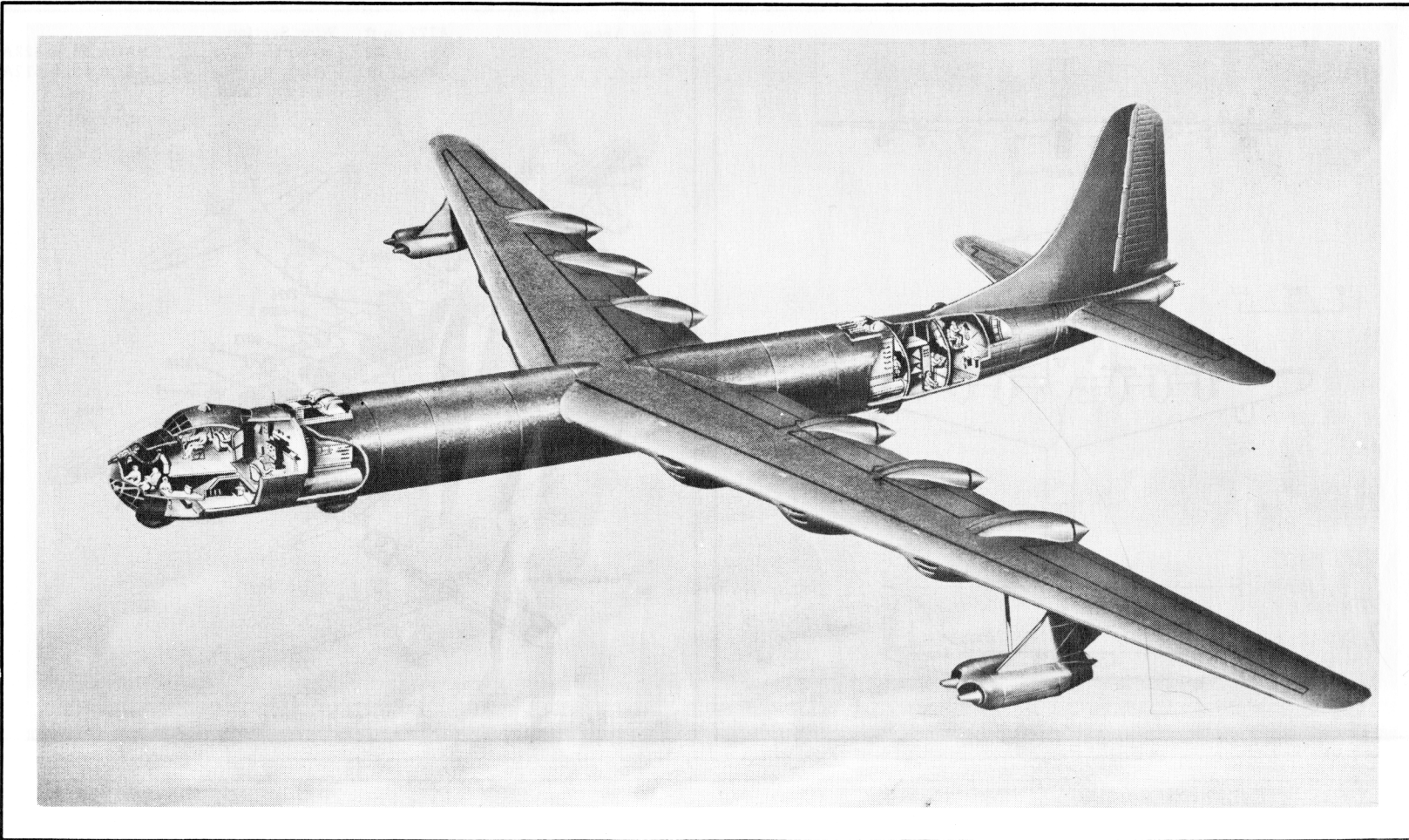


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U N C L A S S I F I E D

SERVICE



Standard Aircraft Characteristics

BY AUTHORITY OF
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OF THE AIR FORCE

B-36J

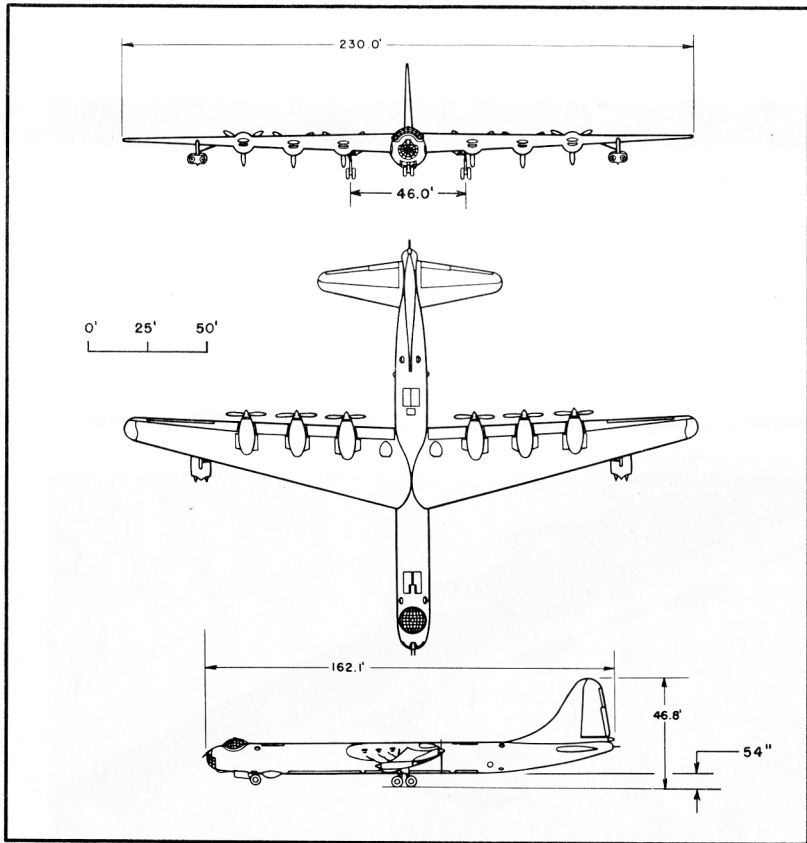
Consolidated-Vultee

SIX R-4360-53
PRATT & WHITNEY
FOUR J47-GE-19
GENERAL ELECTRIC

15 JUN 54

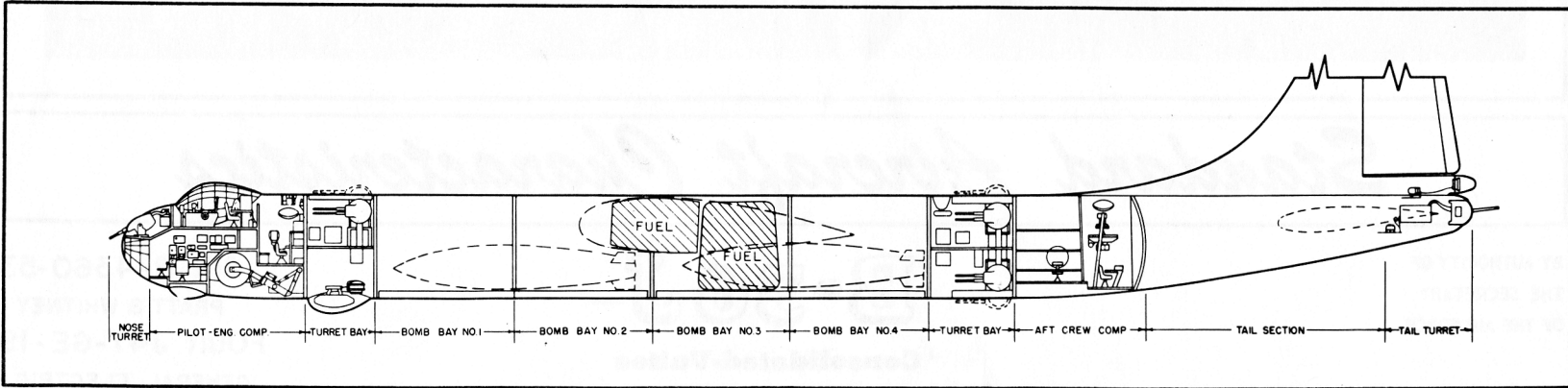
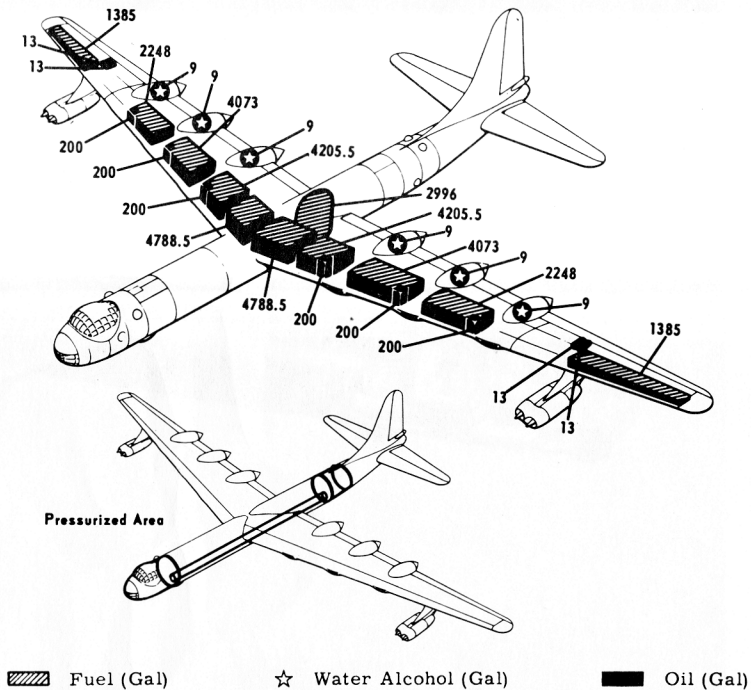
U N C L A S S I F I E D

B-36J



Wing Area 4772 sq ft
 Aspect Ratio 11.08
 M. A. C. 280.7 in.

Wing Section
 (root) NACA 63, 4-422A
 (tip) NACA 63, 4-517A
 a = 1.0 (mod.)



POWER PLANT

No. & Model (6) R-4360-53
 Mfr Pratt & Whitney
 Engine Spec No. A-7076-F
 Superch 1 stg, 1 spd
 Turbo Superch (2) BH-1
 Turbo Mfr General Electric
 Red. Gear Ratio 0.375
 Prop. Mfr *Curtiss
 Blade Design No. 1129-17C6-24
 Prop. Type C.S., FF, Reverse
 No. Blades 3
 Prop. Dia 19'0"
 Augmentation Water/Alcohol
 plus
 No. & Model (4) J47-GE-19
 Mfr General Electric
 Engine Spec. No. E-589
 Type Axial
 Length 144"
 Diameter 39"
 Weight (dry) 2495
 Tail Pipe Fixed Area
 *Alt, Blades; A. O. Smith, SP-36D

ENGINE RATINGS

BHP - RPM - ALT - MIN
 T.O: *3800-2800 - S.L. - 5
 Mil: *3800-2800 - Turbo - 30
 3500-2800 - Turbo - 30
 Nor: 2800-2600 - Turbo - Cont
 * Wet
 S.L. Static LB - RPM - MIN
 Max: 5200 - 7950 - 5
 Mil: 5200 - 7950 - 30
 Nor: 4730 - 7630 - Cont

DIMENSIONS

Wing
 Span 230.0'
 Incidence (root) 3°
 (tip) 1°
 Dihedral 2°
 Sweepback (LE) 15°5'
 Length 162.1'
 Height 46.8'
 Tread 46.0'
 Prop. Grd Clearance 54"

Mission and Description

Navy Equivalent: None Mfr's Model: 36
 The principal mission of the B-36J is the destruction by bombs of strategic ground and naval materiel objectives.

The crew of 15 consists of aircraft commander, pilot, co-pilot, first engineer, second engineer, navigator, radar-bombardier, observer, first radio operator, second radio operator, right upper aft gunner, left upper aft gunner, right lower aft gunner, left lower aft gunner, and tail gunner.

The co-pilot serves as left upper forward gunner and the second radio operator as right forward upper gunner. The first radio operator functions as ECM operator.

Crew compartments are pressurized, heated and ventilated and provided with an oxygen system for emergency use.

Compartment heating; enclosure and blister de-frosting; and propeller, wing, and tail anti-icing are accomplished by heated air obtained from heat exchangers installed in the reciprocating engine exhaust system.

The K-3A Bombing-Navigation system with a vertical Y-3A optical sight and radar equipment for blind bombing and navigation is provided. This system allows a single crew member to act as radar operator and bombardier.

The defensive armament consists of eight 20mm gun turrets, six of which are retractable. The tail turret is controlled by AN/APG-41A radar.

The airplane has a single-point fueling, manifold type fuel system.

Major differences of the B-36J from the B-36H are the addition of outer panel wing tanks and the strengthening of landing gear to allow take-off gross weight of 410,000 lb.

Development

First Flight Prototype Jul 53
 First Delivery Oct 53
 Production Completion (est) Jun 54

WEIGHTS

Loading	Lb	L. F.
Empty . . .	171,035(C)	
Basic . . .	176,670(C)	
Design . . .	410,000	2.0
Combat . . .	*266,100	
Max T. O. . .	†410,000	2.0
Max Land . .	‡357,500	

(C) Calculated
 * For Basic Mission
 † Limited by strength (Landing gear and wings)
 ‡ Limited by strength (Landing gear)

F U E L

Location	No. Tanks	Gal
Wg, outer panel	2	2770
Wg, outbd *	2	4496
Wg, ctr*	2	8146
Wg, inbd	2	8411
Ctr sec (aux)	2	9577
Bomb bay	1	2996
	Total	36,396
Grade		115/145
Specification		MIL-F-5572

OIL

Outboard (Jet)	4	(tot) 52
Wing (Recip)	6	1200
Grade (Recip)		1100
(Jet)		1005
Specification (Recip): MIL-L-6082A		
(Jet)		MIL-L-6081A

WATER/ALCOHOL
 Eng Nacelle 6 (tot) 54
 * Partial Self-Sealing

B O M B S

No.	Class (lb)
WW II (Box Fin)	
12	4000
28	2000
72	1000
132	500
INTERIM (Conical Fin)	
22	2000
40	1000
129	500
NEW SERIES	
2*	43,000
4	12,000
48	750

* See note (f), page 6.

G U N S

No.	Type	Size	Rds ea	Loc
2	M24A1	20mm	400	Fus, nose
4	M24A1	20mm	600	Fus, up, fw
4	M24A1	20mm	600	Fus, up, aft
4	M24A1	20mm	600	Fus, lw, aft
2	M24A1	20mm	600	Fus, tail

ELECTRONICS

UHF Command AN/ARC-27
 VHF Command AN/ARC-3
 Liaison AN/ARC-21x
 Radio Compass AN/ARN-6
 Marker Beacon AN/ARN-12
 IFF AN/APX-6
 Omni-Range AN/ARN-14
 Glide Path AN/ARN-18
 Bomb.-Nav. Radar K-3A
 Loran AN/APN-70
 Gun-Laying Radar AN/APG-41A
 Interphone AN/AIC-10
 Defensive ECM

Loading and Performance—Typical Mission

C O N D I T I O N S		BASIC MISSION	T. O. LIMIT LOAD	HIGH ALTITUDE	HIGH SPEED	FERRY	MAX HEAVY BOMBS
TAKE-OFF WEIGHT	(lb)	I 410,000	II 410,000	III 410,000	IV 410,000	V 408,642	VI 357,500
Fuel at 6.0 lb/gal (grade 115/145)	(lb)	208,326	145,627	208,326	208,326	218,376	79,127
Payload (Bombs)	(lb)	10,000	72,000	10,000	10,000	None	86,000
Payload (Chaff)	(lb)	1408	1408	1408	1408	None	1408
Wing loading	(lb/sq ft)	85.9	85.9	85.9	85.9	85.6	74.9
Stall speed (power off)	(kn)	113	113	113	113	113	105
Take-off ground run at SL	(ft)	5290	5290	5290	5290	5220	3630
Take-off to clear 50 ft	(ft)	6820	6820	6820	6820	6750	4640
Rate of climb at SL	(ft/min)	720	720	720	720	720	990
Rate of climb at SL (one eng. out)	(ft/min)	720	720	720	720	720	1000
Time: SL to 10,000 ft	(min)	15	15	15	15	14.9	11
Time: SL to 20,000 ft	(min)	35	35	35	35	34.8	24
Service ceiling (100 fpm)	(ft)	27,400	27,400	27,400	27,400	27,700	34,800
Service ceiling (one eng. out)	(ft)	25,000	25,000	25,000	25,000	25,000	32,000
COMBAT RANGE	(n. mi)	—	—	—	—	7144	—
COMBAT RADIUS	(n. mi)	2955	1775	2660	1475	—	847
Average cruise speed	(kn)	198	200	226	338	188	233
Initial cruising altitude	(ft)	5000	5000	25,000	25,000	5000	5000
Target speed	(kn)	344	325	346	339	328	332
Target altitude	(ft)	39,100	32,500	39,700	35,700	27,000	35,500
Final cruising altitude	(ft)	27,500	28,000	25,000	39,900	27,000	29,000
Total mission time	(hr)	29.4	17.4	23.5	9.2	38.0	7.8
COMBAT WEIGHT	(lb)	266,100	237,092	259,800	278,500	202,614	214,685
Combat altitude	(ft)	39,100	32,500	39,700	35,700	27,000	35,500
Combat speed	(kn)	356	354	357	355	352	368
Combat climb	(ft/min)	580	1240	570	690	1910	1390
Combat ceiling (500 fpm)	(ft)	39,900	42,100	40,400	39,000	45,000	43,800
Service ceiling (100 fpm)	(ft)	43,000	45,700	43,600	42,200	48,900	48,800
Service ceiling (one eng. out)	(ft)	40,900	43,800	41,200	40,200	45,700	46,300
Max rate of climb at SL	(ft/min)	1920	2270	1980	1820	2750	2560
Max speed at optimum altitude	(kn)	357/36,400	366/37,000	359/36,600	355/36,000	372/38,500	371/38,000
Basic speed at 25,000 ft	(kn/ft)	340	345	341	339	348	340
LANDING WEIGHT	(lb)	202,110	199,656	202,110	202,110	202,614	196,310
Ground roll at SL	(ft)	1970	1940	1970	1970	1980	1910
Ground roll (auxiliary brake)	(ft)	1710	1680	1710	1710	1720	1660
Total from 50 ft	(ft)	3410	3380	3410	3410	3420	3360
Total from 50 ft (auxiliary brake)	(ft)	3170	3140	3170	3170	3180	3110

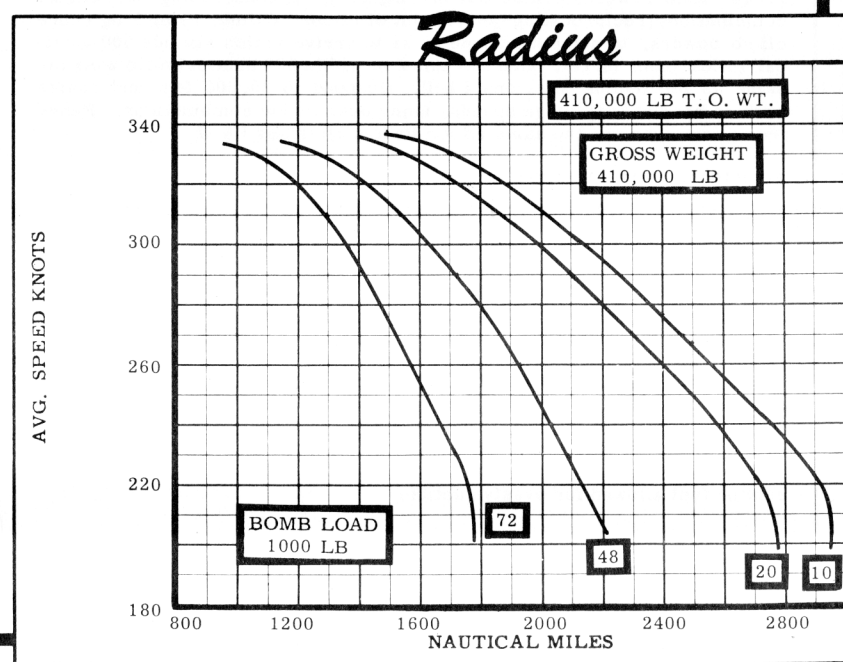
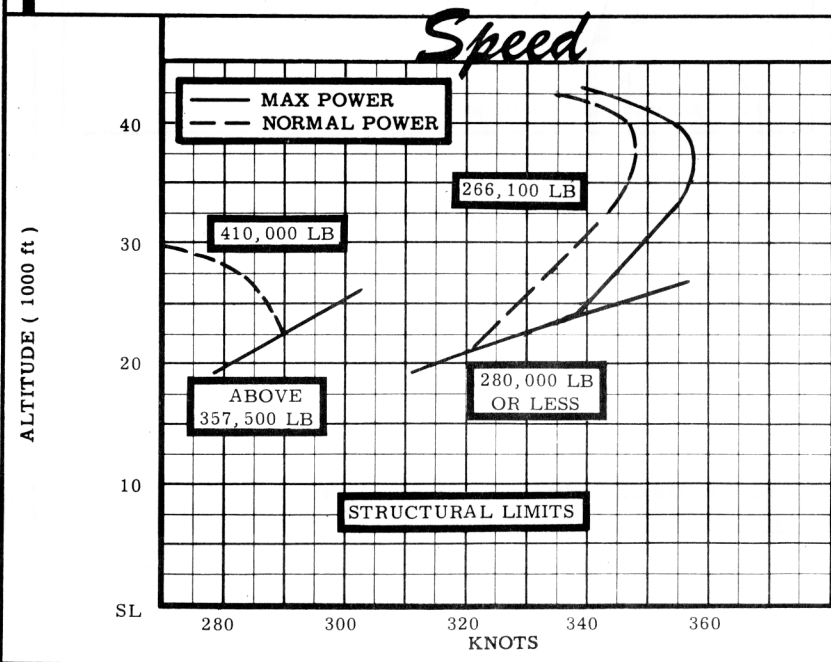
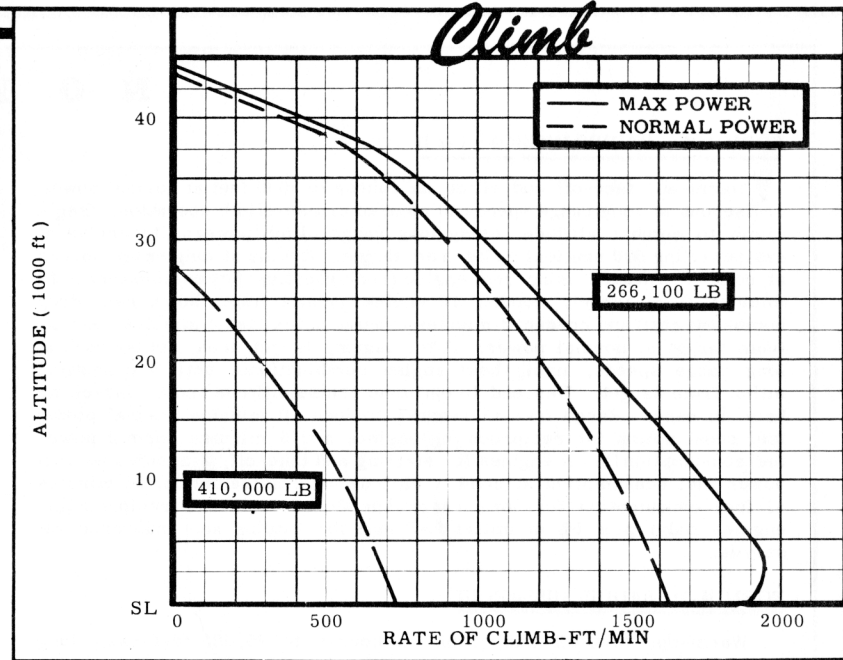
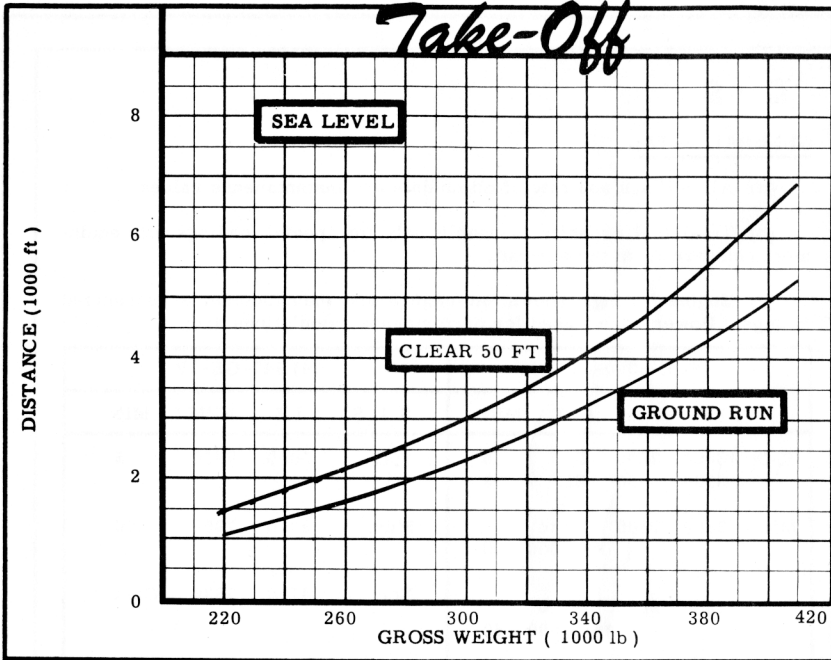
NOTES

- ① Take-off power
 ② Max power
 ③ Normal power

- ④ Detailed descriptions of Radius and Range missions given on page 6
 ⑤ All props reversed

Performance Basis:

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



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 Ohio 45433

N O T E S

FORMULA: RADIUS MISSIONS I & II

Warm-up, take-off and climb on course to 5000 feet at normal power; cruise out at long range speeds to point of cruise-climb operation. Begin climb to combat altitude, using long range climb powers, to arrive at cruise ceiling 500 nautical miles from target. Cruise at long range speeds at combat altitude, using best engine (reciprocating-jet) combinations: 15 minutes from target, conduct 10 engine normal power bomb run, drop bombs and chaff and conduct 2 minutes evasive action and 8 minutes escape from target at normal power. After leaving target area, cruise back at long range speeds, using best engine combinations, until 500 nautical miles from target. Descend to optimum cruise altitude and cruise-climb back to base. Range free allowances include 10 minutes normal power fuel consumption for reciprocating engines and 5 minutes normal power fuel consumption for jet engines for starting and take-off, 2 minutes normal power fuel consumption at combat altitude for evasive action, 30 minutes of fuel consumption for long range speeds at sea level (reciprocating engines only) plus 5% of initial fuel load for landing and endurance reserves.

FORMULA: RADIUS MISSION III

Warm-up, take-off and climb on course to 25,000 feet using long range climb powers; cruise out at long range speeds, using best engine combinations (reciprocating-jet) to point of climb. Climb, using long range climb powers, to combat altitude so as to arrive at this altitude 500 nautical miles from target. Conduct mission within 500 nautical mile zone the same as for Radius Missions I & II. Descend to 25,000 feet and cruise back to base at long range speeds, using best engine combinations. Range free allowances are the same as for Radius Missions I & II.

FORMULA: RADIUS MISSION IV

Entire mission is flown at normal power. Warm-up, take-off and climb on course to 25,000 feet. Cruise at optimum altitudes to combat altitude. Begin climb so as to arrive at this altitude 500 nautical miles from target. Cruise in to target, drop bombs and chaff and conduct 2 minutes evasive action. Climb to best altitude for normal power cruise. Cruise-climb to base. Range free allowances are the same as for Radius Missions I & II.

FORMULA: FERRY RANGE MISSION V

Warm-up, take-off and climb on course to 5000 feet at normal power; cruise climb at long range speeds until all but reserve fuel is consumed. Range free allowances are the same as for Radius Missions I & II, except no fuel allowed for evasive action.

GENERAL DATA:

- (a) All ceilings and rate of climb data are instantaneous values.
- (b) Total fuel capacity is usable only for special loadings with equipment removed from the aircraft.
- (c) Engine ratings shown on page 3 are manufacturer's guaranteed ratings. Power values used for performance calculations are:

(6) R-4360-53				(4) J47-GE-19			
BHP	RPM	ALT	MIN	S. L. S.	LB	RPM	MIN
T. O: *3800	2800	SL	5	T. O:	5010	7950	5
	3500	SL	5				
Mil:	3800	2800	Up to	Max:	5010	7950	30
			*35,000 30				
	3500	2800	Up to	Nor:	4700	7630	Cont
			**35,000 30				
Nor:	2800	2600	Up to				
			**35,000 Cont				
* Wet							
** Turbo supercharger limitation							

- (d) For detailed planning refer to Technical Order 1B-36J-1, 1B-36F-1 and other applicable technical orders.
- (e) Take-off at 370,000 lb gross weight is authorized only for airplanes with structural modifications (according to ECP-1890B and on all airplanes subsequent to No. 312 which incorporates the new design pivot shaft installed under ECP-1890C and 1890D).
- (f) (2x43,000 lb) may be carried only when gross weight does not exceed 357,500 lb. For gross weights above 357,500 lb the Max Bomb Load is (72x1000 lb)

PERFORMANCE REFERENCE:

FZA-36-278 and contractor's extrapolated data.

REVISION BASIS: Initial Issue.