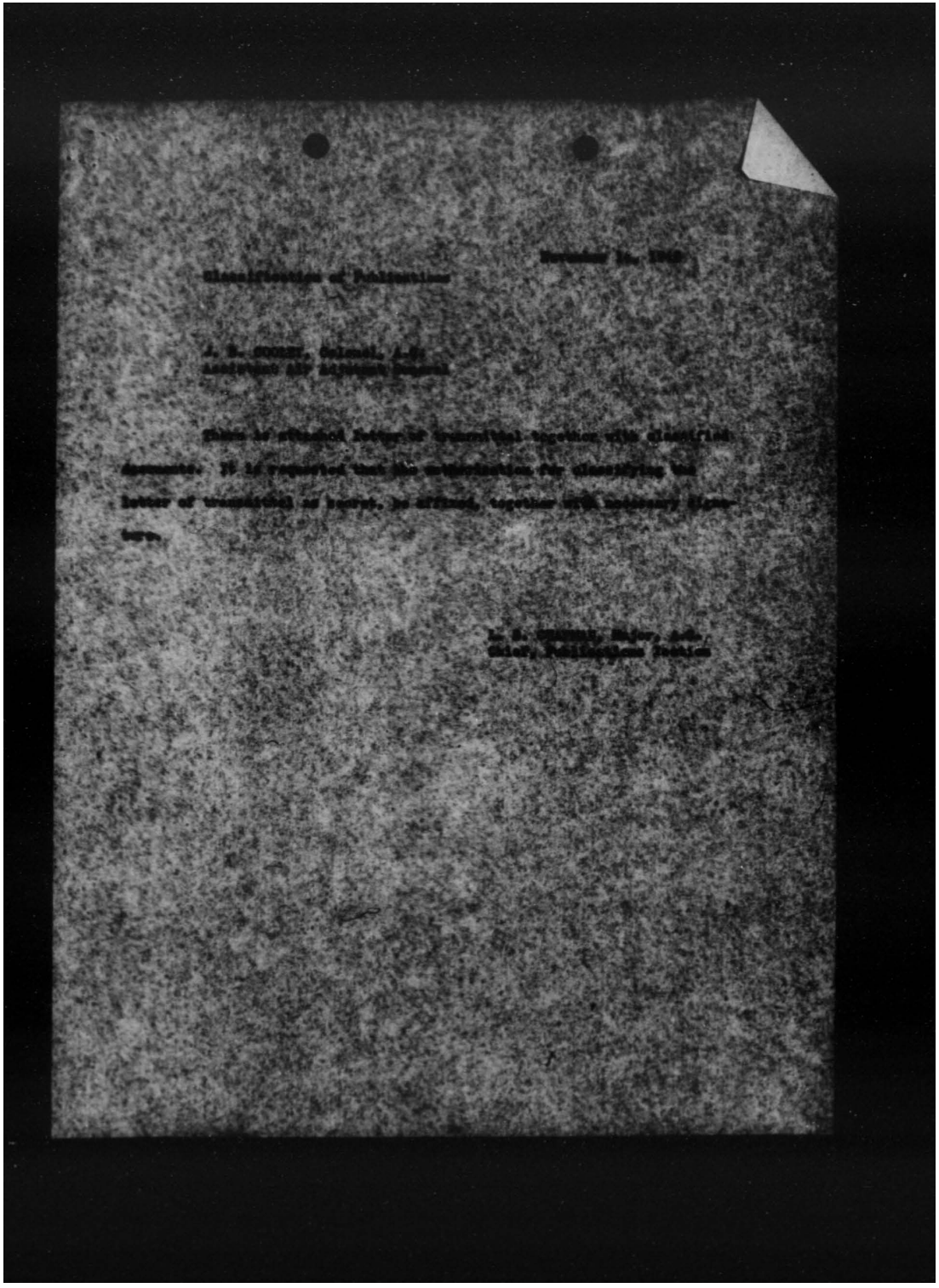
TO: J. B. COOLEY, Colonel, A.C.
Assistant Air Adjutant General

There is attached letter of transmittal together with classified documents. It is requested that the authorization for classifying the letter of transmittal as secret, be affixed, together with necessary signature.

L. [illegible], Major, A.C.
Chief, Publications Section

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



Classification of Publications

J. E. [illegible], Colonel, A.G.D.
Assistant Air Attaché [illegible]

[illegible] to attached Receipt of transmittal together with classified documents. It is requested that the authorization for classifying the letter of transmittal as Secret, be affixed, together with necessary signatures.

J. E. [illegible], Major, A.G.D.
Chief, Publications Section

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir.
Auth: 10/18/76

AGC:AB 5709

2 AFMAG AFPMP 10-27 Distribution of the letter referred to has been temporarily suspended. When the suspension is removed copies will be furnished you.

F.H. COOLEY
Col., A.G.D.
Asst. Dir A.G.

Dispatched
OCT 27 1942
AAG

File

DECLASSIFIED
SECRET

Ltr to 461 (13)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir.
By Allen NARA Date 10/18/76

DECLASSIFIED

CONFIDENTIAL

INFORMATION BULLETIN NO. 18

USE OF CLOTHING AS LIFE PRESERVER

FILM COATING OF LENSES

COMMENTS FROM U.S. SUBMARINE WAR PATROL REPORTS

DEFENSE MEASURES FOR AIRDROMES

TURNING CIRCLES OF GERMAN MEN-OF-WAR

UNITED STATES FLEET

HEADQUARTERS OF THE COMMANDER IN CHIEF

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED
DECLASSIFIED
DOD Dir.
10/12/76

UNITED STATES FLEET
HEADQUARTERS OF THE COMMANDER IN CHIEF
NAVY DEPARTMENT, WASHINGTON, D.C.

October 7, 1942

With the exception of Section 1 which is unclassified, and Section 2 which is *RESTRICTED*, this bulletin is *CONFIDENTIAL* and shall be safeguarded in accordance with the provisions of Article 76, U.S. Navy Regulations.

When no longer required this bulletin shall be destroyed by burning. No report of destruction need be submitted.

R. S. EDWARDS
Chief of Staff

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

DISTRIBUTION: (Standard Navy Distribution List, Sept. 15, 1942 Part 1; October 1, 1942, Part 2).

List 1 -

List 2 - a-j; k(VP and VGS only); l,m,n(ComTransAmphib-Forces, ComTransDivs and ComUtWingServForces only); o,p,q; r(MarineAirWings and Marine AirGroups only); s,t(less Photo Sqdrns); u-y.

List 3 - less h,m,w,nn.

List 4 -

List 6 - less o,p.

List 7 - b-h; l (Sub. Bases only).

List 8 - h (see Special Distribution); j,n (see Special Distribution); p,r,v,x.

List 11 and 12 - See Special Distribution

SPECIAL DISTRIBUTION:

Coordinator of Research & Development; BuShips; BuAer; BuOrd;
BuAer Intelligence; Op-16; OP-16-F-1; Op-20-GI; Op;20-GW;
Op-20; Op-23C; Op-30; Op-38; BuPers(Training Division);
I. C. Board;
Senior Naval Officer, Mass.Inst.of Tech., Cambridge, Mass.;
Comdt., U.S. Coast Guard;
Training Branch, Military Intelligence Service;
Aircraft Armament Unit, NAS, Norfolk, Va.;
USN Ordnance Laboratory, Navy Yard, Wash. D.C.;
USN Research Laboratory, Anacostia, Wash. D.C.;
USN Armed Guard Schools;
Atlantic Fleet Schools, NOB, Norfolk, Va.;
USN Aviation Flight Training Schools;
Naval Training School, Bomb Disposal, Navy Yard, Wash. D.C.;
Naval Training School, Fighter Director, NAS, Maui, T.H.;
Fighter Director Control Schools;
Naval Training School, Fleet School, San Diego, Calif.;
Naval Training Schools, Local Defense;
Naval Training Schools, Midshipmen;
Naval Training School, Submarine, New London, Conn.;
Naval Mine Warfare School, Yorktown, Va.;
Naval Training Schools, Under Water Detection;
USN Anti-Submarine Attack Teacher, Portland, Maine;
ComAirGroups SARATOGA, RANGER, ENTERPRISE, WASP, HORNET.
Commander Escort Vessels, Administrative Command, N.O.B.,
Guantanamo Bay, Cuba.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

CONTENTS

		Page
Section 1.	USE OF CLOTHING AS LIFE PRESERVER	1
Section 2.	FILM COATING OF LENSES	11
Section 3.	COMMENTS TAKEN FROM U.S. SUBMARINE WAR PATROL REPORTS	13
Section 4.	DEFENSE MEASURES FOR AIRDROMES	22
Section 5.	TURNING CIRCLES OF GERMAN MEN-OF-WAR	44

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

DECLASSIFIED
DOD Dir.
By [illegible] NLC Date 6/12/76

Section I

USE OF CLOTHING AS LIFE PRESERVER

The procedure described in following paragraphs, for using trousers as life preservers, and the accompanying illustrations were submitted by the Commanding Officer, U.S. Naval Training Station, San Diego, California.

The use of trousers as an auxiliary method of keeping a man afloat is taught to all recruits undergoing training at this Station.

The procedure used is to tie a square knot with a piece of white line, marline, clothes stop, or other twine on each leg of the trousers about three or four inches from the bottom or if none of this small stuff is available, an overhand knot will suffice. This is illustrated in Figure 1. The trousers are then held in the position commonly used for dressing and are then swung over behind the man as illustrated in Figure 2. The man then jumps into the water holding the trousers over his head, at arm's length, as illustrated in Figures 3, 4 and 5. On striking the water the trousers are inflated as illustrated in Figure 6. It may be possible to dampen the trousers previously by dropping them in a bucket or soaking them in the waterway prior to jumping into the water.

Recruits at this Station are also shown how to remove their trousers in the water and after tying an overhand knot in the end of each trouser leg, bring them quickly over the head at arm's length from back to front, thereby inflating them with equal efficiency.

Tests have been made which prove that inflated trousers will hold a man's weight in the water for a period of two hours and they may be re-inflated with air by bringing them smartly overhead at arm's length from back to front, thereby forcing in a new supply of air.

With the crotch of the trousers submerged and towards the man he places them under his arm as shown in Figures 7, 8 and 9. Figure 10 shows the facility with which men may be placed in a congested area without struggling and remain comfortably afloat.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

Figure 11 shows the inflation value of white, dungaree, and blue trousers. Khaki has identical flotation value with white and dungaree. Blue trousers were found to be considerably more porous and require refilling with air frequently. Figure 12 shows the position of the trousers with an overhand knot tied in each leg and with the crotch to the front, the correct position at which the trousers enter the water on inflation.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

FIGURE 1

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

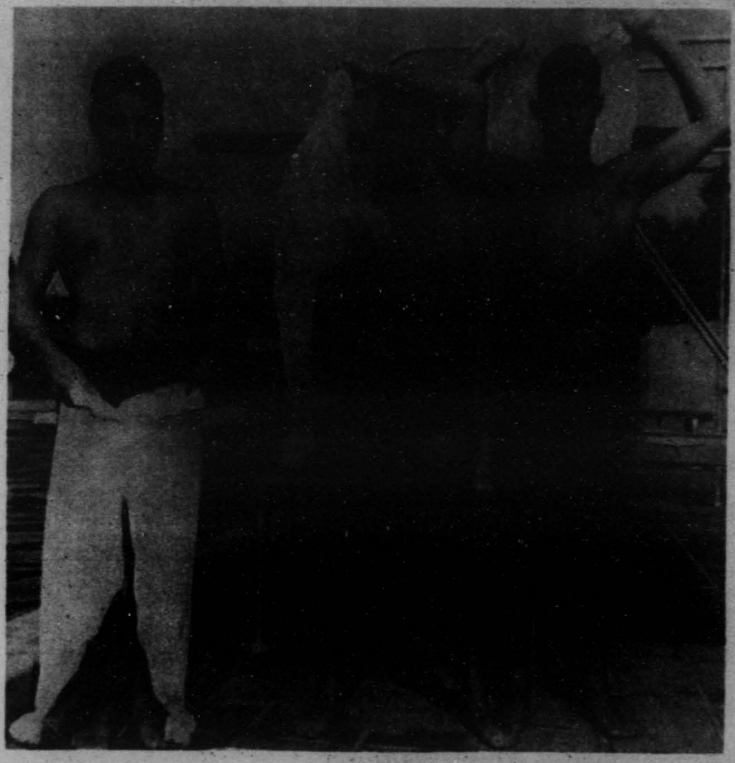


FIGURE 2

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

FIGURE 5

FIGURE 6

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

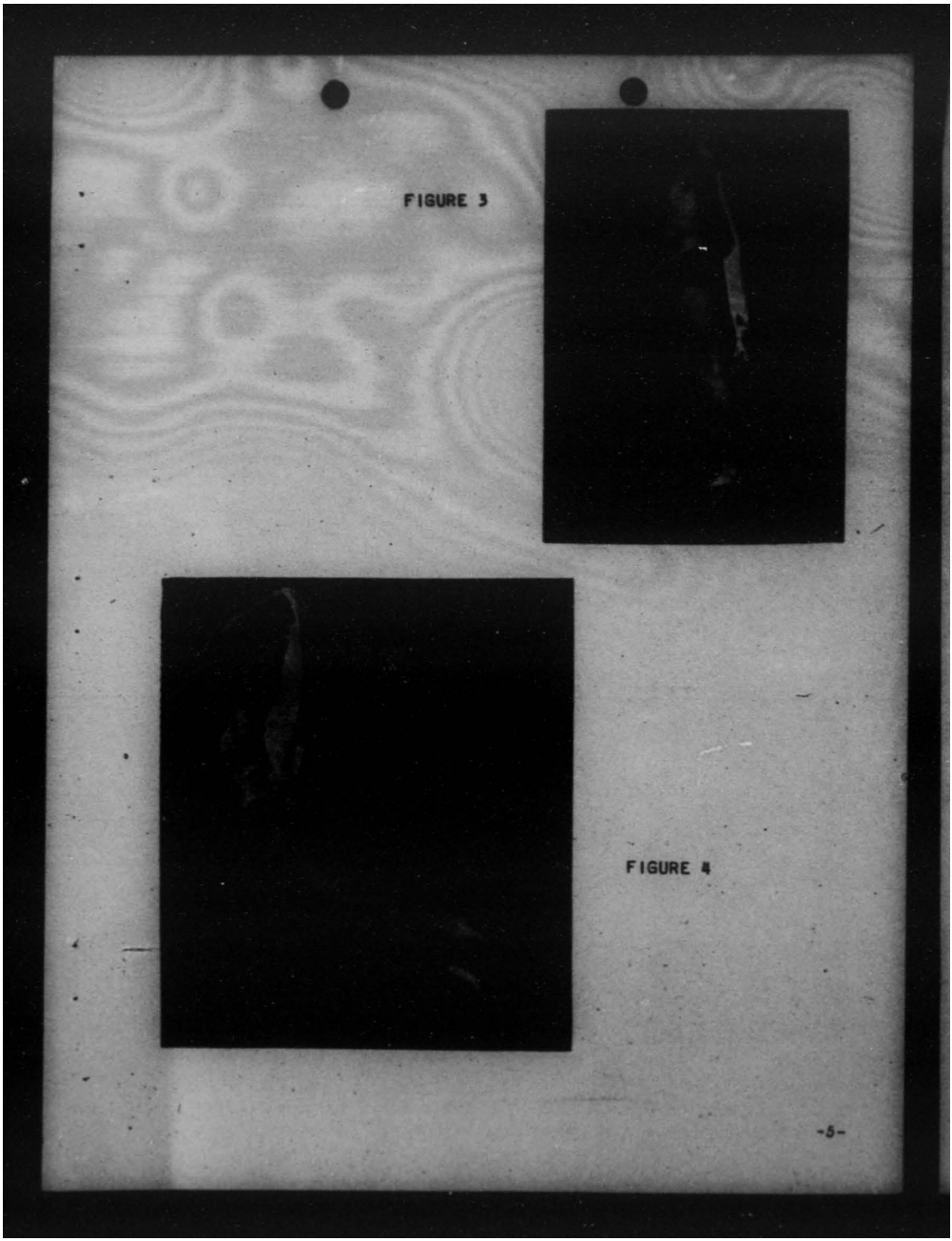


FIGURE 3

FIGURE 4

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

FIGURE 9

3

FIGURE 10

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

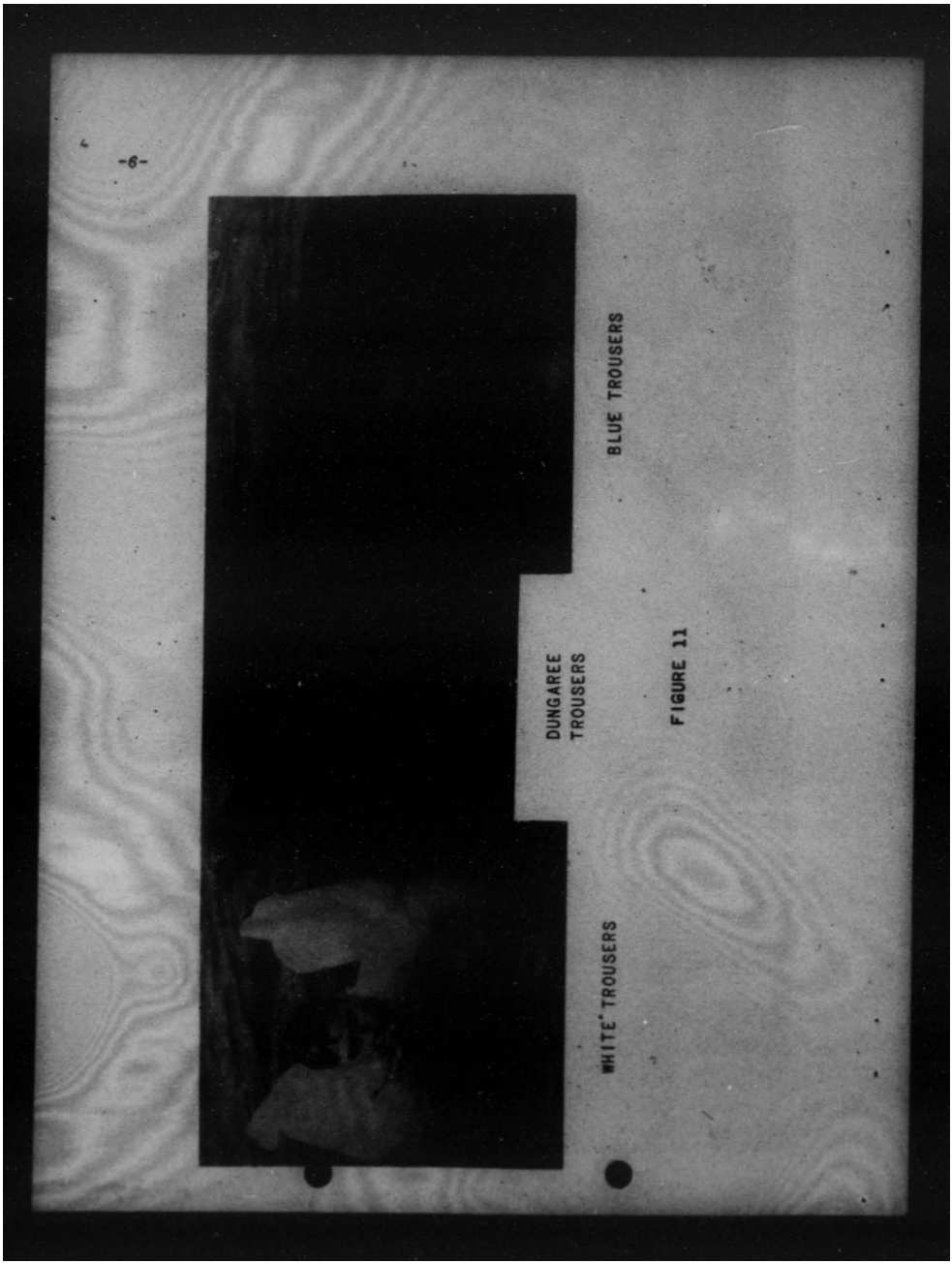


FIGURE 11

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

FIGURE 7

FIGURE 8

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

FIGURE 9

FIGURE 10

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

FIGURE 11

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
RESTRICTED

Section 2

FILM COATING OF LENSES

by

Mr. Frank Jewett, (National Research Corp.).

Note: This article is reproduced from Submarine Squadron Eight Material Information Bulletin for July, 1942.

In the optical shop aboard the Tender is a strange looking piece of equipment which is owned and being operated by the National Research Corporation of Boston, Mass. The purpose of the process is to increase the optical efficiency of periscopes, binoculars and other optical instruments.

The physics involved may be described as follows: from each outer surface of any lens, no matter how well that surface may be ground and polished, there is reflected about 5% of the incident light. Such reflections are caused at any surface where light passes from a medium with one refractive index to another medium with different index of refraction. The greater the difference in the indices, but also the internal reflections cause flare within the instrument which lowers its ability to give clear definition and high contrast. Surface reflections alone cause more than two-thirds of the available light to be lost in transmission through the instrument.

It has been demonstrated both mathematically and experimentally, however, that if a material with the proper refractive index is applied to the surface of a lens in a thin film, the surface refraction can be minimized. Actually, if the index of refraiion of the material is equal to the square root of the index of the glass involved (air being the other medium) and a thin film is applied, the reflection of that color whose wavelength is four times the thickness of the coating will be completely eliminated and reflection of adjacent colors in the spectrum will be brought to an absolute minimum. In practice, it is impossible to find a material with the proper characteristics for optimum results. However, several means of producing "low reflection" surfaces have been developed using the best materials available. To date the most practical method is the high vacuum evaporation of magnesium fluoride developed and patented by Cartwright and Turner of Massachusetts Institute of Technology. National Research is operating as a licensee under their patents.

A carefully cleaned lens is placed in the top of a bell jar and directly over a metal filament or "boat" which contains solid magnesium fluoride. The bell jar is evacuated

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
RESTRICTED

to a pressure of about 10^{-4} mm. Hg., or to about one ten-millionth of atmospheric pressure. At such a pressure the mean free path of the molecules is greater than the distance from the filament to the lens so that as the filament is heated and the fluoride begins to evaporate the molecules radiate in straight lines. Thus an even coating is built up on the lens, the thickness of the film being determined by the bluish or brownish color of reflected white light. The film is about four-millionths of an inch in thickness and would almost be measured by a depth of a definite number of molecules. After coating to the proper thickness the filament and pumps are shut off and the lens removed from the bell jar for a baking operation which hardens the film. The coating is applied so that the green reflection in the middle of the visible spectrum is at the lowest possible value. Theoretically, in a periscope having 10 elements - that is 20 glass-air surfaces - the relative transmission after coating is about 100% more than the value was before coating.

Obviously, when dealing with such minute quantities of material as is involved in the low reflection films it is impossible to make the film indestructible. This is especially true for old rather than freshly ground and polished lenses. However, with care and some recoating it is possible to produce films that are sufficiently durable to withstand the necessary cleaning before reassembly of the instrument - provided that the person doing the cleaning and assembling understands the "nothingness" with which he is dealing. Once the instrument is assembled the protected surfaces will not deteriorate except from some accidential physical or chemical action. It is also interesting to note that no matter what may happen to the film, no matter how much it may be scratched and damaged, as long as there is some left it will do some good; and even if it is totally destroyed the system is merely reduced to its original condition.

The main advantages that should accrue, especially in submarine periscopes are: first, a considerable increase in light transmission which will not be noticeable except under certain conditions because of the expansion and contraction of the pupil of the human eye, and second, an increase in contrast and definition of the image formed by the periscope. The increase in transmission should be most important at dusk, at night, or under adverse lighting conditions. The increase in contrast - due to a decrease in flare caused by internal reflections - should be most noticeable when using the instrument for looking at targets in or near the path of the sun. It should also enable the observer to distinguish colors and small details better on distant targets under poor lighting conditions.

Information obtained in Boston indicates that German submarines have for some time been using coated periscopes. The coating was done by a similar process but calcium fluoride was used in place of magnesium fluoride.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

Section 3

COMMENTS TAKEN FROM U.S. SUBMARINE WAR PATROL REPORTS

The comments following indicate some of the experiences of our own submarines with enemy anti-submarine measures and methods. It is considered that this information is of particular interest to personnel engaged in anti-submarine warfare.

CASE 1

0516 - Ordered 90 feet and rig for depth charge (but not expecting it), intending to return to periscope depth shortly. I am certain that the periscope was not seen.

0519 - First depth charge attack, apparently from destroyer which had been to northwest of us in the area of poor visibility. This attack was entirely unexpected, and had we not gone deep because of the cargo ship's zig (they evidently turned away to permit destroyer attack), we would have been caught at periscope depth. This destroyer must have been tracking us at low speed, always keeping in the area of poor visibility to west and northwest. This should have been easy, considering our speed and the din of reloading. Immediately silenced ship, finally securing everything except gyro, JK motor generator and bow and stern planes.

0519 to 0784 - (Events not accurately timed.) Two destroyers participating. First barrage or two apparently opened up the leak in No. 1 auxiliary a bit more. Each time we used propellers or trim pump, they were on us. Secured trim pump and did all ballast shifting by air. Moved reload crew from torpedo to after battery room. Balanced as much as possible, using propellers only when necessary. Tried to reduce leakage to and from No. 1 auxiliary by keeping its pressure as close as possible to sea pressure. However, rate of change of depth was frequently too fast for the air manifold man to keep up with it, while at the same time he was always busy either blowing water from No. 1 auxiliary to regulator and regulator to sea, or flooding regulator from sea and blowing it to No. 1 auxiliary. (Did not use No. 2 auxiliary as it contained our potable water and we were unable to make anymore.) Depth control was always on the point of being out of hand, however, we were able to pull her out of the extremes (60 feet and 240 feet) by using 8 knots and angles up to 9 degrees. Frequently, unable to make evasive turns when desired because rudder angles over

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

about ten degrees makes the ship heavy. Used hand steering at all times except when making high speed evasion turns. Pressure built up very rapidly in the control room, and watertight doors were opened frequently to equalize the pressure throughout the boat. By 0780, the barometer needle had stuck at 10". About 0700 things didn't look very bright, got two torpedoes ready for circular shots, leaving spindles engaged on the other two.

0784 - Heard barrage go off in distance, everyone happy, then for no accountable reason one lone charge close aboard.

0784 to 1000 - Hide and seek. Depth range 90 feet to 200 feet, but always able to catch her with 8 to 5 knot kicks. Destroyers always near, always appeared to hear our propellers, but never able to locate us definitely. No close depth charges.

1000 to 1180 - Diving Officer doing a beautiful job. Much blowing and venting, but did not use propellers. Destroyers frequently near but never on us. 1180 last distant depth charge heard.

1180 to 1480 - Balanced, depth range 110 feet to 170 feet. Destroyers still searching, sometimes close. Last sound contact - at 1400 one destroyer approached from astern at slow speed, drew forward on the starboard hand and stopped - relative bearing 60°. We could hear her auxiliary machinery for about 80 minutes, and thereafter, nothing.

1480 to 1800 - Balancing. Commanding Officer went to wardroom and could hear bubbles escaping each time we rose to 110 feet, indicating water height in No. 1 auxiliary level with the leak.

1800 - Brought her up carefully at 8 knots. Periscope broke water at 85 feet by gauge, indicating 17" internal pressure. Wouldn't chance using C&R air compressors because of poor visibility. With main induction tightly gagged, vented the boat at periscope depth through conning tower hatch vent valve.

1880 - Surfaced. Conning tower had flooded about four inches through packing around steering lever shaft, binnacle had flooded, five feet in control room bilges, four air banks empty.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

DESTROYER TACTICS

Only for the first hour or so was echo-ranging used, and then not to any great extent. Several times automatic, but usually hand keying. One destroyer was always stopped when the other was pinging, and every time we tried an evasive maneuver, pinging would stop. They apparently had little faith in echo-ranging, and after those first attempts, relied solely on listening.

Destroyers seemed to jockey for position, one trying to get on our beam, the other astern. One was usually stopped while the other was running. Then, apparently, when they thought they had us well out in, one would speed up to around 215 RPM and change bearing rapidly without coming closer; the other, in the meantime, approaching at low speed from astern would surprise us with a barrage. These tactics were carried out several times during the period when we were forced to use our propellers frequently. Aside from this one particular maneuver, I was unable to figure out any definite plan on their part. Attacks were always made at slow speed, and not once were we able to anticipate when one was coming.

Although it was sometimes difficult to tell how many had gone off, it seemed that at first they were in barrages of six, and destroyers attacked in succession. Thereafter, only one would attack at a time, dropping from one to six charges. We estimate that about 82 charges were dropped.

DESTROYER EQUIPMENT

Tried a few knuckles at first when one destroyer was pinging, but pinging always of such short duration that we were only helping the listening destroyer. Thereafter, when forced to use propellers to maintain depth control, changed course continuously to right and left, making in general to the southwest. Once in a while, when forced to use 8 knots, or depth charges came uncomfortably close, made radical changes of 90° or 180°, usually to the right, so that we would back-track for awhile, and then again settle down on a general southwesterly head.

Early realized that silenced balancing was the only solution, and whenever possible, merely sat tight letting them do as they would. Am certain they could hear our propellers whenever they turned over, certain they could hear trim pump, and equally certain they could not hear our almost continuous blowing and venting of tanks.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL DECLASSIFIED

MATERIAL - Damage due to depth charging was slight and consisted of the following:

Leak in No. 1 auxiliary probably enlarged.

Broken insulator in antenna trunk.

Port motor starting panel breaker sticking closed, making it necessary to trip battery breakers to stop motor.

Leakage around packing of drain and kingston valves in control room bilges increased due to depth charges below the boat.

Lights blinked, drop cords prevented breakage of globes.

A vertical dent one half inch deep and extending about 12 inches fore and aft appear at frame 84, port side, at about the water line.

Some paint was chipped in several parts of the boat.

Other casualties were as follows:

The distiller was out of commission from May 8 due to leaks.

Several minor engine and C&R air compressor casualties.

Cracked water jacket, No. 8 cylinder, starboard engine repaired by drilling and patching.

Holding coil, 4th starting resistance, starboard motor, burned out - renewed.

Leak in No. 1 auxiliary tank developed on May 8 and grew worse throughout patrol.

Considerable leakage around packing of drain and kingston valves in control room bilges.

DECLASSIFIED

CONFIDENTIAL DECLASSIFIED

CASE 2

This attack was made by a cruiser and was the most severe of any depth charge attack received. As we were passing two hundred feet a pattern of five depth charges was dropped. The fifth one was the closest of all and must not have been over twenty five yards away. Every compartment reported it must have been near it. The conning tower felt as though it would be torn from the rest of the hull. Depth charges were dropped in patterns of three or five until eleven charges were dropped in all. The following damage was noticed as a result of this attack:

(1) The rudder which had apparently been worked loose on depth charging on June 4, and which banged during rolling of ship enroute to our area become very noisy and the starboard ram moved in jerks as though a terrific load was on that particular ram. Inspection failed to locate the trouble.

(2) Three soft patches which had started leaking on our first depth charging were found to be leaking much more and the engine room and maneuvering room soft patches in particular had a steady stream.

(3) The bow plane indicator housing in anchor windlass room was ruptured in two places when the bell crank fulcrum pin sheared and allowed the bell crank to work free. The enlisted man stationed in the windlass room was injured by flying pieces of the aluminum casing.

(4) Electric cables were forced into hull and in several cases streams of water entered hull. A bucket line had to be formed in control room.

(5) Silver soldered joints in number 4 and number 10 air bank opened up and apparently similar joints had opened up in main ballast tanks.

(6) Silver soldered joints in hydraulic line to number 7 main ballast tank parted. This line was temporarily blanked off. Several other lines were found to be leaking.

(7) The trim pump sea valve was knocked loose from its stem.

(8) Stern tubes started leaking excessively.

(9) Inspection has not been made but number one and three outboard exhaust valves are leaking putting full sea pressure on inboard valve.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL DECLASSIFIED

(10) The after secondary drain sea valve loosened on its stem.

The Japanese are now using destroyers and cruisers as escorts for merchant vessels of any size and any attacks on these merchant vessels is sure to result in depth charging. Three stack cruisers apparently are much more accurate in their attacks than are destroyers. Merchantmen apparently have orders to continue course and speed when escort attacks submarines

CASE 3

158650 Commenced firing and at
158728 Completed attacks. Observed smoke from first two fired pass to left, i.e., ahead, of southernmost freighter. Could not see wakes themselves. Water is much riled up, considerable debris floating. Sound reported all four to be running normally (listening on hull spots). Observed DD speed up and turn left to head for me. I did not watch for the second two wakes but came right at standard speed with full rudder and ordered 90 feet. Considerable uncertainty as to just how much water there is here. Beach looked very close. Came to 155° T.

1542 Slowed to 1/8 and at 1548 two strings of three each were dropped just forward of starboard beam fairly close. If I had made full speed from the firing point they would have had us. The conning tower was doing a dance by the time I got out of it. There followed 18 minutes of heavy depth charging. There is no accurate count of number, but I think there were about 48. The charges were dropped so close together that counting was impossible. I went to 110 feet as soon as DR showed us we had that much water and some to spare (bottom is hard in this locality); and with accumulation of bilge water and encountering a fresh water stream we sank slowly to 170 feet, which was probably a good thing as they gave the impression of going off over us. My face was stung with flying cork and paint chips, my ears were deafened and my eyes were kept busy watching the gauges and manifolds dance. On one blast the overhead appeared to come in 6 inches. This ship is strong. At no time was depth control lost in the wrong direction. Bow planes went out once and main motor relays blew and had to be reset. Conning tower door operating mechanism backed off enough to allow door to show open. Battery ventilation exhaust sprang a leak. No serious damage. Behavior of officers and men uniformly excellent. Employed high speed evasion tactics and periods of silent running.

DECLASSIFIED

CONFIDENTIAL DECLASSIFIED

CASE 4

055045 Ordered 68 feet and 1/8 speed and at

0555 Observed CL or DD bearing 022° T. on course 248°, 1500 yards. Heavy tripod mast construction aft led me to believe that ship was CL. Study of pictures afterwards leads me to belief that ship was *SIGURE* (DD). Ordered course 334° for 90°port ship track.

055845 Made final observation, bearing 319°.8 T, course 280°, range 500 yards, angle on bow 90° port.

055905 Commenced firing tubes 1, 2 and 3. Saw none of these torpedoes running but believe this due to insufficient periscope exposure. Sound reported "Two of those hit something". At about this time a series of explosions to starboard which I took for depth charges, so abandoned conning tower and went to depth charge quarters. My last impression of DD was that his stern was coming out of water. I was very sharp on his quarter by this time. I also heard and felt one good bang on the port bow about 2 minutes after firing, as I was leaving the conning tower. There were a number of ships down in this direction - to right of the DD and to the left of her. (I noticed in the radio broadcasts of the following evening that an allied plane observing had given us credit for sinking 4 ships including 1 warship.) I think we most probably sank two, possibly three, and that a bare possibility exists of there being four ships sunk by the six torpedoes fired. There followed a pretty bad four and one half hours. Every time we would start a pump to get down the bilge water, or run up a periscope to take a look, or start the hydraulic plant to hold out the sound head, a DD would start for us. They were more sparing of charges than were the gang on the 19th but the charges appeared to be heavier and deeper and more accurately dropped. A larger firing interval of 5-6 seconds was used. No serious damage was done except that at 200 feet the battery ventilation exhaust is leaking a stream the full diameter of the drain pipe. (It was about 8 pencil thicknesses before.) The gyro setting motor in Forward Torpedo Room was flooded by bilge water. I had intended to go in after them but they left two DD's out in the eastern approaches with us and the sea was flat calm. I watched one of them sight my feather once at 4 miles and turn and head for me. (This DD had about 10 lookouts standing on top of the conning tower.) Three times they passed right overhead without cans dropping. The record shows only 21 charges were dropped but I think there were at least 30.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

1101 Secured from depth charge quarters.

1921 Surfaced, cleared area to southeast to charge battery and effect repair to battery.

084725 Final observation prior to firing: 206°.6T, 60° port, 1400 yards, speed 15.

084815 Commenced firing. Fired 4 fish.

084915 Completed firing. Observed men to be running and shouting on cruiser quarterdeck and measured range as 700 yards. I am still forward of CL beam and he is turning towards me. I can see smoke from torpedo tracks drifting across field of vision.

084945 Ordered 120 feet, right full rudder, all ahead full.

085015 One explosion.

0853 A series of explosions sounding like about 8 depth charges with much water swishing noise, close aboard. Ordered 200 feet, using NEGATIVE. Couldn't open flood valve against the sea pressure; shifted to hand power and put a pressure in the tank; got it open; blew the gasket. We're going to have one helluva time.

0855 Steady on 270°, all ahead two-thirds.

0856 Screws on starboard beam, making high speed; all ahead one-third.

0858 5 depth charges well distant.

0859 7 depth charges astern. Sound reports a rapid series of 35 or 40 faint explosions which we do not hear. There follows 7-1/2 hours of pinging, listening, high speed screws and depth charges to a total of 25 charges. Every time a pump runs they come in on us. As we try to come up negative blows out water (still about 2 tons in it); as we go down it takes more aboard. Desire to fill it completely but to do that must get 5 tons of ballast out of the ship. Main motor control went out on first attack; blocked in the overload relay with a piece of wood and caught the ship at 270 feet. This was the worst pounding ship has had but there wasn't much of it. Another engine lube oil cooler sprung a leak (this is the ninth this trip) and salt water is slowly filling the engine sumps due to leaky overboard circulating water valves. Two gyro repeaters went out; radio transmitter went haywire; valve wheels flew around the

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

engine rooms. The engine blower casings did the "Tokio Trot", the depth gauge needles whipped 16 feet. The lower conning tower hatch won't hold water (cable stuffing tubes in the conning tower leaking badly); sterboard stern tube leaks more than it should. Everybody turned to and carried bilge water to sanitary tanks to keep electrical machinery from being damaged. Ship retired to north and west.

1810 The trim line in the Forward Torpedo Room burst in three places. (The maximum stress it has been subjected to this morning was a 29" vacuum.) Am endeavoring to pump water out of the ship to permit me to gradually fill NEGATIVE Tank, so we can get the ship under sufficient control to get up to see the picture. We pump until somebody starts for us; then we stop. Trim pump makes an awful racket, due to air-binding and high discharge pressure. Drain pump is not much better. Inaugurated a scheme whereby we used the torpedo room bilges as trimming tanks pumping water out of them with drain pump and drain line. Also instructed Torpedo Rooms in blowing (and flooding) the trim tanks to (or from) sea using a torpedo tube drain and a torpedo tube vent.

1440 Ship in trim, NEGATIVE full. Pinging ahead and astern.

1441 At 68 feet observed CL and 1 DD broad on port quarter on westerly course about 4000 yards. Sea flat; went right back down to 120 feet. At 1618, having heard nothing since 1509 came to 68 feet and found no JAPS, a long flat swell, rain in the west. Maintained deep patrol with hourly observations for remainder of day. One torpedo remaining forward but it has an air leak amounting to 500#/day (which had increased progressively until February 26, at which time I had ordered the flask bled down) and I do not desire to put it in a tube. It would be a sure "bubbler" with outer doors open. Nor would it be safe to put in tube for night firing; in case the line should suddenly rupture the tube might suffer considerable damage. We have five torpedoes remaining aft which are in good shape, we think.

1949 Surfaced. Found the deck shelter light burning. Another lesson learned. Immediately "de-fused" all topside lighting "for the duration". Proceeded at 12 knots, running away from moon; putting in "quick charge".

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

Section 4

DEFENSE MEASURES FOR AIRDROMES

Reprinted from Headquarters Army Air Forces Informational Intelligence Summary No. 85.

The observations and opinions herein are derived from authoritative U.S. and British Intelligence sources, giving a comprehensive study of airdrome defense.

This summary is intended to present some of the more recent comments and recommendations, from authoritative sources, concerning defense of airdromes. A few are derived from present practice in the British Isles and the Mediterranean area; others from lessons of the Far East operations against the Japanese.

IMPORTANCE OF AIRDROME DEFENSE

The following quotation is from the Far Eastern Survey Report by Lieutenant-Colonel Warren J. Clear, G.S.C.

"Within the space of three months the Japanese tore down a facade of empire that the white man had taken three hundred years to build. This unchecked onslaught on far-flung dominions with unqualified success can be measured in terms of air power and air power alone. Elsewhere in this report the effectiveness of Japanese infantry tactics is described, but the fact remains that the Japanese did not move a soldier nor strike a blow on land without air superiority. Even in those instances where they had only local air superiority, they achieved the incredible with small, highly mobile infantry forces....The Japanese opened every campaign in the Far East since December 8, 1941, by successful efforts to knock out the enemy's air strength and secure possession of his landing fields."

MAIN CLASSES OF ATTACK

It is convenient to consider attacks under three general classes:

(1) HARASSING ATTACKS

(2) ATTACKS IN FORCE, designed to cripple the airdrome but not intended to accomplish immediate permanent occupation. (These may, however, be "softening" attacks signaling an early all-out invasion effort.)

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

(3) INVASION ATTACKS, designed to take over the airdrome for permanent occupation and use.

Attacks of the first class have usually been from fighter and/or bomber planes only, in number from a single plane to two or three flights.

In those of the second class, a large number of planes may participate. Damage-and-surrender raids by paratroops, glider-borne troops, or (near the sea) commando parties, may coordinate with the plane attack.

Attacks of the third class may include many or all features of the second class above, with probably artillery and mechanized ground forces in addition. They have been directed at coastal or strategically located inland airdromes in connection with a large scale invasion effort utilizing all arms.

Some examples are noted below as representing the general nature of attacks of each class, in the past.

HARASSING ATTACKS

Generally these have been characterized by trickery, surprise, and hit-and-run tactics.

In England, "Pirate" attacks by single German planes have often been made when cloud cover was available; the aircraft coming out suddenly to attack at low level, bombing or strafing. Such attacks frequently were at a level of only 50 to 100 feet. Railway lines or roads were often used as guides in the final run-up.

Among Japanese attacks on airdromes, the following methods have been noted:

(a) Fighter forces, after a low-level strafing attack, withdraw by flying on at low level. One fighter remains behind at 12,000 to 18,000 feet, circling to observe results. Soon after, a second attack is made, probably guided by details obtained during the first attack.

(b) In attacks by several flights, one or more flights came in at low level, strafing, while one or more flights remained behind at 16,000 to 20,000 feet. These dived at high speed on planes trying to get off the airdrome.

(c) On one occasion a flight of Japanese planes five minutes away from a U.S. field called in on the radio in perfect English:

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

"Nine American pursuit planes approaching Field from the east," then came down on us--they looked much like our At-6's--and attacked.

(d) A few Japanese planes draw Anti-aircraft fire and searchlights overhead, whereupon a single plane comes in at zero altitude with navigation lights on and wheels down, and strafes the airdrome. This is followed by climb at full boost into the nearest cloud.

ATTACKS IN FORCE

German night attacks on Large Gun Defended Areas, during the early summer of 1941, were generally by high level bombing: a number of aircraft gliding in from several directions, with evasive action. The general height was 15,000 feet to 16,000 feet. There were seldom more than 6 aircraft over the target at one time, but relays succeeded each other for long periods.

Heavy dive-bombing attacks were used in the summer of 1940 in an effort to knock out all airdromes in the invasion area. A squadron or more of aircraft circled above the target, peeling off to dive steeply. The bombing was very accurate, and defending Heavy A.A. could only barrage above the objective. The success of these attacks at that time was due to absence of light A.A. machine gun defense.

A predominant feature, in England, has been the decline of the genuine dive-bombing so extensively used on the Continent; perhaps because this form of attack is most expensive when used against adequately defended areas.

In Japanese raids on Ipoh, a small force of Zero Fighters drew off the defending fighters, whereupon a larger force of T97 Heavy Bombers came in and bombed the field without effective air opposition. When the defending fighters returned and landed after this first engagement, another bombing raid took place, with the defending fighters unable to intercept. This was followed by a reconnaissance plane flying across the field, probably to photograph the damage.

Japanese bombing was almost all in day time, from formation at 15,000 to 25,000 feet, and was very accurate. At first it was unescorted but after our P40's arrived, plenty of fighter escort was provided.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

In Far East operations, air raid warning systems were frequently inadequate, or failed through treachery, sabotage, 5th column activities, and jamming of the defense radio frequencies. The Japanese, on the contrary, seem to have benefited by accurate fore-warning of Allied measures.

INVASION ATTACK

The Cretan campaign, and particularly the loss of Maleme Airdrome, which played such a vital role, is credited with changing fundamentally the R.A.F. concept of airdrome defense.

The sequence of the German attack on Crete was (a) Gliders, (b) Parachutists, (c) Airborne Troops. Gliders landed first near the defending anti-aircraft installations, to silence these and prepare the way for paratroops a few minutes later. The above took place under the fullest possible air protection, which was of course essential to its success.

The next step in an operation of this nature is the securing, by the glider and parachute troops, of an airdrome for the landing of air-borne troops in large number, and for landing supplies and heavy equipment.

It is stated that after the Japanese destroyed three airdromes in the northern Malaya peninsula, it was impossible for the British to bring fighter-plane protection north to troops at the front. Out of a total of 250 planes, of which less than 150 were first-line combat planes, less than 50 were serviceable after three days from the initial Japanese attack.

With Japanese task forces in the South Seas, one of the first objectives has been seizure of an airdrome for their fighter aircraft. When the airdrome was not close to the shore point of attack, as at Menado and Palembang, paratroops were used to disrupt the defense in the vicinity, so that early occupation was ensured.

At Palembang, paratroops dropped about five miles from the perimeter of the airport, between it and the town. Others dropped near the town and adjacent to oil refineries which it was desired to capture intact. These troops immediately barricaded roads, employing captured transport for the purpose. They carried Tommy guns, machine guns, rifle or revolver, and hand grenades. It is believed each enemy aircraft carried 7 to 9 paratroopers.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

The first stage of Japanese attack on airports in the Far East was usually high altitude bombing by heavy bombers with fighter cover. This was followed by low-level dive-bombing and fighter strafing, with special effort to destroy all grounded aircraft. The attack on these was always repeated and persistent.

CHEMICAL ATTACK

PROBABLE FORM OF ATTACK: The most probable form of Chemical attack is considered to be one combining employment of persistent chemicals - high explosives, and possibly minor use of incendiaries. It is expected that both air-burst and impact chemical bombs will be employed. Such bombs will be dropped both on the airdrome and around but just off the perimeter, to keep the landing area under a gas concentration as long as possible.

Vesicant sprays from airplanes may be expected from low, medium and high altitudes. A combination of low-altitude spray and vesicant-filled bomb attack would be difficult to combat by decontamination. Airdromes heavily attacked by high explosives, vesic nt filled bombs, and vesicant spray will probably be out of commission for anywhere from one day to a week.

DEFENSE

The essentials of defense against chemicals are a good gas mask and protective clothing. With the gas masks furnished the personnel should be a supply of protective skin ointment for neutralizing liquid vesicant drops. Protective clothing, of permeable or impermeable type as the duty of the individual indicates, is required for certain personnel.

Protective revetments with non-inflammable gas-resistant overhead covering will prevent spray from falling on dispersed airplanes. However, overhead cover for very large bombers is believed to be not normally practicable.

Covers of impermeable material for cockpit, engine, and propellers are effective and should be used, when available.

Installations vital to operation of tactical units should be given a high degree of protection from chemicals. Major command posts should be bomb-proof and gas proof. Control towers and watch offices should be gas proof and immune to blast effect. In general, no structure should be constructed as gas proof unless it will also resist splinters, blast effect, and small arms fire.

DECLASSIFIED

DECLASSIFIED

For every air establishment an integrated chemical defense plan is required. Due to the technical and highly specialized nature of the defense measures, recourse to such publications as W.D Training Circulars Nos. 3 (Jan. 8, 1942), 4 (Jan. 21, 1942), and 31 (May 16, 1942) is suggested for more detailed coverage of the subject.

NEW GERMAN WAR GAS

The following information is given regarding a new German gas, HN-2, reported from Axis countries:

HN-2 is a colorless liquid, about one-third as persistent under normal field conditions as Mustard or Lewisite. But since higher field concentrations are possible, it presents greater dangers. The toxicity for breathing is about the same as for Mustard gas. Where Mustard freezes in relatively cool weather, HN-2 remains liquid under winter conditions short of arctic weather. HN-2 causes blindness; its liquid and vapor cause blisters not so severe or extensive as Mustard or Lewisite. Inhalation causes death from systemic poisoning. Eye effects are delayed one to six hours; blistering is delayed up to 24 hours; inhalation death is delayed up to four days. The gas has a slightly fish-like odor.

The U.S. Service gas mask gives perfect protection for face and lungs against the vapor. Protective clothing is about one-third as effective as against mustard. A first aid measure is washing the affected area with soap and water.

A paste of bleaching powder and water will decontaminate military equipment. Clothing can be decontaminated by laundering or aeration, or both. HN-2 is easier to remove completely from clothing than Lewisite.

On the basis of present knowledge, HN-2 is less effective than Lewisite for producing immediate casualties; less stable for storage and use in hot, rainy weather than Mustard. Its value is due to its powerful effect on the eyes by concentrations of vapor which cannot be detected by odor or immediate physiological effects, and by reason of its delayed lethal action. It is considered that HN-2 might be used against island bases.

The fishy smell is detectable only in high concentrations.

The gas does not produce lacrimation or immediate irritation of the eyes.

Splashes on the skin produce no immediate pain.

All results, including local blistering and eye effects, are delayed.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

ORGANIZATION OF AERODROME DEFENSE FORCES

STRENGTH OF GARRISONS

It is uneconomical to provide every aerodrome with the full number of men and weapons required to repel and defeat any form of attack with its own resources. The strength of each garrison should be governed by the following factors:-

(a) The estimated scale of attack to which the aerodrome is liable from time to time.

(b) The scale of counter-attack by units or formations of the Field Army which can be arranged, and the speed with which such arrangements can be effected.

The ideal to be aimed at should be:

(c) The development of such fire power as will enable the defense to contain a major attack until relief can be expected.

(d) The organization within each garrison of a force for counter-attack.

(e) Arrangements for a force for reinforcement or relief to reach the aerodrome as soon as possible after a call for assistance.

AERODROME DEFENSE ARRANGEMENTS AND TACTICS

The following summary indicates present British ideas and practice on these matters:

Since the Cretan Campaign, the "little Maginot line" and fortified-emplacement type of installation for defense of aerodromes, is considered discredited. The shift is to a defense-in-depth system, with *Defended Localities* characterized by field works planned for mutual support and fire coverage of important objectives and terrain.

Great emphasis is laid on camouflage and concealment of such field works, with preparation of alternative positions, since any defenses located by the enemy will suffer heavy air bombardment and may be neutralized in the early stages of an attack. Dummy airplanes and dummy A.A. with flash equipment may be employed to mislead attackers, and the effort is to conceal many of the true defense positions for surprise counter-attack at a favorable moment.

DECLASSIFIED

DECLASSIFIED
CONFIDENTIAL

An adequate *Mobile Reserve* is considered a prime necessity. It is asserted that the importance of mobility, in case of ground attack, cannot be overstressed; that static defense alone can never succeed; and that the smaller the force in relation to its task, the greater is the need for some portion of it to be mobile and ready to take offensive action.

It is felt there should be no attempt to "ring" the aerodrome with a series of defended localities. Concealment is of more importance than an extensive field of fire, but each defended locality should be so sited that fire can be developed in all directions. *The total defense system must be capable of effective action upward, outward, and inward.*

DEFENDED LOCALITIES may be grouped roughly as (1) "Inner" and (2) "Outer".

(1) INNER DEFENDED LOCALITIES are in the nature of keeps or small fortresses, preferably sited clear of the actual perimeter line but able to cover the whole of the landing ground by fire of automatic or other weapons. Each must be provided with an adequate supply of weapons, ammunition, food, and water, and be capable of withstanding a short siege. The main purpose of such positions is denial of the landing ground to the enemy. Their defense is of a static nature, and they should preferably be manned by armed station personnel, leaving the better trained garrison troops free for more mobile operations.

(2) OUTER DEFENDED LOCALITIES are sited clear of the station, to cover tactical features and approaches. These may or may not be able to bring fire to bear on the landing ground. As an attack will seldom develop from all directions at once, the general plan will be to reinforce threatened sectors by withdrawing portions of the garrison of other sectors; but no sector should be left completely denuded of its defense.

In general, *Defended Localities* should comprise a number of dug-in section posts, more or less elaborate, as facilities may allow and the individual case demands. These range in character from Command Posts or Battle Headquarters with deep shelters for telephone switchboards, map tables, runners, and limited sleeping quarters, to mere slit trenches. Concrete or brick pillboxes may be employed sparingly as machine gun emplacements, ammunition or ration storages, or communication centers. For all such works, the utmost concealment is an absolute essential. Track discipline, stringent fire control, and prevention of all movement during initial stages of the attack must be enforced, to prevent the positions becoming known to the enemy before he is committed to the ground.

DECLAS
DECLASS

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

THE MOBILE RESERVE

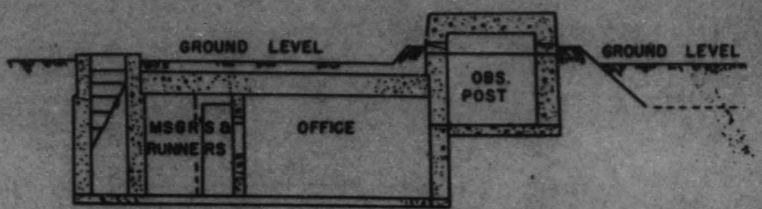
This highly important component of the defense should be located in well concealed positions, where it will not suffer from preliminary bombardments of the static defenses. It consists of such light tanks, armored vehicles, troop carriers, motorcycles, etc., as are available. It is a striking force for use against enemy concentrations which may threaten the aerodrome from a position where the attack cannot be engaged effectively by the static defenses; for counter-attack on vital parts of the static defense overrun by the enemy; and for swift descent on parachutists and glider-borne troops at the earliest moment possible.

DECLASSIFIED

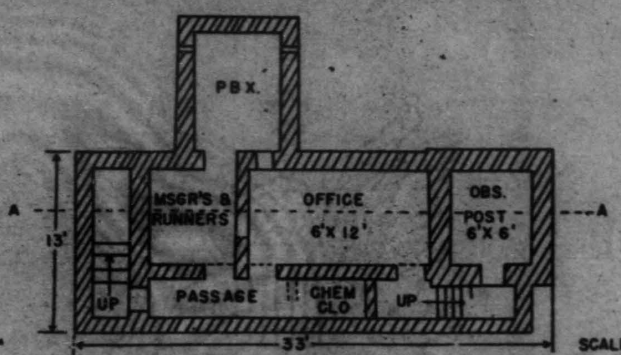
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED



SECTION AA



PLAN AT GENERAL FLOOR LEVEL

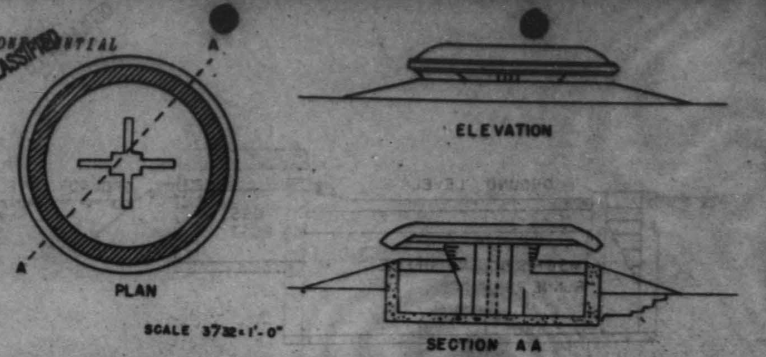
TYPE DESIGN FOR BATTLE HEADQUARTERS

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

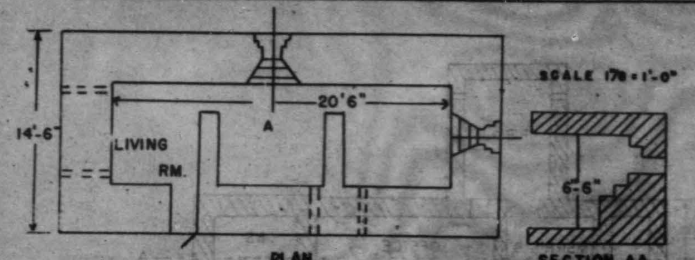
THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED



SCALE 3/32" = 1'-0"

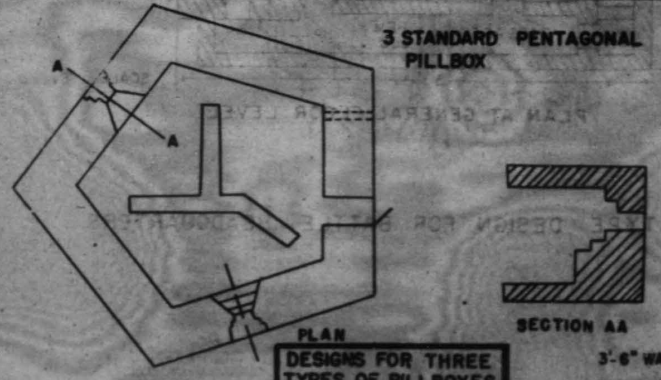
1 MUSHROOM PILLBOX (OAKINGTON TYPE)



SCALE 1/8" = 1'-0"

2 STANDARD RECTANGULAR PILLBOX 3'6" WALLS

3 STANDARD PENTAGONAL PILLBOX



DESIGNS FOR THREE TYPES OF PILLBOXES

3'-6" WALLS

SCALE 1/8" = 1'-0"

DECLASSIFIED

DECLASSIFIED
CONFIDENTIAL

INSUFFICIENT DEFENSE

Where there are insufficient weapons and personnel for adequate defense of an airdrome, it is advisable to concentrate available forces around the important installations, rather than to scatter them over a wide area.

GENERAL COMPONENTS OF AERODROME DEFENSE

The following notes, recommendations, and comments are from U.S., British, and Australian sources:

LIGHT A.A.

The 50 caliber machine gun is considered most valuable equipment against low-level bombing and strafing. The Bofors 40 mm. is also excellent. Concerning the defense of Tobruk Fortress, it is stated that low-level dive-bombing and strafing attacks practically ceased by reason of the effective fire of Light A.A. Complete ascendency over attacking enemy aircraft was obtained, so that the mere sight of a Bofors or Breda tracer would turn planes away. It is stressed that Light A.A. guns should attack *every* incoming fully loaded bomber of low-level formations. At Tobruk, one Breda 20 mm. gun was used at each Heavy Gun site for local protection.

Reports emphasize that aerodrome defense against low-level attack has been the greatest problem in the Far East, and that it depends on (a) an adequate air-warning system, (b) proper dispersal of grounded planes, and (c) ability to bring to bear a prompt, withering fire of automatic weapons. It is stated that -- contrary to the idea sometimes current -- rifle fire from slit trenches may be effective even against armored planes, and its morale effect on attacking pilots valuable. Such offensive action also contributes to the morale of the defenders engaging in it.

Light A.A. should be sited to cover buildings, landing ground, dispersed aircraft, and any important locality designated by the station commander. They are preferably located in pits, which should be small as possible in diameter. At least two alternate pits should be provided for each gun post. Guns should not normally be mounted on tops of pillboxes, buildings, or conspicuous towers. Mobility is essential, and when A.A. has engaged enemy planes, its weapons should be moved to alternate pits if further attack is probable.

The Germans are reported to use 27 light guns in defense of aerodromes.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

The following details of a British recommended type of water-proof machine gun emplacement are given:

The pit consists of one length of pre-cast concrete pipe of 51" or 54" diameter, 4 feet long, set into the ground with top edge protruding about 8" to exclude surface water. The bottom is concreted, with a small sump to allow bailing out of any collected water.

To prevent ricochets and enable telephone, spare magazines, etc., to be hung on the sides, 8" x 2" battens are fixed vertically round the inside of the pipe about 18" apart. A Motley Single Stalk mounting, with twin .303 Browning air-type machine guns, is bolted to a base plate fixed by 1/2" lag bolts set into a concrete pedestal, or into the concrete floor of the pit. The clock code, with 12 o'clock pointing North, is marked on the side of the pit, so that the Control center can warn briefly and accurately of the direction of impending attack.

British experience against the Germans appears to have been that low-flying aircraft attack hangars and other large installations in preference to strafing dispersed aircraft, and that the attackers generally favor an approach to cover the longer extent of such objectives. It is therefore recommended that A.A. machine guns be sited in the vicinity of the "line of bomb release" in order to fire on such aircraft when they steady up for their aim. It is stated that the machine guns should not be behind the "line of bomb release."

HEAVY A.A.

The siting of Heavy A.A. will depend on the class of attack mostly to be expected, the terrain, and the degree of fighter protection available at the particular field. Where fighter protection is lacking, it is stated that guns should be sited in pairs, or if available, in threes, owing to danger of individual dispersed guns being neutralized singly.

Concealment, camouflage, and dummy installations with gun-flash equipment are valuable in confusing the attackers. At Tobruk, the latter device was considered more effective than the first two.

While the primary function of Heavy A.A. is defense against air attack, it can be utilized with good effect against mechanized ground units. Where attack by such forces is a capability of the enemy, this secondary function will be considered in siting guns. However, in firing on ground targets Heavy A.A. loses its orientation and has to be re-oriented for director-controlled fire on aerial targets. Thus, it cannot alternate successfully

DECLASSIFIED

DECLASSIFIED

CONFIDENTIAL

between ground and air. It should be used against ground attack when the air is locally controlled, or when the threat of ground mechanized attack is greatest. The accepted British principle is that any Anti-Aircraft gun will fire on any enemy tank within 600 yards of the gun position. Training of A.A. crews in the anti-tank role is given special attention.

British practice in A.D.G.B. (Air Defense of Great Britain) is now to protect each Heavy A.A. Section (Two guns) with one light machine gun for fire on low-flying aircraft. One light machine gun similarly protects each Light A.A. Troop of 4 Bofors guns. Each Searchlight is provided with one light machine gun and one 8-inch Rocket Projector used only in the light A.A. role.

It is given as the opinion of General Pile and Air Marshall Douglas that aerodromes should be defended by at least:

8 Heavy A.A. guns
16 Bofors 40 mm. guns
8 A.A. Searchlights

Bofors, when 16 are available, should be sited in fours at corners of the aerodrome, to give adequate protection to the vital area and for mutual protection. A.A. protection should be given to aerodromes, and fighters should not be tied down to give Fighter cover.

In general, each Heavy A.A. position has a scheme for all-around defense of their position against ground attack - mainly in the form of a few strong-points suitably sited, from which personnel not manning the A.A. equipment can defend the site while the A.A. equipment is kept in action. The light machine guns with Heavy A.A. guns and Searchlights have the primary role of defending against low-flying or dive-bombing attack, and may only be used against ground attack if no air targets are in range.

However, it is now felt that the light machine gun is inadequate for such local protection. Use of the 20 mm. gun - probably the Sten - is under consideration. It is also probable that the scale of local protection for Heavy A.A. guns will be much higher than that indicated above.

The British consider the score value of A.A. defense to be low. It is stated that a system of A.A. defense must stand solely on its potentiality as a lethal weapon.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

As to rockets, it is felt that future developments will render Heavy A.A. guns much superior. With present methods and target heights, the British Z-battery (rockets) is reported as no more effective than the 4-3.7" gun battery even after allowance is made for avoiding action. The Z-battery requires nearly twice as many men. It compares still less favorably with the 4-4.5" gun battery.

For. G. L. Mark III prediction and Molins Fuze Setter No. 11, the 8.7" gun battery is estimated to be about 7 times better than the 64 projector Z-battery; and with percussion fuzes may be a hundred times more effective. With multiple rocket projectors the superiority of the gun battery is less marked; but low economy in rounds per casualty weighs against rockets.

ARTILLERY

If available, artillery should be emplaced to cover the landing ground and possible tank approaches. So far as adequate concealment allows, it should be sited to fire over open sights. Emplacements should be well clear of the aerodrome perimeter, up to 1500 or 2000 yards distant; dug in and wired, screened from air and ground view. Alternative positions should be prepared. Complete camouflage and track discipline is essential.

WIRING

Defense wiring should be planned not to disclose the position. Hedges, tracks, ditches and the edges of broken ground should be followed. Symmetrical or circular outlines are to be avoided.

EMPLOYMENT OF PERSONNEL

All personnel should have some defense duty assigned and be drilled in its performance. In general, armed station personnel assist in manning static defenses, in order to leave garrison troops more free for mobile operations.

COMMUNICATIONS

Good communications are essential. Telephones, preferably with deep laid cable, should connect the Command post with defended localities and anti-aircraft installations. No one system of communication can be depended on too heavily. Radio telephone is very desirable. Visual signals such as Aldis lamp, semaphore, flag, etc., should be devised for possible use. A simple code for essential battle orders and information should be understood by all. The British have found the Tannoy loud speaker system valuable equipment.

DECLASSIFIED

DECLASSIFIED

AIR WARNING NETWORK

The importance of an adequate air warning system has been driven home by loss of very many British, Dutch, and U.S. planes caught undispersed on Far East Airports. Strong recommendation has been made that U.S. air units be always equipped with their own air observers system, including a Radio Direction Finding Unit; that they supervise operations at all aerodromes and satellite fields in the Far East where U.S. planes may be located; and if this is impossible, institute a thorough check by a qualified American to insure that a proper warning system is in operation. Sabotage, and jamming of U.S. radio frequencies, have in many cases prevented warnings from getting through.

DISPERSAL & CONCEALMENT

In the Far East, of 162 U.S. Army planes lost, 95 were lost on the ground to 67 lost in the air. The Dutch lost 81 planes on the ground to 86 in the air. Japanese losses are given as only 80 on the ground to 707 in the air.

Mere perimeter dispersal of aircraft is not effective against ground strafing attack. Several observers have recommended construction of numerous landing strips not closer than 4 to 5 miles from the main aerodrome, with provision for refueling.

The Japanese are reported immediately to put into effect this procedure at aerodromes captured by them, laying out over 40 landing strips some distance from existing runways, with the strips themselves 2 to 3 miles apart. Three planes are allotted to each strip, with oil drums and minimum service facilities. Thus, when the airport is attacked, most of the planes cannot be strafed.

Areas not required for landing and take-off should not be stripped of natural cover. It is stated that at Clark Field 25 P40's were concealed in a horse shoe formed around the field by a large group of trees, and that no damage to them resulted in a week's period of active Japanese bombing of the field.

The very small loss of grounded planes by the A.V.G. Group, in their operations against the Japanese, is reported as due to their care in thorough dispersal immediately on return of their planes; these being scattered off the edge of the field under cover of leaves and brush wherever possible.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

Desert Aerodromes present special problems, since concealment of planes is difficult or impossible. For defense, such aerodromes in barren country require outlying observation posts with good communications to the main aerodrome, for advance warning. Fighter protection is more needed.

In this connection, it may be noted that when crews must be kept almost constantly on the alert, and bombers hastily gotten into the air for evasive action flying, the wear-and-tear on both personnel and planes becomes critical.

Concealment of large planes, such as Heavy Bombers, is difficult. Their best protection lies in adequate points for dispersion, natural and man-made cover, camouflage, and most important, strong A.A. defense against low-flying aircraft.

FUEL, BOMBS, AMMUNITION.

Attention should be given to careful dispersion of these supplies and their storage, when practicable, underground.

PENS, REVETMENTS.

These are reported as having provided no protection against ground strafing by Japanese planes in the Far East. It is stated that their value against bomb fragments does not warrant a high priority for their use in protecting grounded aircraft. They are a give-away for location of both field and planes and hard to camouflage. At the Java airfields, Japanese Zero fighters would come in at the open end of the revetment, continuing fire until the grounded plane was destroyed.

CAMOUFLAGE, DUMMIES.

It is stated that the Celebes airports were so thoroughly camouflaged by the Dutch that their own pilots operating from them had difficulty in locating them in daylight. Kendari Field was said to be so well camouflaged that obstacles on the landing ground provided the only means of locating it.

Many U.S. Aerodromes, both within and without the continental limits of the United States, have been sited and designed without sufficient regard for security in wartime, as obtainable by dispersion and camouflage. Huge glass-sided hangars, geometric patterns differing from anything in nature, grading and leveling of areas adjacent to runways, and all elements located in immediate vicinity of the landing area, make such fields difficult or impossible to camouflage effectively.

DECLASSIFIED

DECLASSIFIED

Camouflage at aerodromes is intended to be effective not so much against photographic observation as against visual observation and actual bombing from medium or high altitudes. The simulated extension of roads, ditches and hedges across a landing field is a useful method. Tree shadows may be painted on large areas to break their form.

Buildings may be camouflaged by screens to break or alter their shadow line and decrease their apparent height, and by texturing their roofs by application of wood shavings, chopped corn cobs, cotton seed hulls, etc. The use of nets with attached foliage, straw, etc., is a common method of concealing dispersed aircraft, vehicles, etc.

Field works of the aerodrome Defended Areas should be thoroughly camouflaged. Slit trenches should have no parapet or parados; all excavated earth should be removed from the site, and care taken that no spoil, tracks, trampled grass, etc., disclose the positions. A light lid of wickerwork camouflaged to match surrounding ground should be fitted over each trench. Where drainage or other factors make it necessary to build up slit trenches, machine gun posts, pill boxes, etc., they should be carefully earthed up with gradual and irregular slope to avoid "pimple" effect, and thoroughly camouflaged. Slit trenches, etc., under trees must have overhead protection against bombs detonated by tree branches.

Mobile dummies drawn by ropes or wires, and dummy gun positions complete with explosions, flashes, etc., are in use by the British and the Germans.

British airplane dummies are constructed to duplicate appearance of actual types in use at the field, and are not mere improvisations with a sketchy resemblance to "any" airplane. Damaged wings, etc., from wrecked planes may be usefully employed for such purposes. The location of dummies should be frequently changed.

It is preferable that dummy planes be used only on dummy fields. Dummy ground-defense installations are useful if placed at a distance from any aircraft or permanent installations.

In England and on the Continent, dummy aerodromes are thickly sown. Provision is made for dummy fires and explosions. The night dummy is considered much more valuable than the day dummy, owing to the proved inability of both German and British crews to locate dummies at night even if they suspect them.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

OBSTRUCTIONS, DEMOLITION.

Desirability of habitual employment of barricades and obstructions on air fields has been questioned. It is stated that these have seemed to advertise the field and invite attack.

It is reported that in Cyprus some 50 square miles of possible landing ground have been obstructed by the British to make difficult any landing of airborne troops. Hummocks of earth, irregularly spotted at about fifty foot intervals, are formed by excavating 10" to 12" deep from a circular area and throwing to the center. An alternate method consists of double furrows spaced at about 100 yard intervals, and 200 yards long, arranged checkerboard fashion. Protected landing grounds, beyond runways and satellites, are obstructed with concrete filled tar barrels.

In Cyprus, the British have prepared chambers for demolition of aerodrome installations, with charges located close at hand and certain personnel delegated to lay them. The line of responsibility for setting off each charge is carefully defined, according to the importance of the installation to be destroyed. Chambers are built into aerodrome runways to produce a line of three craters spaced at 50 feet, every 200 yards along the runway. The charges - 150 lbs. of Ammonal - are provided with electric and time fuze. Underground conduits for electric firing cables are desirable, to avoid possible cutting by splinters and to enable charges to be set off from distant shelter positions.

Reserve stores of gasoline, oil, grease, etc., are most easily destroyed by fire. The fire may be started with gasoline soaked rags, and the dump then riddled by machine gun fire from a safe distance.

Ammunition presents difficulties for demolishment, shells being hard to detonate. Special measures appropriate to the aerodrome and the sort of ammunition on hand should be provided.

For demolishing landing areas, the British have experimented with a tractor drawn mole plow, which pulls a flexible tube filled with explosive into position 2 feet below the ground surface. A charge 50 feet in length and 1-1/4 inches in diameter can be laid in between 20 and 80 seconds. The explosion produced a ditch 4 feet wide and 8-1/2 feet deep. This method cannot be used for paved runways, but for other areas, with favorable soil conditions, an aerodrome could quickly be made inoperable by suitably staggering and spacing 50 ft. ditches.

DECLASSIFIED

DECLASSIFIED

CONFIDENTIAL

SMOKE

Screening smoke placed by spray from low-flying airplanes or even by impact bombs is a definite possibility in connection with parachute attack to seize an aerodrome. With the concentrated peacetime type of air bases, the blinding of the operation buildings and the technical area would seriously cripple the defense.

A similar use would be to hinder defense during a low-flying attack. If the A.A. gun defense is so located that the smoke does not screen the target to be attacked, the use of smoke would seem feasible.

A captured German document gives instructions for fitting of smoke curtain apparatus (Nebelgerat S 800) to aircraft. It is stated that for cloud emission a minimum altitude of 80 meters is necessary and the length of the cloud wall would be about 16 kilometers (10 miles). In the case of the Dornier 217 aircraft the apparatus is used in the bomb compartment and the smoke is emitted from this position. It is calculated that the apparatus has a capacity of about 60 gallons of liquid.

At Brest, the Germans are reported to have used smoke effectively during British attempts to bomb battleships docked there. It is said that within 20 minutes the docks and town can be completely enveloped in smoke, and that the smoke is so dense that visibility on the ground is only a few yards. On one occasion the smoke screen was maintained throughout a raid which lasted four hours.

No gloves or protective clothing are worn by the personnel serving the smoke generators, which are described as cylindrical containers charged through a top filling cap from 40-50 gallon drums placed alongside. The smoke itself is described as issuing from the generator in the form of a liquid which immediately vaporizes; the smoke produced being the color of tobacco smoke, odorless and harmless, though somewhat irritant to the throat. The apparatus is believed to be pressure operated and charged with either oleum or chlorsulphonic acid, or a mixture of the two.

WEATHER

Japanese operations in the Netherlands, East Indies, Burma, India and the Philippines indicate careful study of weather factors. Similar care is believed to have attended their expedition against the Aleutian Islands.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

The Germans are believed to devote much attention to weather in their planning, as evidenced by the date selected for passage of their battleships, through the English Channel.

Weather conditions are vital factors in chemical warfare. Accurate forecasting of weather is an essential element in the defense plan of an aerodrome, as well as for conduct of offensive operations.

SEARCHLIGHTS

The general protection of searchlights against low-flying and dive-bombing aircraft has been indicated under the section dealing with Heavy A.A., above.

The following notes embody some details of British use of searchlights in Gun Defended Areas of the British Isles:

Searchlights should be an integral part of light gun (automatic weapon) battalions assigned to defense of aerodromes.

The minimum requirement of anti-aircraft searchlights for defense of an aerodrome is six.

The use of searchlights in Gun Defended Areas is as follows:

(a) Dazzle or Glare Effect - controlled.
(b) Illumination and Measurement of Cloud Base.
(c) Illumination of Enemy Airplanes for Visual Firing.
(d) Homing Beacons.
(e) Indicator Lights for "Killer Zone" (Zone in which an individual Night Fighter is guided to close with an invading enemy aircraft).
(f) Identification of Airplanes.

The Dazzle or Glare Effect is most pronounced, especially between 2000 to 4000 feet, and is effective up to 15,000 feet. Dazzle effect of British searchlights has in several cases brought down British fighters and bombers. British pilots report that dazzle or glare at altitudes even exceeding 10,000 feet (as used by the Germans) blinds pilots, makes location and accuracy of bombing difficult, impairs night adaptation of eyes, and has a pronounced psychological effect. It is most disconcerting to pilots and gunners to be thus illuminated, and unable to see a fighter plane approaching to attack. The glare effect of a searchlight trained upon a low-flying aircraft is so great that it makes such attack

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

hazardous. The glare effect of A.A. searchlight beams does not interfere materially with crews of aircraft not actually in the beam; it is therefore important to keep the beams constantly on the enemy aircraft, giving defending fighters full opportunity to attack.

The Germans are reported to indicate to their Fighters the course of an enemy aircraft, by dipping the beam of a searchlight, or by controlled travel across the sky of the intersection (apex) of searchlight beams.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

Section 5

TURNING CIRCLES OF GERMAN MEN-OF-WAR

The tactical diameters of the principal German men-of-war at full speed with full rudder have been estimated to be as follows:

TIRPITZ	1000-1200 yards
SCHARNHORST GNEISENAU	1100 yards
SCHEER LUTZOW	850 yards
HIPPER PRINZ EUGEN	900 yards

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

Extra copy of AAF Form SC- 1

5 AFCAS AFESC 10-24

Approved.

MAL/lmm 5265

M. A. LIBBY,
Lt. Col., C.S.C.

Encl. n.c.

Dispatched
OCT 4 1944
AAF

3 AFCAS AFIEI 10-20

1942

MAL:JT 5265

For remark and recommendation.

1 Encl.
N/C

MILLARD A. LIBBY
Lt. Col., S. S. C.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

DECLASSIFIED
DOD Dir

Distribution List of Organization Strength Report.

1 AFOAS AFRDD 1942 10/10

It is requested that the Progress Planning Section of the Statistical Division, Headquarters Air Forces, be added to the distribution list for the Strength Composition Report, AFRDD-[illegible]. This report is essential for the use of that Division in progress planning.

GORDON P. SAVILLE
Colonel, Air Corps
Chief, [illegible]

2. AFOAS AFRDD 1942 10/21

1. In compliance with verbal orders of the Commanding General, Army Air Forces, that requests for strength distribution monthly statement of the Chief of the Air Staff, the above request is forwarded to your attention for action.

CHARLES B. THRASHER
Lt. Colonel, Air Corps
Chief, [illegible]

3 AFOAS AFRDD 10-15

In view of a pending study directed this date of distribution lists for publication of AFRDD, it is desired that this request be resubmitted direct to this office about October 20, 1942.

Prepared
OCT 15 1942
AAG

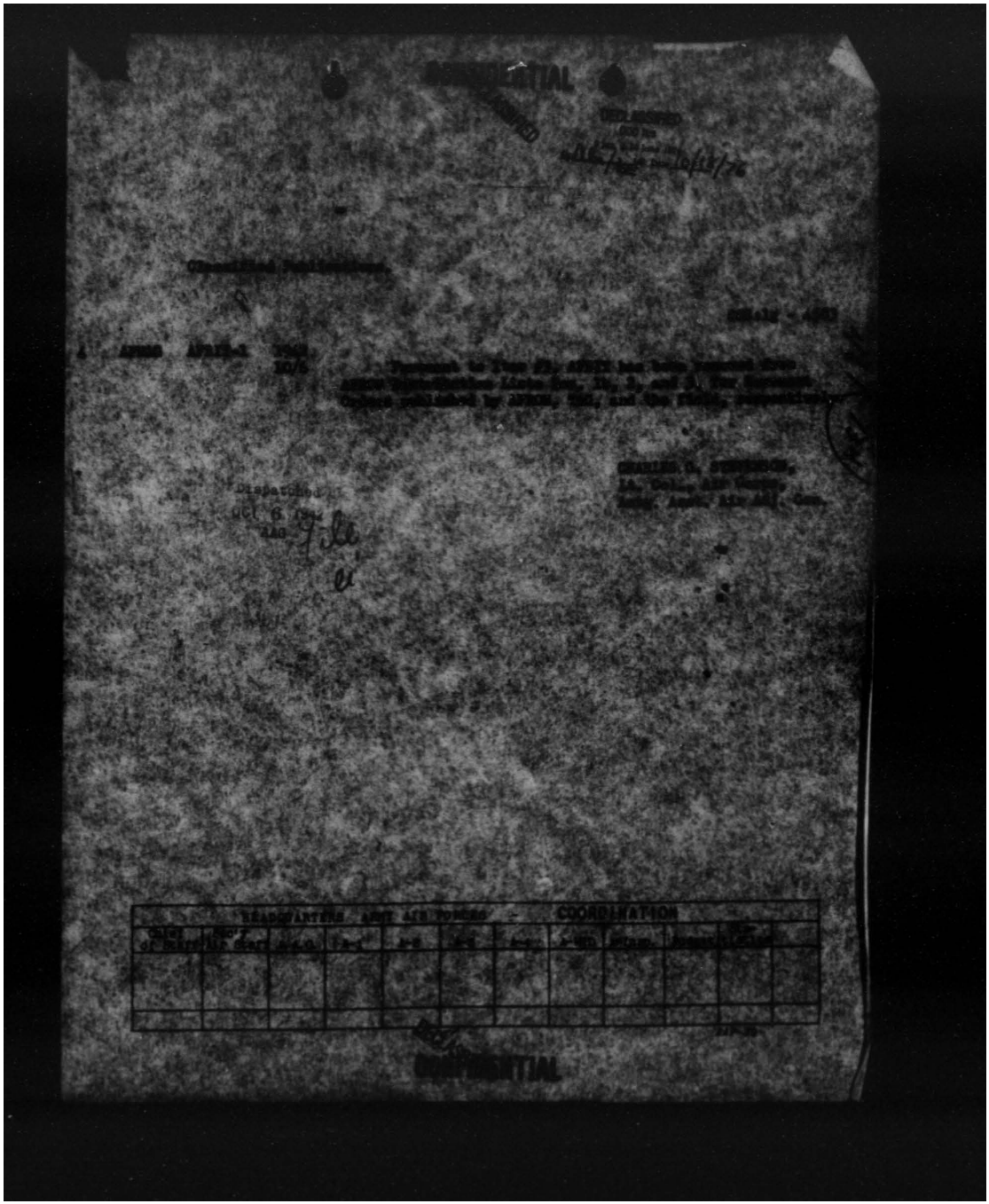
M. A. LIBBY,
Lt. Col., G. S. C.

DECLASSIFIED

-1- 41 OK 4/61 (136)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



CONFIDENTIAL

Operational Instructions,

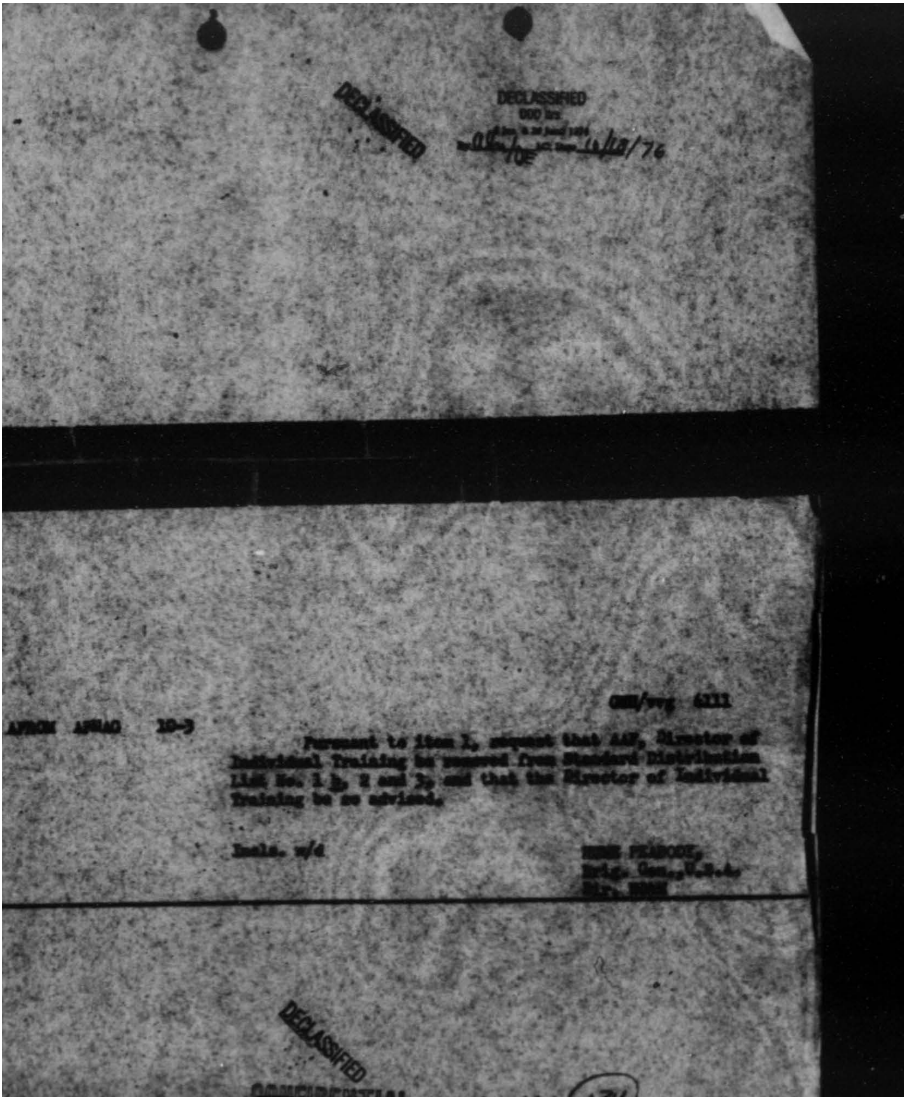
Dispatched
OCT 6 1944
AAG

HEADQUARTERS ARMY AIR FORCES — COORDINATION

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



GMM/wvg 6211

AFHQC AFHAG 10-3

Pursuant to item 2, request that AAF, Director of Individual Training be removed from Standard Distribution List No. 1 2a 2 and 3a and that the Director of Individual Training be so advised.

Incls. w/d

MARK PEARCE,
Brig. Gen., U.S.A.
Sec. GMMC

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir. 5200.9 and 5200.10
O.S.D. Date 12/14/71

CONFIDENTIAL

2d Issue

AIRPORT DIRECTORY

WEST INDIES

BAHAMA ISLANDS
CUBA
DOMINICAN REPUBLIC
HAITI
JAMAICA
LESSER ANTILLES
PUERTO RICO
TRINIDAD and TOBAGO
VIRGIN ISLANDS

PREPARED BY
AIR MOVEMENTS SECTION, AFDIS
U. S. ARMY AIR FORCES
WASHINGTON, D. C.

DESTROY PREVIOUS ISSUES

AUGUST 25, 1942

Perforated correction sheets are attached at end of this Directory. All Personnel are requested to complete these sheets and forward them promptly.

DECLASSIFIED

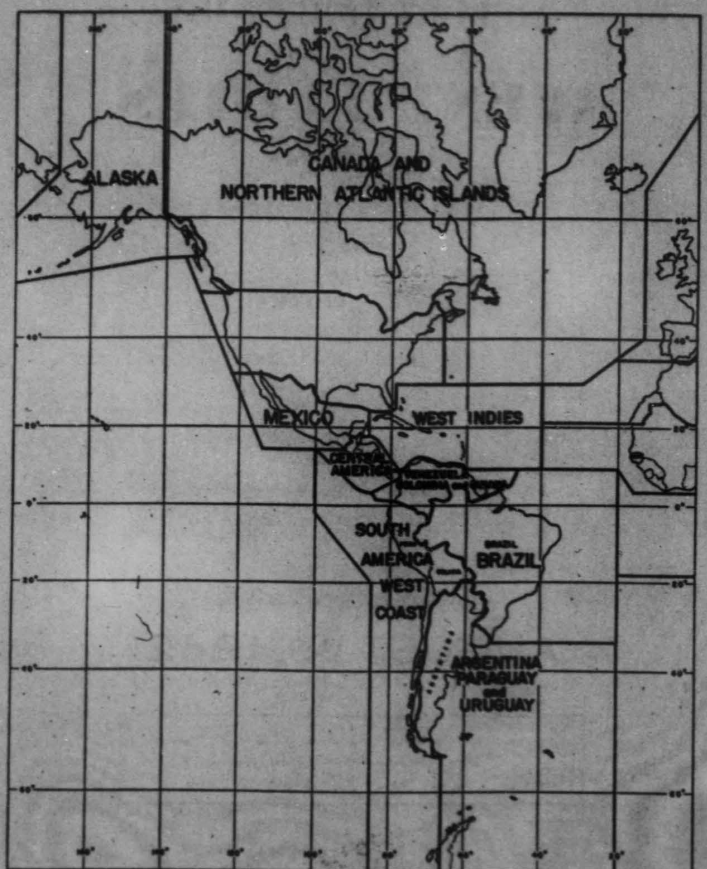
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

INDEX

FOREIGN AIRPORT DIRECTORIES
WESTERN HEMISPHERE



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL
DECLASSIFIED
DOD Dir. 5 200 June 1972
By [illegible] NLC, Date 10/15/76

PREFACE

DESCRIPTION

The West Indies extend as a curved chain of islands from the southeast coast of Florida to the northern shores of South America. They are volcanic or coral formations, frequently mountainous, with indented coastlines, numerous small rocks and islands, and many land-locked harbors provided by coral ridges and craters of extinct volcanoes. They are bounded by the Caribbean Sea, the Atlantic Ocean, and the Gulf of Mexico. Their strategic position provides a string of air bases, emergency landing fields, and seaplane anchorages linking the United States with the Panama Canal, South America, and Africa via Brazil and the South Atlantic Ocean. They constitute the key to the Gulf of Mexico and the Caribbean area, making possible the air domination of Central America, the south coast of North America, and the north coast of South America.

THE BAHAMAS are a chain of coral islands and rocks extending off the coast of Florida to the Dominican Republic and Haiti. They are protected by long reefs, sand bars, and coral formations, with shorelines characterized by marshy swamps and shallow lagoons. The land is nowhere of great elevation, having low rounded sand dunes with bluffs on the leeward sides. The terrain of the larger islands is thinly carpeted with vegetation, while the islets and rocks are barren. The Bahamas have a strategic position as flanking outposts for the Florida, Cuba, and Hispaniola regions, and command three important trade routes to the Gulf of Mexico, the Caribbean area, and the Panama Canal. The principal harbors are Nassau, New Providence Island, and Mathew Town, Great Inagua Island. Nassau has port facilities.

CUBA is the largest island of the West Indies, situated at airplane and steamer cross roads just south of Florida, at the entrance to the Gulf of Mexico. It is a mountainous island, high in the west end, with a great central plain, rolling, extending for hundreds of miles, planted with sugar cane, which could serve for emergency landings. There are numerous private landing fields maintained by rum and sugar companies. The eastern portion reaches a highest point of 8,320 feet at the Sierra Maestra range. The coastline is irregular, and provides more deep-water harbors than any other country in the Western Hemisphere, with a total length of over 2,000 miles. The northern and eastern coasts are bluff and rocky. The southern and western shores are low, indented, and marshy in parts. Many of the Cuban harbors are of a peculiar shape, resembling pouches with narrow and often sinuous entrances, opening within to broad expanses completely sheltered. The principal harbors of this character are Antilla, Puerto Banes, Baracoa, Puerto Cabanas, Cienfuegos, Gibara, Guantanamo, Havana, Bahia Honda, Puerto Manati, Puerto Mariel, Nuevitas, Puerto Padre, Santiago de Cuba, Puerto Tanamo, and Puerto Vita. Other harbors are those formed and sheltered by the off-lying reefs and islets that front a great part of the coast; of these the principal ones are Caibarien, Cardenas Isabela, and Port Casilda (Trinidad). An exception to the above classes of harbors is Puerto Matanzas, which is more of an open bay with a wide and deep entrance. The following are established ports: Antilla, Baracoa, Caibarien, Cardenas, Cienfuegos, Gibara, Guantanamo, Havana, Isabela de Sagua, Macabi, Manzanillo, Mariel, Nuevitas, Puerto Padre, Santa Cruz del Sur, Santiago de Cuba, Trinidad. There are numerous rivers in Cuba, mostly non-navigable. Railway lines and a Central Highway extend the length of the island, providing an excellent landmark for flying, and also, the latter, a possibility for emergency landings.

DOMINICAN REPUBLIC and **HAITI**, just east of Cuba, constitute the island of Hispaniola, second largest in the West Indies. This has a very irregular shape, with deeply indented shores. The interior consists of heavily timbered mountain ranges, with plains and savannas between which

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

present possibilities of emergency landings. Haiti has the highest mountain in the West Indies, Loma Tina, over 10,000 feet. The average elevation of the Sierra del Cibao is 7,000 feet. Earthquakes are felt occasionally. In the south central portion of Hispaniola, near Lake Enriquillo, another extreme is reached: an arid, sun-blistered area of hollows and hills, with salt sinks reaching a negative altitude of 150 feet. Most of the rivers of Hispaniola are nonnavigable, and the mouths are obstructed by sand bars. The principal ports of Haiti are: Aquin, Aux Cayes, Cap Haitien, Fort Liberte, Gonaives, Jacmel, Jeremie, Miragoane, Petit Goave, Port au Prince, Port Paix, and St. Marc. The principal ports of Dominican Republic are Barahona, Monte Cristi, Port Plata, Romana, San Pedro de Macoris, Sanchez, Santa Barbara de Samana, and Santo Domingo. Haiti and Dominican Republic are connected by two main highways, and have internal railway systems.

JAMAICA is south of Cuba and west of Hispaniola, a mountainous and hilly island, with peaks reaching 5,000–7,000 feet. It is well watered, with many bays and harbors, of which Kingston is the finest in the West Indies. The other principal ports are: Port Antonio, Black River, Falmouth, Lucea, Montego, Morant, St. Anns, and Savannah la Mar. Large areas are planted with sugarcane. The natural vegetation is forest, but there is an area of dry plains on the leeward side which is favorable for emergency landings, and possible development of fields. Jamaica has railway and highway transportation.

The Caymans, three small, flat, rocky islands to the northwest, constitute part of the Jamaica group.

PUERTO RICO, the smallest of the Greater Antilles, lies east of Hispaniola. Its chief topographic feature is a central mountain range with highest elevation, Jayuya, of 4,400 feet. The mountains are surrounded by low hills and a coastal plain, drained by numerous rivers, mostly nonnavigable. The principal ports of Puerto Rico are: Aguadilla, Arecibo, Fajardo, Guanica, Jobos Harbor, Mayaguez, Ponce, Port Arroyo, and San Juan. A railway connects these ports, following the circumference of the island.

THE VIRGIN ISLANDS, lying eastward of Puerto Rico, are volcanic and hilly. St. Croix is the largest, with a maximum elevation of 1,165 feet, and broad, fertile plains. St. Johns is characterized by irregular hills. St. Thomas has a high ridge the entire length of the Island, with peaks of 1,500 feet. Tortola and Virgin Gorda are rocky and mountainous, with elevations of 1,780 and 1,380 feet, respectively. There are numerous other small islands. St. Thomas Harbor is the most important seaport in the Virgin Islands; it is a well-protected basin, safe except during hurricanes. Other important ports are: Road Harbor, Tortola Island; and Christiansted Harbor, St. Croix Island.

THE LESSER ANTILLES, string down below the Virgins toward the coast of South America in a graceful reversed curve. They constitute a natural chain of bases connecting with Brazil, the Guianas, and Venezuela. They are for the most part densely wooded, where not cleared for cultivation; and are mountainous or coral in formation, the largest of which, Guadeloupe and Martinique, are actively volcanic. Guadeloupe's highest peak is 4,900 feet; Martinique reaches 4,500 feet. Antigua Island is comparatively low and level, with no mountains and few forests, and possesses a natural land-locked harbor which is an almost ideal landing place for seaplanes. St. Kitts is very mountainous, affording few landings, and has a high point, Mount Misery, of 4,310 feet. Dominica, St. Lucia, and St. Vincent reach high points of 4,700, 3,100, and 4,000 feet, respectively. The Netherlands West Indies, Curacao, Bonaire, Aruba, and others, are in an elongated ridge of coral and volcanic rock along the coast of Venezuela. Many bays and inlets in the West Indies suitable for light vessels and seaplanes, are inaccessible to ships because of shallows or reefs. The principal deep water ports of the Lesser Antilles are: Port de Gustavia (Gustaf Harbor), St. Bartholomew Island; St. John Harbor, Antigua Island; Pointe a Pitre Harbor, Guadeloupe; Fort de France Bay, Martinique; Kingstown Bay, St. Vincent Island; Admiralty Bay, Bequia Island; St. George Harbor, Grenada Island; and Carlisle Bay, Barbados Island. With the exception of Gustaf Harbor and Admiralty Bay, all of these have port facilities.

TRINIDAD ISLAND is a major air base, located off the coast of Venezuela, near the Orinoco Delta. It commands the passages through the Lesser Antilles, and is the focal

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

point of established air routes to Miami, Panama, and Natal. It is somewhat mountainous, with a highest point of 3,000 feet, and densely forested mountains on the northern side. To the south is the great plain of Trinidad, with extensive sugarcane fields, low, flat plains, and swamps. There are no navigable rivers. Tobago is a hilly, rolling, and forested island, with a cultivated area in the southwest, consisting mainly of low plains and hills. The shores are bold, steep, and fairly indented. Tobago has ship harbors in Rockly Bay, and King Bay, the latter of which is nearly always smooth, safe water, but too shallow for large vessels. Neither of these has port facilities. The coasts of Trinidad are so straight that there is no indentation forming a harbor for large vessels; but there are several anchorages which are always safe, due to the regularity of the winds and the absence of hurricanes. Port of Spain, in the Gulf of Paria, while not a harbor, affords safe anchorage for vessels of moderate draft, and has port facilities. Land transportation in Trinidad is poor.

COMMUNICATIONS

The West Indies are linked by cable communications to the continents of North and South America. There are internal telegraphic and telephonic networks on most of the islands. Radio facilities are maintained by Pan American Airways at its major bases, by United States Army and Naval bases, and by the R. A. F. in British possessions. There is a radio range station at the United States Naval base at Guantanamo, Cuba. There are radio facilities at various seaports, operating on the usual ship frequencies. Some sugar and rum companies maintain radio facilities in connection with private fields. There is little D/F or radio range. On the whole, radio communications in the West Indies are unreliable and not highly developed.

METEOROLOGY

The climate of the West Indies is markedly uniform and is controlled by the trade winds and the moderating influence of the ocean. It is generally healthful and pleasant; neither the temperature nor the humidity is oppressive because of the prevailing winds.

TEMPERATURE is about 80 degrees the year round, varying a little from January–February, the coolest period, to July–August, the warmest. Icing is no problem below 12,000–17,000 feet.

RAINFALL is plentiful the year round, and takes the form of brief showers and frequent thunderstorms. The trade winds bring ample moisture, and most fall is on the windward sides of the islands. There is considerable local variation caused by differences in altitude, the presence of mountains, etc. There are two rainy seasons: May–June and September–November. Thunderstorms occur mainly from May to October and are uncommon the other months. In these the visibility is zero; ceiling drops to instrumental conditions; turbulence inside is severe; and there is difficulty in flying over them due to their great height. They travel with the prevailing upper winds and can be seen for 100–200 miles and easily avoided. Humidity is high, with an annual average of 76 percent relative, but the effects of this are moderated by the trade winds.

WINDS prevail northeasterly from October to April, and southeasterly from May to September. All of the West Indies is under this influence. There are daily variations in force and direction. Turbulence is extreme in thundershowers. Hurricanes are prevalent throughout the West Indies. They cannot be predicted but are more probable in some regions than others. Principal points of origin are in the western Caribbean Sea, or in the Atlantic Ocean just south of the Cape Verde Islands. They are circular wind systems, with an area of from 25 to 500 miles, and have a progressive movement or track. The hurricane season is from August to October. Planes should be flown out of the path. Ample warnings are given by the U. S. Weather Bureau or the U. S. Army Weather Service. Hurricanes cause heavy swells at great distances which may endanger seaplane landings even in sheltered harbors.

VISIBILITY is generally excellent in the West Indies. Days without horizontal visibility of at least 1 mile are rare. Fog is practically unknown at low elevations in the southern part; in the northwestern part it occurs occasionally January–March. During frequent showers or thunderstorms, visibility drops to zero. Ceilings are normally contact over the entire region, rarely below 1,000 feet. Clouds are usually small, detached (cumulus), with skies rarely either completely overcast or clear. Although

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

Caribbean weather is usually good, if a front is encountered, try to get over or under. Otherwise it can be flown through, as experience has shown, at about 1,500 feet where there is not much turbulence but a lot of rain. This procedure is effective over water where it is known there are no hills around.

AVIATION

AIRWAYS are a strategic linkage with the West Indies and with South America, Central America, and the Canal Zone. They are gradually superseding surface routes, even with respect to cargo services. Since 1928 Pan American Airways has established landplane and seaplane bases, together with radio, meteorological, and navigational facilities, throughout the Caribbean area. Its services extend to all the countries of Latin America. This and a chain of U. S. air bases cover and control the West Indies. European air lines have not to any extent penetrated the Caribbean beyond Venezuela and the Dutch West Indies. A large part of Pan American operations, as well as military, is by flying boats. The West Indies is a natural area for the operation of seaplanes, because of numerous harbor facilities.

Major air routes extend from Miami, Fla., to Cuba, and thence either southward following the Antilles to South America and trans-Atlantic to Africa, or westward to Mexico, Central America, and the Panama Canal Zone. These involve air mail, passenger, and cargo services. A service from Florida to Cuba is being projected by National Airlines (U. S. A.) to supplement Pan American operations, in view of wartime emergency needs. A PAA subsidiary, Cia. Nacional Cubana de Aviacion, operates domestically within Cuba, using Lockheed Electra and Ford trimotor landplanes. Royal Dutch Airlines (K. L. M.), based at Curacao, formerly operated a service from the Dutch West Indies to Venezuela-Trinidad-Barbados. Since the war it has been barred from Trinidad and restricted to a Curacao-Venezuela-Paramaribo route; but a Curacao-Jamaica route is projected. British West Indian Airways (Yerex), a small company, operates regularly from Trinidad to Barbados, carrying no mail. Trinidad is an aviation center for the southeastern Caribbean. Through it, services go northward to Puerto Rico, Cuba, and Miami; southward to the Guianas, Brazil, and the Argentine; and westward to Venezuela, Colombia, and Panama. It is also a major base of the Miami-Trinidad-Natal-Africa Trans-Atlantic ferrying route. Canadian Colonial Airways operates to Nassau, Bahama Islands. A small British air line, Bahamas Airways, operates locally from Nassau to the other Bahama Islands. Most of the major oil companies of Venezuela and other parts of Latin America have their own fleets of planes, and maintain private schedules and landing fields.

LANDING FIELDS in the West Indies are not naturally suitable for military or heavy commercial operations without development. Natural *sabana*, and cultivated or pasture lands, as in Cuba, serve for light domestic operations and private planes, and for emergency. The limitation is not so much in size as in need for surfacing. Military and Pan American regular airports are surfaced with asphalt or concrete, materials which need to be shipped in. In the smaller, more rocky or mountainous islands, there is a limitation of space also. The terrain is not favorable to immediate heavy operations, as is the case with some desert, steppe, or laterite regions in Africa. Because of tropical climate, open spaces are usually heavily overgrown, require frequent clearing. Heavy rains cause softness and flooding. In tropical areas, such as the West Indies, low air densities are a flight factor, causing a lack of lift in the atmosphere, and requiring full use of runways. The constancy of prevailing winds allows landing and take-off strips in one or two directions mainly. Flight obstructions are presented by mountains, and by trees which reach heights of 60 feet. A larger proportion of West Indies landplane bases are found to be major fields than in many regions of the Western Hemisphere. This is due to the large amount of international and long-range military operations compared with the smaller amount of local or domestic traffic, and the need to accommodate heavier planes.

SEAPLANE ANCHORAGES are favored by the coast-line features of the West Indies, which provide numerous natural harbors. Most of these anchorages, however, are emergency only, because lacking in markings, mooring, and beaching equipment, and other facilities. A number of potential anchorages, while extensive in area, are obstructed by coral reefs, cays, etc., which cut down effective landing dimensions. The expansion and development of seaplane anchorages present different problems from those of landplane bases, and may involve the necessity of removal of major marine obstructions. In addition, there are obstructions due to floating objects and surface craft. In general, West Indian seaplane anchorages are well protected from wind and sea, except during hurricanes. Many harbors and sheltered areas are inaccessible to all but small surface craft, because they are land-locked, shallow, or have dangerous channels. These, however, are accessible to seaplanes. A danger to personnel is the frequent presence of sharks and barracuda in anchorage areas.

DECLASSIFIED

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

SUMMARY

Seaplane anchorages are listed herein to give supplemental coverage of the area. Only those of major importance or frequent use are included. Additional information on those listed, as well as others, may be obtained directly from our informational sources: the U. S. Hydrographic Office, the Office of Naval Intelligence, the U. S. Coast and Geodetic Survey, and Pan American Airways System.

The airport data given herein is a consolidation of information available at Headquarters Army Air Forces. This information has been obtained chiefly from Pan American Airways; the Naval Air Pilot, H. O. Nos. 194, 199; reports of Military Attachés; and reports of U. S. military personnel stationed or traveling in the area.

The landing fields of the directory are listed by island or island group as follows:

	Page
BAHAMA ISLANDS	1
CUBA	3
DOMINICAN REPUBLIC	7
HAITI	9
JAMAICA	11
LESSER ANTILLES	13
PUERTO RICO	15
TRINIDAD and TOBAGO	17
VIRGIN ISLANDS	19

Summarized, the data is as follows:

BAHAMA ISLANDS: 1 major field; 1 emergency field. The major field is:

- **New Providence Island,** Nassau, Oakes Field, used by PAA, Bahamas Airways, and Canadian Colonial Airways; will accommodate ships larger than DC3's.

CUBA: 6 major fields; 49 emergency fields. The major fields are:

- **Camaguey,** General Agramonte, considered best airport in Cuba, customs airport, used by PAA and Air Transport Command.
- **Guantanamo,** McCalla Field, U. S. Naval Air Station, radio range facilities.
- **Guantanamo,** Carter Field, U. S. Naval Auxiliary field.
- **Havana,** Rancho Boyeros, used by PAA, international airport of entry for Cuba, used by DC3A's.
- **Havana,** Campo Columbia, used by Cuban Air Force, suitable for operation of B-25's.
- **Mariel,** a Cuban naval airport under construction.

DOMINICAN REPUBLIC: 1 major field; 22 emergency fields. The major field is:

- **Ciudad Trujillo,** Miraflores airport, Dominican Air Force, used by PAA, Air Transport Command, suitable for operation of B-17's.

JAMAICA: 2 major fields: 1 emergency field. The major fields are:

- **Kingston,** Palisadoes Field, British Naval Air Station.
- **Vernam** field, U. S. Army Air base.

The emergency field, located at GREAT SWAN ISLAND, is said to be suitable for operation of 4-engined aircraft.

LESSER ANTILLES: 5 major fields; 7 emergency fields. The major fields are:

- **Antigua,** Coolidge Field, U. S. Army Air Base.
- **Aruba,** U. S. Army auxiliary airport.
- **Barbados,** Bridgetown, Seawell Field, civil airport.
- **Curacao,** Willemstadt, Hato Airport, U. S. Army auxiliary airport.
- **St. Lucia,** Beane Field, U. S. Army Air Base.

PUERTO RICO: 9 major fields; 4 emergency fields. The major fields are:

- **Arecibo,** U. S. Army auxiliary airport.
- **Borinquen,** Aguadilla, U. S. Army Air Base, used by Air Transport Command.
- **Dorado,** U. S. Army auxiliary airport.
- **Losey,** Ponce, U. S. Army Air Base.
- **Mayaguez,** U. S. Army auxiliary airport.
- **Salinas,** U. S. Army auxiliary airport.
- **San Juan,** U. S. Naval Air Station.
- **Santa Isabel,** U. S. Army auxiliary airport.
- **Vega Baja,** U. S. Army auxiliary airport.

TRINIDAD and TOBAGO: 4 major fields; 2 emergency fields. The major fields are:

- **Edinburg,** U. S. Army auxiliary airport.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

La Brea, U. S. Army auxiliary airport.
Piarco, PAA airport, full facilities.
Waller, U. S. Army Air Base, used by Air Transport Command.

VIRGIN ISLANDS: 2 major fields; 2 emergency fields. The major fields are:
St. Croix, Benedict Field, U. S. Army Air Base.
St. Thomas, Bourne Field, U. S. Naval Air Station.

SEAPLANE ANCHORAGES

The seaplane anchorage data herein is a consolidation of information available at Headquarters Army Air Forces. This information has been obtained chiefly from the following sources: Naval Air Pilot, H. O. Nos. 194, 196, and 199; Pan American Airways; Naval Attaché reports; and Military Attaché reports.

The seaplane anchorages in this directory have been grouped under:

	Page
BAHAMA ISLANDS	27
CUBA	29
DOMINICAN REPUBLIC	33
HAITI	35
JAMAICA	37
LESSER ANTILLES	39
PUERTO RICO	43
TRINIDAD and TOBAGO	45
VIRGIN ISLANDS	47

Summarized, the data is as follows:

BAHAMA ISLANDS: 1 major anchorage; 8 emergency anchorages. The major anchorage is:
New Providence Island, Nassau, used by PAA, airport of entry.

CUBA: 5 major anchorages; 19 emergency anchorages. The major anchorages are:
Antilla, airport of entry.
Cienfuegos, used by PAA, airport of entry, excellent shelter.
Guantanamo Bay, U. S. Naval Air Station with full facilities.
Havana, used by PAA, airport of entry, excellent shelter.
Santiago de Cuba, used by PAA, airport of entry.

DOMINICAN REPUBLIC: 1 major anchorage; 8 emergency anchorages. The major anchorage is:
San Pedro de Macoris, used by PAA, airport of entry, used by S 42's and S 43's regularly.

HAITI: 1 major anchorage; 14 emergency anchorages. The major anchorage is:
Port au Prince, used by PAA, airport of entry.

JAMAICA: 1 major anchorage; 6 emergency anchorages. The major anchorage is:
Kingston, airport of entry, has D/F.

LESSER ANTILLES: 5 major anchorages; 19 emergency anchorages. The major anchorages are:
Antigua Island (St. John's), PAA, airport of entry.
Curacao (Willemstadt), used by Royal Dutch Airlines—KLM, airport of entry, excellent shelter.
Guadeloupe, used by PAA, airport of entry, excellent shelter.
Martinique (Fort de France), used by PAA, airport of entry.
St. Lucia (Port Castries), one of most secure harbors in West Indies.

PUERTO RICO: 1 major anchorage; 11 emergency anchorages. The major anchorage is:
San Juan, used by PAA, airport of entry, excellent shelter.

TRINIDAD and TOBAGO ISLANDS: 1 major anchorage; 5 emergency anchorages. The major anchorage is:
Port of Spain (Cocorite) Trinidad Island, used by PAA, airport of entry, has D/F.

VIRGIN ISLANDS: No major anchorages; 6 emergency anchorages. The best emergency anchorage is St. Thomas Island (Charlotte Amalie).

The following are explanatory notes on the manner of presenting the information in this directory:

Name: Under this heading is given the name of the nearest town or city of any significance. This name is followed by the name of the field or seaplane anchorage, in parentheses, if different from the name of the city or town. For a town at which there are several fields or anchorages the name of the town is repeated in parentheses for the field or anchorage known by the town name in order to distinguish it from the others. In cases where the name of the field or anchorage transcends the name of the town in importance, the town name appears last.

Type: Fields and anchorages of major importance are listed alphabetically by country in the Summary together with supplementary data.

Facilities: Under this heading is given a brief listing of facilities known to exist. No details are given although in many cases more detailed information is available.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

The Index is a straight alphabetical listing by both town name and field or anchorage name.

It is to be understood that in a directory of this character all detailed information cannot be included although on the majority of the fields and anchorages the information presented here represents all that is available at this time. For many of the fields and anchorages there are available sketches and photographs or both.

Caution in the use of this directory is advised inasmuch as some of the information used is not of recent data and there may be fields and anchorages in existence of which this office has no knowledge. Perforated correction sheets will be found in the back of this directory. These sheets are to be completed by military personnel stationed in or traveling in the area.

New editions will be issued from time to time as more or better information becomes available.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

INDEX

Field	Island or island group	Page
A		
Agramonte (*see* Florida)	Cuba	4
Aguadilla (*see* Borinquen)	Puerto Rico	15
Almeida (*see* Macurijes)	Cuba	4
Alquizar	Cuba	3
Alturas de Lazas (*see* Mariel)	Cuba	5
Alturas de Loyos (*see* Manzanillo)	Cuba	5
Anse-a-Galets	Haiti	9
Anse-a-Pitre	Haiti	9
Antigua Island (Coolidge)	Lesser Antilles (Leeward Islands	13
Antigua Island (St. Johns)	Lesser Antilles (Leeward Islands)	13
Antilla	Cuba	3
Araujo (*see* Central Araujo)	Cuba	3
Arecibo	Puerto Rico	15
Aruba Island	Lesser Antilles (Dutch West Indies)	13
Aux Cayes	Haiti	9
Azua	Dominican Republic	7
B		
Baiacu	Cuba	3
Baracoa	Cuba	3
Barahona	Dominican Republic	7
Barbados Island	Lesser Antilles (Windward Islands)	13
Barbados Island	Lesser Antilles (Windward Islands)	13
Basseterre (*see* St. Kitts) (St. Christopher I.)	Lesser Antilles (Leeward Islands)	13
Bayamo (General Milanes)	Cuba	3
Beane Field (*see* St. Lucia)	Lesser Antilles (Windward Islands)	13
Benedict Field (St. Croix)	Virgin Islands	19
Bermuda (*see* Pilon)	Cuba	5
Bonaire Island	Lesser Antilles (Dutch West Indies)	13
Borinquen	Puerto Rico	15
Bourne Field (St. Thomas)	Virgin Islands	19
Bowen (*see* Port au Prince)	Haiti	9
Bridgetown (*see* Barbados I.) (Seawell Field)	Lesser Antilles (Windward Islands)	13
Bridgetown (*see* Barbados I.)	Lesser Antilles (Windward Islands)	13
C		
Calderas	Dominican Republic	7
Calixto (*see* Manati)	Cuba	5
Camaguey (*see* Central Senado)	Cuba	3
Camaguey (General Agramonte)	Cuba	3
Campo Columbia (*see* Havana)	Cuba	4
Canada Field (*see* Moron)	Cuba	5
Cap Haitien	Haiti	9
Caraballo	Cuba	3
Carahatas (Colonel Deeds) (San Isidro)	Cuba	3
Carter Field (*see* Guantanamo)	Cuba	4

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

Field	Island or island group	Page
Cantano Field (see San Juan)	Puerto Rico	15
Cayo Mambi	Cuba	3
Central Almeida (see Macurijes)	Cuba	4
Central Araujo	Cuba	3
Central Palma	Cuba	3
Central Senado	Cuba	3
Central Tanamo (see Tanamo)	Cuba	6
Cerca la Source	Haiti	9
Christiansted (see St. Croix)	Virgin Islands	19
Ciega de Avila	Cuba	3
Cienfuegos	Cuba	4
Ciudad Trujillo (Colon)	Dominican Republic	7
Ciudad Trujillo (Miraflores)	Dominican Republic	7
Colon (see Ciudad Trujillo)	Dominican Republic	7
Colonel Dedds (see Carahatas)	Cuba	3
Columbia (see Havana)	Cuba	4
Consuelo (see San Pedro de Macoris)	Dominican Republic	8
Coolidge Field (see Antigua Island)	Lesser Antilles (Leeward Islands)	13
Culebra Island	Puerto Rico	15
Cumuto (see Waller Field)	Trinidad & Tobago Islands (Trinidad)	17
Cunagua	Cuba	4
Curacao Island	Lesser Antilles (Dutch West Indies)	13
D		
Dajabon	Dominican Republic	7
Don Q (see Ponce)	Puerto Rico	15
Dprado	Puerto Rico	15
E		
Edinburg	Trinidad & Tobago Islands (Trinidad)	17
El Gabriel	Cuba	4
Ensenada de Lazas (see Mariel)	Cuba	5
Ensenada de Mora (see Pilon)	Cuba	5
Estrada Palma (see Central Palma)	Cuba	3
F		
Florida	Cuba	4
Frederiksted (see St. Croix)	Virgin Islands	19
Forte Liberte	Haiti	9
G		
Gabriel (see El Gabriel)	Cuba	4
Garcia (see Manati)	Cuba	5
General Agramonte (see Camaguey)	Cuba	3
General Milanes (see Bayamo)	Cuba	3
General Montegudo (see Santa Clara)	Cuba	6
Gonaives	Haiti	9
Grave B. Peralta (see Holguin)	Cuba	4
Great Harbor (see Culebra Island)	Puerto Rico	15
Great Swan Island	Jamaica	11
Guane (see San Julian)	Cuba	6
Guanica	Puerto Rico	15
Guantanamo (Carter Field)	Cuba	4
Guantanamo (McCalla Field)	Cuba	4
Guantanamo (Teniente Moriote Field)	Cuba	4
Guipuzcoa Field (see Marti)	Cuba	5
Guira de Melena	Cuba	4

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

Field	Island or island group	Page
H		
Hato (see Curacao Island)	Lesser Antilles (Dutch West Indies)	13
Hato Rey	Puerto Rico	15
Havana (Campo Columbia)	Cuba	4
Havana (Rancho Boyeros)	Cuba	4
Hinche	Haiti	9
Holguin	Cuba	4
I		
Ile de la Gonave (see Anse-a-Galets)	Haiti	9
Isabel Rubio (see San Julian)	Cuba	6
Isla Grande Air Base (see San Juan)	Puerto Rico	15
Isla Saona	Dominican Republic	7
J		
Jaime Gonzalez (see Cienfuegos)	Cuba	4
Jamaica (see Kingston)	Jamaica	11
Jamaica (see Vernam Field)	Jamaica	11
Jaronu	Cuba	4
Jaruco	Cuba	4
Jeremie	Haiti	9
Jesus Maria (see Santiago de Cuba)	Cuba	6
K		
Kelly Field	Cuba	4
Kingston	Jamaica	11
Kralendijk (see Bonaire Island)	Lesser Antilles (Dutch West Indies)	13
L		
La Brea	Trinidad & Tobago Islands (Trinidad)	17
La Gonave (see Anse-a-Galets)	Haiti	9
La Isabela	Dominican Republic	7
La Romana	Dominican Republic	7
Las Vegas	Cuba	5
Las Lajas	Dominican Republic	7
La Vega	Dominican Republic	7
Lazas (see Mariel)	Cuba	5
Los Banos (see San Antonio de Los Banos)	Cuba	6
Losey Field (see Ponce)	Puerto Rico	15
M		
Maceo (see Yaguaramas)	Cuba	6
Macurijes	Cuba	5
Manati	Cuba	5
Manzanillo	Cuba	5
Mariel	Cuba	5
Marti	Cuba	5
Martinique Island (St. Pierre Roadstead)	Lesser Antilles (Windward Islands)	13
Martinique Island (Fort de France)	Lesser Antilles (Windward Islands)	13
Maury Roberts Co. Field (see Settlement Point)	Bahama Islands	1
Mayagues	Puerto Rico	15
McCalla Field (see Guantanamo)	Cuba	4
Media Luna	Cuba	5
Melena (see Guira de Melena)	Cuba	4
Mercidina (see Central Mercidina)	Puerto Rico	15
Milligan (see Victoria de las Tunas)	Cuba	6
Minas de Matahambre (see Santa Lucia)	Cuba	6
Miraflores (see Ciudad Trujillo)	Dominican Republic	7
Mos	Cuba	5

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

Field	Island or island group	Page
Mole St. Nicholas	Haiti	9
Monte Cristi	Dominican Republic	7
Monte Llano	Dominican Republic	7
Mora, Ensenada de (*see* Pilon)	Cuba	5
Moron (Canada Field)	Cuba	5
Moron (Moron)	Cuba	5
Moron (Pina Field)	Cuba	5
N		
Nassau (Oakes Field)	Bahama Islands	1
Nueva Gerona	Cuba	5
O		
Oakes Field (*see* Nassau)	Bahama Islands	1
Oanaminthe	Haiti	9
Oranjestad (*see* Aruba Island)	Lesser Antilles (Dutch West Indies)	13
P		
Palissadoes (*see* Kingston)	Jamaica	11
Palma (*see* Central Palma)	Cuba	3
Pedernales	Dominican Republic	7
Piarco Field (Port of Spain)	Trinidad and Tobago Islands (Trinidad)	17
Pignon	Haiti	9
Pilon	Cuba	5
Pina Field (*see* Moron)	Cuba	5
Ponce (Don Q)	Puerto Rico	15
Ponce (Losey Field)	Puerto Rico	15
Port au Prince	Haiti	9
Port de Paix	Haiti	9
Port of Spain (*see* Piarco Field)	Trinidad and Tobago Island (Trinidad)	17
Presidio Modelo (*see* Nueva Gerona)	Cuba	5
Preston	Cuba	5
Puerto Plata	Dominican Republic	7
R		
Rancho Boyeros (*see* Havana)	Cuba	4
Rio Piedras	Puerto Rico	15
Rio Seco	Cuba	6
S		
Sagua de Tanamo (*see* Tanamo)	Cuba	6
Salinas	Puerto Rico	15
San Augustin	Cuba	6
San Antonio de Los Banos	Cuba	6
Sandy Point (*see* Tobago Island)	Trinidad and Tobago Islands (Tobago)	17
San Felipe	Cuba	6
San Francisco de Macoris	Dominican Republic	7
San Isidro (*see* Carahatas)	Cuba	3
San Jose Airport (*see* Hato Rey)	Puerto Rico	15
San Jose de las Lajas	Cuba	6
San Juan de la Maguana	Dominican Republic	7
San Juan (Cantano Field)	Puerto Rico	15
San Juan (Isla Grande Air Base)	Puerto Rico	15
San Julian	Cuba	6
San Nicolas	Cuba	6
San Pedro de Macoris	Dominican Republic	7
San Pedro de Macoris (Consuelo)	Dominican Republic	8
Santa Clara	Cuba	6
Santa Cruz del Norte (*see* Kelly Field)	Cuba	4

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

Field	Island or island group	Page
Santa Fe	Cuba	6
Santa Isabel	Puerto Rico	15
Santa Lucia	Cuba	6
Santiago de Cuba	Cuba	6
Santiago	Dominican Republic	6
Santiago de los Caballeros	Dominican Republic	8
Saona (*see* Isla Saona)	Dominican Republic	7
Scarborough (*see* Tobago Island)	Trinidad & Tobago Islands (Tobago)	17
Seawell Field (*see* Barbados Island)	Lesser Antilles (Windward Islands)	13
Senado (*see* Central Senado)	Cuba	3
Settlement Point (Maury Roberts Co. Field)	Bahama Islands	1
Silva (*see* Cienfuegos)	Cuba	4
St. Barthelemy Island	Lesser Antilles (Leeward Islands)	13
St. Christopher (*see* St. Kitts)	Lesser Antilles (Leeward Islands)	13
St. Croix (*see* Benedict Field)	Virgin Islands	19
St. Croix (Christiansted)	Virgin Islands	19
St. Croix (Frederikxted)	Virgin Islands	19
St. Jean Bay (*see* St. Barthelemy Island)	Lesser Antilles (Leeward Islands)	13
St. Johns (*see* Antigua Island)	Lesser Antilles (Leeward Islands)	13
St. Kitts	Lesser Antilles (Leeward Islands)	13
St. Lucia Island	Lesser Antilles (Windward Islands)	13
St. Pierre Roadstead (*see* Martinique Island)	Lesser Antilles (Windward Islands)	13
St. Thomas Island (*see* Bourne Field)	Virgin Islands	19
Subi Blanco (*see* Bonaire Island)	Lesser Antilles (Dutch West Indies)	13
T		
Tanamo	Cuba	6
Teniente Morlote Field (*see* Guantanamo)	Cuba	4
Tobago Island (Sandy Point) (Scarborough)	Trinidad & Tobago Islands (Tobago)	17
Toco	Trinidad & Tobago Islands (Trinidad)	17
V		
Varadero	Cuba	6
Valverde	Dominican Republic	8
Vega Baja	Puerto Rico	15
Vernam Field	Jamaica	11
Victoria de las Tunas	Cuba	6
Villa Elias Pina	Dominican Republic	8
W		
Willemstadt (*see* Curacao Island)	Lesser Antilles (Dutch West Indies)	13
Waller Field	Trinidad & Tobago Islands (Trinidad)	17
Y		
Yaguaramas	Cuba	6

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

BAHAMA ISLANDS

Name	Position	Altitude	Location	Dimensions (feet)	Description	Facilities
	° ′	Feet				
Nassau (Oakes Field)	25 03 N 77 28 W	4	2 mi. SSW of Nassau	Runways: 4800 x 300 NW/SE; 4300 x 300 NE/SW; 4000 x 300E/W.	Macadam runways.	80 octane fuel; radio, passenger station, weather reports, wind sock.
Settlement Point (Mosey Roberts Co. Field)	26 42 N 78 58 W	6	On S side of Grand Bahama Island, about 4 mi. from Settlement Point.	3000 x 200	Sandy	Fuel, minor repairs. Reported abandoned.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL DECLASSIFIED

CUBA

Name	Position	Altitude	Location	Dimensions (feet)	Description	Facilities
	° ′	Feet				
Alquizar	22 48 N 83 34 W (approx.)		1 mi. SE of town, near sugar mill.	1500 x 1000 E/W.		
Antilla	20 51 N 75 44 W	25	½ mi. N of Antilla.	2400 x 300 NE/SW; 1700 x 300 N/S. Runway: 2400 x 98 NE/SW.	Sod, rough. Runway: hard surface.	Radio, passenger station, weather reports, road, RR. PAA seaplane base at Antilla, airport of entry, operated by Cuban Aviation Co.
Baiamo	20 02 N 76 55 W (approx.)		Just N of town.	1300 x 600 E/W.		Telephone and telegraph lines by field.
Banaco	20 20 N 74 20 W	200	In valley adjacent to river, about 4½ mi. SSE of Banaco.	2400 x 300. Runway: 1500 x 60 N/S. (To be extended to: 2100 x 90.)	Sod. Runway: gravel.	80 octane fuel, radio, minor repairs, passenger station, weather reports, hotels in city, operated by Cuban Aviation Co.
Bayamo (General Milanes)	20 24 N 76 42 W	180 (est.)	2 mi. NE of city.	2600 x 300 NE/SW; 2000 x 300 NW/SE; 3000 x 300 E/W.	Clay and grass.	Fuel, radio, hangar. Field discontinued in 1939.
Camagney (General Agramonte)	21 30 N 77 50 W	245	6½ mi. NE of Camagney.	6240 x 6265. Two runways: 5000 x 300 N/S; 5000 x 300 E/W.	Grass. Runways: concrete. Excellent field, will accommodate 4-engine operation.	Complete fueling equipment, 100 octane gas, radio, aerophare, telephone, revolving beacon; approach, flood and runway contact lights; terminal building, complete meteorological station. Operated by PAA and U. S. Army.
Carabelle	22 05 N 81 34 W (approx.)		½ mi. NE of town.	1640 x 820 N/S.		Telephone line by field.
Carahatas (Colonel Deeds) (San Isidro)	22 55 N 80 17 W	3 (est.)	11 mi. NNW of San Isidro Sugar Mill on NW edge of Carahatas.	Circular: 1500 diameter.	Flat and smooth.	Telephone, no hangars, narrow gauge railroad.
Caye Mambi	20 41 N 75 16 W	20	¼ mi. NE of Central Tanamo and town of Caye Mambi.	2000 x 300 E/W.	Gravel: level, drainage good.	Telegraph, accommodations at sugar mill, small passenger station, wind cone, markings. Operated by Cuban Aviation Co.
Central Arenje (Arenje)	22 36 N 80 46 W					
Central Palma (Estrada Palma)	20 25 N 76 00 W	425 (est.)	½ mi. NW Central Palma Sugar Mill.	Triangular: 2000 x 1200 x 950. Runway: 2000 NW/SE.	Rock 8 inches deep on runway. Field partly under cultivation.	Telephone and telegraph at sugar mill, none hangar. No longer used.
Central Senado (Senado) (Camagney)	21 36 N 77 36 W	100	Approximately 26 mi. NE of Camagney.	1800 x 150.	Sod.	Telephone, telegraph, wind cone.
Ciego de Avila	21 47 N 78 47 W	25	1 mi. N of city.	2300 x 300 N/S; 1650 x 300 NNE/SSW.	Sod.	Terminal building, small passenger station, meteorological equipment, taxi, PAA seaplane base ½ mi. N of town, airport of entry, operated by Cuban Aviation Co. In town: 200 gals. emergency fuel supply.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CUBA—Continued

Name	Position	Altitude	Location	Dimensions (feet)	Description	Facilities
	° ′	Feet				
Cienfuegos (Jaime Gonzalez) (Silva)	22 09 N 80 25 W	50 (est.)	1¼ mi. NE of center of Cienfuegos.	3000 x 250 N/S; 2700 x 310 NE/SW.	Hard sod. Nothing heavier than Lockheeds should use this field.	90 octane fuel, small passenger station, wind sock, little white house. Operated by PAA. In town: telephone, telegraph, radio, weather service.
Caraguo	22 05 N 78 25 W	10 (est.)	1 mi. SE of town	Two landing strips: 1800 NE/SW; 1600 NW/SE.	Hard clay and grass.	Telephone, telegraph, railroad.
El Gabriel	22 48 N 82 28 W (approx.)		Just NE of town	4710 x 2226 E/W		Telephone line by field.
Florida (Agramonte Field)	21 33 N 78 14 W	40	7 mi. S of La Florida, 16 mi. WNW of Camaguey.	2100 x 200 NE/SW; 2100 x 200 NW/SE. Runways: none.	Sod, soft when wet.	Fuel, telephone, telegraph, minor repairs, railroad to town.
Guantanamo (Carter Field) (Leeward Point)	19 55 N 75 10 W	40 (est.)	½ mi. W of McCalla Field on W side of entrance to Guantanamo Bay.	Runways: 3625 NE/SW; 3400 E/W; each 150 wide, shoulders 75. Being enlarged to 3000.	Runways: hard surface.	Large fuel supply, full facilities, hangar 300 x 200. Operated by U. S. N.
Guantanamo (McCalla Field)	19 54 N 75 09 W	100	On E shore of channel to Guantanamo Bay. 41 mi. E of Santiago.	Runways: 4000 x 200 NNE/SSW; 2000 x 200 S/W; 2400 x 200 NW/SE.	Runways: paved. Will accommodate any ship.	100-octane fuel, telephone, telegraph, radio, D/F, range station, hangar 200 x 300, major repairs, weather service. U. S. N. landplane base.
Guantanamo (Teniente Merlote Field)	20 09 N 75 13 W	75	¾ mi. NNE of Guantanamo.	2300 x 800 NE/SW. Being extended to 3700.	Sod.	80-octane fuel, telephone, telegraph, radio, wind sock, small passenger station, taxis to town, highway. In town: hotel. Operated by Cuban Aviation Co.
Gubra de Melena	22 47 N 82 30 W (approx.)		½ mi. N of town	1304 x 1065 E/W		Telephone line.
Havana (Campo Columbia)	23 06 N 82 26 W	30	5 mi. SW of Havana, 1 mi. from coast.	6200 x 2400. Five runways: 3600 E/W; 3550 N/S; 3180 NE/SW; 2600 NE/SW; 4730 NW/SE.	Hard sod. Good drainage, slight slope to NE. Used by B-25's.	Fuel, telephone, telegraph, radio, signal lights & query beacon, 3 hangars, repair shops, several barracks, administration building. Operated by Cuban Air Force.
Havana (Rancho Boyeros)	23 00 N 82 23 W	300	8 mi. S of Havana	5200 NE/SW; 4000 N/S; 2300 NW/SE.	Hard turf.	Fuel, radio, telephone, telegraph, hangar, repairs, passenger station, wind cone, circle marker, transportation, customs airport, PAA.
Holguin (Grave R. Pineda)	20 53 N 76 15 W	300	On E edge of Holguin.	2200 x 250 NE/SW; 1800 x 250 N/S.	Gravel.	Fuel, telephone, telegraph, small administration building, wind cone, railroad. No longer used.
Jaruco	23 00 N 77 55 W	15	1 mi. E of Jaruco	1980 x 225 NNW/SSE; 1980 x 225 ENE/WSW.	Grass on clay.	Limited fuel, telephone, telegraph, repairs. In town: hotels. No longer used.
Jaruco	23 04 N 82 00 W (approx.)		½ mi. from town	6500 x 1200 E/W		
Kelly Field (Santa Cruz del Norte)	23 08 N 82 37 W					Private field.

DECLASSIFIED

DECLASSIFIED

CUBA—Continued

Name	Position	Altitude	Location	Dimensions (feet)	Description	Facilities
	° ′	Feet				
Las Vegas	22 48 N 81 48 W (approx.)		½ mi. from town	1800 x 1200 NE/SW		
Macurijes (Central Almeida)	22 12 N 78 39 W	300	8 of Macurijes, 1 mi. NNE of sugar mill at Central Almeida.	1700 x 250 NE/SW; 1300 x 250 N/S.	Hard gravel and clay.	Fuel, quarters at sugar mill, circle marker. No longer used.
Manati (Caibrie Garcia)	21 18 N 76 55 W	35	¼ mi. E of sugar mill at Manati.	1700 x 650. Strips: 1800 x 200 E/W & NE/SW.	Smooth, rolled.	Telephone, telegraph, quarters, circle and landing strip markers, wind sock. Reported no longer maintained 1939.
Manzanillo (Alturas de Lopez)	20 18 N 77 05 W	224	1 mi. SW center of Manzanillo, near coast.	3800 x 3800, roughly triangular. Runways: 3300 x 330 N/S; 3300 x 330 NE/SW.	Sod, level.	80 octane fuel, telephone, telegraph, small terminal-building, weather reports, wind cone, taxi to town, airport of entry. Operated by Cuban Aviation Co.
Martel (Ensenada de Lanzas) (Alturas de Lanzas)	23 01 N 82 46 W		On small peninsula on W side of bay just S of Ensenada de Lanzas.	Runway: 4000 x 400 NE/SW.		Field under construction by Cuban Navy 12/9/41, completion date unknown. One hangar.
Marti (Guipuzcoa Field)	22 20 N 80 57 W	100	½ mi. W of Marti	Strips: 3936 x 100; 3625 x 100.		Telephone, telegraph, circle marker, transportation to town. Condition of field in doubt.
Media Luna	20 03 N 77 25 W		1¼ mi. SE of Media Luna.	1320 x 800		None. No longer used.
Moa	20 39 N 74 55 W	20 (est.)	¾ mi. NW of town	2125 x 400 NE/SW	Sod. Hard clay	Operated by Cuban Aviation Co.
Moron (Canada Field)	22 06 N 78 41 W	10 (est.)	2 mi. SW of Moron	2300 x 1917, may be larger.	Natural level ground.	Telephone, telegraph, hangar, wind sock, circle marker, auto to Moron, PAA. Actual condition of this field unknown. In town: hotel.
Moron (Moron)	22 07 N 78 40 W	26	2 mi. SW of Moron, ½ mi. W of Canada Field.	2000 x 1190	Natural level ground, soft after rain.	Wind cone. In town: fuel, accommodations. Field probably abandoned.
Manzo (Pino Field)	22 05 N 78 44 W	144	8½ mi. SW of Moron	2900 x 130 N/S; 2600 x 130 E/W.	Hard red clay; level, natural drainage.	Fuel, telephone, quarters, strip markers, name and white circle, wind cone, transportation. No longer used.
Nueva Gerona (Presidio Modelo)	21 50 N 82 49 W	near sea level	2½ mi. E of Nueva Gerona, ¼ mi. NW, Modelo Prison.	1900 x 1500 NW/SE	Grass; sandy, unsuitable rainy season.	Fuel, telephone, telegraph, wind cone, white circle. Operated by Cuban Aviation Co. In town: accommodations.
Pilon (Ensenada de Mora) (Bermeda)	19 55 N 77 19 W	50 (est.)	½ mi. NW of Pilon	Fenced area: 2150 x 1800. 2020 x 300 NW/SE; 1900 x 300 N/S.	Sandy loam.	Fuel, telephone, telegraph, accommodations at sugar mill, circle marker, name on roof, wind sock, transportation. Reported not maintained.
Preston	20 48 N 75 39 W	10 (est.)	1½ mi. S of Preston	2000 x 100 E/W	Level sod.	Radio, telephone at Preston Sugar Mill, D/F, auto to town, small passenger station. Airport of entry, operated by Cuban Aviation Co.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CUBA—Continued

Name	Position	Altitude	Location	Dimensions (feet)	Description	Facilities
	° ′	Feet				
Rio Seco	20 10 N 75 05 W (approx.)		½ mi. SE of town.	900 x 850.		Telephone line.
San Augustin	(town) 22 32 N 79 34 W	400 (est.)	½ mi. SSW of Central San Augustin. NW of Zulueta.	Area 100,000 sq. yards.	Grass.	Telephone, telegraph.
San Antonio de los Banos	22 53 N 82 30 W (approx.)		½ mi. SW of town. Havana province.	1200 x 900 E/W.		
San Felipe	(town) 22 49 N 82 17 W (approx.)		Adjacent to town. Havana province.	1800 x 900 E/W.	Fair.	Former Cuban Army training field.
San Jose de las Lajas	(town) 22 57 N 82 09 W (approx.)		½ mi. SW of town. Havana province. N of river.	900 x 500 N/S.		
San Julian (Isabel Rubio) (Guane)	(town) 22 05 N 84 05 W	60 (est.)	9 mi. SW of Guane.	2200 x 2200.	Grass.	100 octane fuel, telephone, telegraph, radio, D/F, small U. S. army servicing detachment, small terminal building, weather servicn, railroad 4 mi. away. Reported being enlarged March, 1942.
San Nicolas	22 45 N 81 34 W (approx.)		½ mi. [illegible] of town.	1950 x 1600 N/S.		
Santa Clara (General Montegudo)	(town) 22 25 N 79 58 W		W of and adjacent to Santa Clara on N side of Central Highway.	2200 x 585 x 1220. Two landing strips: 1800 E/W; 1700 NE/SW.	Level red sand and clay.	Fuel, telephone, telegraph, wind cone, bus, auto. Reported not in use in 1940.
Santa Fe	21 43 N 82 20 W	100 (est.)	On Isle of Pines.		Grass.	Telephone.
Santa Lucia (Minas de Matahambre)	22 40 N 82 28 W	20	¼ mi. E of Santa Lucia.	1700 x 1500.	Firm sod.	Repairs, wind cone, white circle. In town: fuel, telephone, telegraph.
Santiago de Cuba (Jesus Maria)	20 02 N 75 50 W	20 (est.)	1 mi. N of city.	2500 x 1200 triangular. Runway: 3000 x 120 NW/SE.	Runway rock surfaced. Suitable Ford transport all year.	80 octane fuel, telephone, telegraph, radio, obstruction lights, hangar, repairs, passenger station, hotels, weather station, wind cone, auto.
Tanamo (Central Tanamo) (Segua de Tanamo)	20 40 N 75 15 W					
Varadero	23 07 N 81 17 W	10 (est.)	½ mi. SE of Kawama.	Runways: 1600 x 60 E/W; 1600 x 60 N/S.	Rocky, covered with gravel.	
Victoria de las Tunas (Milligan)	20 58 N 76 55 W	200 (est.)	½ mi. E of city.	2000 NE/SW; 2000 NW/SE.	Grass.	Limited fuel, telephone, telegraph, markers, wind cone, hotels.
Yaguaramas (Macao)	22 15 N 80 28 W		4½ mi. SE of Yaguaramas.	1680 x 1680.	Sod.	Telephone, circle, wind cone, RR. No longer used.

DECLASSIFIED

DECLASSIFIED

DOMINICAN REPUBLIC

Name	Position	Altitude	Location	Dimensions (feet)	Description	Facilities
	° ′	Feet				
Azua	18 26 N 70 44 W	100	W edge of Azua, W of cemetery.	1500 x 600 N/S.	Dirt, with some grass, clear and flat, drainage poor.	No facilities. In town: telephone, personnel and hospital accommodations.
Barahona	18 12 N 71 05 W	20 (est.)	N edge of town, sugar mill to NE on waterfront.	1200 x 800 NW/SE.	Hard earth, grass.	Small supply fuel, telephone, radio, hangar, markings. In town: accommodations for 50.
Calderas	18 13 N 70 29 W	20 (est.)	1 mi. E of Calderas Bay Naval Base.	1600 x 160 E/W.	Hard dirt, well drained.	Wind cone. In town: radio, accommodations for about 20.
Ciudad Trujillo (Cabo)	18 26 N 69 52 W	20 (est.)	E edge of city, near E bank of Ozama River. Curved road W & S of field.	Strips: 1200 x 100 NW/SE; 1400 x 100 N/S.	Grass.	Telegraph, telephone, hangar, wind cone. In town: radio, accommodations.
Ciudad Trujillo (Mirafiores)	18 30 N 69 54 W	100	At NW edge city, S of road. Large water tank ¼ mi. E.	Runways: 3300 x 150 N/S; 2100 x 150 E/W. Could be extended to 3000.	Field: earth with grass. Runways: paved. Suitable for B-17's.	100 octane fuel, radio, telephone, telegraph, cable, runway lights, obstruction lights, beacon, hangar, repairs, hotels, weather reports, FAA, Dominican A. F., customs airport.
Dajabon	19 34 N 71 41 W	200 (est.)	NE edge of town.	1800 x 600 N/S.	Level, covered with grass.	In town: telephone. Radio at barracks ½ mi. from field.
Isla Saona	18 10 N 68 40 W (approx.)		N central coast of island.			
La Isabela	19 58 N 71 05 W	10 (est.)	¾ mi. N of town.	Triangular: 2000 x 1600 x 1300.	Hard ground, no grass.	Poor road.
La Romana	18 25 N 68 58 W	70 (est.)	NW edge of town.	Runways: 2100 x 150 NE/SW, which is being lengthened to 3000; 1200 x 150 N/S.	Level, fresh earth, suitable when wet.	In town: telephone, telegraph, accommodations for 50.
Las Lajas	18 30 N 71 52 W	300	On Haitian frontier near SE. end of Etang Saumatre, 8 mi. SE of town.	2600 x 600 NE/SW.	Practically no grass, natural drainage.	In town: telephone, telegraph.
La Vega	19 14 N 70 32 W	800	2 mi. S of town. High hill to W; trees on N.	1600 x 150 N/S.	Flat, rough, poor drainage, useless in wet weather.	In town: telephone, limited accommodations.
Monte Cristi	19 52 N 71 39 W	30	W edge of town.	2100 x 300 NE/SW.	Hard ground, slight slope.	Telegraph and radio, markings.
Monte Llano	19 44 N 70 36 W	100 (est.)	N. of town, between town & sugar mill.	2000 x 300 NE/SW.	Level dirt & grass, suitable in wet weather.	Telephone, accommodations for 30.
Pedernales	18 04 N 71 43 W	20	On Haitian frontier, 1¼ mi. N of town on seacoast 16 mi. N of Palos Cape.	1100 x 300 N/S.	Sand and grass, fairly smooth.	Radio, cart road.
Puerto Plata	19 48 N 70 41 W	20	E edge of city, close to ocean.	1100 x 150 E/W.	Level, grass.	In town: telephone, telegraph, radio, accommodations.
San Francisco de Macoris	19 19 N 70 15 W	200 (est.)	¾ mi. NW of town, in a long, wide valley.	Runways: 1500 x 100 NW/SE; 1200 x 100 N/S.	Level, dirt.	In town: telephone.
San Juan de la Maguana	18 48 N 71 14 W	1300	Just N of town.	1900 x 400 N/S.	Level, earth with grass, landings may be made in wet weather.	In town: telephone, telegraph, accommodations for 50.
San Pedro de Macoris	18 27 N 69 18 W	20 (est.)	N edge of town.	1700 NS x 600 EW.	Level, grass.	Limited fuel, telephone, telegraph, radio. In town: accommodations for 150.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

DOMINICAN REPUBLIC—Continued

Name	Position	Altitude	Location	Dimensions (feet)	Description	Facilities
San Pedro de Macoris. (Consuelo)	° ′ 18 32 N 69 17 W	Feet 100 (est.)	5 mi. N of town. Sugar mill & settlement ¼ mi. NW.	Triangular: 3150 x 1650 x 1450.	Well drained, cut grass.	100 octane fuel, telephone, radio, telegraph within 5 mi., hangar, road.
Santiago. (Santiago de los Caballeros)	19 30 N 70 43 W	860	1 mi. N of city	1500 x 200 NW/SE	Sod, rough, drainage, gradient 2 percent. Reported suitable for B-18s in emergency. Suitable in wet weather.	Fuel on advance notice, telephone, telegraph, hangar. Accommodations for 1,000.
Valverde.	19 34 N 71 06 W	400 (est.)	N edge of town	1000 x 600 E/W	Level, hard earth, good.	In town: telegraph.
Villa Elisa Pina.	18 52 N 71 35 W	4000 (est.)	6 mi. E of town	1000 x 300 E/W	Hard earth and grass, level.	Marked by white cross in center of field. In town: radio.

DECLASSIFIED
CONFIDENTIAL

DECLASSIFIED
CONFIDENTIAL

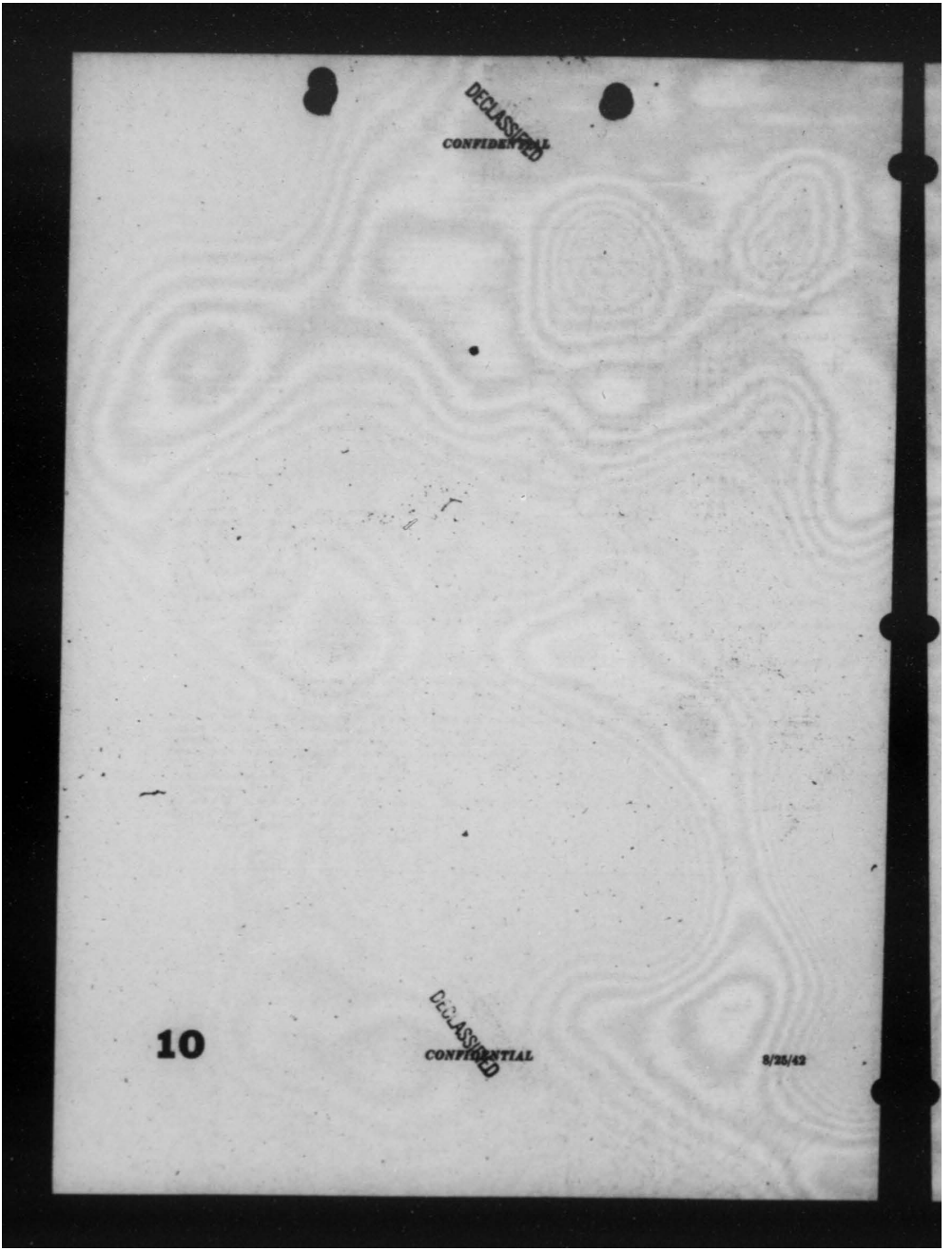
HAITI

Name	Position	Altitude	Location	Dimensions (feet)	Description	Facilities
Anse-a-Galets (La Geneve) (Ile de la Gonave)	° ′ 18 51 N 72 52 W	Feet sea level	½ mi. NE of town; N side of island.	2000 x 1700	Level, firm sand, good drainage. E side soft after rains.	Wind cone. Under construction.
Anse-a-Pitre	18 04 N 71 45 W	80	1¼ mi. N of town. Low hills to NW.	2600 x 60	Hard, sandy, level, drainage natural.	RR. Field being improved.
Anse Cayes	18 13 N 73 44 W (approx.)					Under construction.
Cap Haitien	19 45 N 72 11 W	10	2 mi. SE of town	Rectangular: 2700 x 900.	Level sod & sand, natural drainage, floods NW corner October-February.	Limited fuel, radio, telephone, minor repairs, wind cone. Operated by U. S. Marine Corps. Being developed.
Cayes la Seurre	18 10 N 71 46 W	1200	½ mi. W of town, on plateau, in valley between 2 mountain ranges.	1750 x 140 E/W	Hard sand clay, drainage good.	None.
Fort Liberte	19 40 N 71 51 W (approx.)		At Steel Plant			Under construction.
Gonaives	19 26 N 72 41 W	3	S edge of town	4000 x 600 NE/SW	Level, sandy clay, drainage poor, flooded during rainy season.	Wind cone. In town: telephone. Unserviceable, being developed.
Hinche	19 08 N 72 01 W	1000	½ mi. SW of town	1800 x 300 NNE/SSW. 300 can be added.	Sod, slope, drainage good. Suitable for use, but needs clearing.	Telephone, radio at Hinche military barracks ½ mi. E. Being developed.
Jeremie	18 39 N 74 07 W	20	N edge of town	900 x 250 NW/SE Small, dangerous.	Drainage fair, sand & sod.	Telephone, wind cone. Being enlarged.
Mole St. Nicholas	19 51 N 73 32 W	Sea level	2½ mi. NNE of town, on isthmus.	1200 x 200 N/S	Sandy, level, natural drainage. Needs clearing, dangerous.	White circle marking. In town: telephone. Being improved.
Ouanaminthe	19 33 N 71 45 W	Sea level	¼ mi. SW of town	2700 x 300 NE/SW	Sand and clay, natural drainage.	Telephone.
Pignon	19 21 N 72 06 W		S side of road, ½ mi. E of town.	1500 x 1100 NE/SW, Irregular.	Clay & sod, natural drainage. Usually good after rain.	None.
Port au Prince (Bowen)	18 32 N 72 20 W	35	½ mi. NE of city	4800 x 1800, Irregular. Runway: 4000 x 200 E/W, being extended to 4800.	Grass, soft. Runway: paved. Field will accommodate 4-engine operation. Staggered parking areas under construction.	100 octane fuel, telephone, radio, lighting, hangars, pit servicing, meteorological station, marking, wind cone, auto, RR. U. S. Army detachment, PAA. In town: accommodations.
Port de Paix	19 57 N 72 51 W	sea	½ mi. W of town	1800 E/W x 1150	Sandy clay, level, natural drainage, soft after rains, covered with scrub. Dangerous.	Wind cone. In town: telephone. Field unused. Being developed.

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

JAMAICA

Name	Position	Altitude	Location	Dimensions (feet)	Description	Facilities
	° ′	Feet				
Great Swan Island	17 24 N 80 57 W (approx.)			Large enough for 4-engine planes.		Under construction by private company.
Kingston (Palisadoes)	17 56 N 76 47 W	10	2 mi. S of city, across bay, on peninsula.	2 runways: 4000 x 150 NW/SE; 3000 x 150 E/W.	Hard	Fuel, radio, telephone, telegraph, lighting, hangars, accommodations, wind cone. British Naval land plane base.
Vernam Field	17 54 N 77 18 W	110	Approximately 35 mi. WSW of Kingston.	2 runways: NNE/SSW, NW/SE, NE/SW, 5000 each, under construction. 3000 of NNE/SSW, 3000 of NW/SE usable.	Paved	100 octane fuel, radio, minor repairs, complete facilities being installed. U. S. Air base.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

DECLASSIFIED
CONFIDENTIAL

DECLASSIFIED
CONFIDENTIAL

LESSER ANTILLES

Name	Position	Altitude	Location	Dimensions (feet)	Description	Facilities
	° ′	Feet				
Antigua Island (Coolidge)	17 07 N 61 47 W	30	5 mi. NE of St. John.	3 runways: 3000 x 150 R/W completed, NE/SW & NW/SE under construction.	Rolled soft limestone rock. Field will accommodate heaviest ships.	100 octane fuel, radio minor repairs. U. S. Army Air base.
Antigua Island (St. John)	17 08 N 61 49 W	75	2 mi. E of town	Runways: 3300 x 300 N/S; 800 x 300 NE/SW; 700 x 300 ENE/WSW.	Sod	Fuel, radio.
Aruba Island (Unnamed) (Dakota Field)	12 30 N 70 01 W	30	3½ mi. SE of town	Runway: 3000 x 150 R/W, 3050 completed.	Asphalt, natural drainage.	All facilities. U. S. Army auxiliary airport.
Barbados Island (Bridgetown)	13 05 N 59 35 W	60 (est.)	2 mi. SE of town	1470 x 675 R/W	Sod, level	Field unused.
Barbados Island (Bridgetown) (Seawell Field) (approx.)	13 05 N 59 30 W	100	About 7 mi. E of town.	2 strips: 3000 x 150 R/W & NE/SW.	One asphalt runway	100 octane fuel, telephone weather reports, markers, taxi to town.
Bonaire Island (Kralendijk) (Dabi Blanco Field)	12 13 N 68 15 W	147	4 mi. NNE of Kralendijk on Island of Bonaire. Marked by light tower at night.	1575 x 1568	Sand, salt during rainy season October-December.	Telephone, radio, wind cone, boundary markings. In town: telegraph.
Curacao Island (Willemstad) (Hato)	12 10 N 68 58 W	30	On N coast of Island, 4½ mi. NNW of Willemstad.	2 runways: 3844 x 197 WNW/ESE, being extended to 3711; 3600 x 197 R/W.	Hard surface of macadam.	All facilities. U. S. Army auxiliary airport.
Martinique Island (Fort de France)	14 36 N 61 05 W (approx.)		Near seaplane base, Fort de France Harbor.	2 runways: 3500 x 150 each	All weather, surfaced	High speed refueling, lighting.
Martinique Island (St. Pierre Roadstead)	14 45 N 61 01 W (approx.)		½ mi. N of St. Pierre Roadstead.	1476 x 656	Low grass	
St. Barthelemy Island (St. Jean Bay)	17 54 N 63 01 W		1600' from beach	Strips: 1640 x 492 NE/SW; 1476 x 328 R/W.	Level ground, grass	None.
St. Kitts (St. Christopher) (Basseterre)	17 18 N 62 41 W		2½ mi. E of Basseterre on E coast of Island.	1312 x 200 N/S (est.)	Sod and peat	None.
St. Lucia Island (Beane Field) (Vieux Fort)	13 43 N 60 58 W	30	At S end of Island	Runways: temporary 2000 R/W, permanent 3000 x 150 R/W. 2 strips: 3000 x 150 NW/SE & NE/SW under construction.	Temporary R/W runway soil; permanent R/W paved; NW/SE paved.	Fuel, radio, runway; flood, and boundary lights; hangar, accommodations, weather reports, wind cone, road, dock. U. S. Army Air base.

DECLASSIFIED
CONFIDENTIAL

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

CONFIDENTIAL
DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

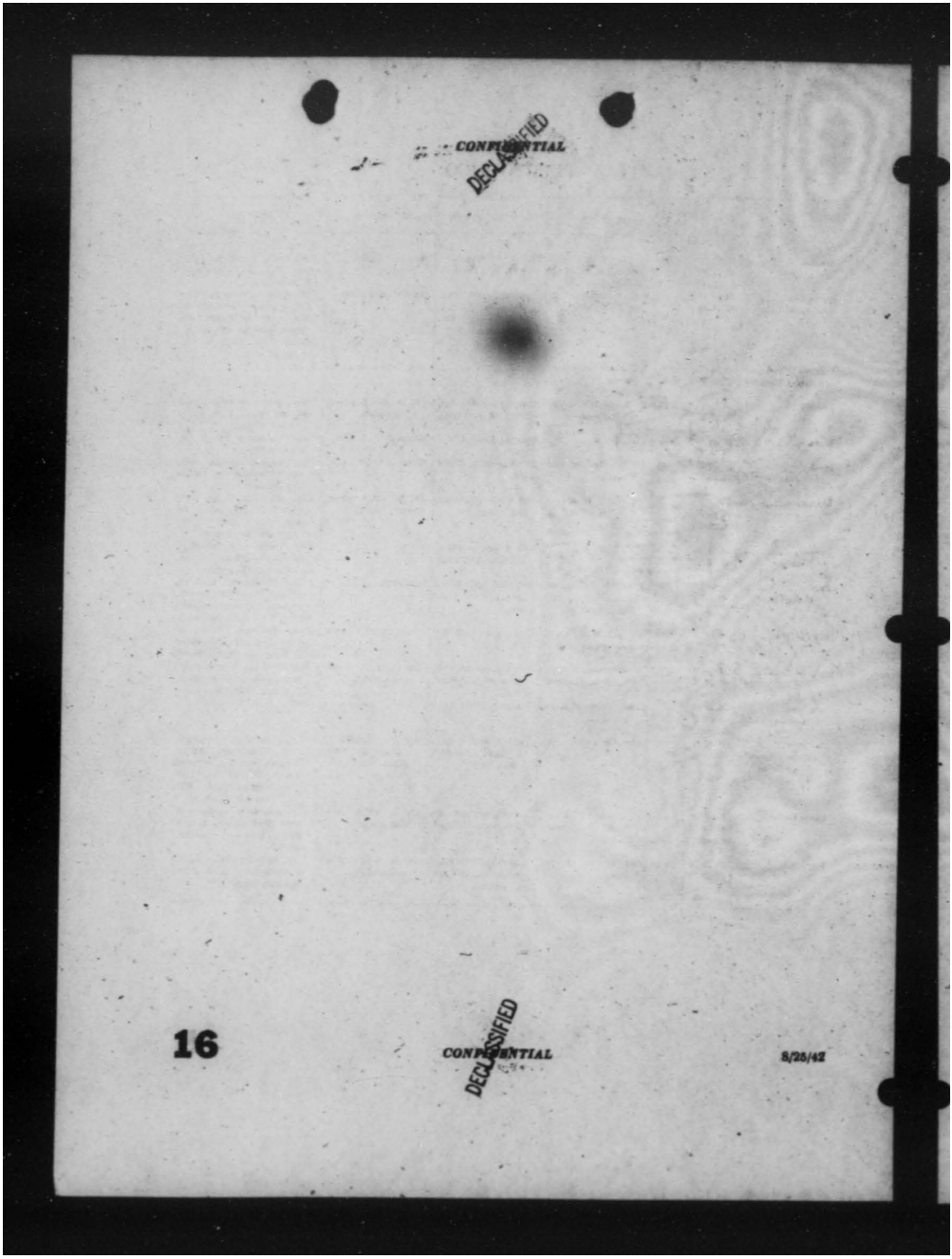
PUERTO RICO

Name	Position	Altitude	Location	Dimensions (feet)	Description	Facilities
	° ′	Feet				
Aguadilla	18 27 N 67 09 W (approx.)	10	¼ mi. N of Punta Aguadilla, 2½ mi. SE of Aguadilla.	7000 x 1500. Runway: 5000 x 300.	Runway: asphalt	Fuel, radio, telephone, lighting. U. S. Army auxiliary airport.
Borinquen (Aguadilla)	18 30 N 67 08 W		4 mi. N of Aguadilla, on NW tip of island.	Runways: 5000 x 150 ENE/WSW; 4000 x 150 NNE/SSW under construction.	Concrete & asphalt	Fuel, radio, aerophare, lighting, 3 concrete hangars, repairs, accommodations, telephone, teletype, weather reports, RR, road. U. S. Army air base.
Culebra Island (Great Harbor)	18 19 N 65 18 W	Sea level	NW end of Great Harbor on W part of Culebra.		Sod, slope to S	None.
Dorado	18 28 N 66 17 W (approx.)	75	1½ mi. W of Dorado, N of railroad.	Runways: 3700 x 300, 2600 x 300 completed.	150 ft. width paved with asphalt.	Radio, portable field lights, runway lights. U. S. Army auxiliary airport.
Guanica	17 58 N 66 56 W	Sea level	8 mi. SW of town	Landing strip: 3700 x 300.	Grass, flat	None. Operated by U. S. Forest Service.
Isla Rey (San Juan Airport)	18 26 N 66 03 W	10	1¾ mi. NE of Rio Piedras.	Landing strip: 1300 x 150.	Grass	Fuel, hangar, repairs, auto, road. Operated by Caribbean Atlantic Airline.
Mayaguez	18 14 N 67 05 W (approx.)	20	2½ mi. N of Mayaguez, E of RR & highway.	3400 x 300. Runway: 3300 x 200.	150 ft. width paved with asphalt.	Fuel, telephone, radio, portable field lights, minor repairs, runway lights. U. S. Army auxiliary airport.
Ponce (Del G)	18 01 N 66 36 W	Sea level	1 mi. E of town	4000 x 4000 irregular. Runway: 3300 x 150.	Level	Fuel, telephone, telegraph, lighting, hangar, repairs, wind cone, RR, highway.
Ponce (Losey Field)	18 01 N 66 30 W	26	7 mi. E of Ponce. Along RR, 1 mi. from ocean.	4000 x 300 E/W, 3000 x 300 under construction.	Macadam	Fuel, telephone, teletype, radio, portable lights, repairs, barracks, weather reports, RR. U. S. Army air base.
Rio Piedras	18 26 N 66 03 W	Sea level	1¼ mi. NW of town on road to San Juan.	Landing strip: 2000 x 300.	Grass, muddy when wet.	Fuel, telephone, hangar, repairs, RR, bus. Operated by Borinquen Flying School.
Salinas	17 58 N 66 16 W (approx.)	44	N of railroad & road, 1¼ mi. E of Salinas.	Rectangular 3000 x 300. Runway: 4000 x 200.	150 ft. width paved with asphalt.	Fuel, radio, telephone, portable field lights, runway lights. U. S. Army auxiliary airport.
San Juan (Canduas Field)	18 26 N 66 06 W (approx.)		2 mi. WSW of naval air station.	Runway: 3300 x 150.	Runway: paved	Radio. U. S. Naval field.
San Juan (Isla Grande Air Base)	18 27 N 66 06 W	6	1 mi. SE of city	Field: 3650 x 3250 x 4300 x 2700. Runway: 3000 x 200.	Sod firm. Considered not suitable heavy planes. Asphalt runway.	Fuel, telephone, telegraph, radio, radio range, lighting, hangars, servicing, supplies, accommodations, wind indicator, weather bureau, auto. U. S. Naval Air Station.
Santa Isabel	17 58 N 66 25 W (approx.)	27	N of RR & highway, ¼ mi. E of Santa Isabel.	Rectangular 3000 x 300. Runway: 4000 x 200.	150 ft. width paved with asphalt.	Fuel, telephone, radio, portable field lights, runway lights. U. S. Army auxiliary airport.
Vega Baja	18 29 N 66 25 W (approx.)	45	3½ mi. NW of Vega Baja.	Runway: 3000 x 300, 2 more under construction.	150 ft. width paved with asphalt.	Fuel, radio, portable lights, runway lights. U. S. Army auxiliary airport.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

TRINIDAD and TOBAGO

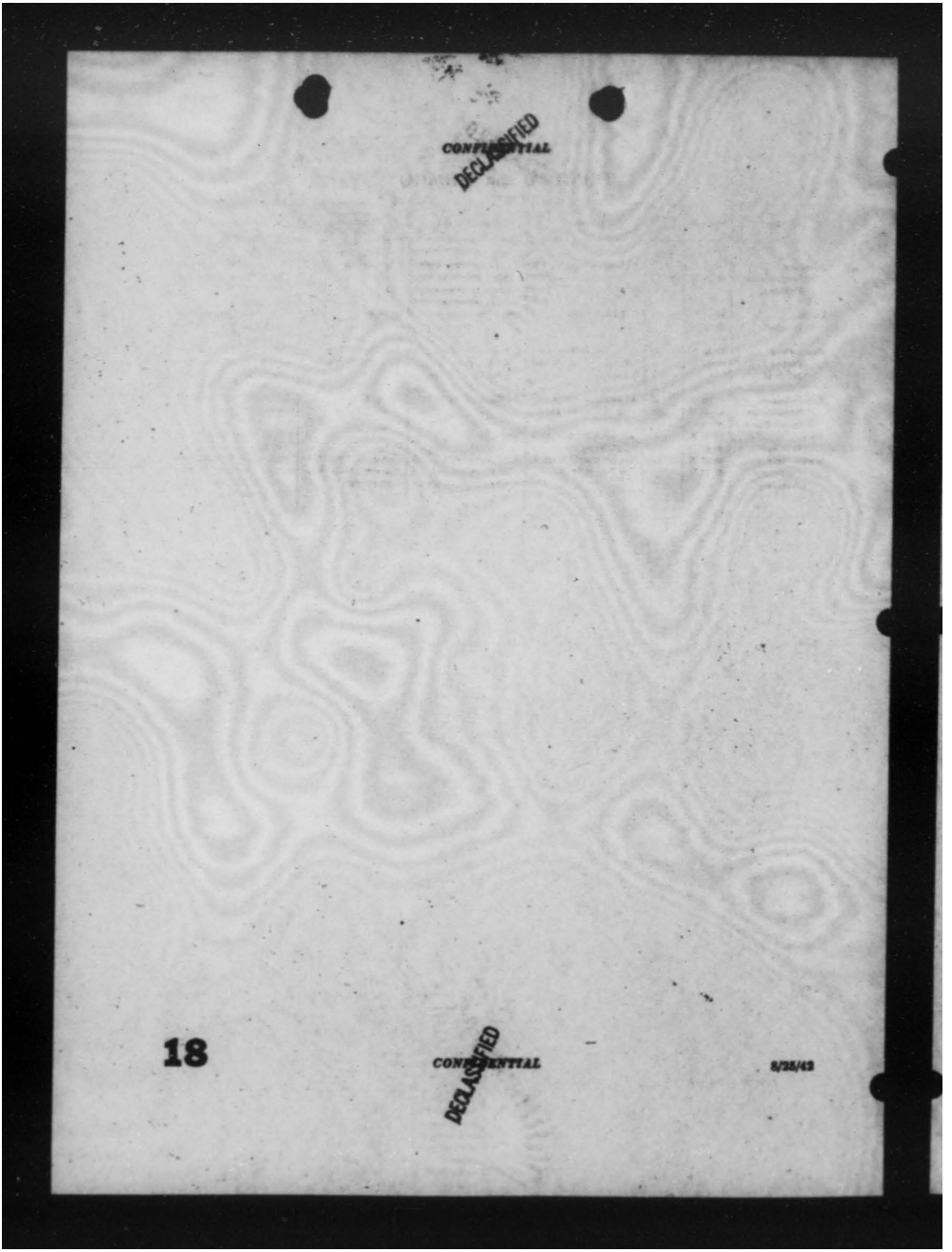
Name	Position	Altitude	Location	Dimensions (feet)	Description	Facilities
	° ′	Feet				
Edinburg (Longdenville) (Trinidad)	10 31 N 61 24 W		At Longdenville, 1 mi. S.	2 runways: 7000 x 200, 7000 x 200 under construction. One strip: 3000 x 150 ready.	Hard surface	U. S. Army air base with all facilities under construction.
La Brea (Trinidad)	10 14 N 61 37 W		S of Pitch Point	3000 x 200	Hard surface	U. S. Army auxiliary airport. All services, under construction.
Piarco Field (Port of Spain) (Trinidad)	10 35 N 61 20 W	15	14 mi. E of Port of Spain, 6 mi. W of Waller Field.	3 runways: 6300 x 150 E/W; 3400 x 150 NE/SW & NW/SE.	Runways: E/W asphalt, others sod.	Fuel, radio, lighting, servicing, hangars, accommodations, weather reports, road. PAA.
Tobago Island (Scarborough) (Sandy Point)	11 09 N 60 50 W	25 (est.)	At Sandy Point on SW tip of Tobago Island.	Rectangular: 3000 x 300	Rough sod	Telephone, small building, wind sock, taxi.
Toco (Trinidad)	10 50 N 60 57 W	15	NE tip of Trinidad near lighthouse.	2000 x 300	Clay	Use in extreme emergency only.
Waller Field (Cumuto) (Trinidad)	10 38 N 61 13 W	110	Approximately 20 mi. E of Port of Spain.	3 runways: 5000 x 150 E/W completed, 2 others under construction.	Concrete. Built to accommodate 4-engined craft.	Fuel, radio, lighting, hangars, repairs, cantonments, RR, road. U. S. Army air base.

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

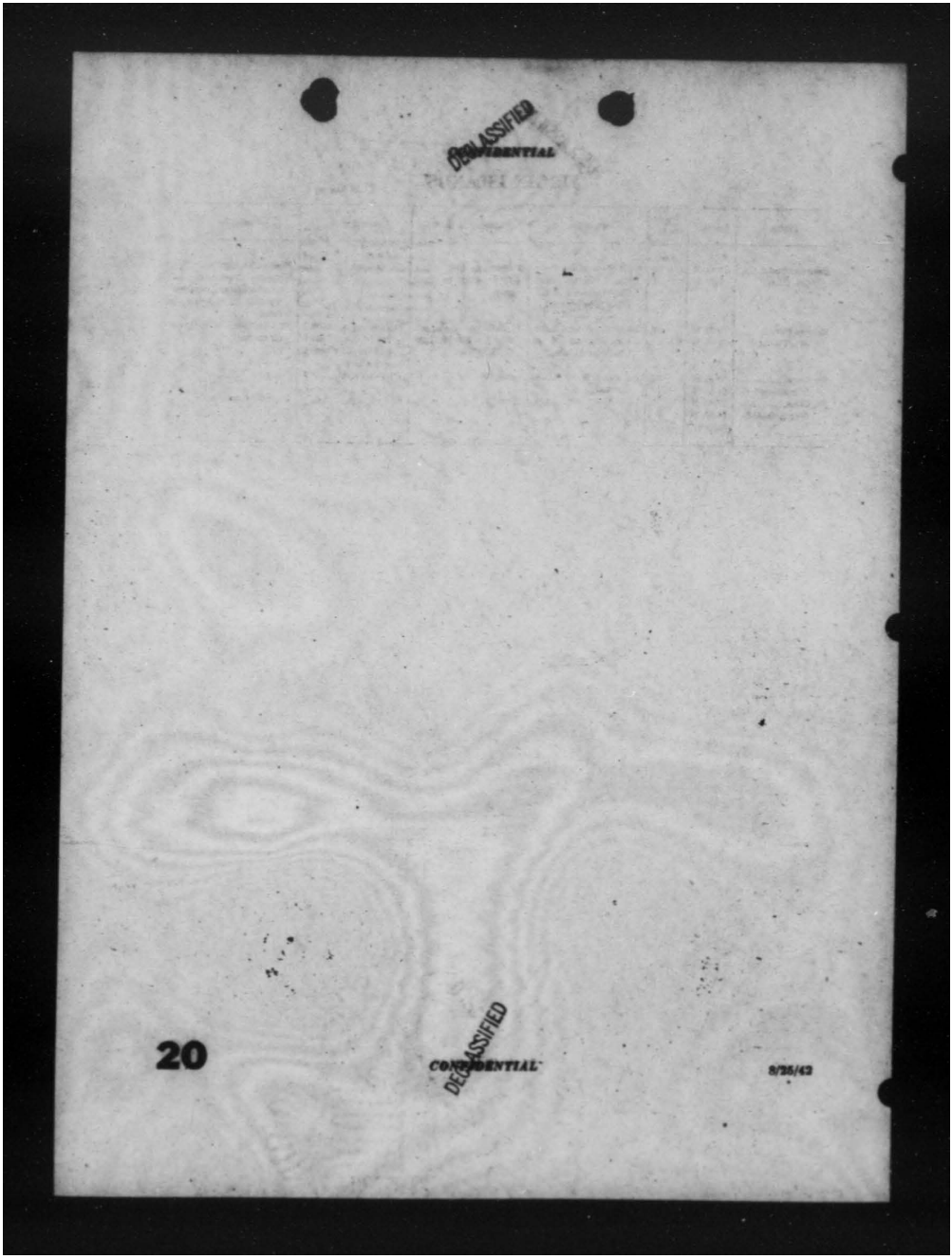
VIRGIN ISLANDS

Name	Position	Altitude	Location	Dimensions (feet)	Description	Facilities
	° ′	Feet				
Benedict Field (St. Croix)	17 43 N 64 47 W	32	On S shore of St. Croix Island, ¼ mi. from Caribbean sea & mi. SE of Frederiksted.	2 runways: 4000 x 150 N/W with 50 foot strip.	Soil cement	Fuel, radio, lighting, minor repairs, personnel accommodations, weather reports. U. S. Army air base.
Beeren Field (St. Thomas)	18 21 N 64 58 W	30	At head of Lindbergh Bay, 2½ mi. W of Charlotte Amalie.	2 runways x-shaped: 3020 NNW/SSE; 2020 ENE/WSW.	Sod, slope, & natural drainage. Field very small for heavy or fast ships.	Full facilities. U. S. Naval air station.
St. Croix (Christiansted)	17 48 N 64 43 W	30	2½ mi. NW of Christiansted.	6600 x 800	Dirt and sand	None.
St. Croix (Frederiksted)	17 43 N 64 52 W (approx.)	10	1 mi. N of town	800 x 100	Sod	Boundary markings.

SIFIED
DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED
DECLASSIFIED
DOD Dir.
Dec. 6, 80 June 1979
By [illegible] NLC Date 6/IX/76

SEAPLANE ANCHORAGES

A

City and Anchorage	Island or Island Group	Page
Acul (see Baie Acul)	Haiti	35
Admiralty Bay (see Boquia Island)	Lesser Antilles (Grenadines) (Windward Islands)	30
Aguadilla (see Bahia Aguadilla)	Puerto Rico	43
Aguirre (see Puerto Jobos)	Puerto Rico	44
Anguilla Island	Lesser Antilles (Leeward Islands)	39
Antigua Island (Parham Harbor)	Lesser Antilles (Leeward Islands)	39
Antigua Island (St. John's Harbor)	Lesser Antilles (Leeward Islands)	39
Antilla	Cuba	29
Antonio (see Port Antonio)	Jamaica	37
Aquin (see Baie Aquin)	Haiti	35
Arecibo (see Puerto Arecibo)	Puerto Rico	43
Aruba Island	Lesser Antilles (Dutch West Indies)	39

B

Bahia Aguadilla	Puerto Rico	43
Bahia Banes	Cuba	29
Bahia Boqueron	Puerto Rico	43
Bahia Calderas	Dominican Republic	33
Bahia Cardenas	Cuba	29
Bahia Catalinita	Dominican Republic	33
Bahia Honda	Cuba	29
Bahia Manati	Cuba	29
Bahia Manzanillo	Dominican Republic	33
Bahia Mayaguez	Puerto Rico	43
Bahia Monte Cristi	Dominican Republic	33
Bahia Nipe (see Antilla)	Cuba	29
Bahia Samana	Dominican Republic	33
Baie Acul	Haiti	35
Baie Aquin	Haiti	35
Baie Baradaires	Haiti	35
Baie Cayemites	Haiti	35
Baie Flamand	Haiti	35
Baie Port Liberte	Haiti	35
Baie Gonaives	Haiti	35
Baie Grande Mesle	Haiti	35
Baie Jacmel	Haiti	35
Baie Marigot (see St. Martin Island)	Lesser Antilles (Leeward Islands)	41
Baie Miragoane	Haiti	35
Baie Petit Goave	Haiti	35
Baie St. Louis	Haiti	35
Banes (see Bahia Banes)	Cuba	29
Barocoa (see Puerto Barocoa)	Cuba	29
Baradaires (see Baie Baradaires)	Haiti	35
Barbados Island	Lesser Antilles (Windward Islands)	39
Barbuda Island	Lesser Antilles (Leeward Islands)	39

CONFIDENTIAL
DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

City and Anchorage	Island or Island Group	Page
Bequia Island (Admiralty Bay)	Lesser Antilles (Grenadines) (Windward Islands)	39
Bimini Islands	Bahama Islands	37
Boqueron (see Bahia Boqueron)	Puerto Rico	43
Bourg des Saintes Harbor (see Les Saintes Islands)	Lesser Antilles (Leeward Islands)	40
Bridgetown (see Barbados Island)	Lesser Antilles (Barbados) (Windward Islands)	39
Bucco Lagoon	Trinidad & Tobago Islands (Tobago)	45
C		
Cabanas (see Puerto Cabanas)	Cuba	29
Caibarien	Cuba	29
Caimanera	Cuba	29
Cajon (see Ensenada Cajon)	Cuba	29
Calderas (see Bahia Calderas)	Dominican Republic	33
Cannouan Island (Charlestown Bay)	Lesser Antilles (Grenadines) (Windward Islands)	39
Cap Haitien Harbor	Haiti	35
Cardenas (see Bahia Cardenas)	Cuba	29
Curlacoo Island (see Tyrrell Bay)	Lesser Antilles (Grenadines) (Windward Islands)	39
Castries (see St. Lucia Island)	Lesser Antilles (Windward Islands)	41
Catalinita (see Bahia Catalinita)	Dominican Republic	33
Cat Island	Bahama Islands	37
Cayemites (see Baie Cayemites)	Haiti	35
Chaguaramas Bay	Trinidad & Tobago Islands (Trinidad)	45
Charlestown Bay (see Cannouan Island)	Lesser Antilles (Grenadines) (Windward Islands)	39
Charlotte Amalie (see St. Thomas Island)	Virgin Islands	47
Christiansted Harbor (see St. Croix Island)	Virgin Islands	47
Cienfuegos	Cuba	29
Ciudad Trujillo	Dominican Republic	33
Cocorite (see Port of Spain)	Trinidad & Tobago Islands (Trinidad)	45
Concepcion Island	Bahama Islands	37
Coral Bay (see St. John Island)	Virgin Islands	47
Cul de Sac Marin (see Martinique Island) (Marin)	Lesser Antilles (Windward Islands)	40
Culebra Island	Puerto Rico	43
Curacao Island	Lesser Antilles (Dutch West Indies)	39
D		
Dominica Island	Lesser Antilles (Leeward Islands)	39
E		
Ensenada Cajon	Cuba	29
Ensenada de Mamillard (see Cienfuegos)	Cuba	29
Ensenada Honda	Puerto Rico	43
F		
Fajardo (see Puerto Fajardo)	Puerto Rico	43
Flamand (see Baie Flamand)	Haiti	35
Fort de France (see Martinique Island)	Lesser Antilles (Windward Islands)	40
Fort Liberte (see Baie Fort Liberte)	Haiti	35
G		
Gibara (see Puerto Gibara)	Cuba	29
Goat Island (see Portland Bight)	Jamaica	37
Golfo Guanacabibe (see Ensenada Cajon)	Cuba	29
Gonaives (see Baie Gonaives)	Haiti	35

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

City and Harbour	Island or Island Group	Page
Gorda Sound (see Virgin Gorda Island)	Virgin Islands	47
Grand Bahama Island	Bahama Islands	27
Grand Cayman Island	Jamaica	37
Grande Bay (see St. Martin Island)	Lesser Antilles (Leeward Islands)	41
Grande Mesle (see Baie Grande Mesle)	Haiti	35
Great Courland Bay	Trinidad and Tobago (Tobago)	43
Great Exuma Island	Bahama Islands	27
Great Harbor (see Culeburra Island)	Puerto Rico	43
Grenada Island	Lesser Antilles (Windward Islands)	40
Grenadines (see Soqués Island) (Admiralty Bay)	Lesser Antilles (Windward Islands)	39
Grenadines (see Canouan Island) (Charlestown Bay)	Lesser Antilles (Windward Islands)	39
Grenadines (see Tobago Cays)	Lesser Antilles (Windward Islands)	41
Grenadines (see Carriacou Island) (Tyrrell Bay)	Lesser Antilles (Windward Islands)	39
Grenadines (see Little Martinique Island)	Lesser Antilles (Windward Islands)	40
Guadeloupe Island	Lesser Antilles (Windward Islands)	40
Guanacabibe (see Ensenada Cajea)	Cuba	29
Guantanamo Bay (see Caimanera)	Cuba	29
Guanica (see Puerto Guanica)	Puerto Rico	43
Guantanamo Bay	Cuba	29
H		
Havana	Cuba	29
Harbour Island	Bahama Islands	27
Honda (see Bahia Honda)	Cuba	29
Honda (see Ensenada Honda)	Puerto Rico	43
J		
Jacmel (see Baie Jacmel)	Haiti	35
Jobos (see Puerto Jobos)	Puerto Rico	44
K		
King Bay	Trinidad & Tobago Islands (Tobago)	43
Kingston	Jamaica	37
Kingstown Bay (see St. Vincent Island)	Lesser Antilles (Windward Islands)	41
L		
La Fe	Cuba	30
Lake Joyuda	Puerto Rico	43
Les Saintes Islands	Lesser Antilles (Leeward Islands)	40
Lindbergh Bay (see St. Thomas Island)	Virgin Islands	47
Little Martinique Island	Lesser Antilles (Grenadines) (Windward Islands)	40
Little San Salvador Island	Bahama Islands	27
M		
Magens Bay (see St. Thomas Island)	Virgin Islands	47
Manati (see Bahia Manati)	Cuba	29
Man-of-War Bay	Trinidad & Tobago Islands (Tobago)	43
Manzanillo	Cuba	30
Manzanillo (see Bahia Manzanillo)	Dominican Republic	33
Mariel (see Puerto Mariel)	Cuba	30
Marigot (see St. Martin Island)	Lesser Antilles (Leeward Islands)	41
Marin (see Martinique Island) (Cul-de-Sac-Marin)	Lesser Antilles (Windward Islands)	40
Marsilland (see Cienfuegos)	Cuba	29
Martinique Island (Fort-de-France)	Lesser Antilles (Windward Islands)	40
Martinique Island (Marin) (Cul-de-Sac-Marin)	Lesser Antilles (Windward Islands)	40
Martinique Island (Robert) (Robert Harbor)	Lesser Antilles (Windward Islands)	40

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

City and Anchorage	Island or Island Group	Page
Matanzas (see Puerto Matanzas)	Cuba	30
Mayaguez (see Bahia Mayaguez)	Puerto Rico	43
Media Luna Cay	Cuba	30
Miragoane (see Baie Miragoane)	Haiti	35
Monte Christi (see Bahia Monte Cristi)	Dominican Republic	33
Montego Bay	Jamaica	37
Morant (see Port Morant)	Jamaica	37
N		
Nassau (see New Providence Island)	Bahama Islands	27
New Providence Island	Bahama Islands	27
Nipe (see Antilla)	Cuba	29
Nuevitas (see Puerto Nuevitas)	Cuba	31
O		
Old Providence Island	Jamaica	37
P		
Padre (see Puerto Padre)	Cuba	31
Parham Harbor (see Antigua Island)	Lesser Antilles (Leeward Islands)	39
Petit Goave (see Baie Petit Goave)	Haiti	35
Plata (see Puerto Plata)	Dominican Republic	33
Pointe a Pitre (see Guadaloupe Island)	Lesser Antilles (Leeward Islands)	40
Ponce (see Puerto Ponce)	Puerto Rico	44
Port Antonio	Jamaica	37
Port au Prince	Haiti	36
Port Castries (see St. Lucia Island)	Lesser Antilles (Windward Islands)	41
Portland Bight	Jamaica	37
Port Morant	Jamaica	37
Port of Spain (Cocorite)	Trinidad & Tobago Islands (Trinidad)	45
Prince Rupert Bay (see Dominica Island)	Lesser Antilles (Leeward Islands)	39
Puerto Arecibo	Puerto Rico	43
Puerto Barscon	Cuba	30
Puerto Cabanas	Cuba	30
Puerto Fajardo	Puerto Rico	43
Puerto Gibara	Cuba	30
Puerto Guanica	Puerto Rico	43
Puerto Guayanilla	Puerto Rico	43
Puerto Johns	Puerto Rico	44
Puerto Mariel	Cuba	30
Puerto Matanzas	Cuba	30
Puerto Nuevitas	Cuba	31
Puerto Padre	Cuba	31
Puerto Plata	Dominican Republic	33
Puerto Ponce	Puerto Rico	44
Puerto Sagua la Grande	Cuba	31
Puerto Tanamo	Cuba	31
R		
Road Harbor (see Tortola Island)	Virgin Islands	47
Robert (see Martinique Island) (Robert Harbor)	Lesser Antilles (Windward Islands)	40
Robert Harbor (see Martinique Island) (Robert)	Lesser Antilles (Windward Islands)	40
Rocky Bay	Trinidad & Tobago Islands (Tobago)	45
Romana	Dominican Republic	33
Roosevelt Road	Puerto Rico	44

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

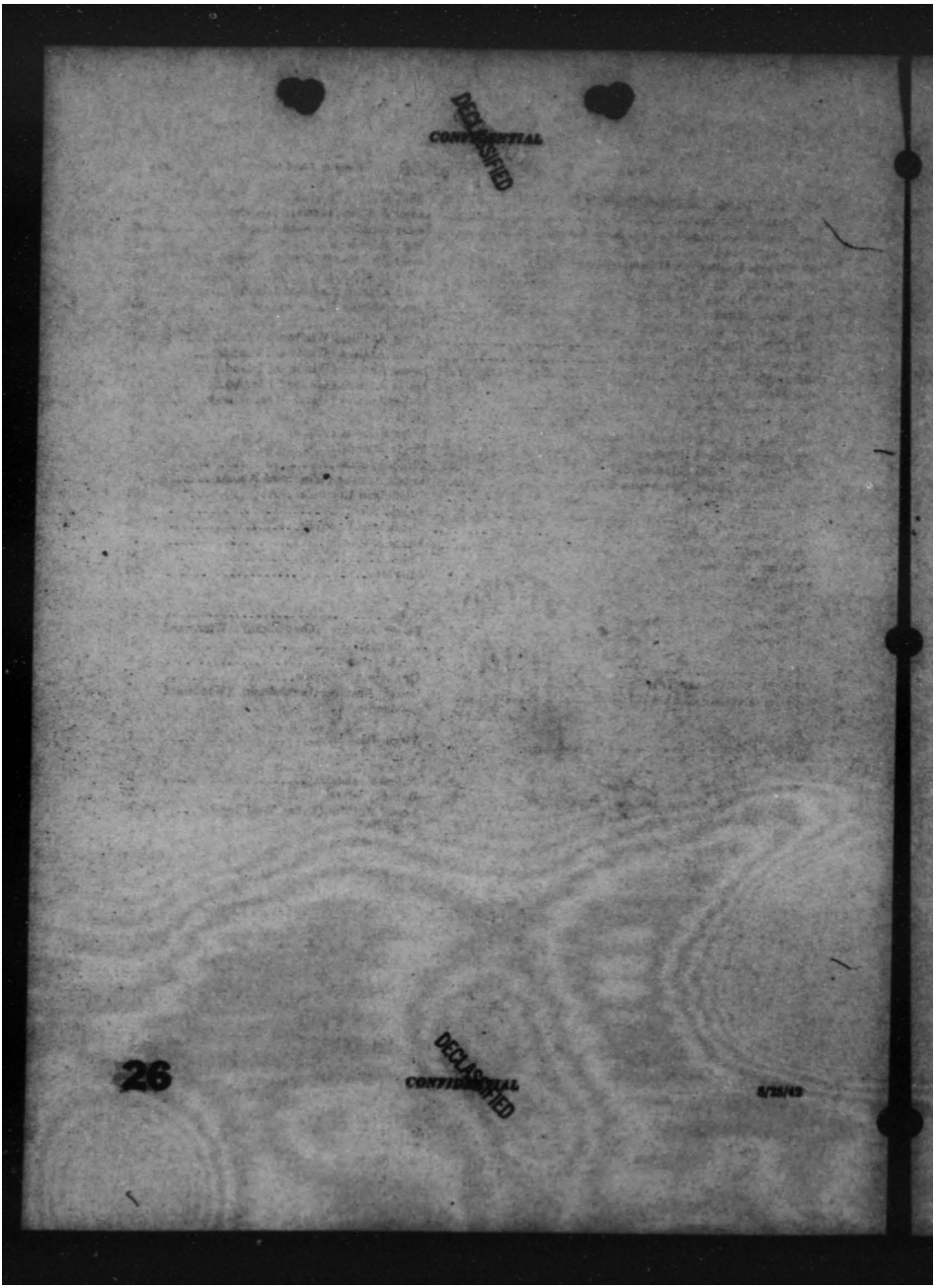
CONFIDENTIAL DECLASSIFIED

City and Anchorage	Island or Island Group	Page
S		
Sagua la Grande (see Puerto Sagua la Grande)	Cuba	31
St. Barthelemy Island	Lesser Antilles (Leeward Islands)	40
St. Christopher Island (see St. Kitts Island)	Lesser Antilles (Leeward Islands)	40
St. Croix Island	Virgin Islands	47
St. George Harbor (see Grenada Island)	Lesser Antilles (Windward Islands)	40
St. John Island	Virgin Islands	47
St. John's Harbor (see Antigua Island)	Lesser Antilles (Leeward Islands)	39
St. Kitts Island	Lesser Antilles (Leeward Islands)	40
St. Louis (see Baie St. Louis)	Haiti	36
St. Lucia Island	Lesser Antilles (Windward Islands)	41
St. Lucia Island (Port Castries)	Lesser Antilles (Windward Islands)	41
St. Lucia Island	Lesser Antilles (Windward Islands)	41
St. Martin Island	Lesser Antilles (Leeward Islands)	41
St. Nicolaas Bay (see Aruba Island)	Lesser Antilles (Dutch West Indies)	39
Saint Nicolas Mole	Haiti	36
St. Thomas Island (Charlotte Amalie)	Virgin Islands	47
St. Thomas Island (Lindbergh Bay)	Virgin Islands	47
St. Thomas Island (Magens Bay)	Virgin Islands	47
St. Vincent Island (Kingstown Bay)	Lesser Antilles (Windward Islands)	41
Samana	Dominican Republic	33
San Juan	Puerto Rico	44
San Pedro de Macoris	Dominican Republic	33
San Salvador Island	Bahama Islands	27
Santiago de Cuba	Cuba	31
Swan Islands	Jamaica	37
T		
Tanamo (see Puerto Tanamo)	Cuba	31
Tobago Cays	Lesser Antilles (Grenadines) (Windward Islands)	41
Tortola Island	Virgin Islands	47
Trujillo (see Ciudad Trujillo)	Dominican Republic	33
Tyrrell Bay (see Carriacou Island)	Lesser Antilles (Grenadines) (Windward Islands)	39
V		
Virgin Gorda Island	Virgin Islands	47
W		
Watling (see San Salvador Island)	Bahama Islands	27
West End (see Grand Bahama Island)	Bahama Islands	27
Willemstadt (see Curacao Island)	Lesser Antilles (Dutch West Indies)	39

CONFIDENTIAL DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

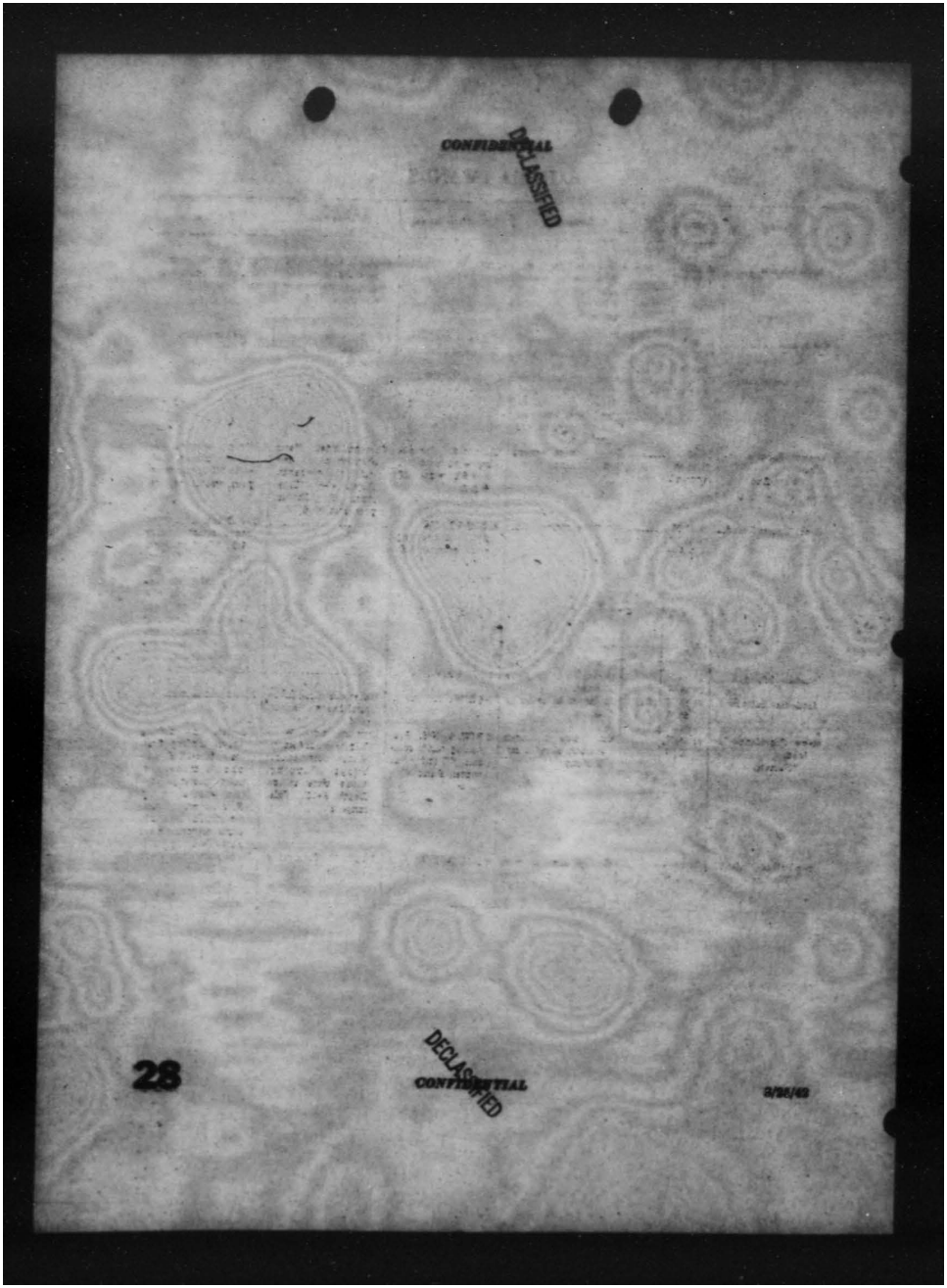
BAHAMA ISLANDS

Name	Position	Aer. Chart	Location	Dimensions (miles)	Marine data	Facilities
	° '	For				
Bimini Islands	25 45 N 79 18 W		Adjacent to Alice Town. Operation: a closed naval beach on South Bimini I. Approaches: 6° true on islands.	¼ NE&W	Shoals and reefs. Depth: 3'-6'. Shelter: none, cannot be used in rough weather.	Fuel in limited quantities, mills, provisions very limited.
Cat Island	24 29 N 75 29 W (approx.)		N of Great Exuma I. Coastline and runs around N end.	45 long x 8½ wide; tallest of Bahamas.	Shelter: none, cannot be used in rough weather.	No fuel nor repairs.
Conception Island	23 50 N 75 05 W		In lagoon in center part of Island. Landmarks: southern entrance is conspicuous high, white with green top.	1 N/S, 1 NE&W		
Great Inagua Island (West End)	21 03 N 73 05 W (approx.)		On W side of western end of Island.	Unlimited. Prevailing wind: variable, S & SE; winter, N & NE.	Currents: tidal. Water obstructions: a few visible shallow banks. Depth: 6'-9'. Tidal range: 2'. Shelter: poor from N & W.	300' ramp, beach suitable for amphibians, fuel, mills VSQ, minor repairs, weather reports.
Great Exuma Island	23 29 N 75 45 W (approx.)		Coastline: rocky	3 NW/SE, 1½ NE/SW. Prevailing wind: generally SE.		U. S. Naval Air Station commissioned May 1943. Wind and steel ramp 300' N/S; concrete parking area 400' N/S x 300 E/W. Anchorage area: 500' N/S x 300' E/W, 30' deep. 100,000 gal. tanks of 100-octane aviation gas, mills, enlistment under construction. Limited fuel, mills.
Harbour Island	25 30 N 76 58 W		1½ mi. NE of Eleuthera Island.	2 N/S, 1 E/W		Island uninhabited.
Little San Salvador I.	24 34 N 75 58 W		In lagoon in center of Island.	6½ E/W	Water obstructions: no coral heads. Shelter: good.	
New Providence Island (Nassau)	25 03 N 77 20 W		On S side of Nassau Harbor, about 1 mi. E of city.	2 E/W, 1½ N/S. Prevailing wind: summer, SE and ESE, winter, E and NE.	Currents: tidal, W to E, maximum 4 knots. Water obstructions: buoys, shipping, shoals close offshore. Depth: 9'-18'. Tidal range: 2'.	Concrete ramp, mooring buoys, landing fleet, fuel, mills-EDY, telephone, minor repairs, pneumatic station, weather reports. PAA on roof of passenger station, sand, customs airport. PAA, airport of entry. Radio station near Cockburn Town.
San Salvador Island (Watling)	24 03 N 74 32 W		East of highway from Riding Rock Anchorage.	5 N/S, 2½ E/W	Depth: 3'. Tidal range: nominal.	

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

CUBA

Name	Position	Alt. (ft)	Location	Dimensions (miles)	Marine data	Facilities
	° ′	Feet				
Antilla (Bahia Nipe)	20 50 N 75 43 W		Eastern part of Cornijal Bay at W end of Antilla. Landmarks: mountains S & SE.	Bahia Cornijal: 1¼ N/S x 1 E/W. Nipe bay, full directions. Prevailing winds: NE.	Currents: negligible. Water obstructions: shoals, buoys & stakes. Depth: 3'-10'. Tidal range: 2.3'. Shelter: good.	Mooring buoys W of town, launch suitable for supplies. 2 of Punta Cornijal, fuel, telephone, telegraph, radio-CMO, repairs, provisions, mooring buoys "Antilla" on station pad, steamship to Antilla, airport of entry.
Bahia Honda	23 05 N 82 43 W		SE of pier	2¼ N/S, 1 E/W	Currents: negligible. Water obstructions: buoys. Depth: 3'-20'. Tidal range: 3'. Shelter: landlocked bay.	Telephone, telegraph, provisions, regular steamship service, other anchorages in nearby coves.
Bahia Cardenas	23 11 N 81 08 W		N end of Peninsula Icacos. Landmarks: mountains SE.	Bahia Cardenas: 3 N/S, 2 E/W.	Water obstructions: shoals and buoys. Depth: 3'-30'. Tidal range: 1½'. Shelter: good.	Station for landing out on N shore of Peninsula Icacos at Varadero, fuel on notice, telephone, telegraph, small machine shops, provisions, steamer, RR.
Bahia Honda	22 58 N 83 10 W		Between Punta Maimaya & Punta Maimatas.	2¼ N/S, 2¼ E/W	Currents: weak. Water obstructions: coral reefs, buoys. Depth: 3'-15'. Tidal range: 1'. Shelter: good.	Telegraph in town, provisions, coastal vessels call weekly, additional anchorage nearby.
Bahia Manati	21 23 N 76 49 W		Puerto Manati channel, NE of town pier.	3 N/S along channel	Tidal Currents: 1½ knots. Water obstructions: buoys, shoals. Depth: 3'-30'. Tidal range: 1'. Shelter: good.	Telephone, telegraph, provisions, steamship service.
Caibarien	22 30 N 79 28 W		NE edge of town	Unlimited	Depth: 5'-10'. Tidal range: 2.5'. Shelter: fair.	Telephone, telegraph, minor repairs, provisions, steamer service, airplane anchorage 15 mi. NE of Caibarien.
Caimanera (Guantanamo Bay)	19 59 N 75 05 W		Inner harbor of Guantanamo Bay, N of RR pier at Caimanera. Landmarks: buoy. Sign marked "Railway Branch".	Jan Bay, 2 NE/SW, 2 E/W, 2 NW/SE. Prevailing wind: summer, SE; winter, N.	Currents: none. Water obstructions: cays. Depth: 3'-12'. Tidal range: 2½'. Shelter: subject to sudden squalls.	Telegraph, RR to Guantanamo.
Cienfuegos (Fernando de Marellano)	22 08 N 80 27 W		SE edge of town. Landmarks: stack of electric plant ¼ mi. N.	Cienfuegos Bay, 2¼ NW/SE, 2 N/S, 2¼ NNE/SSW. Prevailing wind: summer, SSW; winter, NE.	Currents: negligible. Water obstructions: shipping, buoys. Depth: 3'-12'. Tidal range: 0.5'. Shelter: excellent.	Pier with loading fleet, mooring buoys, and beach suitable for landing out across bay from town, fuel, telephone, telegraph, radio, limited repairs, passenger terminal, wharf area, steamer service, PAA, airport of entry.
Guantanamo Cajon (Golfo Guantanamo)	21 56 N 84 11 W		SE part of town	2¼ N/S, 1 E/W	Water obstructions: cays. Depth: 6'-14'. Tidal range: 1.5'. Shelter: fair.	
Guantanamo Bay	19 54 N 75 10 W		17 mi. S. of Guantanamo.			U. S. Naval Air Station with full facilities.

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CUBA—Continued

Name	Position	All-tude	Location	Dimensions (miles)	Marine data	Facilities
	° ′	Feet				
Havana	23 08 N 82 21 W		Adjacent to SE Havana. Landmarks: gilded dome of capitol building.	Havana Harbor, 1¼ N/S, 1¼ NE/SW. Prevailing wind: summer, E; winter, ENE.	Swells at harbor entrance. Water obstructions: shipping. Depth: W-W. Tidal range: 0.5'. Shelter: excellent.	Mooring buoys, loading docks and docks, emergency loading ramps (ex), fuel, telephone, telegraph, radio, minor supplies, provisions, small repairs, wind scow, 2-3-L, depot of entry.
La Fe	22 02 N 84 14 W		Adjacent to town. Coastline: rock-fringed. Landmarks: mountains on W.	2 E/W x 1¼ N/S. Prevailing wind: summer, E, NE, SE; winter, NW, N, NE.	Currents: weak. Water obstructions: small boats, submerged pubs in river N of dock. Depth: 7'-W. Tidal range: 3'. Shelter: good.	Depth for landing and to bay 11 mi. NW of Gardinas is, telephone, telegraph, provisions.
Manzanillo	20 21 N 77 07 W		In Cataguana Bay NE of RR pier adjacent to N edge of town. Landmarks: smoke stacks 150' high on seawall on waterfront N of anchorage.	3 NE/SW, 1¼-3 NW/SE. Prevailing winds: summer, W & E; winter, NNE.	Swells: moderately heavy sea. Water obstructions: broken reefs, marked, ¼ mi. N of end of pier. Depth: 7'. Tidal range: 1.5'.	Mooring buoy, suitable beaches for landing and in emergency; telephone, telegraph, radio-CLAV, minor repairs, rainy season June-October, fog Dec. to March clearing off at 1000.
Media Luna Cays	20 34 N 77 34 W		10 mi. SE of Santa Cruz del Sur.	Guacanayabo Gulf, unlimited.	Currents: weak. Water obstructions: rays, bottom. Depth: 9'-30'. Tidal range: 1.5'. Shelter: dangerous during winter.	Beach 4 mi. SE suitable for landing and amphibians. Limited provisions at Santa Cruz del Sur; summer to Habana.
Puerto Banes	20 21 N 76 59 W		Adjacent to Banes. Landmarks: mountain 4 mi. W.	Unlimited	Currents: negligible. Water obstructions: mooring buoys adjacent to town. Depth: 9'-30'. Tidal range: 2'. Shelter: exposed to wind & sea, especially winter.	Telegraph, provisions scarce, regular steamers.
Puerto Cabezas	22 00 N 82 55 W		Just N of Cabezas	3 E/W, 1¼ N/S	Water obstructions: reefs near center of landing & inkwell pier. Depth: 9'-12'. Tidal range: 0.5'. Shelter: sheltered.	Other anchorages nearby, telephone, telegraph, provisions.
Puerto Gibara	21 07 N 76 07 W		Landmarks: bright power plant lights at night at Gibara.	1 all directions	Currents: negligible. Water obstructions: buoys. Depth: 6'-30'. Tidal range: 2'. Shelter: not safe during winter months.	Telephone, telegraph, provisions in limited quantities, steamship service.
Puerto Manati	21 00 N 76 45 W		Just N of town. Landmarks: long, flat, high ridge 6 mi. SE.	1¼ N/E, 1¼ N/S, 1¼ E/W. Prevailing wind: summer, E; winter, ENE.	Water obstructions: reefs and shoals close to shore. Depth: 6'-30'. Tidal range: 2'. Shelter: very good.	Narrow channel making operations difficult with cross channel wind, fuel on adjacent berths; telegraph, telephone, minor repairs, limited provisions. Home of Cuban Naval Academy.
Puerto Mariano	22 55 N 82 24 W		SE of Customs Dock	3 N/S, 3 E/W, 1 E/W. Prevailing wind: summer, E; winter, ENE.	Water obstructions: buoys. Shelter: open to N.	Beach for landing out amphibs on Punta at Isla de Pinos, 12 mi. E of Mariano, fuel on adjacent berths, telephone, telegraph, RR, road to Havana.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

Name	Position	Abbr. note	Location	Dimensions tabled	Description	Facilities
	° ′	Fig.				
Puerto Nuevitas	21 32 N 77 16 W		1 mi. N of town. Landmarks: church & plain on hill in town.	2 NE, 2 NE&W, 2 E/W.	Currents: negligible. Water obstructions: buoys. Depth: 9'-16'. Tidal range: 1.5'. Shelter: good.	Facilities may be limited nearby, fuel, telephone, telegraph, Index of town, minor repairs, provisions. "Flamenco" painted on building top, steamship service.
Puerto Padre	21 12 N 76 36 W		Adjacent to town. Landmarks: small fort SW of town.	Bubis, Puerto Padre, 1 ESE&WSW, 2 NNE&SW. Bubis Chaparra, 3 NE, 2S, 2S E/W. 2 all directions	Depth: 5'-12'. Tidal range: 1.5'. Shelter: very good, landlocked bay.	Telephone, telegraph, good machine shop at Delicias 2 mi. inland, supplies at stores of sugar co., steamship service.
Puerto Sagua la Grande	22 37 N 80 05 W		W of harbor.		Water obstructions: buoys and spar. Depth: 5'-18'. Tidal range: 1.5'. Shelter: fair.	No facilities suitable for landing and seaplanes, telephone, telegraph, minor repairs, provisions, steamer service.
Puerto Tarnaco	22 01 N 75 09 W		N of Cape Mambi.	1 ESE/WNW, 2 NNW/SSE, 1N NNE&SW.	Currents: negligible. Water obstructions: coral heads, buoys & stakes. Depth: 5'-18'. Tidal range: 1.5'. Shelter: very good.	Telephone, telegraph, limited provisions, steamer service.
Santiago de Cuba	20 00 N 75 45 W		¼ mi. W of city.	2¼ NE&W, 1 NS, 1 E/W.	Currents: negligible. Water obstructions: buoys, beacons, islands in S part of harbor. Depth: dredged to 30' Tidal range: 1.5'. Shelter: very good.	Beaches suitable for seaplanes in emergency, fuel—87 octane, telephone, telegraph, several good machine shops & foundries, provisions, light on top steel tower, steamer service, P.A.A. airport of entry.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
CONFIDENTIAL

CONFIDENTIAL
DECLASSIFIED

DECLASSIFIED
CONFIDENTIAL

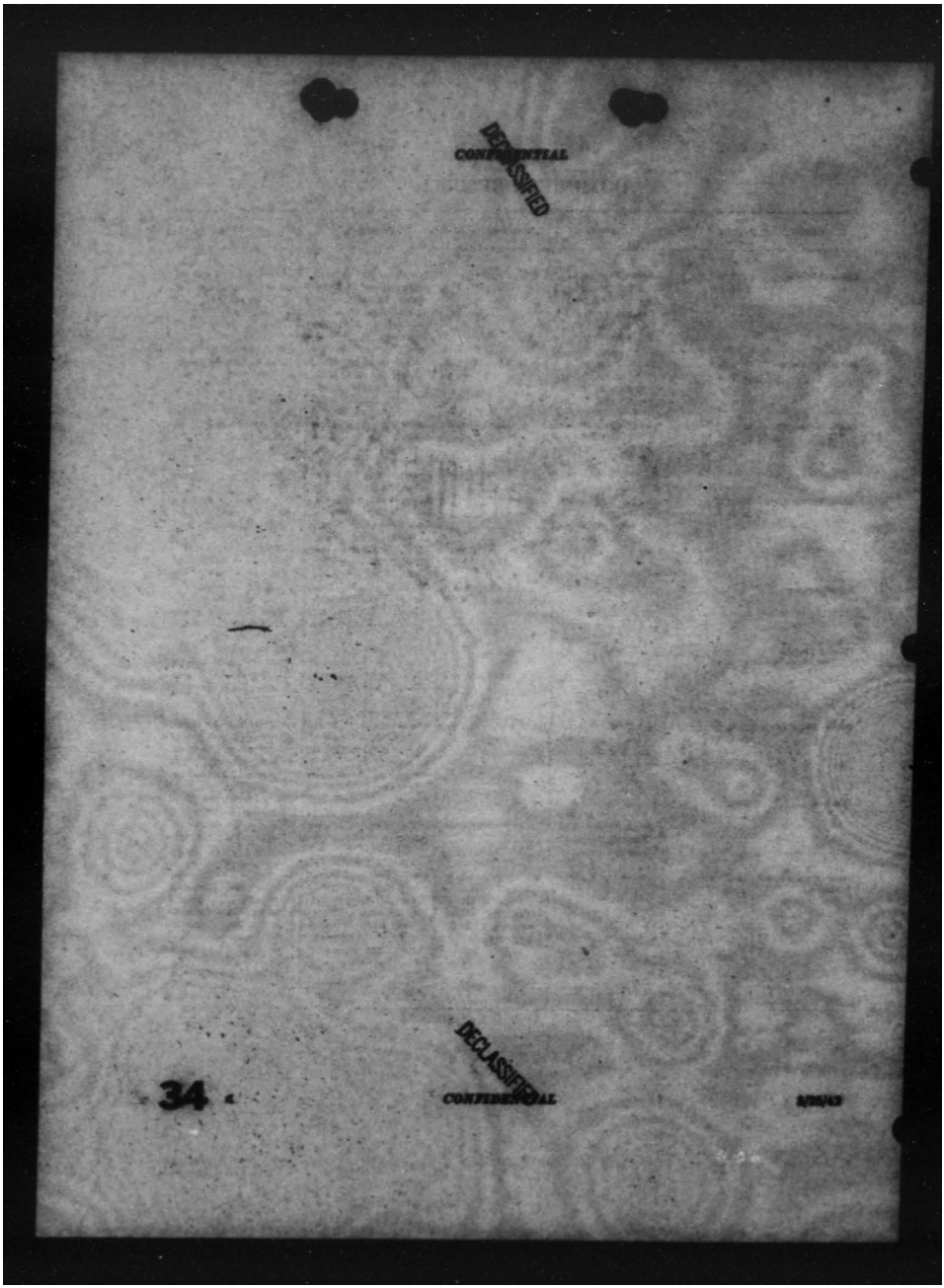
DOMINICAN REPUBLIC

Name	Position	Alti-tude	Location	Dimensions (miles)	Marine data	Facilities
Bahía Caldera	° ′ 18 33 N 70 39 W	Feet	E part of bay adjacent to the Dominican Naval Station. Landmarks: mountain 3½ mi. NW of Point Caldera.	2 E/W, 1 N/S	Water obstructions: sand banks covered with 3'-6' water. Depth: 6'-30'. Tidal range: 1'. Shelter: good, dangerous during August to October.	In emergency fuel and repairs at Dominican Air & Naval Station.
Bahía Catalinita	18 11 N 69 43 W		Just N of Isla Saona. Landmarks: W bay entrance has bright green water.	2 E/W, 1 NW/SE	Currents: tidal 2½ knots. Water obstructions: shoals. Depth: 6'-30'. Tidal range: 0.4'. Shelter: good.	Provisions on Isla Saona.
Bahía Manzanillo	19 46 N 71 46 W		N of Congress Point	2 N/S, unlimited E/W	Currents: negligible. Water obstructions: shoals close ashore. Depth: 5'-30'. Tidal range: 2'-3'. Shelter: excellent.	12 mi. on motor road to Monte Cristi.
Bahía Monte Cristi	19 52 N 71 40 W		S part of Bay. Landmarks: clock tower in town of Monte Cristi SW of anchorage.	Unlimited	Currents: negligible. Water obstructions: rocky cay. Depth: 5'-15'. Tidal range: 2½'. Shelter: exposed from N through W to SW.	Radio, telegraph to other parts of island, supplies limited, steamship service.
Bahía Samaná	19 05 N 69 37 W		On S shore	Unlimited. Bahía San Lorenzo 2 E/W.	Currents: SE 1 knot. Water obstructions: shoals Depth: 5'-30'. Tidal range: 1'-3'. Shelter: good.	Telephone, provisions at Santa Barbara de Samaná & Sánchez, irregular steamship service, RR, motor roads.
Ciudad Trujillo (Trujillo)	18 28 N 69 52 W		E of city in Río Ozama.	Unlimited	Swells: present in bay S of town and at mouth of Río Ozama. Depth: 12'-30'. Tidal range: 1'. Shelter: poor, weather varies greatly.	Fuel, telegraph, radio, minor repairs at machine shop, provisions, steamship service.
Puerto Plata	19 49 N 70 41 W		Just NW of town. Landmarks: mountain S of town.	Outside of port in open sea. Unlimited.	Swells: seasonal. Water obstructions: reefs at entrance to inner harbor. Depth: 5'-30'. Tidal range: 1.5'. Shelter: open to NE.	Seaplanes may be handled out on beach W side of basin, radio, provisions, steamer service, RR, motor road to Santiago.
Romana	18 25 N 68 57 W		In bay on E side of Río Romana, seven from sugar mill. Landmarks: sugar mill in town.	½ N/E	Water obstructions: shoals. Depth: 5'-15'. Tidal range: 1'. Shelter: fair.	Caleta beach 2 mi. W of Romana suitable for landing out seaplanes. Limited supply fuel, telephone, radio, provisions, steamship service.
San Pedro de Macoris	18 27 N 69 18 W		Adjacent to N edge of town.	Río Macoris: angle, NW/SE (probable), or ½ NE/SW. Prevailing wind: summer, ESE; winter, ENE.	Swells: heavy in SW part of harbor. Currents: weak. Water obstructions: shoals, buoys, small craft. Depth: 6'-18'. Tidal range: 2'-3'. Shelter: good.	Landing float and mooring buoys, fuel, telephone, radio-HJK, on request lighted boats designate landing area, minor repairs, passenger station, hotels, weather reports, wind cone, taxi, irregular steamer service, PAA, airport of entry.

CONFIDENTIAL
DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

HAITI

Name	Position	Alt-itude	Location	Dimensions (miles)	Marine data	Facilities
	° ′	Feet				
Baie Acul	19 45 N 72 19 W		E side of town	3 N/S, 1 E/W	Currents: negligible. Water obstructions: shoals and reefs, high land along NE shore. Depth: 9'-60'. Tidal range: 2'-3'. Shelter: good.	None.
Baie Aquin	18 16 N 73 29 W		Creek S of town	3¼ N/S, 3¼ E/W	Water obstructions: reefs on shoal area adjacent to shore. Depth: 9'-15'. Tidal range: 1'. Shelter: good.	Small quantities provisions, irregular steamship service.
Baie Bandelaire	19 51 N 72 59 W		S of Rum. Cay, SW part of Baie Bandelaire. Landmarks: white cliffs on Rum Cay.	3 NE/SW, 2 ENE/WSW.	Water obstructions: coral reefs uncovered at low tide. Depth: 9'-60'. Tidal range: 1'. Shelter: open to E.	Telegraph at town of Bandelaire.
Baie Caymites	18 25 N 73 46 W		E end of bay, near S side of passage.	2 E/W, 2 N/S	Water obstructions: patches of disturbed reefs. Depth: 9'-30'. Tidal range: 1'. Shelter: good.	None.
Baie Fleurant	19 34 N 72 25 W		At head of Baie Fleurant.	2 NE/SW, 1 E/W	Depth: 9'-15'. Tidal range: 1'. Shelter: excellent.	High temperatures.
Baie Port Liberte	19 42 N 71 49 W		SE part of bay adjacent to town. Landmarks: 3 hills 3¼ mi. W of entrance.	1 E/W, 1¼ N/S	Currents: negligible. Water obstructions: buoys, small island. Depth: 9'-30'. Tidal range: 1'. Shelter: excellent.	Telegraph in Cap Haitien, limited provisions, steamer invites only when cargo is available.
Baie Gaiadon	19 37 N 72 43 W		Adjacent to W edge of town. Landmarks: mountain 1½ mi. N of town.	2 N/S, 1¼ E/W toward open sea.	Depth: 9'-30'. Tidal range: 1'. Shelter: open to W.	Beach 600' N of town, telephone, cable, small quantities provisions, steamship service.
Baie Grande Mahle	18 34 N 73 36 W		NE part of Bay	2 NNE/SSW, 1¼ N/S, 1½ E/W.	Water obstructions: shoals and reefs along shore. Depth: 9'-30' Tidal range: 1'. Shelter: fair in NE part. Open to S.	Number of short beaches along shore.
Baie Jumel	19 13 N 72 30 W		Close to shore 600' S of dock. Locality normally congested with anchored lighters.	1½ E/W, 1 N/S toward sea.	Swells: heavy. Water obstructions: mooring buoys, unfinished breakwater. Depth: 9'-0'. Tidal range: 0.7'. Shelter: none.	No beaches in vicinity suitable for landing out lighters, small sailing ships, limited provisions, irregular steamship service, bay is unsafe during August to October and during SE storms.
Baie Mitaguana	19 37 N 72 56 W		W end adjacent to town. Also in lee of Salmon and Baie Cajo. Landmarks: monument on hill 1¼ mi. ESE of town.	Baie Mitaguana: unlimited Inner Harbor: 1 WNW/ESE.	Water obstructions: cays. Depth: 6'-0'. Tidal range: 1'. Shelter: none, except in lee of Salmon and Baie Cajo.	Telegraph, supplies are scarce, steamship service.
Baie Petit Goave	18 26 N 72 52 W		Inlet on W side of bay 5 mi. of Point Aquin-nais. Landmarks: hill 2 mi. E of Baie Petit Goave.	1¼ NE/SW, 1¼ E/W, 1¼ NW/SE, 1 N/S.	Water obstructions: Island & surrounding reef. Depth: 9'-60'. Tidal range: 1'. Shelter: open to N.	Telegraph, provisions scarce, steamship service.

CONFIDENTIAL
DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

HAITI—Continued

Name	Position	Alti-tude	Location	Dimensions (miles)	Marine data	Facilities
	° ′	Feet				
Baie St. Louis	18 15 N 73 52 W		Head of bay, adjacent to St. Louis.	2½ N/S, 1½ E/W	Water obstructions: islands and reefs. Depth: 6'-30'. Tidal range: 1'. Shelter: open to S, protected from NE.	None.
Cap Haitien Harbor	19 46 N 72 12 W		SW part of harbor adjacent to S part of town. Lat/Longitude: Castle rifles on mountain top 13 mi. S of town.	2½ N/S, 1½ NE/SW, 2½ E/W.	Currents: tidal. Water obstructions: shoals, reefs, charted buoys and shipping. Depth: 3'-30'. Tidal range: 1'. Shelter: poor.	20' yellow mooring buoy. Rocky. Few spots for landing out planes, telephone, telegraph, cable, supplies scarce, steamship service.
Port au Prince	18 33 N 72 21 W		½ mi. S of wharf at Port au Prince.	Port au Prince harbor, unlimited. Prevailing wind: summer, ANE-E, P.M.-W; winter, E.	Water obstructions: island W of anchorage, reefs SW of seaplane station, buoys, shoals. Depth: 6'-30'. Tidal range: 1.5'. Shelter: good.	Landing float, mooring buoys, winch, fuel, cable, radio, revolving beacon operated by request, repairs in emergency only, weather reports, orange roof on seaplane station, wind cone, regular steamship & airplane service, keep within marked channel from landing area to station, PAA, airport of entry.
Saint Nicolas Mole	19 50 N 72 20 W		Cove NE of town	2½ NNE/SSW, 2½ E/W.	Currents: negligible. Water obstructions: bluffs along shore. Depth: 3'-30'. Tidal range: 1.5'. Shelter: Bay open to W. Fort St. Georges Point provides lee.	Good beach adjacent to town, anchorage also obtainable in Baie Caracaga. Telegraph, provisions limited.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

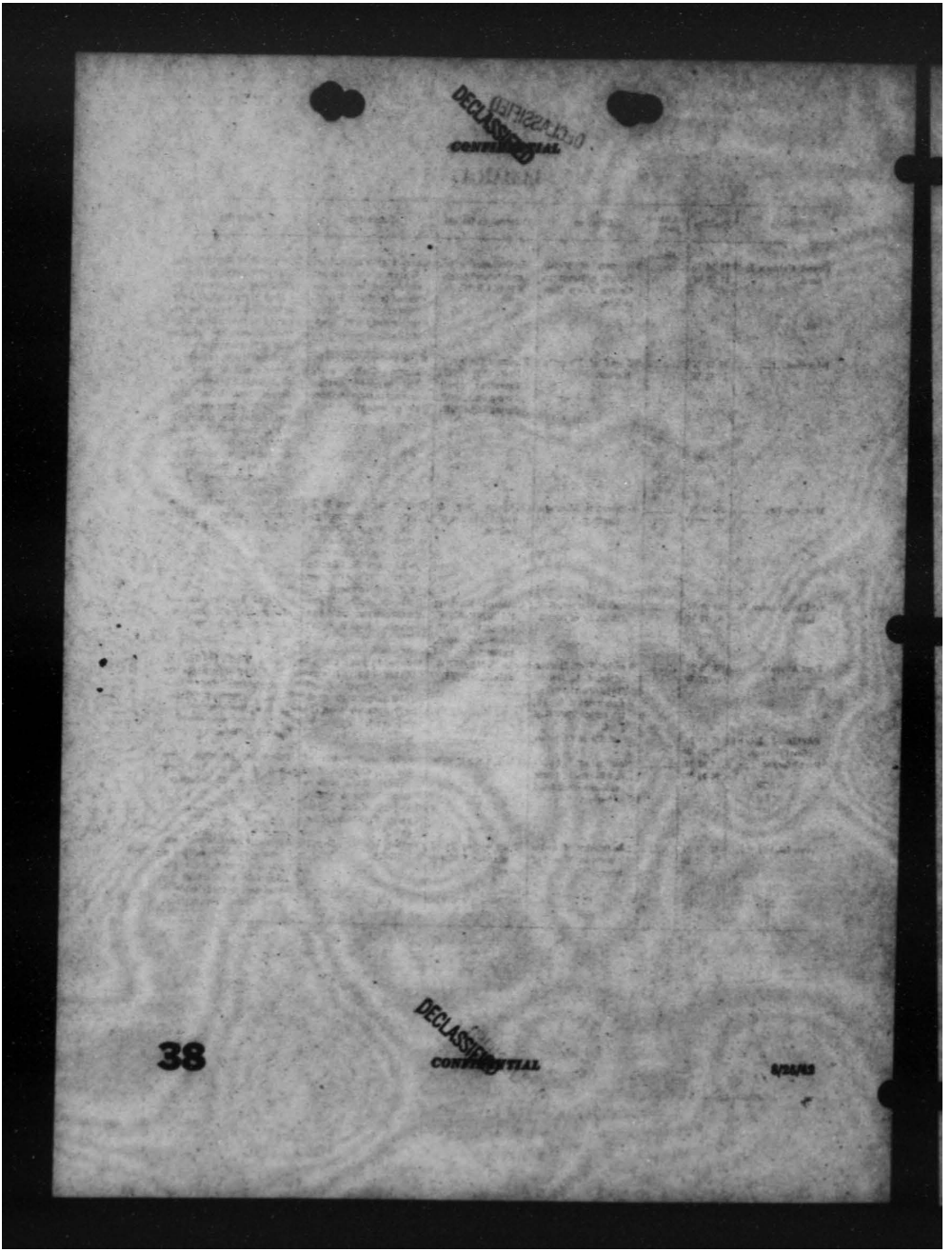
JAMAICA

Name	Position	No. on Aid-to-Navigation Index	Location	Directions (when)	Marine data	Facilities
	° ′	Ind				
Grand Cayman Island.	19 16 N 81 21 W		NW part of North Sound, adjacent to George Town Barcadere.	North Sound adjacent to anchorage: 4 NB, 4 B/W.	Currents: negligible. Water obstructions: shoals, reef across entrance to North Sound. Depth: 2'-9'. Tidal range: daily 0.5'. Shelter: fair.	NW corner of North Sound is open for anchorage during winter or northwester, the Sound is reported to have greater depths than shown on chart, radio, local telephone, provisions, steamship to Jamaica, trade.
Kingston	17 57 N 76 48 W		SE end of Kingston Harbor.	Kingston Harbor: 1 B/W, 1½ NB. Prevailing wind: during day, SE; during night NE.	Water obstructions: rocks, banks. Shelter: good, but exposed during August to October (hurricane season).	Dunlaston dock, mooring buoys, heads on each side of station for handling seaplanes, fuel, barge with complete servicing facilities, telephone, telegraph, cable, radio, D/F, floodlights on landing float, limited repairs, provisions, wind indicator, rigger and engine service, airport of entry.
Montego Bay	18 29 N 77 57 W		Adjacent to Montego waterfront.	Montego Bay 4 open sea: unlimited.	Swells: heavy from N & NW. Currents: negligible. Water obstruction: coral heads on all reefs, approach shown with caution. Depth: 3'-12'. Tidal range: 1.5'. Shelter: good.	Fuel from Kingston, telephone, telegraph, provisions, steamship, RR.
Old Providence Island.	13 21 N 81 23 W		Catalina Harbor, NW extremity of island.	Catalina Harbor: 1½ ENE/WSW, 1 NE/SW, 1 E/W. Open roadstead, unlimited.	Currents: slight. Water obstructions: reefs and shoals. Depth: 6'-12'. Tidal range: 1.5'. Shelter: good.	Dunlaston beaches suitable for landing and stepping, base-board adhesives.
Port Antonio	18 11 N 76 27 W		S end of West Harbor adjacent to Titchfield Peninsula. Landmarks: building on hill NW 5 of Port.	½ ENE/WSW x16s, ½ NW/SE	Currents: negligible. Water obstructions: shoals. Depth: 6'-50'. Tidal range: 1.5'. Shelter: protected from N by Navy I.	Various small beaches in East Harbor suitable for amphibians, fuel, telephone, telegraph, steamship service, RR.
Portland Bight (Goat Island).	17 49 N 77 08 W		30 mi. SW of Kingston.			Limited facilities.
Port Morant	17 52 N 76 20 W		Near wharf. Landmarks: radio tower on E side near head of harbor.	1 NB, 1 NNE/SSW.	Swells: near mouth of harbor. Currents: negligible. Water obstructions: buoys & shoals. Depth: 6'-50'. Tidal range: 1'. Shelter: open to E.	Telephone, telegraph, provisions, highway to Kingston; no aircraft facilities.
Swan Islands	17 24 N 83 57 W		Landmarks: 4 radio towers on W end of island.	Open sea in lee of island. Unlimited.	Swells: heavy. Depth: 7'-10'.	Anchorage for about 5 seaplanes, exposed position of islands render them undesirable as seaplane anchorages, not advisable to land except in emergency.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

LESSER ANTILLES

Name	Position	Abbr. Refs	Location	Distances (miles)	Marine data	Facilities
	° ′	Ref				
Anguilla Island	18 13 N 63 03 W		NW side of island	Between anchorage, East Islands and reefs, 1 cable distance.	Water obstructions: islets on Dawing Shoals. Depth: 3'-30'. Tidal range: 3'-4'. Shelter: good.	Note: regular mail service between Anguilla and St. Kitts.
Antigua Island (Factory Harbor)	17 07 N 61 45 W		10 mi. SE of St. John's Harbor.			U. S. Naval Air Station with full facilities.
Antigua Island (St. John's Harbor)	17 08 N 61 51 W		In harbor on W side of town. Landmarks: small wooded ridge with parks at each end SE of town.	St. John's Harbor: 1M, N/W x M, S/E; St. John's Reef: unlimited. Prevailing wind: east, E; winter, E.	Water obstructions: small boats. Depth: 3'-6'. Tidal range: slight; daily 1.5'. Shelter: good.	Pier, several beaches, telephone, cable, aircraft radio, minor repairs, limited provisions, trial runs on large, steamer and airplane service. PAA, airport of entry.
Aruba Island (St. Nicholas Bay)	12 30 N 69 54 W		SW end of island	1 N/W, M S/E	Water obstructions: rocks, shipping. Depth: 6'-12'.	Port, radio at Oranjestad, local merchandise, citizens caution arrival as charts show no soundings or location of obstructions.
Barbados Island (Bridgetown)	13 06 N 59 37 W		M mi. S of town. Landmarks: 2 radio masts NW part town.	Carlisle Bay; unlimited.	Swells: dangerous during trade winds. Current: weak & irregular. Water obstructions: buoys, submerged wreck 1.5NW N of Needham Point Lighthouse. Depth: 3'-30'. Tidal range: 5'. Shelter: fair.	Nearby beaches subject to development, small amounts fuel available, notice required for large amounts, refueling facilities by boat, telephone, telegraph, radio, minor repairs, provisions, steamer service.
Barbuda Island	17 39 N 61 49 W		In lagoon adjacent on E to Codrington Village.	In lagoon: 1½ N, 1 S	Water obstructions: shoals. Depth: 9'-15'. Shelter: good.	Beach for use in extreme emergency on Palmetto Point SW of anchorage, schooner to Antigua.
Dogata Island (Admiralty Bay) (Grenadines)	12 29 N 61 34 W		NE part of bay	Admiralty Bay: 1 NE x ½-¾ S/W deeper open sea. 1 N/E, E/W unlimited toward open sea.	Depth: 10'-24'. Tidal range: variable, about 1.5'. Shelter: good.	Beach at head of bay might be utilized, no supplies.
Carriacou Island (Clarkstown Bay) (Grenadines)	12 31 N 61 29 W		Adjacent to E short of Clarkstown Bay. Landmarks: a high peak in N part of island.		Water obstructions: shoals & reef in SW part. Depth: 6'-21'. Tidal range: 1'. Shelter: open to W.	
Carriacou Island (Tyrrell Bay) (Grenadines)	12 27 N 61 29 W		Tyrrell bay at SW end of Carriacou Island.	Open sea	Depth: 3'-30'. Tidal range: 1'. Shelter: open to W.	In hurricanes planes may take shelter in lagoon N of Tyrrell Bay.
Carriacou Island (Wilkesmith)	12 27 N 61 28 W		About 1 mi. NE of center of town, near clear into shoal & avoid grounding. Landmarks: oil refinery.	With light winds planes should taxi out and take-off in open sea. 1 E/W, ¾ NE/SW, ¾ N/S.	Water obstructions: shoals, mooring buoys shipping. Depth: 6'-30'. Tidal range: 1'. Shelter: excellent.	Mooring buoys, beach suitable for landing out amphibians on NE shore of Tyrrell Bay, fuel, telephone, radio, cable, small repairs, provisions, steamship service, base of Dutch Airline Service KLM, airport of entry.
Dominica Island (Prince Rupert Bay)	15 34 N 61 29 W		NE part of bay adjacent to town of Portsmouth.	Prince Rupert Bay: 1½ NE, 1 E/W toward open sea.	Depth: 6'-30'. Tidal range: 1.5'. Shelter: good protection from all winds except W & SW.	Telephone, radio at Roseau cable. Prince Rupert Bay and the NE part of island unhabited.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

LESSER ANTILLES—Continued

Name	Position	Alti-tude	Location	Dimensions (miles)	Marine data	Facilities
	° ′	Feet				
Grenada Island (St. George Harbor)	12 03 N 61 45 W		Head of inner harbor, SE of St. George. Landmarks: 2 radio towers N of town.	St. George outer harbor, unlimited.	Currents: none. Water obstructions: buoys. Depth: 30'-60'. Tidal range: 1.5'. Shelter: open sea, open sea. Reportedly navigable all within inner harbor.	Beach suitable for landing and supplies on northwest side of entrance to Carenage, telephone, radio, cable, provisions, limousine service, inner harbor not restricted for sole landings & take-offs. Pilots now land in outer harbor & taxi in or out.
Guadeloupe Island (Pointe Pitre)	16 14 N 61 32 W		Along W side of channel close to town.	Outer harbor: 3 all directions; inner harbor: 1½ NNW/SSE 1¼. Prevailing wind: Summer, NW; Winter, NW.	Currents: weak. Depth: 30'-50'. Tidal range: Chiefly diurnal, mean range 0.9'. Shelter: excellent.	4 mooring buoys, beaches suitable for landing and supplies at Caribbean Island and W side of harbor, fuel at service buoys, telephone, telegraph, cable, radio, seaport with space for 2 seaplanes, minor repairs, supplies, confined reefs, amateur service, F.A.A. airport of entry.
Les Saintes Islands (Georg Dee Saintes Harbor)	15 52 N 61 36 W		Adjacent to village. Landmarks: large trees S of village.	1 N/S, 1 E/W. Large lake-off reefs in open sea.	Water obstructions: rock and shoals. Depth: 5'-30'. Tidal range: about 3'. Shelter: fair.	Telegraph, radio.
Little Martinique Island. (Grenadines)	12 31 N 61 26 W		Adjacent to NW coast of Island.	NW of island: 1½ NE/SW, 1 NW/SE.	Currents: attain at times rate of 3 knots W of island. Water obstructions: coral reefs & sand cays. Depth: 6'-30'. Tidal range: 1'. Shelter: good.	None.
Martinique Island (Fort de France)	14 36 N 61 04 W		¾ mi. SE of city. Landmarks: radio towers SE of city, white dome protrude 2 mi. NE of city.	Bale Fort de France 1 N/S, 2 E/W. Prevailing wind: ENE.	Tidal range: 1'. Shelter: good, open to S.	Good anchorage with beach 4 mi. S of town, dock & landing platform, fuel, telephone, telegraph, radio, barges, water supply, provisions, customs & airplane service, F.A.A. airport of entry.
Martinique Island (Marin) (Cul de Sac Marin).	14 27 N 60 52 W (approx.)		SW of town.			
Martinique Island (Robert) (Robert Harbor)	14 41 N 60 53 W (approx.)		E of town.			
St. Barthelemy Island.	17 54 N 62 51 W		Small anchorage in inner harbor of Port de Gustavia.	Open sea. Unlimited.	Water obstructions: small boats & fishers. Depth: 6'-12'. Tidal range: 1'-2'. Shelter: good within the inner harbor.	None.
St. Kitts Island (St. Christopher I.)	17 18 N 62 45 W		Adjacent to town on E.	Basseterre Roads & open sea, unlimited.	Depth: 4'-20'. Shelter: open roadstead.	No aircraft facilities, radio, cable, provisions.

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

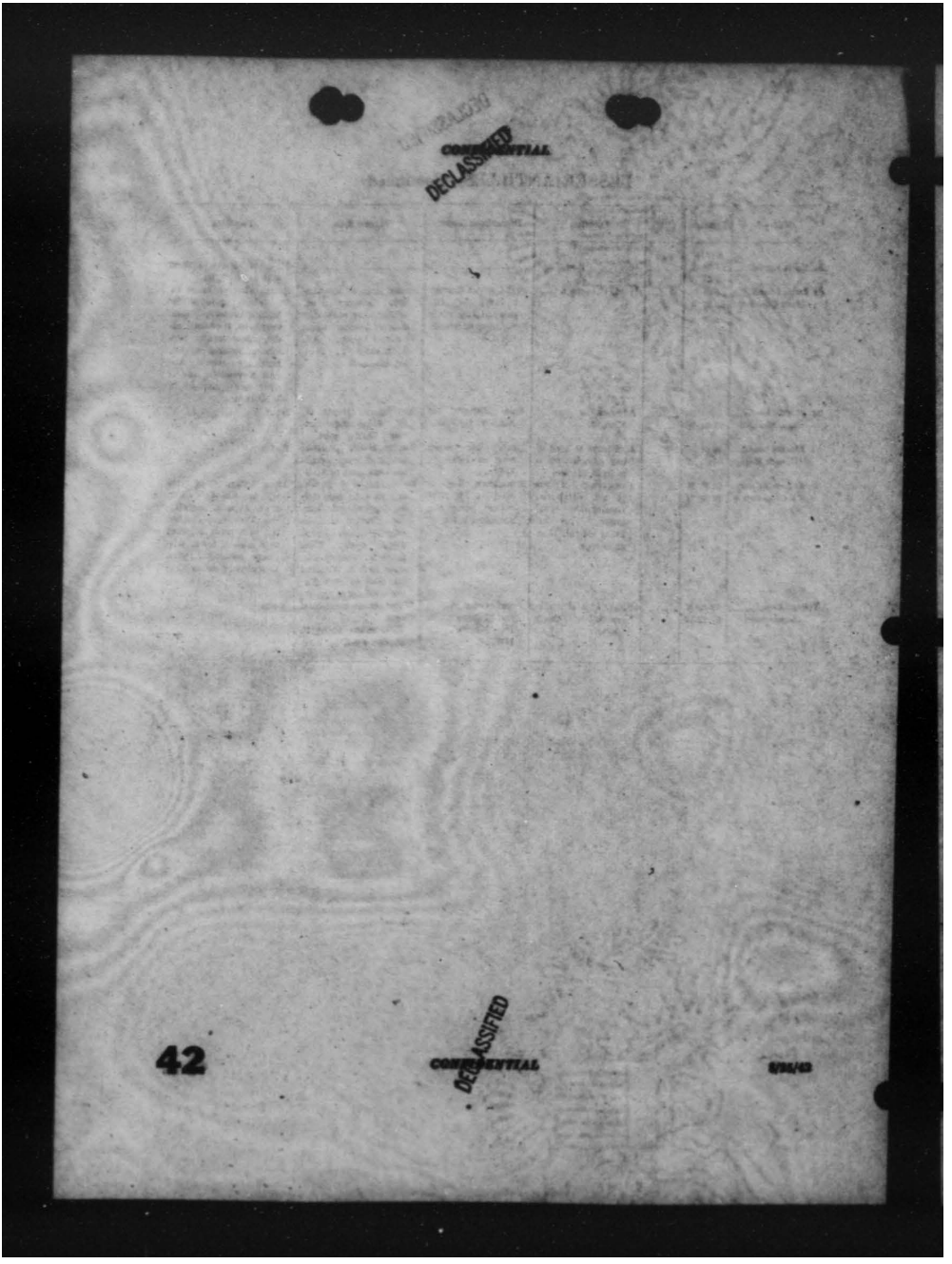
LESSER ANTILLES—Continued

Name	Position	Air-fields	Location	Directions (tides)	Marine data	Facilities
	° ′	Feet				
St. Lucia Island	14 02 N 60 58 W		Just NE of Port Castries.			U. S. Naval Air Station with full facilities.
St. Lucia Island (Port Castries)	14 01 N 61 00 W		¼ mi. W of town	Port Castries Harbor: 1 NW., mir 6ft. prevailing wind: summer, E; winter, ENE.	Swells: minor consequence. Currents: none. Water obstructions: shoal heaves, small buoys. Depth: 5'-42'. Tidal range: 2'. Shelter: excellent.	Ramp, wharves, beach on N shore suitable for hauling out seaplanes, telephone, telegraph, radio, minor repairs, provisions, steamer service, hurricane season August-November; one of most secure harbors in West Indies.
St. Martin Island (Baie Marigot)	18 04 N 63 05 W		Adjacent to town of Marigot.	Baie Marigot: 1¼ NE/E, 1¼ E/W.	Surf: heavy. Depth: 6'-12'. Tidal range: variable. Shelter: good.	None.
St. Martin Island (Grande Bay)	18 01 N 63 04 W		Anchorage at head of bay adjacent on E to Philipsburg.	Grande Bay toward open sea, 1 NE, N E/W.	Depth: 6'-12'. Shelter: protected from prevailing wind, open to E.	Radio.
St. Vincent Island (Kingstown Bay)	13 09 N 61 14 W		Along beach S of town ¼ mi. offshore. Landmarks: radio towers. Fort on Point 1¼ mi. W of anchorage.	Kingstown Bay & open sea, N N/W toward open sea; unlimited E/W.	Swells: heavy & unsuitable for anchorage during September & October. Current: at times velocity almost 2 knots. Depth: 6'-60'. Tidal range: 2'. Shelter: fair, open to S & W, wind has great violence during middle of day.	Along waterfront of town will accommodate about 6 amphibians, amphibians have been hauled out at a point adjacent to S edge of town. telephone, telegraph, radio, provisions, steamer service.
Tobago Cays (Grenadines)	12 28 N 61 22 W		Either side of northernmost of Tobago Cays.	Area between Mayreau and Tobago Cays, 1¾ NE/W, 1¾ NW/E.	Water obstructions: coral reefs. Depth: 6'-36'. Tidal range: about 2'. Shelter: good.	None.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

PUERTO RICO

Name	Position	Abbreviation	Location	Dimensions (feet)	Marine data	Facilities
	° ′	Fnd				
Bahia Aguadilla	18 29 N 67 10 W		Just W of town. Landmarks: building near beach at S end of town.	Unlimited	Depths: 5'-30'. Tidal range: 1'. Shelter: Heavy N wind from November to March.	Provisions, RR.
Bahia Boqueron	18 01 N 67 10 W		Adjacent to settlement at NE corner of bay.	Any part of bay. 1½ N/S, 1½ E/W.	Depths: August to October 6ft. Current: negligible. Water obstructions: buoys at channel entrance and Banks Shoal. Depths: 5'-30'. Tidal range: 1'. Shelter: excellent, except August to October.	Provisions, good roads.
Bahia Mayaguez	18 13 N 67 10 W		Adjacent to S edge of town.	2 N/S, 2 E/W	Currents: negligible. Best when heavy, head northeast at N end of town. Water obstructions: shoals and buoys. Depth: 5'-30'. Tidal range: 1.1'. Shelter: good, except during a hurricane.	Aircraft mooring buoy, emplacement here used - Bahia Mayaguez as refueling Point, shore of bay near town is beach, telephone, telegraph, minor repairs, provisions, RR, steamer service. 2 mooring buoys, one 300' from town of Dewey, 300' off shore from Pier at San Idelfonso, excellent all-season anchorage.
Cabeza Island (Grand Harbor)	18 18 N 65 37 W		NE part of Grand Harbor.	2 NW/SE, 2 E/W	Water obstructions: buoys. Depth: 5'-30'. Tidal range: 0.7'. Shelter: well protected except from SE winds.	None.
Ensenada Honda	18 14 N 65 37 W		Adjacent to N shore	1½ N/S, 1½ E/W	Depths: 5'-30'. Tidal range: 0.5'. Shelter: open to S, but offer some protection.	
Lake Aguas	18 05 N 67 11 W		6 mi. SW of Mayaguez.	Medium-sized lake.	Prevailing winds easterly. Visibility: good.	Anchorage with ramp, fair road.
Puerto Arecibo	18 29 N 66 43 W		W of Punta Morrillos. Landmarks: Punta Morrillos lighthouse.	Puerto Arecibo and open sea unlimited.	Currents: negligible. Water obstructions: rocks W of Punta Morrillos. Depth: 5'-30'. Tidal range: 0.9'. Shelter: open N, depend to sea.	Telegraph, provisions, RR.
Puerto Rajado	18 20 N 66 37 W		Adjacent to shore N of town. Landmarks: stacks of sugar mills.	1½ NNW/SSE	Swells: winds from NE. Currents: negligible. Water obstructions: cays and reefs. Depth: 5'-30'. Tidal range: 1.1'. Shelter: sheltered by Obispo and Ratones Cays.	Provisions, road.
Puerto Ceiba	17 58 N 66 55 W		NW part of town	1½ NW/SE	Currents: negligible. Water obstructions: stack of sugar mill SW, shows no clear, high and wooded. Depth: 5'-30'. Tidal range: daily 0.3'. Shelter: good, one of best harbors harbors on E side of Puerto Rico.	Loaded take-offs dangerous unless planes have sufficient reserve power, radio, minor repairs at sugar mill machine shop, provisions.
Puerto Ceiba	18 02 N 65 40 W		2 mi. SE of town	2 NE/SW, 1½ N/S, 1½ NW/SE.	Currents: negligible. Water obstructions: stacks and buoys. Depth: 5'-30'. Tidal range: daily 0.3'. Shelter: good. One of best harbors harbors in Puerto Rico.	No supplies.

CONFIDENTIAL

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

PUERTO RICO—Continued

Name	Position	Alti-tude	Location	Dimensions (miles)	Marine data	Facilities
	° ′	Feet				
Puerto Johns (Aguirre)	17 57 N 66 13 W		Just S of village of Central Aguirre. Landmarks: smokestack of Central Aguirre.	1 R/W, 1½ NE/SW, 2 N/S.	Swells: small swells through Bass did Inferno with E winds. Depth: 5'-18'. Tidal range: chiefly daily 0.5'. Shelter: good.	Telephone, telegraph, provisions.
Roosevelt Road	18 15 N 65 37 W		4 mi. SE of Fajardo.			Under construction.
San Juan	18 28 N 66 06 W		In San Juan Harbor, either N or E of Isla Grande Airport.	San Juan Harbor: 2 N/W, 1½ SE. Prevailing wind: E.	Swells: at harbor entrance during N winds. Currents negligible. Water obstructions: small heads & buoys. Depth: 5'-30'. Tidal range: 1.1. Shelter: excellent.	All aircraft facilities including ramp capable of handling any type of seaplane, mobile equipment, etc. PAA, airport of entry.
Puerto Ponce	17 59 N 66 37 W		Adjacent to E edge of town. Landmarks: Fire and oil plant.	1 ENE/WSW, 2 E/W, 1½ NW/SE.	Currents: negligible. Water obstructions: buoys & reefs. Depth: 5'-18'. Tidal range: daily 0.5'. Shelter: fair, dangerous during August to October.	Suitable for landing out seaplanes, not suitable for amphibians, fuel at airport, minor repairs, provisions, steamer service, RR, roads.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

TRINIDAD and TOBAGO

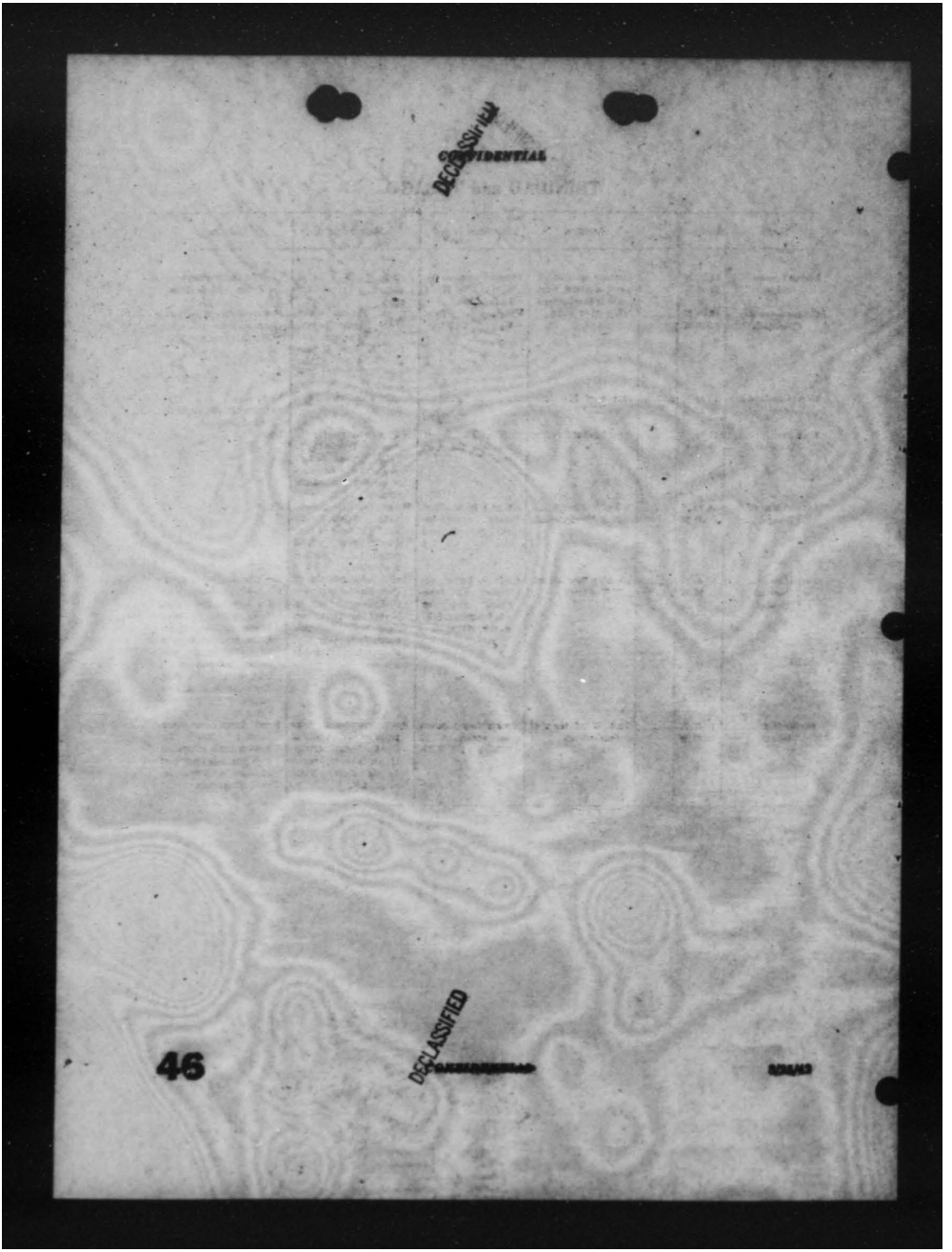
Name	Position	Alt. feet	Location	Dimensions (miles)	Marine data	Facilities
	° ′	Fnd				
Buccoo Lagoon (Tobago)	11 10 N 60 49 W		Buccoo Lagoon at SW end of island, 6 mi. SW of Scarborough.	Buccoo Lagoon: 1 R/W, 1 WNW/ RRR, ¼ NR.	Depth: 5′-12′. Tidal range: 1.5′. Shelter: good.	Reported best landing area in Tobago. No facilities.
Charlotteville Bay (Tobago)	11 19 N 60 35 W		NW part of island.	Charlotteville Bay: 1¼ R/W, 1 NR.	Currents: Smarts. Water obstructions: buoys, steel bank extends 1000′ from N shore of bay. Depth: 6′-30′. Tidal range: 1′. Shelter: good.	Fuel available on request from seaplane station at Canaille. Facilities limited.
Great Courland Bay (Tobago)	11 19 N 60 47 W		Just S of Plymouth town.		Swells: When wind is from E.	Small beach near Plymouth suitable for landing out seaplanes.
King Bay (Tobago)	11 16 N 60 33 W		Near head of Bay	1 NR. For larger take-off, the open sea.	Water obstructions: shoals. Depth: 6′-30′. Tidal range: 1.5′. Shelter: fair. Extremely variable wind at anchorage.	None.
Man of War Bay (Tobago)	11 20 N 60 32 W		NE part of Bay, ¼ mi. N of Charlotteville.	About 1 fa all directions. Larger take-offs toward open sea.	Water obstructions: reefs, rocks and island near middle of head of bay. Depth: 6′-30′. Tidal range: 1.5′. Shelter: open to N.	None.
Port of Spain (Chaguita) (Trinidad)	10 40 N 61 32 W		Caroni Bay: 8N mi. NW of town.	Gulf de Paria: unlimited all directions. Prevailing wind: summer, NE; winter, NE to E.	Swells: occasionally heavy. Currents: follow coast with velocity of ½ knot. Water obstructions: small boats. Depth: 6′-30′. Tidal range: 2½′. Shelter: fair, exposed to S & W.	Dock, loading floats, mooring buoys, ramp, buoys for launch, fuel, radio, D/F, white revolving beacon on pier, marker lights, new hangar, 50′ x 50′ x 17.5′, repairs, passenger terminal, wind cone, ramp roof on pier, commodity and airplane service, PAA, airport of entry.
Rockly Bay (Tobago)	11 19 N 60 45 W		Just W of town of Scarborough.	Rockly Bay adjacent to anchorage. 2 NE/W, 1 NW/E.	Swells: continuous from trade winds; equals at night. Water obstructions: shoals, rocks. Depth: 6′-30′. Tidal range: 1.5′.	Small beach near Scarborough suitable for landing out seaplanes; at high tide only small part of beach left uncovered, radio, provisions.

CONFIDENTIAL

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

VIRGIN ISLANDS

Name	Position	Alti-tude	Location	Dimensions (miles)	Marine data	Facilities
	° ′	Feet				
St. Croix Island. (Christiansted Harbor).	17 45 N 64 42 W		Adjacent to town and S of Protestant Cay. Landmarks: hills in back of town.	½ N/S, ½ E/W	Water obstructions: shoals and reefs. Depth: 9'-30'. Tidal range: Daily 0.8'. Shelter: protected from sea by Longreef.	Small unsheltered harbor restricted by reefs and shoals, cable, supplies, steamer service.
St. John Island. (Coral Bay).	18 20 N 64 43 W		N parts of Hurricane Hole and Round Bay.	Coral Bay: 3/4 NW/SE, 1 E/W.	Water obstructions: reefs. Depth: 9'-30'. Tidal range: 0.7'. Shelter: well protected, except from SE wind. Fair all-season anchorage.	Supplies.
St. Thomas Island. (Charlotte Amalie).	18 20 N 64 56 W		Adjacent to SW edge of town. Landmarks: white, black & buff colored radio towers on wharf in town.	St. Thomas Harbor: 1 E/W, 1 NW/SE; Dragon's Channel: 1 NE/SW, 1 NW/SE. Prevailing wind: E.	Swells with heavy winds. Currents: weak. Water obstructions: buoys, shoals, reefs. Depth: 9'-30'. Tidal range: chiefly daily 0.5'. Shelter: good except during July to October.	Beach SE of town suitable for landing out seaplanes, take-offs may be difficult in St. Thomas Harbor because of limited area. fuel, telephone, telegraph, cable, U. S. Naval radio station, minor repairs, limited provisions.
St. Thomas Island. (Lindbergh Bay).	18 20 N 64 58 W		In Lindbergh Bay adjacent to Bourne Field.	1 N/S, ¾ E/W. Prevailing wind: E.	Water obstructions: shipping. Tidal range: 1'. Shelter: hurricane possibilities.	U. S. Naval Air Station with full facilities.
St. Thomas Island. (Magens Bay).	18 21 N 64 58 W		N coast of St. Thomas I.	Entrance of E winds & high hills, take-offs and landings must be made outside Magens Bay.	Water obstructions: Shoals to E, Outer Rock ½ mi. NW of Bay entrance. Depth: 9'-30'. Tidal range: daily 0.8'. Shelter: well protected except August to Oct. (hurricane season).	Bay restricted for seaplane use because of distance to landing and take-off areas, fuel at Christe Amalie, supplies.
Tortola Island. (Road Harbor).	18 25 N 64 37 W		Adjacent SE to Road Town. Landmarks: hospital SE of Road Town.	Road Harbor: 1 E/W, 1 NW/SE. Longer take-offs to be made in Sir Francis Drake Channel.	Water obstructions: shoals along ashore, buoys. Depth: 6'-12'. Tidal range: daily, 1.5'. Shelter: exposed to SE.	Supplies.
Virgin Gorda Island. (Gorda Sound).	18 30 N 64 25 W		NE of Virgin Gorda I.	Gorda Sound: 2 NW/SE, 1½ E/W, 1½ N/S.	Currents: seldom exceed ½ knot. Water obstructions: coral patches, large reefs in SE. Depth: 9'-30'. Tidal range: daily, spring range about 1.5'. Shelter: good.	None.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD 5200.1-R
Exec. Order 12356
By [illegible] NLC, Date 10/03/96

DECLASSIFIED

CONFIDENTIAL

CORRECTION AND/OR ADDITION REPORT

WEST INDIES

(Report all fields omitted from this directory, including any under construction. Report also corrective information on fields included in this directory. Detach this sheet and mail to "Air Movements Section, AFDIS, Headquarters Army Air Forces, War Department, Washington, D. C." In addition, A. A. F. Form No. 68 should be forwarded as directed—War Department Circulars No. 165, Section VII; No. 229, Section II.)

TO: Air Movements Section, AFDIS.

FROM:

The following corrections, additions and/or recommendations are suggested for this Airport Directory:

Name and Rank

Date and Place

(If more space is required use reverse side)

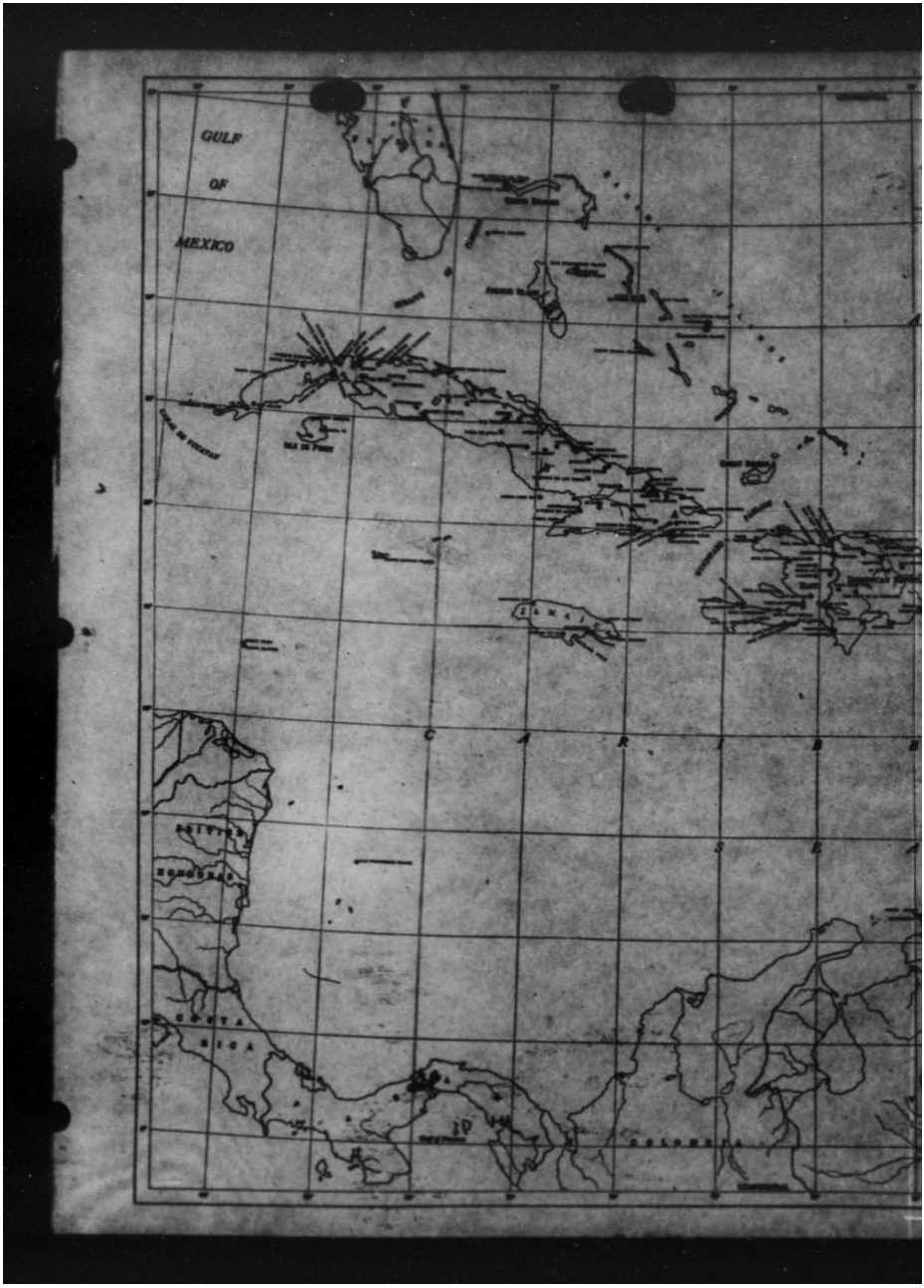
8/25/42

CONFIDENTIAL

DECLASSIFIED

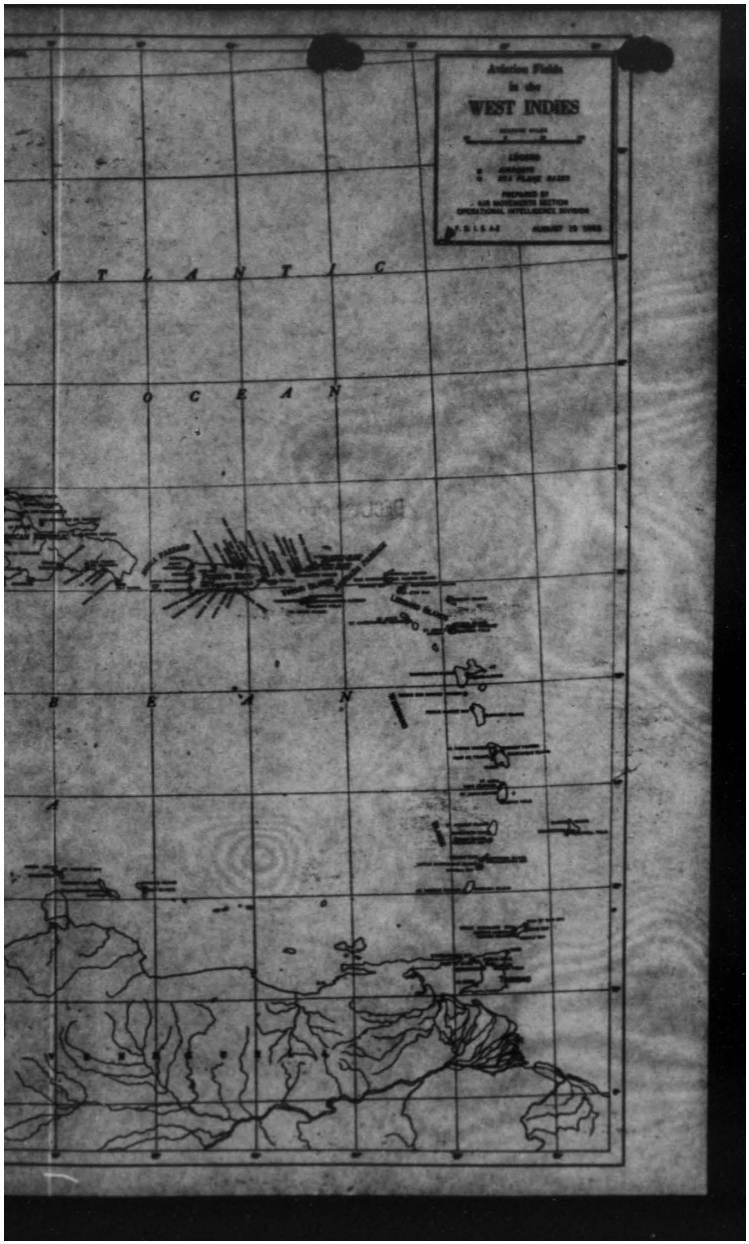
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

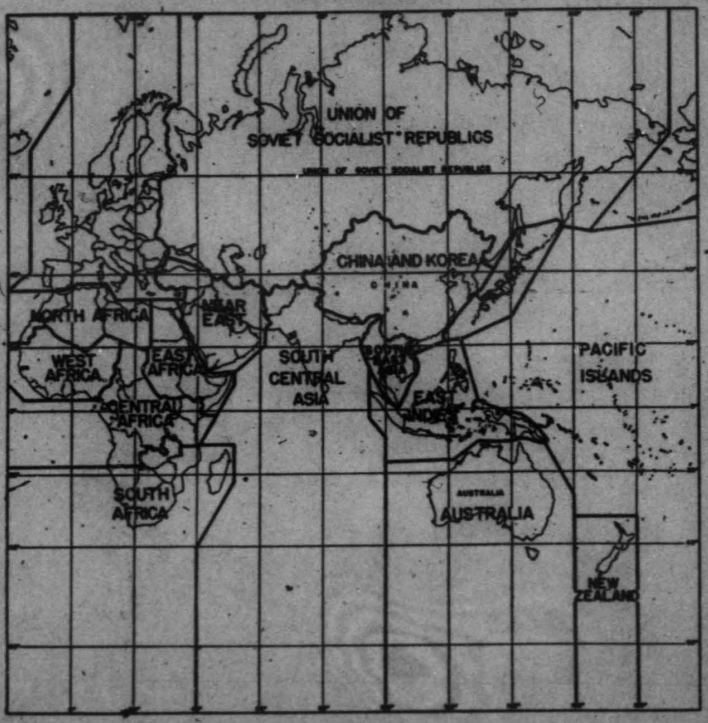
THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

INDEX

FOREIGN AIRPORT DIRECTORIES

EASTERN HEMISPHERE



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir.
NARA Date 11/8/76

Disposition of classified matter.

AMSO/rcb 5709

1. AMSO AHET 1942 8/22 1. Reference is made to your 2 C R, AHEIT-SL, subj, 8/17/42, to this office.

2. Attention is invited to attached copy of 1st Ind. from this office to Commanding General, Flying Training Command.

3. The attached tests are transmitted for your file.

1 Incls.
#1- Copy 1st Ind. to AFFTC
#2- Memo. Av.
#3- Memo. Av.
#4- Lt. Memo. Av.

J. E. [illegible]
Lt. Col., A.G.D.
Asst. Air Adj. Gen.

Dispatched
AUG 29 1942
AAG

File 8/29/42

HEADQUARTERS ARMY AIR FORCES							COORDINATION				
Chief of Staff	Deputy Chief of Staff	A.A.G.	A-1	A-2	A-3	A-4	A-4/3	A-4/M	Budget	Re-ference	

DECLASSIFIED

AAF-28

Air Ab 46 (15)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

Safeguarding of Classified Matter.

ITEM NO.	FROM	TO	DATE	COMMENTS OV/ls 72726
2.	AFMOP	AFMAG	1942 8-22	1. The situation described in this R&R has been corrected by Hq. Office Instruction No. 10-7, "Classified Correspondence" published under date of August 13, 1942. Paragraph 4 of this Instruction indicates the officials who may request reproduction of classified material. The requirement of a justification for number of copies and the authority to pass upon same will remain in your office. 2. Every effort is to be made by this office to encourage the safeguarding of classified matter. One of the principal safeguards is to prevent over-classification. This R&R does not appear to this office to be confidential in nature. I should like to discuss at your convenience ways and means of discouraging over-classification. ROBERT FINKELHOR Major, Air Corps Organizational Planning

Air Forces
22 1942
Received

Document with

File @ 8/25

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

DECLASSIFIED
DOD Dir. 5 200 June 1971
By OSD/WHS, Date 9/18/76

Safeguarding of Classified Matter.

2. AFMSP AFMAS 1942 8-22

1. The situation described in this MIR has been corrected by Hq. Office Instruction No. 10-7, "Classified Correspondence" published under date of August 19, 1942. Paragraph 4 of this Instruction indicates the officials who may request reproduction of classified material. The requirement of a justification for number of copies and the authority to pass upon same will remain in your office.

2. Every effort is to be made by this office to encourage the safeguarding of classified matter. One of the principal safeguards is to prevent over-classification. This MIR does not appear to this office to be confidential in nature. I should like to discuss at your convenience ways and means of discouraging over-classification.

ROBERT FINKELNOR
Major, Air Corps
Organizational Planning

DECLASSIFIED

CONFIDENTIAL

AG 28061 (123)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

NO.	FROM	TO	DATE	COMMENTS
1	AFMAG	AFDMC	1942 7/30	1. Prior R&R's from this division will ind timed and repeated requests thereby for action le safeguarding classified matter. The condition des below is most dangerous and must be corrected at o 2. Before the reorganization, the Chief of Section was furnished a list of those officers who authorized to request reproduction of classified m The reorganization immediately made such lists obs Requests for clarification of the situation were f The present situation amounts to this: Any office headquarters may request unlimited reproduction of classified material. Pending action by proper aut to establish approved procedure, Colonel P. M. Whi instructed Mr. Albright to bring all such requests Assistant Air Adjutant General for approval. 3. Request immediate corrective action. W. W. D. Col., A.G.D., Air A.G.

AUG 6 4 PM

RECEIVED
AFDMC

DECLASSIFIED
CONFIDENTIAL

(Do not use reverse side) W-4071, AC.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

Mr Mutz 8-28-42

10-7
2 Pages
Page 1.

HQ. OFFICE INSTRUCTION)
NO. 10-7)

WAR DEPARTMENT
HEADQUARTERS ARMY AIR FORCES
WASHINGTON, AUGUST 13, 1942

CORRESPONDENCE

Classified Correspondence

(This Instruction supersedes Office Memorandum No. 40-15, O.C.A.C., August 20, 1941, and Hq. Office Instructions Nos. 10-6 (Old No. 20-1), September 1, 1941; 10-7 (Old No. 20-2), September 22, 1941; 10-8 (Old No. 20-3), December 12, 1941; 10-10 (Old No. 70-5), August 12, 1941; 10-11 (Old No. 70-6), August 14, 1941.)

1. Basic Directive. AR 380-5.

2. Classified Mail Unit. Except as otherwise directed, all classified mail, correspondence, and documents received and dispatched by this headquarters, will be routed through the Classified Mail Unit, operated by the Air Adjutant General, where a record and central file will be maintained.

3. Authority to classify correspondence. The authority formally to classify as secret any communication originating within his office, is hereby delegated to the President of the Advisory Council, to the Chief, Deputy Chief, and Assistant Chiefs of the Air Staff, to the directors and chiefs of the other offices of the Policy and Operating Staffs, and to the executive of each of the above. Communications may be classified as confidential or restricted by any commissioned officer.

4. Reproduction of classified correspondence. Secret communications may be reproduced only upon request of the officer authorized to classify secret material. Confidential and restricted communications may be reproduced only upon request of a commissioned officer.

5. Safeguarding.

a. The safeguarding of classified military information is the responsibility of all military and civilian personnel of the War Department.

b. Directors and chiefs of the various offices of the Policy and Operating Staffs will be responsible that military and civilian personnel under their control are familiar with these instructions and with the pertinent provisions of AR 380-5, June 18, 1941, as amended.

c. Secret and confidential correspondence will be handled only by commissioned officers and those other persons proven by investigation or otherwise to be of unquestioned loyalty and trustworthiness.

3-1385,AF.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

d. All registered documents and secret papers in process or of immediate value will be habitually locked, when not in actual use, in a three-combination safe. Other secret papers and confidential papers will be habitually locked, when not in actual use, in at least a three-combination file cabinet or nearest practicable substitute. All restricted matter will be stored and handled in such a manner as to insure a reasonable degree of security, in conformity with provisions of AR 380-5.

e. Classified correspondence will not be taken away from the War Department offices without the express permission, in each case, of the officer responsible for its custody.

f. Classified matters will not be discussed in personal correspondence nor with unauthorized persons. Secret matters will not be discussed over the telephone, and such references as are made to confidential and restricted matters over the telephone will be held to the lowest practicable minimum and will be so worded as not to reveal the subject matter of the conversation.

6. Security Officer. It will be the responsibility of the directors and chiefs of the various offices of the Policy and Operating Staffs to protect all classified material in their custody. Each director and chief will designate an officer of his staff as Security Officer to enforce within the office all policies and instructions for the safeguarding of this material.

7. Destruction of classified documents. The officer in charge of the Classified Mail Unit will prescribe the time and place for the turning in of classified documents authorized to be destroyed by burning and will communicate the information direct to offices concerned.

8. Classified messages. See Hq. Office Instruction No. 10-19, June 4, 1942.

By command of Lieutenant General ARNOLD:

GEORGE E. STRATEMEYER,
Major General, U. S. Army,
Chief of the Air Staff.

OFFICIAL:

WILLIAM W. DICK,
Colonel, A.G.D.,
Air Adjutant General.

DISTRIBUTION:
"B"

3-1385,AF.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

~~CONFIDENTIAL~~ DECLASSIFIED

DECLASSIFIED
DOD Dir. 5 Jan. 6 (d) June 1974
By: [illegible] NLC, Date 10/18/76

Safeguarding of Classified Matter.

PHMelg

1 AFMAG AFDMC 1942 7/30

1. Prior RAR's from this division will indicate continued and repeated requests thereby for action leading to safeguarding classified matter. The condition described below is most dangerous and must be corrected at once.

2. Before the reorganization, the Chief of the Photo Section was furnished a list of those officers who were authorized to request reproduction of classified material. The reorganization immediately made such lists obsolete. Requests for clarification of the situation were fruitless. The present situation amounts to this: Any officer in this headquarters may request unlimited reproduction of any classified material. Pending action by proper authority to establish approved procedure, Colonel P. M. Whitney has instructed Mr. Albright to bring all such requests to the Assistant Air Adjutant General for approval.

3. Request immediate corrective action.

W. W. D.
Col., A.G.D.,
Air A-G.

Carried to Col. Whitney 7/30/42

File 8/23/42

HEADQUARTERS ARMY AIR FORCES - COORDINATION											
Chief of Staff	Sec'y Air Staff	A.A.G.	A-1	A-2	A-3	A-4	A-MPD	A-Insp.	Budget	Statistics	
					DECLASSIFIED						

CONFIDENTIAL

Air 06 461 (123)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET

DECLASSIFIED

Dispatched
AUG 21 1942
AAG

[redacted] 72130

3. [redacted] 1942 [redacted] 1. It is all right to comply with this request.
[redacted] Publica- 8-22
[redacted] tions
[redacted] Division

1 Incl:-n/c

File 8-21-42

[redacted]
Major, Air Corps,
[redacted]

HEADQUARTERS ARMY AIR FORCES - COORDINATION

Chief of Staff	Secy Air Staff	A.A.G.	A-1	A-2	A-3	A-4	A-M&D	A-Insp.	Secret	Plans Division	

DECLASSIFIED

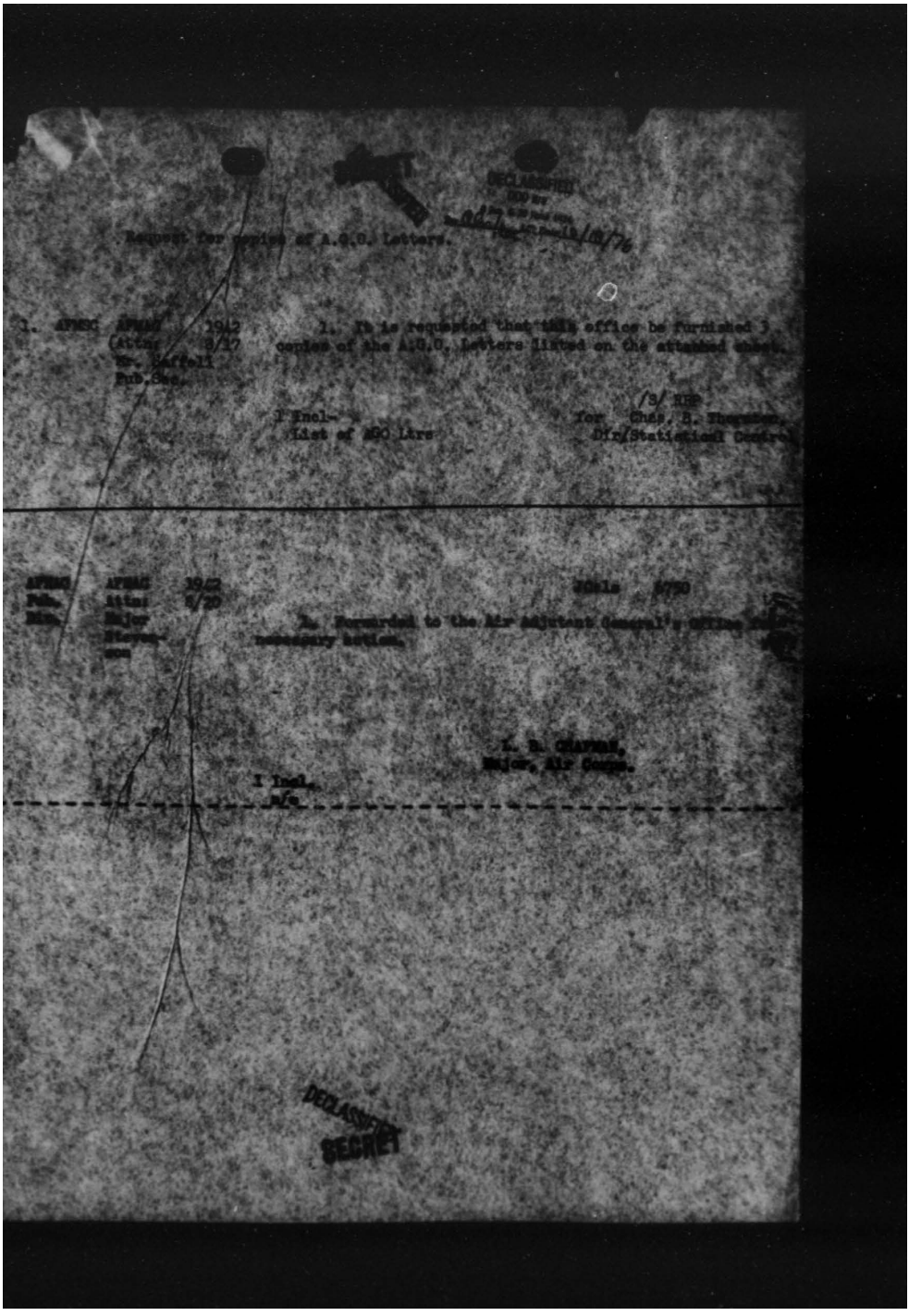
SECRET

AAF-38

Air AG 461 (12-7)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



Request for copies of A.G.O. Letters.

1. AFHRC AFHRC 1942 (Attn: 8/17 Mr. Kaffell Pub.Sec.

1. It is requested that this office be furnished 3 copies of the A.G.O. Letters listed on the attached sheet.

1 Encl- List of AGO Ltrs

/s/ NEP
for Chas. E. Thornton,
Dir/Statistical Control

AFHRC Pub. Misc.

AFHRC 1942 Attn: 8/20 Major Stevens

2 Cys

2. Forwarded to the Air Adjutant General's Office for necessary action.

L. B. CHAPMAN,
Major, Air Corps.

1 Incl.
R/S

DECLASSIFIED
SECRET

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL
DECLASSIFIED

Request for Publications.

AFATC/C-2/CWHAre

1. AFATC AFMAG 1942
G-2 8/14

(ATTn: Publication Section)

1. It is requested that the Air Transport Command be furnished with 20 copies each of the following A.G. letters:

AG 312.11 (7-10-42) MS-B-M - Safeguarding of Classified Documents and Files.

AG 381 (3-28-42) March 30, 1942 - Internal Security.

AG 384.3 Blackout (6-11-42) June 13, 1942 - Control of Lighting.

AG 383.4 (2-20-42) MSO-B-M February 22, 1942 - Delimitation of Investigative Duties of the FBI, ONI, MID.

AG 014.311 (5-14-42) MC-B-M May 19, 1942 - Military Personnel Suspected of Disloyalty or Subversive Activity.

AG 381 (6-12-42) MS-B-M June 14, 1942 - Counter Intelligence Activities.

AG 381 (6-17-40) M-B-M July 1, 1940 - Measures for securing Cooperation - C.I. - Plant Protection.

AG 312.3 (4-1-42) MC-B-M April 2, 1942 - Channel of Communication with F.B.I.

/s/ J. P. D.
for K. L. P.
CG/AFATC

DECLASSIFIED
CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

DECLASSIFIED

Request for Publication.

Page Two.

2. AFMSS AFMPS 1942 1. The initials or serial nos are unknown in this division.

2. Attention is invited to the provisions of paragraph 1 g of No. Office Instruction No. 10-27, dated August 10, 1942, which requires that the telephone number of the individual dictating the mail be typed at the top of the serial.

F. H. [redacted]
Colonel, A.G.D.,
Asst. Air Adj. General.

Dispatched
AUG 21 1942
AAG

File 8/21/42

HEADQUARTERS ARMY AIR FORCES - COORDINATION											
Chief of Staff	Sec'y Air Staff	A.A.G.	A-1	A-2	A-3	A-4	A-WPD	Actions	Digest	Re-visions	

DECLASSIFIED

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir
E.O. 11652, Sec. 5(E)(2)
By NARS, Date 10/18/76

JBC/rrb 5789

1st Ind. (AFHAS)

THE ADJUTANT GENERAL, HEADQUARTERS ARMY AIR FORCES, Washington, D. C.
August 28, 1942. TO: Commanding General, Army Air Forces
Flying Training Command, Texas and Pacific Railroad Building, Fort
Worth, Texas.

1. Reclassification of the texts in question as "restricted" is approved.

2. Obsolete matter will be destroyed by burning.

By command of Lieutenant General ARNOLD:

JOHN E. CODDLE
Lt. Colonel, A.G.D.
Assistant Air Adjutant General.

Instr. Mtl.

File
8/28/42

Dispatched
AUG 29 1942
195

HEADQUARTERS ARMY AIR FORCES - COORDINATION												
Chief of Staff	Deputy Air Staff	A.A.G.	A-1	A-2	A-3	A-4	A-WPD	A-Insp.	Budget	Statistics		

DECLASSIFIED

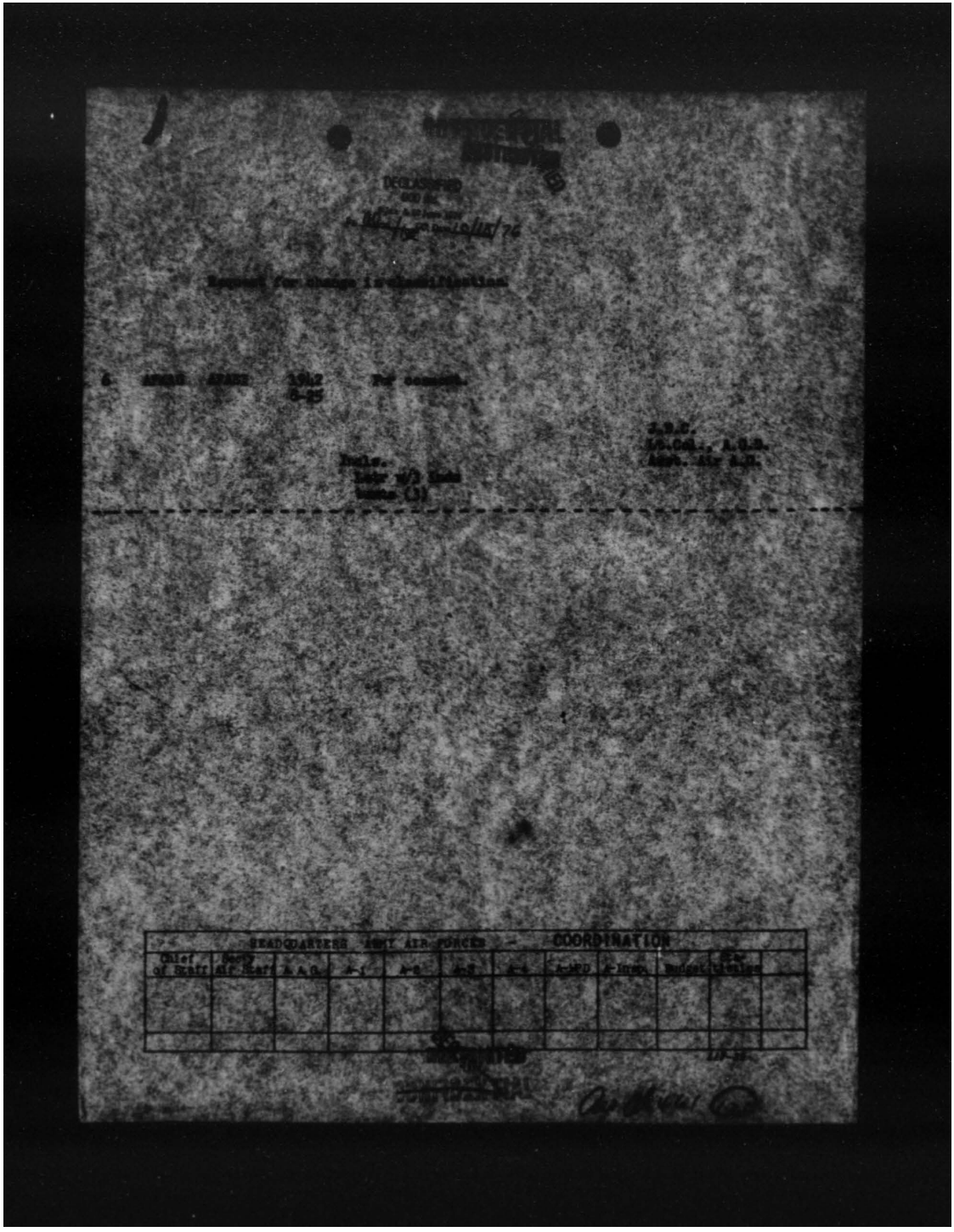
AAF-39

DECLASSIFIED

a: 08461 (120)

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



Request for change in classification

1942

For comment.

A.S.W.
AG.048., A.G.O.
Asst. Air A.D.

Incls.
Ltr w/2 Incls
Memo (1)

HEADQUARTERS ARMY AIR FORCES — COORDINATION

Chief of Staff	Deputy Chief of Staff	A.A.G.	A-1	A-2	A-3	A-4	A-MTO	A-Surg.	Budget Officer	Air Surgeon	

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

2143

ROUTING AND RECORD SHEET

DECLASSIFIED
DOD Dir. 5200.9 June 1970
By [illegible] NSC Date 10/12/76

File No. _____

Note — A line will be drawn across sheet after each comment.

Tally No. AAF _____

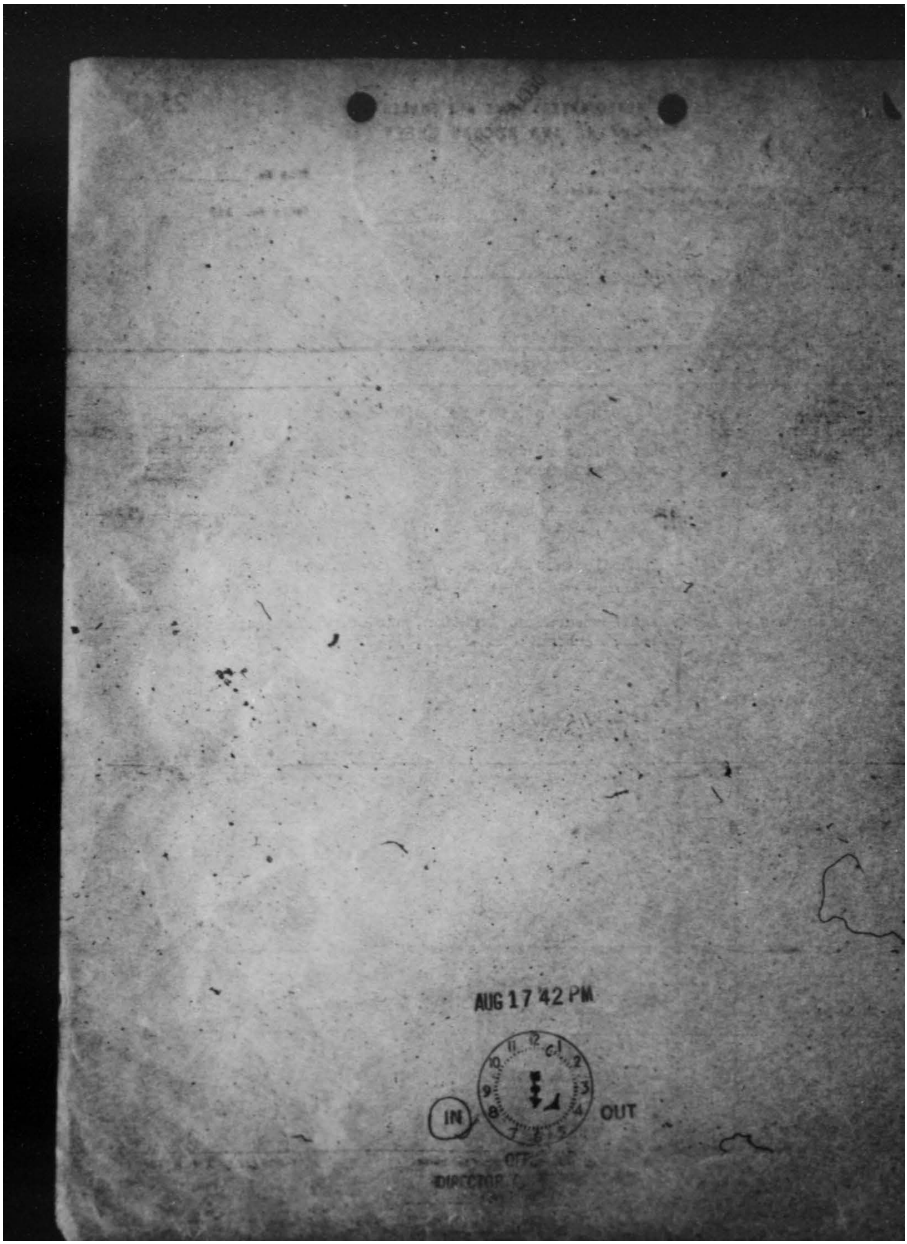
SUBJECT: Request for change in Classification.

NO.	FROM	TO	DATE	COMMENTS
1	AFHQ-2L JCLshw	AFMAG thru AFRDB	8/17/1942	Request that the following named texts be reduced in classification from "CONFIDENTIAL" to "RESTRICTED", due to reasons stated in paragraphs 2 and 3 of attached letter from Midland Army Flying School: Bombardment Aviation, Air Corps Tactical School, Maxwell Field, Alabama, January 1, 1938. Reconnaissance Aviation, Air Corps Tactical School, Maxwell Field, Alabama, July, 1937 Light Bombardment Aviation, Air Corps Tactical School, Maxwell Field, Alabama, January 15, 1940. 1 Att. Ltr 6/27/42 w/3 Inds. (Incls. w/d) L. S. S., Colonel, A.A.F., Director of Individual Training.
2	AFRDB	AFMAG	8/18	HQR/rwa 71578 Concur. Incl. n/c F. L. Anderson, Jr., Colonel, A. A. F.

RECEIVED
AAG

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

2212

HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

RESTRICTED

File No. _____

Note. — A line will be drawn across sheet after each comment.

DECLASSIFIED DOD Dir. 5 200.10 dated 11/23/76

Tally No. AAF _____

SUBJECT: Request for change in classification.

NO.	FROM	TO	DATE	COMMENTS
3	AFWAG	AFRIT & AFRDB IN TURN	8-20	1. For recommendation concerning the disposition of the excess texts. 2. In order that appropriate action with respect to change of classification of the texts may be determined, it is necessary that the samples of them, which have been withdrawn in your office, be returned to this office with these papers. J.H.C. J.H.C. Lt.Col., A.G.D. Asst. Air A.G. 1 Incl. n-c
4	AFRIT-2V	AFWAG THRU AFRDB	1942 8/21	1. Recommend excess texts be burned. 2. Samples of texts are inclosed. L.S. SMITH, Colonel, Army Air Forces, Director of Individual Training Incls. Additional Incl: 3 texts
5	AFRDB	AFWAG Hq. Army Air Forces AUG 24 1942 AAG RECEIVED	8/21	29/rsm 71578 Noted. F. P. HENDERSON, JR., Colonel, Air Corps. Incls. n/c

DECLASSIFIED

RESTRICTED

(Do not use reverse side) W-9072,AF, Rev.8/10/41

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

Note. -- A line will be drawn across sheet after each comment.

File No. _____

Tally No. AAF _____

DECLASSIFIED DOD Dir. 5200.9 June 1970 By OAM/C, NC, Date 12/18/76

SUBJECT: Request for change in classification.

NO.	FROM	TO	DATE	COMMENTS
6	AFMAG	AFAFI	1942 8-25	For comment. J.B.C. Lt.Col., A.G.D. Asst. Air A.G. Incls. Ltr w/3 inds texts (3)
				EPS:mmp
7	AFAFI	AFMAG	8/27	1. Concur in recommendation that excess texts be destroyed by burning and that those retained be reclassified as "Restricted". That classification is in accord with FM 1-5, 1-10, 1-15 and 1-20, in which most of the text material is now published. EDGAR P. SORENSEN Colonel, G. S. C. C/A-2 Incls. n/c

U.S. Army Air Forces
AUG 27 1942
AAG Received

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
DOD Dir. 5 200.9 Sec. 1.3 10/12/76

Request for change in classification.

6 AFHAG AFARI 1942 8-25 For comment.

S.B.C.
Lt.Col., A.G.D.
Asst. Air A.G.

Incls.
Ltr w/3 inds
tables (3)

---

7 AFARI AFHAG 8/27 1. Concur in recommendation that obsolete tests be destroyed by burning and that these publications be reclassified as "Restricted". That classification is in accordance with AR 1-5, 1-10, 1-15 and 1-20, in which most of the text material is now published.

EDGAR P. SORENSEN
Colonel, G. S. C.
C/S-2

Incls.

- - - -

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

DECLASSIFIED
DOD Dir. 5200.9
NND 760018
By NARS, Date 10/18/76

Request for change in classification

J AFHAO AFRIT 8-20 1. For recommendation concerning the disposition of the enemy texts.

A AFHAO IN TURN 2. In order that appropriate action with respect to change of classification of the texts may be determined, it is necessary that the samples of them, which have been withdrawn in your office, be returned to this office with these papers.

F.R.C.
Lt.Col., A.C.D.
Asst. Air A.G.

1 Incl. n-c

Dispatched
AUG 20 1942
AAG

File in Station

HEADQUARTERS ARMY AIR FORCES - COORDINATION											
Chief of Staff	Secty Air Staff	A.A.G.	A-1	A-2	A-3	A-4	A-W.D.	A-Surg.	Budget	Re-lations	
					DECLASSIFIED						

III-38

A.A.G. 461 (20)

CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED
NND 76

Request for Change in Classification.

1 AFRIT-2L AFMAC JCL:hvr 1bra AFRDB 6/27/ 1942

Request that the following named Manuals be reduced in classification from "CONFIDENTIAL" to "RESTRICTED", due to reasons stated in paragraphs 2 and 3 of attached letter from Midland Army Flying Schools:

Bombardment Aviation, Air Corps Tactical School, Maxwell Field, Alabama, January 1, 1938.

Reconnaissance Aviation, Air Corps Tactical School, Maxwell Field, Alabama, July, 1937

Light Bombardment Aviation, Air Corps Tactical School, Maxwell Field, Alabama, January 15, 1940.

1 Att.
Ltr 6/27/42 w/3
Incls. (1&ls. w/4)

L. S.S.,
Colonel, A.C.,
Director of Individual Training.

AGO/Ftm 71576

2 AFRDB AFMAC 6/28 Concur.

By Army Air Forces

AUG 0 1942

AAG RECEIVED

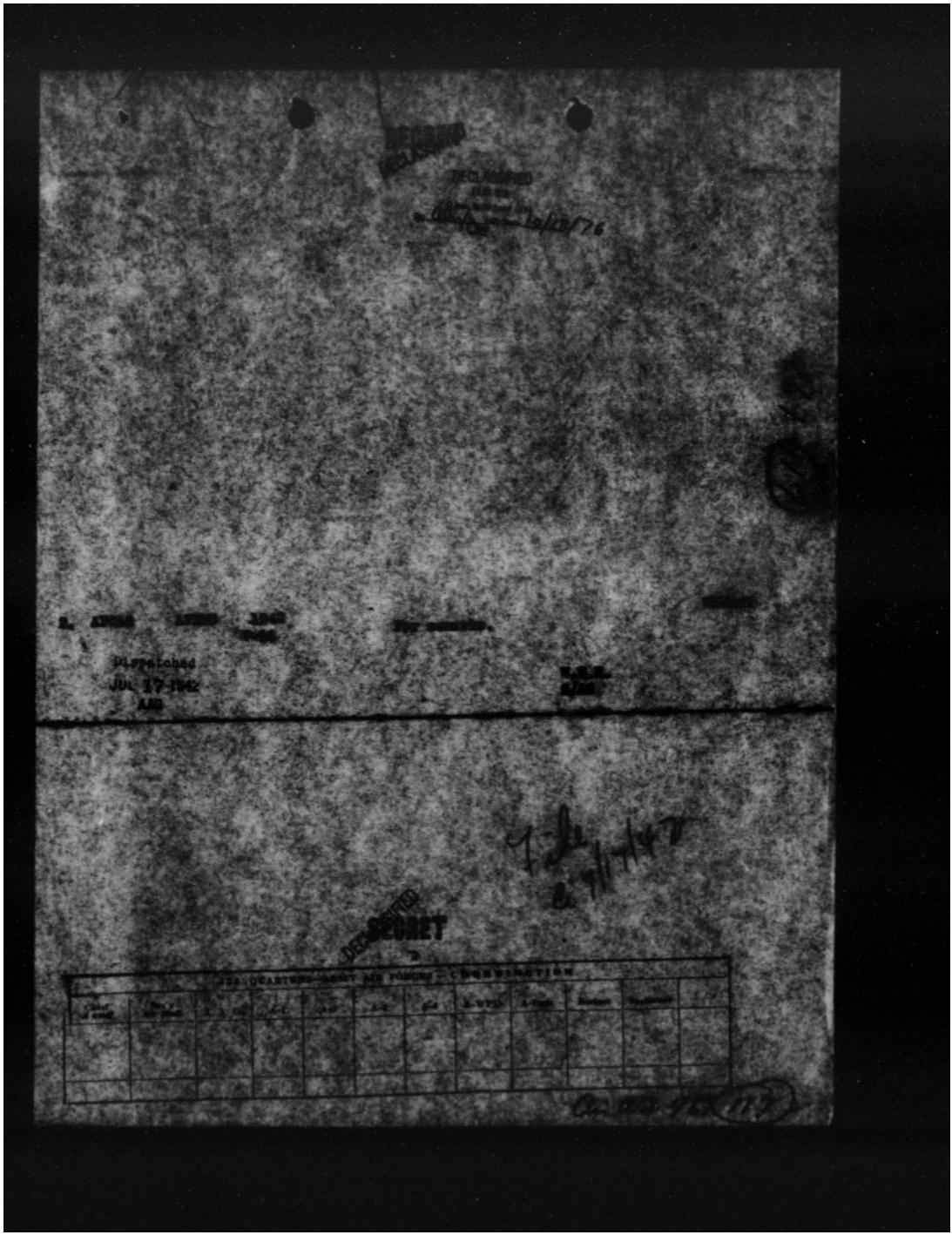
Incl. n/c

F. L. Anderson, Jr.,
Colonel, G. S. C.

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED CONFIDENTIAL

AVIATION ENGINEER NOTES

OFFICE, DIRECTOR BASE SERVICES, AAF
ENGINEER SECTION
WASHINGTON, D.C.

DECLASSIFIED
DOD Dirs.
By [illegible] NCI Date 10/18/76

A Hangar Camouflaged by the 21st Engineers
During Carolina Maneuvers

NO. 6 MAY 1942

DECLASSIFIED CONFIDENTIAL

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

It is believed that notes from various sources, as listed below, will be of interest and value in the organization and training of Aviation Engineer Troop Units; - in preparation for the task of constructing, camouflaging and maintaining advanced airdromes, and in assisting in their defense. Other notes will be forwarded from time to time.

TABLE OF CONTENTS

SOME LESSONS OF WORLD WAR II

	PAGES
(1) General Comment	1
(2) Tactical Lessons of Aircraft in Combat, from Hqs., USAFIA	3
(3) Recommendations of the Far East Field Force Commander	13
(4) Notes on Japanese Warfare, Mil. Intelligence Service	16
(5) Epic of Bataan - Excerpt from *Readers Digest*	18
(6) German Airdrome Installations on the Western Front	19
(7) Far Eastern Survey Report, Excerpts from, Lt. Col. W. J. Clear, GSC	21

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

CONFIDENTIAL

SOME LESSONS OF WORLD WAR II

DECLASSIFIED

General Comment

1. The extracts in this number of Aviation Engineer Notes speak for themselves. These reports call for the most careful study and analysis in order that the lessons therein may be deeply impressed on all concerned. They should be considered, of course, in connection with the special nature of the theatre in which operations occurred, and for which the methods developed were intended.

2. Aviation engineers are closely associated with the protection of planes on the ground, due to their activities in building dispersed revetment pens and defensive works, and particularly with respect to camouflage. Losses of planes on the ground, which can be very costly, can often be minimized or prevented altogether by the skillful utilization of dispersion and concealment. Aviation Engineers have a responsibility in utilizing and teaching the best existing techniques for such protection and concealment, and if possible devising more effective techniques therefor.

3. News of the activities of our overseas aviation engineer units is sketchy, and items that do come through must be regarded as Secret, as to specific units and locations. However, the following fragments are indicative of the effective work that is being done by aviation engineers in all overseas theatres:

From one important combat theatre it is reliably reported that an aviation engineer battalion put into operation three additional dispersal fields ready for operation, in the period between December 7 and December 18, 1941. In addition to which, this battalion laid steel landing mats, provided hard standings, shelters, dispersal areas, revetment pens, and defensive installations.

In another combat theatre it was found that runways 5,000 to 7,000 feet in length, and suitable for heavy bombardment, could be built in a certain critical area between December 8 and December 24. The planes that used these runways were so well dispersed and hidden that despite repeated strafing and bombing none were destroyed on the ground.

In another overseas theatre, an aviation engineer battalion is reported to have done an outstanding job in constructing airdromes, speeding up the time required by local efforts.

One Air Corps Major, returning from overseas, states that aviation engineers "build air fields faster than you can think - they build them in a week."

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

It has been published that a company of the 803rd Engineer Battalion (Aviation) was cited for its part in the heroic defense of Corrigedor.

In five other overseas theatres, work by aviation engineers in the construction and/or improvement of landing fields has gone steadily forward. Steel landing mats are in successful use in at least three overseas theatres.

This record, fragmentary as it necessarily is, must be inspiring to all of us, and indicative of the vital importance of the assistance that Aviation Engineers are contributing to the Army Air Forces in their great task.

S. C. GODFREY,
Brigadier General, U.S.A.,
Army Air Forces

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

CONFIDENTIAL

TACTICAL LESSONS FROM AIRCRAFT IN COMBAT

HQ USAFIA MELBOURNE. AUSTRALIA

26th March 1942

1. Among the major tactical lessons learned from active operational employment of aircraft in the combat zone are these:

a. *Missions must be assigned to units of Heavy, Medium and Light Bombardment well in advance of proposed take-off time.* Preparation of the airplanes (proper bomb loading, proper gas loading, final checking of guns, navigation octants and other equipment) requires several hours. Assembly of crew members, collection of weather data, communications requirements, notification of friendly air warning services, co-ordination with other units to participate in the mission, briefing of crew members, must all be done prior to execution of even the simplest mission.

Six hours is the minimum time required when communication is good and the organization of units is functioning properly. Any alteration of a mission requiring change in bomb or gas loading, radical change in navigational and communications needs, or in the number of planes, must be considered as a new mission. If a proper warning order were given (covering information necessary to start preparation of ships and crews) then the order to execute should be given an hour prior to take-off time.

Pursuit and Dive Bombers may be gotten ready within three hours where the mission requires bomb loading and, in the case of Pursuit, extra gas.

Normal alert for Pursuit with proper warning net can be cut to about 10 minutes. In Java, 45 minutes was allowed to get the Pursuit to altitude.

b. *The communication system, both ground-air and point-to-point, must be positive and well understood by all.* Use of codes which take three hours to encode and break down is definitely out; R.A.A.F. numbers code is an example. Use of Syko is not entirely satisfactory. Navy C.S.P. codes have been found to be most useful. Training of combat radio men in the use of codes has been neglected. They must be fully competent to function as encoding and decoding experts.

Use of tactical nets by organizations cannot be stressed too much; the rapid and positive transmission of information within organizations and between organizations is most important. Since units must be separated from their headquarters for proper dispersion of aircraft, only adequate communications can keep the organization functioning and co-ordinate their action.

Use of C.W. communications rather than voice is necessary. Voice should

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

be used for local control at airdromes in emergencies only and in the target area for formation control and target designation. Its use in emergency cases en route to the target may be necessary but the use of visual signals, Aldis lamp, etc., is much more advisable. *Reading of blinker light signals should be part of the training of pilots and co-pilots as well as of radio operators.*

c. *A school for proper indoctrination of combat crews should be set up at a rear base.* Instruction in:

(1) Lessons learned from operational use of their equipment against the enemy.

(2) Familiarization with territory in which they will operate.

(3) Weather data available.

(4) Communications system.

(5) Standing orders of the command to which they are to be assigned.

(6) Methods in use for reporting enemy planes and for designating targets.

(7) Types and tactics of enemy planes encountered in mission areas.

(8) Air raid warning system in effect and action to be taken.

(9) Signals in use for closing airdromes when raids are expected or in progress.

(10) Familiarization with approach procedures of airdromes.

d. *There is absolute need for the maximum expenditure of effort on passive defense measures.* This effort must not be allowed to deteriorate through laxness during periods of inactivity. Proficiency in one or more ground weapons should be part of the training of all Air Corps personnel. The greater the ability of all personnel in looking after itself under adverse conditions, the greater will be the efficiency, even when many normal control factors have been cancelled by enemy action.

All misfits, weaklings or other obviously unfitted for strenuous ground service should be eliminated before the organizations are ordered up for tactical work.

e. Adequate airdrome defence cannot be stressed too much. It is a waste of equipment to send it to an operating base that does not have adequate facilities for dispersion, camouflage, and ground protection for aircraft. Sixty-five airplanes were lost on the ground during Java operations even though a maximum effort by both Dutch and Americans was made to prepare fields for ground protection of aircraft. This work was hampered by our operations and by attacks made on the bases in use by our forces.

Preparation of fields should be complete prior to arrival of aircraft. One week of operation from a field against an active enemy insures detection by the enemy and subsequent attack.

The best solution so far as large planes are concerned seems to be adequate points for dispersion, natural and man-made cover, camouflage, and, *most important, a strong defence against low-flying aircraft.* No large airplane can be continually concealed from aircraft flying over at a very low altitude.

The 50-calibre machine-gun is a most valuable piece of equipment for use against this type of low attack. Although the British Bofors 40 mm. gun was used for only a short period in Java it proved to be an excellent weapon for use against *low-flying aircraft.*

Use of revetments in most cases results in giving away the location of both the field and the planes. Revetments are extremely hard to camouflage except with natural growth and their value for protection against bomb fragments does not warrant their high priority for use in the protection of grounded aircraft. Only two airplanes have been damaged by bombs and these were direct hits for which revetments offer no protection. Revetments offer no protection against low strafing attacks. If anything, they draw the fire of the enemy.

Dummy planes on an airdrome that is being used are a means of asking for an attack on that drome. *Dummy installations should be used only on dummy fields.*

The Dutch use of barricades on the airfields seemed merely to advertise the location of the airdrome and to invite attacks.

Dummy ground defence installations, if not too obvious, are useful since they draw fire and may show on photographs thereby deceiving the enemy. *They should, however, be placed at a distance from any aircraft or permanent installations.*

Means for quick dispersal of aircraft and quick means of covering and camouflage should be available at all operational fields. This, with good anti-aircraft protection which stresses good defence against low-flying - 50 to 100 feet - attack are the first steps to be taken for ground protection of aircraft. Lacking this defence, the only other alternative is to have combat crews on the alert in the airplanes ready to take off on the first alarm.

This method is only sound when full confidence in the alarm system is established. *A 20 minute warning is necessary for large planes when using this system.*

The use of this means for saving aircraft from ground destruction should be adopted only as a last resort. Bad features of this system are:

(1) It requires full confidence in the alarm net. A plane caught on the ground or just after take-off is a plane and crew lost.

(2) Two combat crews for each plane are necessary. Even then it is very fatiguing and soon lowers the morale of the men, due to the strain of sitting for hours waiting for an alarm.

(3) Maintenance on planes is cut to a minimum and soon the equipment is rendered unserviceable.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

Where operations against the enemy require use of unprotected fields as bases, these bases should be used only as advanced operational fields, the planes being moved into the field at dusk, loaded, and sent out at dawn or before. They should return as late as possible, and after servicing, continue to the rear base with the least delay. This keeps the planes from being subjected to attacks on the ground where adequate protection is not available.

Nine bomber type airplanes is about all that the usual airdrome can accomodate. If more planes are assigned, extensive preparation is necessary.

Of importance in the operation of an airdrome are measures taken for protection of personnel during bombing and strafing attacks. One of the primary responsibilities of commanding officers is to see that this protection is provided as soon as personnel comes into the field. Where fox holes can be dug, these should be provided over a scattered, but nearby area. Every advantage should be taken of natural concealment by foliage and terrain. Where holes are dug in forest areas, overhead protection for the fox holes must be built, because high tree limbs will detonate bombs and the resultant downpour of fragments is fatal to personnel in uncovered fox holes.

Where the terrain and lack of natural cover are such as to make it impractical to construct fox holes, or where airdrome landing areas are so extensive as to make fox holes installations unavailable, use of small well-built sandbag revetments for personnel is recommended. Such revetments have proved of high protection value against severe bombing and strafing attacks.

f. *Combat crews integrity should be the goal for most efficient operation.* Confidence and team work built up by a crew are most valuable. Next in priority should be one plane for each crew.

For short periods the plane can out-fly its crew, but when set up for normal extended operations, the plane will lose very few flying hours due to fatigue of its crew. Maintenance must be continuous and thorough; otherwise the entire strength of an organization will be lost for an extended period.

The one-crew-per-plane plan allows time for proper maintenance, gives the crew proper rest periods, and adds to the team work, confidence, and morale of the combat crew. Proper care of equipment and rapid execution of missions also follow when this plan is in effect.

Combat crew morale must be maintained at a high level. *Proper rest after high altitude missions is imperative.* Quarters for crew members away from the flying field and proper recreation facilities should receive attention. Use of a gunner's badge and rank of sergeant gunner with full flying pay are means of making combat duty desirable. Unless combat members are favored, the morale drops very quickly during extended operations and efficiency of crews takes a decided turn for the worse.

g. *Enemy tactics and technique have shown the Japanese pilot to be highly trained and to possess all the qualities that make for a good pilot.*

Their pursuit tactics, as shown in attacks on formations, have generally not been co-ordinated. Formations of pursuit break up for the attack.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

i. Tactics and technique developed for use by our Heavy Bombers while operating against the enemy where he had a definite superiority in the air have been mainly defensive. *Tactics were formulated to conserve our small force to the end that we would be able to strike with effective force important targets* and continue to be a constant threat to the enemy in that theatre. Rules that proved sound in actual operations under the above conditions were:

(1) No planes will go into target area at an altitude below 25,000 feet unless good cloud cover is available. (Below this altitude, the fighters could attack planes at will. Even if enemy fighters were not in the air at the time of attack they could catch and attack our planes if a lower altitude was used. Contacts with enemy Pursuit below 20,000, while causing only a few complete losses in airplanes, always resulted in extensive damage to several planes. These planes then were lost for tactical operations for long periods. Four such planes were lost on the ground at the depot while they were there for repairs.)

(2) Nothing smaller than a three-plane formation will go into a defended area unless good cloud cover is available.

(3) Make one attack on the target and get out of the target area. (Any delay over the target gave enemy pursuit time to attack.)

(4) For 20 minutes before attack on the target, operate the planes at maximum allowable power settings for extended operations. (This helped to surprise the enemy by changing air speed and at the same time made the formation less vulnerable to attack from enemy fighters. The bad feature of this was the reduced range of operation of the planes.

(5) After attack, remain at maximum allowable power settings and at high altitude until well out of the target area - usually 20 minutes.

(6) When operating with bomb bay tank, drop the tank, if attacked by pursuit. (Two planes were lost by fire and explosion caused by hits on bomb bay tanks. A third plane dropped its tank when attacked and the tank exploded shortly after leaving the plane; it had been hit as it was being dropped.)

(7) Any plane not functioning properly at high altitude, will return to its base. (Planes not able to pull maximum power and operate efficiently at altitude slow down the speed of the formation and so endanger the whole formation.)

(8) Any plane having tail guns or a top turret out when checked at altitude will abandon the mission. (planes with either of these guns out were found to be very vulnerable to pursuit attack. Several planes were shot up due to the jamming of these guns.)

(9) Only two power settings normally will be used; maximum range settings and the maximum allowable for extended periods. (The idea behind this was to conserve gas en route out and back and to obtain maximum performance over the target and when attacked.)

(10) Radio silence will be observed at all times except over the target. (The

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

Methods of attack have usually been by individual airplanes from the rear quarters from both above and below. However, when the difference in speed is great enough to make frontal attacks possible they have taken advantage of our lack of adequate armament. Frontal attacks have come closer to co-ordinated attacks than any other. Simultaneous attacks by two planes from right and left front quarters have been reported.

Their pursuit aerial gunnery is very accurate; *when unopposed, their gunnery against ground targets is almost perfect.* Planes equipped with cannon fire their small calibre guns first, as a means of estimating proper range, then use the cannon.

Japanese pilots are quick to take advantage of any weakness in our defense. A disabled plane will receive more fire than other ships in a formation. Stragglers are sure to be concentrated on and a gun not firing results in a change in the direction of their attack. Their pilots seem to be familiar with our equipment and its armament.

It has been customary for pursuit to hold a small reserve to cover attacks. Fighter protection for bomber formations seems to be a rigid rule when bombers are operating against a defended area. Fighters are usually placed about 3,000 feet above the bomber formation. In all co-ordinated attacks on ground installations and airdromes, the timing has been very good, strafers usually following bombing by from one to five minutes.

Many methods of confusing the air warning system were employed. Pursuit was sent in to get our pursuit off the ground; then the actual attack was timed to make it impossible for our pursuit to be in the air. Feint attacks were made to draw attention away from the real objective. Formations would circle for an hour and then attack. Approaches were well planned to elude the alert net.

Full use of reconnaissance was the rule, both before and after attacks. Weather data, target information, photographs, as well as navigational aid seemed to be the object of reconnaissance missions. After a few days' operation against Java the time of attack was set by the time the reconnaissance plane appeared. *The attack came within two hours.*

h. Bombing by the Japanese with the exception of two instances has not been good. Formation bombing has been the only type observed. The small number of bombs dropped by even large formations has been noticeable, usually two per plane. This has been true even when bombers are operating from relatively close bases. Bombs have been estimated to be between 100 and 200 pounds.

Formation flying by the Japanese has been faultless. They always fly very close, even when under anti-aircraft fire. Any plane disabled is immediately replaced and the formation closed up.

Pursuit reports that formations under attack turn into the attack and the planes towards the attack drop down in order to uncover all guns. All planes in the formation are pulled up as nearly in line as possible and still maintain the "V" formation. Bombs are released in train.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

enemy frequently jammed our frequencies and it was believed the location of our aircraft was obtained by radio direction finding methods.)

j. Additional tactical and operational observations include the following:

(1) The best bomb loading for the B-17 type aircraft was eight 300 kg or 600 pound bombs. These bombs proved to be very effective against transports and the lighter class of naval vessels.

(2) Train release of bombs was normal.

(3) Wing men released bombs on the leader. Some difficulty was experienced when wing men sighted for range because they picked a different target then their leader. It is hard to pick out individual targets from great altitude when there is a concentration of vessels. It was found advisable for flight leaders to pick the target and for wing men to drop on the lead ship.

(4) A nine plane formation is as large a formation as can be controlled in the air.

(5) The "V" formation of three ships with ships as nearly in line as possible makes the best defensive formation. Turns should be made toward the attack in order to uncover all guns.

(6) An individual ship, if attacked, should not try to outdive the attackers. Cloud cover should be sought if it is near. Otherwise, level flight with fast steep turns toward the attack is best. *Never allow attackers to align sights by flying straight.* Rear gunners are usually best qualified to call out the attacks.

(7) For B-17 type airplanes the arming wires should be wired to the bomb racks so if it becomes necessary to salvo bombs due to rack failures they will get away armed and not safe.

(8) Bombardiers must be relied upon to pick our targets and to direct pilots for a proper approach.

(9) Only high altitude aircraft can be used for daylight operations against areas defended by fighters. The LB-30 type of aircraft, not equipped with super-chargers, is extremely vulnerable even at maximum ceiling - 20,000 feet. Two such types were lost on their first daylight raid. The armament of this type is not sufficient to make up for its lack of performance at 20,000 feet. *These planes were successfully used for night bombing and for dawn and dusk attacks.*

II. Technical Supply

The supply problem in the Philippines and in Java was very critical. Many operational days were lost because of a shortage of parts. In the Philippines, engines and propeller spares were few but ample for a short operational period. Lack of a supply of reserve parts necessitated movement of spare parts from one operational base to another in a tactical plane.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

With the exception of motors, our sole source of supply was spare parts in Java was from salvaged airplanes that had been damaged on the ground by enemy action. Had there been adequate airdrome protection, resulting in a protracted campaign, our supply problem would have been acute. It would have been necessary, eventually, to dismantle badly needed tactical airplanes to keep even a small percentage of our total tactical planes in commission.

Motor changes in combat area were rare. All of our planes were either new or had new motors when they were put into combat duty. No motors were changed because of excess time. However, since leaving the combat zone, we have changed about 30 per cent of our motors. *The average time on these motors was about 250 hours.* Thus a fair estimate on motor supplies should be about 30 per cent replacements in the rear echelon maintenance section and for normal motor failures in the combat zone about 10 per cent replacements.

Our greatest supply shortage was tail wheels, main wheels, tires, tubes, spark plugs, autosyn and gyro-instruments, vertical and horizontal stabilizers, elevators, aileron, spare feeder and main tanks, oil tanks, oxygen masks, generators and inverters.

Supply of replacement airplanes should be sufficient to maintain a full complement of tactical airplanes in each combat unit. Normally a heavy bombardment group would require not more than one plane per squadron per week. However, due to lack of adequate airdrome protection, our losses figured 21 planes per month for a group.

Operations in both Bomber and Pursuit have revealed the need for many more tugs, or tractors. If airplanes are to be moved on the ground with the dispatch essential under attack conditions, *one tug or tractor per airplane should be provided.* Anything less eventually means airplanes lost on the ground. Requisitioning of all small farm tractors in operating areas has alleviated serious situations in some instances, but in others, the lack of such machines resulted in the enforced abandonment of airplanes which could not be moved to safety.

III. Based on criticism made by Combat Crews after two months combat flying in the B-17E airplane, these changes are recommended:

A. Armament.

1. Strengthening transparent nose panels. Present composition will not withstand shock of a long burst of M.G. fire.

2. Installation of 50 cal. guns instead of 30 cal. in the nose. Frontal attacks are being executed more and more frequently by the enemy.

3. Equip new deliveries with guns in the radio compartment.

4. Install armor plate for side gunners.

5. Install empty cartridge container on side guns. Stoppages in the lower turret have resulted from empty cartridges dropping around the

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

lower guns.

6. Incorporate an armed salvo position in the bomb selector mechanism.

B. Oxygen System.

1. Install oxygen outlets above the side gunners.

2. One additional outlet for each side gunner and tail gunner.

3. Check valves throughout entire system. One broken line puts the entire system out of commission.

4. Eliminate high pressure oxygen bottles from side gunners position.

C. Miscellaneous.

1. Install check valves between main and feeder gasoline tanks.

2. Eliminate extra seats in radio compartment.

3. Eliminate A.F.C.E. and use sperry gyro pilot. The A.F.C.E. has not been used in Combat bombing runs.

4. Substitute a snap fastner on inspection doors and fuel tank filler neck cover for the dzus fastener.

5. Incorporate colored wire covering to facilitate rewiring in case of a badly damaged electrical system.

6. Install self-sealing material in bomb bay tanks. Long missions necessitate use of the bomb bay tank. Two planes were lost when the bomb bays were shot up in flight and the planes burned.

IV. Based on combat experience, these recommendations are made for change in ratio of Link Ammunition.

A. Present ratio of linked ammunition being supplied to units in Australia, one tracer to four ball and/or Armor piercing, has been found to be not the best for use with flexible guns.

B. All gunners report that tracer is the one means of sighting for flexible guns, also that many attacks have turned off when sufficient tracer has been fired at the attacking plane. Tracer also gives gunners a better idea of proper range.

C. A recommendation of one tracer to two of other types was put into effect in Java for a short period and better gunnery resulted.

D. Work of relinking of any ammunition not linked in proper ratio should be done in the rear echelon. Loss of time, additional load on combat personnel and lack of proper linking machinery makes it mandatory that using units receive ammunition ready for loading in planes.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

E. It is recommended that all ammunition for use by aerial flexible guns be linked in ratio of one tracer to every two rounds of other types, this ammunition to be delivered to using units ready for loading in planes.

SUMMARY

1. Missions must be assigned to Bombardment units well in advance of proposed take-off time.

2. The communications system must be positive and well understood by all. Reading of blinker light signals should be part of the training of all pilots and co-pilots as well as of radio operators.

3. At a rear base, a school for proper indoctrination of combat crews should be established.

4. Proficiency in one or more ground weapons should be part of the training of of all Air Corps personnel.

5. Misfits and weaklings should be eliminated befoee organizations are ordered up for tactical work.

6. Adequate airdromes defence cannot be stressed too much. Preparation of fields should be complete prior to arrival of aircraft. Dummy installations should be used only on dummy fields.

7. Combat crew integrity should be the goal for most efficient operation.

8. Proper rest after high altitude missions is imperative.

9. In combat never allow attackers to aligh sights by flying straight.

10. Under attack conditions, one tug or tractor per airplane should be provided.

DECLASSIFIED

CONFIDENTIAL

RECOMMENDATIONS OF THE FAR EAST FIELD FORCE COMMANDER

1. The following recommendations have been made by the Commanding General of the forces in the Far East and are listed hereto for the consideration of the Directors:

1. *Airdromes and Airdrome Equipment:*
   a. Surfaced runways are required.
   b. Portable boundary and landing lights are essential. Flood lights are undesirable.
   c. Bivouac area, equipment and airdromes must be completely camouflaged.
   d. Camouflaged splinter proof revetments; and wide dispersion of dummy fields and carelessly camouflaged dummy revetments are essential.

2. *Training Requirements:*
   a. Accuracy in landing on small runways under all flying conditions is essential.

3. *Tactics:*
   a. Twelve plane squadron formations are advocated - the third flight frequently becomes separated.
   b. Two plane pursuit element strongly advocated.

4. *Ground Air Support*
   a. Duplicate combat crews are necessary.
   b. Rapid replacements of combat crews are required for continued operation.
   c. Air-ground communication and liaison now provided is inadequate.

5. *Service Equipment:*
   a. First echelon equipment only to be assigned combat units, all other equipment to service units.
   b. Following equipment is considered non-essential as organized equipment:

      (1) Chain hoist
      (2) Maintenance stand
      (3) Bench drill press
      (4) Trailer four-wheel
      (5) Instrument field testing units
      (6) Tugs might be replaced by tractors

DECLASSIFIED

6. *Percentage of Spare Engines and Propellors:*
   a. Required spare engines - 50%
   b. Replacement propellors - 75%

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

7. *Mission Rates:*
   a. 1½ missions per day.

8. *Miscellaneous Equipment:*
   a. Instrument landing equipment required.
   b. Homing devices most essential.
   c. Communications system and air warning intercept service should be improved.
   d. Cross country type motor vehicle required for transportation of personnel and supplies for disbursed positions.
   e. A single piece of pilot equipment combining helmet, colored goggles, earphones, microphone and oxygen mask is needed.

Comments on these Recommendations submitted by Brigadier General S. C. Godfrey U.S.A., Engineer Section, Army Air Forces:

1. My comments on this memorandum refer to subparagraph 1, *Airdromes and Airdrome Equipment.*

a. "Surfaced runways are required". This flat statement represents an ideal not always practicable of early attainment. Presumably it refers to bomber rather than pursuit planes. It will often be an end to work toward, and to accomplish gradually. In Great Britain most of its hundreds of sod airdromes have now been gradually provided with hard surfaced runways. Even in the United States some sod airdromes remain. The provision of hard surfaced runways in the field will be facilitated at times by the use of steel landing mats.

b. "Portable boundary and landing lights are essential. Flood lights are undesirable." No comment. Portable lights referred to are understood to be Air Corps equipment.

c. "Bivouac area, equipment and airdromes must be completely camouflaged." Concur as to the importance of camouflage. This factor is likely to be neglected in our peacetime training because it entails inconvenience and is difficult to make realistic. We have developed excellent knowledge of airdrome camouflage technique in our older aviation engineer units, but neither the newer aviation engineer units nor the Air Forces as a whole are properly trained in camouflage. However, measures to improve this situation have been energetically initiated and include:

   (1) Courses of instruction in camouflage to include 100 officers of the Army Air Forces per month.
   (2) Distribution to all Army Air Force activities a booklet on *Camouflage for the Army Air Forces*, prepared by this section.
   (3) Construction of dummy airdromes as recommended in recent R & R sheet.
   (4) Cooperation with Provisional Service Group at Fort Dix.
   (5) Cooperation with Trigger as to realism in pursuit training.

I also recommend that in the course of basic training given newly commissioned Air Corps officers at Miami, Fla., one-half day of instruction be allotted to camouflage, including provision for an indoor conference and an

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

DECLASSIFIED

RESTRICTED

NOTES ON JAPANESE WARFARE

Mil. Intel. Serv., Inf. Bulletin No. 10

TACTICS

a. Air Participation

(1) *Striking power.* Air forces represent the *initial* and *sustaining* striking power of all Japanese offensive action.

(2) *Range of operations.* Starting from Japanese controlled air bases, the specific objective is selected within 400 miles of the Japanese base. Whether an overland or oversea operation, the 400-mile range constitutes the yardstick of effectiveness against a new objective from a Japanese controlled air base or bases. If intermediate enemy bases exist between the Japanese base and the major objective, these also are kept under continuous attack.

b. Navy-Army Coordination

(1) *Initial sorties.* Submarines usually make reconnaissance ahead of the task force. Additional reconnaissance and light daylight attacks then are made by long range reconnaissance planes which may be flying boats. Should this reconnaissance revell a concentration of defending aircraft on the flying field, a surprise raid in force is often launched to destroy them on the ground. These are followed with light attacks by T-96 or T-97 heavy bombers, operating from the nearest land bases and usually unescorted by fighter planes. The objectives of these initial tactics are to gather information about the opposition, damage runways, destroy airdrome installations, and provide data on weather conditions.

(2) *First heavy bombing attack.* This is undertaken with the support of land-based or carrier-based fighter planes for the purpose of destroying opposing aircraft, and may be sustained if it appears that the defenders fly in replacements.

(3) *Second heavy bombing attack.* This is the final heavy bombing before landings are attempted. Usually 50 to 150 aircraft make the attack to destroy communications, coast defense batteries, and anti-aircraft installations.

(4) *Convoy protection preceding the attack.* The approaching convoy is doubly protected on the day before the landings are attempted. The protection consists of direct air assistance from all bases and carriers within range and of harassing air attacks on opposition air bases from which attack could be made on the convoy.

DECLASSIFIED

c. Landing Attack

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

outdoor exercise. Major Larabee is working out the details as to this recommendation.

Camouflage as everybody's job. It cannot be delegated solely or mainly to engineers. Aviation engineers will point the way, handle the more technical assignments, furnish camouflage supplies, and in general help the Air Forces to help themselves.

d. "Camouflaged spliater proof revetments; and wide dispersion of dummy fields and carelessly camouflaged dummy revetments are essential."

The necessity of dispersion has been emphasized in our training literature and has been observed, to a certain extent, at maneuvers under field conditions. Designs for spliater proof revetments are included in our texts, and have been built by aviation engineers in many instances. Also see letter on Field Airdromes, prepared by this section, and sent on April 1 to all Army Air Force activities. Dummy fields have been constructed at maneuvers; plans for their wider use have been proposed.

Note that the comment on revetments is at variance with the confidential reports from USAFIA, of March 26, 1942, which points out that revetments are hard to camouflage, give no protection against low strafing attacks; and in many cases give away the location of both the field and the planes. All of which indicated that each special situation must be treated on its own merits, and that the effectiveness of any measure is dependent on its integration in the whole scheme of defense.

The landing attack usually begins shortly before dawn, after individual aircraft have made a total of 150 to 300 sorties against the opposition. The attacking force usually is carried to the shore in motor landing craft, which are protected by aircraft under the radio control of the landing units. The bulk of the air task force is held in reserve to counter-attack opposition bases within feasible range.

d. Attack after landing

Once a landing is affected, a second pattern of attack begins as follows:

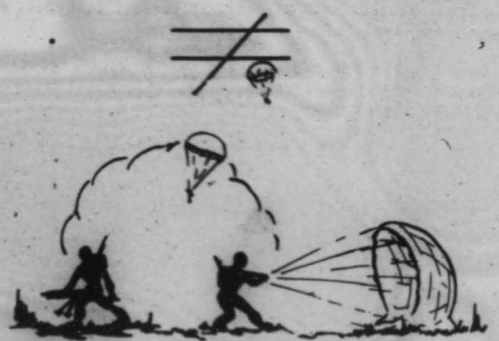
(1) *Seizure of airdrome.* Parachute troops or special landing units try to seize an airdrome from which fighter planes may operate. (Protection of the ground troops the first day is provided usually by seaplanes or carrier aircraft.)

(2) *Fighter squadrons.* Fighter squadrons are established quickly on seized airdromes. From one or more of these fields or from carriers, type "O" fighters come to the support of troops on the second or third day.

(3) *Fixing Airdromes.* Native labor is put to work promptly on occupied airdromes to repair, resurface, and extend the fields for use by heavy bombers. In two to seven days, the fields are usually ready for use by the bombers.

(4) *Establishment of interceptor units.* Within 14 days prefabricated shelters are put up, and interceptor units are installed quickly, with warning detachments spread out over an area of 60 to 100 miles. There is also evidence of searchlight installations being correlated with effective sound detectors.

(5) *Accumulation of supplies.* Supplies are accumulated and, at intermediate points, service and maintenance units for aircraft are set up, all within a period of two to three weeks.



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

EPIC OF BATAAN

Condensed from the dispatches and broadcasts of men who were there.

Excerpt from Readers Digest, June 1942.

(Note that this is from a newspaper correspondent, and not official)

THE CRIPPLING BLOW

The fate of Luzon and Bataan was sealed just before 1 P.M. on December 8, some ten hours after the Japanese attack on Pearl Harbor.

Our main bomber force was lined up on Clark Field, 40 miles north of Manila, with the crews awaiting orders to take off and bomb Japanese air and naval bases on the island of Formosa. Most of the pursuit planes were at nearby Iba Field.

The pursuits and some bombers had been aloft during the morning but had returned to the ground for orders. While these instructions were being issued, the Japanese struck.

Fifty-four heavy bombers roared over Clark Field at 10,000 feet, raining explosives on the grounded planes, runways and hangars. Iba Field was simultaneously bombed.

Eighty-six Japanese Zero fighters came in their wake and strafed the planes, ground forces, and anti-aircraft batteries in low-level attacks. Some planes were saved, but the main strength of our air force was gone.

On December 10, about noon, the Japanese attacked Cavite naval base with devastating success. Without anti-aircraft or pursuit interference their bombers crisscrossed the naval base for several hours.

The first bomb hit the power plant, the second a fire station. Damage was widespread, casualties were heavy and the Asiatic Fleet thus lost its sole effective base in the Philippines.

— Clark Lee, in an AP dispatch from Australia,
April 10, 1942

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

RESTRICTED
DECLASSIFIED

GERMAN AIRDROME INSTALLATIONS ON THE WESTERN FRONT

The German Air Force maintains a large number of airdromes on the Western Front. Some of these are 4 or 5 kilometers long, and at specific installations, runways actually cross important highways. Hangars, sheds, depots, etc., are dispersed along the runways. Prominent obstacles such as lines of trees, clumps of wood, villages, etc., are removed when necessary; but when such things are useful for camouflage, they are retained.

All airdromes customarily used by heavy planes are provided with hard surfaced runways. Certain other operational airdromes and refueling airfields also have paved strips.

In the region where R.A.F. bombing is most feared, hangars which existed in peacetime are not used to shelter airplanes, but are sometimes used for servising or repair shops. The military aircraft are kept in widely scattered individual shelters, sometimes at quite a distance from the runway, in order to take advantage of the natural cover provided by woods, farms, villages, etc. Where such natural cover does not exist, ingenious methods of concealment are often employed. Well camouflaged wood and fabric individual hangars, some of which are semi-underground, are often used. Cement shelters for one or two airplanes are used on some airdromes. Occasionally, shelters are constructed in the form of a farmhouse, and sometimes plane shelters are placed alongside real buildings. Occasionally they are so erected as to have the appearance of actual peasant houses of the style characteristic of that region.

Living quarters, command posts, telephone central stations and such installations are usually placed in already existing buildings. Fuel and munition stores frequently are placed in small camouflage trenches. These pits may be near the airdrome or a considerable distance removed from it.

Some airdromes, where there are large depots, seem to be used merely as refueling points and aircraft remain on these fields only long enough to refuel or renew their load of bombs.

Camouflaged railway sidings are used to supply some important Air Bases. Auto trucks are also employed, as is the tri-motor Ju. 52, which is extensively used for transport purposes throughout the entire German Air Forces. These air bases are served by a highly developed teletype system, consisting of a command network, an aerial security network, and a meteorological network.

German base defenses are organized very carefully to produce the maximum possible protection from enemy attack. With dispersion carried out to such an extent and service facilities so widely scattered, liaison difficulties might

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

be expected. However, communication network at the base is so well organized as to offset these difficulties.

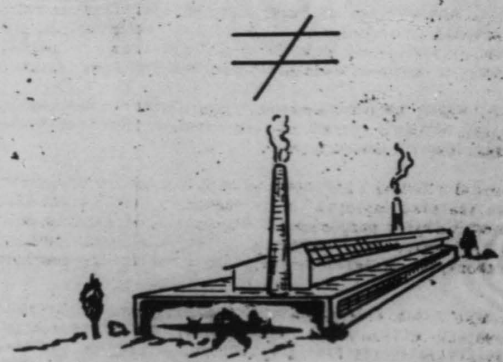
The hard runways are disguised by the use of various devices. Sometimes they appear to be cut at several placed by highways and rows of bushes or trees. Hangars and other installations are also well camouflaged. Dummy constructions are numerous, and cleverly adapted to the general aspect of the countryside, individual hangars often taking the shape of farm buildings or haystacks.

There is a hangar near one drome in Belgium resembling a factory building. The stratagem has been carried to the extent of erecting a factory chimney on the disguised hangar. In other instances, small fir trees have been planted on the roof of a hangar to create the impression of a clump of trees. Tank cars are often covered with wooden frames having the shape of ordinary freight cars; at other times they are covered with sheaves of straw to give them the appearance of loads of forage.

Dummy airdromes are also numerous, sometimes being set up in the vicinity of actual airdromes. They are equipped with mock airplanes or old unserviceable ones. Some dummy airdromes even have ground lighting systems. On one field, white sand has been employed to give the impression of a cement runway.

German airdromes are usually generously provided with anti-aircraft guns. 88 mm. heavy guns are standard for high level fire, and 20 mm. and 37 mm. light weapons are used for protection from low level attack. Light and medium guns are often placed on the roofs of installations or on especially constructed towers about 30 feet high.

April 11, 1942



CONFIDENTIAL

EXCERPT FROM FAR EASTERN SURVEY REPORT

Lieutenant Colonel Warren J. Clear, GSC.

Japanese engineers and pioneer troops excel in their ability to restore broken road, bridge and rail communications. Demolitions designed to hold their forces up for days in Luzon and Malaya were solved in a few hours.

. . . . . .

Within the space of 3 months the Japanese tore down a facade of empire that the white man had taken three hundred years to build.

This unchecked onslaught of far-flung dominions with unqualified success can be measured in terms of air power and air power alone.

Elsewhere in this report the effectiveness of Japanese infantry tactics is described, but the fact remains that the Japanese did not move a soldier nor strike a blow on land without air superiority. Even in those instances where they had only local air superiority they achieved the incredibly with small, highly mobile infantry forces.

. . . . . .

The Japanese consider their air force an indispensable, but not a dominating, arm. Where the British Air Force believes the plane to be the essential vehicle around which to build a plan of operations, the Japanese regard the plane as a useful weapon with which to assist military operations. It might be said that they look on it as an air-mobile battery, or, in its reconnaissance uses, as a pair of flying, long-range binoculars.

The Japanese opened every campaign in the Far East since December 8, 1941, by successful efforts to knock out the enemy's air strength and secure possession of his landing fields.

. . . . . .

The unique Japanese system of dispersion of planes and air-field installations deserves attention.

Immediately after taking over Clarke Field and Nichols Field (as well as Khota Baru and Singora airfields in Malaya), the Japanese secured dispersion of planes and fuel by laying out over 40 landing strips (with hand labor and graders) some distance from the central field.

This was also done in the vicinity of Manila.

They allot two or three planes to a strip, together with oil (in drums) and

DECLASSIFIED

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

minimum servicing facilities.

Enemy bombers coming in to attack are likely to find only two or three planes while other Japanese fighters are gaining altitude from other strips.

Strips are sometimes two or more miles apart.

Hangars and repair facilitiss are located a considerable distance from runways at main fields.

These arrangements contribute greatly to the security of planes while on the ground as well as that of supplies and personnel.

• • • • • • • • • • • • • • • •

In the Port Darwin raid of March 19, no warning was received although P-40 fighters (U.S.) were up on patrol.

The Japanese found the radio frequency of our planes and "jammed" their attempted reports.

Increasing roar over radio at Operations Office at airport was finally interpreted as indicative of air raid but too late to warn personnel at field.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

NOTICE

Articles of general interest and value to Aviation Engineers are solicited for publication in *Aviation Engineer Notes*. Of particular value would be reports of the experiences of Aviation Engineer units operating overseas. Valuable lessons and experiences gained by one unit may well be passed on to others.

* * * * * * * * * * *

Through cooperation of the Los Angeles District Engineer, the Commanding Officer of the 814th Aviation Engineer Battalion sent a man to the District Soils Laboratory for training in laboratory procedure. Other battalion commanders might well investigate such possibilities in the districts in which they are located.

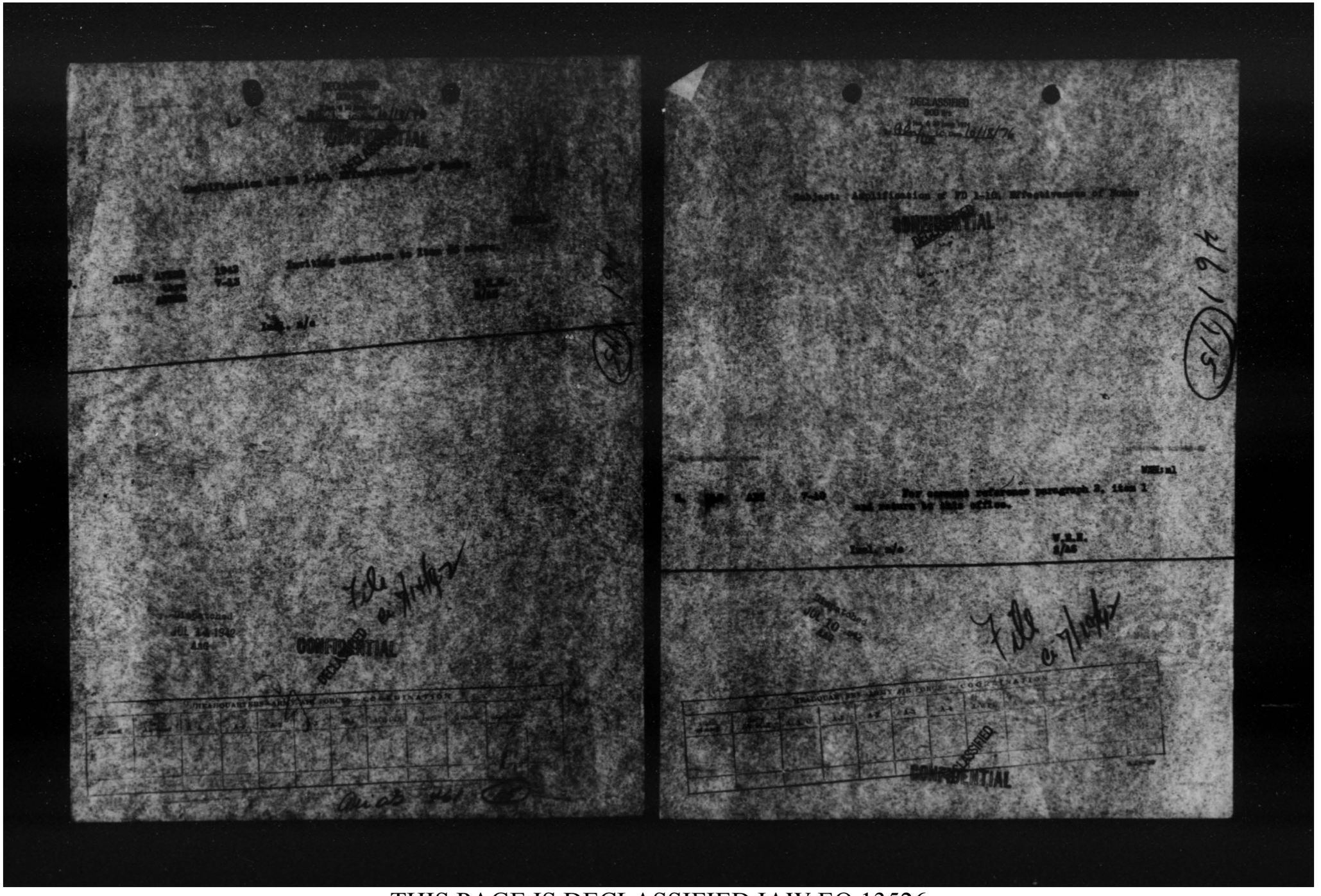
The attention of Aviation Engineers is directed in particular to Training Circular Number 31 "Chemical Attack" which contains the latest policies and principles governing the defense of air establishments against chemical attack.

****

Printed by the Engineer Reproduction Section
Office, Director of Base Services
Headquarters Army Air Forces
Bolling Field, D. C.

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

SECRET

DECLASSIFIED
NND 96
By [illegible] NARS, Date 10/13/76

Publication of Data on Army Air Forces Intelligence by the G-2 AS

WAR/MS

2. [illegible] 7/8 3. Your attention is invited to security restraint in Item No. 1. It is desired that security control be used to comply with the recommendation of the Director of Intelligence outlined in his M & E of May 28, 1942 and such other recommendations that are contained in Item No. 1.

Incls
n/c

[illegible]
G/AS

194

PLANS GROUP
JUL 3 1942
AAG

SECRET

HEADQUARTERS ARMY AIR FORCES — COORDINATION											
Office of Origin	Officer Symbol	A-2 & 3	A-4	A-5	A-6	A-7	A-8	A-9	Assistant	Secretary	Symbol

AGF-66

THIS PAGE IS DECLASSIFIED IAW EO 13526

THIS PAGE IS DECLASSIFIED IAW EO 13526

THE END

Microfilmed

by

The Library of Congress

Photoduplication Service

25-93a (3/91)

THIS PAGE IS DECLASSIFIED IAW EO 13526