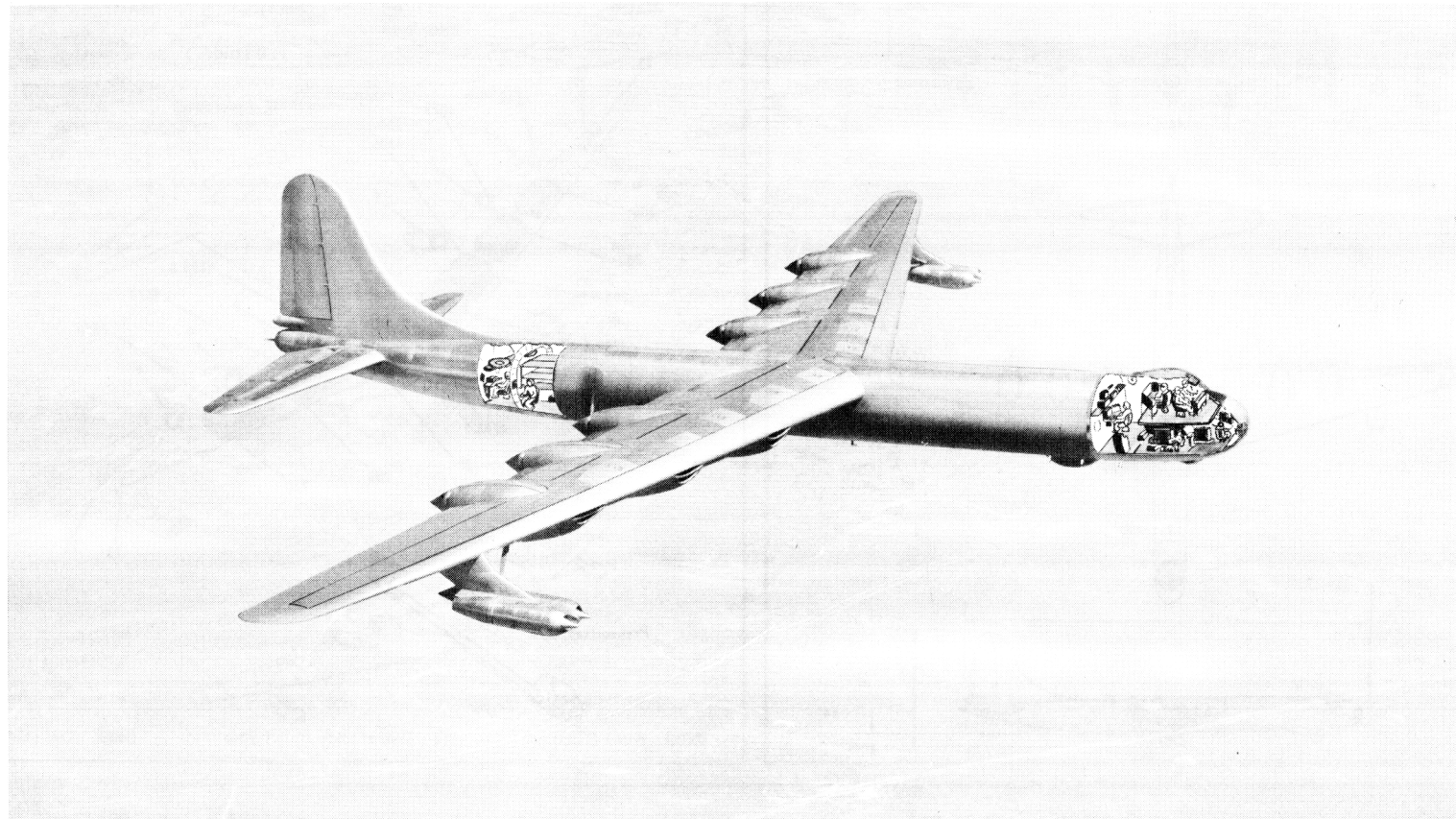


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41
B-36F/III

SERVICE



Standard Aircraft Characteristics

B-36F III

Consolidated-Vultee

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

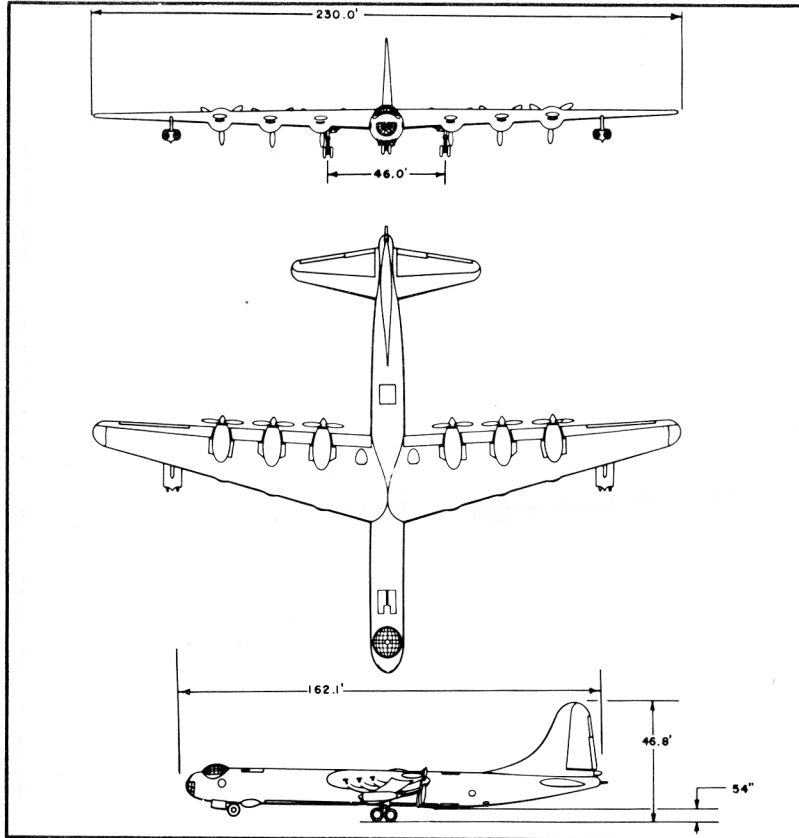
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THE SECRETARY
OF THE AIR FORCE

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A. R. Lovelace 8 Jan 68

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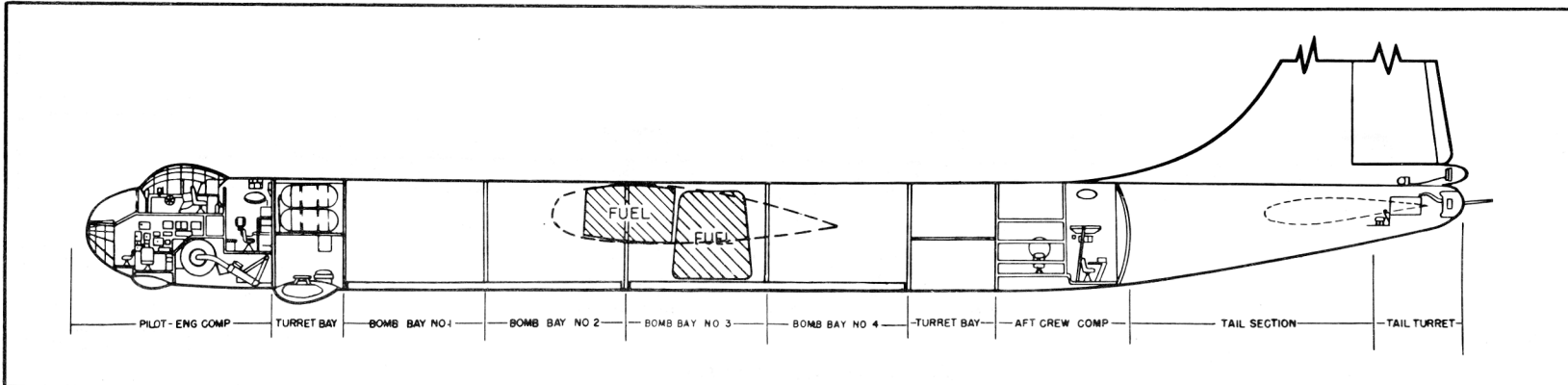
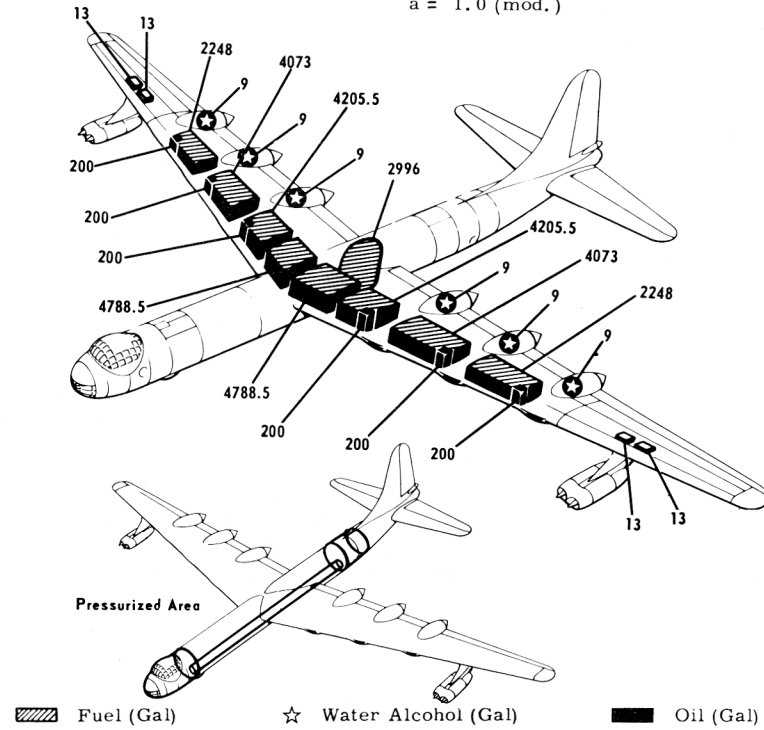
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B-36F(III)



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 st, 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

ENGINE RATINGS

BHP - RPM - ALT - MIN
 T. O: *3800 - 2800 - SL - 5
 Mil: *3800 - 2800 - Turbo - 30
 3500 - 2800 - Turbo - 30
 Nor: 2800 - 2600 - Turbo - Cont
 * Wet
 plus
 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 34"

Mission and Description

Navy Equivalent: None Mfr's Model: 36
 The principal mission of the B-36F(III) is the destruction by bombs of strategic ground and naval materiel objectives.
 The crew of 13 differs from that of the standard configuration in that the upper aft right and left gunners have been removed.
 Crew compartments are heated and ventilated. Compartment heating; enclosure defrosting; wing and tail anti-icing are accomplished by heated air obtained from heat exchangers installed in the reciprocating engine exhaust system. The oxygen system modification includes the removal of oxygen provisions from deleted crew stations.
 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 serve as radar operator and bombardier.
 The defensive armament consists of a 20mm gun tail turret, controlled by AN/APG-32 Radar.
 The airplane has a single-point refueling, manifold type fuel system.

Development

Major differences of the B-36F(III) from the standard configuration are removal of all turrets except tail turret, self-sealing pads, fuel purging system and crew comfort items; the replacement of blisters by small flush windows and the addition of dual automatic chaff dispensers.

Contract approved for modification of B-36F airplane to B-36F(III) Feb 54
 First Delivery May 54
 Modification Completion Date Dec 54

B O M B S

| No. | Class (lb) |
|-----------------------|------------|
| WW II (Box Fin) | |
| 12 | 4000 |
| 28 | 2000 |
| 45 | 1600 |
| 72 | 1000 |
| 132 | 500 |
| INTERIM (Conical Fin) | |
| 4 | 12,000 |
| 4 | 10,000 |
| 22 | 2000 |
| 40 | 1000 |
| 129 | 500 |
| NEW SERIES | |
| 48 | 750 |

G U N S

| No. | Type | Size | Rds ea | Loc |
|-----|-------|------|--------|-----------|
| 2 | M24A1 | 20mm | 600 | Fus, tail |

WEIGHTS

| Loading | LB | L. F. |
|-----------|-------------|-------|
| Empty | 164,429 (C) | |
| Basic | 166,081 (C) | |
| Design | 370,000 | 2.0 |
| Combat | *248,400 | |
| Max T. O. | †370,000 | 2.0 |
| Max Land | †357,500 | |

(C) Calculated
 * For Basic Mission
 † Limited by structure

F U E L

| Location | No. Tanks | Gal |
|---------------|-----------|------------|
| Wg, outbd | 2 | 4496 |
| Wg, ctr | 2 | 8146 |
| Wg, inbd | 2 | 8411 |
| Center sec | 2 | 9577 |
| Bomb Bay | 1 | 2996 |
| | Total | 33,626 |
| Grade | | 115/145 |
| Specification | | MIL-F-5572 |

OIL

| | | |
|-----------------------------------|---|------------|
| Outboard (Jet) | 4 | (tot) 52 |
| Wing (Recip) | 6 | (tot) 1200 |
| Grade (Recip) 1100; (Jet) | | .1005 |
| Specification (Recip) MIL-L-6082A | | |
| (Jet) . . . MIL-L-6081A | | |
| WATER/ALCOHOL | | |
| Eng Nacelle | 6 | (tot) 54 |

ELECTRONICS

| | |
|------------------|-------------------|
| UHF Command | AN/ARC-27 |
| VHF Command | AN/ARC-3 |
| Liaison | AN/ARC-8 |
| Radio Compass | AN/ARN-6 |
| Marker Beacon | AN/ARN-12 |
| IFF | AN/APX-6 |
| Blind Approach | RC-103D or ARN-14 |
| Glide Path | AN/ARN-5B |
| Bomb-Nav. Radar | K-3A |
| Loran | AN/APN-9A |
| Gun Laying Radar | AN/APG-32 |
| Range Recv'r | BC-453B |
| Interphone | USAF Combat |
| Defensive ECM | |
| Chaff Dispenser | |

Loading and Performance - Typical Mission

| C O N D I T I O N S | | BASIC MISSION | MAX BOMBS | MAX ALTITUDE | HIGH SPEED | FERRY RANGE |
|--------------------------------------|------------|---------------|------------|--------------|------------|-------------|
| | | I | II | III | IV | V |
| TAKE-OFF WEIGHT | (lb) | 370,000 | 370,000 | 370,000 | 370,000 | 370,000 |
| Fuel at 6.0 lb/gal (grade 115/145) | (lb) | 183,430 | 120,690 | 183,430 | 183,430 | 195,220 |
| Payload (Bombs) | (lb) | 10,000 | 72,000 | 10,000 | 10,000 | None |
| Payload (Chaff) | (lb) | 1408 | 1408 | 1408 | 1408 | None |
| Wing loading | (lb/sq ft) | 77.5 | 77.5 | 77.5 | 77.5 | 77.5 |
| Stall speed (power off) | (kn) | 107 | 107 | 107 | 107 | 107 |
| Take-off ground run at SL | ① (ft) | 3990 | 3990 | 3990 | 3990 | 3990 |
| Take-off to clear 50 ft | ① (ft) | 5110 | 5110 | 5110 | 5110 | 5110 |
| Rate of climb at SL | ③ (fpm) | 970 | 970 | 970 | 970 | 970 |
| Rate of climb at SL (one engine out) | ② (fpm) | 980 | 980 | 980 | 980 | 980 |
| Time: SL to 10,000 ft | ③ (min) | 11 | 11 | 11 | 11 | 11 |
| Time: SL to 20,000 ft | ③ (min) | 25 | 25 | 25 | 25 | 25 |
| Service ceiling (100 fpm) | ③ (ft) | 34,000 | 34,000 | 34,000 | 34,000 | 34,000 |
| Service ceiling (one engine out) | ② (ft) | 30,800 | 30,800 | 30,800 | 30,800 | 30,800 |
| COMBAT RANGE | (n. mi) | | | | | |
| COMBAT RADIUS | ④ (n. mi) | 3190 | 1745 | 2905 | 1420 | 7600 |
| Average cruise speed | (kn) | 212 | 220 | 213 | 356 | 205 |
| Initial cruising altitude | (ft) | 5000 | 5000 | 5000 | 32,300 | 5000 |
| Target speed | ③ (kn) | 356 | 346 | 322 | 354 | 368 |
| Target altitude | (ft) | 40,200 | 37,100 | 45,100 | 38,700 | 34,700 |
| Final cruising altitude | (ft) | 34,600 | 34,900 | 34,600 | 38,500 | 34,700 |
| Total mission time | (hr) | 29.7 | 15.7 | 26.7 | 8.3 | 37.1 |
| TOTAL MISSION TIME | (hr) | _____ | _____ | _____ | _____ | _____ |
| Interception altitude | (ft) | _____ | _____ | _____ | _____ | _____ |
| COMBAT WEIGHT | (lb) | 248,400 | 216,500 | 245,200 | 258,900 | 186,500 |
| Combat altitude | (ft) | 40,200 | 37,100 | 45,100 | 38,700 | 34,700 |
| Combat speed | ② (kn) | 365 | 374 | 338 | 365 | 373 |
| Combat climb | ② (fpm) | 570 | 1100 | 175 | 595 | 1830 |
| Combat ceiling (500 fpm) | ② (ft) | 40,900 | 44,000 | 41,200 | 39,800 | 47,900 |
| Service ceiling (100 fpm) | ③ (ft) | 44,500 | 47,900 | 44,700 | 43,800 | 50,600 |
| Service ceiling (one engine out) | ③ (ft) | 42,000 | 45,400 | 42,200 | 41,300 | 48,400 |
| Max rate of climb at SL | ② (fpm) | 2130 | 2545 | 2160 | 2025 | 3040 |
| Max speed at optimum altitude | ② (kn) | 366/37,700 | 372/38,400 | 367/37,800 | 365/37,500 | 376/38,800 |
| Basic speed at 25,000/35,000 ft | ② (kn/ft) | ⑥ 348/365 | ⑥ 351/370 | ⑥ 348/365 | ⑥ 347/363 | ⑥ 354/374 |
| LANDING WEIGHT | (lb) | 185,540 | 183,900 | 185,540 | 185,540 | 186,520 |
| Ground roll at SL | (ft) | 1800 | 1790 | 1800 | 1800 | 1800 |
| Ground roll (auxiliary brake) | ⑤ (ft) | 1580 | 1580 | 1580 | 1580 | 1580 |
| Total from 50 ft | (ft) | 3240 | 3240 | 3240 | 3240 | 3240 |
| Total from 50 ft (auxiliary brake) | ⑤ (ft) | 3010 | 3010 | 3010 | 3010 | 3010 |

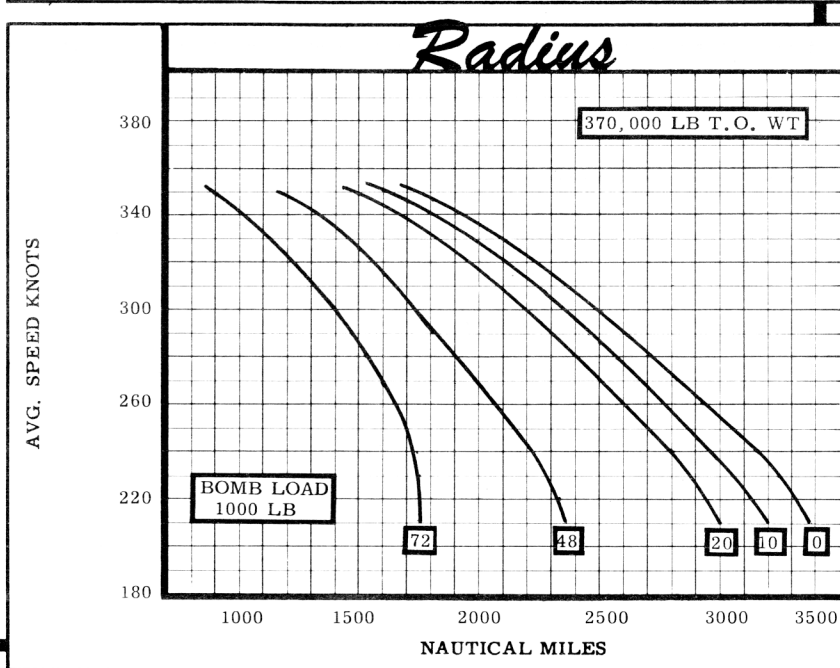
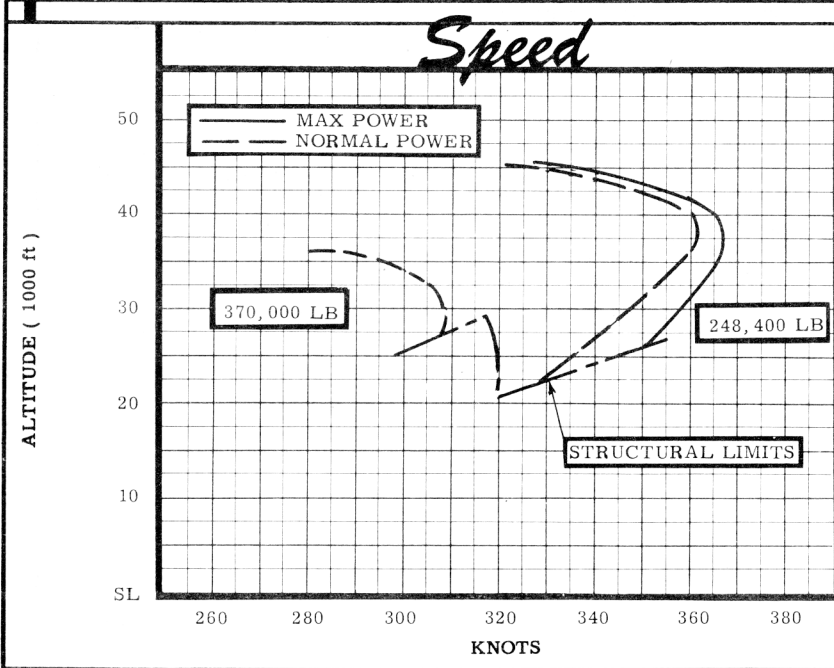
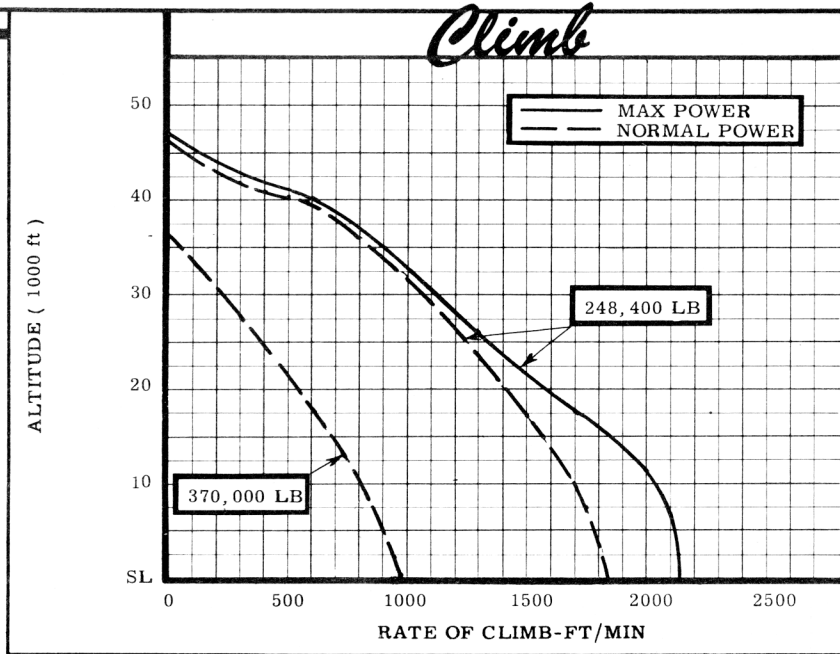
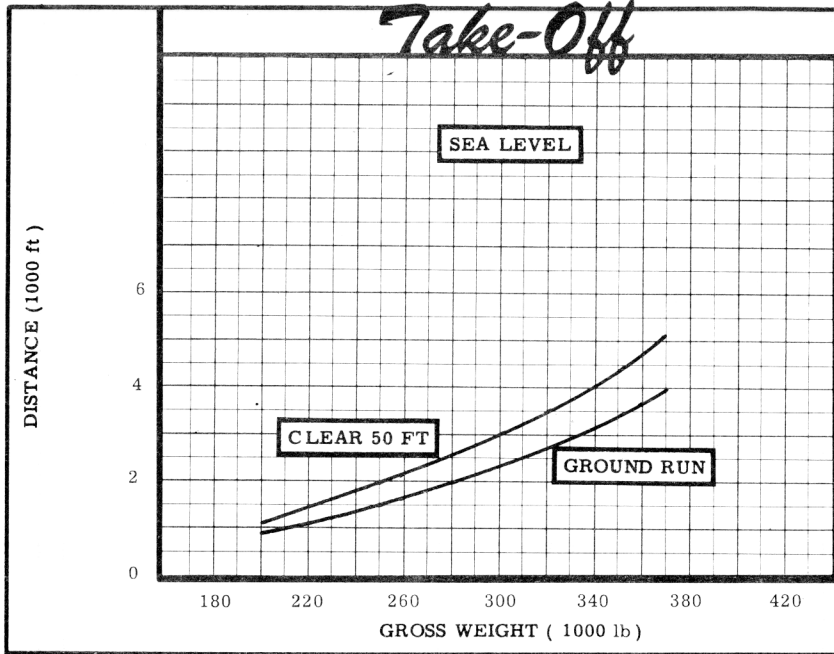
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T
E
S**

- ① Take-off power
- ② Max power
- ③ Normal power
- ④ Detailed descriptions of RADIUS and RANGE missions given on page 6

- ⑤ Brakes plus reversed props
- ⑥ Structural Limit for 25,000 ft alt.

PERFORMANCE BASIS:

- (a) Data source: AF Phase IV Flight Test (substantiated by WADC)
- (b) Performance is based on powers shown on page 6.



NOTESFORMULA: RADIUS MISSIONS I & II

Warm-up; take-off and climb on course to 5000 ft 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 reserve.

FORMULA: RADIUS MISSION III

Same profile and fuel reserves as for Radius Mission I with the following exceptions: Enter combat zone and cruise to within 15 minutes of target, maintaining maximum obtainable altitudes. Conduct (15 minute) 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. Cruise toward base at target altitude, using best engine combinations until 500 nautical miles from target. Descend to optimum cruise altitude and continue as in Radius Mission I.

FORMULA: RADIUS MISSION IV

The entire mission is flown at normal power. Warm up, take off, and climb on course 32,300 ft. Cruise at optimum altitudes to combat altitude, arriving 500 nautical miles from target. Cruise 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 Mission I & II.

FORMULA: FERRY RANGE MISSION V

Warm-up, take-off and climb on course to 5000 ft 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 Mission I and II, except no fuel allowed for evasive action.

GENERAL DATA

(a) 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 - CRIT. - MIN ALT | S. L. S. LB - RPM - MIN | | |
| T. O.: *3800 - 2800 - SL - 5 | T. O: 5010 - 7950 - 5 | | |
| Max: 3500 - 2800 - Up to - 30 35,000 | Max: 5200 - 7950 - 30 | | |
| Nor: 2800 - 2600 - Up to - Cont 39,000 | Nor: 4700 - 7630 - Cont | | |
| *Wet Turbo supercharger limitation | | | |

(b) For detailed planning refer to Convair Report FZA-36-317, "Performance Estimates for B-36F (III)" dated 30 September 1955, Rev. 31 May 1955.

(c) Take off at 370,000 lb cruise weight is authorized only for airplanes on which structural modifications to the landing gear have been accomplished in accordance with T. O. 1B-36-815 and T. O. 1B-36-889.

PERFORMANCE REFERENCE:

FZA-36-317 and applicable Technical Orders.

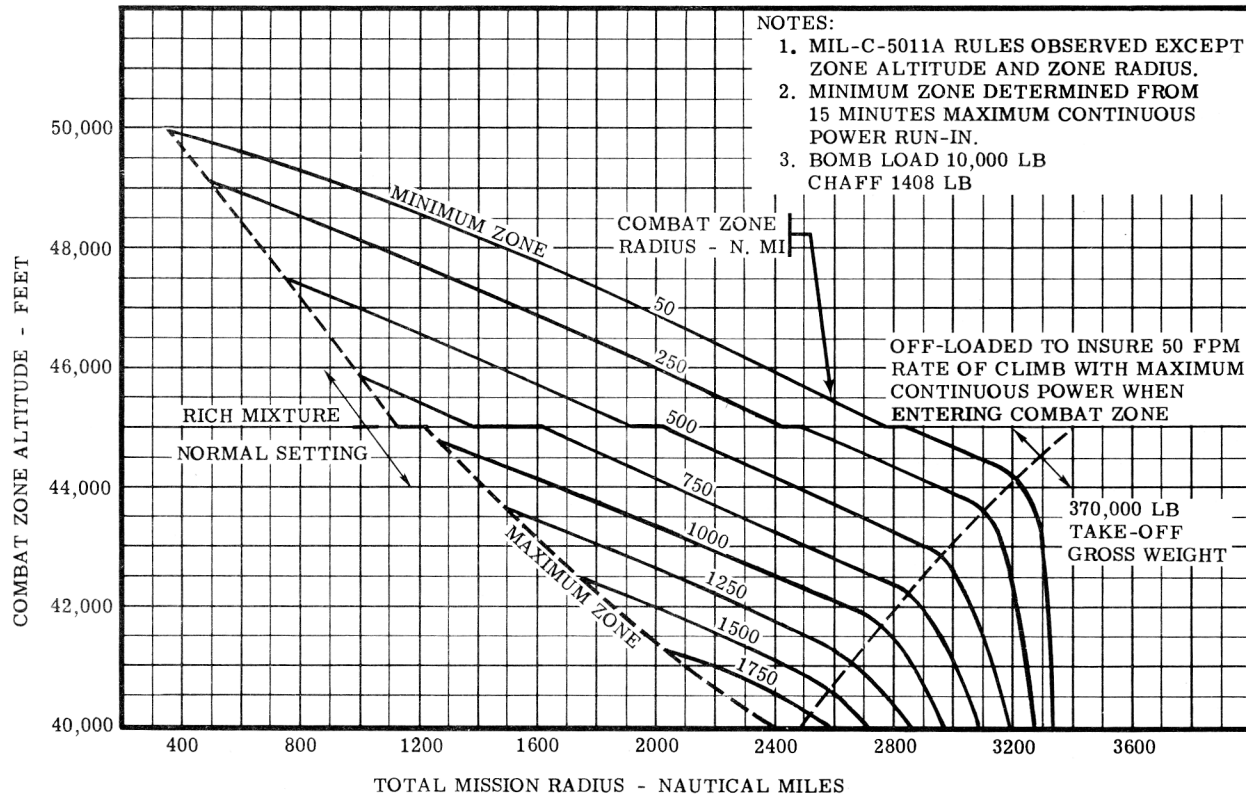
REVISION BASIS:

To reflect latest performance due to weight change.

(31 MAY 55)

SUPPLEMENTAL

HIGH ALTITUDE COMBAT ZONE CAPABILITIES



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