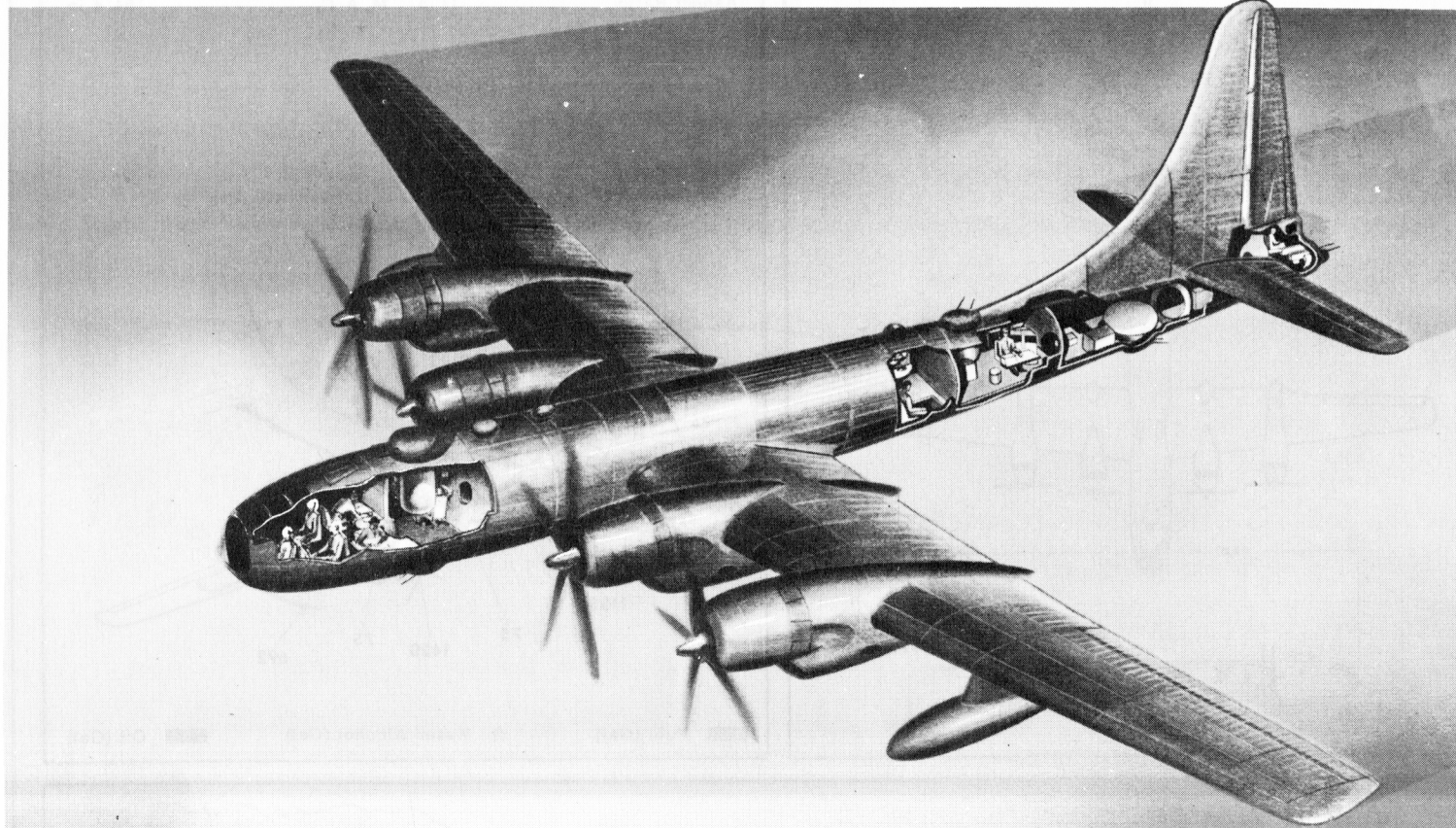


U N C L A S S I F I E D

A-1  
B-50A/kay  
SERVICE



## *Standard Aircraft Characteristics*

BY AUTHORITY OF  
THE SECRETARY  
OF THE AIR FORCE

**B-50A**  
**SUPERFORTRESS**  
Boeing

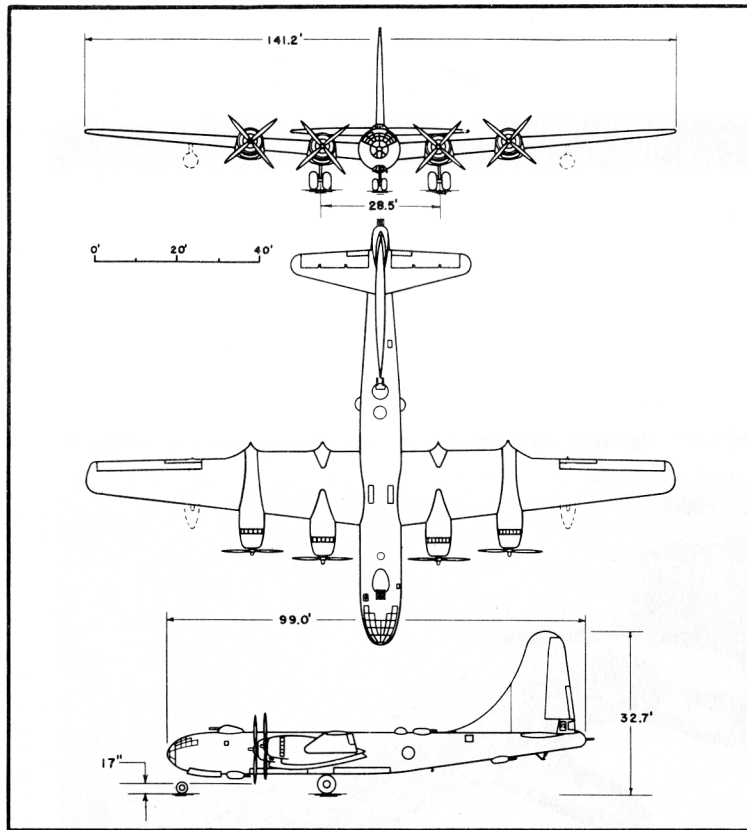
FOUR R-4360-35  
PRATT & WHITNEY

11 JULY 1952

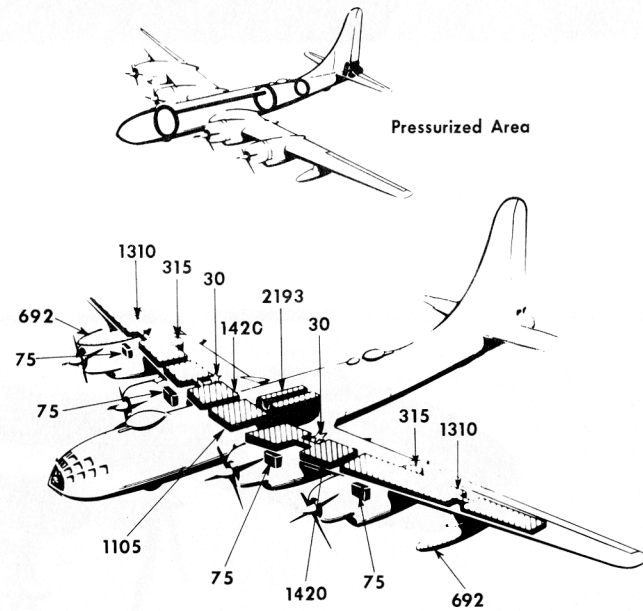
U N C L A S S I F I E D

B-50A

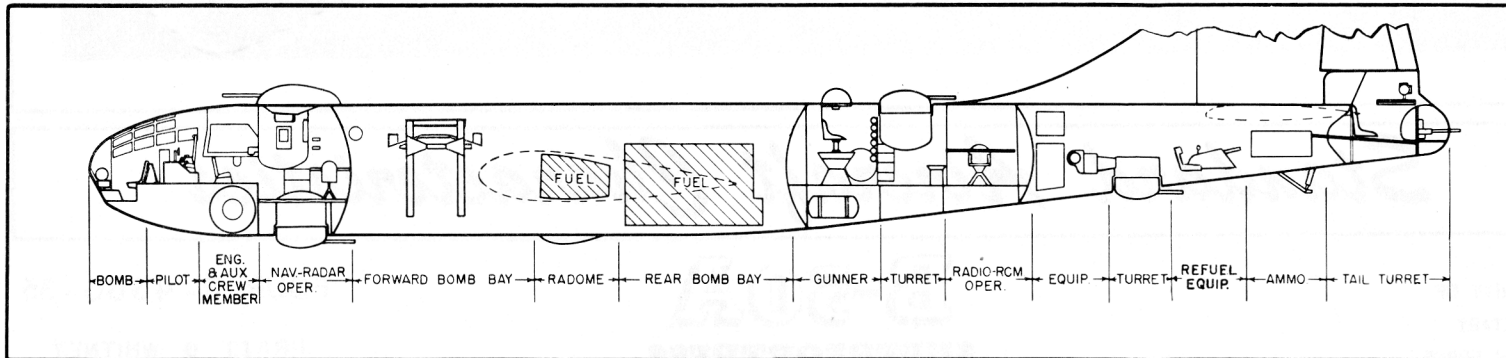
SERVICE



Wing Area ..... 1720 sq ft    Wing Section ..... Boeing 117  
 Aspect Ratio ..... 11.5    M. A. C. .... 154.4 in



▨ Fuel (Gal)    ☆ Water Alcohol (Gal)    ■ Oil (Gal)



B-50A

**POWER PLANT**

No. & Model . . . . . (4) R-4360-35  
 Mfr . . . . . Pratt & Whitney  
 Engine Spec No . . . . . A-7051-F  
 Superch . . . . . 1 stg, 1 spd  
 Turbo Superch . . . . . (1) CH-7-B1  
 Turbo Mfr . . . . . General Electric  
 Red. Gear Ratio . . . . . 0.375  
 Prop. Mfr . . . . . Curtiss  
 Blade Design No. . . (see page 6, note)  
 Prop. Type . . . . . CS, FF, Reverse  
 No. Blades . . . . . 4  
 Prop Dia . . . . . 16"-8"  
 Augmentation . . . . . Water/Alcohol

**ENGINE RATINGS**

BHP - RPM - ALT - MIN

T. O: \*3500 - 2700 - S. L. - 5  
 3250 - 2700 - S. L. - 5  
 Mil: \*3500 - 2700 - Turbo - 30  
 3250 - 2700 - Turbo - 30  
 Nor: 2650 - 2550 - Turbo-Cont.

\*Wet

**DIMENSIONS**

Wing  
 Span . . . . . 141.2'  
 Incidence(root) . . . . . 4°  
 Dihedral . . . . . 4°29'  
 Sweepback(LE) . . . . . 7°01'  
 Length . . . . . 99.0'  
 Height . . . . . 32.7'  
 Height(fin folded) . . . . . 20.6'  
 Tread . . . . . 28.5'  
 Prop. Grd Clearance . . . . . 17"

*Mission and Description*

Navy Equivalent: None Mfr's Model: 345-2-1

The principal mission of the B-50A is the destruction by bombs of land and naval materiel objectives.

The normal crew consists of the pilot, co-pilot, engineer, navigator-radar operator-bombardier, bombardier-navigator-radar operator, radio-ECM operator, left side gunner, right side gunner, top gunner, tail gunner and extra crew member.

Cabin heating, ventilation and pressurization are incorporated for increased crew comfort on high altitude, long range missions.

The defensive armament consists of thirteen .50 caliber machine guns housed in five electrically-operated turrets which are remotely controlled from the sighting stations.

Some B-50A's are equipped with hose-type in-flight refueling system.

*Development*

First flight: . . . . . Jun 1947  
 First acceptance: . . . . . Oct 1947  
 Production completed: . . . . . Jan 1949

**WEIGHTS**

Loading Lb L. F.  
 Empty . . . . . 81,050(C)  
 Basic . . . . . 85,155(A)  
 Design . . . . . 120,000 . . . . . 2.67  
 Combat . . . . . \*120,500  
 Max T. O  
 (overload) . . . 1168,480  
 Max T. O  
 (normal) . . . . 158,250  
 Max Land . . . . 160,000  
 (C) Calculated  
 (A) Actual  
 \* For Basic Mission  
 † Limited by space  
 ‡ Limited by performance  
 ‡ Limited by structure  
 (See page 6 note a)

**F U E L**

Location No. Tanks Gal.  
 Wgs, outbd\* . . . 2 . . . . . 2620  
 Wgs, inbd\* . . . 2 . . . . . 2840  
 Wg, ctr\* . . . . 1 . . . . . 1105  
 Nac, skate\* . . . 2 . . . . . 630  
 Aft, bomb bay\* . 1 . . . . . 2193  
 Wgs, ext. . . . . 2 . . . . . 1384  
 Total 10,772  
 Grade . . . . . 115/145  
 Specification . . . . . MIL-F-5572

**OIL**

Nacelles . . . . . 4 . . . . . (tot) 300  
 Grade . . . . . W-1100;S-1120  
 Specification . . . . . MIL-0-6082  
 WATER/ALCOHOL  
 Wg, inbd . . . . . 2 . . . . . (tot) 60  
 \* Self-sealing

**B O M B S**

| No. | Lb         | Type  |
|-----|------------|-------|
| 4   | 4000(int.) | G. P. |
| 2   | 4000(ext.) | G. P. |
| 8   | 2000       | G. P. |
| 12  | 1600       | A. P. |
| 12  | 1000       | G. P. |
| 40  | 500        | G. P. |

Max Bomb Load:  
 Internal 20,000 lb  
 External 8,000 lb

**G U N S**

| No. | Size | Rds. ea | Location  |
|-----|------|---------|-----------|
| 4   | 50   | 500     | Up, fwd   |
| 2   | 50   | 500     | Lwr, fwd  |
| 2   | 50   | 500     | Up, aft   |
| 2   | 50   | 500     | Lwr, aft  |
| 2   | 50   | 500     | Tur, tail |
| 1   | 50   | 380     | Tur, tail |

**ELECTRONICS**

VHF Command . . . . . AN/ARC-3  
 Liaison . . . . . AN/ARC-8  
 Interphone . . . . . AN/AIC-2A  
 Range Recvr . . . . . BC-453E  
 Radio Compass . . . . . AN/ARN-7  
 Marker Beacon . . . . . RC-193A  
 IFF . . . . . SCR-695B  
 Localizer . . . . . RC-103A  
 Radar Gun Sight . . . . . AN/APG-15B  
 Auto Bomb . . . . . AN/ARW/-9&-10A  
 Glide Path . . . . . AN/ARN-5A  
 Loran . . . . . AN/APN-9 or -9A  
 Radio Alt . . . . . SCR-718C  
 Radar . . . . . AN/APQ-23A  
 Radar . . . . . AN/APN-68  
 Radio Set . . . . . AN/APN-2B  
 Pulse Doppler . . . . . AN/APA-52  
 ECM (See page 6, note d)

## Loading and Performance—Typical Mission

| C O N D I T I O N S                  |            | BASIC MISSION | MAX BOMB   | HIGH ALTITUDE | NORMAL WEIGHT | FERRY RANGE |
|--------------------------------------|------------|---------------|------------|---------------|---------------|-------------|
|                                      |            | I             | II         | III           | IV            | V           |
| TAKE-OFF WEIGHT                      | (lb)       | 168,480       | 164,212    | 168,480       | 158,250       | 158,480     |
| Fuel at 6.0 lb/gal (grade 115/145)   | (lb)       | 64,632        | 51,474     | 64,632        | 54,400        | 64,632      |
| Payload (Bombs)                      | (lb)       | 10,000        | 20,000     | 10,000        | 10,000        | None        |
| Wing loading                         | (lb/sq ft) | 98.0          | 95.5       | 98.0          | 92.0          | 92.2        |
| Stall speed (power off)              | (kn)       | 118           | 116        | 118           | 114           | 114         |
| Take-off ground run at SL            | ① (ft)     | 5940          | 5496       | 5940          | 4960          | 4960        |
| Take-off to clear 50 ft              | ① (ft)     | 7425          | 6870       | 7425          | 6200          | 6200        |
| Rate of climb at SL                  | ③ (fpm)    | 675           | 730        | 675           | 820           | 815         |
| Rate of climb at SL (one engine out) | ② (fpm)    | 520           | 590        | 520           | 665           | 655         |
| Time: SL to 10,000 ft                | ③ (min)    | 16.0          | 14.0       | 16.0          | 13.0          | 13.0        |
| Time: SL to 20,000 ft                | ③ (min)    | 38.0          | 33.0       | 38.0          | 30.0          | 30.0        |
| Service ceiling (100 fpm)            | ③ (ft)     | 26,550        | 28,250     | 26,550        | 30,200        | 30,150      |
| Service ceiling (one engine out)     | ② (ft)     | ⑤             | ⑤          | ⑤             | ⑤             | ⑤           |
| COMBAT RANGE                         | ④ (n. mi.) | —             | —          | —             | —             | 4545        |
| COMBAT RADIUS                        | ④ (n. mi.) | 1905          | 1474       | 1675          | 1600          | —           |
| Average speed                        | (kn)       | 212           | 215        | 262           | 212           | 187         |
| Initial cruising altitude            | (ft)       | 5000          | 5000       | 25,000        | 5000          | 5000        |
| Target speed                         | (kn)       | 318           | 316        | 320           | 326           | —           |
| Target altitude                      | (ft)       | 30,000        | 30,000     | 30,000        | 30,000        | —           |
| Final cruising altitude              | (ft)       | 10,000        | 10,000     | 30,000        | 10,000        | 5000        |
| Total mission time                   | (hr)       | 17.70         | 13.50      | 12.86         | 14.88         | 23.96       |
| COMBAT WEIGHT                        | (lb)       | 120,500       | 113,412    | 118,480       | 116,300       | 97,884      |
| Combat altitude                      | (ft)       | 30,000        | 30,000     | 30,000        | 30,000        | 5000        |
| Combat speed                         | ② (kn)     | 344           | 348        | 345           | 347           | 288         |
| Combat climb                         | ② (fpm)    | 1520          | 1720       | 1580          | 1640          | 2960        |
| Combat ceiling (500 fpm)             | ② (ft)     | 36,000        | 36,800     | 36,200        | 36,500        | 38,800      |
| Service ceiling (100 fpm)            | ③ (ft)     | 37,300        | 38,550     | 37,700        | 38,050        | 40,550      |
| Service ceiling (one engine out)     | ③ (ft)     | 31,700        | 35,100     | 32,400        | 33,800        | —           |
| Max rate of climb at SL              | ② (fpm)    | 2260          | 2455       | 2305          | 2370          | 2975        |
| Max speed at optimum altitude        | ② (kn/ft)  | 344/30,000    | 348/30,000 | 345/30,000    | 347/30,000    | 352/30,000  |
| Basic speed at 25,000 ft             | (kn)       | 337           | 338        | 336           | 338           | 341         |
| LANDING WEIGHT                       | (lb)       | 97,884        | 96,102     | 97,884        | 97,315        | 97,884      |
| Ground roll at SL                    | (ft)       | 1715          | 1670       | 1715          | 1705          | 1715        |
| Total from 50 ft                     | (ft)       | 3100          | 3050       | 3100          | 3085          | 3100        |

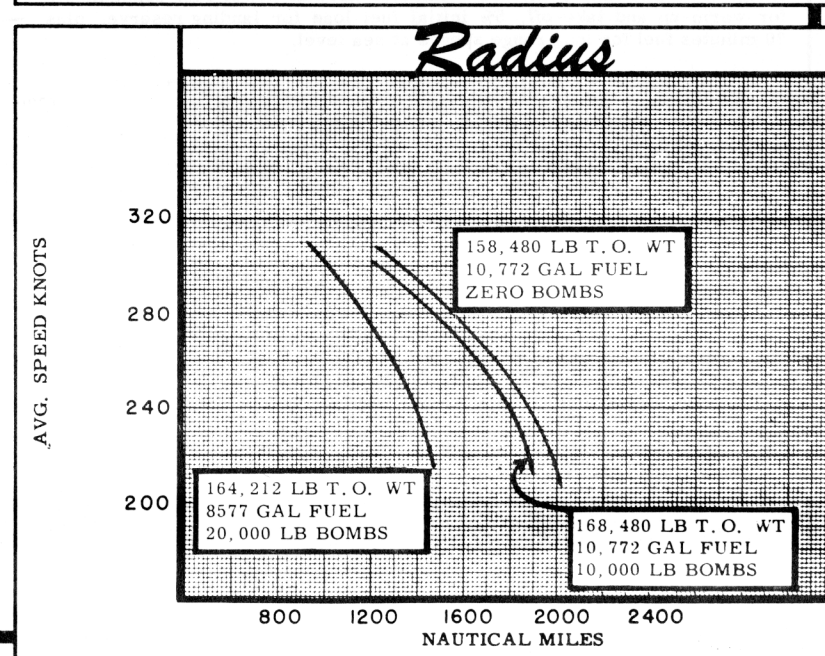
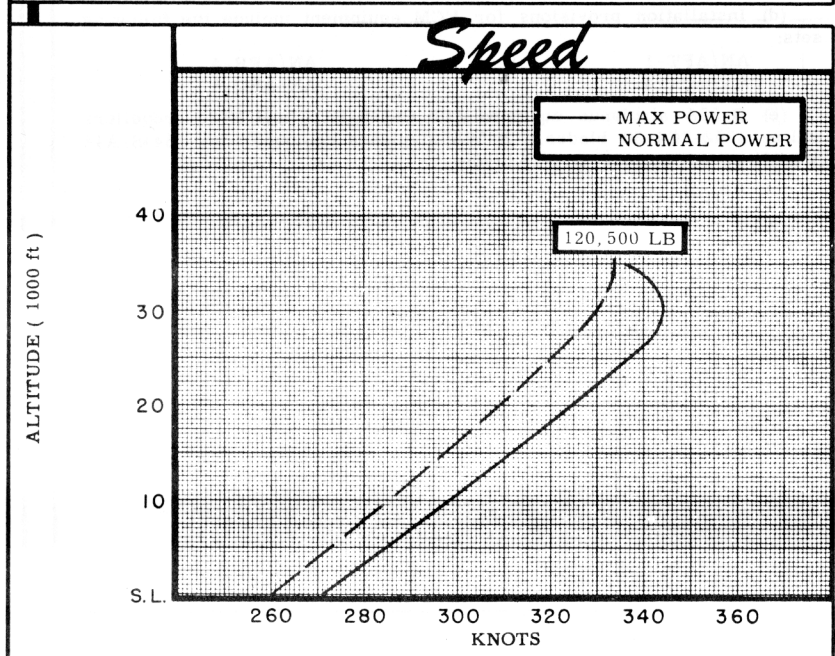
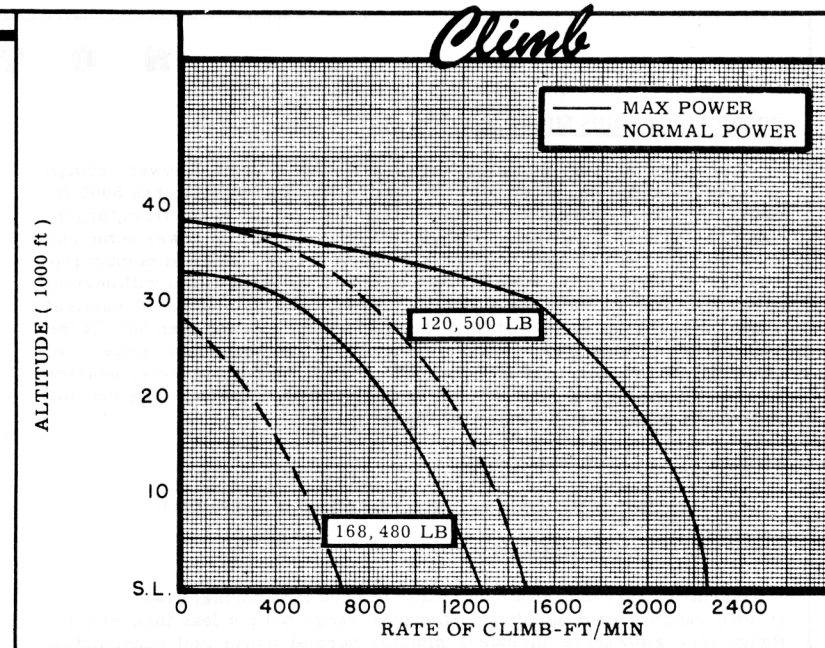
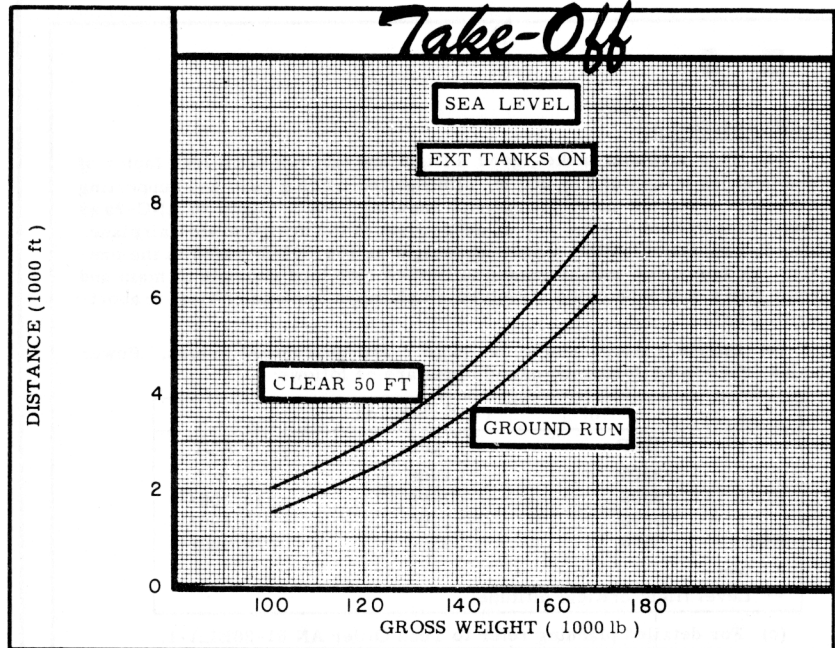
NOTES

- ① T. O. power
- ② Max power
- ③ Normal power

- ④ Detailed descriptions of RADIUS and RANGE missions given on page 6
- ⑤ No data

**PERFORMANCE BASIS:**

- (a) Data source: Flight test
- (b) Performance is based on powers shown on page 6



**N O T E S**

FORMULA: RADIUS MISSIONS I, II & IV

Warm-up, take-off, climb on course to 5000 ft at normal power, cruise at long range speeds at altitude for best range but not less than 5000 ft, climb on course to reach cruising ceiling 500 nautical miles from target, cruise in level flight to target, conduct 15 minutes normal power bomb run drop bomb when carried, conduct 2 minutes evasive action at combat (no distance credit) and an eight minute run out from target area with normal power, cruise at long range speeds at combat altitude for 500 nautical miles, cruise back to base at long range speeds at not less than 5000 ft for best range. Range free allowances include 5 minutes normal power fuel consumption for warm-up and take-off, 2 minutes normal power evasive action, 5% initial fuel load for landing and endurance reserve plus fuel for 30 minutes maximum endurance at sea level.

FORMULA: RADIUS MISSION III

Same as Radius Mission I except initial climb is to 25,000 ft.

FORMULA: RANGE MISSION V

Warm-up, take-off, climb on course to 5000 ft at normal power, cruise at long range speeds at altitude for best range but not less than 5000 ft. Range free allowances include 5 minutes normal power fuel consumption for warm-up and take-off, 5% initial fuel load for landing reserve, plus 30 minutes fuel for long range speeds at sea level.

GENERAL DATA:

(a) This airplane makes good a flight and take-off limit load factor of 2 at a gross weight of 173,000 lb, although the landing gear and supporting structure does not meet the ground handling requirements of ANC-2a as these requirements were set up subsequent to the design of this airplane. The B-50B specification maximum weight is 164,500 lb which is the present recommended maximum due to limited side load strength of main and nose gears and supporting structure which might become critical in abort-take-off.

(b) Engine ratings shown on page 3 are guaranteed values. Power values used in performance calculations are as follows:

| (4) R-4360-35                     |       |      |          |
|-----------------------------------|-------|------|----------|
|                                   | BHP   | RPM  | ALT      |
| T. O:                             | *3500 | 2700 | S. L.    |
| MAX:                              | *3500 | 2700 | 15,000** |
|                                   | *3290 | 2700 | 30,500** |
| NOR:                              | 2650  | 2550 | 30,000** |
| * Wet                             |       |      |          |
| ** Level flight critical altitude |       |      |          |

(c) For detailed planning refer to Tech Order AN 01-20ELA-1.

(d) Installation provisions for ECM equipment include the following sets:

- AN/APT-1
- AN/APR-4
- AN/APT-4
- AN/ARQ-8

(e) B-50A airplanes equipped with C644S-B116 and B120 propellers utilize 1052-7C4-30 blades. B-50A airplanes equipped with C644S-A44 propellers utilize 1016-4C4-18 blades.

~~RESTRICTED~~  
**SUPPLEMENTAL**

SERVICE

*Loading and Performance - Typical Mission*

| C O N D I T I O N S                   |            | BASIC MISSION |
|---------------------------------------|------------|---------------|
|                                       |            | I             |
| TAKE-OFF WEIGHT                       | (lb)       | 168,480       |
| Fuel at 6.0 lb/gal(grade 115/145)     | (lb)       | 64,632        |
| Military load (Bombs)                 | (lb)       | 10,000        |
| Wing loading                          | (lb/sq ft) | 98.0          |
| Stall speed(power off, land. config.) | (kn)       | 118           |
| Take-off ground run at SL             | ① (ft)     | 4775          |
| Take-off to clear 50 ft               | ① (ft)     | 6650          |
| Rate of climb at SL                   | ③ (fpm)    | 685           |
| Time: SL to 10,000 ft                 | ③ (min)    | 16.0          |
| Time: SL to 20,000 ft                 | ③ (min)    | 38.0          |
| Service ceiling (100 fpm)             | ③ (ft)     | 26,550        |
| COMBAT RANGE                          | (n. mi.)   | 4089          |
| Average speed                         | (kn)       | 204           |
| Initial cruising altitude             | (ft)       | 10,000        |
| Final cruising altitude               | (ft)       | 25,000        |
| Total mission time                    | (hr)       | 20.17         |
| COMBAT RADIUS                         | (n. mi.)   | 2137          |
| Average speed                         | (kn)       | 223           |
| Initial cruising altitude             | (ft)       | 10,000        |
| Bombing altitude                      | (ft)       | 25,000        |
| Bomb run speed                        | ③ (kn)     | 317           |
| Final cruising altitude               | (ft)       | 25,000        |
| Total mission time                    | (hr)       | 19.42         |
| COMBAT WEIGHT                         | ④ (lb)     | 121,700       |
| Combat altitude                       | (ft)       | 25,000        |
| Combat speed                          | ② (kn)     | 334           |
| Combat climb                          | ② (fpm)    | 1665          |
| Combat ceiling (500 fpm)              | ② (ft)     | 35,800        |
| Service ceiling (100 fpm)             | ③ (ft)     | 37,100        |
| Service ceiling (one engine out)      | ③ (ft)     | 31,600        |
| Max rate of climb at SL               | ② (fpm)    | 2225          |
| Max speed at 30,500 ft                | ② (kn)     | 339           |
| LANDING WEIGHT                        | (lb)       | 97,080        |
| Ground roll at SL                     | (ft)       | 1310          |
| Total from 50 ft                      | (ft)       | 2370          |

1. Military Specification MIL-C-5011A dated 5 November 1951 redefines the combat radius to ground rules coordinated by the major USAF Air Commands and the Bureau of Aeronautics, U. S. Navy. Although in most cases the mission radius is reduced, this was considered to be more realistic based on Mission Profiles and Allowances proven in actual operation.

2. The combat radius for MIL-C-5011A is different from that based on MIL-C-5011 in that:

a. Run into and out from the target area for high altitude bomber is at higher altitudes rather than at a specified altitude. This altitude corresponds to the cruise ceiling at the start of the combat zone, 500 n. mi. prior to target for reciprocating aircraft.

b. Reserves are changed from a constant percentage of initial fuel as in MIL-C-5011 to a value equal to 5% of initial fuel load plus fuel for a specified period of 30 minutes long range at sea level.

c. Combat range values are not quoted in MIL-C-5011A.

3. Certain items of performance quoted for MIL-C-5011A are different from those based on MIL-C-5011 in that:

a. Time to climb values consider the effects of weight reduction during ground operation and climb.

b. Average cruising speed does not include time and distance in climbs or target operation at normal power.

c. Combat altitude is the altitude at which the actual target run is conducted.

d. Basic speed is the maximum level flight speed within all operating limitations at the combat weight and at a specified altitude. This basic speed is quoted as a means of direct comparison of aircraft of similar type.

## NOTES

- ① Take-off power
- ② Max power
- ③ Normal power
- ④ For Radius Mission

## PERFORMANCE BASIS:

(a) Data source: Flight Tests