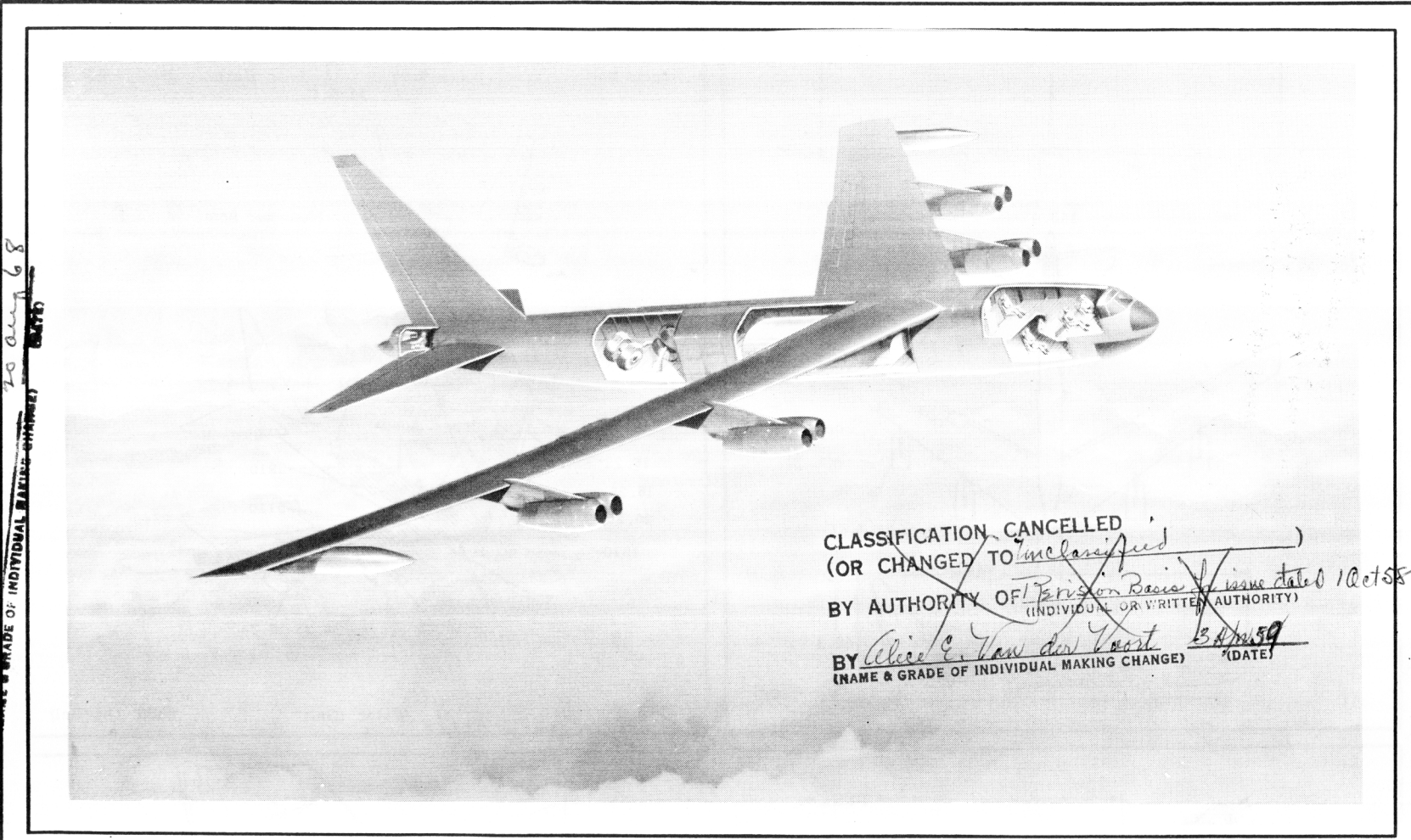


~~CONFIDENTIAL~~  
CONFIDENTIAL

*unclassified*

A-1  
B-52B/chan  
SERVICE

CLASSIFICATION CANCELLED  
(OR CHANGED TO *unclassified*)  
BY AUTHORITY OF *DoD Dir 5200.10*  
(INDIVIDUAL OR WRITTEN AUTHORITY)  
BY *DoD Dir 5200.10*  
(NAME & GRADE OF INDIVIDUAL MAKING CHANGE)  
BY *13 Nov 69*  
(DATE)



CLASSIFICATION CANCELLED  
(OR CHANGED TO *unclassified*)  
BY AUTHORITY OF *Perison Basio*  
(INDIVIDUAL OR WRITTEN AUTHORITY) *issue dated 1 Oct 58*  
BY *Alice E. Van der Voort*  
(NAME & GRADE OF INDIVIDUAL MAKING CHANGE) *3 Apr 59*  
(DATE)

# Standard Aircraft Characteristics

BY AUTHORITY OF  
THE SECRETARY  
OF THE AIR FORCE

## B-52B

EIGHT J57 - P - IWA

### STRATOFORTRESS

PRATT & WHITNEY

Boeing

20 AUG 57

~~CONFIDENTIAL~~

B-52B  
(-IWA ENGINES)

*Form to reflect change  
in security classification  
1 Oct 58*  
*5th ed  
Addn #1*



### POWER PLANT

Nr & Model . . . . . (8) J57-P-1WA  
 Mfr . . . . . Pratt & Whitney  
 Engine Spec Nr . . . . . A-1638D  
 Type . . . . . Axial  
 Length . . . . . 157.7"  
 Diameter . . . . . 40.5"  
 Weight (dry) . . . . . 4210 lb  
 Tail Pipe . . . . . Fixed Area  
 Augmentation . . . . . Water

Note: At present there are no requirements for ATO

### ENGINE RATINGS

LB - \*\*RPM - MIN

Max: \*11,400 - 6450/9900 - 5  
 Mil: 9500 - 6030/9800 - 30  
 Nor: 8250 - 5770/9550 - 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°54'  
 Length . . . . . 156.6'  
 Height . . . . . 48.3'  
 Height (fin folded) . . . . . 20.8'  
 Tread - (outrigger) . . . . . 148.4'  
 (main gear) . . . . . 11.4'

## Mission and Description

Navy Equivalent: None Mfr's Model: 464-201-3

The principal mission of the B-52B 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.

Air is bled off the engines for thermal anti-icing of the wings 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 cross wing take-off and landing.

The B-52B has the reconnaissance capsule conversion provision.

Characteristics and performance are shown on B-52B's contained within A.F. Serial Nos. 52-004 thru 53-376 with the -1WA engines, B-52B's Serial Nos. 53-377 thru 53-398 have the -19W, 29W or -29WA engines.

## Development

Design Initiated: . . . . . Feb 51  
 First Flight: . . . . . Dec 54  
 First Delivery to SAC . . . . . Oct 55

### WEIGHTS

Loading	Lb	L. F.
Empty . . . . .	164,081(c)	
Basic . . . . .	167,210(c)	
Design . . . . .	†430,000	2.0
Combat . . . . .	*272,000	2.5
Max T. O. . . . .	**420,000	2.0
Max In-Flt . . . . .	†415,000	2.0
Max Land. . . . .	270,000	

(c) Calculated  
 \* For Basic Mission  
 \*\* Excludes 3000 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	2000
	Total	37,550
Grade . . . . .		JP-4
Specification . . . . .		MIL-F-5624

**OIL**

Nacelle . . . . . 8 . . . . . (tot) 130  
 Specification . . . . . MIL-L-7808A

**WATER**

Fus, aft . . . . . 1 . . . . . 360  
 \* Self-sealing

### B O M B S

Nr	New Series	Class (lb)
27 (Family of Clusters) . . . . .		1000
	Special Weapons	
1 . . . . .		MK-6
2 . . . . .		MK-21
Max Bomb Load (1) . . . . .		43,000 lb

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

### G U N S

Nr	Type	Size	Rds ea	Location
4 . . . . .	M-3	50	600	Tail, tur
				or
4 . . . . .	M24A1	20mm	400	Tail, tur

### C A M E R A S

Nr	Type	Lens
1 . . . . .	K-38	36"
	or	
1 . . . . .	K-17C	6"
	or	
1 . . . . .	K-22	6"
1 . . . . .	*O-15A	Radar recording

\* No fixed station

### ELECTRONICS

UHF Command . . . . . AN/ARC-34  
 Liaison . . . . . AN/ARC-21X  
 IFF . . . . . AN/APX-25  
 Radar Beacon . . . . . AN/APN-76A  
 ECM Trans (2) . . . . . AN/APT-8  
 ECM Trans (1) . . . . . AN/APT-9  
 ECM Trans (2) . . . . . AN/ALT-7  
 ECM Recv'r (1) . . . . . AN/APR-14  
 Interphone . . . . . AN/AIC-10  
 Bombing Sys . . . . . K-3A  
 Nav. Recv'r . . . . . AN/ARN-14  
 Fire Control Sys . . . . . A-3A or MD-5  
 ECM Recv'r (1) . . . . . AN/APR-9

See page 6 for additional equip.

# Loading and Performance - Typical Mission

C O N D I T I O N S	BASIC MISSION	DESIGN LOAD	MAX BOMB LOAD	FERRY RANGE
	I	II	III	IV
TAKE-OFF WEIGHT (7) (lb)	420,000	420,000	420,000	414,810 (8)
Fuel at 6.5 lb/gal (grade JP-4)	239,265 (lb)	240,665 (lb)	205,440	244,075
Payload (Bombs)	10,000 (lb)	8600	43,000	None
Wing loading (lb/sq ft)	103.8	103.8	103.8	103.7
Stall speed (power off) (9) (10) (kn)	141	141	141	141
Take-off ground run at SL (1) (ft)	7450	7450	7450	7200
Take-off to clear 50 ft (1) (ft)	9650	9650	9650	9400
Rate of climb at SL (3) (10) (fpm)	2110	2110	2110	2120
Rate of climb at SL (one engine out) (2) (10) (fpm)	2300	2300	2300	2300
Time: SL to 20,000 ft (3) (min)	11.4	11.4	11.4	11.2
Time: SL to 30,000 ft (3) (min)	20.0	20.0	20.0	19.6
Service ceiling (100 fpm) (3) (10) (ft)	38,350	38,350	38,350	38,400
Service ceiling (one engine out) (2) (10) (ft)	37,750	37,750	37,750	37,800
COMBAT RANGE (4) (n. mi)	---	---	---	6460
COMBAT RADIUS (4) (n. mi)	3110	3135	2620	---
Average cruise speed (kn)	453	453	453	453
Initial cruising altitude (ft)	35,000	35,000	35,000	35,300
Target speed (3) (kn)	476	476	476	---
Target altitude (ft)	45,100	45,150	44,000	---
Final cruising altitude (ft)	51,000	51,000	51,100	51,000
Total mission time (hr)	13.82	13.91	11.64	14.31
COMBAT WEIGHT (lb)	272,000	272,800	255,000	186,400
Combat altitude (ft)	45,100	45,150	43,950	51,000
Combat speed (2) (kn)	494	494	505	504
Combat climb (2) (fpm)	760	740	1150	1088
Combat ceiling (500 fpm) (2) (ft)	46,550	46,500	47,900	54,500
Service ceiling (100 fpm) (3) (ft)	47,300	47,250	48,650	55,350
Service ceiling (one engine out) (3) (ft)	45,300	45,200	46,650	53,210
Max rate of climb at SL (2) (fpm)	4760	4750	5090	7110
Max speed at optimum alt (2) (5) (kn/ft)	546/19,800	546/19,800	546/19,800	547/19,900
Basic speed at 35,000 ft (2) (kn)	518	518	520	522
LANDING WEIGHT (lb)	186,200	186,300	185,300	186,400
Ground roll at SL (ft)	2250	2250	2210	2250
Ground roll (auxiliary brake) (6) (ft)	2020	2020	2000	2020
Total from 50 ft (ft)	3890	3890	3870	3890
Total from 50 ft (auxiliary brake) (6) (ft)	3680	3680	3650	3680

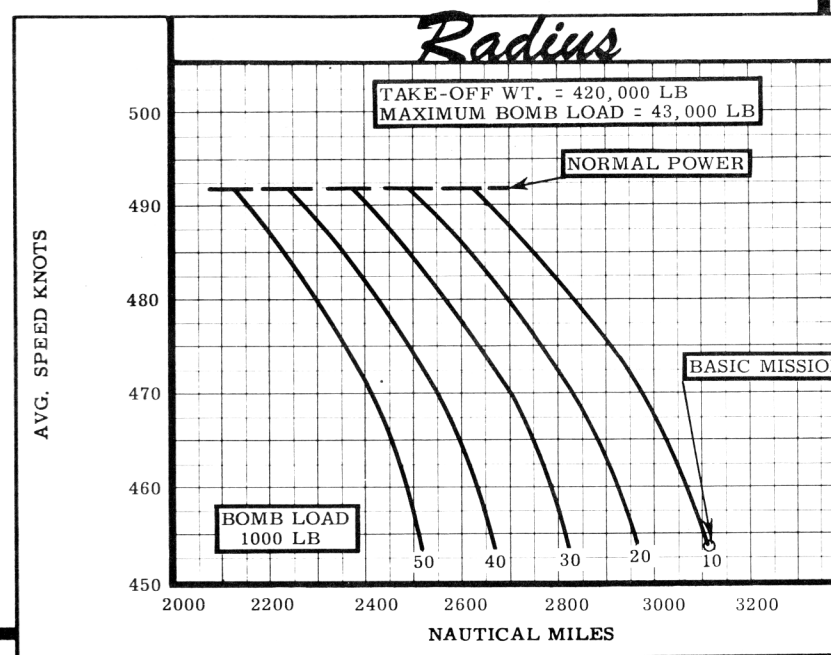
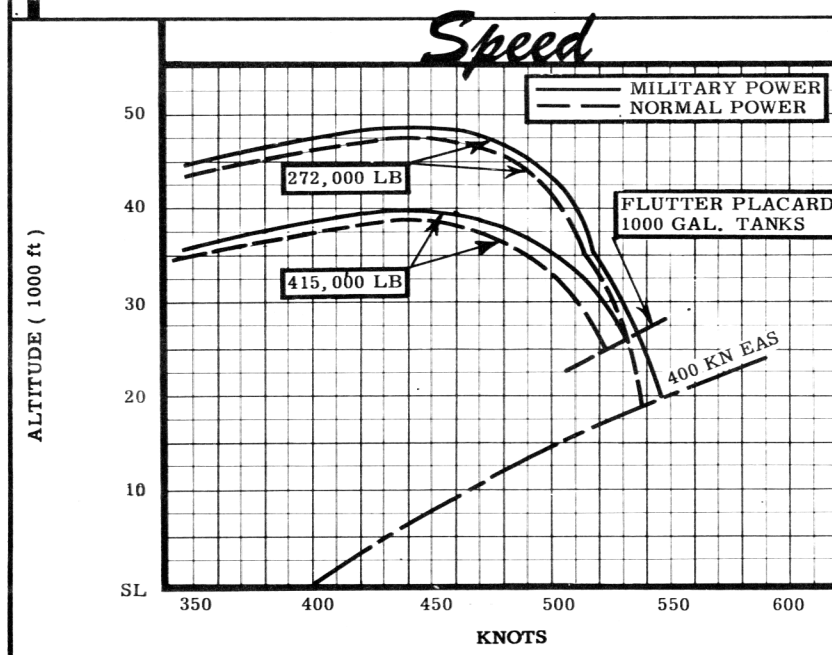
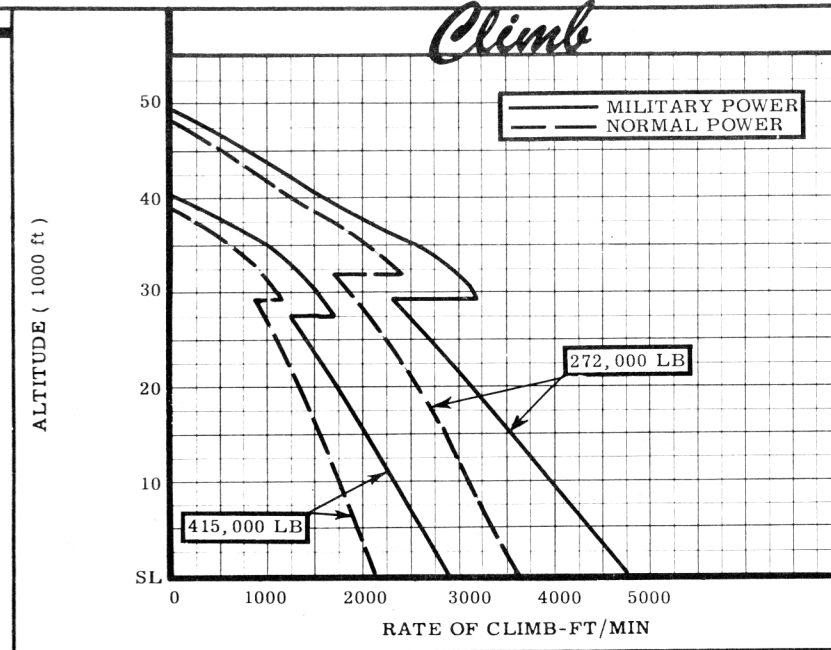
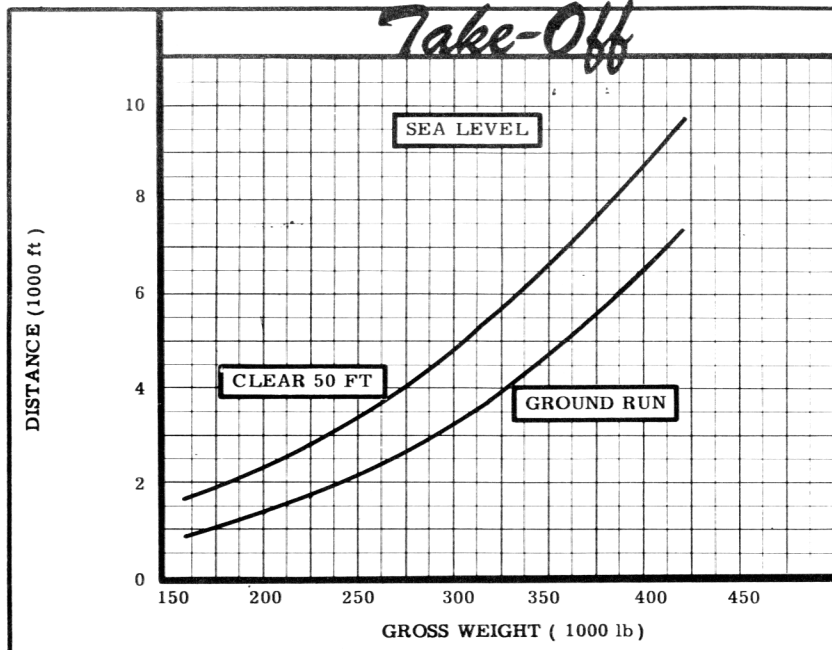
NOTES

- ① Take-off power
- 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 3000 lb water
- ⑧ Limited by fuel capacity
- ⑨ Initial buffet, flaps down, SL
- ⑩ In flight weight limited by structure to 415,000 lb.

**PERFORMANCE BASIS:**

- (a) Data source: Flight tests of B-52A
- (b) Performance is based on powers shown on page 3.



**N O T E S**

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Ohio 45433

FORMULA: 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 altitudes with decreasing weight; external tanks are dropped when empty. Climb so as to reach cruise ceiling 15 minutes from target. Run in to target at normal power, drop bombs, conduct 2 minutes evasive action and 8 minutes escape at normal power. Cruise back to base at long range speed and optimum altitudes; as an alternate, a 45,000 foot ceiling may be maintained on the return leg with no radius penalty. Range-free allowances are fuel for 5 minutes at normal power for take-off allowance, fuel for 2 minutes at normal power for evasive action, and fuel for 30 minutes maximum endurance at sea level plus 5% of the initial fuel load for landing reserve.

FORMULA: 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; external tanks are dropped when empty. Land at remote base with only reserve fuel remaining. Range-free allowances are fuel for 5 minutes at normal power for take-off allowances and fuel for 30 minutes maximum endurance at sea level plus 5% of the initial fuel load for landing reserve.

GENERAL DATA:

- (a) The landing reserve for the Basic Mission is equivalent to 758 nautical miles range at optimum speed and altitude.
- (b) In-flight weight of 415,000 lb is pending approval by WADC
- (c) The following electronic equipment is supplemental to that shown under "Electronics" on 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

PERFORMANCE REFERENCE:

Boeing document D-13950-B, "Substantiation Data Report - Models B-52A and B-52B Standard Aircraft Characteristics Charts", dated 24 January 1956.

REVISION BASIS:

To reflect modification to Bomb Block page 3.