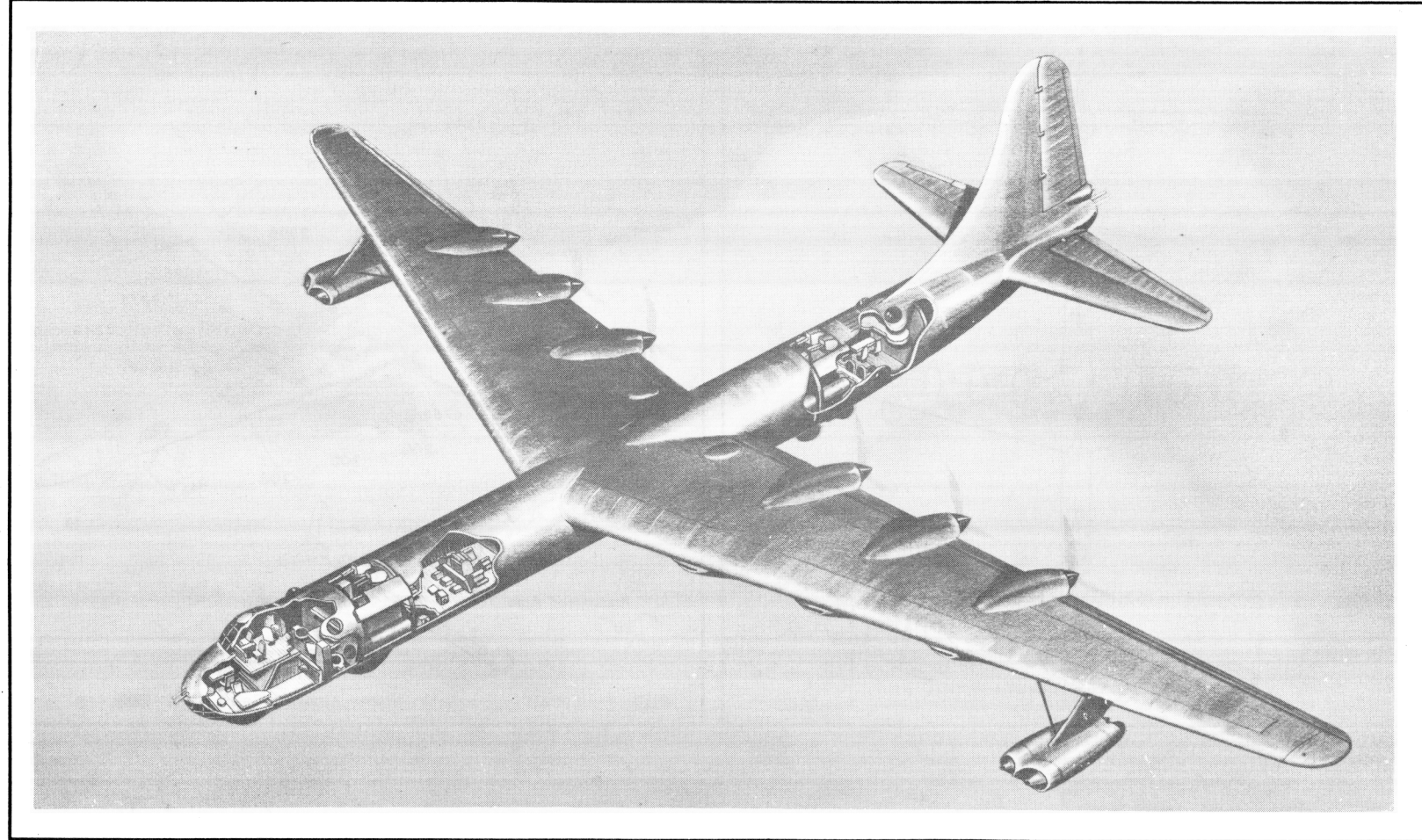


A-1
(R)B-36F/CHAN

~~C O N F I D E N T I A L~~

SERVICE

Classification cancelled
or changed to Unclassified
AUTH: AFSC AFAC Security Class. DoD Dir 5300.10
By A. R. Jonsalson, Laps 644
Signature and Grade 13 Dec 1966



Standard Aircraft Characteristics

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

RB-36F

Consolidated-Vultee

SIX R-4360-53
PRATT & WHITNEY
AND
FOUR J47-GE-19
GENERAL ELECTRIC

1 MAR 54

~~C O N F I D E N T I A L~~

RB-36F

Thru 62 adant #11

Capra 1954

53WC12001

POWER PLANT

No. & Model (6) R-4360-53
 Mfr Pratt & Whitney
 Engine Spec No. A-7076-F
 Superch 1stg, 1 spd
 Turbo Superch (2) BH-1
 Turbo Mfr General Electric
 Red. Gear Ratio 0.375
 Prop Mfr Curtiss
 Blade Design No. *1129-17C6-24
 Prop. Type C. S, FF, Rev'r
 No. Blades 3
 Prop. Dia 19'0"
 Augmentation Water/Alcohol
 plus
 No. & Model (4) J47-GE-19
 Mfr General Electric
 Engine Spec No. E-589
 Type Axial
 Length 144"
 Diameter 39"
 Weight (dry) 2495
 Tail Pipe Fixed Area
 * Alternate Blades A. O. Smith, NO.
 SP-36D

ENGINE RATINGS

BHP - RPM - ALT - MIN
 T. O.: *3800 - 2800 - SL - 5
 Mil: *3800 - 2800 - Turbo - 30
 3500 - 2800 - Turbo - 30
 Nor: 2800 - 2600 - Turbo - Cont
 * Wet
 plus
 S. L. S. LB - RPM - MIN
 Max: 5200 - 7950 - 5
 Mil: 5200 - 7950 - 30
 Nor: 4730 - 7630 - Cont

DIMENSIONS

Wing
 Span 230.0'
 Incidence (root) 3°
 (tip) 1°
 Dihedral 2°
 Sweepback (LE) 15°05'
 Length 162.1'
 Height 46.8'
 Tread 46.0'
 Prop. Grd. Clearance 54"

Mission and Description

Navy Equivalent: None Mfr's Model: 36

The principal missions of the RB-36F are all-purpose strategic reconnaissance, day and night mapping, charting and bomb damage assessment.

The normal crew consists of aircraft commander, pilot, co-pilot, (2) flight engineers, primary navigator, photo-navigator, radar observer, weather observer, (2) radio operators, (2) photographer technicians, (4) ECM operators, and (5) gunners.

Crew and camera compartments are pressurized, heated and ventilated.

A stand-by oxygen system is provided for emergency use.

The defensive armament consists of eight remotely controlled turrets; six of which are retractable. The tail turret is controlled by APG-32 radar.

The airplane has a single-point fueling, manifold type fuel system.

Major difference from the RB-36E aircraft is the installation of R-4360-53 engines in place of R-4360-41 engines.

Development

Contract Approved	Mar 50
First Flight	May 51
First Delivery	May 51
Production Completed	Nov 51

B O M B S

No.	Class (lb)
80	T-86 Photo Flash 188

G U N S

No.	Type	Size	Rds ea	Location
2	M24A1	20mm.	400	Fus, nose
4	M24A1	20mm.	600	Fus, up, fwd
4	M24A1	20mm.	600	Fus, up, aft
4	M24A1	20mm.	600	Fus, lw, aft
2	M24A1	20mm.	600	Fus, tail

C A M E R A S

No.	Type	Lens
1	K-22A, Fwd, oblique	12"
3	K-17C, Tri Metrogon	6"
2	K-38, Split Vertical	24"
2	K-22A, Side oblique	24"
1	K-17C, Vertical	6"
5	K-38, Multiple	36"
5	*K-40, Multiple	48"
1	*T-11, Vertical	6"
1	*K-37, Vertical	12"
1	*K-22A, Vertical	6", 12", 24"
1	*K-17C, Vertical	6", 12"

* Alternate Provisions

W E I G H T S

Loading	Lb	L. F.
Empty	170,889 (A)	
Basic	177,452 (A)	
Design	370,000	2.0
Combat	*262,800	
Max T. O.	†370,000	2.0
Max Land	‡357,500	

(A) Actual
 * For Basic Mission
 † See note (d) page 7
 ‡ Limited by structure

F U E L

Location	No. Tanks	Gal
Wg, outbd*	2	4496
Wg, ctr*	2	8146
Wg, inbd	2	8411
Center sec	2	9577
Bomb bay	1	2996
	Total	+ 33,626
Grade		115/145
Specification		MIL-F-5572

OIL

Outboard, (Jet)	4	(tot) 52
Wing (Recip)	6	(tot) 1200
Grade	(Recip)	1100
	(Jet)	1005
Specification	(Recip)	MIL-L-6082A
	(Jet)	MIL-L-6081A

WATER/ALCOHOL

Eng Nacelle	6	(tot) 54
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* Partial Self-Sealing
 † Total capacity usable only for special loading when equipment has been removed from aircraft.

ELECTRONICS

UHF Command	AN/ARC-27
VHF Command	AN/ARC-3
Liaison	AN/ARC-8
Range Recv'r	BC-453B
Radio Compass	AN/ARN-6
Blind Approach	*RC-103D
Glide Path	AN/ARN-5B
IFF	AN/APX-6
Loran	AN/APN-9A
Marker Beacon	AN/ARN-12
Navigational Radar	AN/APQ-24
Gun Laying Radar	AN/APG-32
Interphone	USAF Combat
Defensive ECM & Ferret ECM	
*AN/ARN-14 alternate set	

Loading and Performance - Typical Mission

C O N D I T I O N S		BASIC MISSION	MAX BOMBS	HIGH ALTITUDE	HIGH SPEED	FERRY RANGE
TAKE-OFF WEIGHT	(lb)	370,000	370,000	370,000	370,000	370,000
Fuel at 6.0 lb/gal (grade 115/145)	(lb)	175,661	161,940	175,661	175,661	178,071
Payload (Flashbombs)	(lb)	2256	15,040	2256	2256	None
Payload (Cameras)	(lb)	1390	1390	1390	1390	1390
Wing loading	(lb/sq ft)	77.5	77.5	77.5	77.5	77.5
Stall speed (power off)	(kn)	107	107	107	107	107
Take-off ground run at SL	① (ft)	3990	3990	3990	3990	3990
Take-off to clear 50 ft	① (ft)	5110	5110	5110	5110	5110
Rate of climb at SL	③ (fpm)	905	905	905	905	905
Rate of climb at SL (one eng. out)	② (fpm)	915	915	915	915	915
Time: SL to 10,000 ft	③ (min)	12.5	12.5	12.5	12.5	12.5
Time: SL to 20,000 ft	③ (min)	27	27	27	27	27
Service ceiling (100 fpm)	③ (ft)	32,500	32,500	32,500	32,500	32,500
Service ceiling (one eng. out)	② (ft)	29,800	29,800	29,800	29,800	29,800
COMBAT RANGE	④ (n. mi)	2690	2405	2450	1345	6365
COMBAT RADIUS	④ (n. mi)	2690	2405	2450	1345	6365
Average cruise speed	(kn)	198	198	224	340	1825
Initial cruising altitude	(ft)	5000	5000	25,000	28,900	5000
Target speed	③ (kn)	344	341.5	347	343	---
Target altitude	(ft)	40,100	39,600	40,500	39,150	---
Final cruising altitude	(ft)	29,250	29,200	25,000	41,700	29,250
Total mission time	(hr)	26.8	23.9	21.8	8.3	34.9
COMBAT WEIGHT	(lb)	262,800	256,000	256,900	267,500	201,890
Combat altitude	(ft)	40,100	39,600	40,500	39,150	29,250
Combat speed	② (kn)	352	355.5	353.5	352	355.5
Combat climb	② (fpm)	460	600	460	525	1810
Combat ceiling (500 fpm)	② (ft)	40,100	40,600	40,500	39,700	44,900
Service ceiling (100 fpm)	③ (ft)	43,100	43,650	43,550	42,800	48,600
Service ceiling (one eng. out)	③ (ft)	40,700	41,100	41,000	40,500	45,500
Max rate of climb at SL	② (fpm)	1945	2020	2000	1905	2735
Max speed at optimum altitude	② (kn/ft)	355.5/36,100	357.5/36,400	357/36,300	354/35,900	371/38,500
Basic speed at 25,000 ft	② (kn)	339	340.5	340.5	338.5	347
LANDING WEIGHT	(lb)	202,470	202,715	202,470	202,470	202,430
Ground roll at SL	(ft)	1960	1960	1960	1960	1960
Ground roll (auxiliary brake)	⑤ (ft)	1710	1710	1710	1710	1710
Total from 50 ft	(ft)	3410	3410	3410	3410	3410
Total from 50 ft (auxiliary brake)	⑤ (ft)	3170	3170	3170	3170	3170

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- ① T. O. power
- ② Max power
- ③ Normal power

- ④ Detailed descriptions of Range and Radius missions given on page 7
- ⑤ Props reversed

Performance Basis:

- (a) Data source: Calculations based on flight test of B-36F with configuration adjustments.
- (b) Performance is based on powers shown on p. 7.

SUPPLEMENTAL *Loading and Performance — Typical Mission*

C O N D I T I O N S		BASIC MISSION	MAX BOMBS	HIGH SPEED
		VI	VII	VIII
TAKE-OFF WEIGHT	(lb)	357,500	357,500	357,500
Fuel at 6.0 lb/gal (grade 115/145)	(lb)	163,160	149,440	163,160
Payload(Flash Bombs)	(lb)	2256	15,040	2256
Payload (Cameras)	(lb)	1390	1390	1390
Wing loading	(lb/sq ft)	74.9	74.9	74.9
Stall speed (power off)	(kn)	105	105	105
Take-off ground run at SL	① (ft)	3630	3630	3630
Take-off to clear 50 ft	① (ft)	4640	4640	4640
Rate of climb at SL	③ (fpm)	965	965	965
Rate of climb at SL (one eng. out)	② (fpm)	985	985	985
Time: SL to 10,000 ft	③ (min)	11.5	11.5	11.5
Time: SL to 20,000 ft	③ (min)	25	25	25
Service ceiling (100 fpm)	③ (ft)	34,300	34,300	34,300
Service ceiling (one eng. out)	② (ft)	31,500	31,500	31,500
COMBAT RADIUS	④ (n. mi)	2520	2260	1270
Average cruise speed	(kn)	199	202.5	345.5
Initial cruising altitude	(ft)	5000	5000	30,500
Target speed	(kn)	345.5	343	345
Target altitude	(ft)	40,400	40,000	39,500
Final cruising altitude	(ft)	29,500	29,500	41,800
Total mission time	(hr)	24.5	21.6	7.6
COMBAT WEIGHT	(lb)	258,800	252,000	262,400
Combat altitude	(ft)	40,400	40,000	39,500
Combat speed	② (kn)	352.5	356	353
Combat climb	② (fpm)	460	550	510
Combat ceiling (500 fpm)	② (ft)	40,400	40,900	40,200
Service ceiling (100 fpm)	③ (ft)	43,400	44,200	43,200
Service ceiling (one eng. out)	③ (ft)	41,000	41,200	40,700
Max rate of climb at SL	② (fpm)	1975	2065	1955
Max speed at optimum altitude	② (kn/ft)	357/36,600	359/36,900	355/36,500
Basic speed at 25,000 ft	② (kn)	340	340.5	339
LANDING WEIGHT	(lb)	201,835	202,085	201,835
Ground roll at SL	(ft)	1955	1955	1955
Ground roll (auxiliary brake)	⑤ (ft)	1700	1700	1700
Total from 50 ft	(ft)	3400	3400	3400
Total from 50 ft (auxiliary brake)	⑤ (ft)	3160	3160	3160

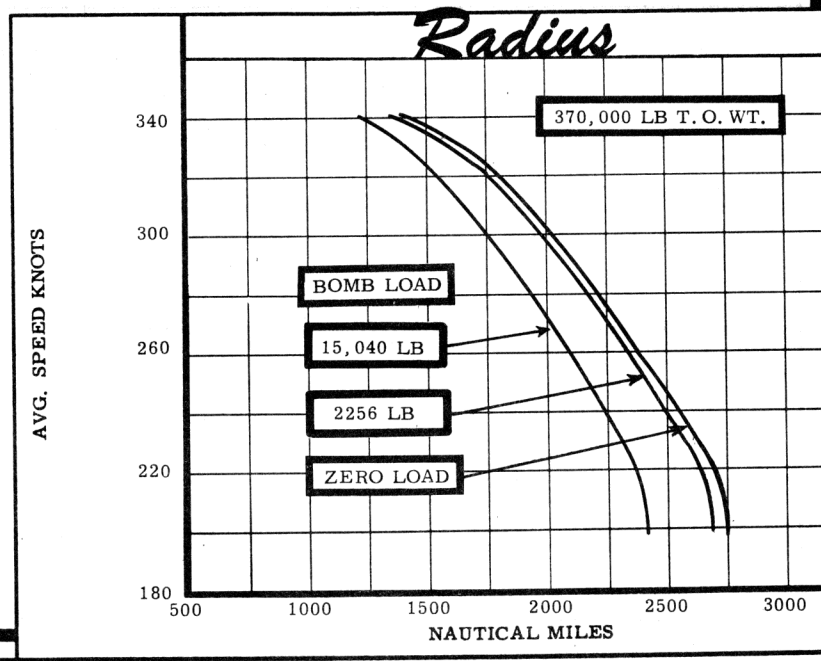
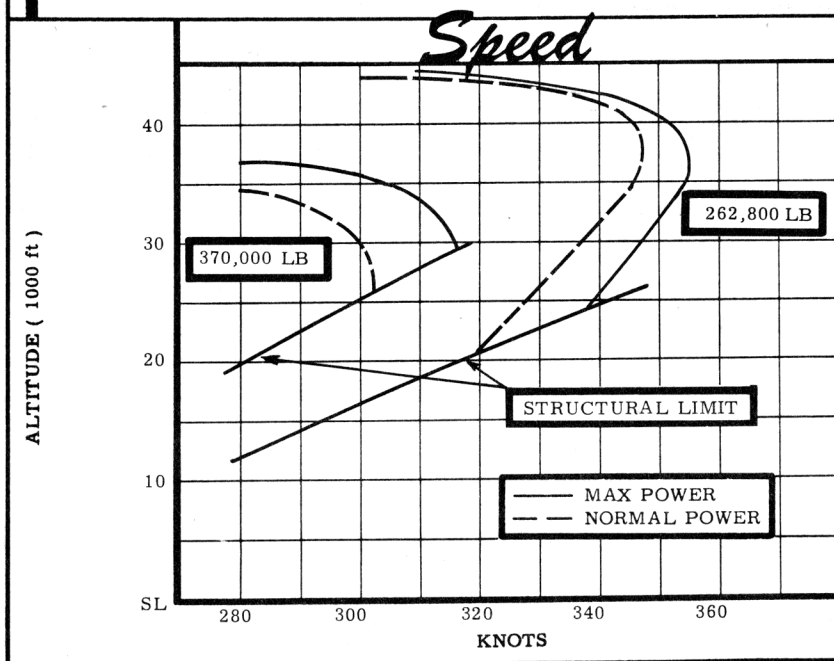
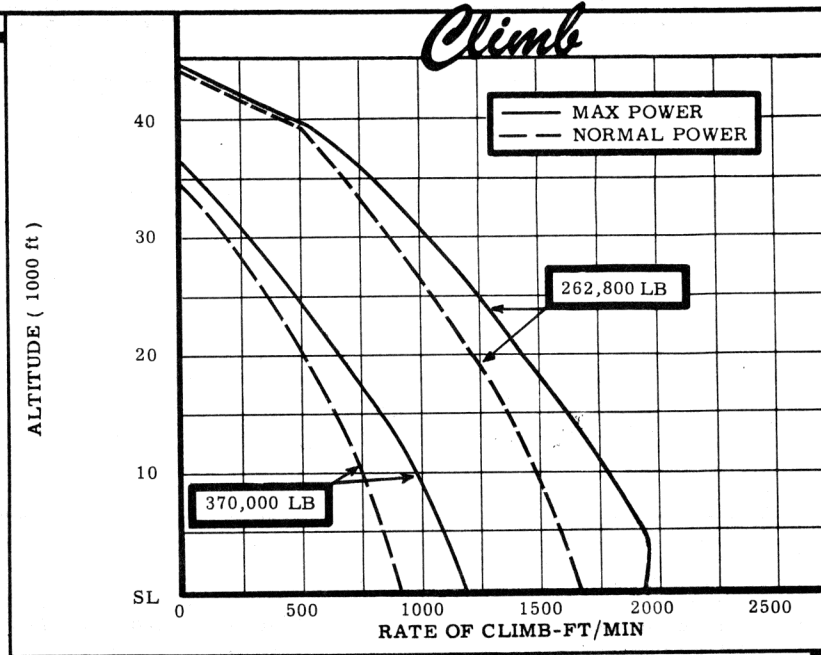
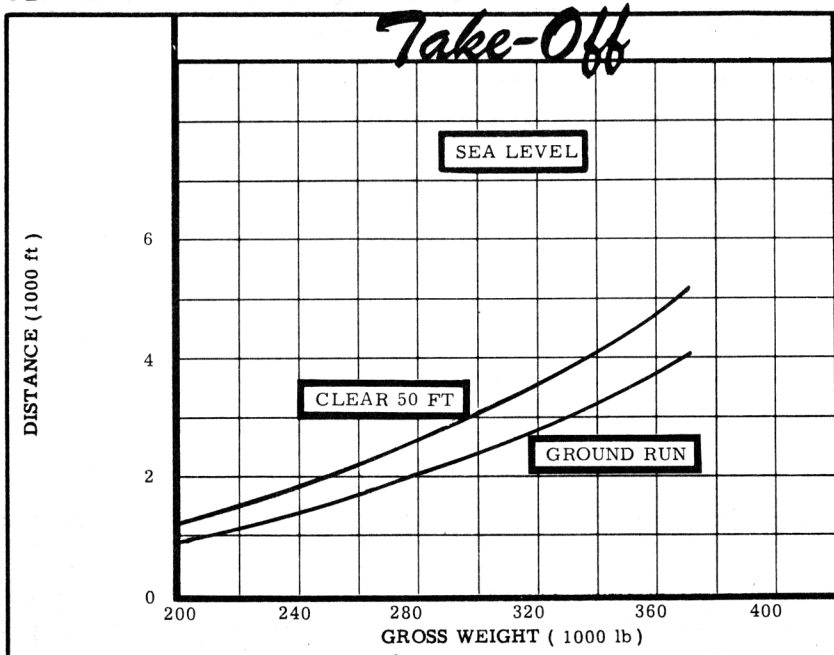
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- ① T. O. power
- ② Max power
- ③ Normal power

- ④ Detailed descriptions of Radius and Range missions given on page 7
- ⑤ Props reversed.

Performance Basis:

- (a) Data source: Calculations based on flight test of B-36F with configuration adjustments.
- (b) Performance is based on powers shown on p. 7.



N O T E S

FORMULA: RADIUS MISSIONS I, II, VI & VII

Warm-up, take-off and climb on course to 5000 ft at normal power, cruise out at long range speeds to point of cruise climb operation. Climb so as to arrive at cruise ceiling 500 nautical miles from target. Cruise at long range speeds at combat altitude, using best engine (jet-reciprocating) combination; 15 minutes from target, conduct 10 engine normal power photographic run, drop flash bombs, conduct 2 minutes evasive action and 8 minutes escape from target at normal power. After leaving target area, cruise back at long range speeds using best engine combination until 500 nautical miles from target; descend to optimum cruise altitude and cruise-climb to base. Range free allowances include 10 minutes normal power fuel consumption for reciprocating engines and 5 minutes normal power fuel consumption for jet engines for starting and take-off, 2 minutes normal power fuel consumption at combat altitude for evasive action, 30 minutes of fuel consumption at sea level for long range speeds (reciprocating engines only) plus 5% of initial fuel load for landing and endurance reserve.

FORMULA: RADIUS MISSION III

Warm-up, take-off and climb on course to 25,000 ft at normal power, cruise out at long range speeds at this altitude to point of climb so as to arrive at cruise ceiling 500 nautical miles from target. Cruise at long range speeds using best engine (jet-reciprocating) combination; 15 minutes from target conduct 10 engine normal power photographic run, drop flash bombs, conduct 2 minutes evasive action and 8 minutes escape from target at normal power. After leaving target area, cruise back at long range speeds using best engine combination until 500 nautical miles from target; descend to 25,000 ft and cruise back to base. Range free allowances are the same as for Radius Mission I.

FORMULA: RADIUS MISSIONS IV & VIII

Entire mission is flown at normal power. Warm-up, take-off and climb on course to optimum altitude for high speed, cruise at optimum altitude for high speed to a point where climb is made so as to arrive at cruise ceiling 500 nautical miles from target. Cruise to target at combat altitude, conduct photographic run and drop flash bombs. Conduct 2 minutes of evasive action, cruise at combat altitude until 500 nautical miles from target, descend to optimum altitude for high speed and return to base. If, after bomb drop, the flight path is above combat altitude, climb is begun after 2 minutes of evasive action. Range free allowances are the same as for Radius Mission I.

FORMULA: FERRY RANGE MISSION V

Warm-up, take-off and climb on course to 5000 ft at normal power, cruise climb at long range speeds until all usable fuel is consumed. Range free allowances are the same as for Radius Mission I except for omission of 2 minutes evasive action.

GENERAL DATA:

(a) Total fuel capacity is usable only for special loading with equipment removed from the aircraft.

(b) Engine ratings shown on page 3 are manufacturer's guaranteed ratings. Power values used for performance calculations are as follows:

(6) R-4360-53	(4) J47-GE-19
BHP - RPM - ALT - MIN	S. L. S. LB - RPM - MIN
T. O: *3800 - 2800 - SL - 5	T. O: 5010 - 7950 - 5
Max: 3500 - 2800 - [†] Up to 35,000 - 30	Max: 5010 - 7950 - 30
Nor: 2800 - 2600 - [†] Up to 39,000 - Cont	Nor: 4700 - 7630 - Cont
* Wet	
† Turbo supercharger limitation	

(c) For detailed planning refer to Technical Order AN 01-5EUF-1 and other applicable technical orders.

(d) Take-off at 370,000 lb gross weight is authorized only for airplanes on which structural modifications to the main landing gear have been accomplished in accordance with ECP 1890B and ECP 1890L.

PERFORMANCE REFERENCE:

Convair Report FZA-36-279, "Performance Estimate for RB-36F and RB-36H Aircraft", dated 18 September 1953.

REVISION BASIS:

To reflect flight test data and to conform with MIL-C-5011A.