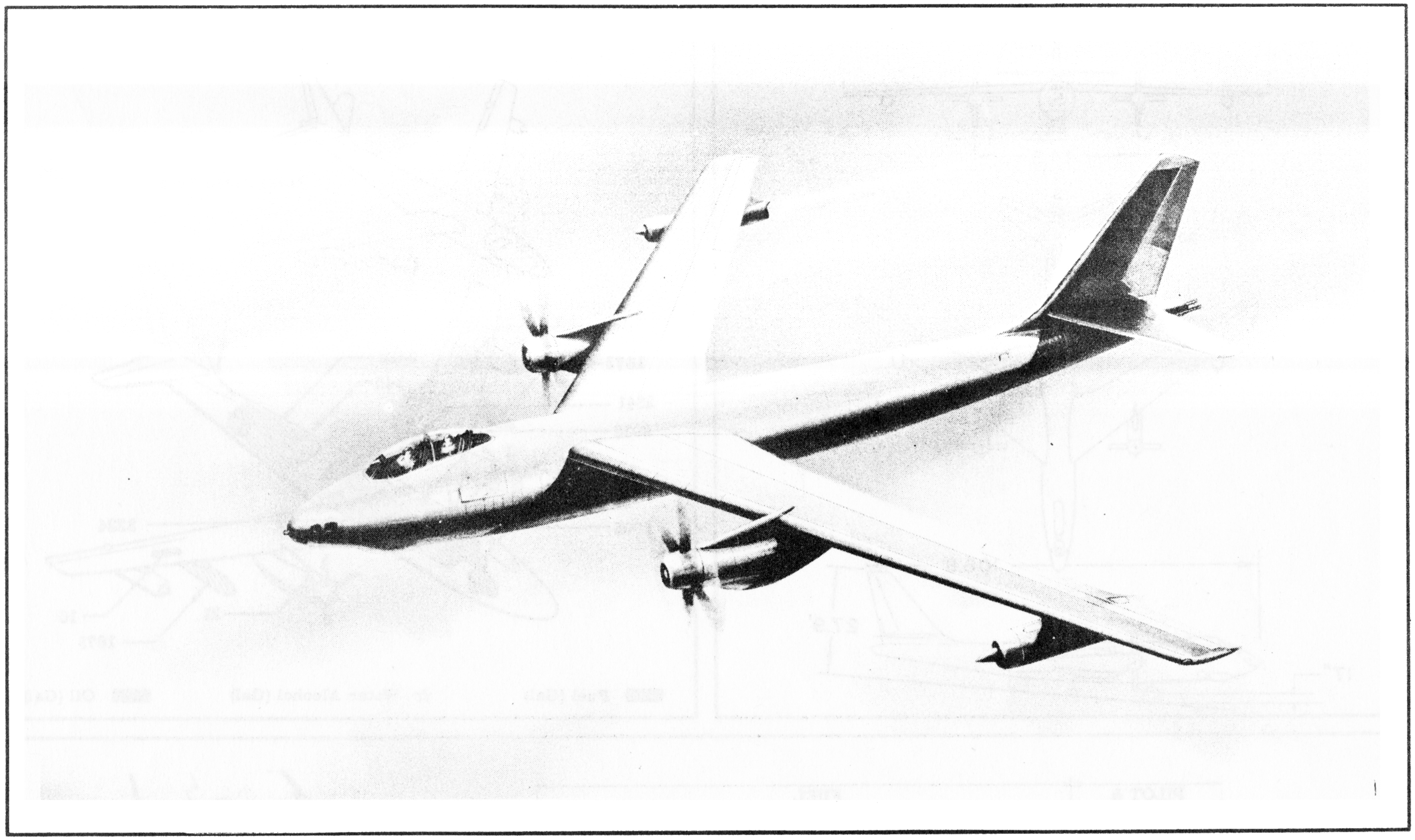
Unclassified
SECRET

(Security Information)

EXPERIMENTAL



Standard Aircraft Characteristics

XB-47D

Boeing

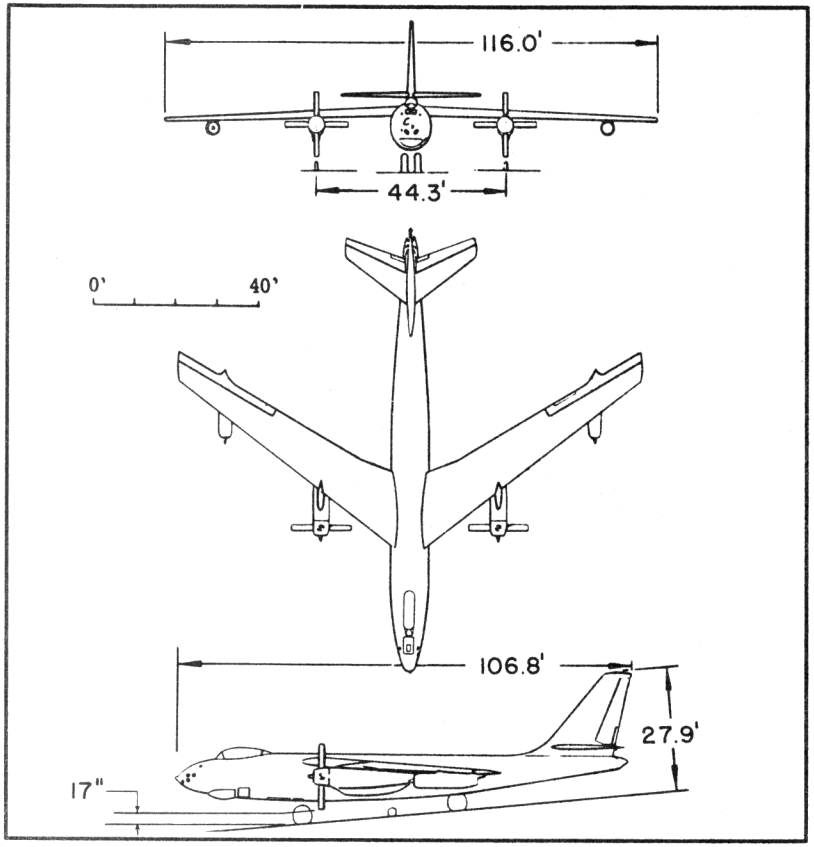
BY AUTHORITY OF
COMMANDING GENERAL
WRIGHT AIR DEVELOPMENT CENTER
U.S. AIR FORCE

TWO YT49-W-1
WRIGHT
AND
TWO J47-GE-23
GENERAL ELECTRIC

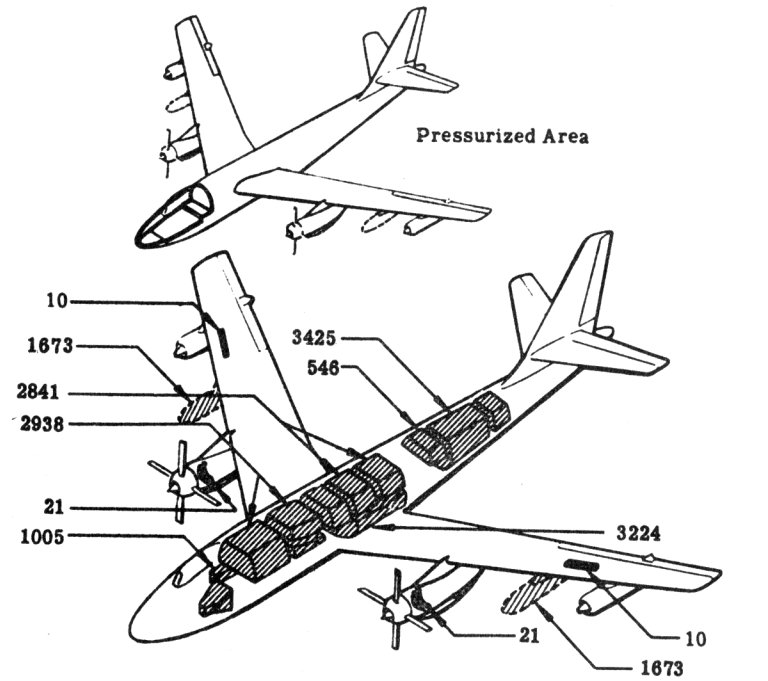
lassification cancelled
or changed to Unclassified
AUTH: AFSC-AFLC Sec. Class. Guide 1 Jan 64
By A.R. Sonneborn Apr 64
Signature and Grade
DOD Dir 5200.10 20 Feb 67

Unclassified

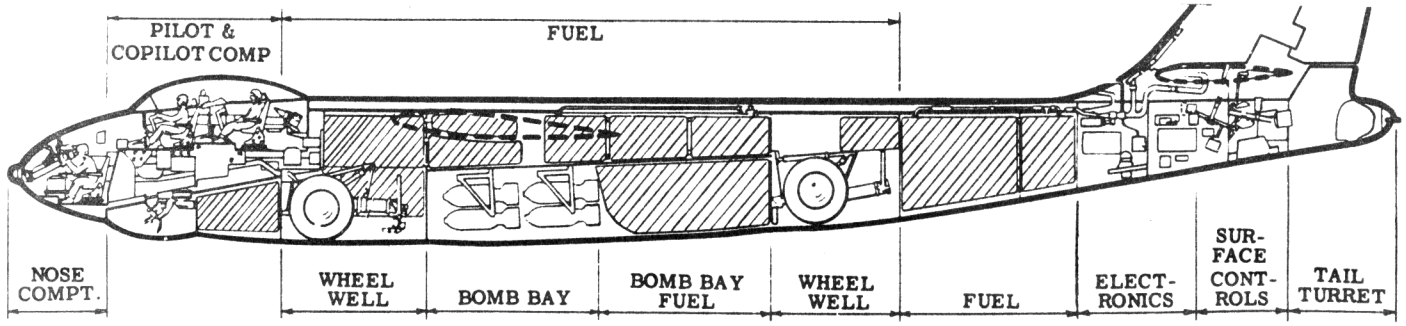
Volume One 13 March 1953 53WC-12001



Wing Area .....1428 sq ft
Aspect Ratio.....9.43
Wing Section .....Boeing 145
M. A. C. .....13 ft



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



POWER PLANT

No & Model	(2) YT49-W-1
Mfr	Wright
Engine Spec No.	875C
Type	Axial
Red. Gear Ratio	0.143
Prop Mfr	Curtiss
Blade Design No.	C-8465-A
Prop Type	Reversible
No. Blades	4
Prop Diameter	15'0"
Plus	
No. & Model	(2) J47-GE-23
Mfr	General Electric
Type	Axial
Length	145"
Diameter	39.5"
Weight (dry)	2512 lb

ENGINE RATINGS

(2) YT49-W-1

S. L. S.	ESHP - SHP-	LB-RPM-MIN
T. O.	10,380 - 9000 -	3450-8000-5
Mil:	10,380 - 9000 -	3450-8000-30
Nor:	9,450 - 8250 -	3000-7700-Con

Plus

(2) J47-GE-23

S. L. Static	LB - RPM - MIN
Max:	*6090 - 7950 - 5
Mil:	*5850 - 7800 - 30
Nor:	*5590 - 7630 - Cont

* No inlet screens

Mission and Description

Navy Equivalent: None

The XB-47D is a high speed, long range composite turbo-prop, turbo-jet bomber.

The normal crew consists of pilot, co-pilot-gunner and bombardier-navigator.

Features incorporated for improved crew comfort and efficiency are automatic heating, ventilation, and pressurization; hydraulic boost on all control surfaces.

A two-gun tail turret is installed with radar sight at the co-pilot station. A rotatable seat allows the co-pilot to face aft while functioning as fire control operator.

Reversible propellers are used to decrease landing roll distance as well as an emergency braking parachute.

Single-point ground and air-to-air refueling is provided.

Development

Design Initiated	Feb 51
Contract Approval	Apr 51
Mock-up	Jan 52
First Flight	Aug 53 (est)
First Acceptance	Feb 54 (est)

Phase II contract for one prototype only
XB-47D developed from B-47B

WEIGHTS

Loading	Lb	L. F.
Empty	81,990(E)	
Basic	84,262(E)	
Design	125,000	3.0
Combat	123,200	
Max T. O.	*180,000	2.0
Max IFR	†202,000	2.0
Max Land	‡180,000	

(E) Estimated
* For Basic Mission
† With External Tanks
‡ Limited by structure

FUEL

Location	No. Tanks	Gal
Fwd, Main*	1	2938
Fwd, Main Aux. *	1	1005
Ctr, Main*	1	2841
Aft, Main*	1	3425
Aft, Aux*	1	546
Bomb Bay*	1	3224
Wing, drop	2	3346
	Total	17,325

Grade JP-4
Specification MIL-F-5624A

OIL

(YT49-W-1)		
Nacelle	2	42
Grade		1120
Specification		MIL-O-6082
(J47-GE-23)		
Wing	2	20
Grade		1005
Specification		MIL-O-6081A

*Self Sealing

DIMENSIONS

Wing	
Span	116.0'
Incidence (root)	2°40'
(tip)	2°45'
Dihedral	0°
Sweepback (LE)	36°38'
Length	106.8'
Height	27.9'
Tread (outrigger)	44.3'
Prop Grd Clearance	17.0"

BOMBS

No.	Lb	Type
1	12,000	G. P.
1	22,000	G. P.
2	4000	G. P.
6	2000	G. P.
16	1000	G. P.
1	10,000	Special

Max Bomb Load ..... 22,000 lb

See Note (a), page 6

GUNS

No.	Size	Rds ea	Location
2	20 mm	300	Tail

ELECTRONICS

VHF Command	AN/ARC-3
Omni-Dir. Rec'v'r	AN/ARN-14
Bomb & Nav Radar	K-2
Gun Laying Radar	AN/APG-27
Loran	AN/APN-9A
ECM	AN/APT-5A
Marker Beacon	AN/APN-68
Interphone	USAF Combat
Identification	AN/APX-6
Liaison*	AN/ARC-21

*Provision only - See note(a) page 6

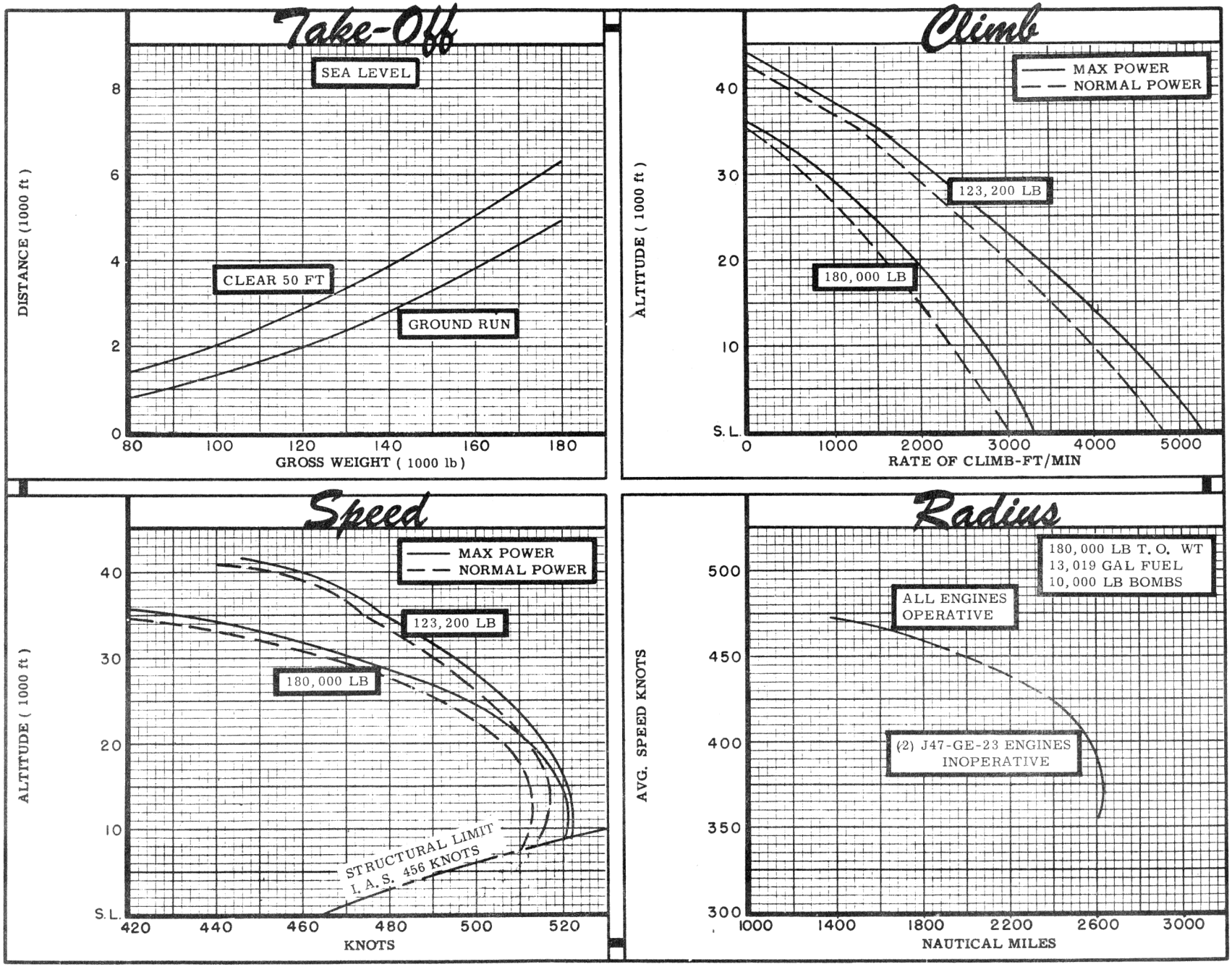
Loading and Performance—Typical Mission

CONDITIONS		BASIC MISSION	FERRY RANGE
		I	II
TAKE-OFF WEIGHT	(lb)	180,000	176,238
Fuel at 6.5 lb/gal (grade JP-4)	(lb)	84,625	90,863
Payload (Bombs)	(lb)	10,000	None
Wing loading	(lb/sq ft)	126	123.5
Stall speed (power off)	(kn)	140	139
Take-off ground run at SL ①	(ft)	4950	4720
Take-off to clear 50 ft ①	(ft)	6250	6000
Rate of climb at SL ②	(fpm)	3300	3420
Time: SL to 20,000 ft ②	(min)	7.3	7.0
Time: SL to 30,000 ft ②	(min)	13.6	13.0
Service ceiling (100 fpm) ②	(ft)	35,600	36,200
Service ceiling (one engine out) ②	(ft)	25,000	25,000
COMBAT RANGE ④	(n. mi.)	5155	5920
COMBAT RADIUS ④	(n. mi.)	2655	—
Average cruise speed	(kn)	380	380
Initial cruising altitude	(ft)	27,700	28,100
Target speed	(kn)	429	—
Target altitude	(ft)	40,300	—
Final cruising altitude	(ft)	40,750	40,600
Total mission time	(hr)	14.15	15.70
COMBAT WEIGHT	(lb)	123,200	94,461
Combat altitude	(ft)	35,000	45,450
Combat speed ②	(kn)	479	435
Combat climb ②	(fpm)	1650	800
Combat ceiling (500 fpm) ②	(ft)	41,300	47,000
Service ceiling (100 fpm) ②	(ft)	43,300	48,700
Service ceiling (one engine out) ②	(ft)	36,000	42,400
Max rate of climb at SL ②	(fpm)	5350	7150
Max speed at 12,000 ft ②	(kn)	522	523
LANDING WEIGHT	(lb)	93,837	94,461
Ground roll at SL	(ft)	3050	3100
Total from 50 ft	(ft)	4050	4100

NOTES

① T.O. power
② Max power
③ Normal power
④ Detailed descriptions of RADIUS and RANGE missions given on page 6

PERFORMANCE BASIS:
(a) Data source: Estimated (not substantiated by WADC)
(b) Performance is based on powers shown on page 3


Take-Off
SEA LEVEL
CLEAR 50 FT
GROUND RUN
DISTANCE (1000 ft)
0
2
4
6
8
80
100
120
140
160
180
GROSS WEIGHT (1000 lb)
Climb
MAX POWER
NORMAL POWER
123, 200 LB
180, 000 LB
ALTITUDE (1000 ft)
S.L.
10
20
30
40
0
1000
2000
3000
4000
5000
RATE OF CLIMB-FT/MIN
Speed
MAX POWER
NORMAL POWER
123, 200 LB
180, 000 LB
STRUCTURAL LIMIT
I. A. S. 456 KNOTS
ALTITUDE (1000 ft)
S.L.
10
20
30
40
420
440
460
480
500
520
KNOTS
Radius
180, 000 LB T. O. WT
13, 019 GAL FUEL
10, 000 LB BOMBS
ALL ENGINES
OPERATIVE
(2) J47-GE-23 ENGINES
INOPERATIVE
AVG. SPEED KNOTS
300
350
400
450
500
1000
1400
1800
2200
2600
3000
NAUTICAL MILES

NOTES

FORMULA: RADIUS MISSION I

Take-off with all engines operative, climb to 27,700 ft. altitude with turbo-props and turbo-jets at military power, cruise out at long range speeds increasing altitude with decreasing airplane weight (turbo-jets inoperative), make normal power bomb-run to target with all engines operative, drop bombs, conduct normal power evasive action for 6 minutes, start cruise to home base (turbo-jets inoperative) at 35,200 ft. altitude arriving over home base at 40,750 ft altitude. Range free allowances are: 5 minutes normal power fuel consumption for starting engines and take-off, plus 6 minutes normal power evasive action, plus 10% of initial fuel for reserve.

FORMULA: RANGE MISSION I

Same as the out-bound leg of the basic radius formula continued without dropping the bombs until 90% of the initial fuel has been used at 45,550 ft. altitude, leaving 10% fuel reserve for combat, evasive action, landing reserve, or other considerations for which no distance credit is allowed.

FORMULA: RANGE MISSION II

Same as basic range formula except that 10,000 lb bomb is not carried and fuel tanks are filled to capacity. Take-off weight is 176,238 lb.

GENERAL DATA:

(a) Airplane is to be delivered as a test bed with no tactical equipment. Data based on the airplane with tactical equipment installed.

(b) Drag data estimated from B-47B flight test data of March, 1950 (ref: Boeing Document 10704)

(c) Kinetic energy correction applied to rate-of-climb data.

(d) Landing distances are based on 2500 lb total net thrust on approach and 30,000 lb total reverse thrust after touchdown. The reverse thrust decreases as the airplane decelerates.

(e) Times to climb do not include take-off time and time to accelerate to best climb speed.

(f) Maximum landing weight = 180,000 lb limited by maximum flight weight without external fuel (computed on basis of 8 ft per second ultimate rate of descent with 1G wing lift.)