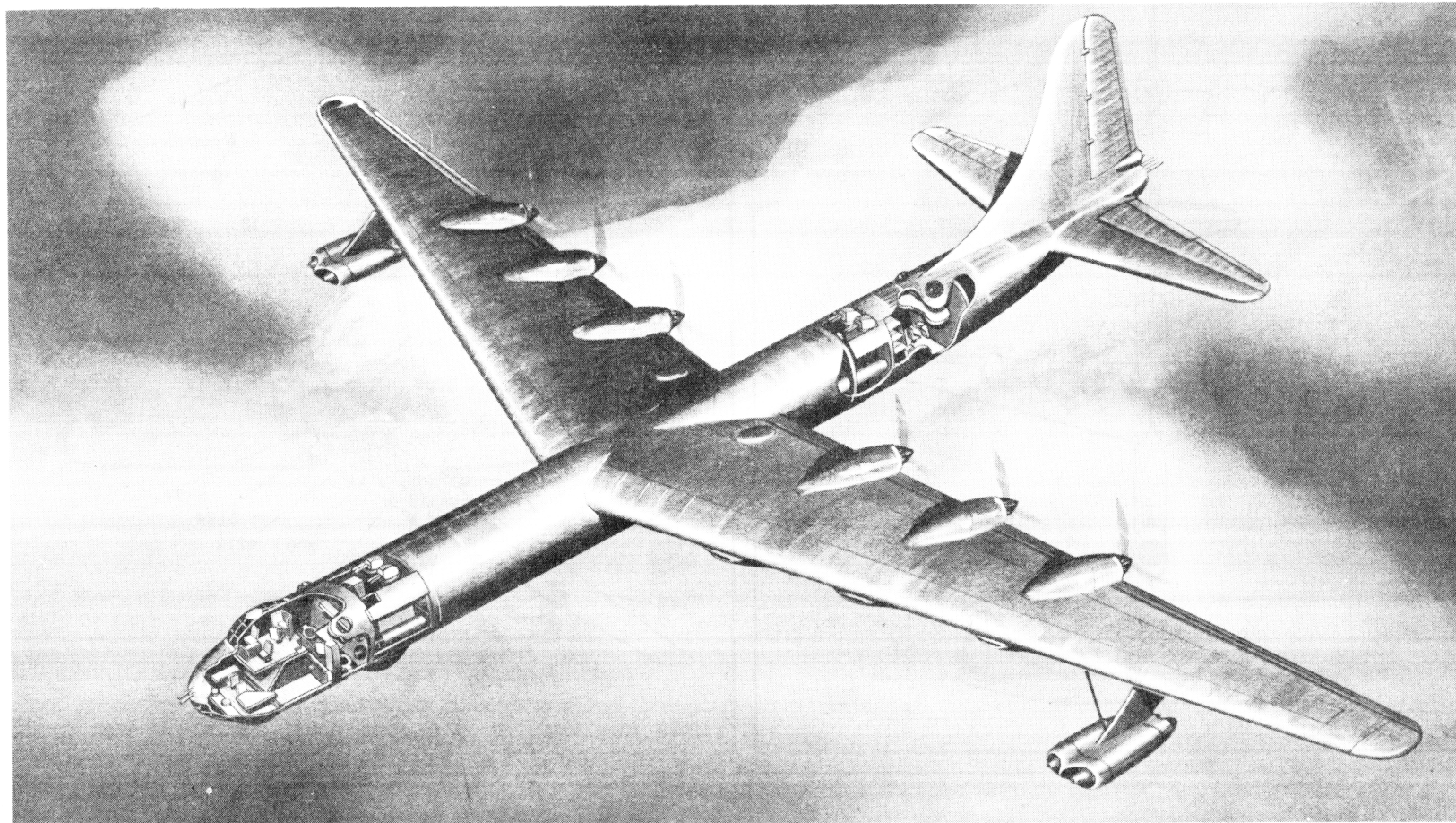


~~R E S T R I C T E D~~

A-1
B-36D/CAAI
SERVICE



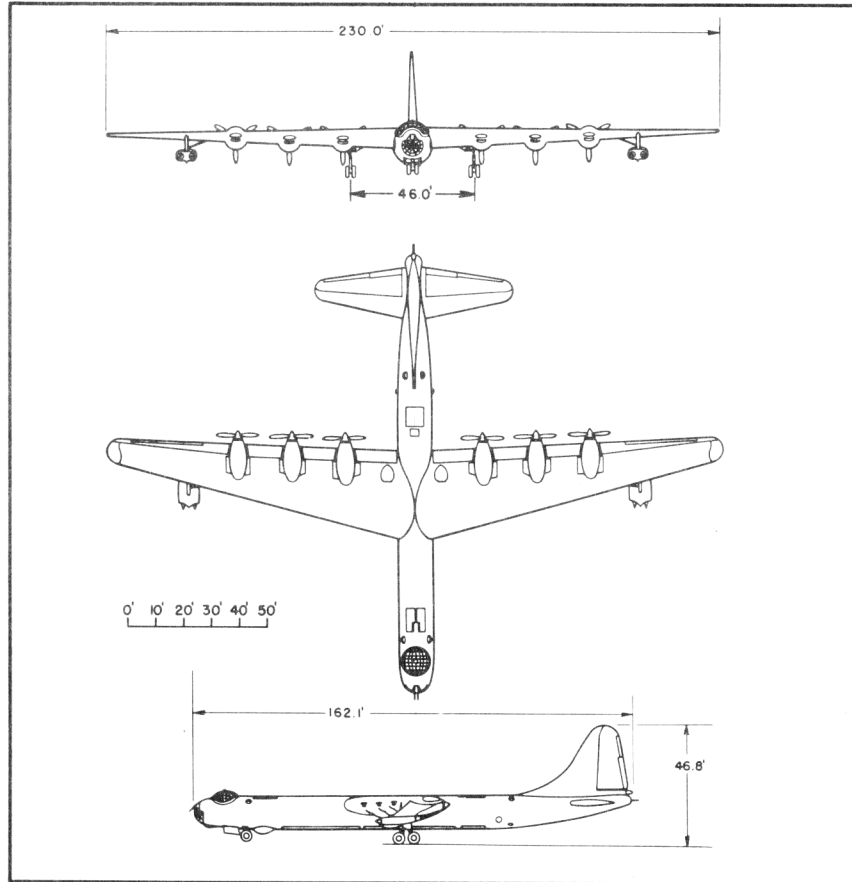
Standard Aircraft Characteristics

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

B-36D

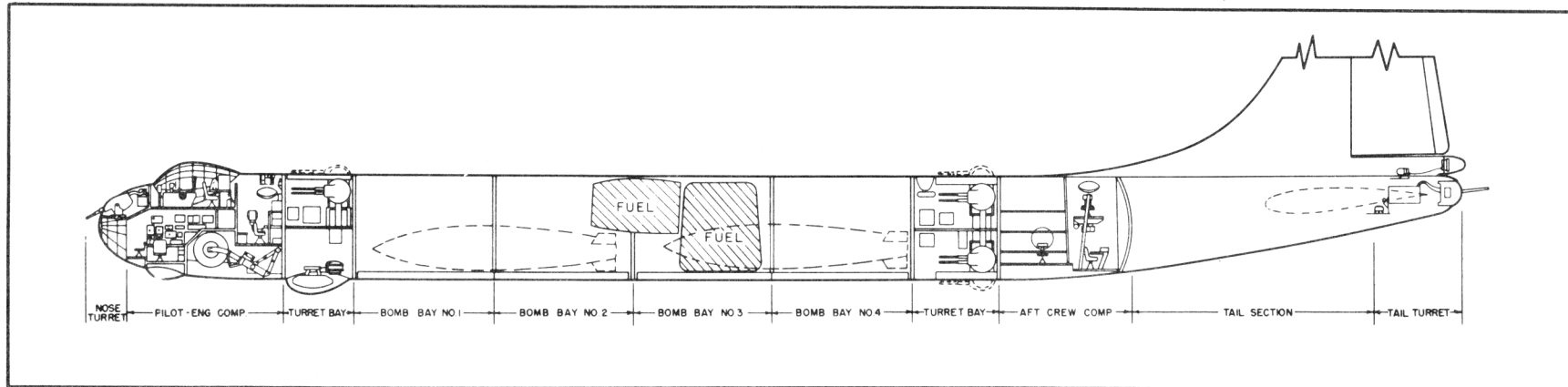
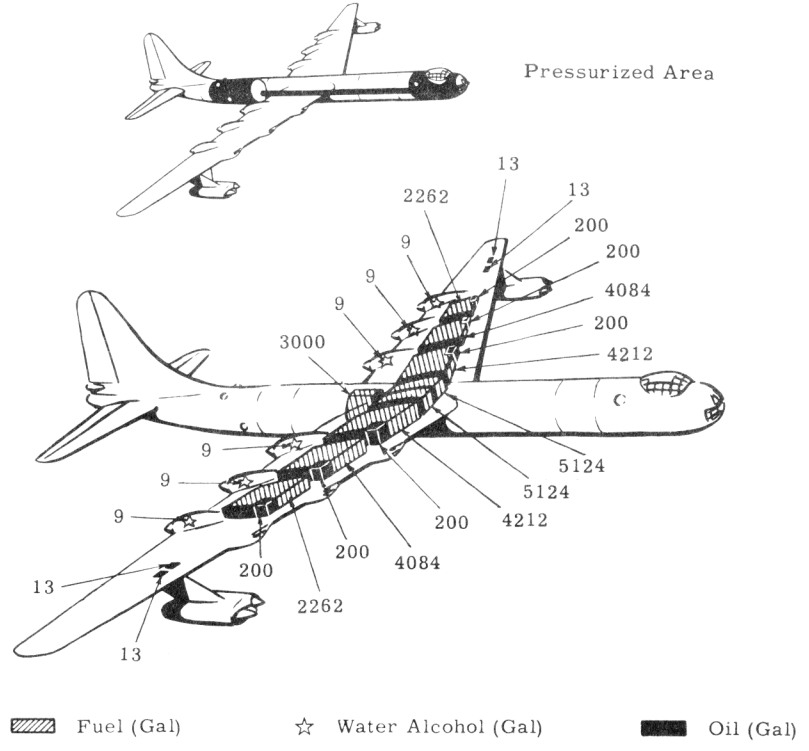
Consolidated-Vultee

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



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 (modified)



POWER PLANT

No. & Model (6) R-4360-41
 Mfr Pratt & Whitney
 Spec No. A-7063-D
 Turbo (2) BH-1
 Turbo Mfr General Electric
 Red. Gear Ratio 0.375
 Prop. Mfr Curtiss
 Blade Design No. 1129-11C6-24
 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
 Spec No. E-589
 Type Axial
 Length 144"
 Diameter 39"
 Weight (dry) 2475 lb

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°5'39"
 Length 162.1'
 Height 46.8'
 Tread 46.0'
 Prop. Grd Clearance 4.46'

Mission and Description

Navy Equivalent: None Mfr Model: 36
 The B-36D is a long range, high altitude, very heavy bombardment type aircraft. The mission of the aircraft is the destruction by bombs of enemy ground and naval materiel objectives. The crew of 15 consists of the pilot, co-pilot, flight engineer, navigator, radar-bombardier, nose turret gunner, radio operator, two upper forward gunners, two upper aft gunners, two lower aft gunners, APG operator and auxiliary crew member. Crew compartments are pressurized, heated and ventilated. A pressurized tunnel permits crew movement between the forward and aft pressurized compartments. A low pressure oxygen system is provided. Portable oxygen units are utilized in case of emergency or for crew movement in non-pressurized parts of the aircraft.

Cabin heating, defrosting of blisters and enclosures and anti-icing of the propeller, wing and tail are accomplished by heated air. A bombing-navigational system with a vertical optical sight and radar equipment for blind for visual bombing and navigation is provided. This system allows for a single crew member to act as radar operator and bombardier. The defensive armament consists of three (3) remotely controlled, retractable twin turrets, a nose turret and an APG-controlled tail turret.

Three CO₂ purging systems are provided, two for the wing tanks and one for the bomb bay tank. The aircraft has a single point refueling, manifold type fuel system.

The Curtiss propellers incorporate a pitch changing mechanism which derives power from the propeller shaft through a hydraulically-operated clutch. Final stages of feathering and initial stages of unfeathering are accomplished by an electric motor.

Development

Design initiated: 12 Jan 49
 First flight prototype: 26 Mar 49
 First delivery: 19 Aug 50
 In current production

WEIGHTS

Loading	Lb	L. F.
Empty	160,974(C)	
Basic	164,640(C)	
Design	357,500	2.08
Combat	*248,410	
Max T. O.	†357,500	2.08
Max Land	†357,500	2.08

(C) Calculated
 *For Basic Mission
 † Limited by strength
 For weights with pod removed see page 8, note (c)

FUEL

Location	No. Tanks	Gal
Wg, outbd*	2	4524
Wg, ctr*	2	8168
Wg, inbd*	2	8424
Center sec	2	10,248
Bomb bay**	1	3000
*Partial s. s.	Total	† 34,364
**s. s.		
Grade		115/145

OIL

	Recip	Jet
Capacity (gal)	1200	52
Grade	S-1120; W-1100	1005
† See page 8, note (a)		
	FLUID INJECTION	
Eng Nac	6	54

B O M B S

No.	Size	Type
2	43,000	G. P.
3	22,000	D. P.
4	12,000	D. P.
12	4,000	G. P.
28	2,000	G. P.
44	1,600	A. P.
72	1,000	G. P.
132	500	G. P.

Max Bomb Load: 86,000 lb

G U N S

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

ELECTRONICS

VHF Command AN/ARC-3
 Liaison AN/ARC-8
 Radio Compass AN/ARN-7A
 Marker Beacon AN/ARN-12
 I. F. F. AN/APX-6
 Blind Approach RC-103D
 Glide Path AN/ARN-5B
 Bombing-Nav. Radar ... K-1, K-3 or
 K-3A
 Loran AN/APN-9A
 Gun Laying Radar AN/APG-3 or -32
 Radio Range BC-453B
 Interphone USAF Combat
 Defensive ECM

Loading and Performance—Typical Mission

C O N D I T I O N S		BASIC MISSION	MAX BOMBS	40,000 FT ALT. ZONE		MAX SPEED	FERRY RANGE
				500 N. MILES	1000 N. MILES		
				I	II		
TAKE-OFF WEIGHT	(lb)	357,500	357,500	357,500	357,500	357,500	357,500
Fuel at 6.0 lb/gal(grade 115/145)	(lb)	170,148	91,489	170,148	170,148	170,148	180,533
Military load (bombs)	(lb)	10,000	86,000	10,000	10,000	10,000	None
Wing loading	(lb/sq ft)	74.92	74.92	74.92	74.92	74.92	74.92
Stall speed (power off, landing configuration)	(kn)	105	105	105	105	105	105
Take-off ground run at SL	① (ft)	4505	4505	4505	4505	4505	4505
Take-off to clear 50 ft	① (ft)	5610	5610	5610	5610	5610	5610
Rate of climb at SL	③ (fpm)	1070	1070	1070	1070	1070	1070
Time: SL to 10,000 ft	③ (min)	10.5	10.5	10.5	10.5	10.5	10.5
Time: SL to 20,000 ft	③ (min)	23.7	23.7	23.7	23.7	23.7	23.7
Service ceiling (100 fpm)	③ (ft)	38,800	36,800	36,800	36,800	36,800	36,800
Service ceiling (one engine out)	② (ft)	35,700	35,700	35,700	35,700	35,700	35,700
COMBAT RANGE	(n. mi.)	6278	2675	6169	6030	2550	7175
Average speed	⑦ (kn)	182	176	185/254	185/253	321	184
Initial cruising altitude	(ft)	10,000	10,000	10,000	10,000	32,650	10,000
Final cruising altitude	(ft)	25,000	25,000	40,000	40,000	39,400	23,450
Total mission time	(hr)	34.77	15.28	33.47	32.55	8.11	39.17
COMBAT RADIUS	④ (n. mi.)	3360	1485	3111	2870	1400	—
Average speed	⑦ (kn)	186	190	196/281	210/278	337	—
Initial cruising altitude	(ft)	10,000	10,000	10,000	10,000	32,630	—
Bombing altitude	(ft)	25,000	25,000	40,000	40,000	39,400	—
Bomb run speed	③ (kn)	333	325	351	353	352	—
Final cruising altitude	(ft)	25,200	25,400	25,200	25,200	39,400	—
Total mission time	(hr)	36.45	15.85	32.03	27.57	8.56	—
COMBAT WEIGHT	⑤ (lb)	248,410	213,200	244,800	242,200	256,700	195,021
Combat altitude	(ft)	25,000	25,000	40,000	40,000	39,400	23,450
Combat speed	② (kn)	344 ⑧	344 ⑧	364	364	363	335 ⑧
Combat climb	② (fpm)	1720	2150	770	790	760	2500
Combat ceiling (500 fpm)	② (ft)	41,850	43,900	42,050	42,200	41,350	44,850
Service ceiling (100 fpm)	③ (ft)	44,300	45,650	44,500	44,650	43,900	47,500
Service ceiling (one engine out)	③ (ft)	42,600	44,500	42,800	42,950	42,050	45,000
Max rate of climb at SL	② (fpm)	2408	2887	2455	2485	2315	3202
Max speed at 34,500 ft	② (kn)	373	378	374	374	372	380
LANDING WEIGHT	⑤ (lb)	185,859	184,585	185,859	185,859	185,859	195,021
Ground roll at SL	⑥ (ft)	1750	1740	1750	1750	1750	1835
Total from 50 ft	⑥ (ft)	3025	3010	3025	3025	3025	3150

**B-36D
PODS
ATTACHED**

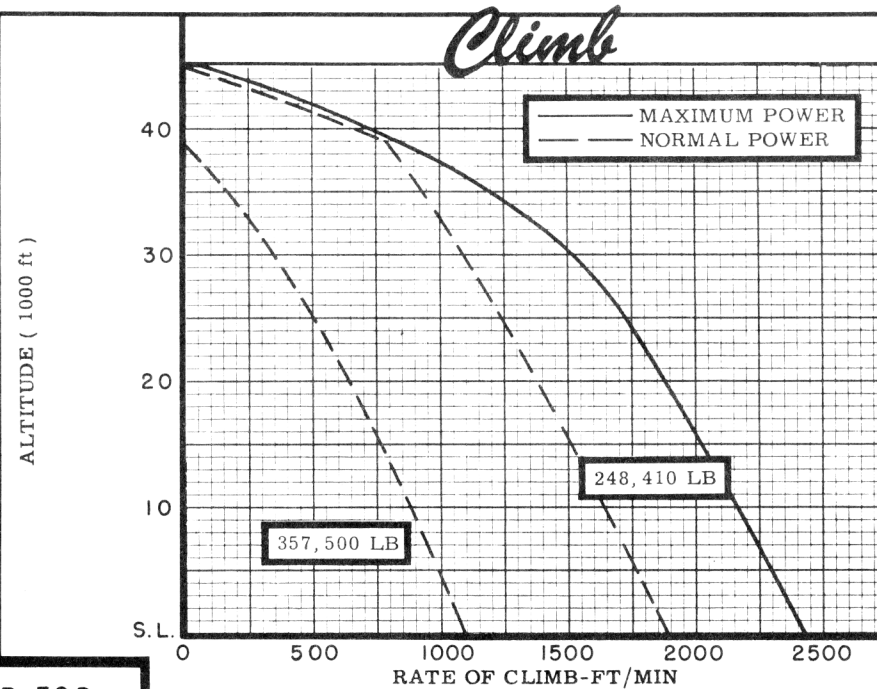
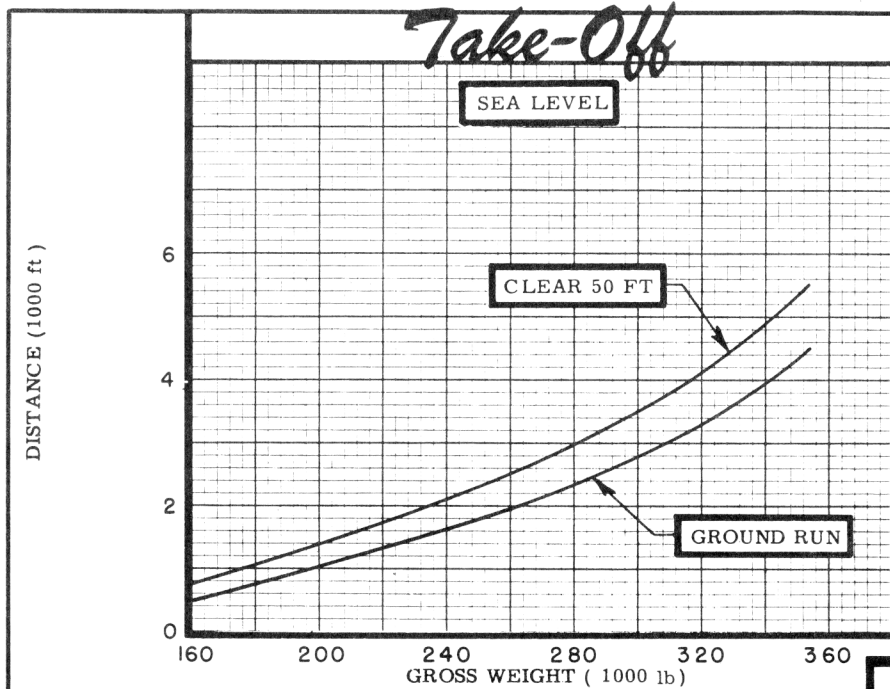
N O T E S	① Take-off power	page 8.	and the second the average for the combat zone
	② Max power	⑤ For Radius Mission if radius is shown	⑧ Limited by propeller vibration.
	③ Normal power	⑥ Brakes only	PERFORMANCE BASIS:
	④ Detailed descriptions of RADIUS and RANGE missions are given on	⑦ When two speeds are shown thus: 196/281, the first is the average for the entire mission	(a) Data source: Preliminary flight test (b) Performance is based on powers shown on page 8.

SUPPLEMENTAL

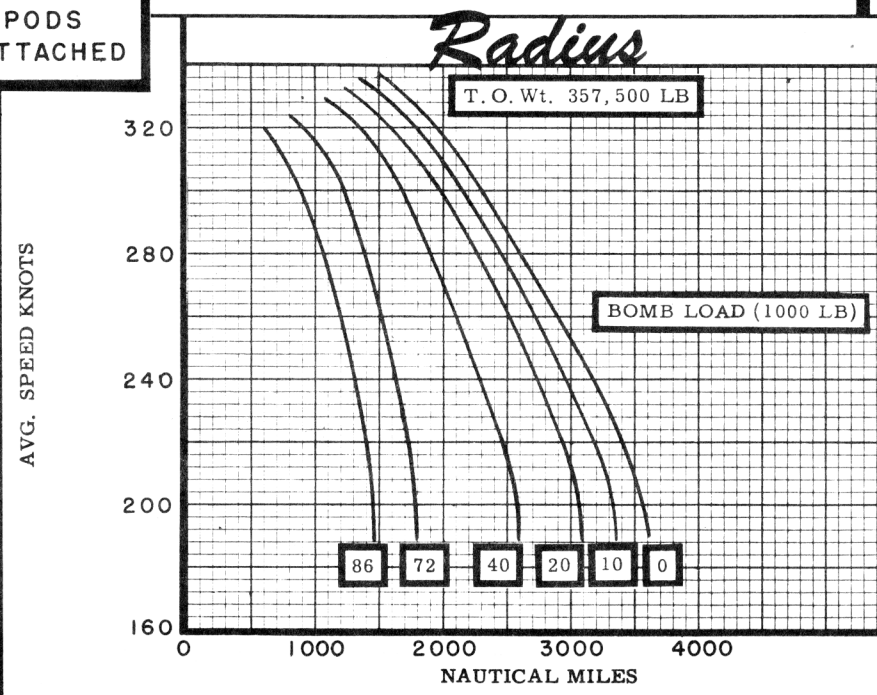
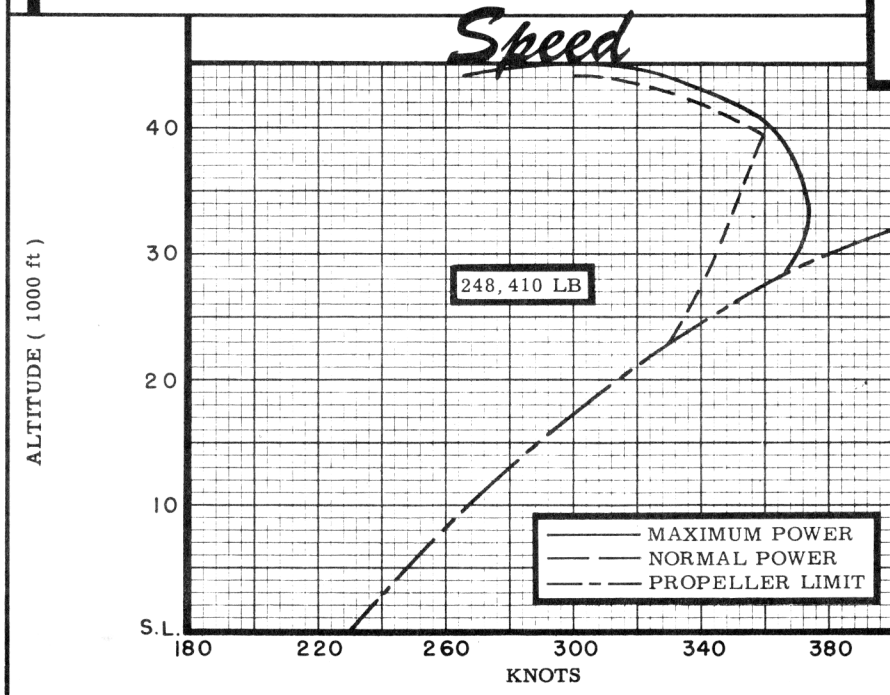
Loading and Performance — Typical Mission

C O N D I T I O N S		BASIC MISSION	MAX BOMBS	40,000 FT ALT ZONE		MAX SPEED	FERRY RANGE	B-36D PODS REMOVED
				500 N. MILES	1000 N. MILES			
TAKE-OFF WEIGHT	(lb)	328,000	328,000	328,000	328,000	328,000	328,000	
Fuel at 6.0 lb/gal(grade 115/145)	(lb)	155,151	77,134	155,151	155,151	155,151	165,536	
Military load (bombs)	(lb)	10,000	86,000	10,000	10,000	10,000	None	
Wing loading	(lb/sq ft)	68.73	68.73	68.73	68.73	68.73	68.73	
Stall speed (power off, landing configuration)	(kn)	101	101	101	101	101	101	
Take-off ground run at SL	① (ft)	6000	6000	6000	6000	6000	6000	
Take-off to clear 50 ft	① (ft)	8520	8520	8520	8520	8520	8520	
Rate of climb at SL	③ (fpm)	500	500	500	500	500	500	
Time: SL to 10,000 ft	③ (min)	22.5	22.5	22.5	22.5	22.5	22.5	
Time: SL to 20,000 ft	③ (min)	50.1	50.1	50.1	50.1	50.1	50.1	
Service ceiling (100 fpm)	③ (ft)	28,700	28,700	28,700	28,700	28,700	28,700	
Service ceiling (one engine out)	② (ft)	29,120	29,120	29,120	29,120	29,120	29,120	
COMBAT RANGE	④ (n. mi.)	6690	2867	5910	5831	3282	7472	
Average speed	⑦ (kn)	186	184	191/256	194/256	303	188	
Initial cruising altitude	(ft)	10,000	10,000	10,000	10,000	34,250	10,000	
Final cruising altitude	(ft)	25,000	25,000	40,000	40,000	39,400	26,800	
Total mission time	(hr)	36.17	15.77	32.13	30.17	11.02	40.02	
COMBAT RADIUS	④ (n. mi.)	3600	1564	3364	3150	1770		
Average speed	⑦ (kn)	188	189	195/270	207/267	286		
Initial cruising altitude	(ft)	10,000	10,000	10,000	10,000	34,250		
Bombing altitude	(ft)	25,000	25,000	40,000	40,000	39,400		
Bomb run speed	③ (kn)	277	266	308	310	305		
Final cruising altitude	(ft)	28,000	28,250	28,000	28,000	39,400		
Total mission time	(hr)	38.50	16.80	34.77	30.73	12.63		
COMBAT WEIGHT	⑤ (lb)	229,950	193,900	226,650	223,700	235,800	179,018	
Combat altitude	(ft)	25,000	25,000	40,000	40,000	39,400	26,800	
Combat speed	② (kn)	307	312	313	314	312	319	
Combat climb	② (fpm)	1060	1580	435	450	420	1900	
Combat ceiling (500 fpm)	② (ft)	38,950	41,300	39,200	39,400	38,450	42,200	
Service ceiling (100 fpm)	③ (ft)	42,400	43,900	42,550	42,700	42,150	44,450	
Service ceiling (one engine out)	③ (ft)	39,850	42,500	40,150	40,400	39,350	43,350	
Max rate of climb at SL	② (fpm)	1475	1863	1505	1535	1422	2061	
Max speed at 34,600 ft	② (kn)	330	338	331	332	329	340	
LANDING WEIGHT	⑤ (lb)	170,607	168,723	170,607	170,607	170,607	179,018	
Ground roll at SL	⑥ (ft)	1610	1590	1610	1610	1610	1690	
Total from 50 ft	⑥ (ft)	2830	2810	2830	2830	2830	2940	

N O T E S	① Take-off power ② Max power ③ Normal power ④ Detailed descriptions of RADIUS and RANGE missions are given on	page 8. ⑤ For Radius Mission if radius is shown ⑥ Brakes only ⑦ When two speeds are shown thus: 195/270, the first is the average for the entire mission,	the second is the speed in the combat zone. PERFORMANCE BASIS: (a) Data source: Preliminary flight test (b) Performance is based on powers shown on page 8.
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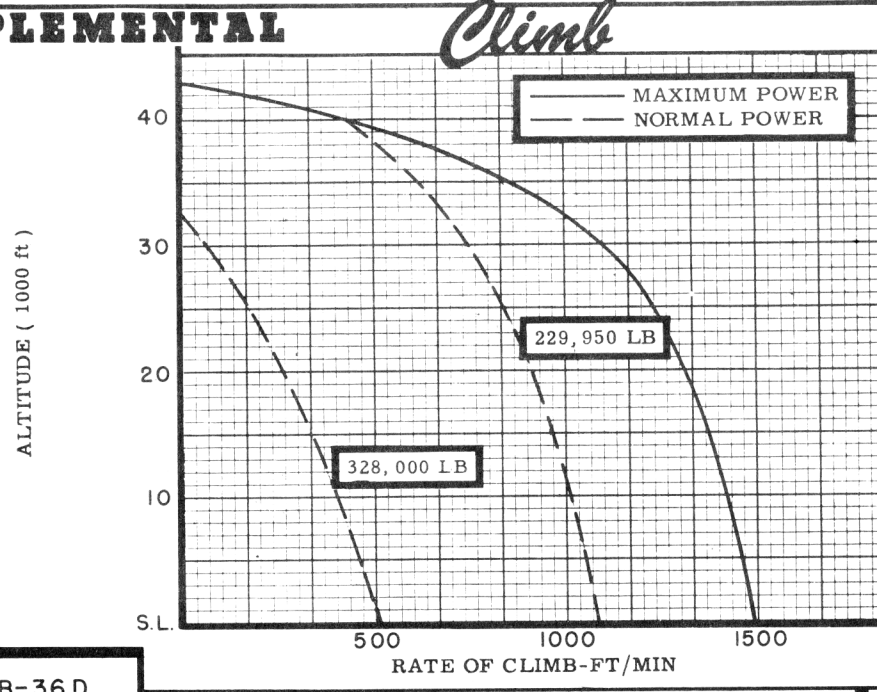
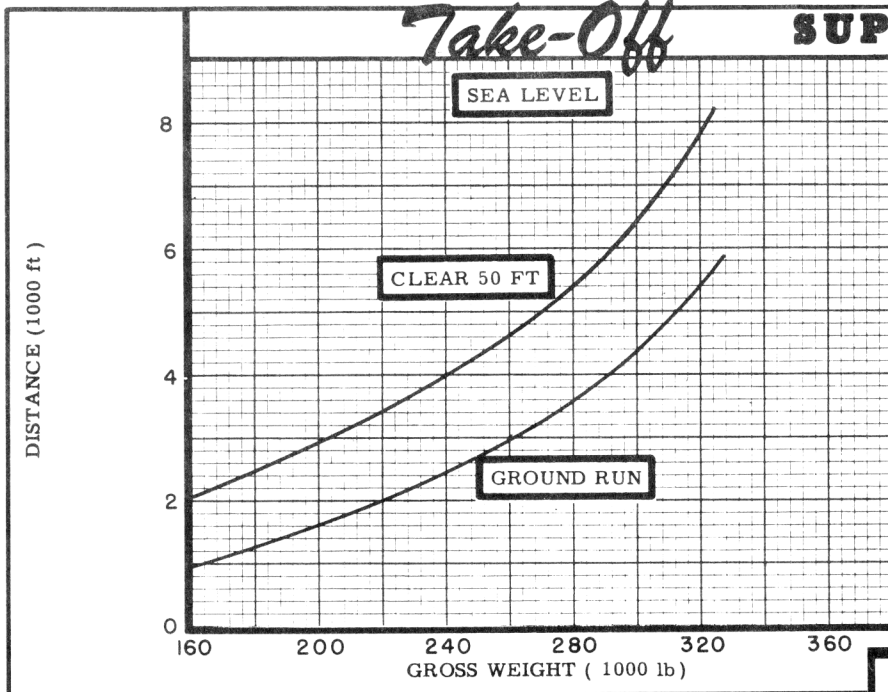
B-36 D
PODS
ATTACHED



SUPPLEMENTAL

Take-Off

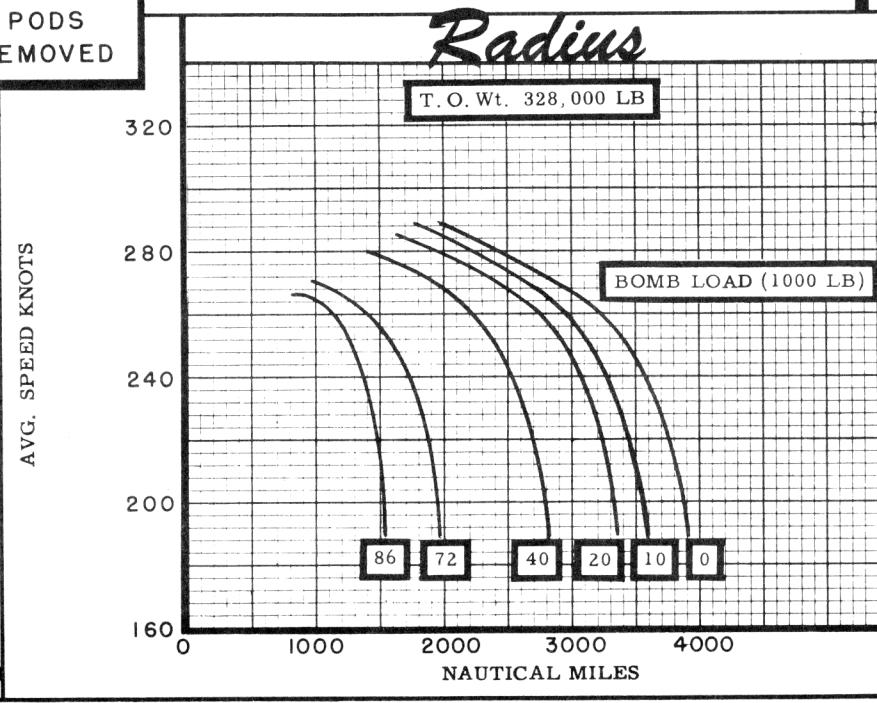
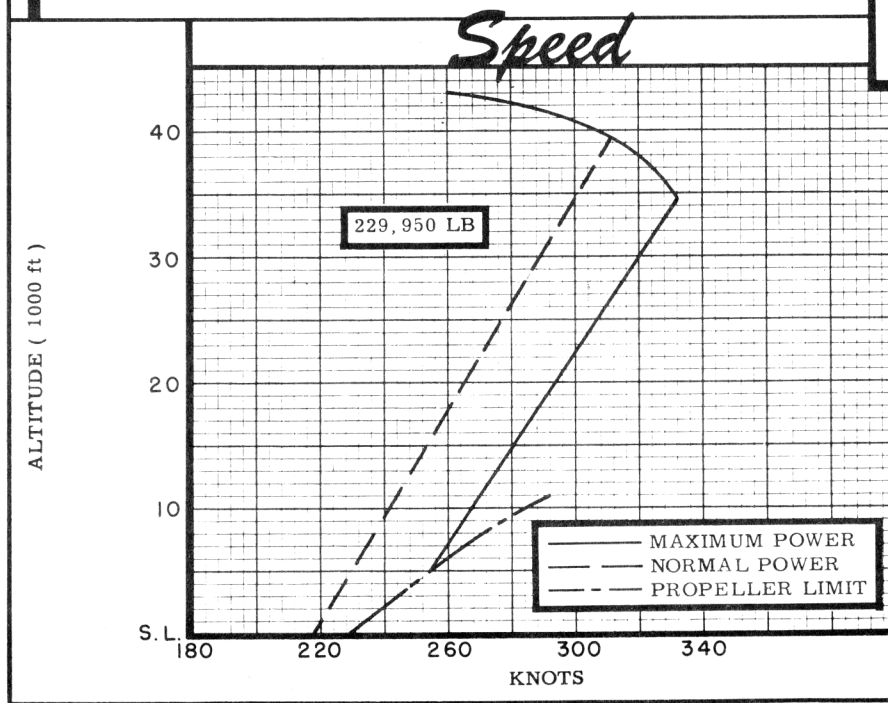
Climb



B-36 D
PODS
REMOVED

Speed

Radius



N O T E S

FORMULA: RADIUS MISSIONS I & II

Start engines, warm-up, take-off and climb on course using normal power to 10,000 feet, cruise at long range speeds at altitudes for best range (10,000 feet minimum). Climb so as to arrive at 25,000 feet 30 minutes prior to target. Cruise at long range speeds for 15 minutes, conduct 15 minute bomb run at normal power, drop bombs, conduct 5 minutes evasive action and 10 minutes escape from target at normal power. Return to base at long range speeds, cruising at optimum altitude for mileage. Jet engines (if installed) are operating during take-off, climb and during normal power operation in target area. Range free allowances include 10 minutes normal power fuel consumption for R-4360-41 plus 5 minutes normal power fuel consumption for J47-GE-19 (if installed) for warm-up and take-off, 5 minutes normal power fuel consumption for R-4360-41 and J47-GE-19 (if installed) for evasive action, plus 5% of initial fuel load for landing and endurance reserve.

FORMULA: RADIUS MISSIONS III & IV

Start engines, warm-up, take-off and climb on course using normal power to 10,000 feet, cruise at long range speeds at 10,000 feet altitude. Climb so as to arrive at 40,000 feet 500 or 1000 nautical miles prior to target. Cruise at long range speeds at 40,000 feet followed by 15 minutes bomb run at normal power, drop bombs, conduct 5 minutes evasive action and 10 minutes escape from target at normal power. Cruise at long range speeds at 40,000 feet until 500 or 1000 nautical miles from target. Return to base at long range speeds and optimum altitude for mileage. Jet engines (if installed) are operative during take-off, all climbs, during normal power operation in target area and whenever operation gives better mileage-speed relationship than is obtainable with jet engines inoperative. Range free allowances are the same as the Mission I & II.

FORMULA: RADIUS MISSION V

Start engines, warm-up and take-off, climb on course using normal power to altitude for optimum speed-range operation (approx 32,000 feet), cruise toward target at altitude and powers for optimum speed-range. Conduct 15 minutes normal power bomb-run, drop bombs, conduct 5 minutes evasive action plus 10 minute escape from target at normal power, return to base at powers and altitude for best speed-range operation. Jet engines are operative (if installed) during take-off, climb, during normal power operation in target area and whenever operation gives better mileage-speed relationship than is obtainable with jet engines inoperative. Range free allowances are the same as for Radius Mission I & II.

FORMULA: RANGE MISSIONS I, II, III, IV & V

Same as outbound leg of radius missions continued until 90% of initial fuel load has been consumed. Range free allowances include 10 minutes normal power fuel consumption for R-4360-41 plus 5 minutes normal power fuel consumption for J47-GE-19 (if installed) for warm-up and take-off, plus 10% of initial fuel load for landing and endurance reserve.

FORMULA: RANGE MISSION VI

Start engines, warm-up, take-off and climb on course to 10,000 feet using normal power, cruise at long range speeds at altitude for best range (minimum 10,000 feet) until 90% of fuel has been consumed. Jet engines (if installed) are used for take-off and climb. Range free allowances are the same as Range Missions I through V.

GENERAL DATA:

(a) Total fuel capacity is usable only for special loadings with equipment removed from the aircraft.

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

R-4360-41		J47-GE-19	
BHP-RPM-ALT**-MIN		S. L. Static	LB - RPM - MIN
T. O:	*3500-2700-S. L. 5	T. O:	5200- 7950 - 5
Mil:	3250-2700-34, 500-30	Max:	5200- 7950 - 30
Max W. E.	3250-2400-34, 500-15	Nor:	4730- 7630 - Cont
Nor:	2650-2550-39, 300-Cont		
	2650-2550-39, 300-Cont		
	*Wet		
	**With turbos		

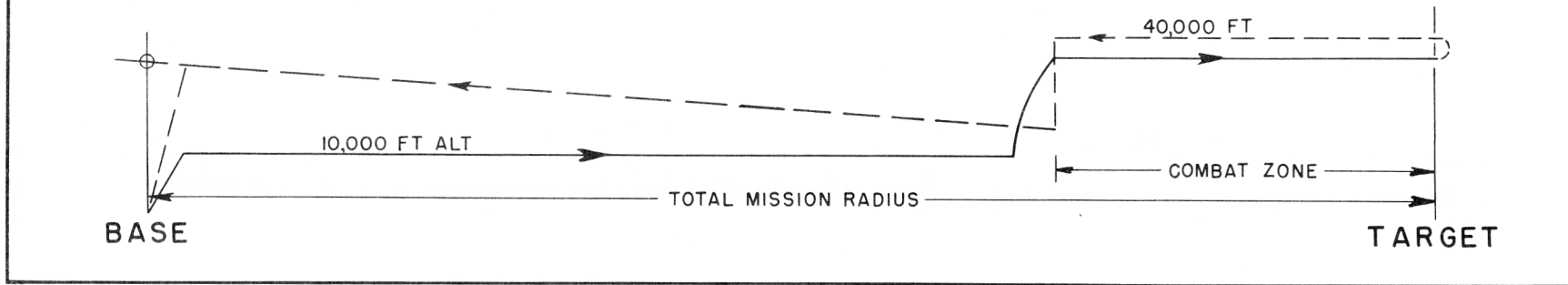
(c) Weights with pods removed are as follows:

Loading	Lb
Empty	146,621
Combat	229,950
Take-off	328,000

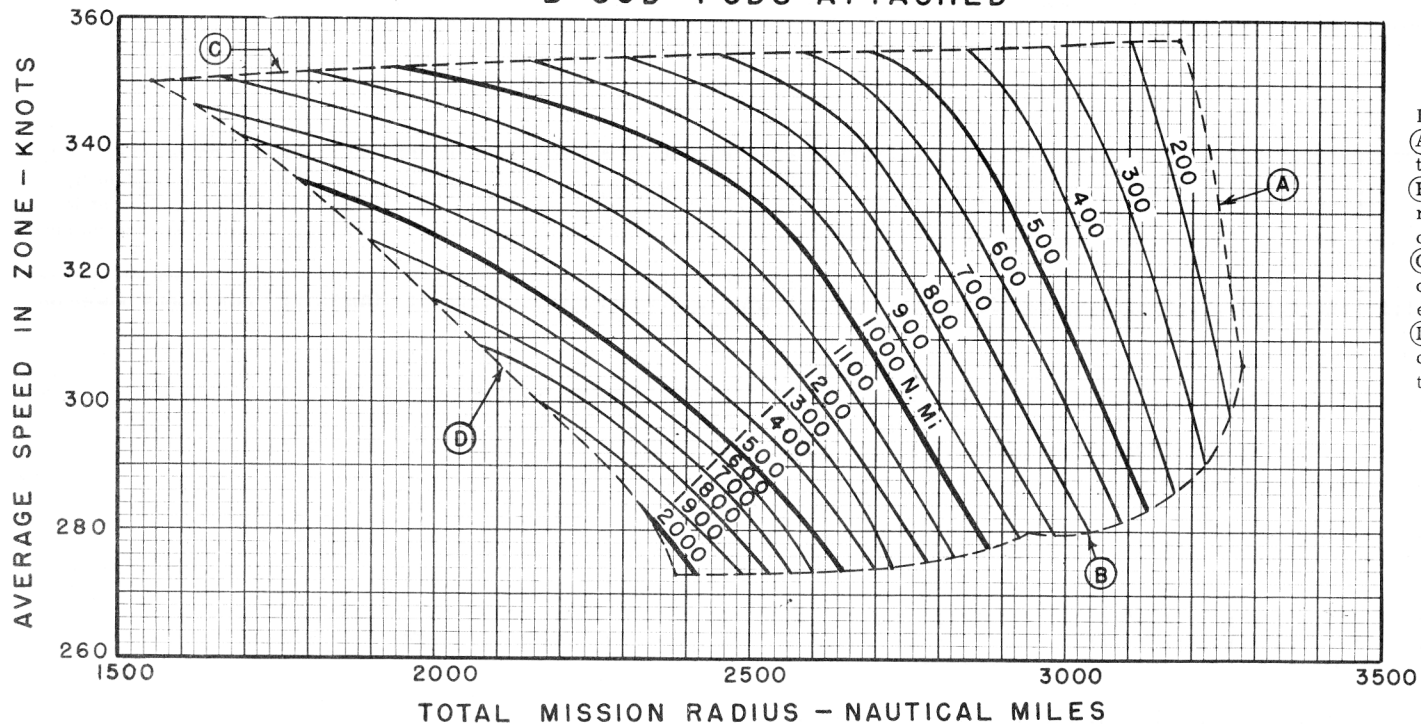
*Limited by performance.

SUPPLEMENTAL

COMBAT ZONE MISSIONS



B-36D PODS ATTACHED



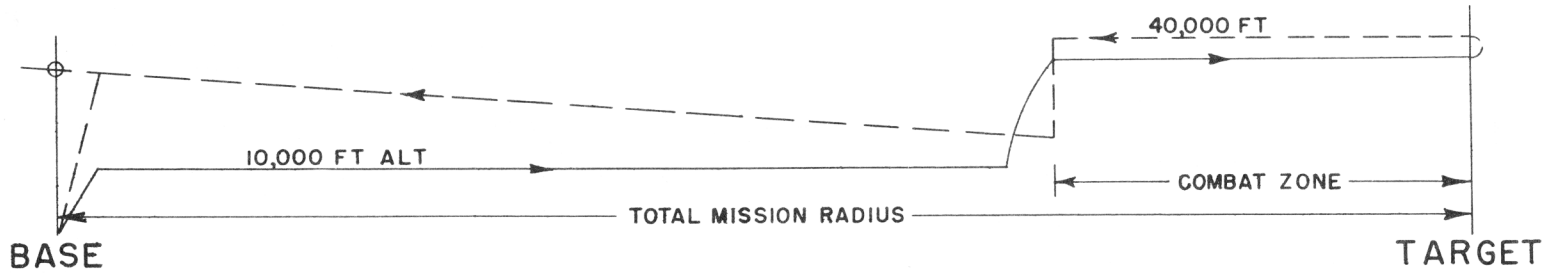
- LIMITS
- (A) 30 minutes minimum time at 40,000 ft.
 - (B) Operation at long range speeds on entire combat zone
 - (C) Operation at max continuous power on entire combat zone
 - (D) Ability to make continuous climb from take-off to 40,000 ft.

The above plot is provided to supplement typical missions III & IV presented and defined on foregoing pages. Distance and average speed at 40,000 ft in the combat zone are plotted to indicate total mission radius within

the limitations listed. Fuel is off-loaded, if necessary, to assure a 300 ft per min rate of climb with normal power on all engines at 40,000 ft when entering the combat zone, otherwise loading is same as listed for mission III.

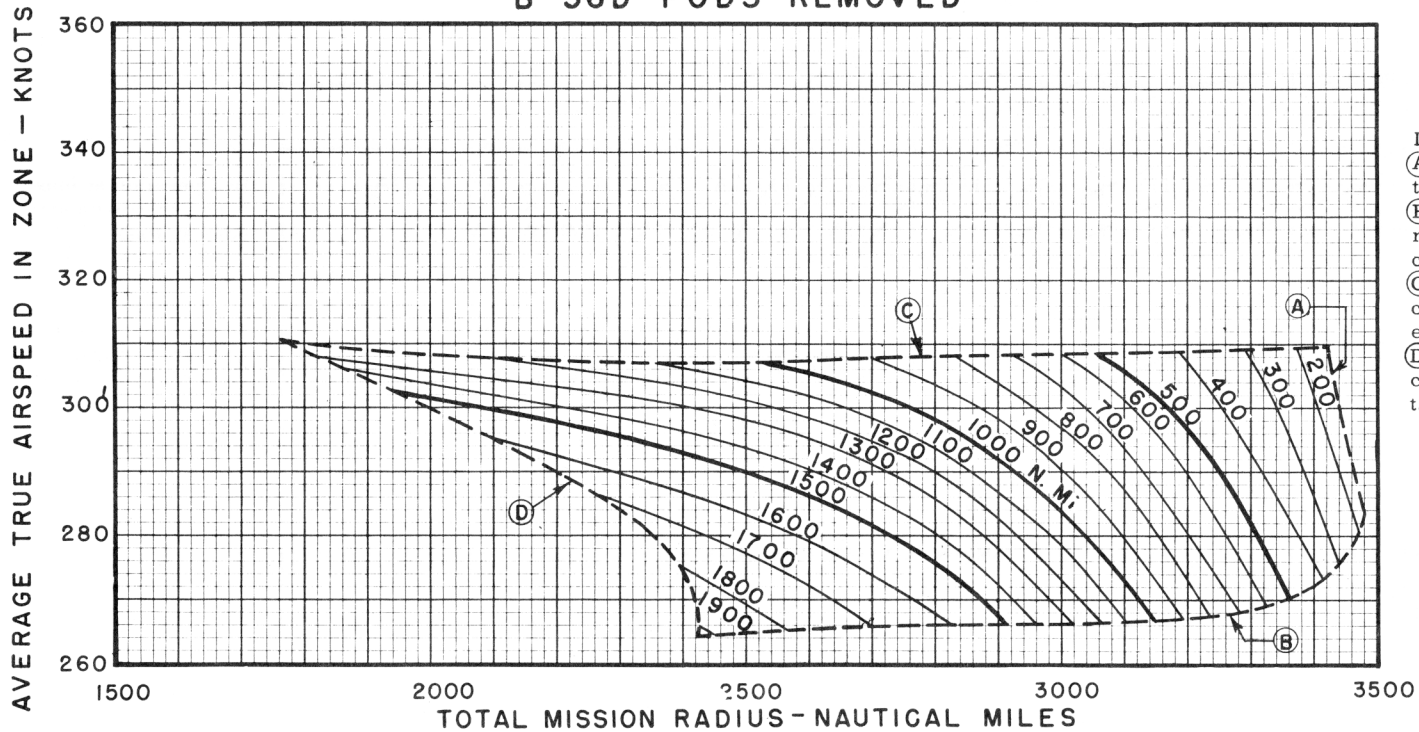
SUPPLEMENTAL

COMBAT ZONE MISSIONS



Property of the Air Force Museum
Wright Patterson Air Force Base
Ohio 45433

B-36D PODS REMOVED



- LIMITS
- (A) 30 minutes minimum time at 40,000 ft.
 - (B) Operation at long range speeds on entire combat zone
 - (C) Operation at maximum continuous power on entire combat zone
 - (D) Ability to make continuous climb from take-off at 40,000 ft.

The above plot is provided to supplement typical missions III & IV presented and defined on foregoing pages. Distance and average speed at 40,000 ft in the combat zone are plotted to indicate total mission radius within

the limitations listed. Fuel is off-loaded, if necessary, to assure a 300 ft per min rate of climb with normal power on all engines at 40,000 ft when entering the combat zone, otherwise loading is same as listed for mission III.