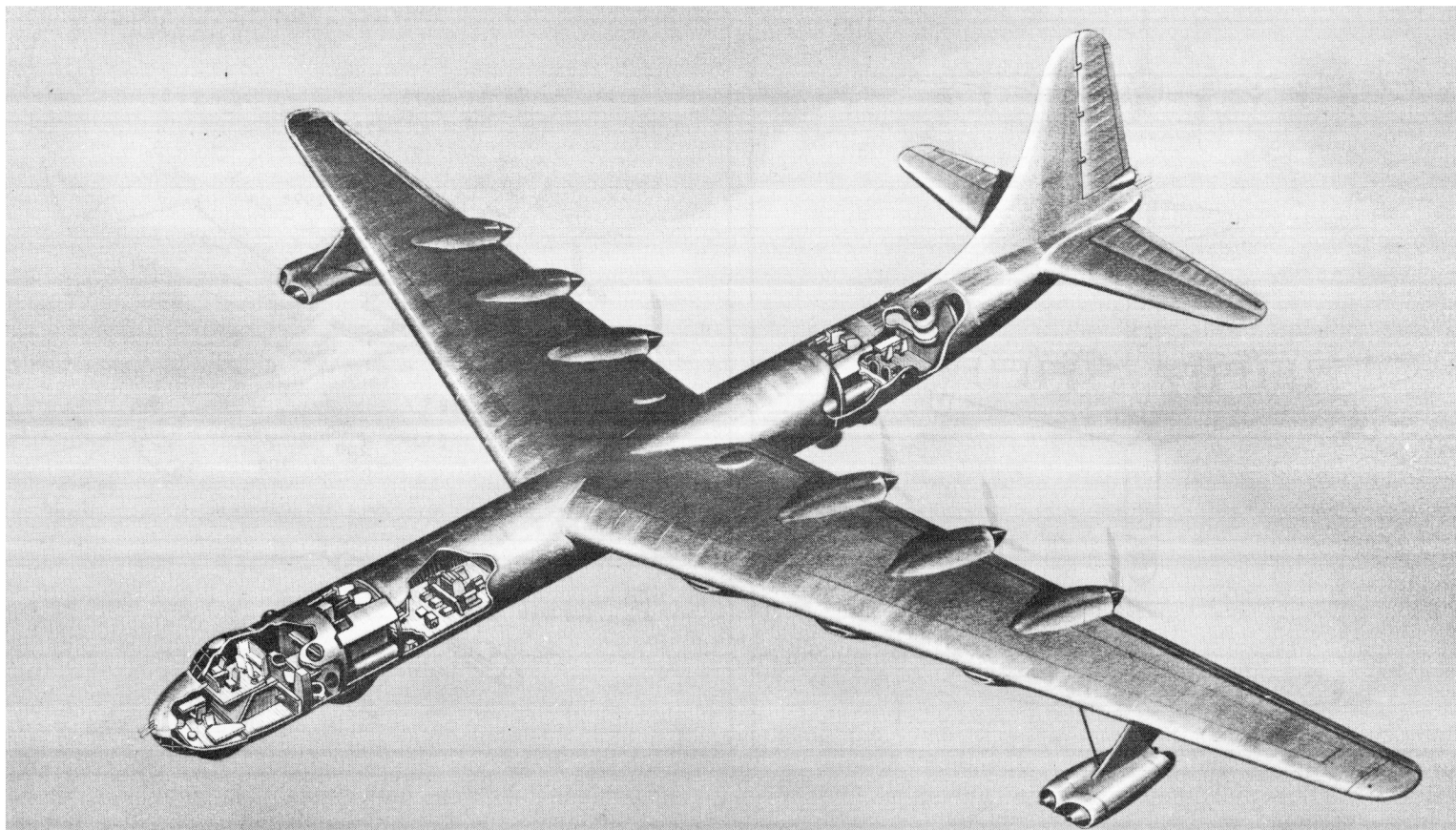


A-1
(R) B-36H/CHAN

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

SERVICE



Standard Aircraft Characteristics

RB-36H

Consolidated-Vultee

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

BY AUTHORITY OF
THE SECRETARY
OF THE AIR FORCE

Classification cancelled
or changed to Unclassified
AUI: AFSC AF 10 Sec. Class. Grade 1 Feb 64
By A. R. DeWalt 1 Apr 64
Signature and Grade 13 Dec 1966

1 MAR 54

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

RB-36H

3rd Ed addn # 11

53WC/2001

POWER PLANT

No. & Model (6) R-4360-53
 Mfr Pratt & Whitney
 Engine Spec No. A-7076-F
 Superch 1 stg, 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°5'
 Length 162.1'
 Height 46.8'
 Tread 46.0'
 Prop. Grd. Clearance 54"

Mission and Description

Navy Equivalent: Mfr's Model: 36

The principal missions of the RB-36H 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 AN/APG-41A radar.

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

Major differences from the RB-36F aircraft are a redesigned flight deck and the addition of twin tail radomes to house the AN/APG-41A units.

Development

Contract Approved Mar 50
 First Flight Jan 50
 Production Completed Sep 53

WEIGHTS

Loading	Lb	L. F.
Empty	171,942 (A)	
Basic	178,766 (A)	
Design	370,000	2.0
Combat	*263,300	
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 is removed from aircraft.

B O M B S

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

G U N S

No.	Type	Size	Rds ea	Loc
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

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
Navigation Radar	AN/APQ-24
Gun Laying Radar	AN/APG-41A
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
		I	II	III	IV	V
TAKE-OFF WEIGHT	(lb)	370,000	370,000	370,000	370,000	370,000
Fuel at 6.0 lb/gal (grade 115/145)	(lb)	171,929	158,208	171,929	171,929	175,747
Payload ⑤	(lb)	3664	16,448	3664	3664	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)	895	895	895	895	895
Rate of climb at SL (one eng. out)	② (fpm)	910	910	910	910	910
Time: SL to 10,000 ft	③ (min)	12.6	12.6	12.6	12.6	12.6
Time: SL to 20,000 ft	③ (min)	27.1	27.1	27.1	27.1	27.1
Service ceiling (100 fpm)	③ (ft)	32,350	32,350	32,350	32,350	32,350
Service ceiling (one eng. out)	② (ft)	29,700	29,700	29,700	29,700	29,700
COMBAT RANGE	④ (n. mi)	—	—	—	—	6120
COMBAT RADIUS	④ (n. mi)	2550	2280	2328	1280	—
Average cruise speed	(kn)	199.0	199.0	228.0	339.0	181.5
Initial cruising altitude	(ft)	5000	5000	25,000	29,000	5000
Target speed	③ (kn)	341.5	339.0	343	340.0	—
Target altitude	(ft)	39,600	39,100	40,000	38,000	—
Final cruising altitude	(ft)	28,900	28,800	25,000	41,600	28,900
Total mission time	(hr)	25.3	22.6	20.2	8.0	33.7
COMBAT WEIGHT	(lb)	263,300	256,300	258,026	268,200	204,110
Combat altitude	(ft)	39,600	39,100	40,000	38,000	28,900
Combat speed	② (kn)	351	354	353	351	353
Combat climb	② (fpm)	510	620	520	590	1760
Combat ceiling (500 fpm)	② (ft)	39,900	40,500	40,400	39,500	44,500
Service ceiling (100 fpm)	③ (ft)	42,700	43,200	43,100	42,300	47,400
Service ceiling (one eng. out)	③ (ft)	40,700	41,000	40,800	40,350	45,250
Max rate of climb at SL	② (fpm)	1935	2005	1980	1880	2695
Max speed at optimum altitude	② (kn)	354/36,750	356/37,200	355/37,000	352/36,500	370/39,000
Basic speed at 25,000 ft	② (kn/ft)	337	338	338	336	344
LANDING WEIGHT	(lb)	204,610	204,710	204,610	204,610	204,650
Ground roll at SL	(ft)	1980	1980	1980	1980	1980
Ground roll (auxiliary brake)	⑥ (ft)	1720	1720	1720	1720	1720
Total from 50 ft	(ft)	3430	3430	3430	3430	3430
Total from 50 ft (auxiliary brake) ⑥	(ft)	3180	3180	3180	3180	3180

NOTES

- ① T. O. power
- ② Max power
- ③ Normal power
- ④ Detailed descriptions of Radius and Range

- missions given on page 7
- ⑤ Flash bombs and chaff
 - ⑥ Props reversed.

- Performance Basis:
- (a) Data source: Calculations based on flight test of B-36F with configuration adjustment.
 - (b) Performance is based on powers shown on page 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)	159,429	145,708	159,429
Payload ⑤ (lb)	3664	16,448	3664
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)	960	960	960
Rate of climb at SL (one eng. out) ② (fpm)	980	980	980
Time: SL to 10,000 ft ③ (min)	11.6	11.6	11.6
Time: SL to 20,000 ft ③ (min)	25.1	25.1	25.1
Service ceiling (100 fpm) ③ (ft)	34,100	34,100	34,100
Service ceiling (one eng. out) ② (ft)	31,300	31,300	31,300
COMBAT RADIUS ④ (n. mi)	2405	2120	1210
Average cruise speed (kn)	201	201	344.5
Initial cruising altitude (ft)	5000	5000	30,300
Target speed ③ (kn)	343	341	342
Target altitude (ft)	39,900	39,400	39,000
Final cruising altitude (ft)	29,000	28,900	41,600
Total mission time (hr)	23.7	20.8	7.5
COMBAT WEIGHT (lb)	258,900	252,000	263,200
Combat altitude (ft)	39,900	39,400	39,000
Combat speed ② (kn)	353	356	352
Combat climb ② (fpm)	530	620	550
Combat ceiling (500 fpm) ② (ft)	40,300	40,900	39,900
Service ceiling (100 fpm) ③ (ft)	43,000	43,400	42,700
Service ceiling (one eng. out) ③ (ft)	40,900	41,300	40,700
Max rate of climb at SL ② (fpm)	1980	2055	1935
Max speed at optimum altitude ② (kn)	355/37,000	358/37,500	354/36,800
Basic speed at 25,000 ft ② (kn/ft)	338	339	337
LANDING WEIGHT (lb)	203,985	204,235	203,985
Ground roll at SL (ft)	1970	1970	1970
Ground roll (auxiliary brake) ⑥ (ft)	1710	1710	1710
Total from 50 ft (ft)	3420	3420	3420
Total from 50 ft (auxiliary brake) ⑥ (ft)	3170	3170	3170

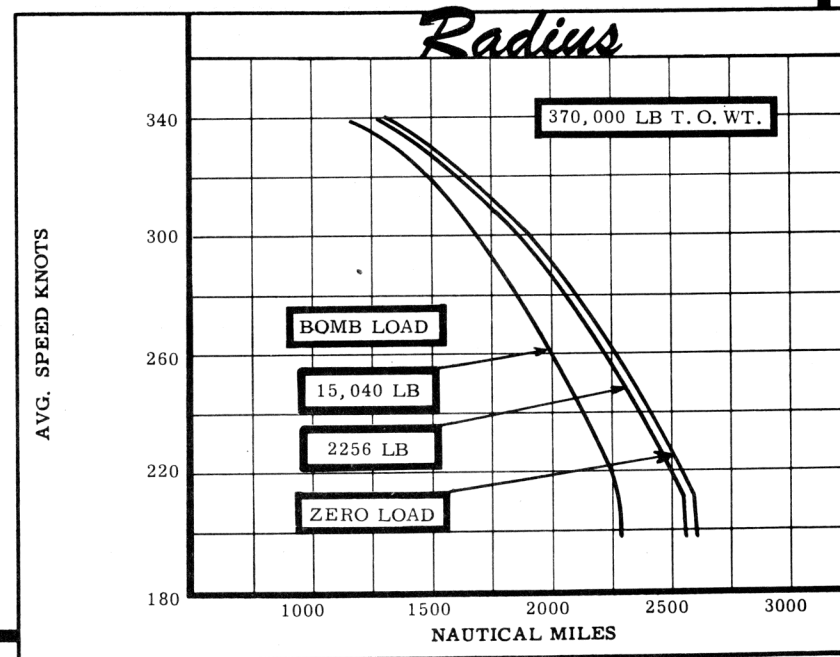
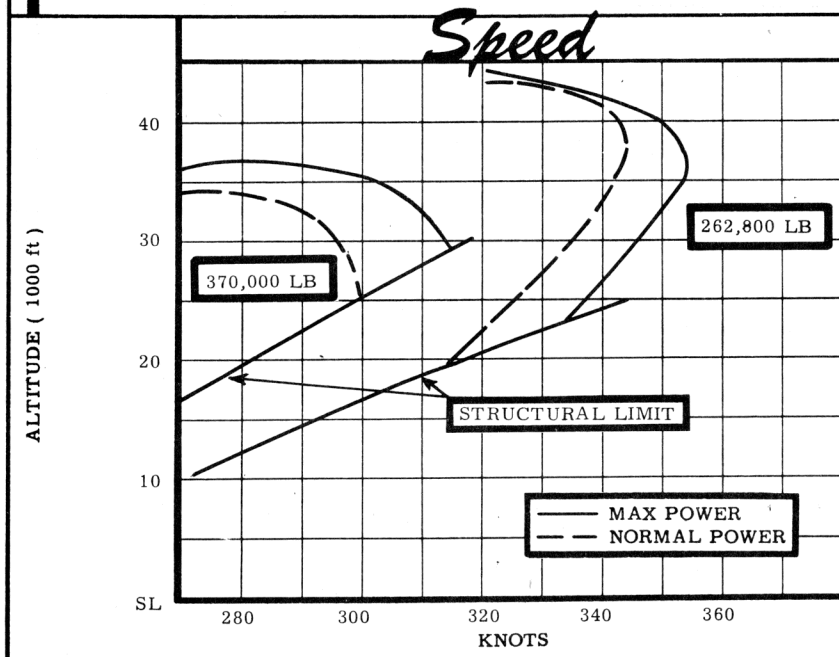
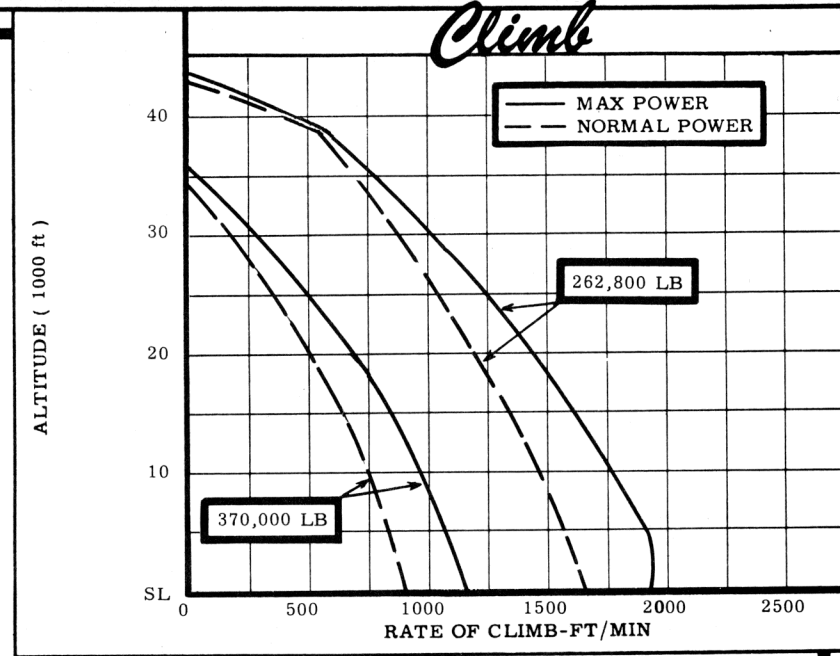
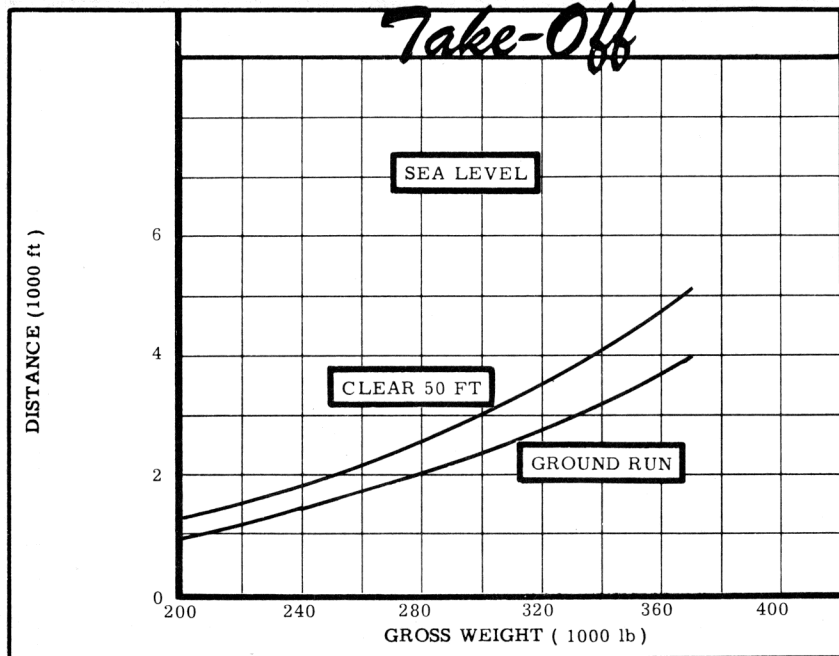
NOTES

- ① T. O. power
- ② Max power
- ③ Normal power
- ④ Detailed descriptions of Radius and Range

- missions given on page 7
- ⑤ Flash bombs and chaff
- ⑥ Props reversed

Performance Basis:

- (a) Data source: Calculations based on flight test of B-36F with configuration adjustment
- (b) Performance is based on powers shown on page 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 and chaff, 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 and chaff, 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 and chaff. 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 01-5EUH-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.