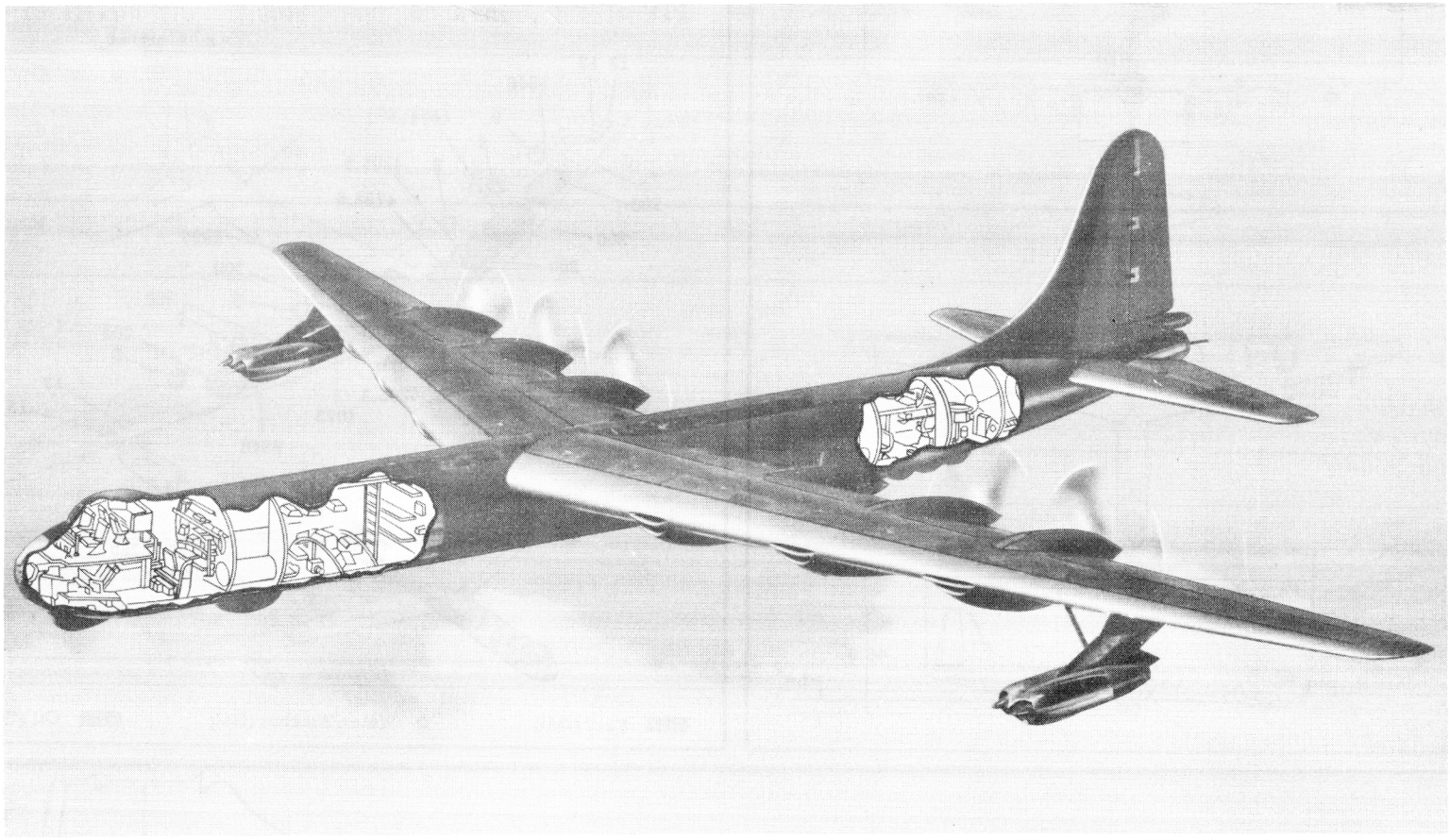


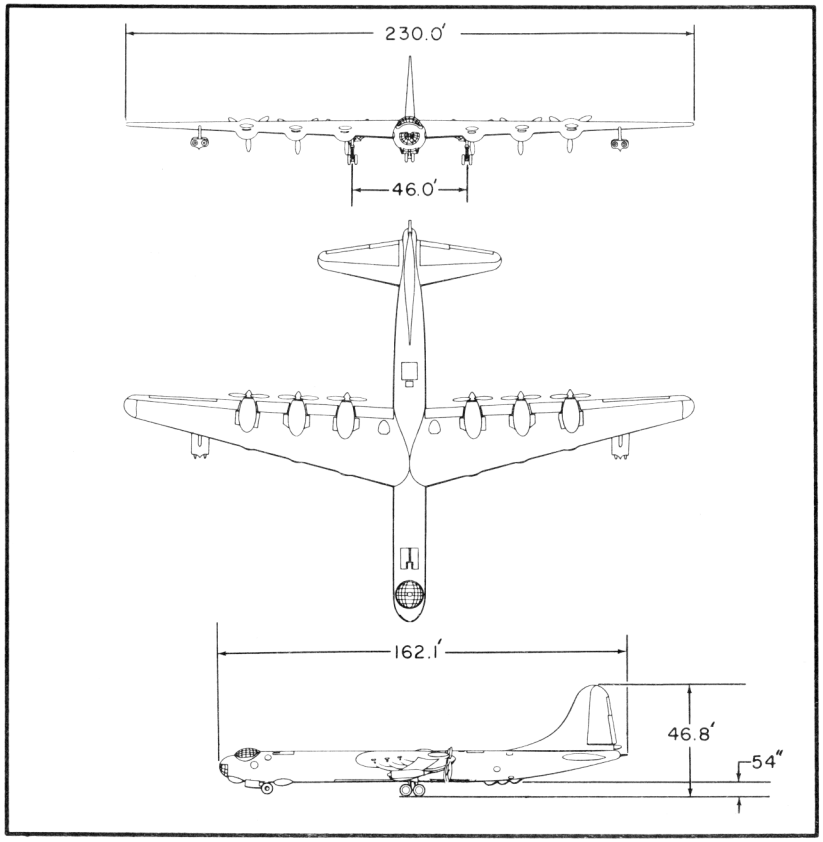
Standard Aircraft Characteristics

RB-36D&E-III

BY AUTHORITY OF
THE SECRETARY
OF THE AIR FORCE

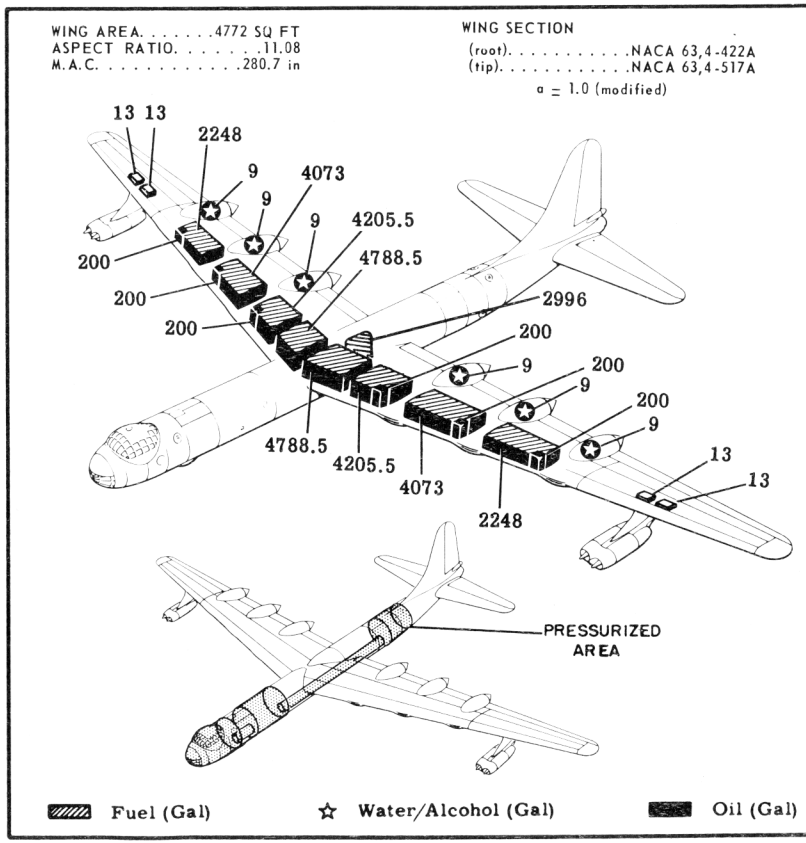
Consolidated-Vultee

SIX R-4360-41
PRATT & WHITNEY
FOUR J47-GE-19
GENERAL ELECTRIC

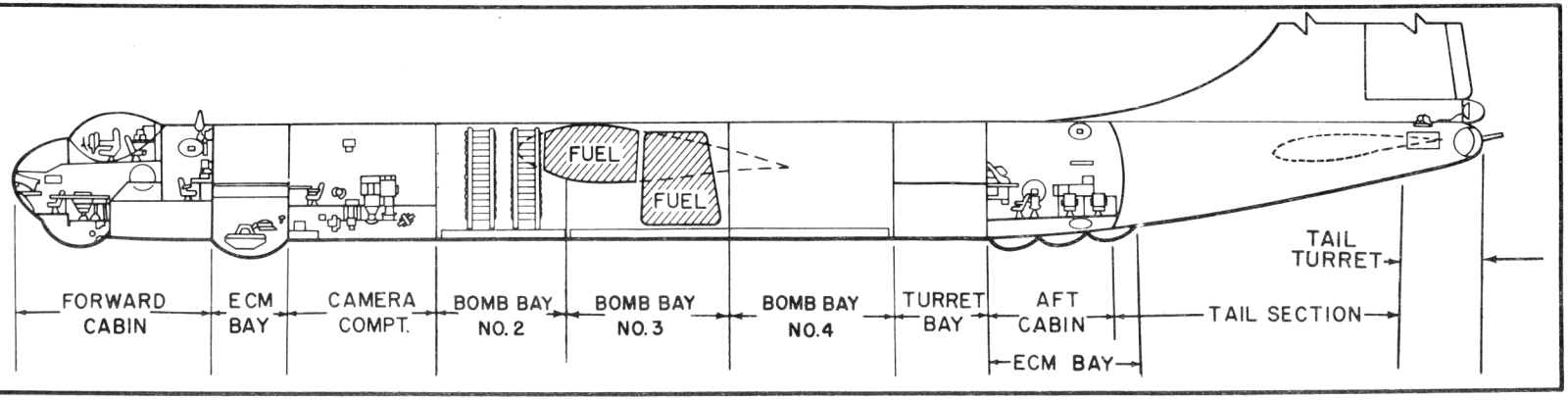


WING AREA. . . . . .4772 SQ FT
ASPECT RATIO. 11.08
M.A.C. . . . . .280.7 in

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)R4360-41
Mfr.	Pratt & Whitney
Engine Spec. No.	A-7063-E
Superch.	1 stg, 1 spd
Turbo Superch	(2) BH-1
Turbo Mfr.	General Electric
Red. Gear Ratio	0.375
Prop Mfr	Curtis
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

ENGINE RATINGS

	BHP		RPM		ALT		MIN
T.O.:	*3500	-	2700	-	SL	-	5
	3250	-	2700	-	SL	-	5
Mil:	*3500	-	2700	-	Turbo	-	30
	3250	-	2700	-	Turbo	-	30
Nor:	2650	-	2550	-	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'
Thread	46.0'
Prop Grd Clearance	54"

Mission and Description

Navy Equivalent: None — Mfr's Model 36

The principal missions of the RB-36D & E-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 anti-icing 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 or AN/APG-32A 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-36D & E-III from the standard configurations 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

	RB-36D-III	RB-36E-III
Contract	Feb. 1954	Feb. 1954
First Flight	Aug. 1954	June 1954
First Delivery	Aug. 1954	June 1954
Modification Completed	Nov. 1954	Oct. 1954

BOMBS

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

GUNS

No.	Type	Size	Rds Ea.	Location
2	M24A1	20mm	600	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-22A, Vertical	6",12", 24"
1	*K-17C, Vertical	6",12"
1	*K-37, Vertical	12"

*Alternate Provisions

WEIGHTS

Loading	Lb	L.F.
Empty (A)	163,559	
Basic (A)	165,171	
Design	370,000	2.0
Combat	*251,900	
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-21X
Radio Compass	AN/ARC-6
High Latitude Compass	N-1
Marker Beacon	†RC-193A
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-32A
Interphone	USAF Combat
Defensive, Ferret & Weather ECM	
Chaff Dispenser	AN/ALE-6

*See note (c) pg. 6
†AN/ARN-12 Alternate Set

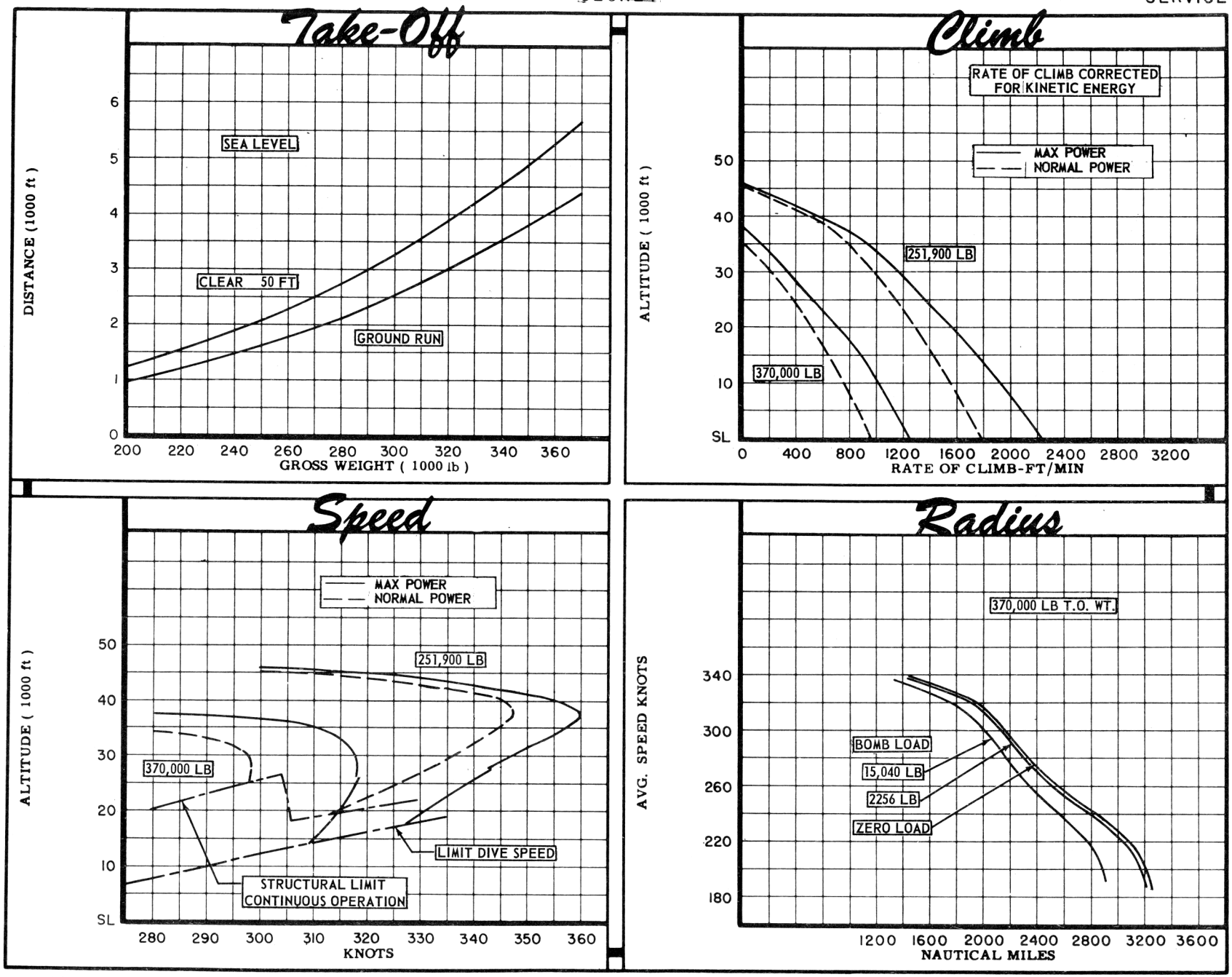
Loading and Performance — Typical Mission

CONDITIONS			BASIC MISSION I	MAX BOMBS II	MAX ATTAIN.ALT. III	HIGH SPEED IV	FERRY RANGE V		
TAKE-OFF WEIGHT		(lb)	370,000	370,000	370,000	370,000	370,000		
Fuel at 6 lb/gal (Grade 115/145)		(lb)	188,431	175,520	188,431	188,431	192,249		
Payload (Flash 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)	4400	4400	4400	4400	4400		
Take-off to clear 50 ft	①	(ft)	5685	5685	5685	5685	5685		
Rate of climb at SL	③	(fpm)	950	950	950	950	950		
Rate of climb at SL (one eng. out)	②	(fpm)	1005	1005	1005	1005	1005		
Time: SL to 10,000 ft	③	(min)	12	12	12	12	12		
Time: SL to 20,000 ft	③	(min)	26	26	26	26	26		
Service ceiling (100 fpm)	③	(ft)	33,000	33,000	33,000	33,000	33,000		
Service ceiling (one eng. out)	②	(ft)	31,100	31,100	31,100	31,100	31,100		
COMBAT RANGE	④	(n.mi)	———	———	———	———	7765		
COMBAT RADIUS	④	(n.mi)	3225	2910	2955	1425	———		
Average cruise speed		(kn)	188	191	192	338	176		
Initial cruising altitude		(ft)	5000	5000	5000	31,200	5000		
Target speed	③	(kn)	344	343	304	342	336		
Target altitude		(ft)	39,900	39,200	44,800	37,500	27,100		
Final cruising altitude		(ft)	27,100	27,700	27,100	39,300	27,100		
Total mission time		(hr)	33.9	30.2	29.5	8.9	44.2		
COMBAT WEIGHT		(lb)	251,900	245,000	248,700	265,700	188,320		
Combat altitude		(ft)	39,900	39,200	44,800	37,500	27,100		
Combat speed	②	(kn)	355	359	321	355	336		
Combat climb	②	(fpm)	575	700	90	645	2085		
Combat ceiling (500 fpm)	②	(ft)	40,700	41,200	40,800	39,400	46,300		
Service ceiling (100 fpm)	③	(ft)	44,200	45,100	44,400	43,100	48,900		
Service ceiling (one eng. out)	③	(ft)	42,000	42,600	42,300	41,000	47,400		
Max rate of climb at SL	②	(fpm)	2220	2315	2270	2080	3150		
Max speed at optimum altitude	②	(kn/ft)	360/37,200	361/38,000	360/37,500	355/37,000	373/39,500		
Basic speed at 25,000/35,000 ft	②	(kn)	339/358	340/360	339/359	337/354	345/367		
LANDING WEIGHT		(lb)	188,280	187,760	188,280	188,280	188,320		
Ground roll at SL		(ft)	1840	1835	1840	1840	1840		
Ground roll (auxiliary brake)	⑤	(ft)	1610	1605	1610	1610	1610		
Total from 50 ft		(ft)	3280	3275	3280	3280	3280		
Total from 50 ft (auxiliary brake)	⑤	(ft)	3050	3045	3050	3050	3050		

NOTES

① T.O. power
② Max available power
③ Normal power
④ Detailed descriptions of Range and Radius missions given on page 6
⑤ Props reversed

PERFORMANCE BASIS:
(a) Data source: Calculated data based on flight test of B-36D Aircraft with configuration adjustments
(b) Performance is based on powers shown on page 6


Take-Off
DISTANCE (1000 ft)
SEA LEVEL
CLEAR 50 FT
GROUND RUN
0
1
2
3
4
5
6
200 220 240 260 280 300 320 340 360
GROSS WEIGHT (1000 lb)
Climb
RATE OF CLIMB CORRECTED FOR KINETIC ENERGY
MAX POWER
NORMAL POWER
ALTITUDE (1000 ft)
251,900 LB
370,000 LB
SL
10
20
30
40
50
0 400 800 1200 1600 2000 2400 2800 3200
RATE OF CLIMB-FT/MIN
Speed
MAX POWER
NORMAL POWER
ALTITUDE (1000 ft)
251,900 LB
370,000 LB
LIMIT DIVE SPEED
STRUCTURAL LIMIT CONTINUOUS OPERATION
SL
10
20
30
40
50
280 290 300 310 320 330 340 350 360
KNOTS
Radius
370,000 LB T.O. WT.
AVG. SPEED KNOTS
BOMB LOAD
15,040 LB
2256 LB
ZERO LOAD
180
220
260
300
340
1200 1600 2000 2400 2800 3200 3600
NAUTICAL MILES

N O T E S

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 to point of cruise climb operation. 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 at long range speeds at combat altitude 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 5000 feet at normal power, cruise out at long range speeds to point where climb is made so as 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 at long range speeds at combat altitude until 500 nautical miles from target. 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 at long range speeds at combat altitude until 500 nautical miles from target; 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: 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) Total fuel capacity is usable only for special loadings with equipment removed from aircraft.

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

(6) R4360-41					(4) J47-GE-19			
	BHP	RPM	ALT.	MIN	S.L.S.	LB.	RPM	MIN
T.O.:	*3500	2700	SL	5	T.O.:	5010	7950	5
	3250	2700	SL	5				
Max:	*3500	2700	up to †34,000	30	Max:	5010	7950	30
	3250	2700	up to †34,000	30				
Nor:	2650	2550	up to †39,000	Cont	Nor:	4700	7630	Cont

* Wet

† Turbosupercharger limitation

(c) For detailed planning refer to Technical Order 1B-36(R)D(III)-1 and other applicable technical orders.

(d) AN/APG-32 Gun Laying Radar effective on Aircraft USAF Serial No. 42-13571, 44-92005 through 44-92093, and 49-2686 through 49-2690. AN/APG-32A Gun Laying Radar effective on Aircraft USAF Serial No. 49-2691 through 49-2700.

Performance Reference

Convair Report FZA-36-331, dated 15 May 1955, "Performance Estimate for RB-36D & E-III Aircraft Based on B-36D Phase IV Flight Tests and B-36F and H Featherweight Tests."

Revision Basis: To reflect Featherweight Flight Test data and approved engineering changes.

(15 MAY 55)