

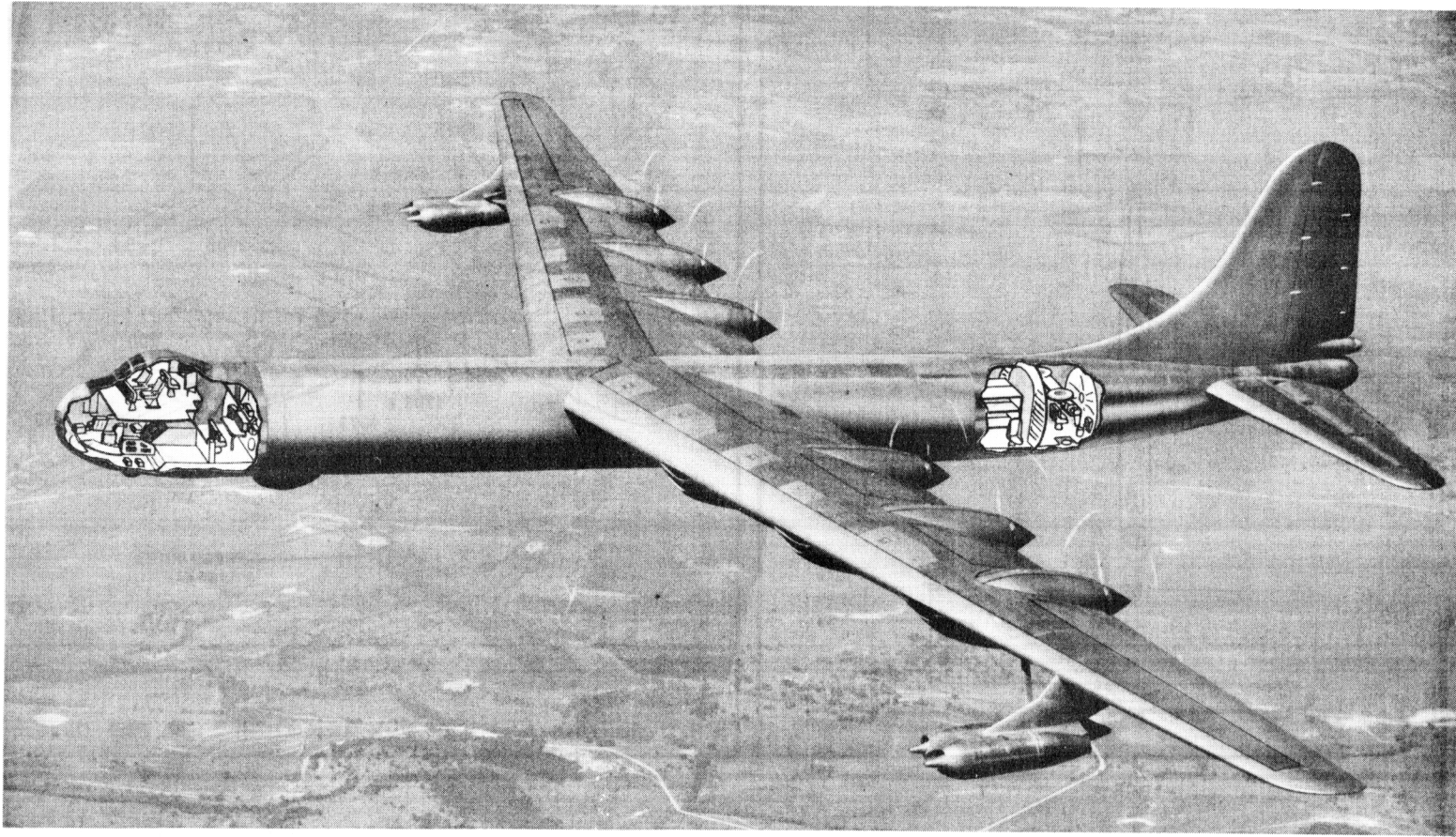
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SECRET

SERVICE

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DATE *8 Jun 65*



# Standard Aircraft Characteristics

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## B-36D-111

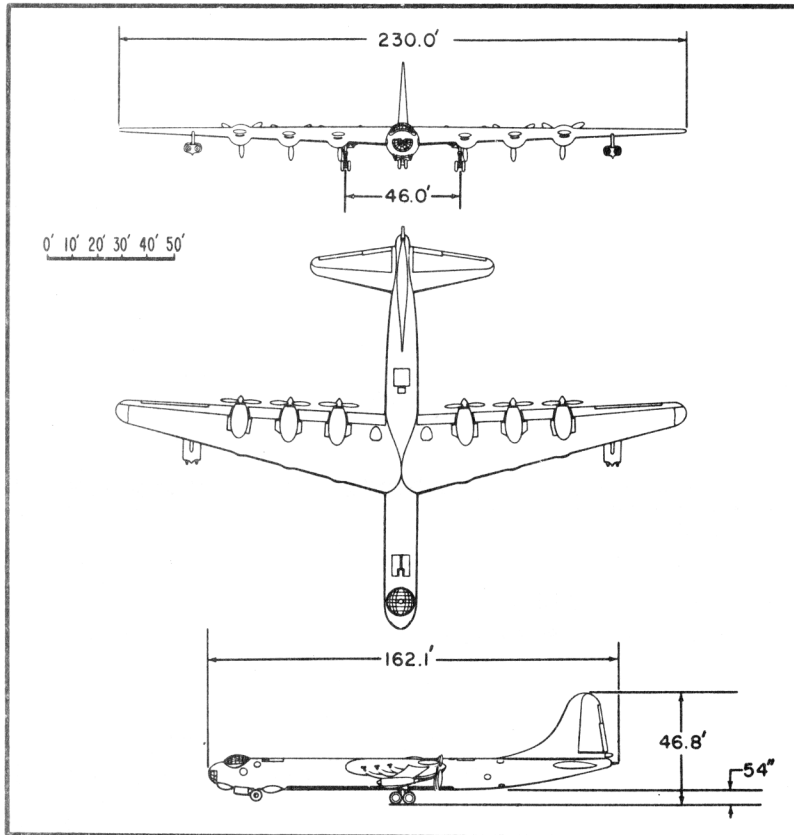
**Consolidated-Vultee**

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

1 AUG 55

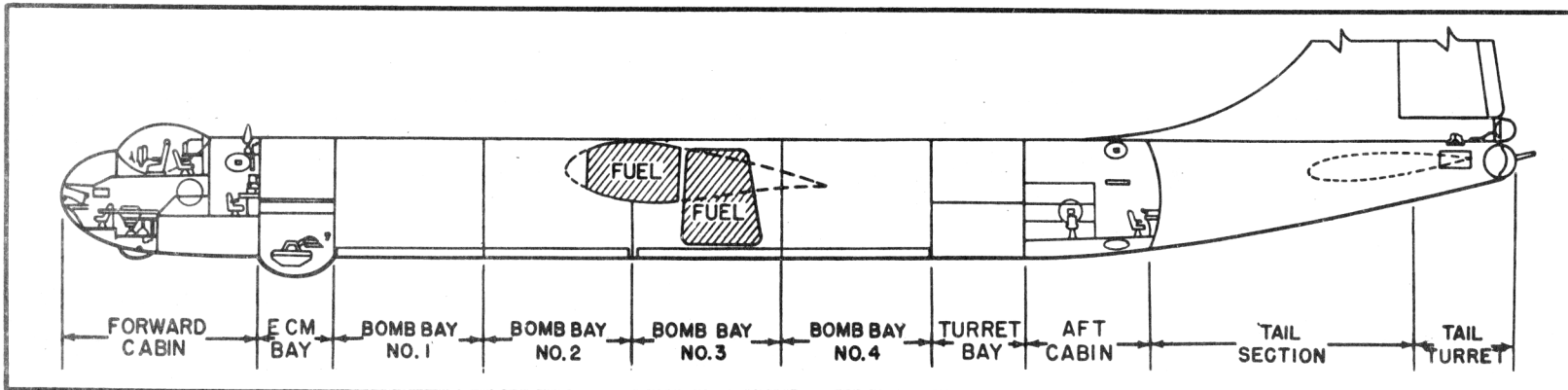
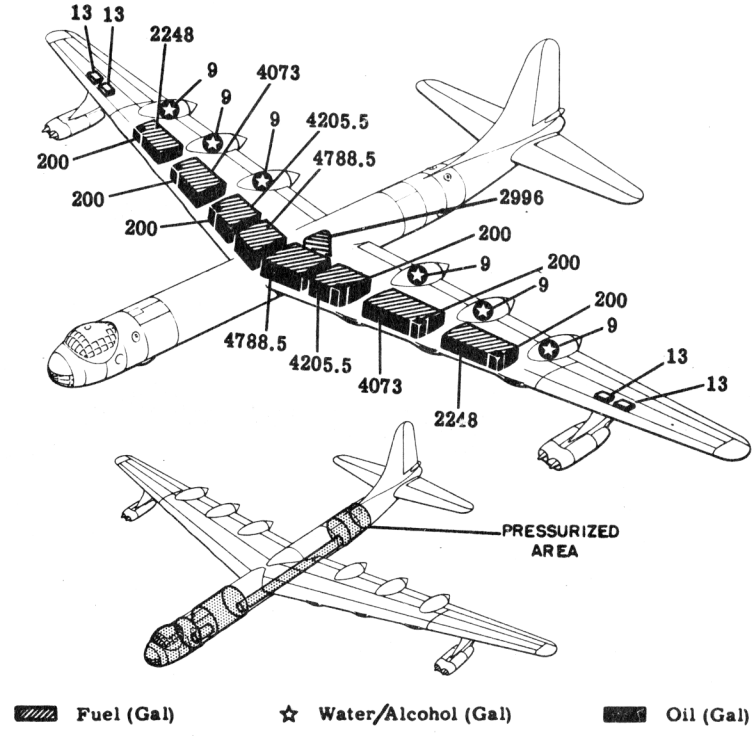
SECRET

B-36D-III



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  
 $\alpha = 1.0$  (modified)



**POWER PLANT**

No. & Model . . . . . (6) R-4360-41  
 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. . . . . Curtiss  
 Blade Design No. . . . . 1129-17C6-24  
 Prop Type . . . . . CS, FF, Reverse  
 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 lb  
 Tail Pipe . . . . . Fixed Area

**ENGINE RATINGS**

	BHP	RPM	ALT	MIN
T.O.:	*3500	- 2700	- Turbo	- 5
	3250	- 2700	- Turbo	- 5
Mil:	*3500	- 2700	- Turbo	- 30
	3250	- 2700	- Turbo	- 30
Nor:	2650	- 2550	- Turbo	- Cont
*Wet				

	plus			
S.L.Static	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°  
 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 mission of the B-36D-III is the destruction by bombs of strategic ground and naval materiel objectives.

The crew of 13 consists of aircraft commander, pilot, co-pilot, first engineer, second engineer, navigator, radar bombardier, observer, first radio operator, second radio operator, lower right and lower left scanners, and tail gunner.

Crew 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 20 mm gun tail turret, controlled by either AN/APG-32 or AN/APG-32A\* radar.

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 B-36D-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.

\* See note (d) page 6.

*Development*

Contract Approved . . . . .	Feb 54
First Flight . . . . .	Jun 54
First Delivery . . . . .	Jun 54
Modification Completed . . . . .	Dec 54

**B O M B S**

No.	Class (lb)
WW II (Box Fin)	
12 . . . . .	4000
28 . . . . .	2000
72 . . . . .	1000
132 . . . . .	500
INTERIM (Conical Fin)	
26 . . . . .	2000
40 . . . . .	1000
129 . . . . .	500
NEW SERIES	
6 . . . . .	3000
48 . . . . .	750

**G U N S**

No.	Type	Size	Rds Ea.	Loc.
2 . . . . .	.M24A1	.20mm.	600	Tail

**W E I G H T S**

Loading	Lb	L.F.
Empty (A) . . . . .	161,264	
Basic (A) . . . . .	162,507	
Design . . . . .	370,000	. . . 2.0
Combat . . . . .	*244,400	
Max T.O. . . . .	†370,000	
Max Land. . . . .	†357,500	. . . 2.0

(A) Actual \*For Basic Mission  
 † 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 . . . . .	1200
Grade (Recip) . . . . .		.1100
(Jet) . . . . .		1005
Specification (Recip) . . . . .		MIL-L-6082A
(Jet) . . . . .		MIL-L-6081A
WATER/ALCOHOL		
Eng. Nacelle . . . . .	6 . . . . .	(tot) 54

**ELECTRONICS**

UHF Command . . . . .	AN/ARC-27
VHF Command . . . . .	AN/ARC-3
Liaison . . . . .	AN/ARC-21X
Radio Compass . . . . .	AN/ARC-7A
Marker Beacon . . . . .	*RC-193A
IFF . . . . .	AN/APX-6
Blind Approach . . . . .	RC-103D
Glide Path . . . . .	AN/ARN-5B
Bombing-Nav. Radar . . . . .	K-3A
Loran . . . . .	AN/APN-9
Gun-Laying Radar . . . . .	†AN/APG-32
Radio Range . . . . .	BC-453B
Interphone . . . . .	USAF Combat
Defensive ECM	
Radar Set . . . . .	AN/APQ-31
Chaff Dispenser . . . . .	AN/ALE-6

\*AN/ARN-12 Alternate Set  
 † See note (d) on page 6

# Loading and Performance—Typical Mission

C O N D I T I O N S		BASIC MISSION I	MAX BOMBS II	MAX ATTAIN. ALT III	HIGH SPEED IV	FERRY RANGE V		
<b>TAKE-OFF WEIGHT</b>		(lb)	<b>370,000</b>	<b>370,000</b>	<b>370,000</b>	<b>370,000</b>	<b>370,000</b>	
Fuel at 6 lb/gal (Grade 115/145)		(lb)	185,950	123,210	185,950	185,950	197,740	
Payload (Bombs)		(lb)	10,000	72,000	10,000	10,000	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)	970	970	970	970	970	
Rate of climb at SL (one eng. out)	②	(fpm)	1025	1025	1025	1025	1025	
Time: SL to 10,000 ft	③	(min)	11	11	11	11	11	
Time: SL to 20,000 ft	③	(min)	25	25	25	25	25	
Service ceiling (100 fpm)	③	(ft)	33,400	33,400	33,400	33,400	33,400	
Service ceiling (one eng. out)	②	(ft)	31,500	31,500	31,500	31,500	31,500	
<b>COMBAT RANGE</b>		④ (n.mi)					<b>8200</b>	
<b>COMBAT RADIUS</b>		④ (n.mi)	<b>3260</b>	<b>1885</b>	<b>3100</b>	<b>1495</b>		
Average cruise speed		(kn)	192	202	196	348	181	
Initial cruising altitude		(ft)	5000	5000	5000	29,300	5000	
Target speed	③	(kn)	348	338	305	346	343	
Target altitude		(ft)	40,400	36,800	44,900	38,600	28,000	
Final cruising altitude		(ft)	28,000	28,400	28,000	41,300	28,000	
Total mission time		(hr)	33.7	18.3	31.0	9.0	45.5	
<b>COMBAT WEIGHT</b>		(lb)	<b>244,400</b>	<b>213,600</b>	<b>242,000</b>	<b>254,700</b>	<b>183,100</b>	
Combat altitude		(ft)	40,400	36,800	44,900	38,600	28,000	
Combat speed	②	(kn)	359	369	332	358	355	
Combat climb	②	(fpm)	590	1250	170	680	2140	
Combat ceiling (500 fpm)	②	(ft)	41,300	44,100	41,500	40,600	46,900	
Service ceiling (100 fpm)	③	(ft)	45,600	48,000	45,700	44,400	49,800	
Service ceiling (one eng. out)	③	(ft)	42,900	45,500	43,000	42,100	48,100	
Max rate of climb at SL	②	(fpm)	2330	2760	2350	2195	3270	
Max speed at optimum altitude	②	(kn/ft)	363/37,300	370/38,300	363/37,200	361/37,000	374/39,000	
Basic speed at 25,000/35,000 ft	②	(kn)	343/362	347/367	343/362	342/360	350/370	
<b>LANDING WEIGHT</b>		(lb)	<b>182,900</b>	<b>180,490</b>	<b>182,900</b>	<b>182,900</b>	<b>183,100</b>	
Ground roll at SL		(ft)	1780	1760	1780	1780	1780	
Ground roll (auxiliary brake)	⑤	(ft)	1580	1560	1580	1580	1580	
Total from 50 ft		(ft)	3230	3210	3230	3230	3230	
Total from 50 ft (auxiliary brake)	⑤	(ft)	3000	2980	3000	3000	3000	

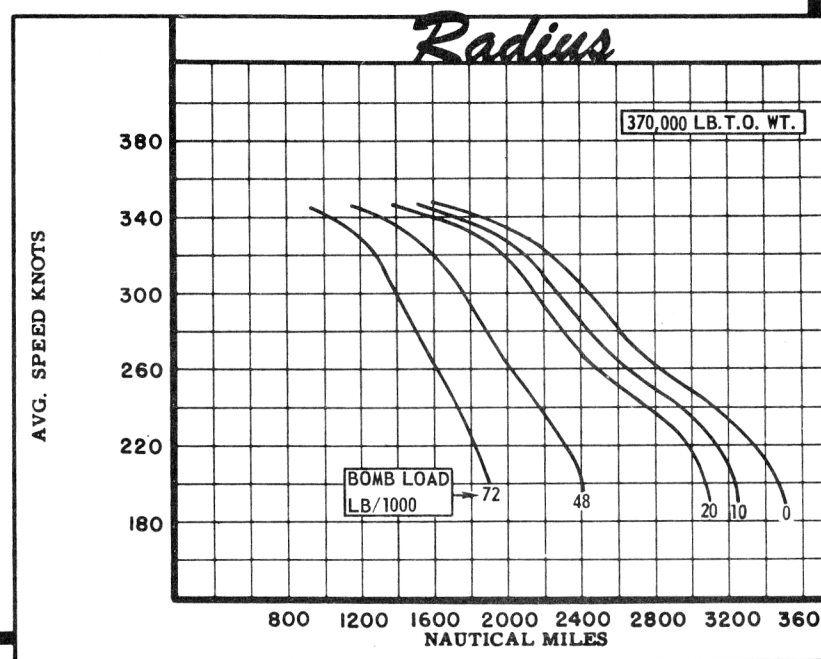
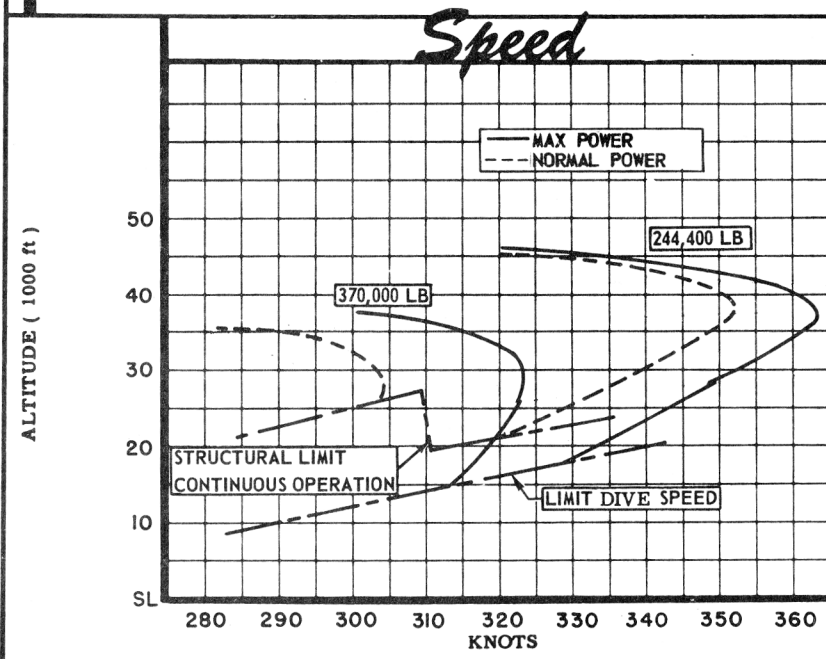
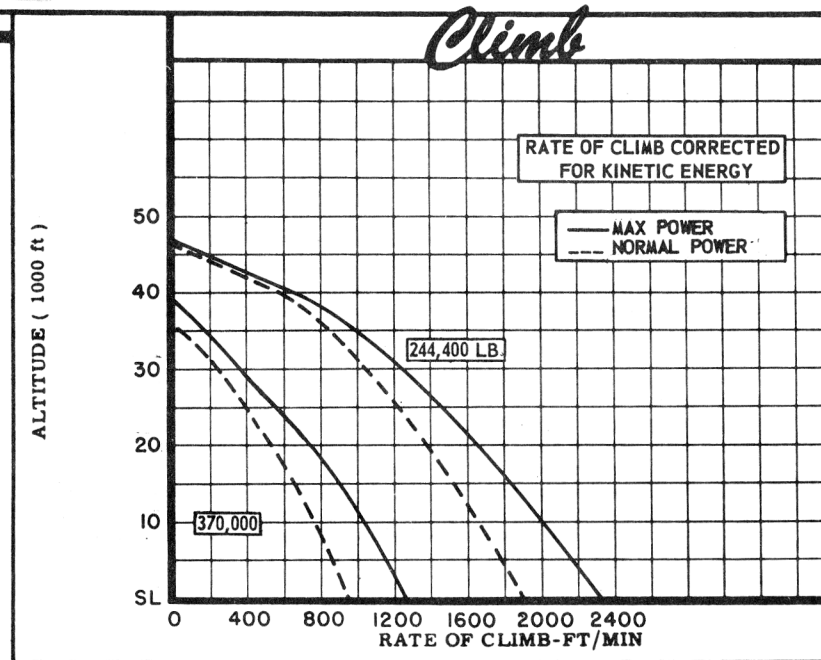
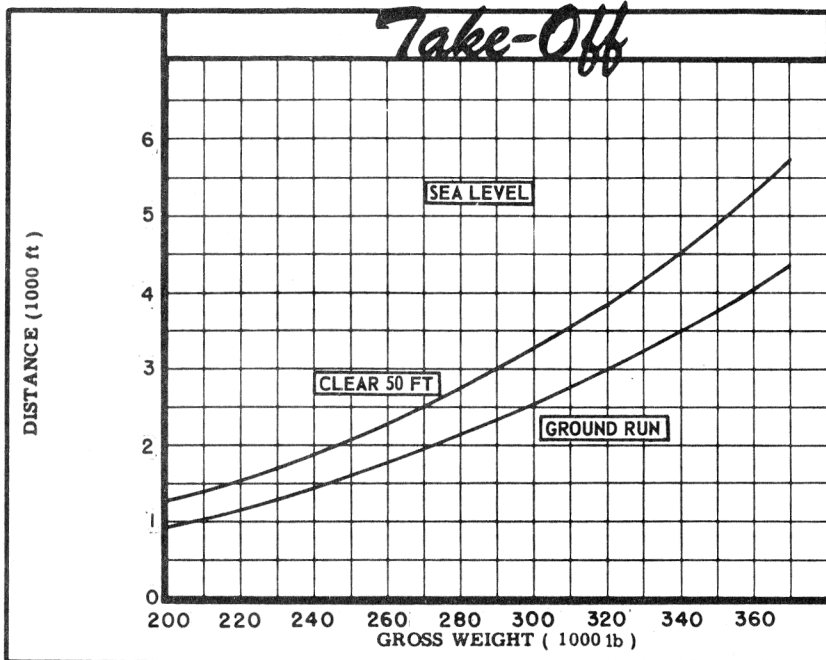
NOTES

- ① Take-off 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





## 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 run in, drop bombs and chaff, conduct 2 minutes evasive action and 8 minutes escape from target at normal power. After leaving target area, cruise toward base using 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 run in at altitude attained at start of run, drop bombs and chaff, conduct 2 minutes evasive action and 8 minutes escape from target at normal power. After leaving target area, cruise toward base using 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 run in, drop bombs and chaff, conduct 2 minutes evasive action and 8 minutes escape from the target. After leaving target area, cruise toward base 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 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	S.L.	5	T.O.:	5010	7950	5
Max:	3250	2700	Up to 34,000 †	30	Max:	5010	7950	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-36D(III)-1 and other applicable technical orders.
- (d) AN/APG-32A Gun Laying Radar effective on aircraft USAF Serial No. 49-2647 thru 49-2654, 49-2656 and 49-2657. AN/APG-32 effective on aircraft USAF Serial No. 49-2655 and 49-2658 through 49-2668.

### Performance Reference.

Convair Report FZA-36-330, dated 15 April 1955, "Performance Estimate for B-36D-III Aircraft Based on B-36D Phase IV Flight Tests and B-36F and H Featherweight Tests."

Revision Basis: To reflect Featherweight Flight Test (15 Apr 55) data and approved engineering changes.

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