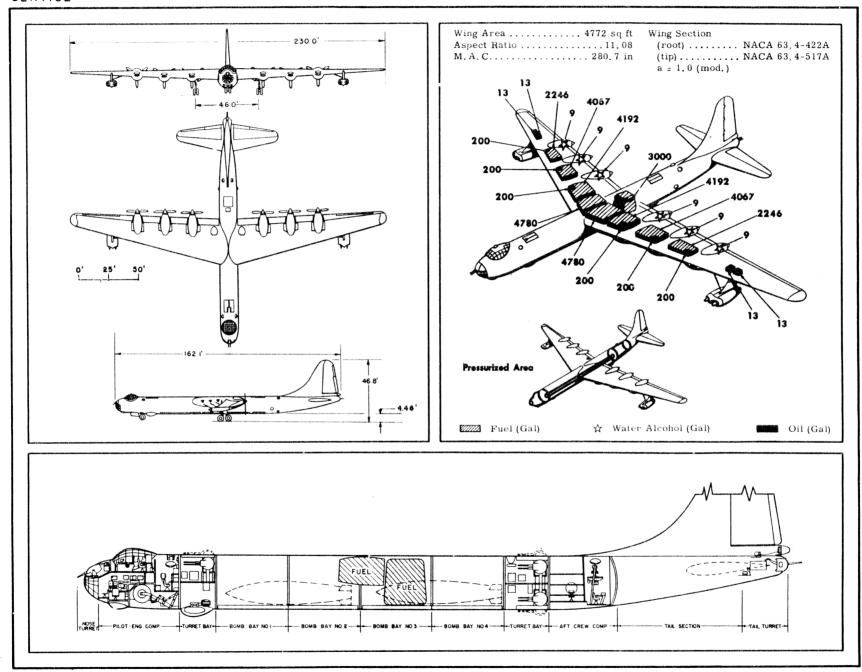


# Standard Aircraft Characteristics

BY AUTHORITY OF COMMANDING GENERAL WRIGHT AIR DEVELOPMENT CENTER U.S. AIR FORCE B-36E

Consolidated-Vultee

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



B-36 H

RESTRICTE D
(Security Information)

3 DECEMBER 1951

# POWER PLANT

No. & Model(6) R-4360-53
MfrPratt & Whitney
Spec No A-7076-E
Turbo(2) BH-1 Turbo Mfr General Electric
Turbo Mfr General Electric
Red. Gear Ratio 0.375
Prop. Mfr Curtiss
Blade Design No 1129-17C6-24
Prop. Type F. F., C.S. Reverse
No. Blades/Prop. Dia 3/19'-1"
plus
No. & Model (4) J47-GE-19
Mfr
Engine Spec NoE-589
Type
Length
Diameter
Weight(dry)2475 lb

### **ENGINE RATINGS**

BHP-RPM-ALT-MIN

T.O: \*3800-2800-S.L. - 5
Mil: \*3800-2800-Turbo- 30
3500-2800-Turbo- 30
Nor: 2800-2600-Turbo-Cont

plus

\*Wet

S. L. Static LB - RPM - MIN

Max: 5200 - 7950 - 5

Mil: 5200 - 7950 - 30

Nor: 4730 - 7630 - Cont

# Mission and Description

Navy Equivalent: None

Mfr Model: 36

The B-36H is a long range, high altitude, very heavy bombardment type aircraft. The mission of the aircraft is the destruction by bombs of enemy ground and naval material objectives. The crew of 16 consists of a pilot, co-pilot, two engineers, navigator, radar-bombardier, nose turret gunner, radio operator, two upper forward gunners, two upper aft gunners, two lower aft gunners, APG-32 operator, and auxiliary crew member. Crew compartments are pressurized, heated and ventilated. A stand-by oxygen system is provided for emergency use.

The K-3A Bombing Navigation System with a vertical Y-3A Optical Sight and radar equipment for blind bombing and navigation is provided. This system allows a single crew member to act as radar operator and bombardier. The defensive armament consists of eight 20mm turrets, six of which are retractable. The tail turret is controlled by APG-32 radar.

The airplane has a single point refueling manifold type fuel system. Power augmentation for take-off is provided by a 54 gallon water/alcohol system.

Major difference from the B--36F is the rearrangement of the crew compartment.

# Development

Prototype first flight (B-36F):	18	Nov	50
First flight:		Mar	51
First delivery:	٠.	Apr	51

G

# WEIGHTS

Loading	Lb	L.F.
Empty Basic Operating	172, 446(C) 182, 245	
Combat	357,500 *250,550 † 357,500	
	<b>†</b> 357,500	
* For Basi † Limited	ic Mission by strength	

F	J	E	L
Location	No. T	anks	Gal.
Wg, outbd*	2		, 4492
Wg, inbd	2		8384
Wg, ctr*	2		8134
Center sect.	2		9560
Bomb bay	1		3000
*partially pro			
Grade			. 115/145
	OIL		
Cap. (gal)	Re 12	cip. 00	Jet 52
Grade			00 .1010
	ID INJEC		
Eng. Nac	· · · · · · · ·	6	54

# DIMENSIONS

Wing	
Span	230.01
Incidence (root)	30
(tip)	
Dihedral	
Sweepback (LE)	
Length	
Height	46.8'
Tread	46.0'
Prop. Grd Clearance	4. 46'

# B O M B S

No.	Size	Type
2.	43,000	.G. P.
4	12,000	.G. P.
12 .		.G. P.
28 .		.G. P.
72		.G. P.
132 .	500	.G. P.
Max I	30mb Load:	000 1ь

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

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# ELECTRONICS

	VHF Command AN/ARC-3 or -33
Ì	Liaison AN/ARC-8
	Radio Compass AN/ARN-6
į	Marker Beacon AN/ARN-12
	IFF AN/APX-6
ĺ	Blind Approach *RC-103D
į	Glide Path AN/ARN-5B
į	Bombing-Nav RadarK-3A
į	Loran AN/APN-9A
	Gun Laying RadarAN/APG-32
	Range Rec'vr BC-453B
	Interphone USAF Combat
	Defensive ECM
	*AN/ARN-14 alternate set
ı	· ·

# RESTER D

CONDITIO	N C	S	BASIC MISSION	MAX BOMBS	COMBAT ZOÑE 500 N. MI.	AT 40,000 FT	MAX SPEED	FERRY RANGE	
			1	П	111	١V	٧	V١	
AKE-OFF WEIGHT Fuel at 6.0 lb/gal (grade 115/145)		(lb) (lb)	357,500 165,235	357,500 86,525	357,500 165,235	357,500 165,235	357,500 165,235	357,500 175,620	
Military load (Bombs) Wing loading		(lb) (lb/sq ft)	10,000 74,92	86,000 74,92	10,000 74.92	10,000 74.92	10,000 <b>74.</b> 92	None 74.92	
Stall speed (power off, landing con Take-off ground run at SL	nfigura (1)		105 4000	105 4000	105 4000	105 4000	105 4000	105 4000	
Take-off to clear 50 ft	Ō	(ft)	4971	4971	4971	4971	4971 1120	4971 1120	
Rate of climb at SL Time: SL to 10,000 ft	<b>3</b>	(fpm) (min)	11 <b>20</b> 9. <b>8</b>	1120 9.8	1120 9.8	1120 9.8	9.8	9.8	
Time: SL to 20,000 ft Service Ceiling (100 fpm)	3	(min) (ft)	21.8 38,500	21, 8 38, 500	21.8 38,500 36,600	21, 8 38, 500 36, 600	21.8 38,500 36.600	21.8 38,500 36.600	
Service Ceiling (one engine out) OMBAT RANGE	<b>②</b> ④	(ft) (n, mi.)	36,600 6270 181	36,600 2365 184	5870 184	5740 187	3425 344	7120 182	
Average speed Initial cruising altitude Final cruising altitude		(kn) (ft) (ft)	10,000 25,000	10,000 25,400	10,000 25,000	10,000 25,000	34,500 38,000	10,000 24,900	
Total mission time	4	(hr)	34.85	1315 1390	32, 07 2955	30, 82 2755	7. 22 1280	39. 35	
OMBAT RADIUS Average speed	6	(n. mi.) (kn)	.319 <b>0</b> 188	195	199/285	216/282	345		
Initial cruising altitude Bombing altitude		(ft) (ft)	10,000 25,000	10,000 25,000	10,000 40,000	10,000 40,000	34,500 38,000		
Bomb run speed Final cruising altitude	3	(kn) (ft)	324 (7) 26,000	324 (7) 26, 400	361 26,000	361 26,000	363 38,000		
Total mission time		(hr)	34. 20	14.50	29.85	25.75	7.67		
OMBAT WEIGHT Combat altitude	<b>⑤</b>	(lb) (ft)	250,550 25,000	216,000 25,000	247, 390 40, 000	245,790 40,000	260,400 38,000	199,442 24,900	
Combat speed Combat climb	② ②	(kn) (fpm)	$\frac{324}{1750}$	324 (7) 2160	367 820	367 840	$\begin{array}{c} 372 \\ 940 \end{array}$	324 (7) 2410	
Combat ceiling (500 fpm) Service ceiling (100 fpm)	② ③	(ft) (ft)	41,950 44,500	44,000 46,200	42,100 44,700	42,200 44,800	41,350 44,000	45,000 47,000	
Service ceiling (one engine out) Max rate of climb at SL	(3) (2)	(ft)	42,700 2380	44,700 2855	42,900 2420	43,000 2440	42,100 2270	45,550 3170	
Max speed at optimum ft ANDING WEIGHT	<b>②</b>	(kn/ft) (lb)	376/34,500 190,527	380/35,150 189,301	376/34,500 190,527	377/34,500 190,527	375/34,500 19 <b>0</b> ,527	382/35,500 199,442	
Ground roll at SL Total from 50 ft		(ft) (ft)	1800 3095	1790 3085	1800 3095	1800 3095	1800 3095	1880 3200	

N	1	Take-off	power

(1) Take-off power
(2) Max power
(3) Normal power

4 Detailed descriptions of RADIUS and RANGE missions are given on page 6.

(5) For Radius Mission if radius is shown.

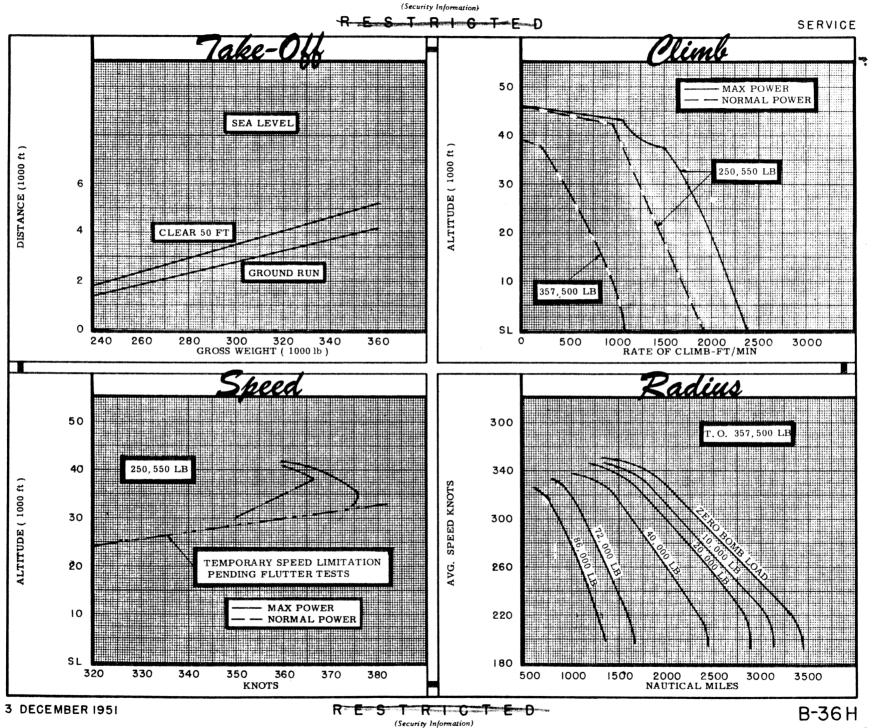
6 Where two speeds are shown the first is the average for the mission, the second for the zone.

7 Temporary speed limitation pending

#### PERFORMANCE BASIS:

- (a) Data source: Preliminary flight tests
- (b) Performance is based on powers shown on page 6.

flutter tests.



# NOTES

#### FORMULA: RADIUS MISSIONS I & II

Start engines, warm-up, take-off and climb on course using normal power to 10,000 feet, cruise at long range speeds at altitudes for best range (10,000 feet minimum). Climb so as to arrive at 25,000 feet 30 minutes prior to target. Cruise at long range speeds for 15 minutes, conduct 15 minute bomb run at normal power, drop bombs, conduct 5 minutes evasive action and 10 minutes escape from target at normal power. Return to base at long range speeds, cruising at optimum altitude for mileage. Jet engines are operating during take-off and climb. Range free allowances include 10 minutes normal power fuel consumption for R-4360-53 plus 5 minutes normal power fuel consumption for R-4360-53 for evasive action, plus 5% of initial fuel load for landing and endurance reserve.

#### FORMULA: RADIUS MISSIONS III & IV

Start engines, warm-up, take-off and climb on course using normal power to 10,000 feet, cruise at long range speeds at 10,000 feet altitude. Climb so as to arrive at 40,000 feet 500 or 1000 nautical miles prior to target. Cruise at long range speeds at 40,000 feet followed by 15 minutes bomb run at normal power, drop bombs, conduct 5 minutes evasive action and 10 minutes escape from target at normal power. Cruise at long range speeds at 40,000 feet until 500 or 1000 nautical miles from target. Return to base at long range speeds and optimum altitude for mileage. Jet engines are operative during take-off, all climbs, during normal power operation in target area and whenever operation gives better mileage-speed relationship than is obtainable with jet engines inoperative. Range free allowances are the same as for Missions I & II.

#### FORMULA: RADIUS MISSION V

Start engines, warm-up and take-off, climb on course using normal power to altitude for optimum speed-range operation (approx 34,500 feet), cruise toward target at altitude and powers for optimum speed-range. Conduct 15 minutes normal power bomb-run, drop bombs, conduct 5 minutes evasive action plus 10 minute escape from target at normal power, return to base at powers and altitude for best speed-range operation. Jet engines are operative during take-off, climb, during normal power operation in target area and whenever operation gives better mileage-speed relationship than is obtainable with jet engines inoperative. Range free allowances are the same as for Radius Missions I & II.

#### FORMULA: RANGE MISSIONS I, II, III, IV, & V

Same as outbound leg of radius missions continued until 90% of initial fuel load has been consumed. Range free allowances include 10 minutes normal power fuel consumption for R-4360-53 plus 5 minutes normal power fuel consumption for J47-GE-19 for warm-up and take-off, plus 10% of initial fuel load for landing and endurance reserve.

#### FORMULA: RANGE MISSION VI

Start engines, warm-up, take-off and climb on course to 10,000 feet using normal power, cruise at long range speeds at altitude for best range (minimum 10,000 feet) until 90% of fuel has been consumed. Jet engines are used for take-off and climb. Range free allowances are the same as Range Missions I through V.

#### GENERAL DATA:

- (a) Total fuel capacity is usable for special loadings with equipment removed from the aircraft.
- (b) Engine ratings shown on page 3 are manufacturers' guaranteed ratings. Power values used for performance calculations are as follows:

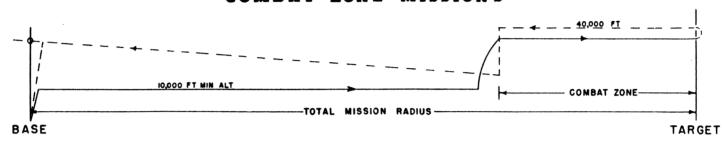
R-4360-53		J47-GE-19
BHP-RPM-ALT**-MIN T.O *3800-2800-S. L 5 MAX Mil: 3500-2800-32,900- 30 W. E: 3250-2400-34,500- 30 Nor: 2800-2600-38,000-Cont *Wet **Turbo critical (level flight)	S. L. Static T. O: Max; Nor:	LB-RPM-MIN 5200-7950- 5 5200-7950- 30- 4730-7630-Cont

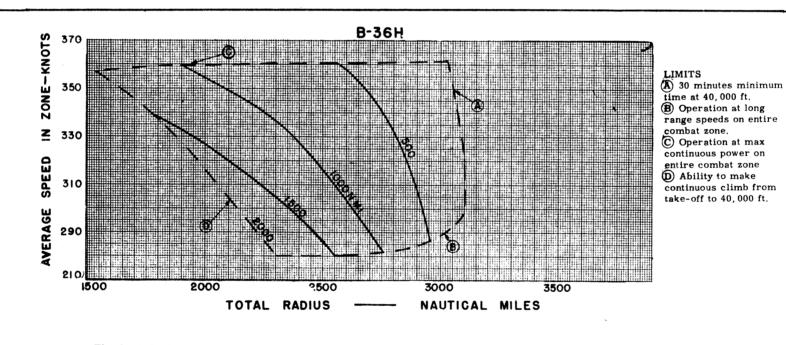
(c) These data are based on preliminary flight test and have not been substantiated by WADC.





### COMBAT ZONE MISSIONS





The above plot is provided to supplement typical missions III & IV presented and defined on foregoing pages. Distance and average speed at 40,000 ft in the combat zone are plotted to indicate total mission radius within

the limitations listed. Fuel is off-loaded, if necessary, to assure a 300 ft per min rate of climb with normal power on all engines at 40,000 ft when entering the combat zone, otherwise loading is same as listed for mission III.

SUPPLEMENTAL