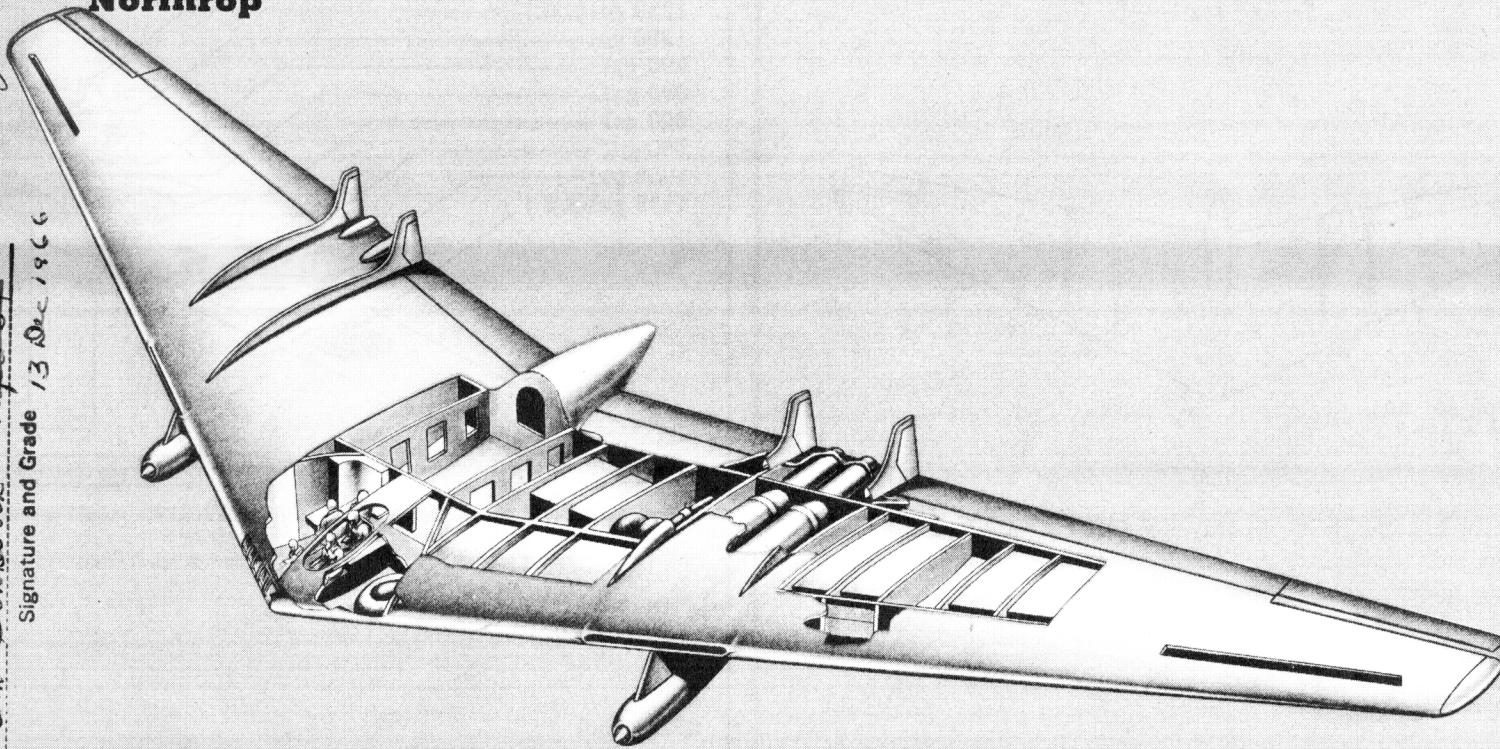


YRB-49A

FLYING WING

Northrop

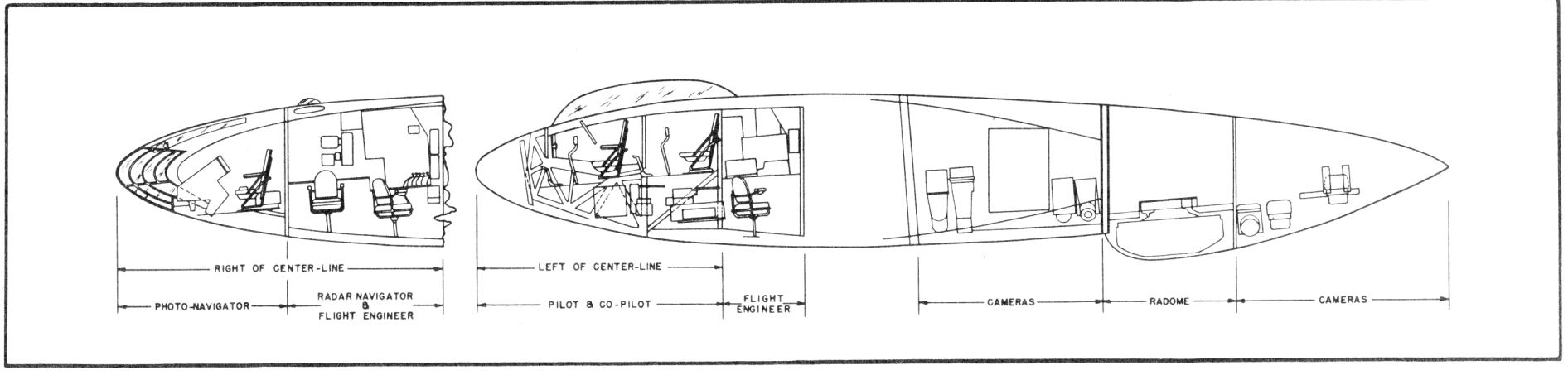
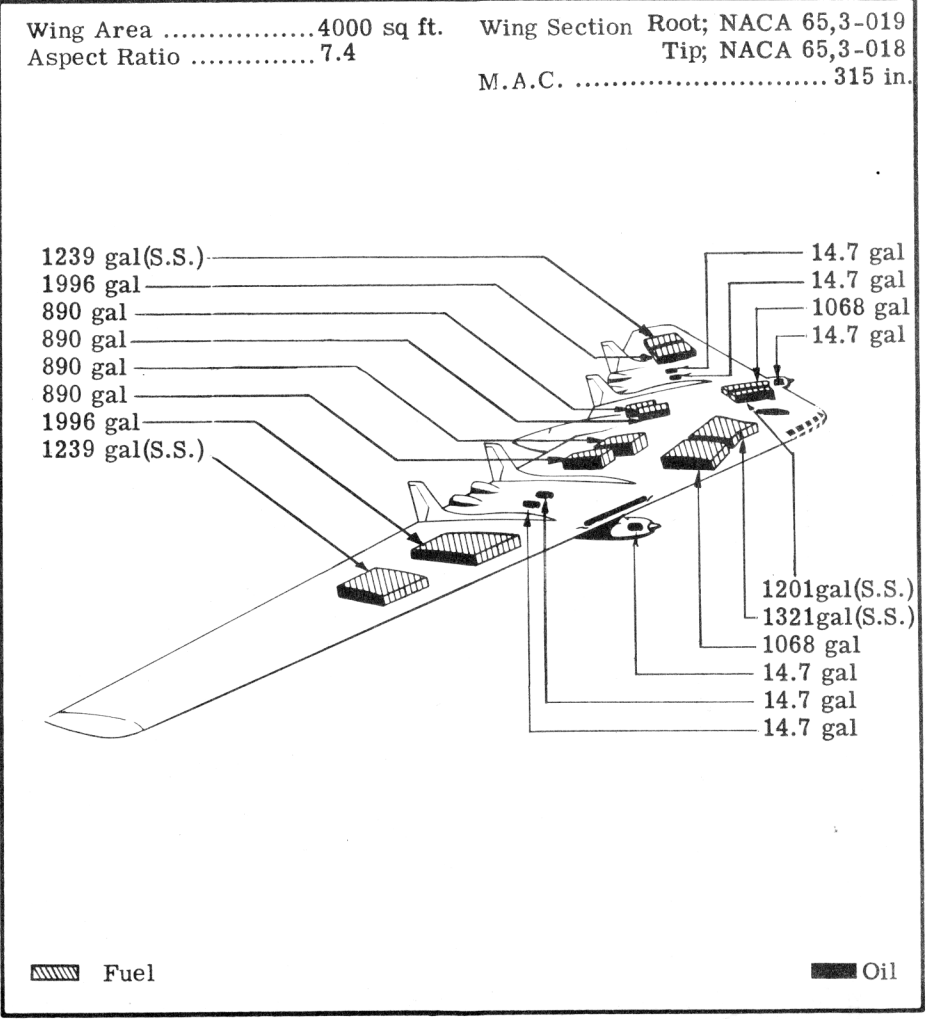
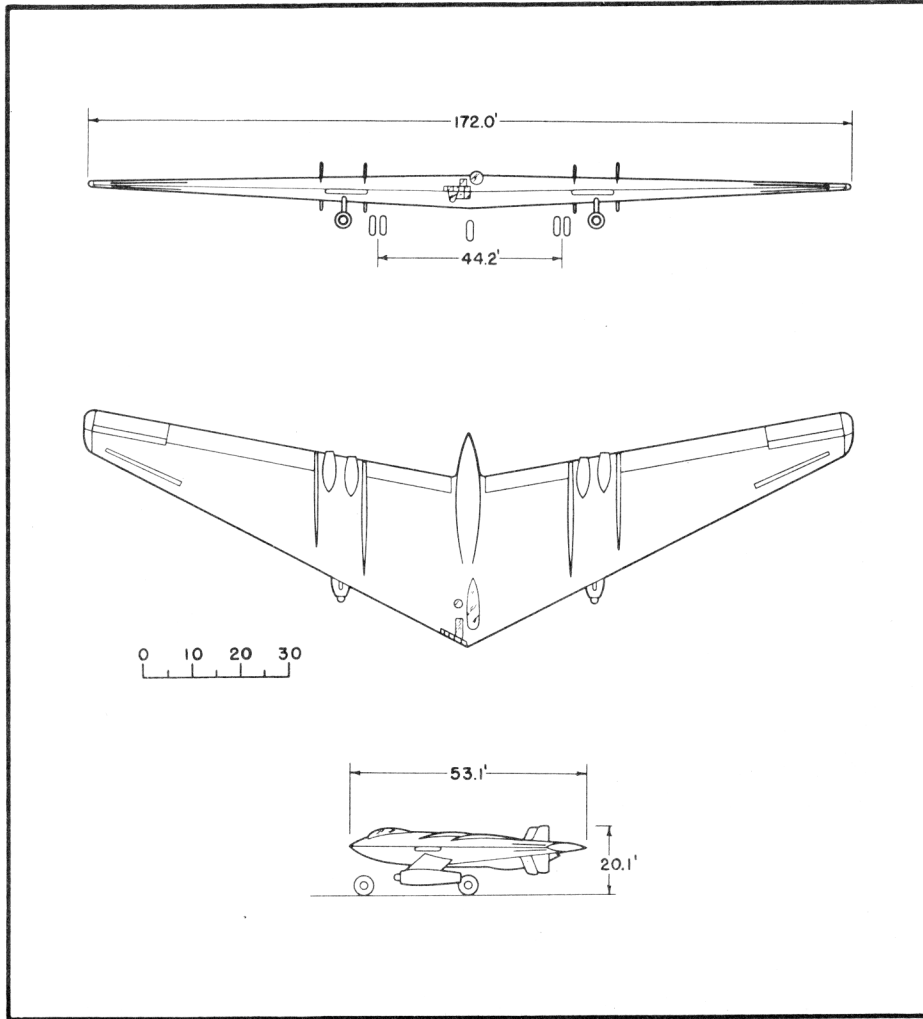
Classification cancelled
 or changed to *Unclassified*
 AUTH: *AF of G. AF & Co Sec. Class. Guide 1 Jan 64*
 By *C. R. Longman 1 Apr 64*
 Signature and Grade *13 Dec 1966*



Standard Aircraft Characteristics

BY AUTHORITY OF
 COMMANDING GENERAL
 AIR MATERIEL COMMAND
 U.S. AIR FORCE

SIX J35-A-19
 ALLISON



POWER PLANT

No. & Model (6) J35-A-19
 Mfr. Allison
 Engine Spec.No.... Allison No. 280
 Type & Stages Axial (11)
 Length 138.0''
 Diameter 37.0''
 Weight (dry) 2210 lb

ENGINE RATINGS

S.L. Static	LB - RPM
T.O:	4900 - 7800
Mil:	4900 - 7800
Nor:	4240 - 7400

DIMENSIONS

Span 172.0'
 Length 53.1'
 Height 20.1'
 Tread 44.2'

Mission and Description

The mission of the YRB-49A is to test the suitability of the flying wing configuration to photo-reconnaissance work.

The crew consists of pilot, co-pilot-radio operator, radar-navigator, photo-navigator, and flight engineer plus provisions for a photo-technician.

This aircraft is a modification of the B-35 (reciprocating engine) to accommodate six turbo-jet type engines and photographic equipment. The aircraft is of "pure" flying wing configuration using elevons (combination elevator & ailerons) and split type wing tip drag rudders for control. Four vertical fins are installed replacing four propellers and associated shaft housings.

The crew compartment is pressurized to maintain an equivalent of 5000 feet altitude up to 28,000 feet and a constant differential pressure above 28,000 feet. Emergency oxygen system is provided, as are window defrosting, air conditioning, dust protection and sound proofing. The landing gear is of the tricycle type with steerable nose wheel.

Development

Construction completion 1st. airplane:
 January 1950 (estimated)
 First flight: February 1950 (estimated)
 First delivery: September 1950 (estimated)

C A M E R A S

No.	Type	Lens	Usage
1	T-11	..6''	Mapping
5	K-17	..6'',12'',24''	
1	K-22	..6'',12'',24''	
1	K-37	..12''	
8	K-38	..24'',36''	
1	O-15		Radar Record

B O M B S

No.	Size	Type
6	188 lb	T-89 Flash Bombs

G U N S

NONE

W E I G H T S

Loading	Lb	L.F.
Empty	88,427(E)	
Basic	89,788(E)	
Design	206,000	2.0
Combat	*129,487	
Max T.O.	†175,000	
Max.Land	‡150,000	

(E) Estimated
 *For basic mission
 †Limited by strength to 85% design gross weight pending static test.
 ‡Limited by strength.

F U E L

Location	No.Tanks	Gal.
Wings outbd	*2	2478
Wings center	2	3992
Wings inbd	6	5696
Wings inbd	*2	2522
*Self-sealing	Total	14,688
Fuel Spec.	AN-F-32,AN-F-48,	
	AN-F-58	
Fuel Grade	JP-1,100/130,JP-3	

O I L

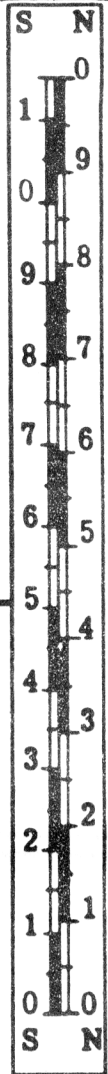
Capacity (gal)	88
Spec.	AN-0-9
Grade	1010

ELECTRONICS

VHF Command AN/ARC-3
 Liaison AN/ARC-8
 Combat Interphone
 Search Radar AN/APQ-24
 Navigational Radar AN/APN-9

Loading and Performance - Typical Mission

C O N D I T I O N S			BASIC RADIUS	BASIC RANGE	OVERLOAD RADIUS	FERRY RANGE
			I	II	III	IV
TAKE-OFF WEIGHT	(lb)		175,000	175,000	192,291	175,000
Fuel & Oil	(gal)		12,280/88	18,280/88	14,688/88	12,450/88
Military Load (Flash Bombs)	(lb)		1128	1128	1128	None
Total Ammunition	(rds/cal)		None	None	None	None
Wing Loading	(lb/sq ft)		43.75	43.75	48.00	43.75
Stall Speed (power off)	(kn)		88	88	92	88
TAKE-OFF DISTANCE SL		①				
Ground Run (no wind)	(ft)	④	4280	4280	5700	4280
To Clear 50ft Obst	(ft)	④	5380	5380	7300	5380
CLIMB FROM SL						
Rate Of Climb at SL	(fpm)	③	1460	1460	1300	1460
Time To 10,000 Feet	(min)	③	7.95	7.95	9.28	7.95
Time To 20,000 Feet	(min)	③	20.45	20.45	33.00	20.45
Service Ceiling (100 f.p.m.)	(ft)	③	29,200	29,200	27,000	29,200
COMBAT RANGE	(n.mi)	⑤		2250		2280
COMBAT RADIUS	(n.mi)	⑤	1110		1155	
Avg. Cruising Speed	(kn)		336	340	334	340
Total Mission Time	(hr)		6.8	6.7	6.9	6.8
Cruising Altitude	(ft)		⑤	⑤	⑤	⑤
COMBAT WEIGHT	(lb)		129,487	99,929	135,250	129,572
Combat Altitude	(ft)		35,000	39,500	32,000	35,000
SPEED						
Max Speed (combat alt)	(kn)	②	380	381	372	380
Max Speed (Optimum alt.)Ft.	(kn)	②	381/35,332	381/40,000	381/35,800	381/36,500
CLIMB						
Rate Of Climb (combat alt)	(fpm)	②	495	600	580	495
Rate Of Climb At SL	(fpm)	②	2900	3940	2750	2900
CEILING						
Combat Ceiling (500 fpm)	(ft)	②	34,500	40,000	33,500	34,500
Service Ceiling (100 fpm)	(ft)	②	40,000	45,500	39,000	40,000
Service Ceiling (100 fpm)	(ft)	③	37,300	42,600	36,250	37,300
LANDING WEIGHT SL	(lb)		99,929	99,929	100,731	100,043
Ground Roll	(ft)	④	1440	1440	1500	1445
From 50' Obst.	(ft)	④	3050	3050	3060	3050



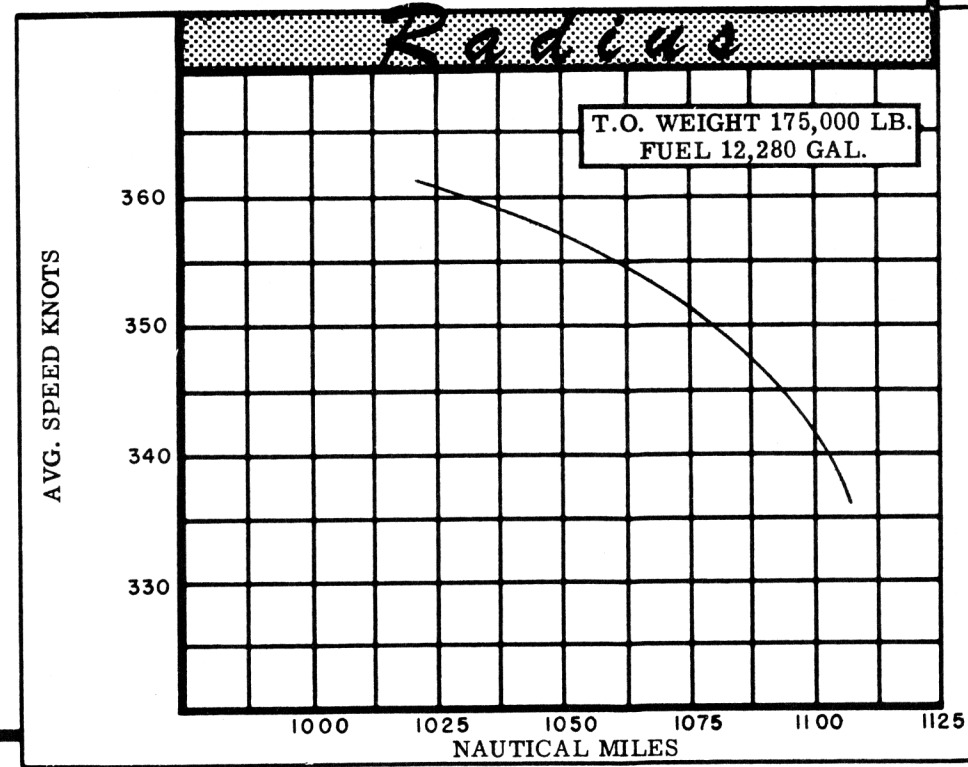
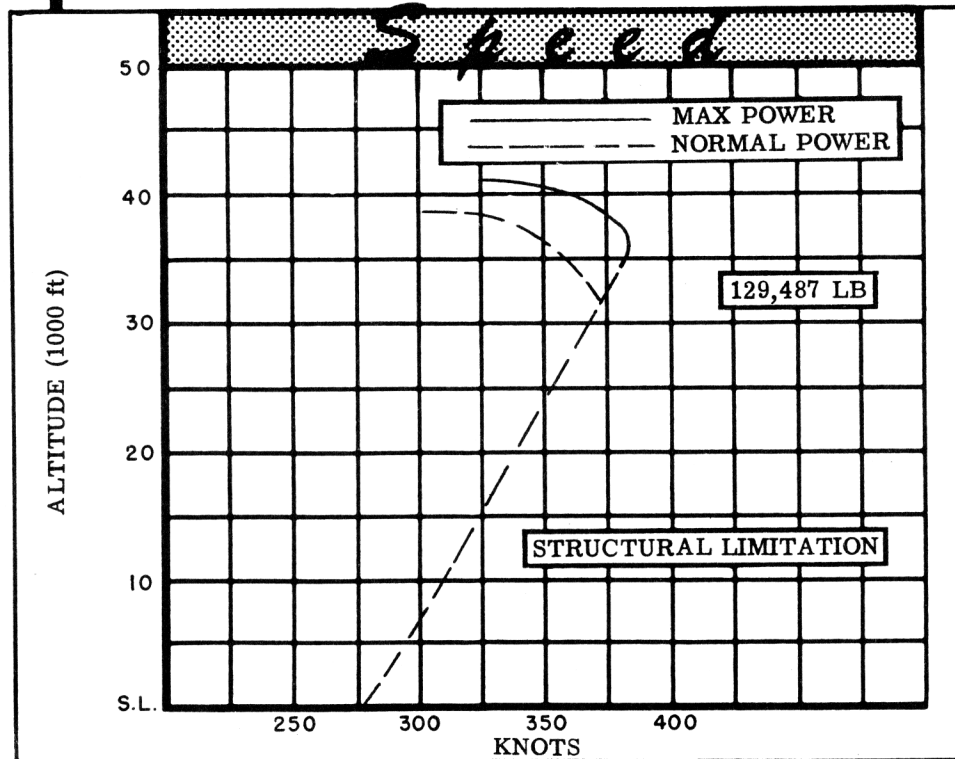
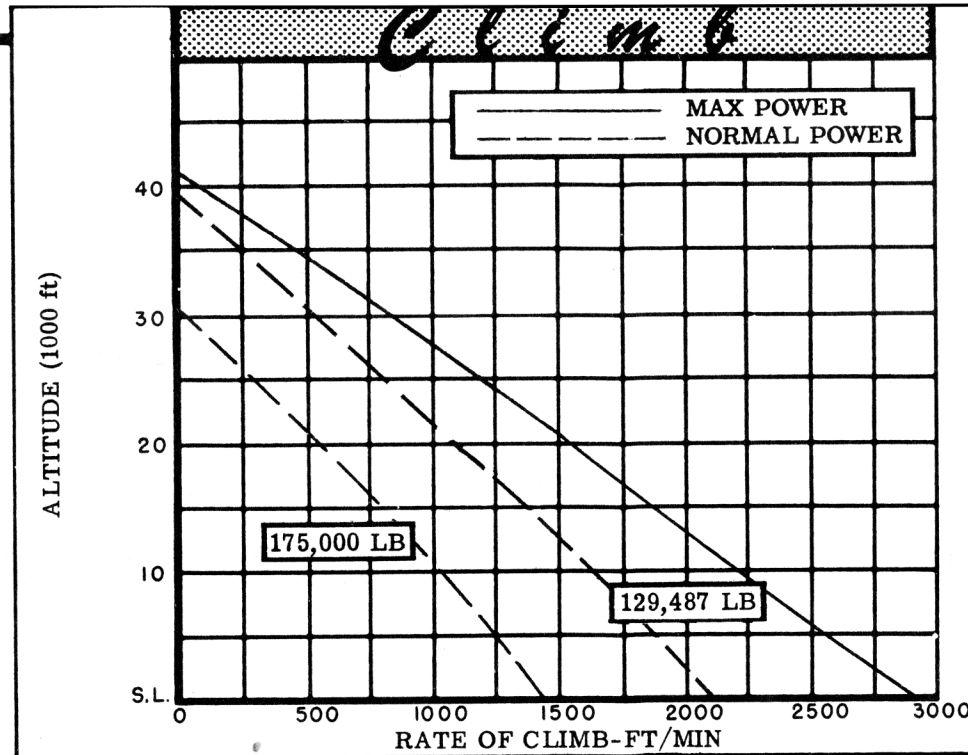
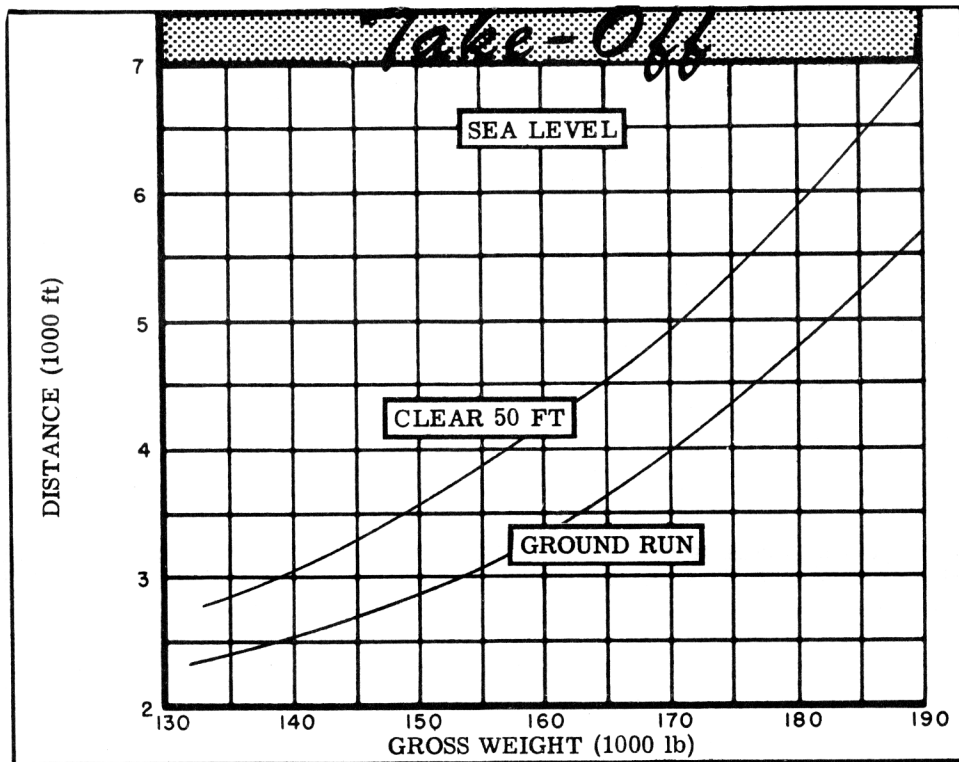
NOTES

- ① Take-off power
- ② Max power
- ③ Normal power
- ④ Take-off and landing distances are obtainable at sea level using

normal technique. For airport planning add 25% to distances shown.
 ⑤ Detailed descriptions of the RADIUS & RANGE missions are given on page 6.

CONDITIONS:

- (a) Performance Basis: Estimated data
- (b) In computing Radius and Range, specific fuel consumption has been increased 5% to allow for variations of fuel flow in service aircraft.
- (c) Performance is based on powers shown on page 3.



N O T E SFORMULA: RADIUS MISSION I

Warm-up and take-off (allow 5 minutes normal power SL static fuel flow) climb on course at maximum power to initial cruising altitude of 27,200 feet. Cruise toward target at long range speeds utilizing a cruising climb arriving at 33,500 feet 6 minutes prior to bomb drop. Conduct 6 minute run into target at normal power, drop bombs, and conduct 6 minute normal rated power evasive action (no distance). Using cruising climb return to base at long range speeds arriving over base of 40,000 feet. Landing and endurance reserve is 10% of initial fuel load.

FORMULA: RANGE MISSION II

Same as out bound leg of Mission I continued to point where 90% of fuel load has been consumed. Altitude at bomb drop is 39,500 feet. Landing and endurance reserve is 10% of initial fuel load.

FORMULA: RADIUS MISSION III

Same as Mission I except for increased fuel load and take-off weight. Initial cruise altitude is 24,000 feet, altitude over target is 32,000 feet, final altitude over base is 38,500 feet. Allowances are same as Mission I.

FORMULA: RANGE MISSION IV

Same as Mission II except for replacement of military load by fuel.

Property of the Air Force Museum
Wright-Patterson Air Force Base
Ohio 45433