

U N C L A S S I F I E D

A1
B-52F/char

SERVICE



Standard Aircraft Characteristics

BY AUTHORITY OF
THE SECRETARY
OF THE AIR FORCE

B-52 F
STRATOFORTRESS
Boeing

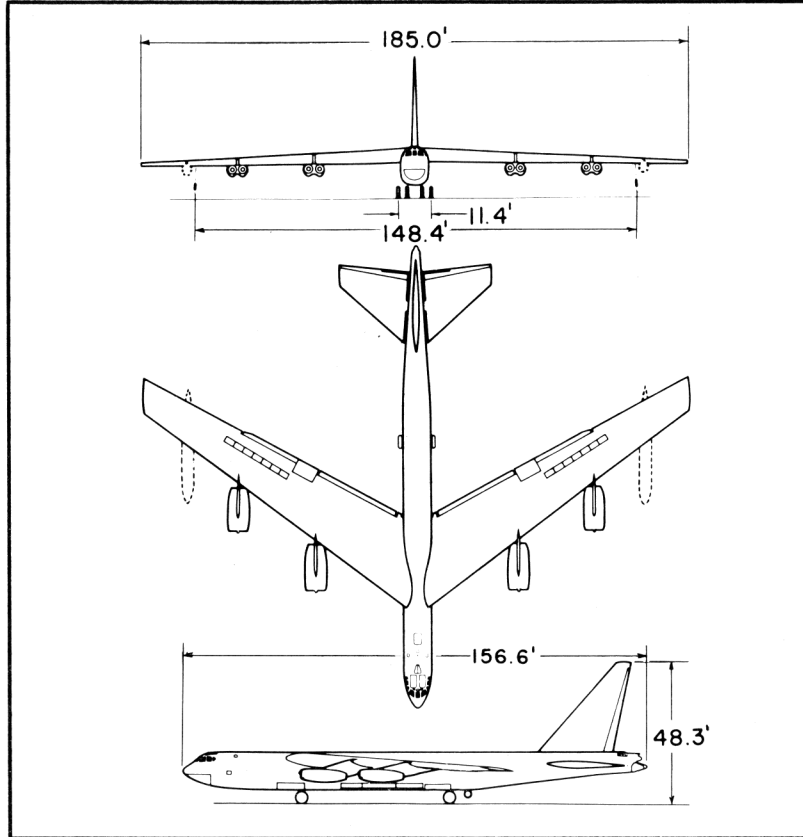
EIGHT J57-P-43W

PRATT & WHITNEY

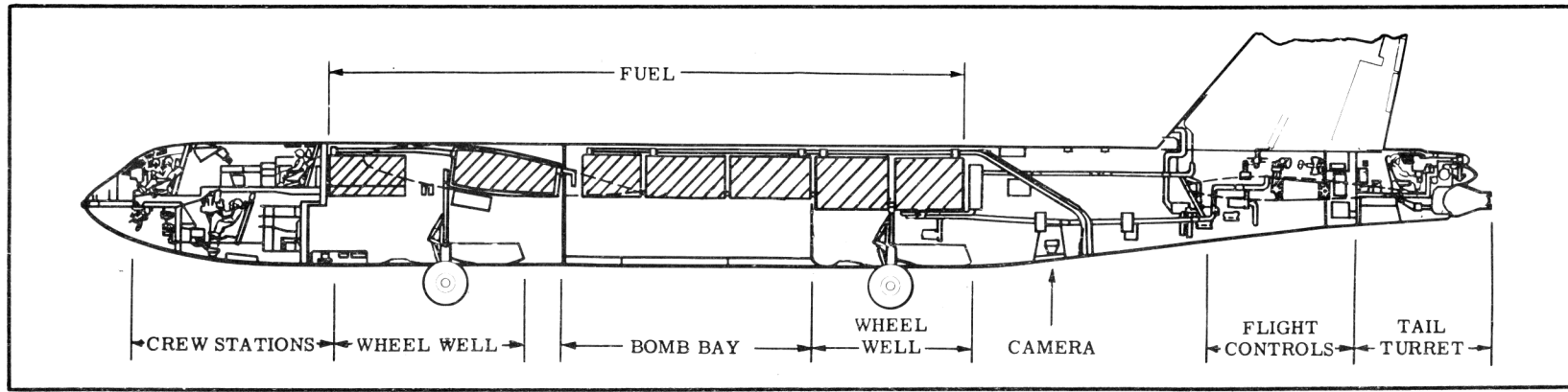
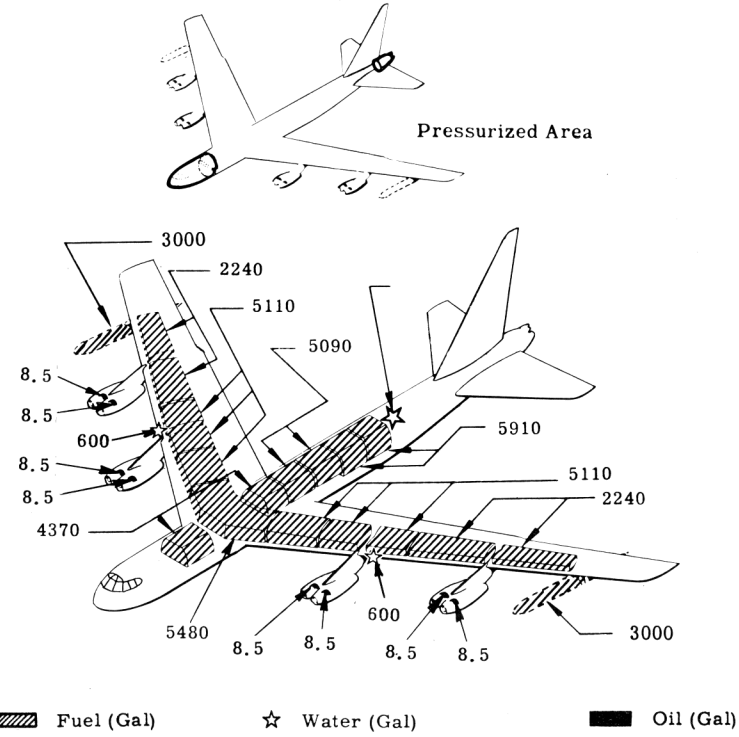
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U N C L A S S I F I E D

B-52F



Wing Area 4000 sq ft Wing Section (root), BAC 233 29.31
Aspect Ratio8.55 (tip) ..BAC 236 9.56
M. A. C. 275.5"



POWER PLANT

Nr & Model J57-P-43W
 Mfr Pratt & Whitney
 Engine Spec Nr A-1704B
 Type Axial
 Length 167.3"
 Diameter 38.6"
 Weight (dry) 3885 lb
 Tail Pipe Fixed Area
 Augmentation Water

Note: At present there are no requirements for ATO

ENGINE RATINGS

S. L. Static LB - **RPM - MIN

 Max: *13,750 - 6900/9650 - 5

 Mil: 11,200 - 6400/9650 - 30

 Nor: 9500 - 6100/9350 - Cont

* Wet
 ** First figure represents low pressure spool; second figure represents high pressure spool.

DIMENSIONS

Wing
 Span 185.0'
 Dihedral (chord plane) 2°30'
 Incidence (root) 6°
 Sweepback (LE) 36°58'
 Length 156.6'
 Height (overall) 48.3'
 Height (fin folded) 20.8'
 Tread (outrigger) 148.4'
 Tread (main gear) 11.4'

Mission and Description

Navy Equivalent: None Mfr's Model: 464-259

The principal mission of the B-52F aircraft is the destruction of surface objects.

The normal crew of six consists of pilot, co-pilot, (2) bombardier-navigators, ECM operator and tail gunner.

Automatic cabin pressurization, heating and ventilation are provided for crew comfort during normal and combat operation.

Ejection seats for emergency escape are afforded the crew except for the tail gunner who bails out after jettisoning the tail section containing the gun turret.

Flight control, throughout the speed range from limit dive speed to landing speed is accomplished by use of spoilers and ailerons on the wing; elevators on an all-movable horizontal tail; and a rudder on a fixed vertical tail surface. The spoilers also function as air brakes used in landing.

Air is bled off the engines for thermal anti-icing of the wing and tail surface leading edges.

Other features are single-point ground and air refueling braking parachute for decreasing landing roll distance, and a crosswind landing gear to aid in crosswind take-off and landing. The airplane utilizes the A-14 Auto-Pilot and the N-1 Compass.

Major differences of the B-52F from the B-52E is the installation of J57-P-43 W engines in place of J57-P-19W engines; installation of engine driven alternators.

Development

Design Initiated: Nov 54
 First Flight Mar 58
 First Acceptance May 58

B O M B S

Nr Class (lb)
 New Series
 27..(Family of Clusters) 1000

 Special Weapons
 1 MK-6
 2 MK-21
 2 MK-15

Note: Structural provisions for 50,000 lb bomb; space and structural provisions for GAM-63

G U N S

Nr Type Size Rds ea Loc
 4..M-3....50..... 600.. Tail, tur

C A M E R A S

Nr Type Lens
 1 K-38 36"
 1 K-22 6"
 or
 1 K-17D 6"
 1 O-15 Radar Recording

W E I G H T S

Loading	Lb	L. F.
Empty	162,685 (C)	
Basic	165,978 (C)	
Design	†453,000	2.0
Combat	*280,650	2.4
Max T.O.	**450,000	2.0
Max In-Flt	‡450,000	2.0
Max Land	270,000	

(C) Calculated
 * For Basic Mission
 ** Excludes 10,000 lb water
 † Max taxi wt. 10,000 lb bomb
 ‡ Limited by structure

F U E L

Location	Nr Tanks	Gal
Wg, outbd	2	4480
Wg, ctr	1	5480
Wg, inbd*	4	10,220
Fus, fwd*	2	4370
Fus, ctr*	1	5090
Fus, aft*	1	5910
Wg, drop	2	6000
	Total	41,550

Grade JP-4
 Specification MIL-F-5624
OIL
 Nacelle 8 (tot) 68
 Specification MIL-L-7808A
WATER
 Wg, L.E. 4 1200

*Self-Sealing

ELECTRONICS

UHF Command AN/ARC-34
 Liaison AN/ARC-21X
 IFF AN/APX-25
 Radar Beacon AN/APN-69
 ECM Trans (7) AN/ALT-6
 ECM Trans (2) AN/ALT-7
 ECM Receiver (1) AN/APR-9
 Interphone AN/AIC-10
 Bombing Sys AN/ASB-4
 Nav Recv'r AN/ARN-14
 Fire Control Sys MD-9

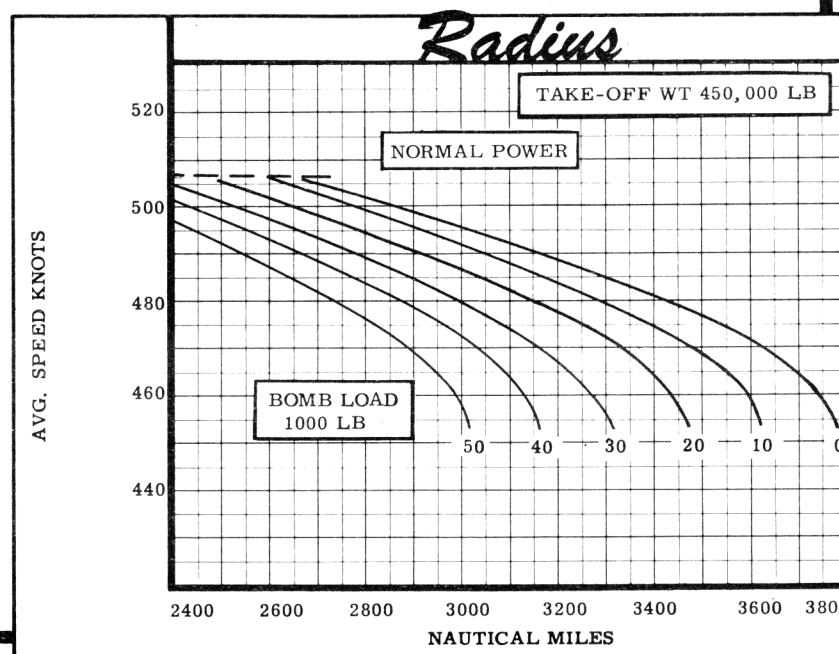
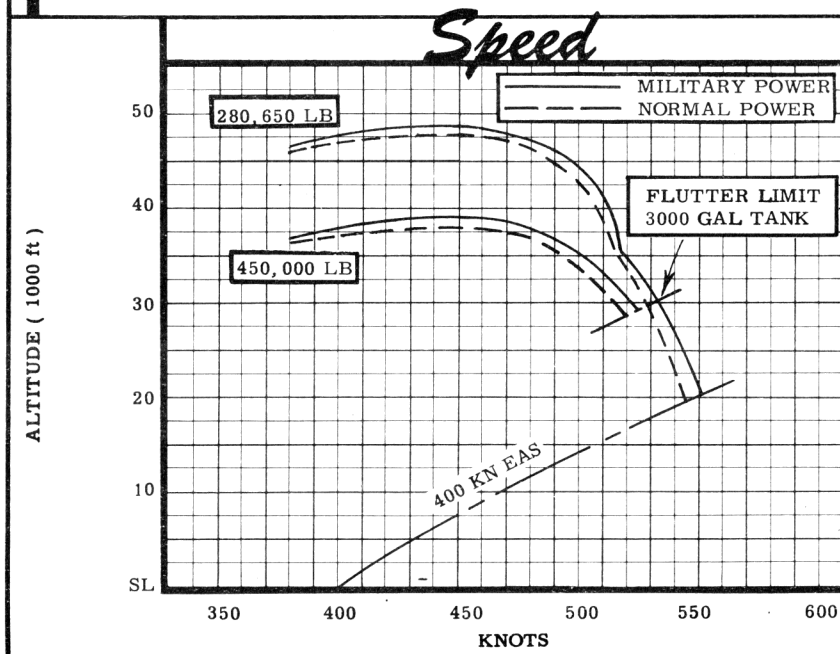
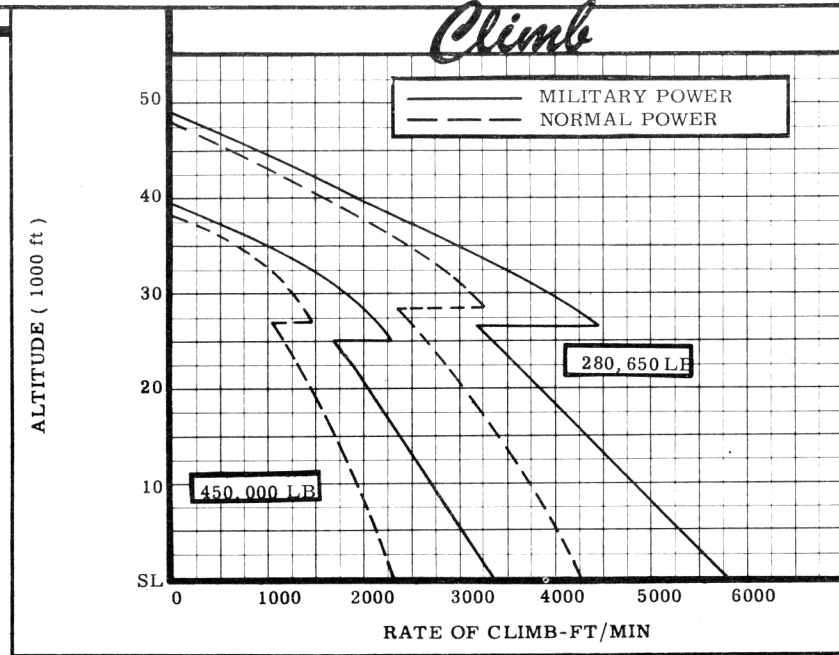
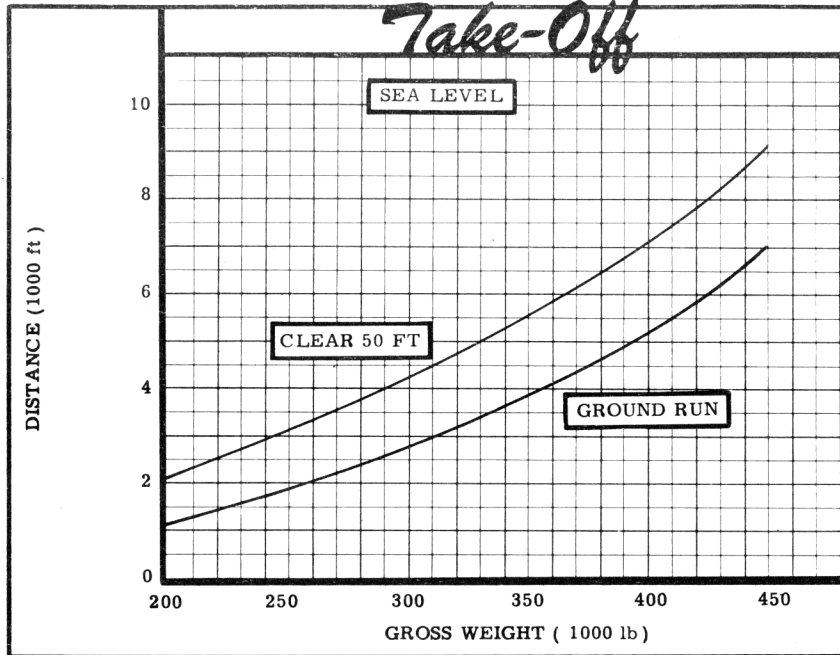
See page 6 for additional equipment

Loading and Performance—Typical Mission

C O N D I T I O N S	BASIC MISSION	DESIGN MISSION	MAX. BOMB MISSION	FERRY RANGE
	I	II	III	IV
TAKE-OFF WEIGHT ⑦ (lb)	450,000 ⑤	449,798 ⑧	450,000 ⑤	441,198 ⑧
Fuel at 6.5 lb/gal (grade JP-4) (lb)	268,877	270,075	242,899	270,075
Payload (Bombs) (lb)	10,000	8600	35,400	None
Wing loading (lb/sq ft)	112.5	112.4	112.5	110.3
Stall speed (power off) ⑨ (kn)	147	147	147	146
Take-off ground run at SL ① (ft)	7000	6900	7000	6600
Take-off to clear 50 ft ① (ft)	9100	9050	9100	8700
Rate of climb at SL ③ (fpm)	2300	2310	2300	2360
Rate of climb at SL (one engine out) ② (fpm)	2660	2670	2660	2740
Time: SL to 20,000 ft ③ (min)	10.1	10.1	10.1	19.9
Time: SL to 30,000 ft ③ (min)	17.1	17.1	17.1	16.6
Service ceiling (100 fpm) ③ (ft)	37,800	37,840	37,800	38,200
Service ceiling (one engine out) ② (ft)	37,550	37,600	37,500	37,900
COMBAT RANGE ⑩ ⑩ ④ (n mi)	3625	3645	3230	7560
COMBAT RADIUS ⑩ ④ (n mi)	3625	3645	3230	7560
Average cruise speed (kn)	453	453	453	453
Initial cruising altitude (ft)	33,430	33,440	33,430	33,590
Target speed ③ (kn)	476	476	476	476
Target altitude (ft)	45,600	45,650	44,750	44,750
Final cruising altitude (ft)	50,950	50,950	51,050	50,950
Total mission time (hr)	16.05	16.13	14.31	16.72
COMBAT WEIGHT (lb)	280,650	281,350	267,400	186,750
Combat altitude (ft)	45,600	45,650	44,750	50,950
Combat speed ② (kn)	495	495	504	509
Combat climb ② (fpm)	770	750	1130	1300
Combat ceiling (500 fpm) ② (ft)	46,800	46,780	47,750	54,800
Service ceiling (100 fpm) ③ (ft)	47,600	47,550	48,550	55,600
Service ceiling (one engine out) ③ (ft)	46,100	46,000	47,050	53,800
Max rate of climb at SL ② (fpm)	5750	5700	6100	8680
Max speed at optimum alt. ② ⑤ (ft/ kn)	20,500/553	20,500/553	20,600/554	20,700/555
Basic speed at 35,000 ft ② (kn)	521	521	522	525
LANDING WEIGHT (lb)	186,700	186,750	185,950	186,750
Ground roll at SL (ft)	2150	2150	2100	2150
Ground roll (auxiliary brake) ⑥ (ft)	1900	1900	1850	1900
Total from 50 ft (ft)	3750	3750	3700	3750
Total from 50 ft (auxiliary brake) ⑥ (ft)	3550	3550	3500	3550

NOTES

- | | | |
|---|---|--|
| ① Max power (wet)
② Military power
③ Normal power
④ Detailed descriptions of RADIUS and RANGE missions given on page 6 | ⑤ Limited by structure
⑥ With drag chute
⑦ Does not include 10,000 lb water
⑧ Limited by fuel capacity
⑨ Initial buffet, flaps down, S.L. | ⑩ See Note (a) General Data, Page 6
PERFORMANCE BASIS:
(a) Data source: Flight Test
(b) Performance is based on powers shown on page 3. |
|---|---|--|



N O T E S

FORMULA: BOMBER RADIUS MISSIONS I, II & III

Take-off and climb on course to optimum-cruise altitude at normal power. Cruise out at long-range speed, increasing altitude with decreasing weight; external tanks are dropped when empty. Climb so as to reach cruise ceiling 15 minutes from target. Run into target at normal power, drop bombs, conduct 2 minutes evasive action and 8 minutes escape at normal power. Cruise back to home base at long-range speeds, increasing altitude with decreasing airplane weight; as an alternate, a 45,000 foot ceiling may be maintained on the return leg with no radius penalty. Range-free allowances include 5 minutes normal-power fuel consumption for starting engines and take-off, 2 minutes normal-power fuel consumption at combat altitude for evasive action, and 30 minutes of maximum-endurance (four engines) fuel consumption at sea level plus 5% of initial fuel for landing reserve.

FORMULA: BOMBER RANGE MISSION IV

Take-off and climb on course to optimum-cruise altitude at normal power. Cruise out at long-range speeds, increasing altitude with decreasing weight, until all usable fuel is consumed; as an alternate, climbing flight path may be terminated at 45,000 feet with no range penalty; external tanks are dropped when empty. Range-free allowances include 5 minutes normal-power fuel consumption for starting engines and take-off, and 30 minutes of maximum-endurance (4 engines) fuel consumption at sea level plus 5% of initial fuel for landing reserve.

GENERAL DATA:

- (a) Based on safety of Flight Supplement T.O. 1B-52E-1EF dated 22 Sep 59. The radius and range will be degraded by 7%.
- (b) The following electronic equipment is supplemental to that shown under "Electronics" page 3.
 - Glide path receiver (1) AN/ARN-18
 - Marker beacon (1) AN/ARN-12
 - Early warning (1) AN/APS-54
 - Chaff dispenser (1) AN/ALE-1
- (c) Maximum taxi weight of 460,000 lb is pending approval of WADC.

PERFORMANCE REFERENCE:

Boeing Document D2-1551, subject "Substantiating Data Report-Models B-52F (J57-P-43W engines), Standard Aircraft Characteristics Charts", dated 2 August 1957.

REVISION BASIS:

To include performance Note (a) General Data Block.

(AUG 57)

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