

A-1
2



Standard Aircraft Characteristics

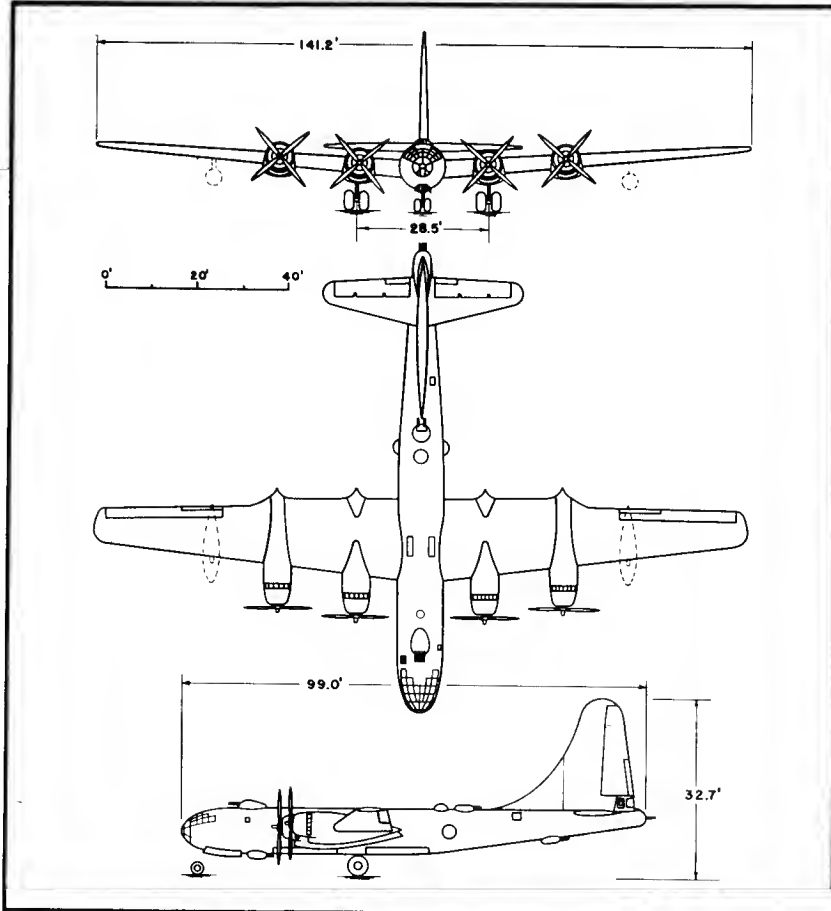
BY AUTHORITY OF
COMMANDING GENERAL
AIR MATERIEL COMMAND
U. S. AIR FORCE

B-50D
SUPERFORTRESS

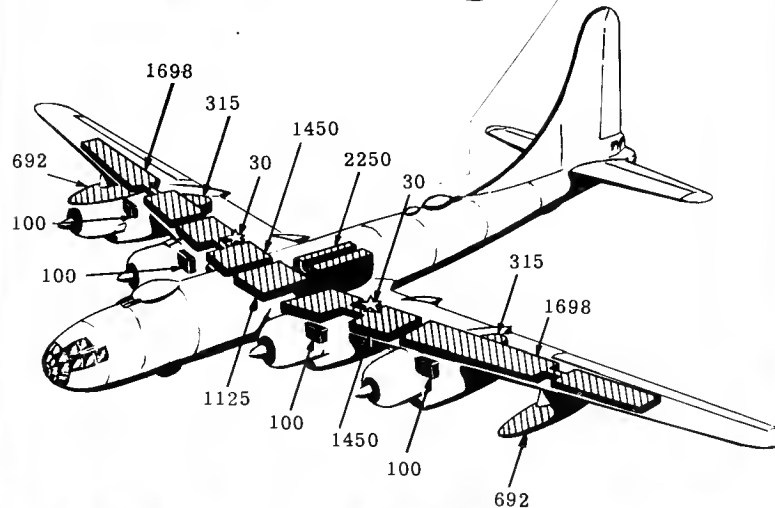
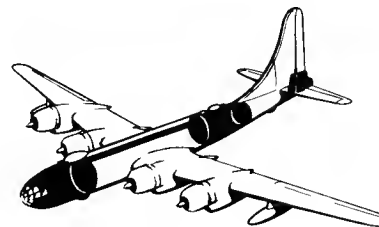
Boeing

FOUR R-4360-35

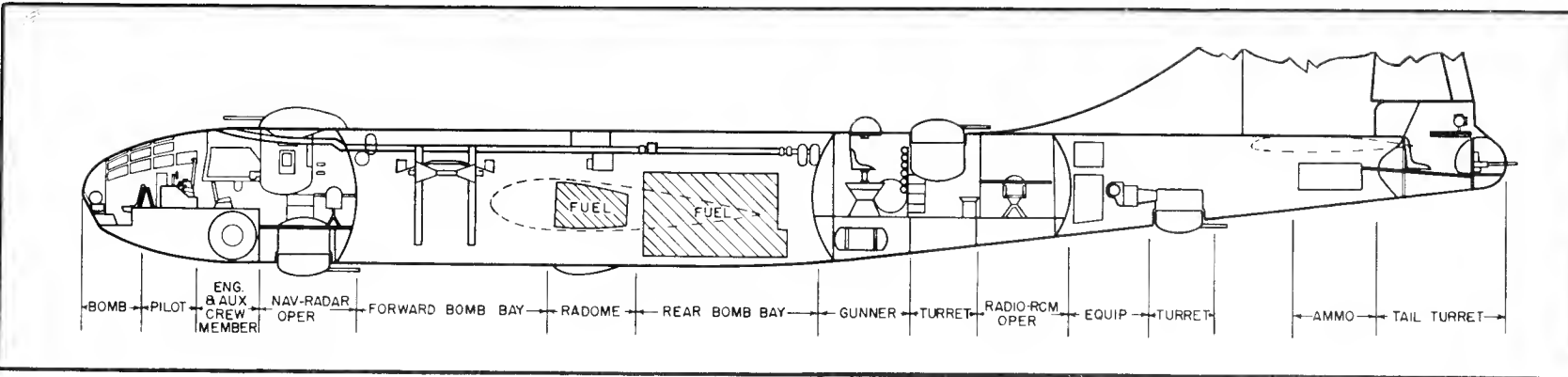
PRATT & WHITNEY



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



▨ Fuel (gal) ☆ Water (gal) ■ Oil (gal)



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. ... 1052-20C4-30
 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-50D is a long-range, high altitude, medium bombardment type aircraft whose tactical mission is the destruction by bombs of land or 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 gun boused in five electrically-operated turrets which are remotely controlled from the sighting stations.

Development

First flight: May 1949
 First acceptance: May 1949
 In production

WEIGHTS

Loading	Lb	L. F.
Empty	80,609(C)	
Basic	84,714(A)	
Design	120,000	2.67
Combat	*123,100	
Max T.O.	†173,000	2.00
Max Land	†160,000	

(A) Actual
 (C) Calculated
 * For Basic Mission
 † Limited by strength
 ‡ Limited by landing gear strength
 (See page 6, note a)

FUELS

Location	No. Tanks	Gal
Wgs, outbd*	2	3396
Wgs, inbd*	2	2900
Wg, center*	1	1125
Nac, skate*	2	630
Aft, bomb bay	1	2250
Wgs, ext	2	1384
*Self-sealing	Total	11,685
Grade		115/145
Water/Alcohol(gal)		60

OIL

Capacity (gal) 400
 Grade S-1120; W-1100

BOMBS

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

GUNS

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

Glide Path AN/ARN-5A
 VHF Command AN/ARC-3
 Interphone USAF Combat
 Range Recvr BC-453E
 Liaison AN/ARC-8
 Radio Compass AN/ARN-7
 Marker Beacon RC-193A
 I. F. F. AN/APX-6
 Localizer RC-103A
 Special Radar AN/APQ-24
 Loran Radar ... AN/APN-9 or -9A
 Auto Bomb AN/ARW-9 and
 AN/ARW-10A
 Radio Altimeter SCR-718C
 ECM (See page 6, note d)
 Radar AN/APN-68
 Radio Set AN/APN-2B

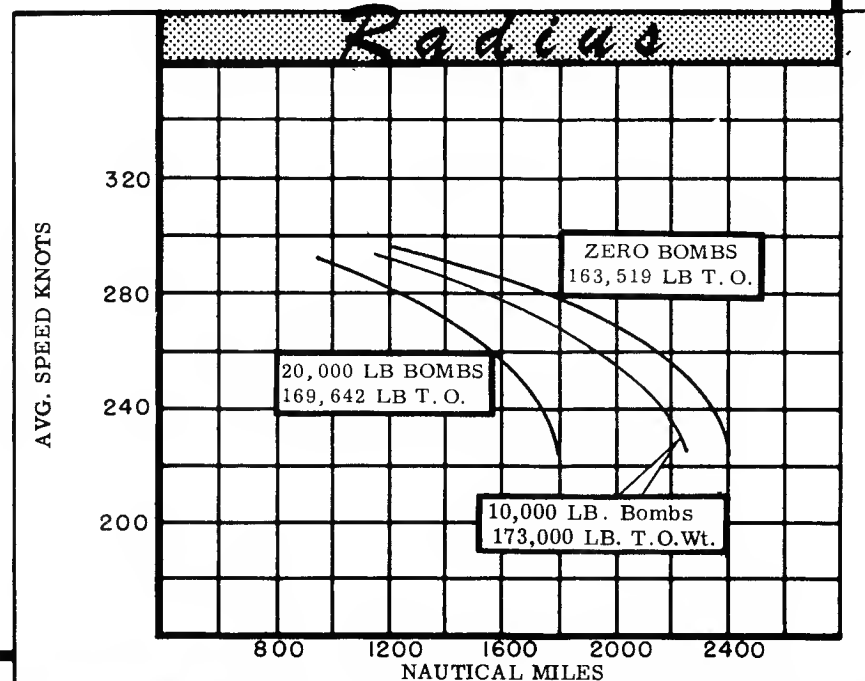
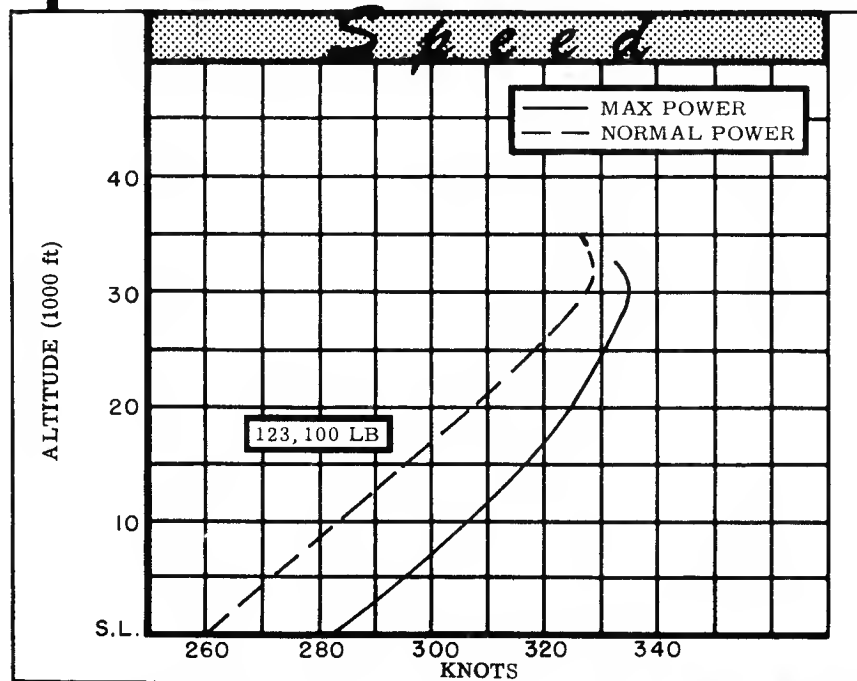
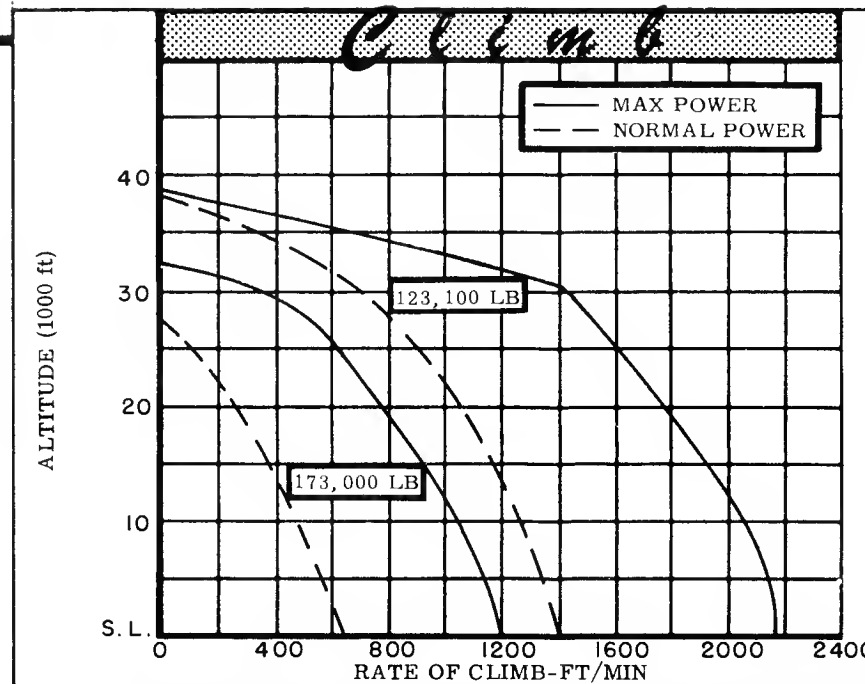
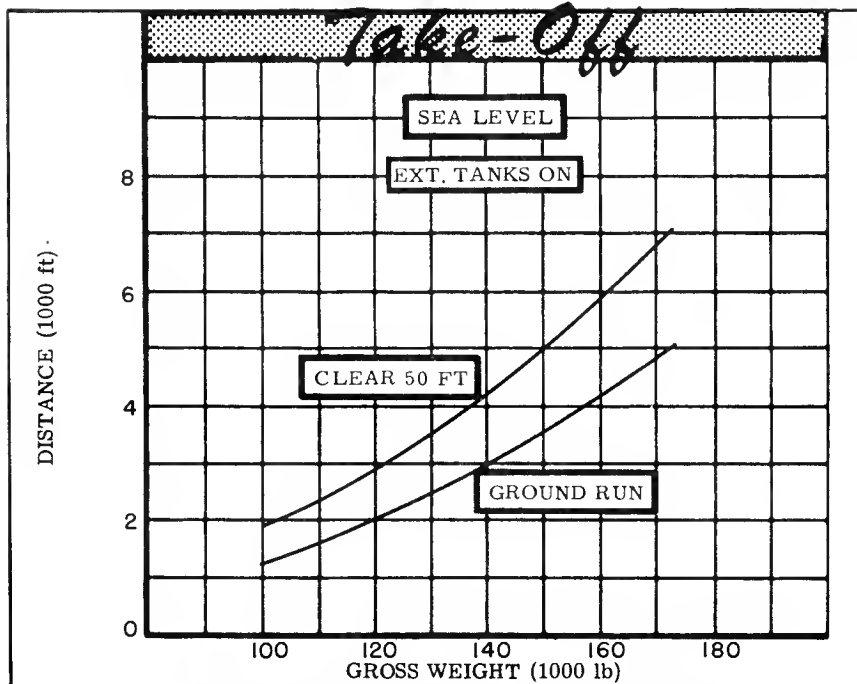
Loading and Performance - Typical Mission

C O N D I T I O N S	B A S I C		MAX. INT. BOMB	ZERO BOMBS	HIGH ALT.	FERRY
	MISSION	LOAD MISSION	MISSION	MISSION	MISSION	RANGE
	I	II	III	IV	V	
TAKE-OFF WEIGHT (lb)	173,000	169,642	163,519	173,000	163,519	
Fuel at 6.0 lb/gal(grade 115/145) (lb)	69,615	56,634	70,134	69,615	70,134	
Military load (Bombs) (lb)	10,000	20,000	None	10,000	None	
Wing loading (lb/sq ft)	100.5	98.5	95.1	100.5	95.1	
Stall speed (power off, land. config.) (kn)	119	118	116	119	116	
Take-off ground run at SL (ft)	5050	4800	4400	5050	4400	
Take-off to clear 50 ft (ft)	7050	6700	6150	7050	6150	
Rate of climb at SL (3) (fpm)	623	662	737	623	737	
Time: SL to 10,000 ft (3) (min)	18.0	16.0	14.0	18.0	14.0	
Time: SL to 20,000 ft (3) (min)	43.0	39.0	34.0	43.0	34.0	
Service ceiling (100 fpm) (3) (ft)	24,000	25,550	28,150	24,000	28,150	
COMBAT RANGE (4) (n. mi.)	4258	3338	4711	3904	4801	
Average speed (kn)	206	205	202	232	201	
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)	20.80	16.44	23.41	17.04	24.06	
COMBAT RADIUS (4) (n. mi.)	2246	1806	2397	2061	—————	
Average speed (kn)	225	223	224	248	—————	
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)	313	312	317	338	—————	
Final cruising altitude (ft)	25,000	25,000	25,000	30,000	—————	
Total mission time (hr)	20.22	16.43	21.60	16.86	—————	
COMBAT WEIGHT (5) (lb)	123,100	116,500	124,700	121,316	100,399	
Combat altitude (ft)	25,000	25,000	25,000	30,000	10,000	
Combat speed (2) (kn)	330	333	329	336	310	
Combat climb (2) (fpm)	1610	1780	1570	1480	2770	
Combat ceiling (500 fpm) (2) (ft)	35,500	36,350	35,300	35,700	38,350	
Service ceiling (100 fpm) (3) (ft)	36,700	37,850	36,400	37,000	40,150	
Service ceiling(one engine out) (3) (ft)	30,600	33,200	39,900	31,300	—————	
Max rate of climb at SL (2) (fpm)	2165	2335	2125	2210	2850	
Max speed at 30,500 ft (2) (kn)	335	339	334	336	347	
LANDING WEIGHT (5) (lb)	96,866	95,840	96,892	96,866	100,399	
Ground roll at SL (ft)	1300	1280	1300	1300	1370	
Total from 50 ft (ft)	2370	2350	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 6
 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 reaching 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, 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-50 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:

AN/APT-1	AN/APR-4	AN/APT-5A
AN/APT-4	AN/ARQ-8	

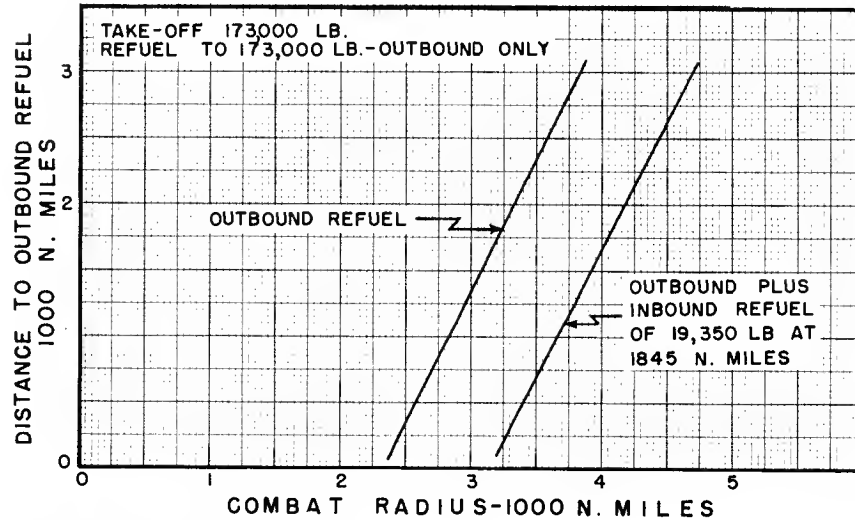
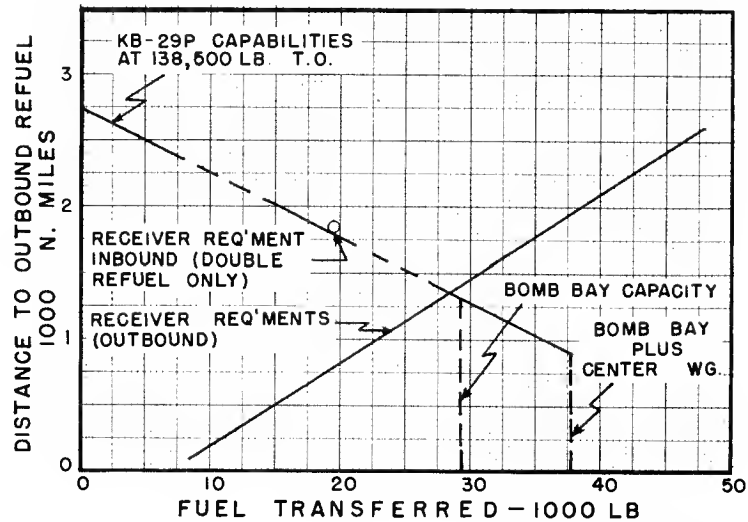
S U P P L E M E N T A L

The curve below presents the combat potentialities of the B-50D airplane when operating with the KB-29P 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 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 2320

nautical miles or refueling outbound at 675 nautical miles and inbound at 1845 nautical miles; however, reading from the requirements section, the double refuel requires two tankers, one outbound at 675 nautical miles transferring approximately 17,500 pounds fuel and inbound at 1845 nautical miles transferring 19,350 pounds fuel.

For outbound refuel only, it is noted that the bomber requires a transfer of 43,250 pounds fuel while a single tanker can deliver only 9250 pounds fuel at 2320 nautical miles from base; thus $43,250/9250 = 4.7$, so five 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 minutes 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' inbound refuel return at long range speeds at 25,000 feet to point 1845 nautical miles from base, descend to 10,000 feet, refuel with 19,350 pounds fuel and continue to base at 10,000 feet. Range free allowances

include 10 minutes 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 220 (EAS) MPH at 500 gpm on course.

NOTE:

1. Loading for refuel mission is the same as Basic Mission.
2. Inbound refuel is assumed to be 19,350 pounds of fuel at 1845 nautical miles from base for all double refuel missions. This assumption gives best radius for receiver-tanker combination.