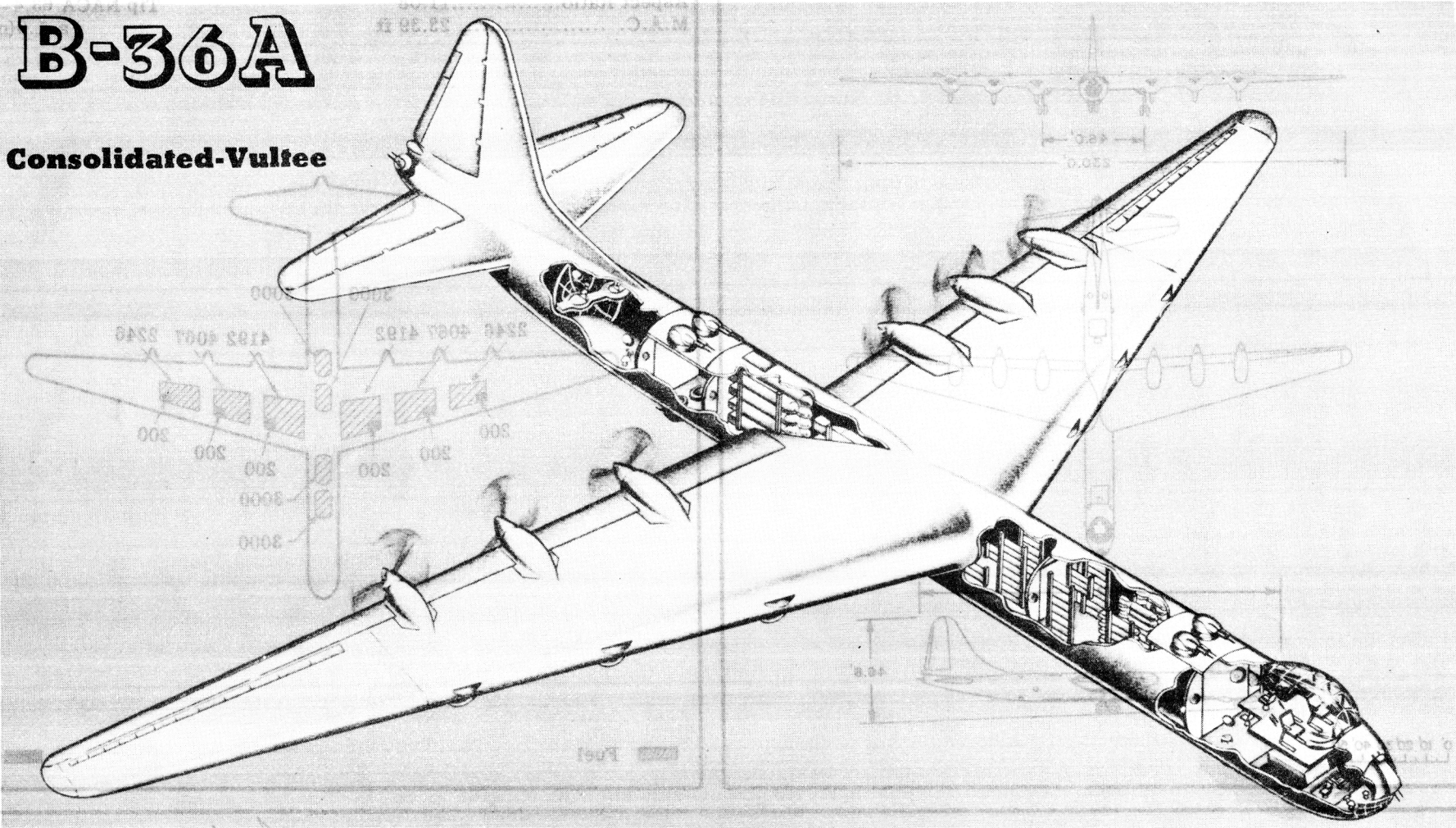


# B-36A

**Consolidated-Vultee**

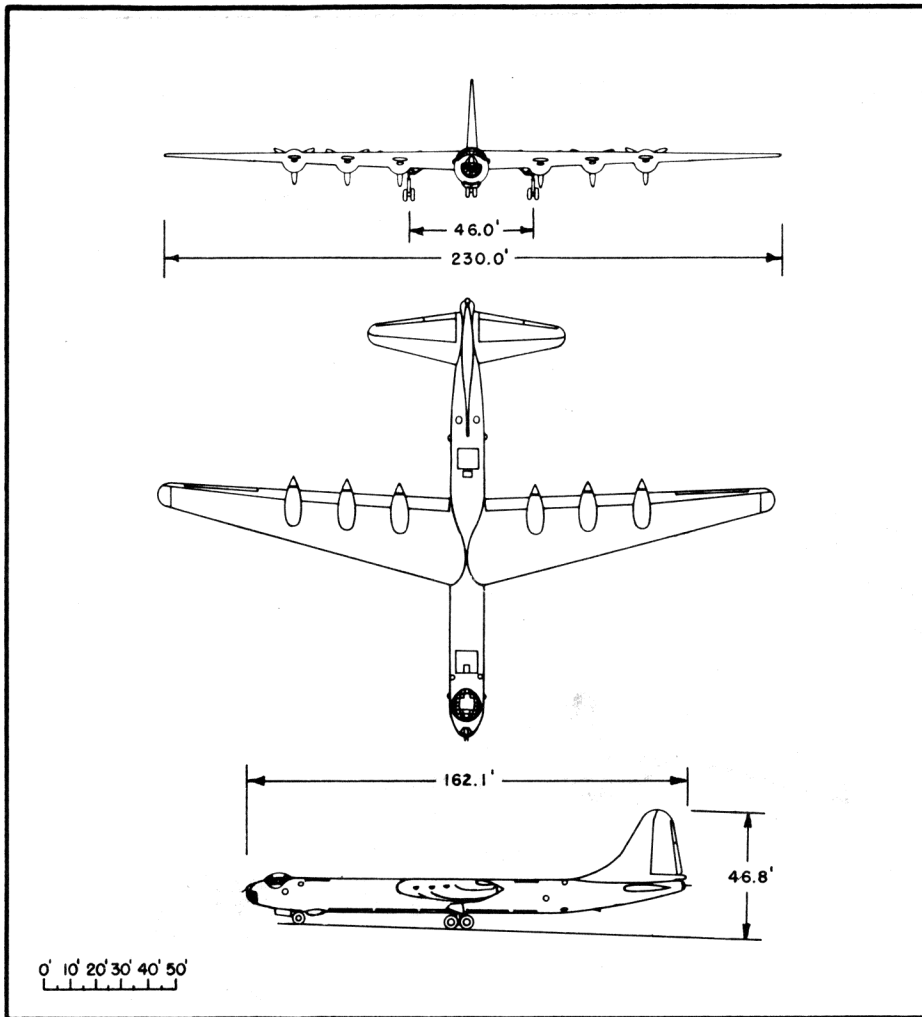


## *Standard Aircraft Characteristics*

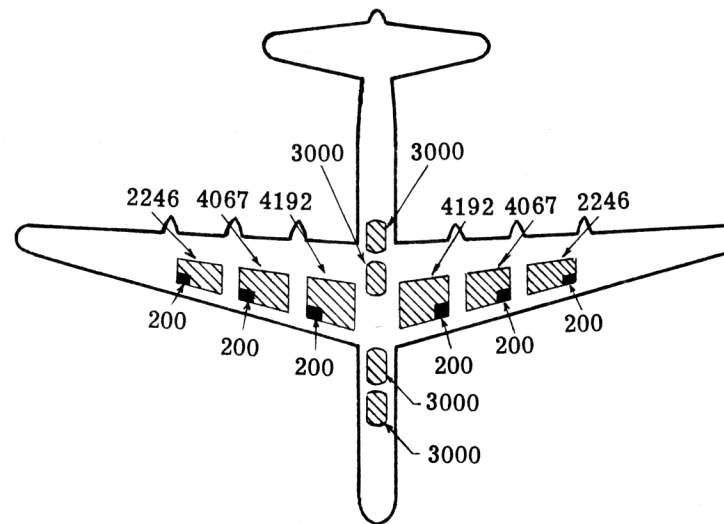
BY AUTHORITY OF  
COMMANDING GENERAL  
AIR MATERIEL COMMAND  
U.S. AIR FORCE

SIX R-4360-25

PRATT-WHITNEY

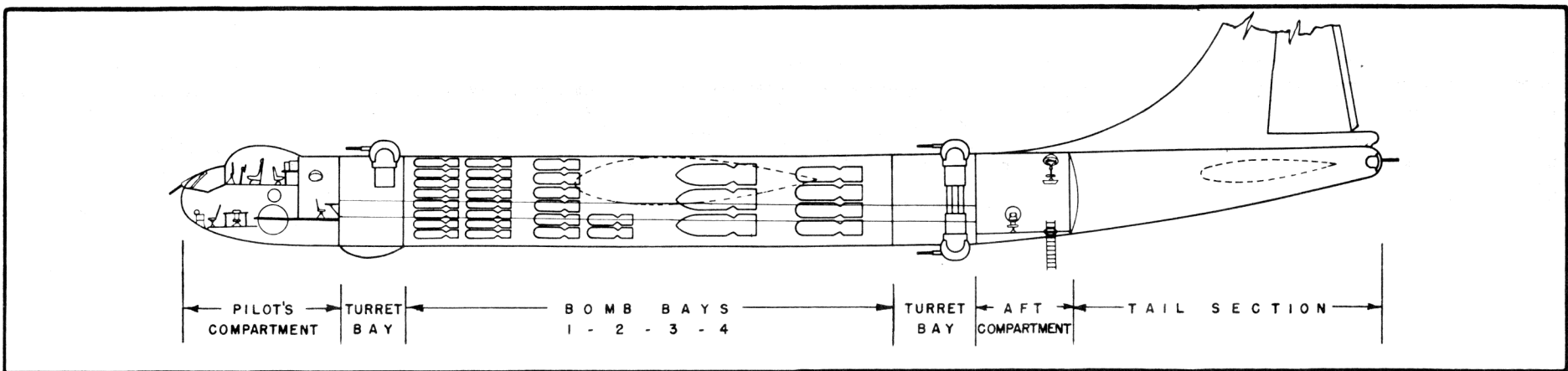


Wing Area ..... 4772 sq ft    Wing Section Root NACA 63,4-422A  
 Aspect Ratio.....11.08        Tip NACA 63,4-517A  
 M.A.C. .... 23.39 ft            a=1.0(mod.)



Fuel

Oil



**POWER PLANT**

No. & Model ..... (6) R-4360-25  
 Mfr ..... Pratt-Whitney  
 Superch ..... Dual Turbo  
 Red. Gear ..... 0.381  
 Prop. Mfr ..... Curtiss  
 Prop Dia ..... 19.0'  
 Prop Type ..... Electric  
 Blade Design ..... 1129-8C6-24

**ENGINE RATINGS**

BHP - RPM - Turbo

T.O: 3250 - 2700 - S.L.  
 Mil: 3000 - 2700 - 40,000  
 Nor: 2500 - 2550 - S.L.  
 2500 - 2550 - 40,000

*Mission and Description*

The B-36A is a long range, high altitude, very heavy bombardment aircraft. The fuselage consists of a forward pressurized cabin, one non-pressurized turret bay, four non-pressurized bomb bays, aft pressurized cabin and the non-pressurized rear fuselage section.

Cabin heating; defrosting of blisters and enclosures, and propeller; wing and tail anti-icing are accomplished by heated air.

The defensive armament consists of eight remotely controlled turrets, six of which are retractable.

Engine-driven alternators supply 3 phase, 400 cycle AC power for the primary electrical system. DC electrical requirements are fulfilled from DC rectifiers. Hydraulic power is used for landing gear actuation, brakes, and nose-wheel steering.

*Development*

Design Initiated (XB-36)	November 1941
First Flight: (XB-36)	August 1946
First Production:	May 1947
Production Completed:	November 1948

**W E I G H T S**

Loading	Gross	L.F.
Empty .....	135,020(A)	
Basic .....	142,842(E)	
Design .....	278,000	2.67
Combat*.....	212,800	
Max T.O.†... 311,000		2.1
Max Land‡ .. 311,000		2.1

\*For basic mission  
 †Limited by performance  
 ‡Limited by take-off weight  
 (A) Actual  
 (E) Estimated

**F U E L**

Location	Tanks	Gal.
Wings,outbd*	2	4492
Wings,inbd	2	8384
Wings ctr*	2	8134
Bomb bay*	†4	†12000
*Self-sealing	Total	33,010
Spec. ....	AN-F-48	
Grade .....	100/130	
†See page 6		

**OIL**

Cap.(gal.) .....	1200
Spec. ....	AN-0-8
Grade .....	W-1100;S-1120

**DIMENSIONS**

Span ..... 230.0'  
 Length ..... 162.1'  
 Height ..... 46.8'  
 Tread ..... 46'  
 Prop Grd Clearance ..... 4.46'

**B O M B S**

No.	Size	Type
12 .....	4000 .....	G.P.
28 .....	2000 .....	G.P.
44 .....	1600 .....	A.P.
72 .....	1000 .....	G.P.
132 .....	500 .....	G.P.

Max Bomb Load: ..... 72,000 lb

**G U N S**

No.	Size	Rds.ea.	Loc
2... 20mm	...	400	Fus,nose
4... 20mm	....	600	Fus,up,fwd
4... 20mm	....	600	Fus,up,aft
4... 20mm	....	600	Fus,lwr,aft
2... 20mm	...	600	Fus,tail

**ELECTRONICS**

VHF Command ..... AN/ARC-3  
 Range Recvr. .... BC-453-B  
 Liaison ..... AN/ARC-11  
 Radio Compass ..... AN/ARN-7  
 Interphone ..... AN/AIC-2A  
 I.F.F. .... SCR-695B  
 Blind Approach ..... RC-103A  
 Glide Path ..... AN/ARN-5A  
 Marker Beacon ..... RC-193  
 Bomb.-Nav.Radar AN/APQ-23A  
 Loran ..... AN/APN-9  
 Gun Laying Radar .... AN/APG-3

# Loading and Performance - Typical Mission

C O N D I T I O N S	BASIC		MAXBOMBS	HIGH ALT.	MAX. SPEED	FERRY	
	RADIUS	RANGE	RADIUS	RADIUS	RADIUS	RANGE	
	I	II	III	IV	V	VI	
TAKE-OFF WEIGHT (lb)	310,380	310,380	311,000	310,380	310,380	311,000	
Fuel/Oil (gal)	24,121/965	24,121/965	14,434/577	24,121/965	24,121/965	26,745/1070	
Military Load (lb)	10,000	10,000	72,000	10,000	10,000	None	
Total Ammunition (rds/cal)	9200/20mm	9200/20mm	9200/20mm	9200/20mm	9200/20mm	None	
Wing Loading (lb/sq ft)	65.04	65.04	65.17	65.04	65.04	65.17	
Stall Speed-(power off) (kn)	98	98	98	98	98	98	
TAKE-OFF DISTANCE SL ④							
Ground Run (no wind) (ft)	6000	6000	6000	6000	6000	6000	
To Clear 50 ft Obst (ft)	8000	8000	8000	8000	8000	8000	
CLIMB FROM SL							
Rate of Climb at SL ③ (fpm)	502	502	500	502	502	500	
Time To 10,000 Feet ③ (min)	22.3	22.3	22.5	22.3	22.3	22.5	
Time To 20,000 Feet ③ (min)	53.0	53.0	53.5	53.0	53.0	53.5	
COMBAT RANGE or RADIUS (n.mi)	3370	6320	1830	2485	1860	7934	
Avg. Cruising Speed (kn)	189	181	187	231	269	189	
Total Mission Time (hr)	35.6	35.08	19.57	21.52	13.83	42.17	
Cruising Altitude (ft)	⑤	⑤	⑤	⑤	⑤	⑤	
COMBAT WEIGHT (lb)	212,800	165,570	182,100	207,800	220,800	—	
Combat Altitude (ft)	25,000	25,000	25,000	35,000	34,400	—	
SPEED							
Max Speed (combat alt) ② (kn)	290	295	294	292	288	—	
Max Speed ② (kn/alt)	300/31,600	310/33,000	307/32,400	302/31,800	293/31,400	—	
CLIMB							
Rate of Climb (combat alt) ② (fpm)	1023	1617	1380	620	545	—	
Rate of Climb at SL ② (fpm)	1447	2045	1810	1500	1367	—	
CEILING							
Combat Ceiling ② (ft)	35,800	39,400	38,400	36,300	34,900	—	
Service Ceiling ③ (ft)	39,100	41,300	40,700	39,500	38,600	—	
LANDING WEIGHT SL (lb)	158,080	—	153,850	158,080	158,080	153,200	
Ground Roll ⑥ (ft)	1490	—	1450	1490	1490	1440	
From 50'Obst ⑥ (ft)	2650	—	2600	2650	2650	2590	



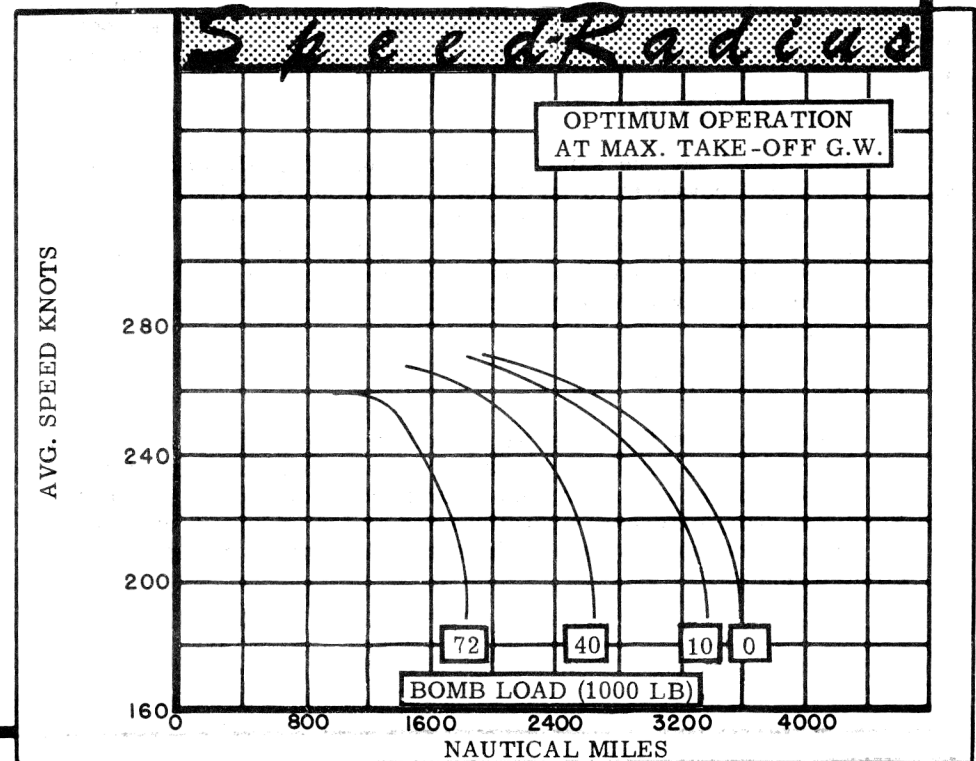
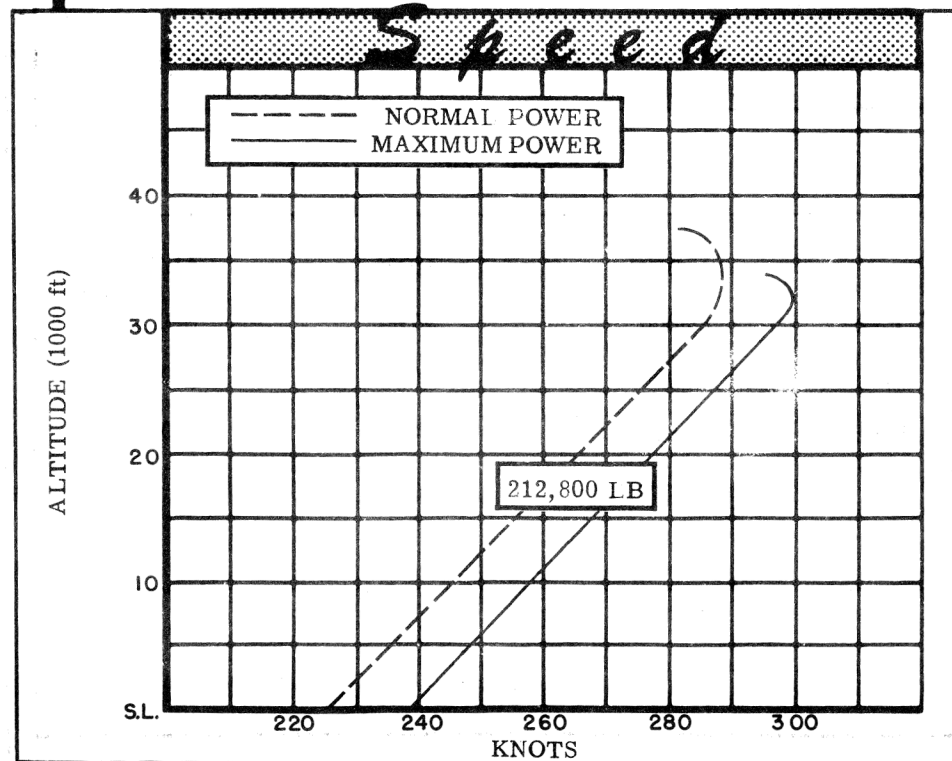
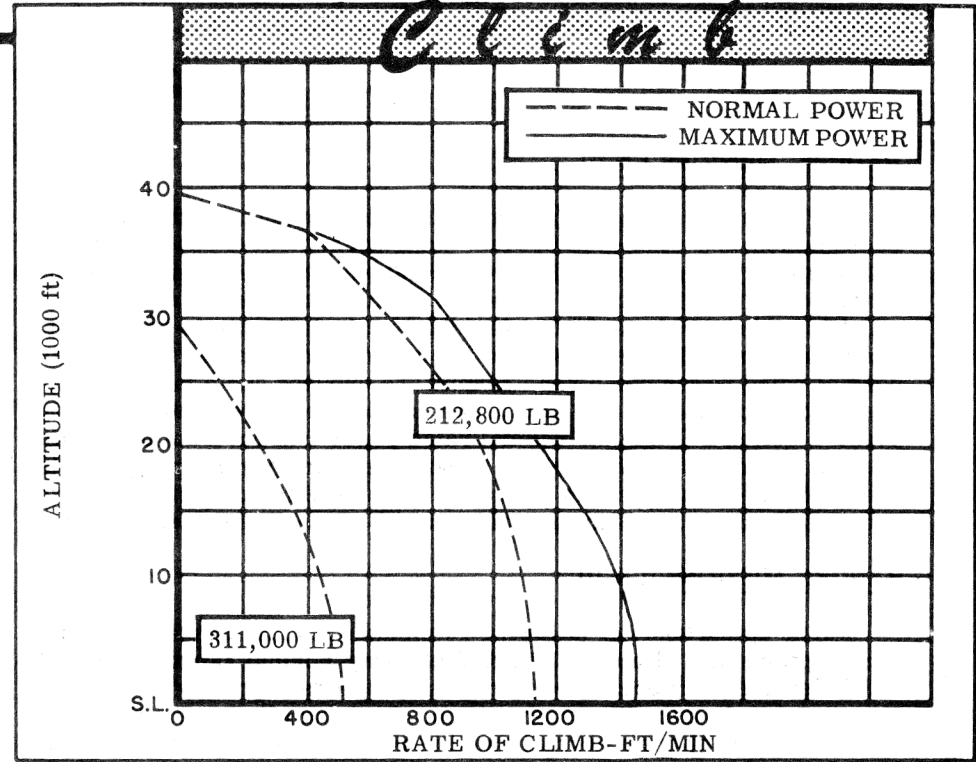
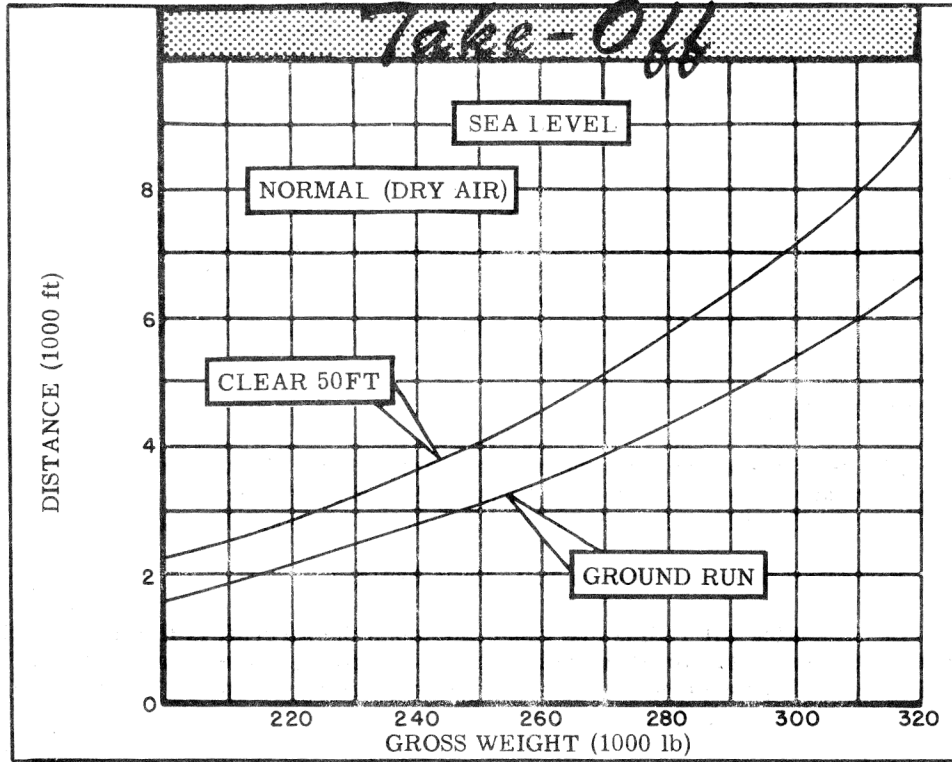
**NOTES**

- ① Take-off power
- ② Max power
- ③ Normal power
- ④ Take-off and landing distances are obtainable at sea level using normal technique. For airport planning add 25% to distances shown
- ⑤ Detailed descriptions of the RADIUS & RANGE missions are given on page 6.

**CONDITIONS:**

- (a) Performance Basis: NACA standard conditions, no wind, single airplane
- (b) Fuel consumption used in computing RADIUS & RANGE is based on manufacturer's estimates and flight tests increased 5%
- (c) Performance based on powers listed on page 6.
- (d) RADIUS & RANGE are based on operation where maximum continuous BMEP (178 psi) is maintained in all auto-rich power settings except as modified by propeller restrictions.





**N O T E S**

RADIUS: MISSIONS I & III

Warm-up and take-off (allowing 10 min. normal rated power fuel consumption) and climb to 10,000 feet using normal rated power. Cruise at long range speeds at 10,000 feet to point where cruising climb is advantageous. Cruising climb is used to point where normal rated power climb is made to arrive at 25,000 feet thirty minutes prior to bomb drop. Long range speeds are flown for 15 minutes followed by a 15 minute normal rated power bomb run. Bombs are dropped and 5 minutes evasive action conducted (normal power, no distance credited); following evasive action a 10 minute normal rated power run out from the target area is made. Aircraft cruises toward base at long range speeds to point where cruising climb operation is entered to complete return to base. Endurance and landing reserve is 5% of the initial fuel loading.

RANGE: MISSIONS II & III

Warm-up and take-off (allowing 10 minutes normal rated power fuel consumption) and climb to 10,000 feet using normal rated power. At 10,000 feet the aircraft cruises at long range speeds to point where weight permits a gain by using a cruising climb. Cruising climb operation continues to point where a normal rated power climb is made to arrive at 25,000 feet 30 minutes prior to bomb drops. Aircraft cruises at long range speeds to point where 90% of initial fuel has been consumed; bombs are dropped. Endurance and landing reserve is 10% of initial fuel load.

RADIUS: MISSION IV

Allowances are the same as for missions I & III. Initial climb at normal rated power is to an altitude of 25,000 feet; climb is made to reach 40,000 feet 1000 nautical miles prior to target (instead of 30 min.). Following bomb drop aircraft cruises at long range speeds at 40,000 feet for 1000 miles; descent (no distance gained; no fuel used) is made to 35,000 feet from which point remainder of return flight is made in a cruising climb.

RADIUS: MISSION V

Allowances are the same as for missions I & III: initial climb at normal rated power is to 24,000 feet at which point a high speed cruising climb flight to a point 15 min. prior to bomb drop point is initiated. Bomb run, drop, and escape operations are as for mission I, after which the aircraft returns to base at high cruising speeds using a cruising climb technique.

RANGE: MISSION VI

Warm-up and take-off (allowing 10 minutes normal rated power fuel consumption) and climb to 10,000 feet using normal rated power. Cruise at long range speeds at 10,000 feet to point where weight permits cruising climb techniques to be advantageous; continue flight is cruising climb to point where 90% of initial fuel load has been consumed. Endurance and landing reserve is 10% of initial fuel load.

GENERAL DATA:

The B-36A may be field modified to carry a total of four bomb bay tanks; however the present weight restriction of 311,000 pounds limits usage to 5675 gallons of bomb bay fuel requiring two bomb bay tanks.

For detail planning refer to T.O. ANOI-5EUA-1.

In computing all radius and range missions the aircraft is flown at speeds corresponding to 99% maximum miles per pound. Where analysis indicates an improvement in miles per pound by using a cruising climb, this procedure has been utilized.

ENGINE RATINGS:

The power values used for performance calculations are as follows:

R - 4360 - 25			
	BHP	RPM	ALT*
T.O:	3000	2700	S.L.
Max:	3000	2700	34,000
Nor:	2500	2550	37,000
*Turbo critical			

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