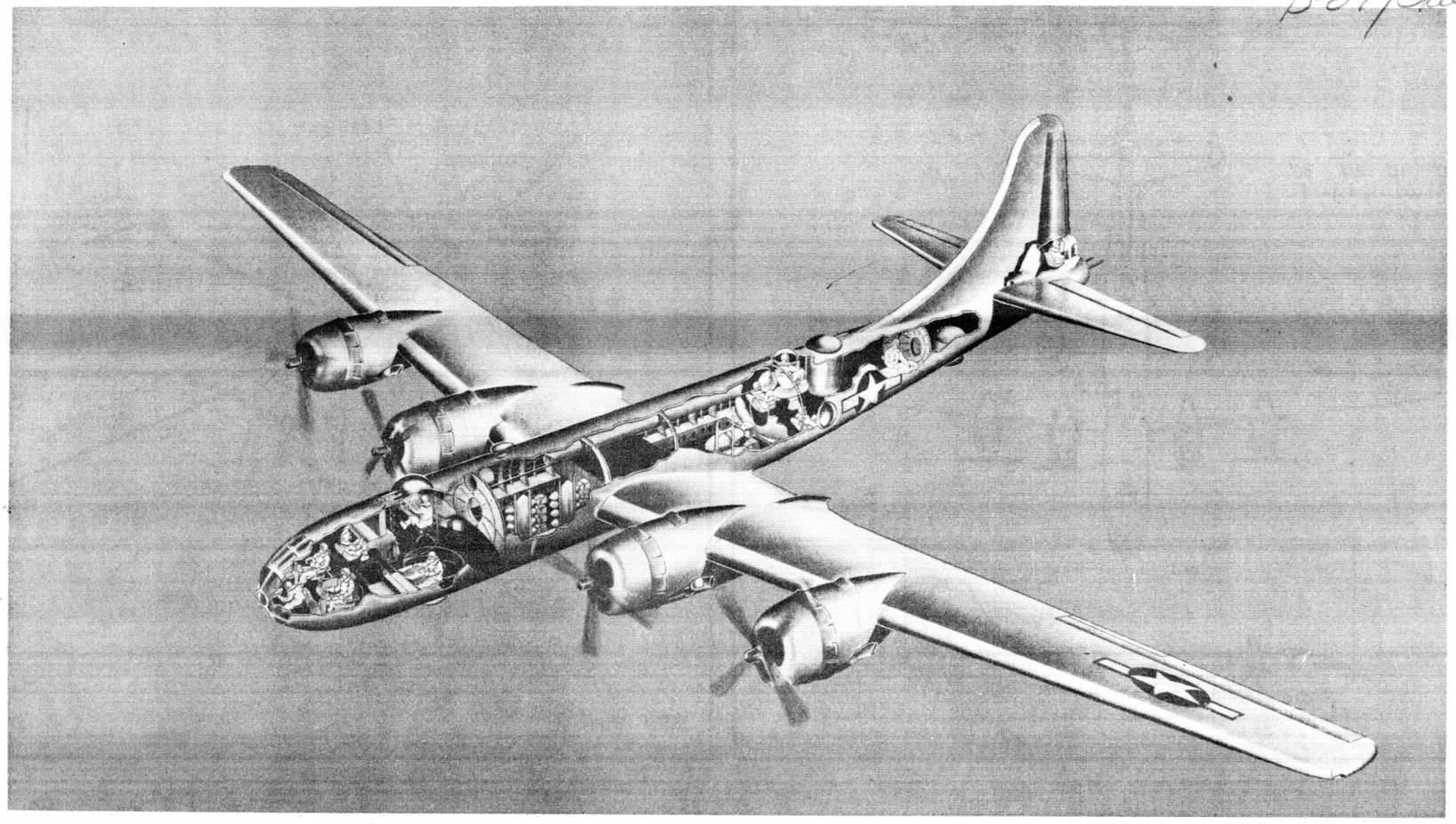
B-29/dor



Standard Aircraft Characteristics

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

B-29

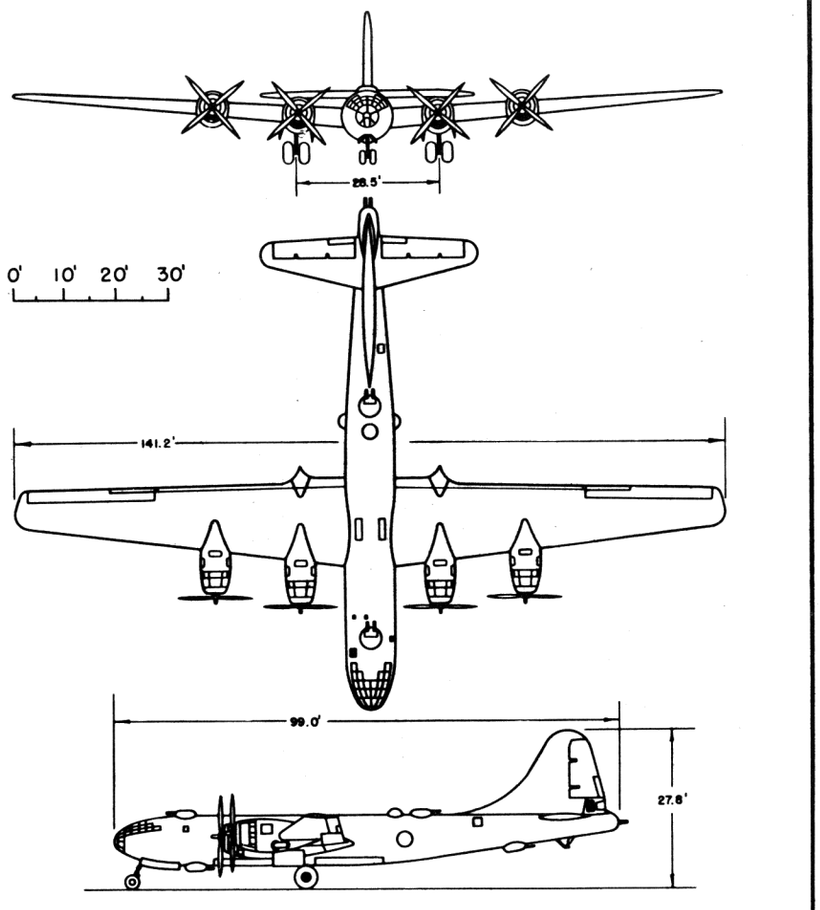
SUPERFORTRESS

Boeing

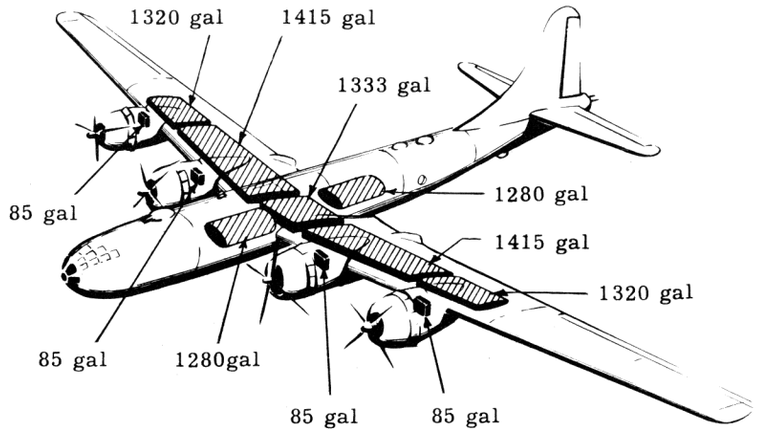
FOUR R-3350-79 or-81

WRIGHT

SERVICE

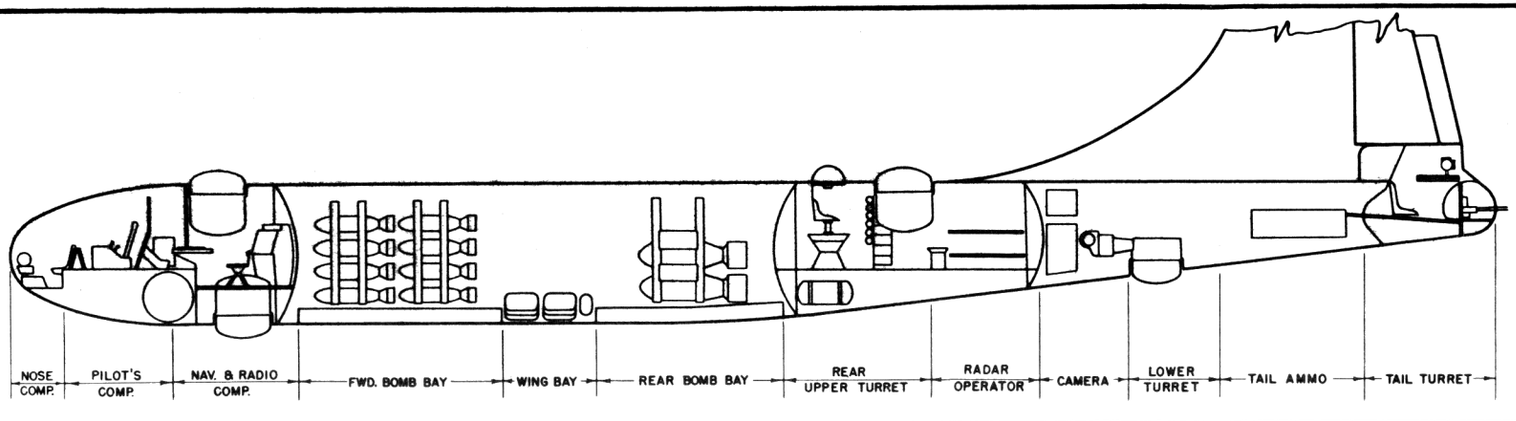


Wing Area ..... 1720 sq ft
Aspect Ratio 11.5
Wing Section ..... Boeing 117
M.A.C. ..... 154.41"



Fuel

Oil



POWER PLANT

No. & Model .. (4) R-3350-79 or-81
Mfr. ..... Wright
Engine Spec No. 95-28266-5
Sup. ... (Dual Turbo) B-11 or B-31
Red. Gear Ratio 0.35
Prop. Mfr ..... Hamilton Std
Blade Design No. 6521A-6
Prop. Type ..... Hydromatic
No. Blades 4
Prop. Dia ..... 16'-7"

ENGINE RATINGS

	BHP - RPM - ALT
T. O:	2200 - 2800
Mil:	2200 - 2600 - 2500
Nor:	2000 - 2400 - 4000

Mission and Description

The primary mission of the B-29 is the destruction of enemy materiel and installations by aerial bombardment. It is provided with pressurized crew compartments and adequate heating and oxygen facilities for long range missions. Crew of 11 consists of pilots, co-pilot, flight engineer, navigator, radio operator, radar operator, bombardier and four gunners.

Direct current electrical power is supplied by six engine driven generators and one auxiliary power plant.

Early models are equipped with transfer type fuel systems while later models use the manifold type system.

Armament provided consists of five (5) turrets controlled by a central fire control system.

In later aircraft a formation stick was added to the C-1 auto-pilot to facilitate formation flying.

Development

Design initiated: ..... June 1940
First flight: ..... (XB-29) September 1942
First acceptance: ..... September 1943
Production completed: ..... June 1946

WEIGHTS

Loading	Lb	L. F.
Empty	71,500(A)	
Basic	74,050(A)	
Design	120,000	2.67
Combat	*101,250	3.10
Max T. O.	†140,000	2.28
Max Land	‡135,000	2.35

(A) Actual
* For Basic Mission
† Limited by performance
‡ Limited by strength

FUEL

Location	No. Tanks	Gal
Wg, outbd*	2	2640
Wg, inbd*	2	2830
Wg, ctr*	1	1333
Bomb bay	2	2560
*s. s.	Total	9363

Spec MIL-F-5572
Grade 100/130

OIL

Cap. (gal) 340
Spec AN-0-8
Grade S-1120; W-1100

DIMENSIONS

Wing
- Span ..... 141.2'
- Incidence ..... 4°
- Dihedral ..... 4°29'23"
- Sweepback(LE) ..... 7°1'26"

Length ..... 99.0'
Height ..... 27.8'
Tread ..... 28.5'
Prop. Grd Clearance ..... 1.3'

BOMBS

No.	Size	Type
4	4000	G. P.
8	2000	G. P.
12	1600	A. P.
12	1000	G. P.
40	500	G. P

Max Bomb Load ..... 20,000 lb

GUNS

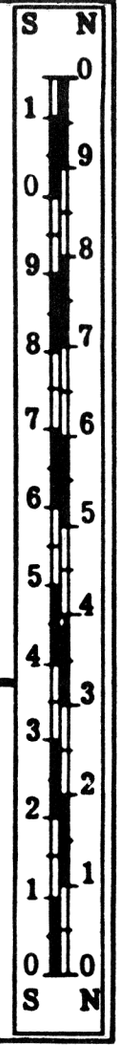
No.	Cal	Rds ea	Location
4	.50	500	Fus, upr, fwd
2	.50	500	Fus, upr, aft
2	.50	500	Fus, lwr, fwd
2	.50	500	Fus, lwr, aft
2	.50	500	Tail, tur

ELECTRONICS

VHF Command AN/ARC-3
Interphone AN/AIC-2A
Liaison AN/ARC-8
Radio Compass AN/ARN-7
Marker Beacon RC-193A
Homing Adapter AN/ARR-1
Localizer RC-103
Glide Path AN/ARN-5A
Radio Altimeter SCR-718C
Interrogator SCR-729
Radar . AN/APQ-7 or AN/APQ-23A
Loran .. AN/APN-9 or AN/APN-4
IFF SCR-695
Raven ..... RCM

Loading and Performance - Typical Mission

CONDITIONS			BASIC MISSION	MAX. BOMBS MISSION	HIGH ALT. MISSION	TRAINING MISSION	FERRY RANGE
			I	II	III	IV	V
TAKE-OFF WEIGHT		(lb)	140,000	140,000	140,000	120,000	138,278
Fuel at 6.0 lb/gal		(lb)	47,196	39,396	47,196	38,880	56,178
Military load (Bombs)		(lb)	10,000	20,000	10,000	None	None
Wing loading		(lb/sq ft)	81.4	81.4	81.4	70.6	80.4
Stall speed (power off)		(kn)	103	103	103	96	102
Take-off ground run at SL	④	(ft)	5230	5230	5230	3425	5050
Take-off to clear 50 ft	④	(ft)	7825	7825	7825	5000	7530
Rate-of-climb at SL	③	(fpm)	500	500	500	795	520
Time: SL to 10,000 ft	③	(min)	23.5	23.5	23.5	14.0	22.5
Time: SL to 20,000 ft	③	(min)	61.5	61.5	61.5	31.3	58.0
Service ceiling (100 fpm)	③	(ft)	23,950	23,950	23,950	35,650	25,000
Service ceiling (one engine out)	②	(ft)	19,400	19,400	19,400	30,750	20,650
COMBAT RANGE	⑤	(n. mi)	3445	2627	3095	3213	4493
Avg cruising speed		(kn)	198	202	223	190	191
Cruising altitude		(ft)	10,000	10,000	20,000	10,000	10,000
Total mission time		(hr)	17.54	13.15	14.04	17.07	23.65
COMBAT RADIUS	⑤	(n. mi)	1843	1466	1603	1640	———
Avg cruising speed		(kn)	215	216	238	211	———
Cruising altitude (s)		(ft)	10,000 & 25,000	10,000 & 25,000	20,000 & 30,000	10,000 & 25,000	———
Total mission time		(hr)	17.37	13.80	13.73	15.78	———
COMBAT WEIGHT	⑥	(lb)	101,250	96,500	98,900	98,810	84,518
Combat altitude		(ft)	25,000	25,000	30,000	25,000	10,000
Combat speed	②	(kn)	331	333	348	332	293
Combat climb	②	(fpm)	1265	1410	1180	1340	2045
Combat ceiling (500 fpm)	②	(ft)	36,200	37,200	36,650	36,650	39,800
Service ceiling (100 fpm)	③	(ft)	39,600	40,600	40,100	40,100	43,200
Service ceiling (one engine out)	③	(ft)	34,700	36,100	35,450	35,450	39,150
Max rate-of-climb at SL	②	(fpm)	1625	1760	1690	1690	2160
Max speed at 30,000 ft	②	(kn)	347	348	348	348	353
LANDING WEIGHT		(lb)	83,564	82,574	83,564	83,064	84,518
Ground roll at SL	④	(ft)	2230	2210	2230	2220	2255
Total from 50 ft	④	(ft)	2960	2930	2960	2950	2985

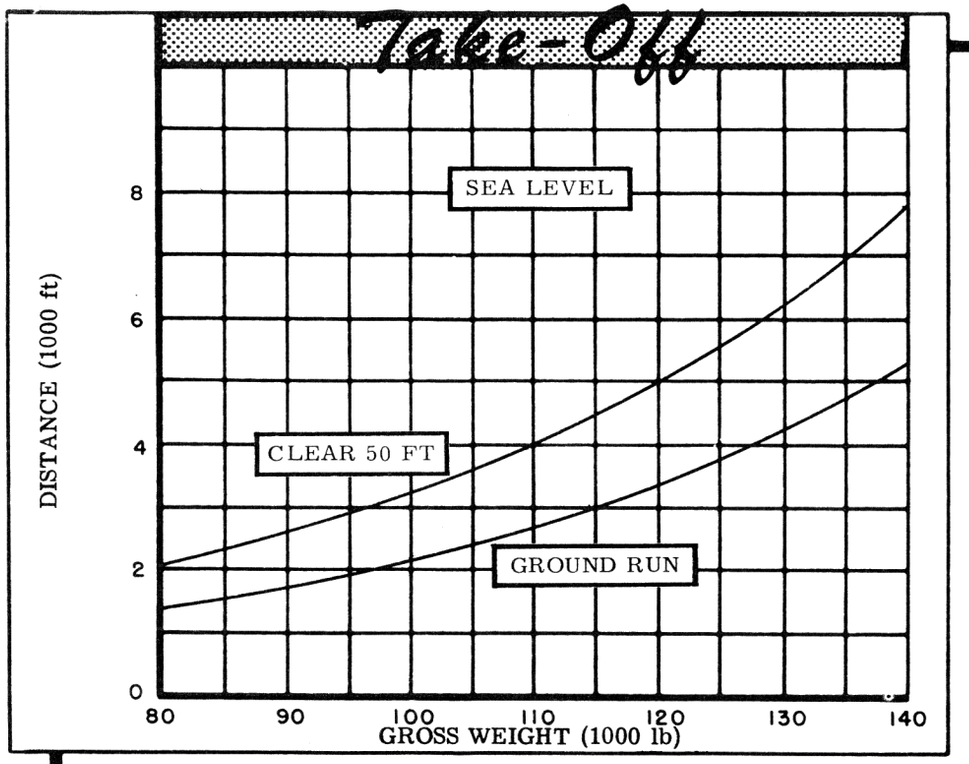


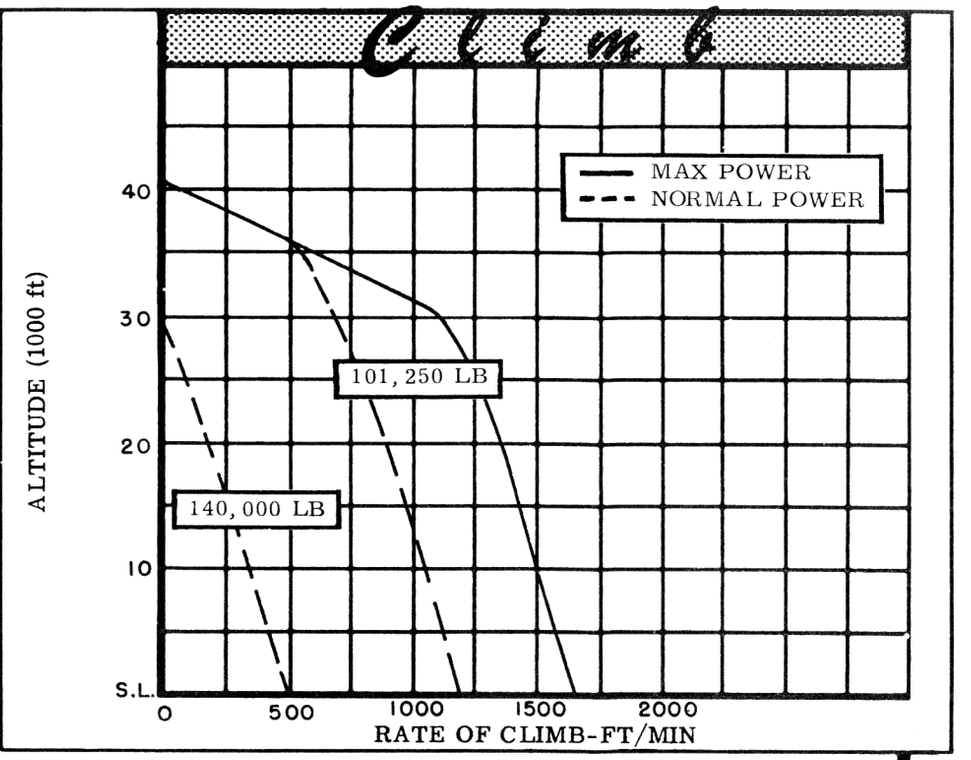
NOTES

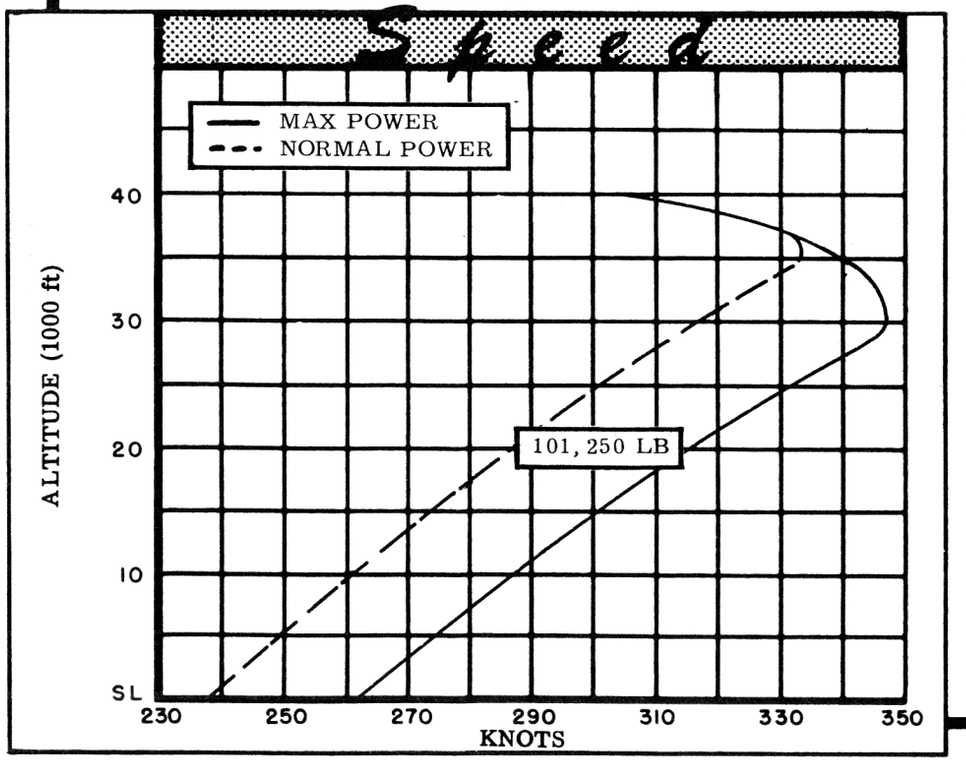
① Take-off power
② Max power
③ Normal power
④ Take-off and landing distances are obtainable at sea level using normal technique. For airport planning, distances should be increased by appropriate factors to determine runway requirements.
⑤ Detailed descriptions of the RADIUS & RANGE missions are given on page 6.
⑥ For Radius Mission if Radius is shown.

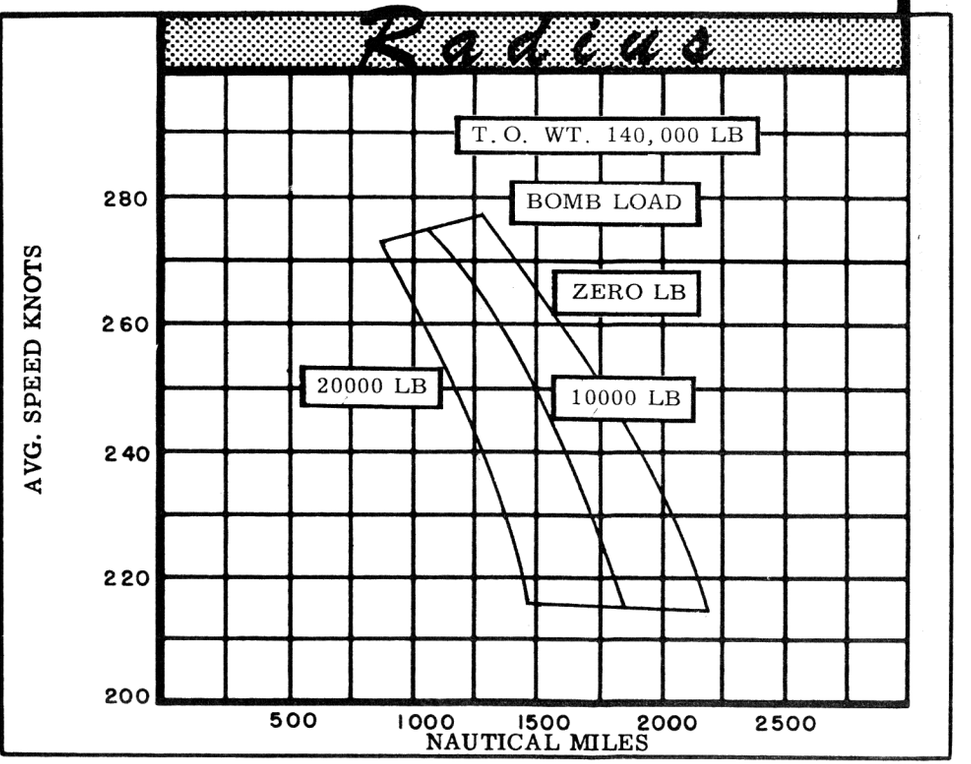
CONDITIONS:

(a) Performance Basis: Flight test
(b) In computing Radius and Range, specific fuel consumptions have been increased 5% to allow for variations of fuel flow in service aircraft.
(c) Performance is based on powers shown on page 6.


Take-Off
SEA LEVEL
CLEAR 50 FT
GROUND RUN
DISTANCE (1000 ft)
0
2
4
6
8
80
90
100
110
120
130
140
GROSS WEIGHT (1000 lb)


Climb
MAX POWER
NORMAL POWER
101, 250 LB
140, 000 LB
ALTITUDE (1000 ft)
S.L.
10
20
30
40
0
500
1000
1500
2000
RATE OF CLIMB-FT/MIN


Speed
MAX POWER
NORMAL POWER
101, 250 LB
ALTITUDE (1000 ft)
SL
10
20
30
40
230
250
270
290
310
330
350
KNOTS


Radius
T.O. WT. 140, 000 LB
BOMB LOAD
ZERO LB
20000 LB
10000 LB
AVG. SPEED KNOTS
200
220
240
260
280
500
1000
1500
2000
2500
NAUTICAL MILES

NOTES

FORMULA: RADIUS MISSIONS I, II & IV

Warm-up, take-off, climb on course to 10,000 ft at normal power, cruise at long range speeds to point where climb is made to arrive at 25,000 ft 30 minutes prior to bomb drop, cruise at long range speeds for 15 minutes, followed by 15 minutes normal power run into target, drop bombs and conduct 5 minutes normal power evasive action (no distance credit) and 10 minutes run out from target area at normal power, cruise back to base at long range speeds at 25,000 ft. Range free allowances include 10 minutes normal power at sea level for warm-up and take-off, 5 minutes normal power evasive action plus 5% of initial fuel for reserve.

FORMULA: RADIUS MISSION III

Same as I, II and IV except initial climb is to 20,000 ft and bombs are dropped at 30,000 ft.

FORMULA: RANGE MISSIONS I, II & IV

Warm-up, take-off, climb on course to 10,000 ft at normal power, cruise at long range speeds to point where climb is made to arrive at 25,000 ft 30 minutes prior to bomb drop, cruise at long range speeds for 30 minutes, to point where 90% of initial fuel has been used, drop bombs. Range free allowances include 10 minutes normal power at sea level for warm-up and take-off plus 10% of initial fuel for evasive action and landing reserve.

FORMULA: RANGE MISSION III

Same as Range Missions I, II and IV except initial climb is to 20,000 ft and bombs are dropped at 30,000 ft.

FORMULA: RANGE MISSION V

Warm-up, take-off, climb on course to 10,000 ft at normal power, cruise at long range speeds to point where 90% of initial fuel is used. Range free allowances include 10 minutes normal power at sea level for warm-up and take-off plus 10% of initial fuel for landing reserve.

GENERAL DATA:

(a) For detailed planning refer to Tech Order AN 01-20EJA-1.

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

R-3350-79 or -81			
	BHP	RPM	CRIT ALT*
T.O:	2200	2800	
Max:	**2500	2800	31,400
Nor:	2000	2400	35,600

*With Turbo
**As established by AN 01-20EJ-92 dated 15 June 1945.

(c) The R-3350-79 and -81 are respectively the R-3350-57 and -57A engines modernized to increase engine strength and improve reliability.

(d) Bomb bay tanks are dropped when empty for all missions shown on page 4.