Standard Aircraft Characteristics

RB-52B

STRATOFORTRESS

Boeing

EIGHT J57-P-1W

PRATT & WHITNEY

RB-52B
**POWER PLANT**

No. & Model: ... (8) J57-P-1W  
Mfr: Pratt & Whitney  
Engine Spec No: A-1638  
Type: Axial  
Length: 163.0"  
Diameter: 41.0"  
Weight (dry): 4065 lb  
Tail Pipe: Fixed Area  
Augmentation: Water  
ATO  
No. & Model: ... (4) 45K8500  
Mfr: Aerojet  
Type: Solid  

**ENGINE RATINGS**

S.L.S.  
LB - **HPM - MIN  
Max: +1,100-6300/9950-5  
Mil: 9500-5950  
Nor: 8250-5700  
* Wet  
** First figure represents low pressure spool; second figure represents high pressure spool.  
ATO  
Thrust: (4) x 5000  
Duration (sec): 45  

**DIMENSIONS**

Wing  
Span: 185.0"  
Incidence (root): 6°  
Dihedral (chord plane): 2°30'  
Sweepback (LE): 36°54'  
Length: 196.3'  
Height: 48.3'  
Tread - (outtrigger) 148.4'  
(main gear) 11.4'  

**BOMBS**

No. Type Class (lb)  
24 ... (M-126 Flash Bombs) 165  

**CAMERAS**

No. Type Lons  
4 Multi Camera Station  
1 K-38 36"  
1 K-37 12"  
3 T-11 6"  
1 K-37 (Vertical) 12"  
1 K-36 24"  
1 O-15  Radar recording  

**GUNS**

No. Type Size Rds ea Location  
4 ... M-3, 50 ... 600, Tail, Tur  

**WEIGHTS**

Loading: Lb  
Empty: 147,424  
Basic: 189,234  
Design: 390,000  
Combat: 264,610  
Max T.O. 290,000  
Max Land: 270,000  
(C) Calculated  
* For Basic Mission  
** Limited by structure; w/o ATO  

**FUEL**

Location No. Tanks Gal  
Wg. outbd 2 4500  
Wg. cirt 1 5000  
Wg. inbd** 4 10,100  
Fus. fwd* 2 4260  
Fus. cirt** 1 5000  
Fus. aft* 1 3000  
Wg. drop 2 2000  
Total 37,355  
Grade JP-4  
Specification MIL-F-5624  
OIL  
Nacelle 4 104  
Grade synthetic  
Specification MIL-L-7868  
WATER  
Fus. aft 1 530  
* Self-Sealing  

**ELECTRONICS**

UHF Command AN/ARC-27  
IFP AN/AR-6  
Marker Beacon AN/APN-76A  
Interphone AN/AIC-10  
Dir. Finder AN/APA-17B  
Bomb-Nav. System AN/K-3A  
Fire Control AN/A-3A  
Radio Recv's (3) AN/APR-9  
Panoramic Recv's (3) AN/ARR-8A  
ECM (2) AN/APT-6  
ECM (2) AN/APT-9  
ECM (3) AN/APR-14  
ECM (1) AN/APT-16  

**MISSION AND DESCRIPTION**

Navy Equivalent: None  
Mfr's Model: 464-201-1  
The principal mission of the RB-52B is day and night photo, weather and electronic reconnaissance.  
The normal crew of eight consists of pilot, co-pilot, (2) bombardier-navigators, tail gunner, ECM operator, and (2) reconnaissance electronic operators.  
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 boards out after jettisoning the tail section containing the gun turret.  
Flight control, throughout the speed range from limit dive and speed to landing speed, is accomplished by use of spoilers, ailerons, flaperons on the wing, elevators on 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 to de-ice the wings and tail surface leading edges.  
Other features are, single-point ground and in-flight refueling, braking parachute for decreasing landing roll distance, and a steerable landing gear to aid in crosswind takeoff and landing.  
Solid fuel rockets for assist takeoff are installed on each side of the aft fuselage.  
The RB-52B becomes a (Bomber version) when the capsule containing photographic, weather and electronic equipment is removed from the bomb bay.  

**DEVELOPMENT**

Design Initiated: Apr 52  
First Flight: (est) Dec 54  
First Acceptance: (est) Dec 54  

* OCT 53
<table>
<thead>
<tr>
<th>Conditions</th>
<th>Basic Mission Night</th>
<th>Basic Mission Day</th>
<th>Ferry Range Night</th>
</tr>
</thead>
<tbody>
<tr>
<td>Take-off weight</td>
<td>390,000 lb</td>
<td>390,000 lb</td>
<td>390,000 lb</td>
</tr>
<tr>
<td>Fuel at 6.5 lb/gal</td>
<td>211,486 lb</td>
<td>215,006 lb</td>
<td>215,186 lb</td>
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<tr>
<td>Payload (Flash Bombs)</td>
<td>3700 lb</td>
<td>NONE</td>
<td>NONE</td>
</tr>
<tr>
<td>Wing loading (lb/ft²)</td>
<td>97.5</td>
<td>97.5</td>
<td>97.5</td>
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<tr>
<td>Stall speed (power off)</td>
<td>127</td>
<td>127</td>
<td>127</td>
</tr>
<tr>
<td>Take-off ground run at SL</td>
<td>6040 ft</td>
<td>6040 ft</td>
<td>6040 ft</td>
</tr>
<tr>
<td>Take-off to clear 50 ft</td>
<td>4600 ft</td>
<td>4600 ft</td>
<td>4600 ft</td>
</tr>
<tr>
<td>Take-off to clear 50 ft with ATO</td>
<td>6100 ft</td>
<td>6100 ft</td>
<td>6100 ft</td>
</tr>
<tr>
<td>Rate of climb at SL</td>
<td>2320 ft</td>
<td>2320 ft</td>
<td>2320 ft</td>
</tr>
<tr>
<td>Rate of climb at SL (one engine out)</td>
<td>2490 ft</td>
<td>2490 ft</td>
<td>2490 ft</td>
</tr>
<tr>
<td>Time: SL to 20,000 ft</td>
<td>16.9</td>
<td>16.9</td>
<td>16.9</td>
</tr>
<tr>
<td>Time: SL to 30,000 ft</td>
<td>39,900 ft</td>
<td>39,900 ft</td>
<td>39,900 ft</td>
</tr>
<tr>
<td>Combat Range</td>
<td>3095 ft</td>
<td>3150 ft</td>
<td>6235 ft</td>
</tr>
<tr>
<td>Combat Radius</td>
<td>457</td>
<td>457</td>
<td>457</td>
</tr>
<tr>
<td>Average cruise speed</td>
<td>37,400 ft</td>
<td>37,400 ft</td>
<td>37,400 ft</td>
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<tr>
<td>Initial cruising altitude</td>
<td>476 ft</td>
<td>476</td>
<td></td>
</tr>
<tr>
<td>Target speed</td>
<td>48,450 ft</td>
<td>48,600 ft</td>
<td>51,500 ft</td>
</tr>
<tr>
<td>Final cruising altitude</td>
<td>52,050 ft</td>
<td>52,000 ft</td>
<td>51,500 ft</td>
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<tr>
<td>Total mission time</td>
<td>13.58</td>
<td>13.82</td>
<td>13.70</td>
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<th>Ferry Range Night</th>
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<tbody>
<tr>
<td>Combat weight</td>
<td>264,610 lb</td>
<td>266,700 lb</td>
<td>189,985 lb</td>
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<tr>
<td>Combat altitude</td>
<td>46,450 ft</td>
<td>46,600 ft</td>
<td>51,500 ft</td>
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<tr>
<td>Combat speed</td>
<td>492</td>
<td>492</td>
<td>497</td>
</tr>
<tr>
<td>Combat climb</td>
<td>600</td>
<td>600</td>
<td>850</td>
</tr>
<tr>
<td>Combat ceiling (500 fps)</td>
<td>47,050 ft</td>
<td>48,900 ft</td>
<td>54,100 ft</td>
</tr>
<tr>
<td>Service ceiling (100 fps)</td>
<td>48,600 ft</td>
<td>48,600 ft</td>
<td>55,500 ft</td>
</tr>
<tr>
<td>Service ceiling (one engine out)</td>
<td>46,450 ft</td>
<td>46,250 ft</td>
<td>53,460 ft</td>
</tr>
<tr>
<td>Max rate of climb at SL</td>
<td>4780 ft</td>
<td>4750 ft</td>
<td>8700 ft</td>
</tr>
<tr>
<td>Max speed at Opt. Alt.</td>
<td>542/19,500 ft</td>
<td>542/19,500 ft</td>
<td>542/19,500 ft</td>
</tr>
<tr>
<td>Basic speed at 35,000 ft</td>
<td>517 ft</td>
<td>517</td>
<td>520</td>
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<tr>
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<th>Basic Mission Night</th>
<th>Basic Mission Day</th>
<th>Ferry Range Night</th>
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</thead>
<tbody>
<tr>
<td>Landing weight</td>
<td>188,510 lb</td>
<td>188,865 lb</td>
<td>189,995 lb</td>
</tr>
<tr>
<td>Ground roll at SL</td>
<td>1970 ft</td>
<td>1970 ft</td>
<td>1980 ft</td>
</tr>
<tr>
<td>Ground roll (auxiliary brake)</td>
<td>3120 ft</td>
<td>3120 ft</td>
<td>3130 ft</td>
</tr>
<tr>
<td>Total from 50 ft</td>
<td>4350 ft</td>
<td>4350 ft</td>
<td>4360 ft</td>
</tr>
<tr>
<td>Total from 50 ft (auxiliary brake)</td>
<td>3220 ft</td>
<td>3220 ft</td>
<td>5230 ft</td>
</tr>
</tbody>
</table>

Notes:
1. Take-off power
2. Max power
3. Normal power
4. Detailed descriptions of RADIUS and RANGE missions are given on page 6.
5. With 20,000 lb, thrust ATO for 45 sec
7. With drag chute.
8. External tanks carried all the way.
9. Does not include weight of ATO.

Performance Basis:
(a) Data source: Preliminary flight test
(b) Performance is based on powers shown on page 3.
FORMULA: RANGE MISSION I and II

Take-off and climb on course to optimum cruise altitude at normal power. Cruise out at long range speeds increasing altitude with decreasing airplane weight, external tanks are dropped when empty. Climb so as to reach cruise ceiling fifteen (15) minutes from target. Run into target at normal power, drop flash bombs if carried, conduct two (2) minutes evasive action and eight (8) minutes escape from target at normal power. Cruise back to home base at long range speeds increasing altitude with decreasing airplane weight. Range free allowances include five (5) minutes normal power fuel consumption for starting engines and take-off, two (2) minutes normal power fuel consumption at combat altitude for evasive action and thirty (30) minutes of maximum endurance (four engine) fuel consumption at sea level plus 5% of initial fuel load for landing reserve.

FORMULA: RANGE MISSION III

Take-off and climb on course to optimum cruise altitude at normal power. Cruise out at long range speeds increasing altitude with decreasing airplane weight until all usable fuel is consumed. Range free allowances include five (5) minutes normal power fuel consumption for starting engines and take-off and thirty (30) minutes of maximum endurance (four engine) fuel consumption at sea level plus 5% of initial fuel load for landing reserve.

GENERAL DATA

(a) The prescribed fuel reserve for basic mission is equivalent to 780 nautical miles at best range conditions.


REVISION BASIS:

To reflect changes in security classification.