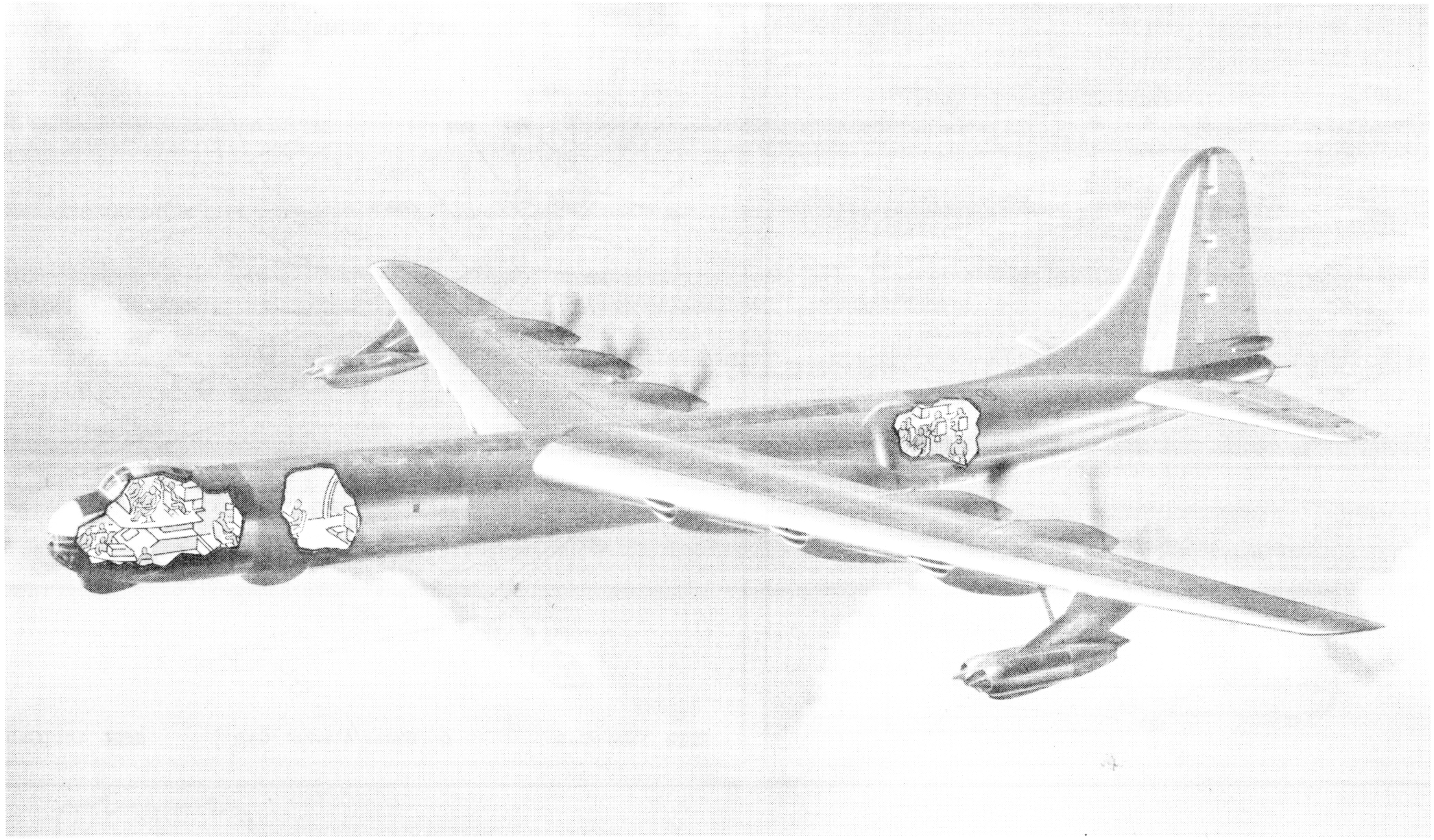
Unclassified

~~Confidential~~

~~SECRET~~

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

SERVICE



Classification cancelled or changed to ~~Unclassified~~ Confidential

AUTH: ~~AFSC AFLC Security~~ Class. Guide, 1 Jan 64

By [illegible]

Signature and Grade

Standard Aircraft Characteristics

RB-36F III

BY AUTHORITY OF THE SECRETARY OF THE AIR FORCE

Consolidated-Vultee

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

3 OCT 55

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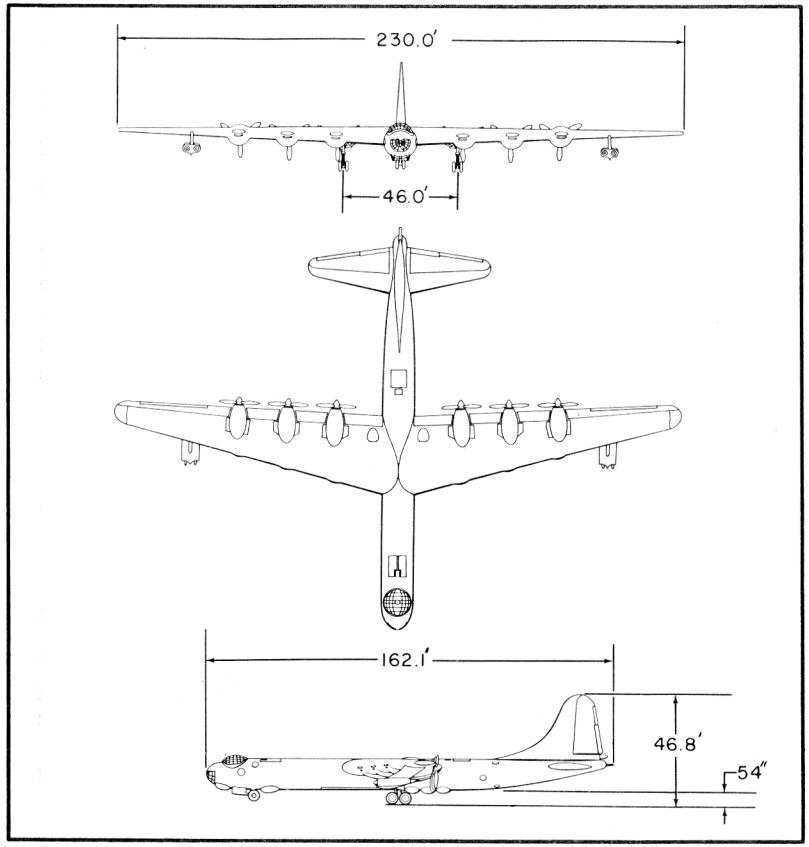
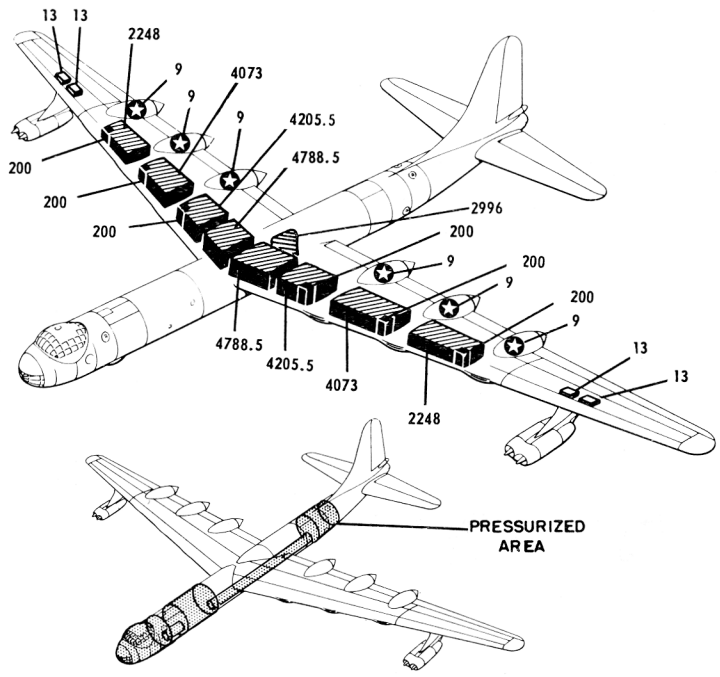
RB-36F(III)

57WC-4984

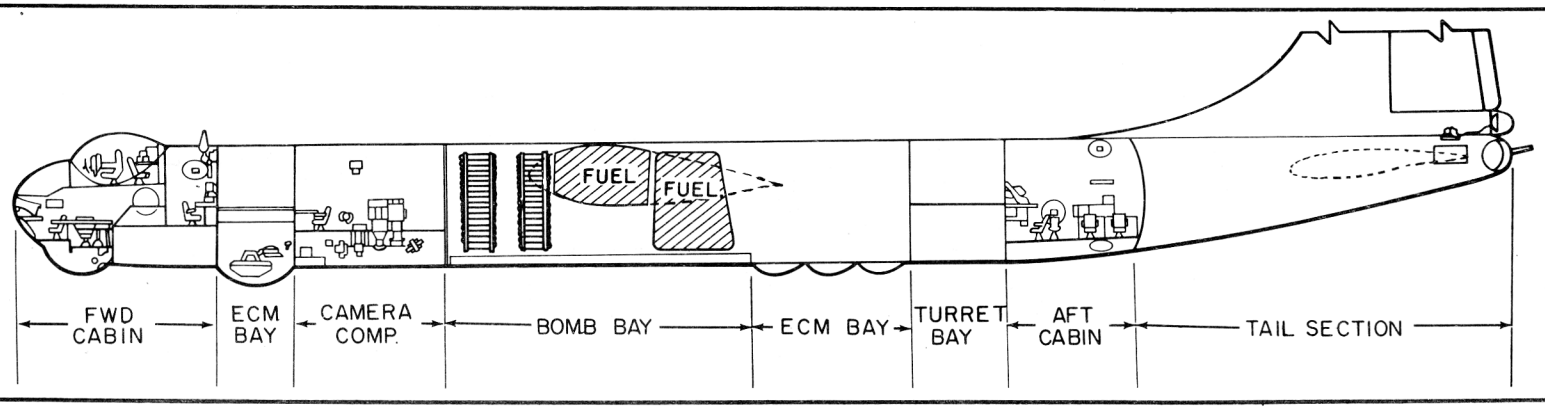


Wing Area . . . . . 4772 sq ft
Aspect Ratio 11.08
M.A.C. . . . . .280.7 in

WING SECTION
(root) . . . . . NACA 63,4-422A
(tip) . . . . . NACA 63,4-517A
a = 1.0 (modified)



Fuel (Gal) ☆ Water/Alcohol (Gal) Oil (Gal)



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	CS,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

SLS.	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°30'
Length	162.1'
Height	46.8'
Tread	46.0'
Prop. Grd. Clearance	54"

Mission and Description

Navy Equivalent: None

The principal missions of the RB-36F(III)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, photographer technician, (4) ECM operators, and (3) gunners.

Crew and camera compartments are pressurized, heated and ventilated. Compartment heating, enclosure defrosting, wing and tail anticing are accomplished by heated air obtained from heat exchangers installed in the reciprocating engine exhaust system.

The defensive armament consists of a 20mm gun tail turret, controlled by AN/APG-32 radar.

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

The high lift devices are constant chord single slotted wing flaps extending from the fuselage to the outboard reciprocating engine nacelle. The flap system is composed of six flaps (three on each wing) which are mechanically and electrically synchronized in symmetrical pairs.

The major differences of the RB-36F-III from the standard configuration are removal of: (1) all turrets except the tail turret; (2) self-sealing pads; (3) fuel purging system; (4) crew comfort items; (5) gun sighting blisters; and (6) oxygen provisions from deleted crew stations.

Development

Major differences of the RB-36F(III) from the standard configuration are removal of all turrets except tail turret, self-sealing pads, fuel purging system and crew comfort items; the replacement of blisters by small flush windows and the addition of dual automatic chaff dispensers.

Contract Approved	Feb 5[illegible]
First Flight	Jun 5[illegible]
First Delivery	Jun 5[illegible]
Modification Completed	Dec 5[illegible]

BOMBS

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

GUNS

No.	Type	Size	Rds Ea.	Location
2	M24A1	20mm	600	Fus, tail

CAMERAS

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

WEIGHTS

Loading	Lb	L.F.
Empty (A)	167,416	
Basic (A)	170,470	
Design	370,000	2.0
Combat	*250,400	
Max T.O.	†370,000	2.0
Max Land	†357,500	

(A) Actual
* For basic mission
† Limited by structure

FUEL

Location	No. Tanks	Gal
Wg Outboard	2	4496
Wg Cntr	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

Engine Nacelle	6	(Tot) 54

ELECTRONICS

UHF Command	AN/ARC-27
VHF Command	AN/ARC-3
Liaison	AN/ARC-8
Radio Compass	AN/ARN-6
High Latitude Compass	N-1
Marker Beacon	AN/ARN-12
I.F.F.	AN/APX-6
Omni-Range	AN/ARN-14
Glide Path	AN/ARN-5B
Loran	AN/APN-9A
Gun Laying Radar	AN/APG-32
*Interphone	USAF Combat
Defensive & Ferret ECM	

*See note (c) pg.6

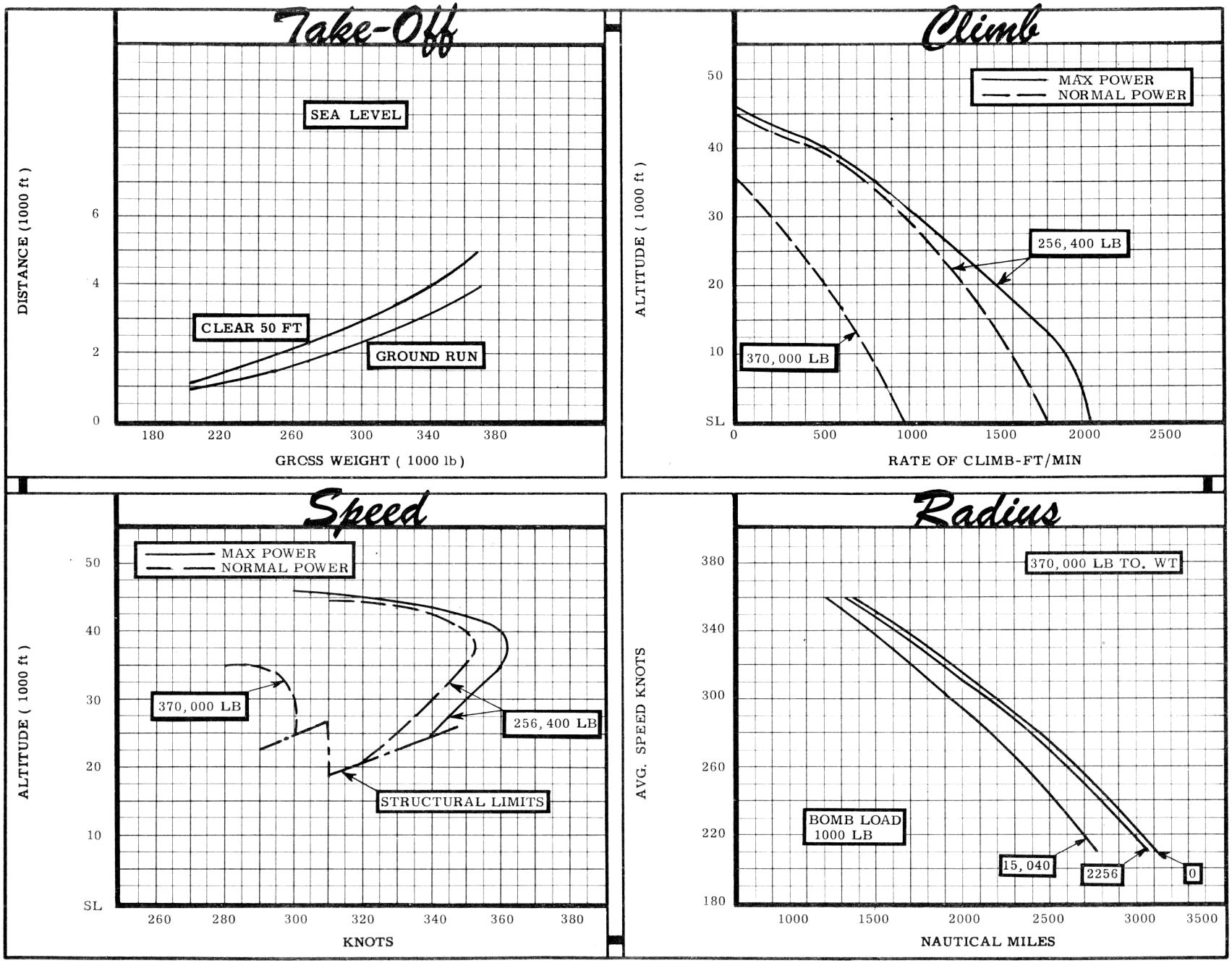
Loading and Performance — Typical Mission

CONDITIONS		BASIC MISSION	MAX BOMBS	MAX ALTITUDE	HIGH SPEED	FERRY RANGE
		I	II	III	IV	V
TAKE-OFF WEIGHT (lb)		369,846	370,000	369,846	369,846	370,000
Fuel at 6.0 lb/gal (grade 115/145) (lb)		183,780	170,210	183,780	183,780	186,940
Payload (Bombs) (lb)		2256	15,040	2256	2256	None
Payload (Chaff) (lb)		1408	1408	1408	1408	None
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)	940	940	940	940	940
Rate of climb at SL (one engine out)	② (fpm)	955	955	955	955	955
Time: SL to 10,000 ft	③ (min)	11	11	11	11	11
Time: SL to 20,000 ft	③ (min)	26	26	26	26	26
Service ceiling (100 fpm)	③ (ft)	33,850	33,850	33,850	33,850	33,850
Service ceiling (one engine out)	② (ft)	30,200	30,200	30,200	30,200	30,200
COMBAT RANGE (n. mi)						6985
COMBAT RADIUS	④ (n. mi)	3085	2765	2795	1360	
Average cruise speed (kn)		210	210	209	354	198
Initial cruising altitude (ft)		5000	5000	5000	32,000	5000
Target speed	③ (kn)	350	348	322	347	358
Target altitude (ft)		40,000	39,300	44,200	37,000	33,500
Final cruising altitude (ft)		34,000	34,000	34,000	38,600	34,000
Total mission time (hr)		29.0	26.0	26.4	8.1	35.3
COMBAT WEIGHT (lb)		256,400	250,150	255,500	264,900	193,450
Combat altitude (ft)		40,000	39,300	44,200	37,000	33,500
Combat speed	② (kn)	361	363	332	359	369
Combat climb	② (fpm)	530	635	140	620	1525
Combat ceiling (500 fpm)	② (ft)	40,200	40,700	40,200	39,200	46,700
Service ceiling (100 fpm)	③ (ft)	43,750	44,200	43,850	43,200	49,800
Service ceiling (one engine out)	③ (ft)	41,400	41,800	41,800	40,800	47,700
Max rate of climb at SL	② (fpm)	2040	2090	2040	1940	2870
Max speed at optimum altitude	② (kn)	362/38,100	364/38,300	363/38,200	359/37,900	375/39,400
Basic speed at 25,000/35,000 ft	② (kn/ft)	342/360	342/361	341/360	340/357	348/371
LANDING WEIGHT (lb)		192,585	192,850	192,585	192,585	193,405
Ground roll at SL (ft)		1880	1880	1880	1880	1880
Ground roll (auxiliary brake)	⑤ (ft)	1660	1660	1660	1660	1660
Total from 50 ft (ft)		3330	3330	3330	3330	3330
Total from 50 ft (auxiliary brake)	⑤ (ft)	3080	3080	3080	3080	3080

NOTES

① Take-off power
② Max power
③ Normal power
④ Detailed description of RADIUS and RANGE missions given on page 6
⑤ Brakes plus reversed props

PERFORMANCE BASIS:
(a) Data source: AF Phase IV Flight Test of B-36F & H with configuration adjustments.
(b) Performance is based on powers shown on page 6.


Take-Off
SEA LEVEL
CLEAR 50 FT
GROUND RUN
DISTANCE (1000 ft)
0
2
4
6
180
220
260
300
340
380
GROSS WEIGHT (1000 lb)
Climb
MAX POWER
NORMAL POWER
256, 400 LB
370, 000 LB
ALTITUDE (1000 ft)
SL
10
20
30
40
50
0
500
1000
1500
2000
2500
RATE OF CLIMB-FT/MIN
Speed
MAX POWER
NORMAL POWER
370, 000 LB
256, 400 LB
STRUCTURAL LIMITS
ALTITUDE (1000 ft)
SL
10
20
30
40
50
260
280
300
320
340
360
380
KNOTS
Radius
370, 000 LB TO. WT
BOMB LOAD
1000 LB
15, 040
2256
0
AVG. SPEED KNOTS
180
220
260
300
340
380
1000
1500
2000
2500
3000
3500
NAUTICAL MILES

NOTES

Formula: Radius Missions I & II

Warm-up, take-off and climb on course to 5000 feet at normal power, cruise out at long range speeds and altitudes. Conduct long range climb so as to arrive at cruise ceiling 500 nautical miles from target. Cruise at combat altitude with long range speeds until 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 500 nautical miles toward base using long range speeds at combat altitude. 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 5000 feet at normal power, cruise out at long range speeds and altitudes. Conduct long range climb to arrive at maximum attainable altitude 500 nautical miles from target. Cruise on maximum attainable altitude flight path; 15 minutes from target conduct 10 engine normal power photographic run at altitude attained at start of 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 500 nautical miles toward base using long range speeds at combat altitude. Descend to optimum cruise altitude and cruise-climb to base. Range free allowances are the same as for Radius Mission I.

Formula: Radius Mission IV

Entire mission is conducted 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 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, drop flash bombs and chaff, conduct 2 minutes evasive action and 8 minutes escape from the target. After leaving target area, cruise 500 nautical miles toward base; descend to optimum altitude for high speed and cruise-climb to base. If after bomb drop, optimum altitude for high speed is above combat altitude, climb is begun after 2 minutes 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 feet 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) Engine ratings shown on page 3 are manufacturer's guaranteed ratings. Power values used for performance calculations are as follows:

	(6) R4360-53				(4) J47-GE-19			
	BHP	RPM	CRIT. 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

† Turbosupercharger limitation

(b) For detailed planning refer to Technical Order No. 1B-36(R) F(III)-1 and other applicable technical orders.

(c) AN/AIC-10 Interphones effective on aircraft serial No. 326 and subs. USAF Combat effective on aircraft serial numbers prior to No. 326.

Performance Reference:

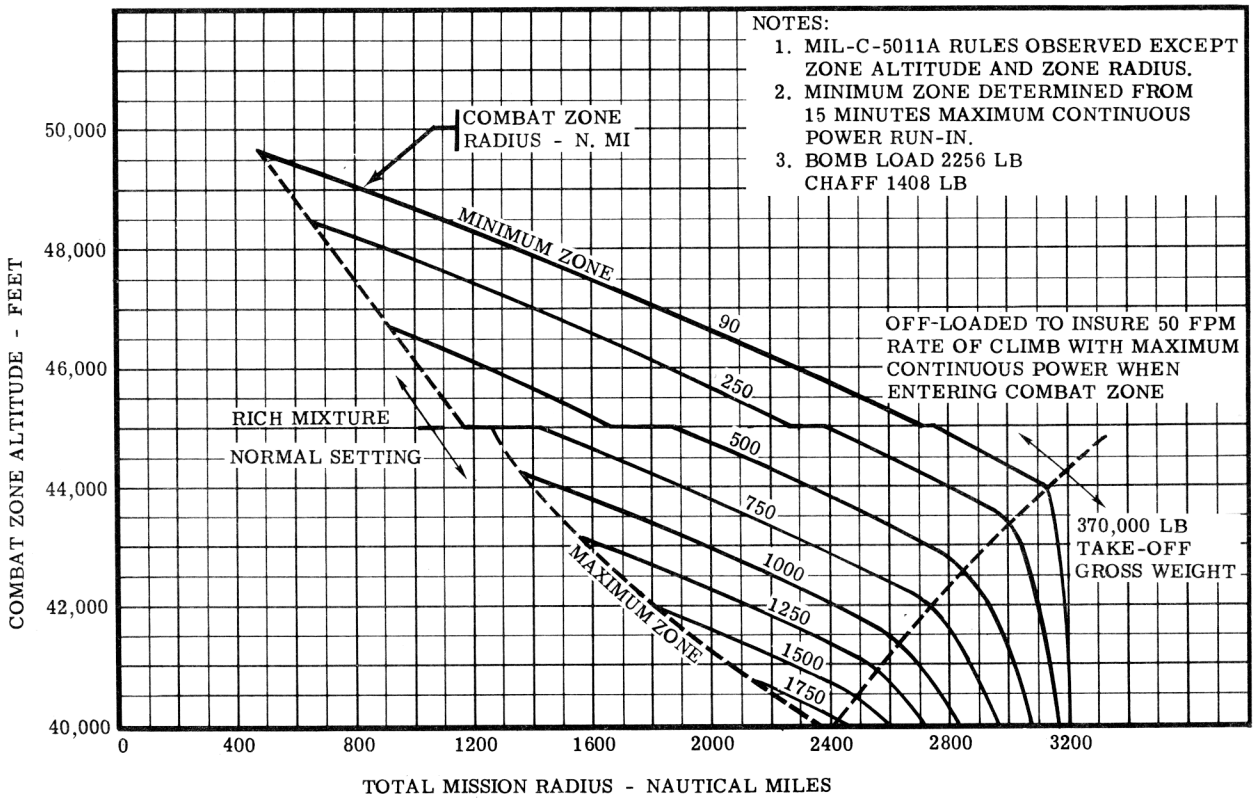
Convair Report FZA-36-320, "Performance Estimate for RB-36F and RB-36H Featherweight Aircraft," dated 10 January 1955, Rev. 31 May 1955

Revision Basis: To reflect latest performance due to weight change.

(31 MAY 55)

SUPPLEMENTAL

HIGH ALTITUDE COMBAT ZONE CAPABILITIES



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