

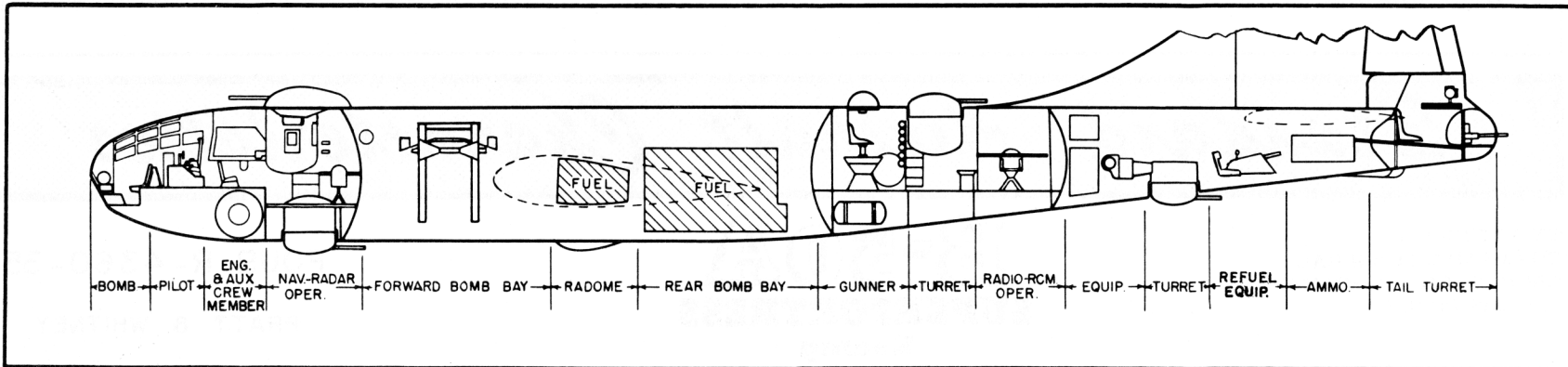
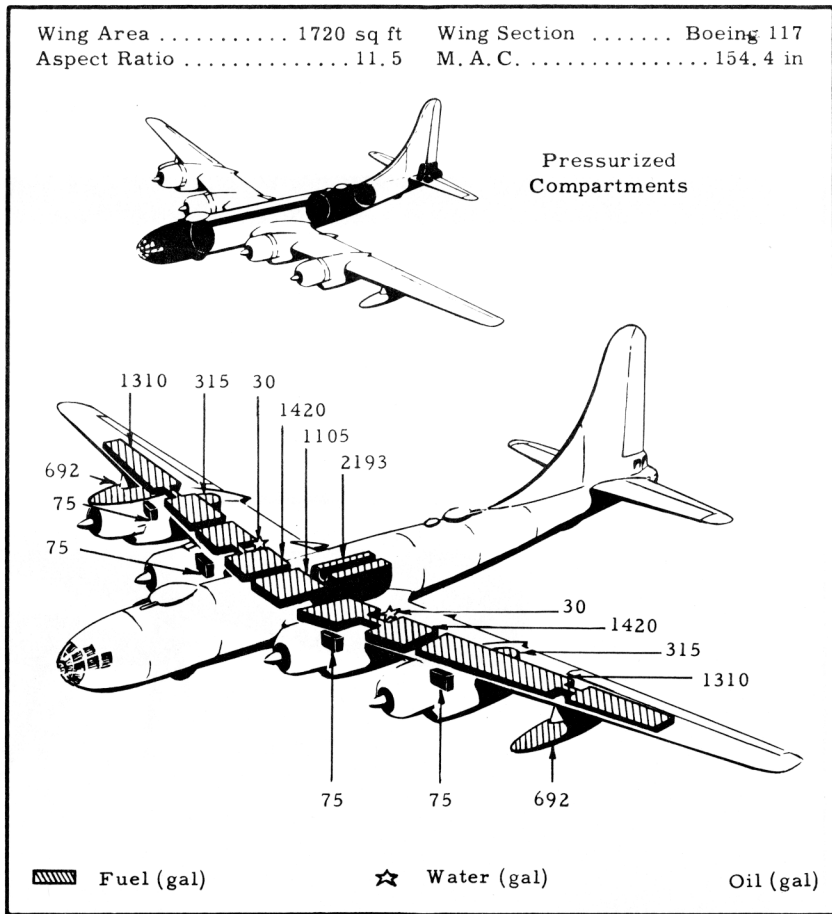
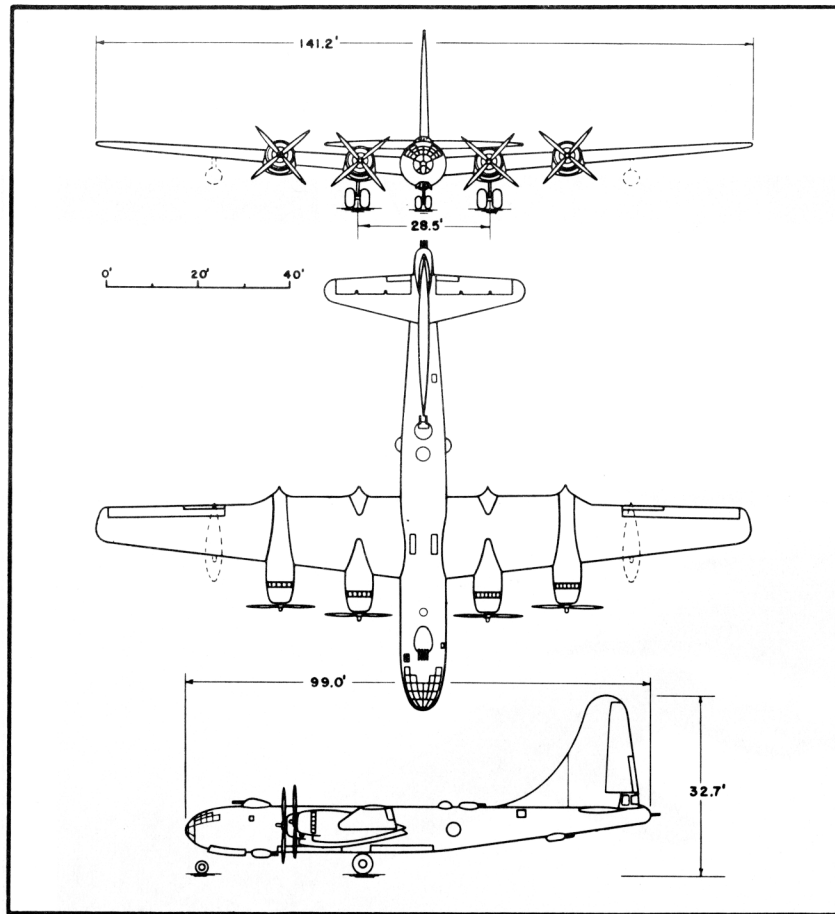
*Standard Aircraft Characteristics*

BY AUTHORITY  
COMMANDING GENERAL  
AIR MATERIEL COMMAND  
U. S. AIR FORCE

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

FOUR R-4360-35

PRATT & WHITNEY



**POWER PLANT**

No. & Model ..... (4) R-4360-35  
Mfr ..... Pratt & Whitney  
Spec. No. .... A-7051-F  
Sup(turbo) ..... (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 - 2650 - Turbo - Cont.  
\*Wet

**DIMENSIONS**

Wing  
Span ..... 141.2'  
Incidence ..... 4°  
Dihedral ..... 4°29'23"  
Sweepback(LE) ..... 7°1'  
Length ..... 99.0'  
Height ..... 32.7'  
Height(fin folded) ..... 20.6'  
Tread ..... 28.5'  
Prop. Grd Clearance ..... 1.4'

*Mission and Description*

The B-50A is a long range, high altitude, medium bombardment type aircraft whose tactical mission 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 auxiliary 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.

*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 ..... \*121,700  
Max T. O. .... †168,480  
Max Land .... †160,000  
(C) Calculated  
(A) Actual  
\* For Basic Mission  
† Limited by space  
† Limited by structure  
(See page 6, note a)

**F U E L**

Location No. Tanks Gal  
Wg, outbd\* ..... 2 ..... 2620  
Wgs, inbd\* ..... 2 ..... 2840  
Wg, center\* ..... 1 ..... 1105  
Nac, skate\* ..... 2 ..... 630  
Aft, bomb bay\* ... 1 ..... 2193  
Wgs, ext. .... 2 ..... 1384  
\*Self-sealing Total 10,772  
Grade ..... 115/145  
Water/alcohol(gal) ..... 60

**OIL**

Capacity (gal) ..... 300  
Grade ..... S-1120;W-1100

**B O M B S**

No.	Size	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.	Cal.	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  
I. F. F. .... 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	MAX INTERNAL	ZERO BOMBS	HIGH ALT.	FERRY	
		MISSION	BOMB LOAD MISSION	MISSION	MISSION	RANGE	
		I	II	III	IV	V	
TAKE-OFF WEIGHT	(lb)	168,480	164,212	158,480	168,480	158,480	
Fuel at 6.0 lb/gal(grade 115/145)	(lb)	64,632	51,474	64,632	64,632	64,632	
Military load (Bombs)	(lb)	10,000	20,000	None	10,000	None	
Wing loading	(lb/sq ft)	98.0	95.5	92.2	98.0	92.2	
Stall speed(power off, land. config.)	(kn)	118	116	114	118	114	
Take-off ground run at SL	① (ft)	4775	4450	4100	4775	4100	
Take-off to clear 50 ft	① (ft)	6650	6200	5700	6650	5700	
Rate of climb at SL	③ (fpm)	685	740	817	685	817	
Time: SL to 10,000 ft	③ (min)	16.0	14.0	13.0	16.0	13.0	
Time: SL to 20,000 ft	③ (min)	38.0	33.0	30.0	38.0	30.0	
Service ceiling (100 fpm)	③ (ft)	26,550	28,250	30,150	26,550	30,150	
COMBAT RANGE	④ (n. mi.)	4089	3163	4483	3766	4575	
Average speed	(kn)	204	206	201	231	200	
Initial cruising altitude	(ft)	10,000	10,000	10,000	20,000	10,000	
Final cruising altitude	(ft)	25,000	25,000	25,000	30,000	10,000	
Total mission time	(hr)	20.17	15.51	22.41	16.45	23.07	
COMBAT RADIUS	④ (n. mi.)	2137	1692	2256	1988	—	
Average speed	(kn)	223	224	222	247	—	
Initial cruising altitude	(ft)	10,000	10,000	10,000	20,000	—	
Bombing altitude	(ft)	25,000	25,000	25,000	30,000	—	
Bomb run speed	③ (kn)	317	316	322	326	—	
Final cruising altitude	(ft)	25,000	25,000	25,000	30,000	—	
Total mission time	(hr)	19.42	15.36	20.56	16.33	—	
COMBAT WEIGHT	⑤ (lb)	121,700	114,269	123,070	120,314	100,311	
Combat altitude	(ft)	25,000	25,000	25,000	30,000	10,000	
Combat speed	② (kn)	334	337	333	339	313	
Combat climb	② (fpm)	1665	1870	1635	1530	2815	
Combat ceiling (500 fpm)	② (ft)	35,800	36,750	36,650	36,000	38,500	
Service ceiling (100 fpm)	③ (ft)	37,100	38,400	36,850	37,350	40,300	
Service ceiling (one engine out)	③ (ft)	31,600	34,200	31,100	32,100	—	
Max rate of climb at SL	② (fpm)	2225	2430	2190	2260	2890	
Max speed at 30,500 ft	② (kn)	339	343	338	339	350	
LANDING WEIGHT	⑤ (lb)	97,080	95,312	97,080	97,080	100,311	
Ground roll at SL	(ft)	1310	1275	1310	1310	1365	
Total from 50 ft	(ft)	2370	2345	2370	2370	2420	

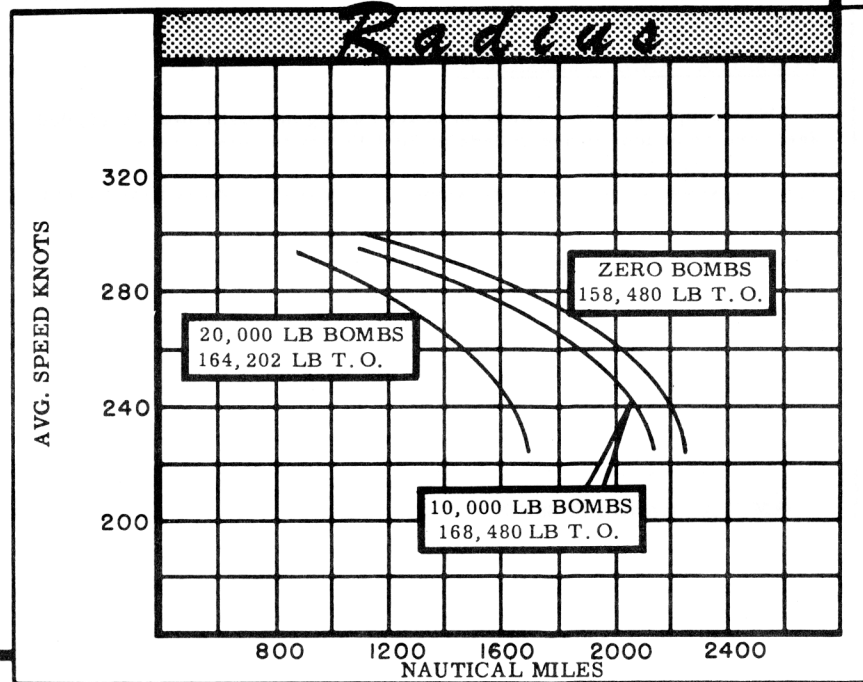
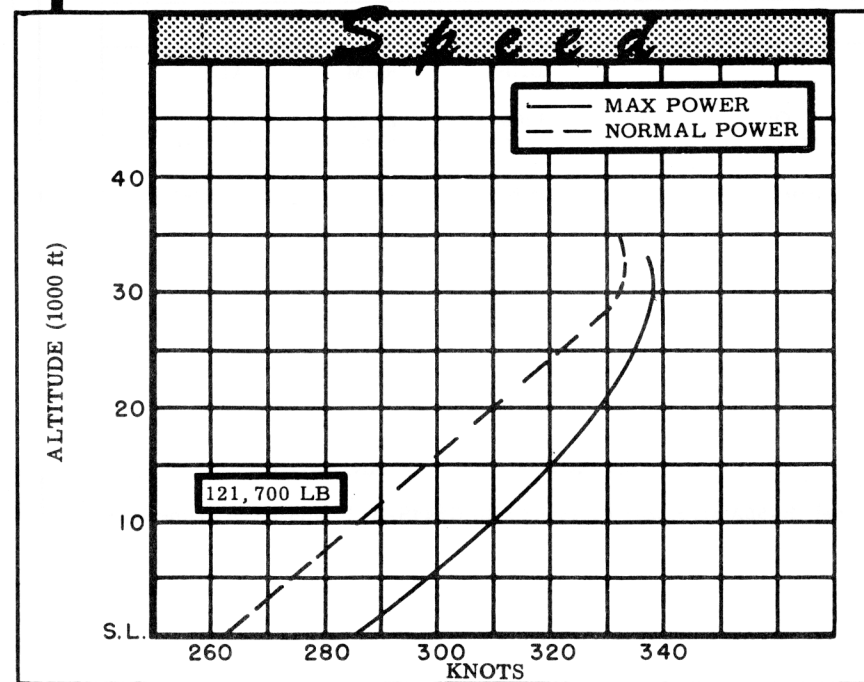
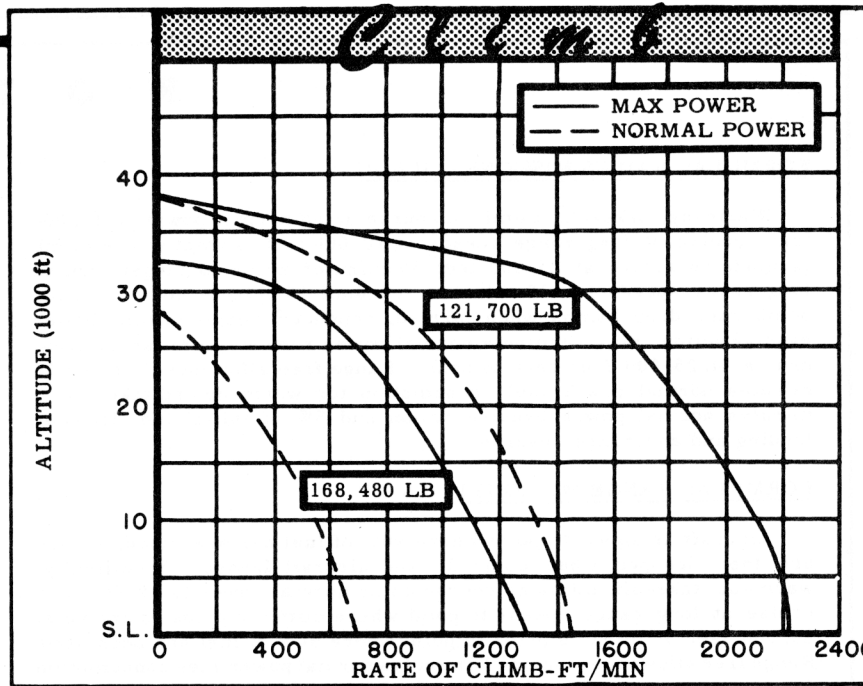
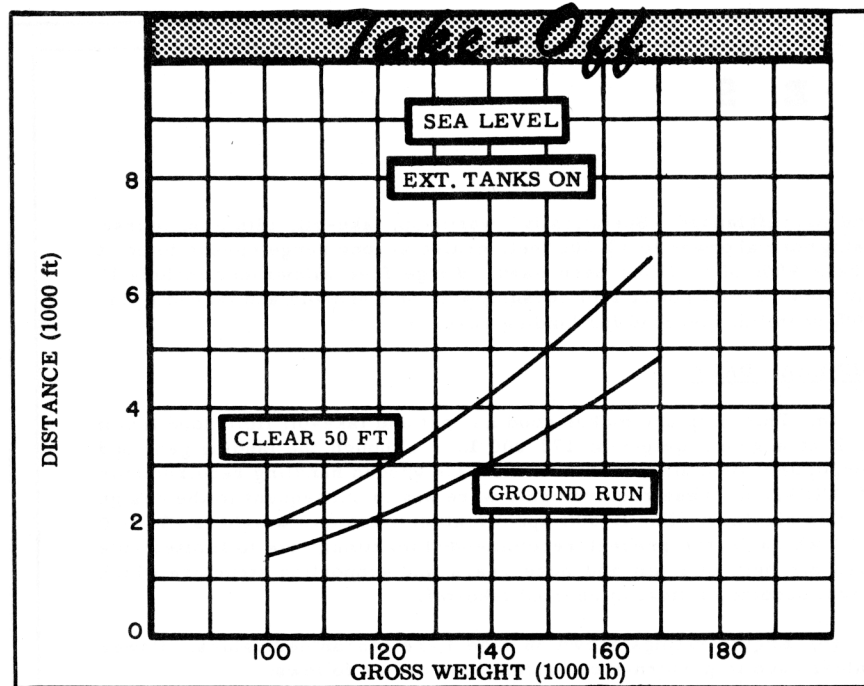
**NOTES**

- ① T. O. power  
 ② Max power  
 ③ Normal power  
 ④ Detailed descriptions of RADIUS and RANGE missions are given on page

⑤ For Radius Mission if radius is shown

**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 & III

Warm-up, take-off, climb on course using normal power to 10,000 feet, cruise at long range speeds at 10,000 feet to point where climb is made to arrive at 25,000 feet 30 minutes prior to target, cruise long range speeds for 15 minutes, conduct 15 minute normal power bomb run, drop bombs when carried, conduct 5 minute normal power evasive action, plus 10 minute normal power run-out from target area, cruise at 25,000 feet back to base. Range free allowances include 10 minutes normal power fuel consumption for warm-up and take-off, 5 minutes normal power evasive action and 5% of initial fuel load for landing and endurance reserve.

FORMULA: RANGE MISSIONS I, II & III

Aircraft is flown to point where 90% of fuel has been used, bombs are then dropped when carried, and aircraft landed. Specifically: warm-up, take-off, climb on course using normal power to 10,000 feet, cruise at long range speeds to point where climb is made to arrive at 25,000 feet 30 minutes prior to point where 90% of fuel has been used. Range free allowances include 10 minutes normal power fuel consumption for warm-up and take-off plus 10% of initial fuel load for landing reserve.

FORMULA: RADIUS MISSION IV

Warm-up, take-off, climb on course using normal power to 20,000 feet, cruise at long range speeds at 20,000 feet to point where climb is made to arrive at 30,000 feet 30 minutes prior to target, cruise long range speeds for 15 minutes, conduct 15 minute normal power bomb run, drop bombs, conduct 5 minute normal power evasive action, plus 10 minutes normal power run-out from target, cruise back to base at long range speeds at 30,000 feet. Range free allowances include 10 minutes normal power fuel consumption for warm-up and take-off, 5 minutes normal power evasive action and 5% of initial fuel load for landing and endurance reserve.

FORMULA: RANGE MISSION IV

Same as Range Mission I, II, & III, except initial climb is to 20,000 feet and final climb is to 30,000 ft.

FORMULA: RANGE MISSION V

Aircraft is flown to point where 90% of initial fuel has been used,

and aircraft landed. Specifically: warm-up, take-off, climb on course using normal power to 10,000 feet, cruise at long range speeds to point where 90% of fuel has been used. Range free allowances include 10 minutes normal power fuel consumption for warm-up and take-off plus 10% of initial fuel load for landing reserve.

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 aborted take-off.

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

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.

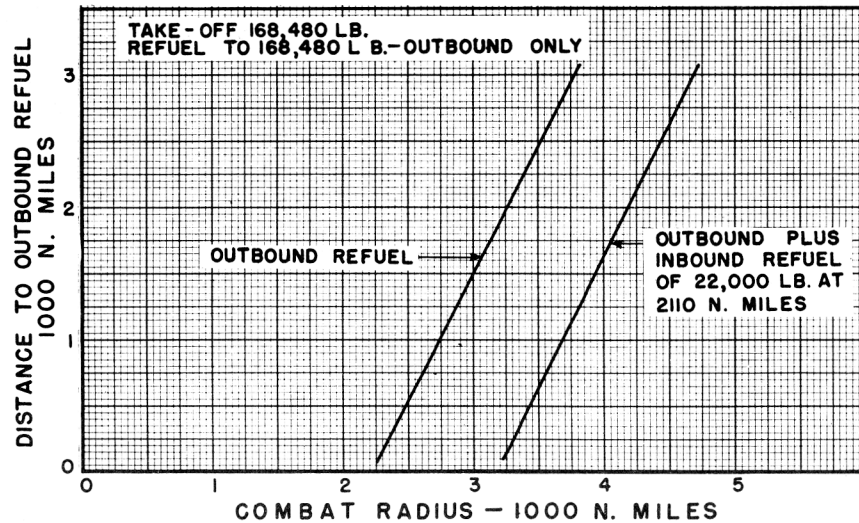
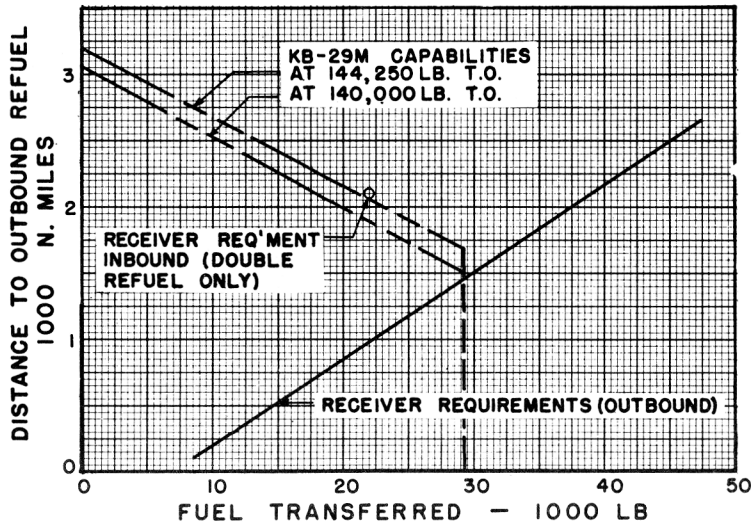
### S U P P L E M E N T A L

The curve below presents the combat potentialities of the B-50A airplane when operating with the KB-29M tanker airplane. The right side of the curve presents combat radius versus refuel radius (start of refueling operation) while the left side presents transfer fuel requirements and capabilities versus refuel radius. For example, in order to strike a target 3500 nautical miles from base, these curves are to be used together to present refueling radius data as follows:

The combat radius section indicates 3500 nautical miles may be made good by both refueling techniques, refueling outbound only at

2460 nautical miles or refueling outbound at 640 nautical miles and inbound at 2110 nautical miles; however, reading from the requirements section, the double refuel requires two tankers, one outbound at 640 nautical miles transferring approximately 16,900 pounds of fuel and inbound at 2110 nautical miles transferring 22,000 pounds of fuel.

For outbound refuel only, it is noted that the bomber requires a transfer of 44,600 pounds fuel while a single tanker can deliver only 14,000 pounds of fuel at 2460 nautical miles from base, thus  $44,600 / 14,000 = 3.2$ , so four tankers would be required.



#### Formula for Radius Data Shown

Warm-up, take-off, climb on course at normal power to 10,000 feet, cruise at long range speeds (except when refueling) to point where normal rated power climb is made to arrive at 25,000 feet 30 minutes prior to bomb drop, cruise long range speeds 15 minutes followed by 15 minute bomb run at normal power, drop bombs, conduct 5 minute normal power evasive action plus 10 minute normal power escape. When only outbound refuel is used return to base at long range speeds at 25,000 feet; on inbound refuel return at long range speeds at 25,000 feet to point 2110 nautical miles from base, descend to 10,000 feet refuel with 22,000 pound fuel and continue to base at 10,000 feet. Range-free allowances include 10 minute normal power fuel consumption for

warm-up and take-off plus 5 minutes normal power evasive action and 5% of take-off fuel for landing reserve. All refuel operations allow 1 hour rendezvous per refuel at long range speeds (no distance credit) followed by refuel at 190 (EAS) MPH at 180 gpm on course.

NOTE:

1. Loading for refuel mission is the same as Basic Mission.
2. Inbound refuel is assumed to be 22,000 pounds of fuel at 2110 nautical miles from base for all double refuel missions. This assumption gives best radius for receiver-tanker combinations.