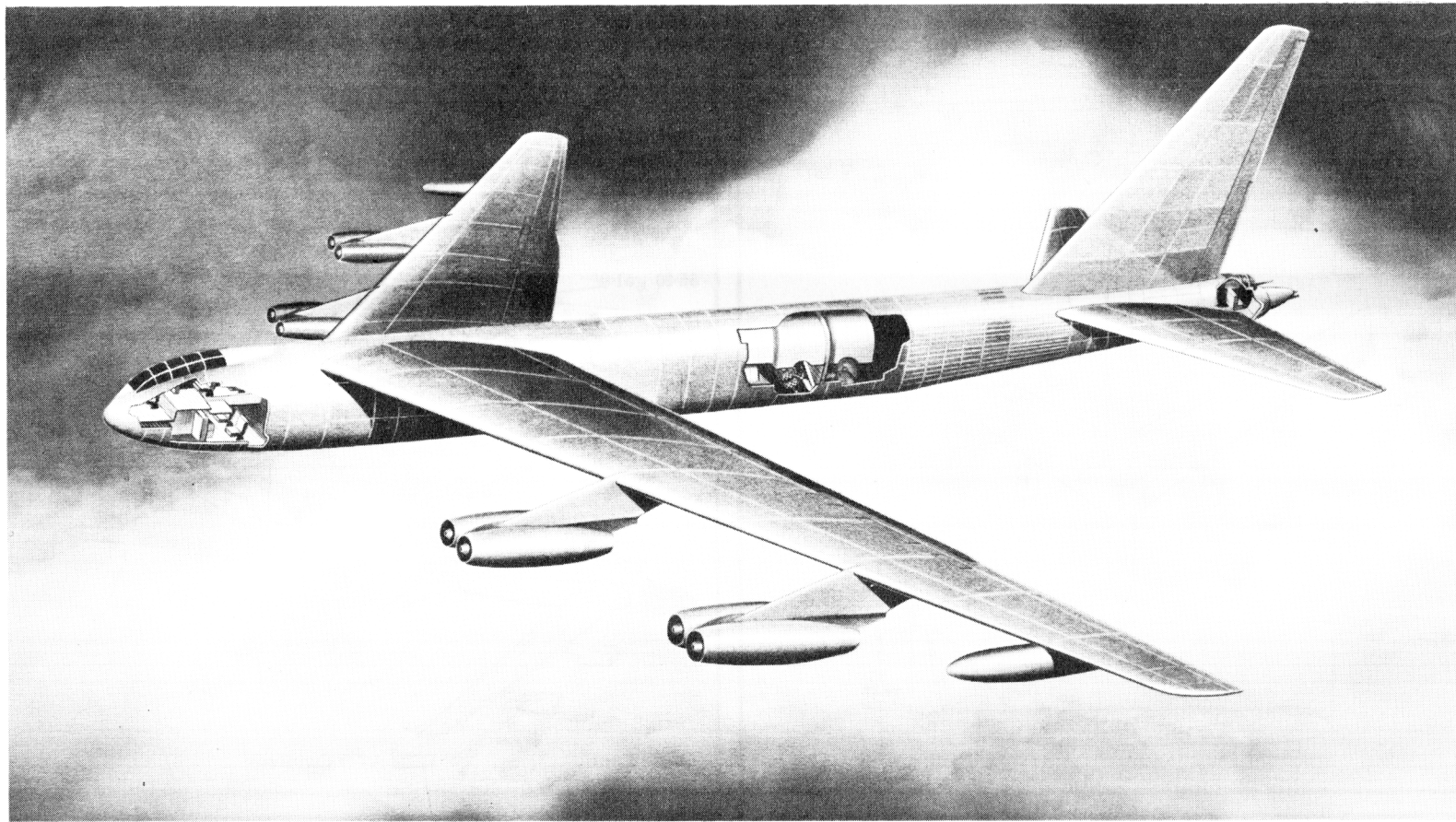


*Unclassified*  
~~SECRET~~

*A-1  
XB-52 char*  
EXPERIMENTAL



## *Standard Aircraft Characteristics*

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

# **XB-52**

**Boeing**

EIGHT J57-P-( )

PRATT & WHITNEY

6 OCTOBER 1950

~~SECRET~~

XB-52



**POWER PLANT**

The first and second aircraft will be powered with (8) YJ57-P-3 engines (8700 lb max thrust/SLS). These engines will subsequently be modified to give the following thrust ratings: MAX and MILITARY, 9250 lb (with variable area nozzle) and 9000 lb (with fixed area nozzle); NORMAL, 8700 lb. These ratings were used for performance shown in this chart, however, the model designation for this modified engine is undetermined. Further plans call for the addition of water injection and overspeed to increase take-off thrust. Consideration of future addition of a short type take-off afterburner is dependent upon effect on fuel specifics.

Liquid ATO used for performance is 30,000 lb thrust for 60 seconds. This will be reduced to 20,000 lb thrust ATO when water injection becomes available.

**B O M B S**

No.	Size	Type
1	25,000*	T-28E2
1	22,000*	T-40
1	13,000*	VB-13
1	12,000*	W-109
8	2000	G. P.
12	1000	G. P.
16	500	G. P.

\*Space provisions only

Note: Overall dimensions of the irregular shaped bomb bay are 6'x6'x27' (approx.)

**D I M E N S I O N S**

Wing	
Span	185.0'
Incidence (root)	6°
Dihedral (Chord plane)	2°30'
Sweepback (L. E.)	36°54'
Length	152.7'
Height	48.25'
Tread (outrigger)	148.9'
Tread (main gear)	11.4'

*Mission and Description*

The XB-52 is a long range, high altitude, high speed, heavy bomber designed for the destruction of surface targets.

The normal crew of five (5) consists of: Pilot; Co-Pilot-Flight Engineer; (2) Bombardier-Navigator-Weaponiers; Gunner-Radio Operator.

This aircraft resembles the B-47 and is equipped with a quadricycle main gear and wing-tip protecting gear. Automatic cabin pressurization and conditioning is provided for all operations. A liquid oxygen system is provided for crew use. The tail contains provisions for liquid rocket assisted take-off and a deceleration parachute. Control throughout the speed range from limit dive speed to landing speed, is obtained by using spoilers, ailerons, and flaps on the wing, a movable horizontal stabilizer, and conventional tail surfaces. The spoilers may also be used as airbrakes permitting descent from 55,000 feet to sea level at end of mission in approximately three minutes with gear down.

*Development*

The XB-52 passed through 4 preliminary design stages before the present configuration was decided upon as shown in the following table:

Date	Boeing Model No.	Gross Wt. (lb)	Power Plant
28 Jun 1946	462	360,000	(6) T35-1
7 Jan 1947	464-22	480,000	(4) T35-3
8 Dec 1947	464-35	280,000	(4) T35-5
27 Oct 1948	464-49	330,000	(8) YJ57-P-3
29 Mar 1950	464-67	390,000	(8) XJ57-P-1
6 Oct 1950	464-67	390,000 (W/O ATO)	(8) J57-P- (?)

Current development is as follows:

Present Design Initiated:	27 Oct 1948
Mock-up Inspection:	26 Apr 1949
Engine Nacelle Mock-up Inspection:	14 Jun 1950
First Flight (1st article):	Oct 1951 (est)
First Flight (2nd article):	Dec 1951 (est)

**G U N S**

No.	Cal.	Rds. ea.	Location
2	.50	600	Tail tur.

**C A M E R A S**

(alternate installations)		
No.	Type	Lens
1	K-17C	6", 12" or 24"
1	K-22A	6", 12" or 24"
1	K-37	12"
1	K-38	24" or 36"

**W E I G H T S**

Loading	Lb	L. F.
Empty	155,200(E)	
Basic	156,700(E)	
Design	390,000	
Combat	*256,800	
Max T. O.	†390,000	2.0
Max Land	270,000	

(E) Estimated

\* For Basic Mission

† Limited by strength (W/O expendable weight of liquid ATO)

**F U E L**

Location	No. Tanks	Gal
Wg*	4	9880
Wg	3	9820
Fus*	3	16,570
Wg, drop	2	2000
*Self-sealing	Total	38,270**

\*\*Includes ATO fuel

Grade ..... JP-3 or 100/130.

**O I L**

Capacity (gal)	64
Grade	1010

**E L E C T R O N I C S**

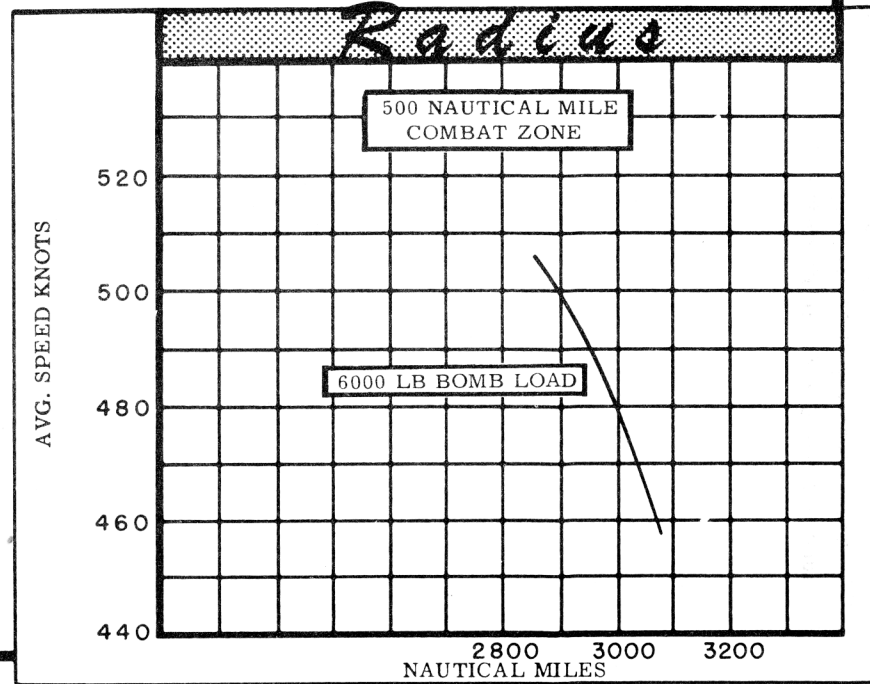
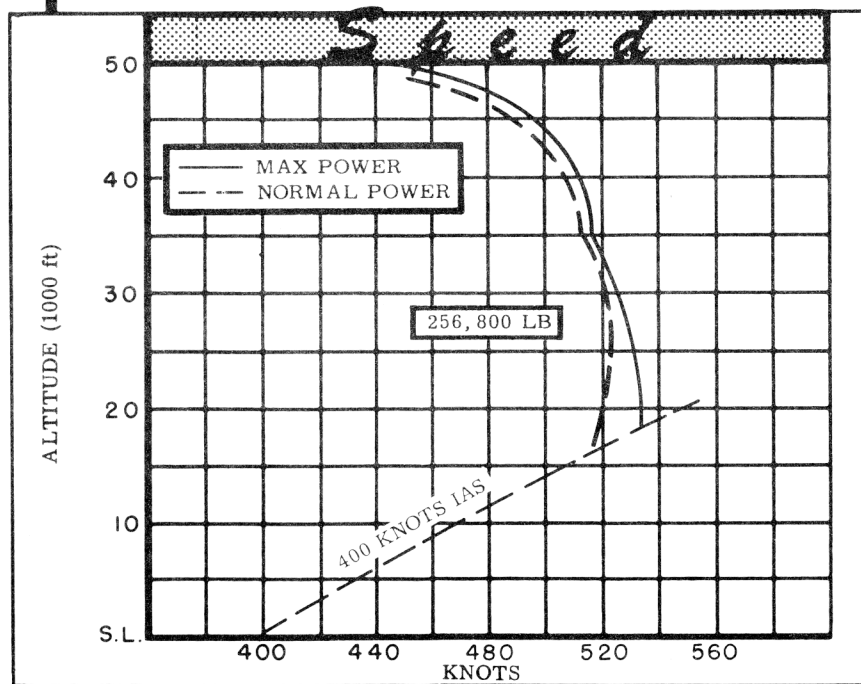
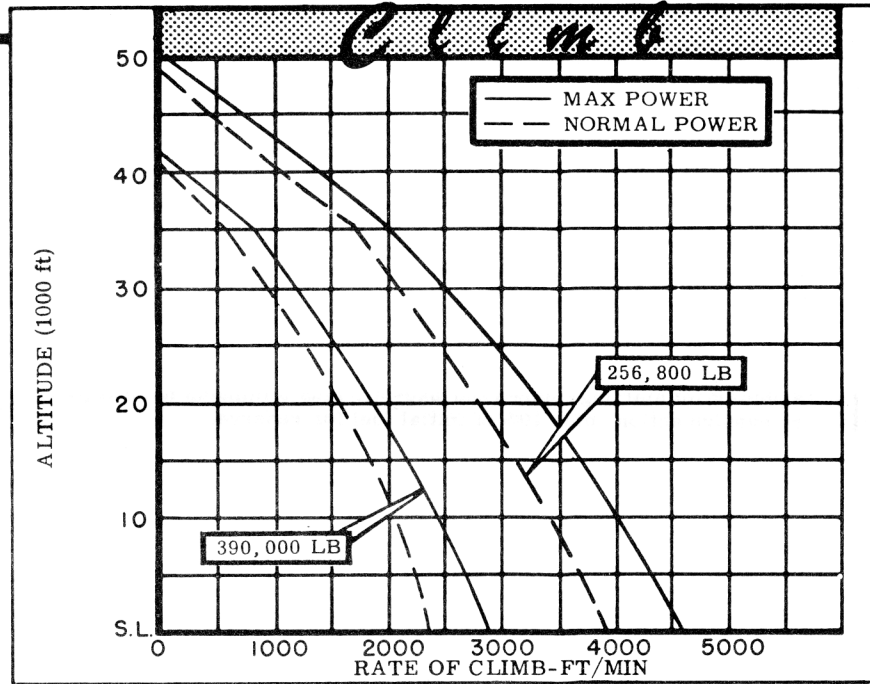
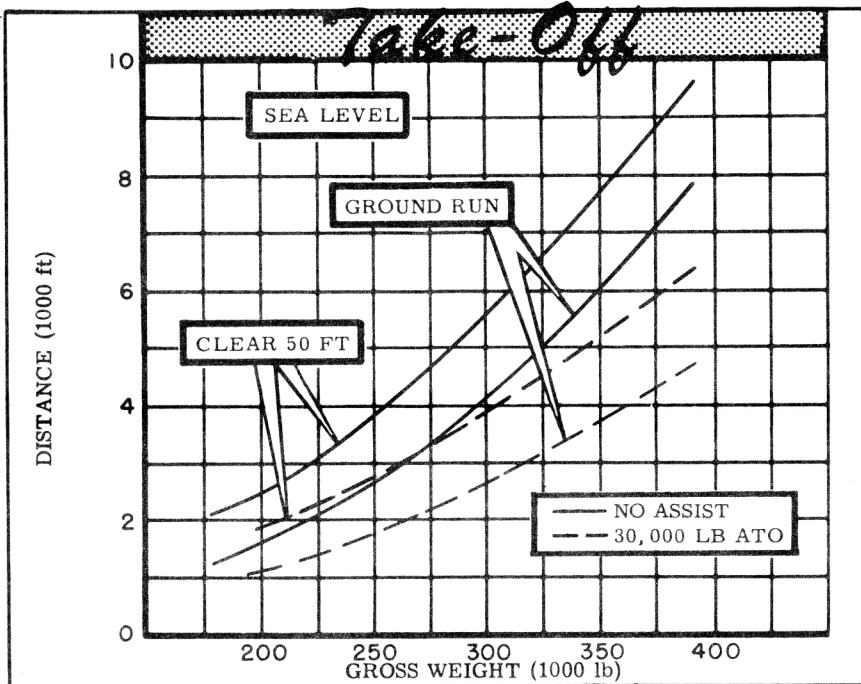
UHF Command	AN/ARC-27
Liaison	AN/ARC-25A
Interphone	USAF Combat
Bombing-Navig. Radar	K-1A
Loran	AN/APN-9A
IFF	AN/APX-6
Fire Control System	A-3
Glide Path	AN/ARN-5B
Omni-Direct. Recvr	AN/ARN-14
ECM	*AN/APQ-27
Radar Beacon	*AN/APN-12

\*Space provisions only

# Loading and Performance - Typical Mission

C O N D I T I O N S	BASIC MISSION	6000 LB BOMB MISSION
	I	II
TAKE-OFF WEIGHT (8) (lb)	390,000	390,000
Fuel at 6.0 lb/gal(grade 100/130) (lb)	219,240	223,398
Military load (Bombs) (lb)	10,000	6000
Wing loading (lb/sq ft)	97.5	97.5
Stall speed(power off, land. config.) (kn)	127.0	127.0
Take-off ground run at SL (1) (ft)	7820	7820
Take-off ground run with ATO (1) (6) (ft)	4720	4720
Take-off to clear 50 ft (1) (ft)	9700	9700
Take-off to clear 50 ft with ATO (1) (6) (ft)	6220	6220
Rate of climb at SL (2) (fpm)	2400	2400
Time: SL to 30,000 ft (2) (min)	17.5	17.5
Time: SL to 37,000 ft (2) (min)	26.0	26.0
Service ceiling (100 fpm) (2) (ft)	39,500	39,500
Service ceiling (one engine out) (5) (ft)	5	5
COMBAT RANGE (3) (n. mi.)	6095	6265
Average speed (kn)	454	454
Initial cruising altitude (ft)	37,000	37,000
Final cruising altitude (ft)	51,100	50,900
Total mission time (hr)	13.4	13.85
COMBAT RADIUS (3) (n. mi.)	3070	3140
Average speed (kn)	451	452
Initial cruising altitude (ft)	37,000	37,000
Bombing altitude (ft)	46,500	46,500
Bomb run speed (3) (kn)	480	480
Final cruising altitude (ft)	52,300	52,100
Total mission time (hr)	13.6	13.9
COMBAT WEIGHT (4) (lb)	256,800	259,000
Combat altitude (ft)	35,000	46,300
Combat speed (1) (kn)	516	491
Combat climb (1) (fpm)	2150	300
Combat ceiling (500 fpm) (1) (ft)	46,500	46,300
Service ceiling (100 fpm) (1) (ft)	49,900	49,500
Service ceiling (one engine out) (5) (ft)	5	5
Max rate of climb at SL (1) (fpm)	4550	4550
Max speed at 20,000 ft (1) (kn)	531	531
LANDING WEIGHT (lb)	180,300	181,000
Ground roll at SL (ft)	2100	2100
Ground roll (auxiliary brake) (7) (ft)	1550	1550
Total from 50 ft (ft)	2900	2900
Total from 50 ft (auxiliary brake) (7) (ft)	2300	2300

NOTES: (4) For Radius Mission is radius is shown liquid ATO amounting to approximately 15,000 lb of oxidizer and gas.  
 (1) Max power (5) Data not available PERFORMANCE BASIS:  
 (2) Normal power (6) With 30,000 lb thrust ATO(60 sec.) (a) Data source: Estimates  
 (3) Detailed descriptions of RADIUS & (7) With drag chute (b) Performance is based on powers shown on page 6.  
 RANGE missions are given on page 6. (8) Does not include expendable weight of



**N O T E S**

FORMULA: RADIUS MISSION I

Take-off, climb on course to 37,000 ft. altitude at aircraft speed for maximum rate of climb, cruise out at long range speeds increasing altitude with decreasing aircraft weight, make normal power bomb-run to target, conduct 6 minute normal power bomb-run, drop bombs, conduct normal power evasive action for 6 minutes, start cruise to home base at 46,500 ft. alt. arriving over home base at 52,300 ft. altitude. Range free allowances are: 5 minutes normal power fuel consumption for starting engines and take-off, plus 6 minutes normal power evasive action, plus 10% of initial fuel for reserve.

FORMULA: RANGE MISSION I

Same as outbound leg of the Basic Radius formula continued without dropping the bombs until 90% of the initial fuel has been used at 51,100 ft. alt., leaving 10% fuel reserve for combat, evasive action, landing reserve, or other considerations for which no distance credit is allowed.

FORMULA: RADIUS MISSION II

Same as the Basic Radius formula except 10,000 lb bomb is replaced by 6,000 lb bomb and additional fuel. Altitude at end of mis-

sion is 52,100 ft.

FORMULA: RANGE MISSION II

Same as Basic Range formula except 10,000 lb bomb is replaced with 6,000 lb bomb and additional fuel. Altitude at the end of the mission is 50,900 ft.

GENERAL DATA

(a) Data is based on estimates.

(b) Power values used in performance calculations are as follows:

(8) J57-P- ( )		
S. L. Static	LB	RPM
Max:	*9250	—
Nor:	8600	—
*With variable area nozzle		

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