



Standard Aircraft Characteristics

BY AUTHORITY OF
THE SECRETARY
OF THE AIR FORCE

B-52 F
STRATOFORTRESS
Boeing

EIGHT J57-P-43W, WA, OR WB

PRATT & WHITNEY

POWER PLANT

Nr & Model . . . (8) *J57-P-W, WA or WB
 Mfr Pratt & Whitney
 Engine Spec Nr A1704E
 Type Axial
 Length 167.3"
 Diameter 38.9"
 Weight (dry) 3870 lb
 Tail Pipe Fixed Area
 Augmentation Water

*Sound suppressors to be included in retrofit.

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 156.5'
 Height (overall) 48.3'
 Height (fin folded) 21.5'
 Tread (outrigger) 148.4'
 Tread (main gear) 11.4'

Mission and Description

Navy Equivalent: None

Mfr's Model: 464-260

The principal mission of the B-52F aircraft is the destruction of surface objects. The normal crew of six consists of pilot, co-pilot, navigator, bomb navigator, 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/A42G-11 Auto Flight Control and the N-1 Compass.

Major differences of the B-52F from the B-52E are the installation of J57-P-W, WA, or WB engines in place of J57-P-19W engines and of engine driven alternators.

Development

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

WEIGHTS

Loading	Lb	L. F.
Empty	173,599 (C)	
Basic	176,104 (C)	
Design	460,000	2.0
Combat	*291,570	2.3
Max T.O.	**450,000	2.0
Max In-Flight	450,000	2.0
Max Landing	***450,000	—

(C) Calculated

* For Basic Mission

** Excludes 10,000 lb water

*** For contact sinking speed of 6 ft/sec

Max taxi wt. 10,000 lb water

Limited by structure

FUEL

Location	Nr Tanks	Gal
Wg, outbd	2	4474
Wg, ctr	1	5479
Wg, mains	4	10,222
Fus, fwd	2	4372
Fus, ctr	1	5094
Fus, aft	1	5912
Wg, drop	2	6000
	Total	41,553
Grade		JP-4
Specification		MIL-T-5624

OIL

Nacelle 8 (tot) 68
 Specification MIL-L-007808F

WATER

Wg, L.E. 4 1200

BOMBS

Nr	Class (lb)
	New Series
27	(Family of Clusters) 1000
24	(External) 750
	Special Weapons
	MK-53
	MK-28
	MK-57
	MK-41

Note: Airplane will carry 4 ADM-20 & 2 AGM-28B missiles

GUNS

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

CAMERAS

Nr	Type	Lens
1	K-38	36"
1	K-17C	6"
	or	
1	K-17D	6"
1	O-32 Radar Recording	

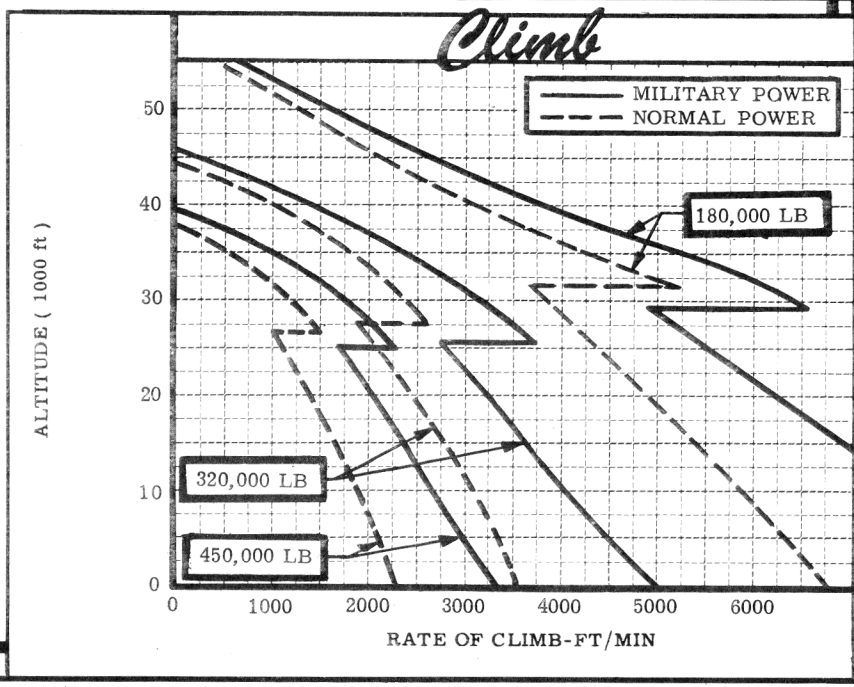
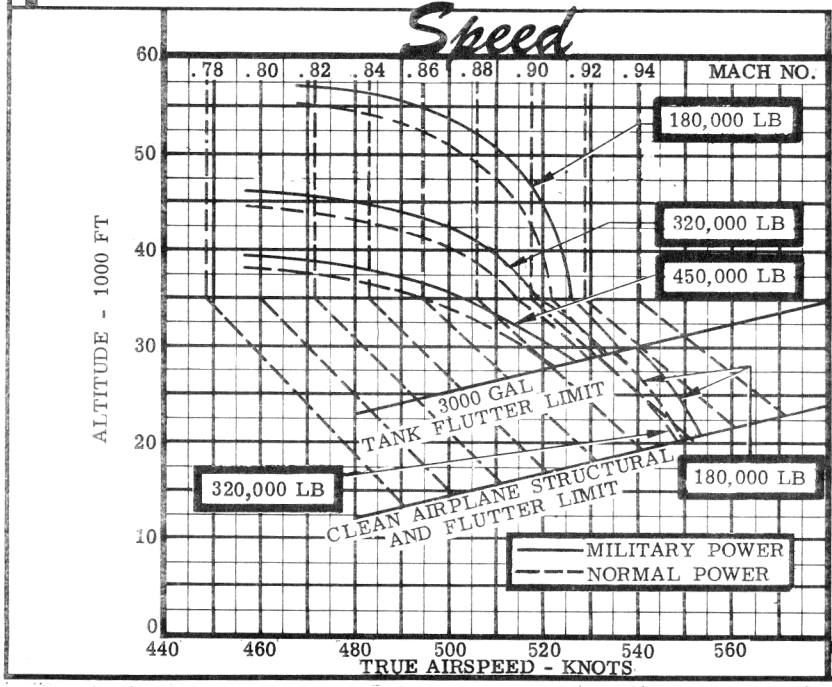
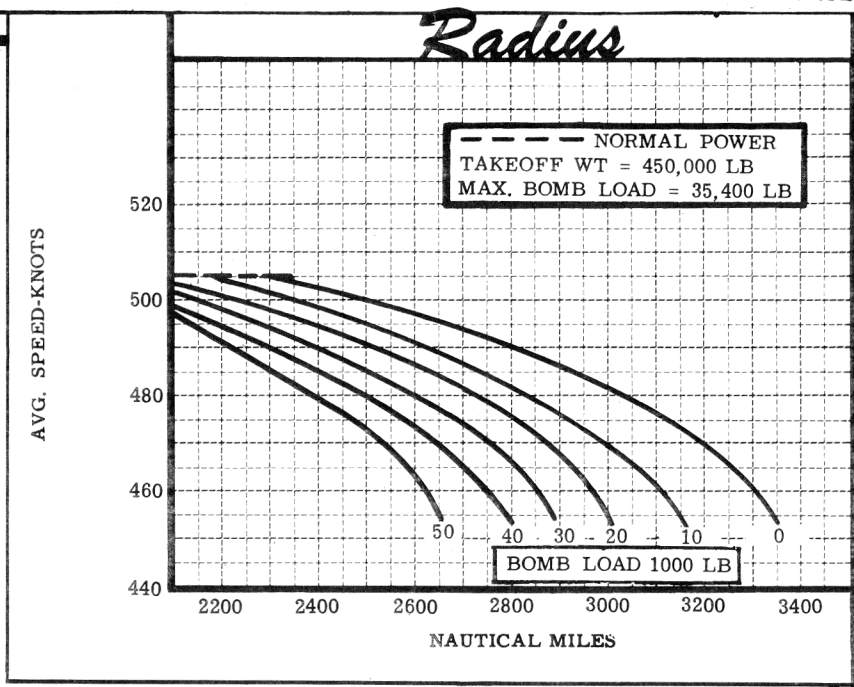
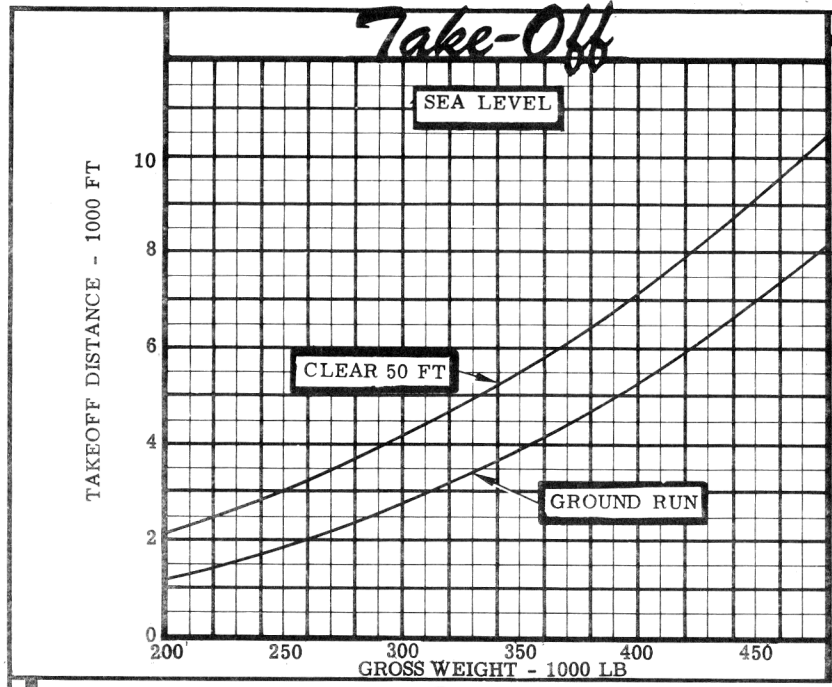
ELECTRONICS

UHF Command (2)	AN/ARC-34
IFF	AN/APX-25
Radar Beacon	AN/APN-69
ECM Trans (3)	AN/ALT-6B
ECM Trans (4)	AN/ALT-13
ECM Receiver (1)	AN/APR-9
ECM Receiver	AN/APR-14
Interphone	AN/AIC-10A
Bombing Nav Sys	AN/ASQ-38
Nav Recv'r	AN/ARN-14
Fire Control Sys	MD-9

Loading and Performance - Typical Mission

C O N D I T I O N S	BASIC MISSION I	DESIGN LOAD II	MAX BOMB LOAD III	FERRY RANGE IV	ALTERNATE LOAD V	MISSILE LOAD VI
TAKE-OFF WEIGHT (7) (lb)	450,000	450,000	450,000	450,000	450,000	450,000 (5)
Fuel at 6.5 lb/gal (grade JP-4) (lb)	257,251	258,651	231,851	269,139	249,551	225,235
Payload (Bombs/Missiles) (lb)	10,000	8600	35,400	None	17,700	17,700/24,316 (11)
Payload (Chaff, Flares) (lb)	1000/168	1000/168	1000/168	None	1000/168	1000/168
Wing loading (lb/sq ft)	112.5	112.5	112.5	112.5	112.5	112.5
Stall speed (power off) (8) (kn)	147	147	147	147	147	147
Take-off ground run at SL (1) (ft)	7000	7000	7000	7000	7000	6100 (9)
Take-off to clear 50 ft (1) (ft)	9100	9100	9100	9100	9100	8200 (9)
Rate of climb at SL (3) (fpm)	2300	2300	2300	2300	2300	2540 (10)
Rate of climb at SL (one engine out) (2) (fpm)	2660	2660	2660	2660	2660	2900 (10)
Time: SL to 20,000 ft (3) (min)	10.2	10.2	10.2	10.2	10.2	9.08 (10)
Time: SL to 30,000 ft (3) (min)	17.4	17.4	17.4	17.4	17.4	15.5 (10)
Service ceiling (100 fpm) (3) (ft)	37,800	37,800	37,800	37,800	37,800	38,500 (10)
Service ceiling (one engine out) (2) (ft)	37,500	37,500	37,500	37,500	37,500	38,200 (10)
COMBAT RANGE (4) (n. mi.)	—	—	—	6712	—	—
COMBAT RADIUS (4) (n. mi.)	3163	3189	2862	—	3047	2586 (10)
Average cruise speed (kn)	453	453	453	453	453	453
Initial cruising altitude (ft)	33,200	33,200	33,200	33,200	33,200	33,200
Target speed (3) (kn)	484	484	484	—	484	484
Target altitude (ft)	44,400	44,200	43,000	—	44,700	43,500
Final cruising altitude (ft)	50,000	50,000	50,000	49,900	50,000	50,300
Total mission time (hr)	14.03	14.4	12.66	14.86	13.5	10.76
COMBAT WEIGHT (lb)	291,570	291,881	277,181	197,706	283,181	277,054
Combat altitude (ft)	44,400	44,200	43,000	50,000	44,700	43,500
Combat speed (2) (kn)	492	492	500	504	496	500
Combat climb (2) (fpm)	825	830	1150	1300	900	1200
Combat ceiling (500 fpm) (2) (ft)	46,000	46,000	47,000	53,800	46,500	47,750
Service ceiling (100 fpm) (3) (ft)	46,700	46,700	47,600	54,500	47,400	49,000
Service ceiling (one engine out) (3) (ft)	45,300	45,750	46,100	52,800	46,000	48,000
Max rate of climb at SL (2) (fpm)	5600	5600	5750	8350	5800	5900
Max speed at optimum alt (2) (5) (kn)	553/21,000	553/21,000	554/21,000	555/21,000	553/21,000	550/21,000
Basic speed at 35,000 ft (2) (kn/ft)	521	523	522	525	522	523
LANDING WEIGHT (lb)	197,112	197,420	195,812	197,706	196,727	195,511
Ground roll at SL (ft)	3125	3125	3075	3145	3075	3075
Ground roll (auxiliary brake) (6) (ft)	2200	2200	2180	2210	2190	2180
Total from 50 ft (ft)	5545	5545	5495	5555	5500	5495
Total from 50 ft (auxiliary brake) (6) (ft)	4620	4620	4600	4630	4610	4600

<p>N (1) Take-off power</p> <p>O (2) Military power</p> <p>T (3) Normal power</p> <p>E (4) Detailed descriptions of RADIUS and RANGE missions given on page 6</p> <p>S</p>	<p>(5) Limited by structure</p> <p>(6) With drag chute</p> <p>(7) Does not include 10,000 lb of water</p> <p>(8) Initial buffet, flaps down, S. L.</p>	<p>(9) AGM-28's at take-off power</p> <p>(10) AGM-28's at maximum continuous power</p> <p>(11) 4 ADM-20's 4840 lb Droppable racks 590 lb 2 AGM-28's 18,886 Total 24,316 lb</p>	<p>PERFORMANCE BASIS:</p> <p>(a) Data source: Flight test</p> <p>(b) Performance is based on powers shown on page 3</p>
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N O T E SFORMULA: BOMBER RADIUS MISSIONS I, II, III & V

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. Range free allowances include 5 minutes normal power fuel consumption for starting engines and takeoff, 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 speed*, increasing altitude with decreasing weight until all fuel is consumed; external tanks are dropped when empty. Range free allowances include 5 minutes normal-power fuel consumption for starting engines and takeoff and 30 minutes of maximum endurance (four engines) fuel consumption at sea level plus 5% of initial fuel for landing reserve.

FORMULA: BOMBER RADIUS MISSION VI

Take off and climb on course to optimum cruise altitude at normal power (AGM-28's at maximum continuous power). Cruise out at long range speed*, increasing altitude with decreasing weight. Release AGM-28's and ADM-20's at their respective ranges from target. 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. Range free allowances include 5 minutes normal power fuel consumption for starting engines and takeoff, 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.

*Long range speed is maximum speed for 99% maximum miles per pound of fuel.

GENERAL DATA:

(a) The prescribed fuel reserve for the basic mission is equivalent to the following reserve range at best range conditions:

B-52F Bomber 810 nautical miles

(b) Data based on engine surge bleed valves with T.O. 2JA6-3-7-506 incorporated. For airplanes which do not have this T.O. incorporated, reduce mission radius and range numbers by 2%.

(c) The following electronic equipment is supplemental to that shown under "Electronics" on page 3.

Glide Path Receiver (1)	AN/ARN-31
Marker Beacon (1)	AN/ARN-32
Early Warning (1)	AN/APS-54
Chaff Dispenser (2)	AN/ALE-1 or AN/ALE-27
Direction Finder	AN/ARA-25
Liaison Radio	AN/ARC-65
ECM Trans (2)	AN/ALT-15H
ECM Trans (1)	AN/ALT-15L
ECM Trans (1)	AN/ALT-16
ECM Receiver (2)	AN/ALR-18
Automatic Astro Compass	MD-1
TRUE Heading Group	N1-AJA-1
Doppler RADAR	AN/APN-89A
TACAN	AN/ARN-21
Radar Altimeter	AN/APN-150

PERFORMANCE REFERENCE:

Boeing Document D2-1551, "Substantiating Data Report - Models B-52F (J57-P-43WA engines), Standard Aircraft Characteristics Charts," revised Feb 65.

REVISION BASIS: Torelect current characteristics and performance data. Data reCOORDINATED by OCAMA. (MMEAF)

(June 68)

MUNITIONS			
TYPE	NR. LOADED	RACK CONFIGURATION	CLASS/ACTUAL WEIGHT (LBS)
CLUSTER RACKS			
M35 Cluster	27		750/690
M36 Cluster	27		750/900
M59 Semi-Armor-Piercing	27		1,000/1,140
M65 GP - Box Fin	15		1,000/1,104
M65 GP - Conical Fin	15		1,000/1,205
MK82 GP	27		500/531
M117 GP ⑤	27		750/823
M120A1 Photoflash	-		150/168
M124 Practice	27		250/264
M129/M129E1	27		750 1
MK36 Mine ③	18		1,000/1,110
MK50 Mine (unfined) ② ③	27		500/544
MK52 Mine ② ③	18		1,000/1,190
MK53 Mine ③	27		500/378
EXTERNAL MER			
CBU-24B/B Cluster ④	24		750/830
MK81 GP	24		250/260
MK82 GP	24		500/531
MK82 Snakeye (high drag)	24		500/560
GP ③			
M117 GP ⑤	24		750/823
M117R (high drag) GP ③	24		750/880
M129E1 Leaflet	24		750 1
SUU-24/A DISPENSER			
ADU-253 Cluster Bomb Adapter	72	1 SUU-24/A	136
ADU-253 Cluster Bomb Adapter	144	2 SUU-24/A	136
ADU-256 Cluster Bomb Adapter	72	1 SUU-24/A	168
ADU-256 Cluster Bomb Adapter	144	2 SUU-24/A	168
ADU-272 Cluster Bomb Adapter	72	1 SUU-24/A	185
ADU-272 Cluster Bomb Adapter	144	2 SUU-24/A	185
BLU-29/B Fire	48	1 SUU-24/A	165
BLU-29/B Fire	96	2 SUU-24/A	165

(Continued on page 8)

MUNITIONS (CONTD)

TYPE	NR. LOADED	RACK CONFIGURATION	CLASS/ACTUAL WEIGHT (LBS)
	CLIP-IN (TWO)		
MK84 GP Bomb	8	All Stations	2,000/1,970
MK25 Mine	8	All Stations	2,000/2,013
MK39 Mine	8	All Stations	2,000/2,025
MK55 Mine	8	All Stations	2,000/2,120
MK56 Mine	4	Lower Stations	2,000/2,055

- ① Weights will depend on filler material used.
- ② Low altitude only (400 - 3,000 feet above surface).
- ③ Rapid release not authorized.
- ④ High altitude only (20,000 feet or above).
- ⑤ M131 or MAU-103A/B fin.