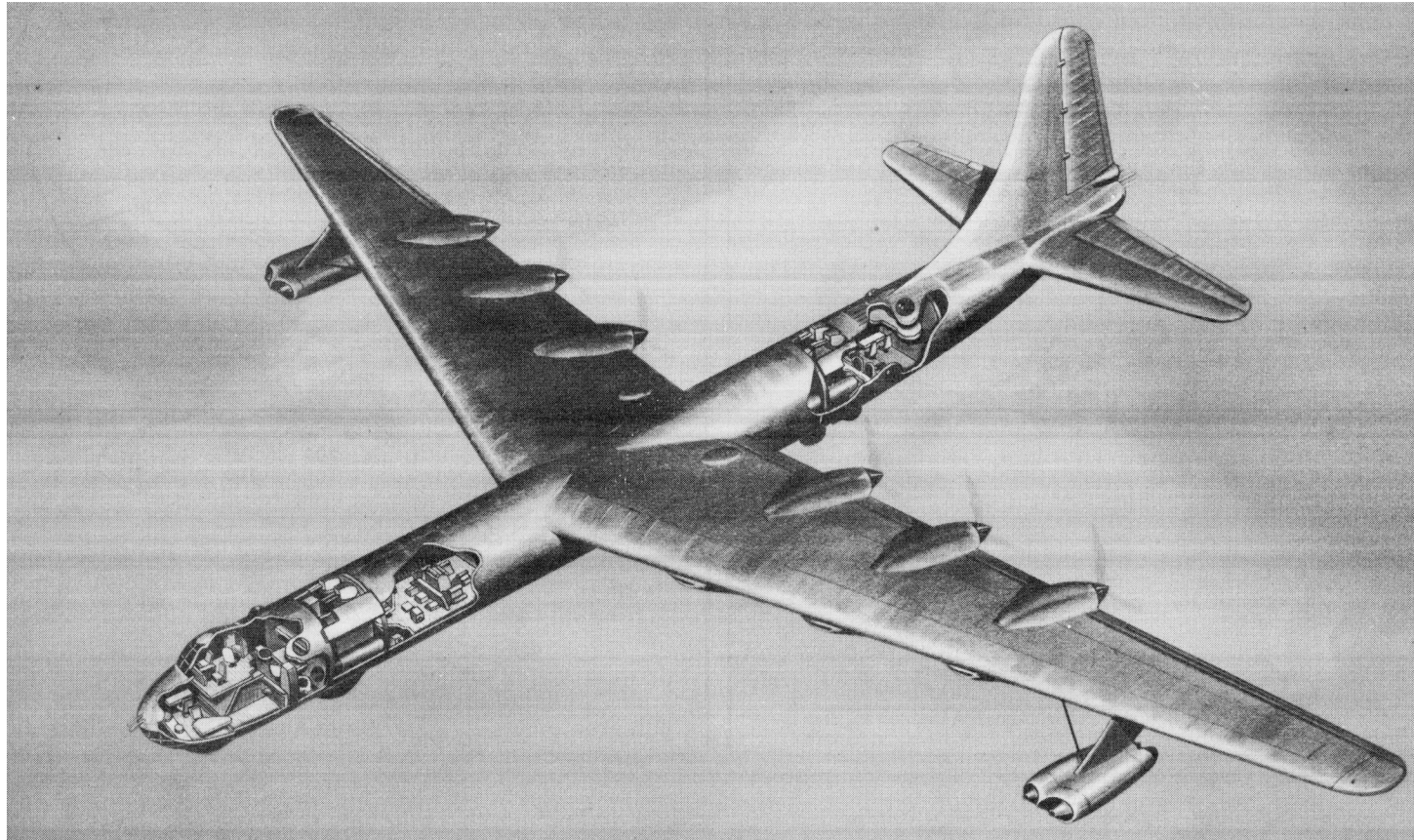


A-1
(R) B-36E / CHAR

~~UNCLASSIFIED~~

SERVICE



Standard Aircraft Characteristics

BY AUTHORITY OF
THE SECRETARY
OF THE AIR FORCE

RB-36E

Consolidated-Vultee

SIX R-4360-41
PRATT & WHITNEY
AND
FOUR J47-GE-19
GENERAL ELECTRIC

POWER PLANT

No. & Model (6) R-4360-41
 Mfr Pratt & Whitney
 Engine Spec. No. A-7063-E
 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 CS, 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 lb
 Tail Pipe Fixed Area

ENGINE RATINGS

	BHP - RPM - ALT-MIN		
T. O:	*3500	- 2700	- Turbo - 5
		3250	- 2700 - Turbo - 5
Mil:	*3500	- 2700	- Turbo - 30
		3250	- 2700 - Turbo - 30
Nor:	2650	- 2550	- 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 54"

Mission and Description

Navy Equivalent: None

Mfr's Model: 36

The principal missions of the RB-36E are all-purpose strategic reconnaissance, day and night mapping, charting, and bomb damage assessment.

The normal crew of (22) consists of aircraft commander, pilot, co-pilot, (2) flight engineers, primary navigator, photo-navigator, radar observer, weather observer-nose gunner, (2) radio operators, (2) photographer technicians, (4) ECM operators, and (5) gunners. The co-pilot serves as left forward gunner and the second radio operator as right forward gunner.

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

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

CO₂ fuel purging systems are provided for wing tanks and bomb bay tank.

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

Development

All B-36A's were modified and redesignated RB-36E

First Flight Jul 50
 Final Delivery Jul 51

B O M B S

No.	Class(lb)
80	T-86 Photo Flash 188

G U N S

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

C A M E R A S

No.	Type	Lens
1	K-22A, Fwd, oblique	12"
3	K-17C, Tri Metrogon	6"
2	K-38, Split Vertical	24"
2	K-22A, Side oblique	24"
1	K-17C, Vertical	6"
5	K-38, Multiple	36"
5	*K-40, Multiple	48"
1	*T-11, Vertical	6"
1	*K-37, Vertical	12"
1	*K-22A, Vertical	6", 12", 24"
1	*K-17C, Vertical	6", 12"

*Alternate Provisions

WEIGHTS

Loading	Lb	L. F.
Empty	164,238(A)	
Basic	169,166(A)	
Design	370,000	2.0
Combat	*258,200	
Max T. O.	†370,000	2.0
Max Land	†357,500	

(A) Actual

* For Basic Mission

† Limited by strength

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

*Partial Self-Sealing
 †Total capacity usable only for special loading when equipment has been removed from aircraft.

ELECTRONICS

UHF Command AN/ARC-27
 Liaison AN/ARC-8
 Interphone USAF Combat
 Navigational Radar . . . AN/APQ-24
 Lorax AN/APN-9
 Glide Path AN/ARN-5B
 Marker Beacon RC-193A
 Radio Compass . . . AN/ARN-7A
 Range Recv'r BC-453
 IFF AN/APX-6
 Blind Approach *RC-103D
 Gun Laying Radar . . AN/APG-32
 Defensive ECM
 *AN/ARN-14 Alternate Set

Loading and Performance - Typical Mission

C O N D I T I O N S	BASIC MISSION	MAX BOMB	HIGH ALTITUDE	HIGH SPEED	FERRY RANGE
TAKE-OFF WEIGHT (lb)	I 370,000	II 370,000	III 370,000	IV 370,000	V 370,000
Fuel at 6.0 lb/gal (grade 115/145) (lb)	183,784	170,217	183,784	183,784	185,548
Payload (Flash Bombs) (lb)	2410	15,040	2410	2410	—
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)	4400	4400	4400	4400	4400
Take-off to clear 50 ft ① (ft)	5685	5685	5685	5685	5685
Rate of climb at SL ③ (fpm)	970	970	970	970	970
Rate of climb at SL (one eng. out) ② (fpm)	1025	1025	1025	1025	1025
Time: SL to 10,000 ft ③ (min)	11.5	11.5	11.5	11.5	11.5
Time: SL to 20,000 ft ③ (min)	26.8	26.8	26.8	26.8	26.8
Service ceiling (100 fpm) ③ (ft)	32,200	32,200	32,200	32,200	32,200
Service ceiling (one eng. out) ② (ft)	30,350	30,350	30,350	30,350	30,350
COMBAT RANGE ④ (n. mi)	—	—	—	—	7769
COMBAT RADIUS ④ (n. mi)	3057	2750	2632	1367	—
Average cruise speed (kn)	190	193	219	334	174
Initial cruising altitude (ft)	5000	5000	25,000	30,600	5000
Target speed ③ (kn)	342	340	342	344	—
Target altitude (ft)	39,650	38,850	40,680	37,500	—
Final cruising altitude (ft)	25,000	24,900	25,000	39,400	25,000
Total mission time (hr)	31.7	28.0	24.3	8.6	44.6
COMBAT WEIGHT (lb)	258,200	252,000	249,100	266,100	195,042
Combat altitude (ft)	39,650	38,850	40,680	37,500	25,000
Combat speed ② (kn)	345	349	347	345	342
Combat climb ② (fpm)	550	690	520	660	2120
Combat ceiling (500 fpm) ② (ft)	40,000	40,500	40,700	39,400	44,500
Service ceiling (100 fpm) ③ (ft)	43,400	43,700	43,900	42,900	46,400
Service ceiling (one eng. out) ② (ft)	40,700	41,200	41,400	40,300	46,000
Max rate of climb at SL ② (fpm)	2140	2200	2240	2050	3020
Max speed at optimum altitude ② (kn/ft)	348/36,500	350/36,700	351/37,000	346/36,300	363/38,200
Basic speed at 25,000 ft ② (kn)	336	336	337	334	342
LANDING WEIGHT (lb)	194,513	194,677	194,513	194,513	195,042
Ground roll at SL (ft)	1890	1900	1890	1890	1920
Ground roll (auxiliary brake) ⑤ (ft)	1650	1660	1650	1650	1670
Total from 50 ft (ft)	3350	3360	3350	3350	3360
Total from 50 ft (auxiliary brake) ⑤ (ft)	3100	3110	3100	3100	3120

NOTES

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

- ④ Detailed descriptions of Radius and Range missions given on page 7
- ⑤ Props reversed.

Performance Basis:

- (a) Data source: Flight test
- (b) Performance is based on powers shown page 7.

SUPPLEMENTAL *Loading and Performance - Typical Mission*

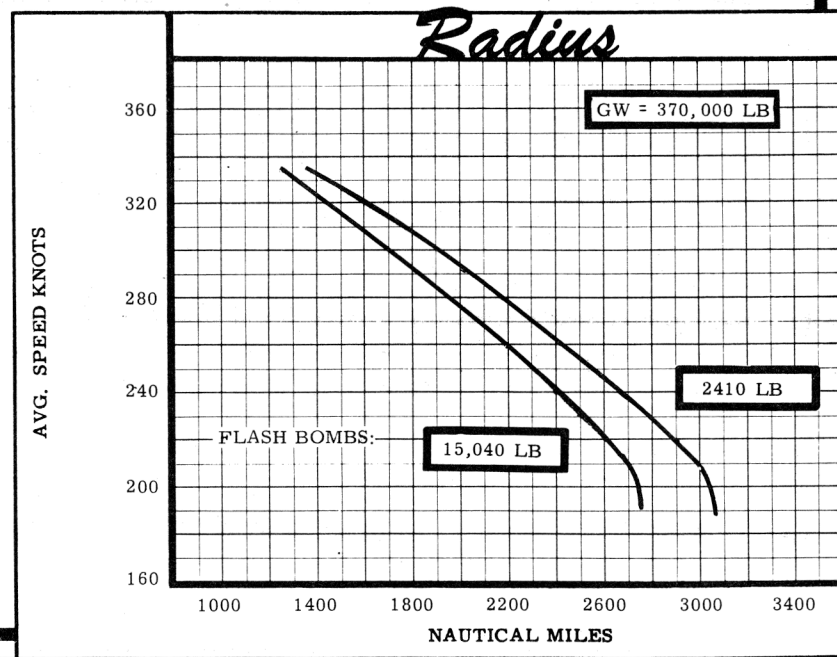
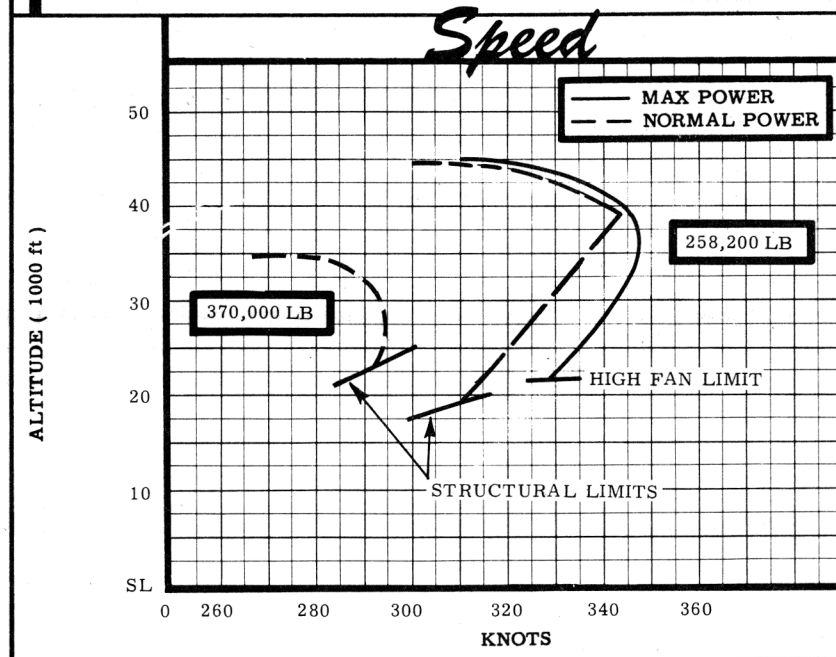
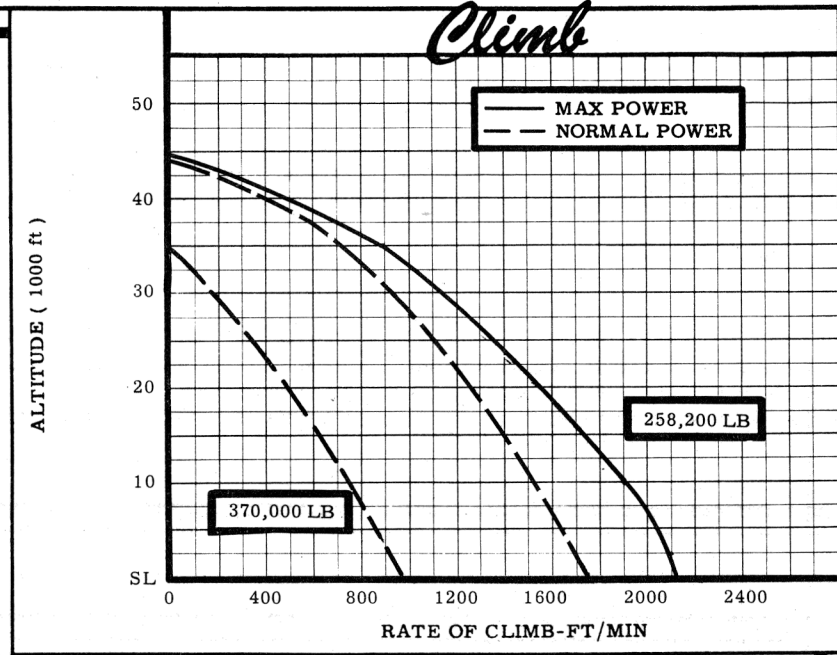
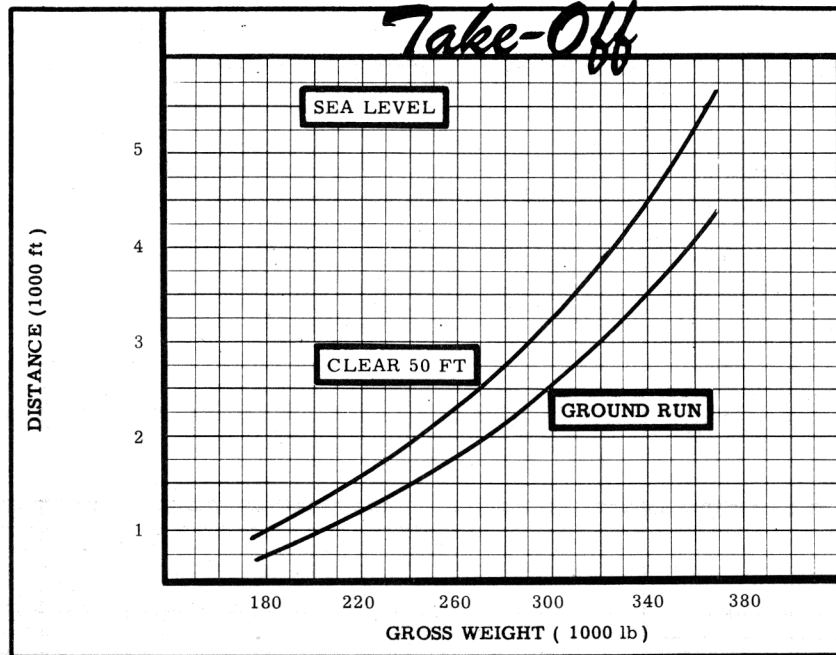
C O N D I T I O N S		BASIC MISSION	MAX BOMB	HIGH SPEED
TAKE-OFF WEIGHT	(lb)	VI 357,500	VII 357,500	VIII 357,500
Fuel at 6.0 lb/gal (grade 115/145)	(lb)	171,284	157,717	171,284
Payload (Flash Bombs)	(lb)	2410	15,040	2410
Wing loading	(lb/sq ft)	74.9	74.9	74.9
Stall speed (power off)	(kn)	105	105	105
Take-off ground run at SL	(ft)	4030	4030	4030
Take-off to clear 50 ft	(ft)	5220	5220	5220
Rate of climb at SL	(fpm)	1045	1045	1045
Rate of climb at SL (one eng. out)	(fpm)	1100	1100	1100
Time: SL to 10,000 ft	(min)	11	11	11
Time: SL to 20,000 ft	(min)	24	24	24
Service ceiling (100 fpm)	(ft)	34,500	34,500	34,500
Service ceiling (one eng. out)	(ft)	32,000	32,000	32,000
COMBAT RADIUS	(n. mi.)	2890	2574	1272
Average cruise speed	(kn)	184	188	338
Initial cruising altitude	(ft)	5000	5000	33,000
Target speed	(kn)	342	335	332
Target altitude	(ft)	40,100	39,000	38,500
Final cruising altitude	(ft)	25,000	25,000	39,500
Total mission time	(hr)	29.9	26.9	8.0
COMBAT WEIGHT	(lb)	254,200	247,750	261,056
Combat altitude	(ft)	40,100	39,000	38,500
Combat speed	(kn)	345	350	345
Combat climb	(fpm)	540	710	600
Combat ceiling (500 fpm)	(ft)	40,200	40,900	39,800
Service ceiling (100 fpm)	(ft)	43,600	44,000	43,200
Service ceiling (one eng. out)	(ft)	40,900	41,300	40,500
Max rate of climb at SL	(fpm)	2190	2260	2100
Max speed at optimum altitude	(kn/ft)	349/36,100	351/36,600	346/35,800
Basic speed at 25,000 ft	(kn)	335	336	334
LANDING WEIGHT	(lb)	193,655	193,914	193,655
Ground roll at SL	(ft)	1910	1920	1910
Ground roll (auxiliary brake)	(ft)	1660	1680	1660
Total from 50 ft	(ft)	3370	3390	3370
Total from 50 ft (auxiliary brake)	(ft)	3120	3140	3120

**N
O
T
E
S**

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

- ④ Detailed descriptions of Radius and Range missions given on page 7
- ⑤ Props reversed

Performance Basis:
(a) Data source: Flight test
(b) Performance is based on powers shown on page 7.



N O T E S

FORMULA: RADIUS MISSION I, II, VI & VII

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 photo-run, drop flash bombs 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 and 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 and II.

FORMULA: RADIUS MISSIONS IV & VIII

Entire mission is flown at normal power. Warm-up, take-off and climb on course to cruise altitude. Cruise-climb; begin climb to target altitude so as to arrive at this altitude 500 nautical miles from target. Cruise in to target, drop flash bombs 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 and 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-4360-41	(4) J47-19
BHP - RPM - MIN	
T. O. *3500 -2700 - 5 3250 -2700 - 5	T. O: 5010 - 7950 - 5
Mil: *3500 -2700 -*30 3250 -2700 - 30	Max: 5010 - 7950 - 30
Nor: 2650 -2550 - Cont	Nor: 4700 - 7630 - Cont
*Wet	

(d) For detailed planning refer to Technical Order AN-01-5EUD-1 and other applicable Technical Orders.

(e) Take-off at 370,000 lb gross weight is authorized only on airplanes on which landing gear are modified in accordance with T. O. 1B-36-815 (ECP-1890B) and T. O. 1B-36-889 (ECP-1890L).

PERFORMANCE REFERENCE:

FZA-36-242, FZA-36-368, AN-01-5EUD-1 and applicable T. O. 's.

REVISION BASIS: To reflect latest data.