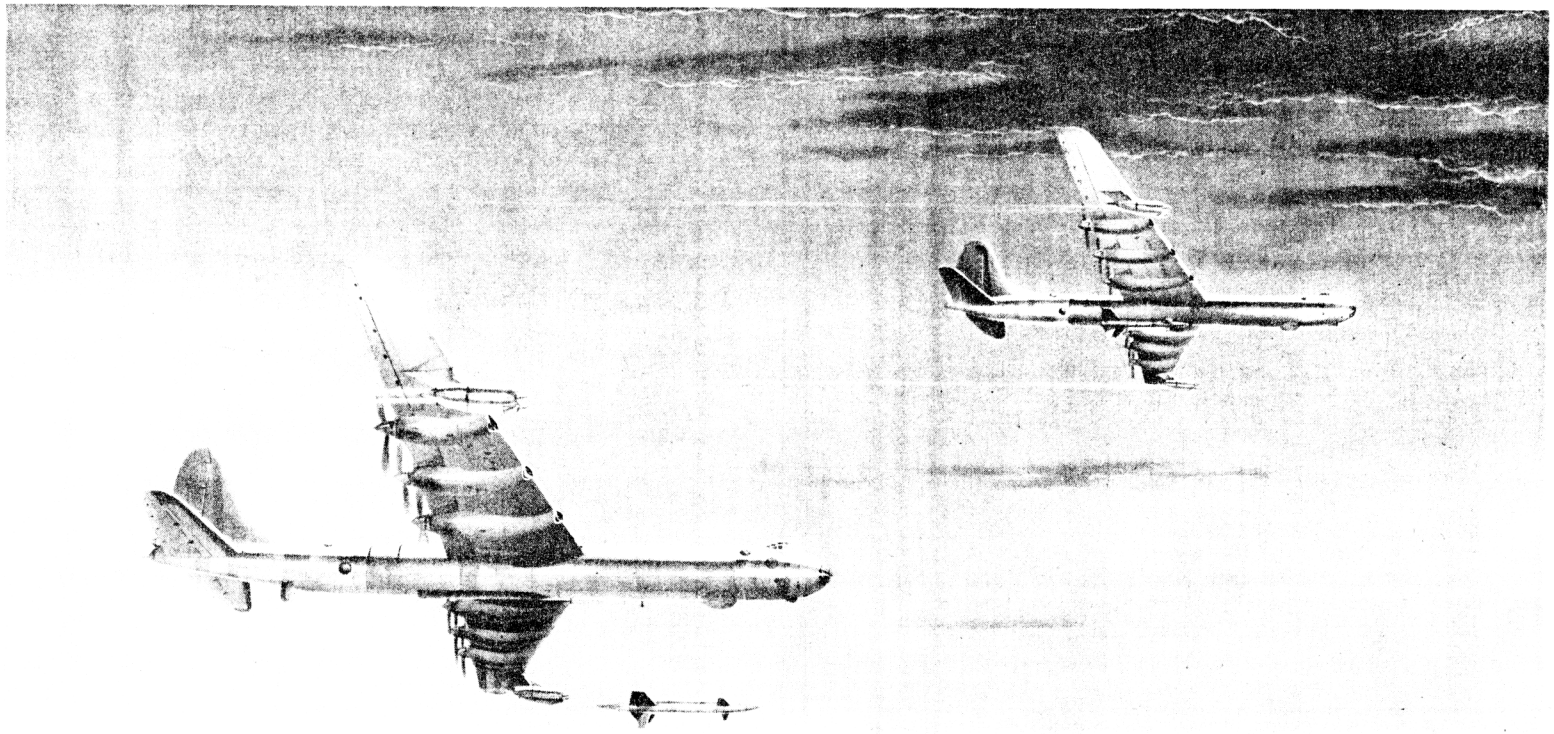


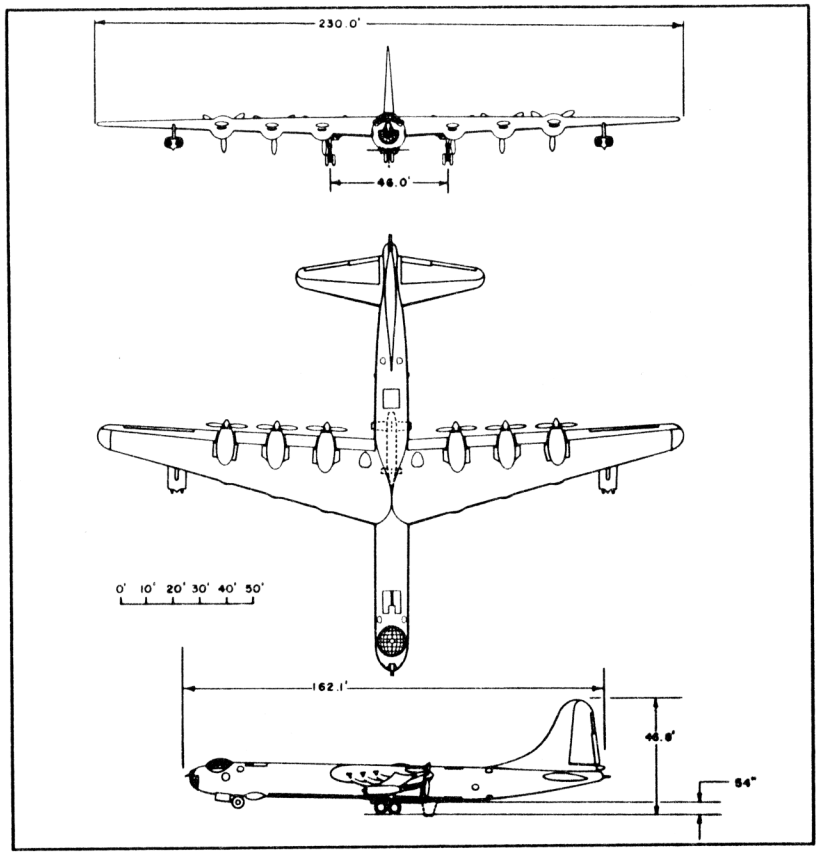
Standard Aircraft Characteristics

DB-36H II

BY AUTHORITY OF
THE SECRETARY
OF THE AIR FORCE

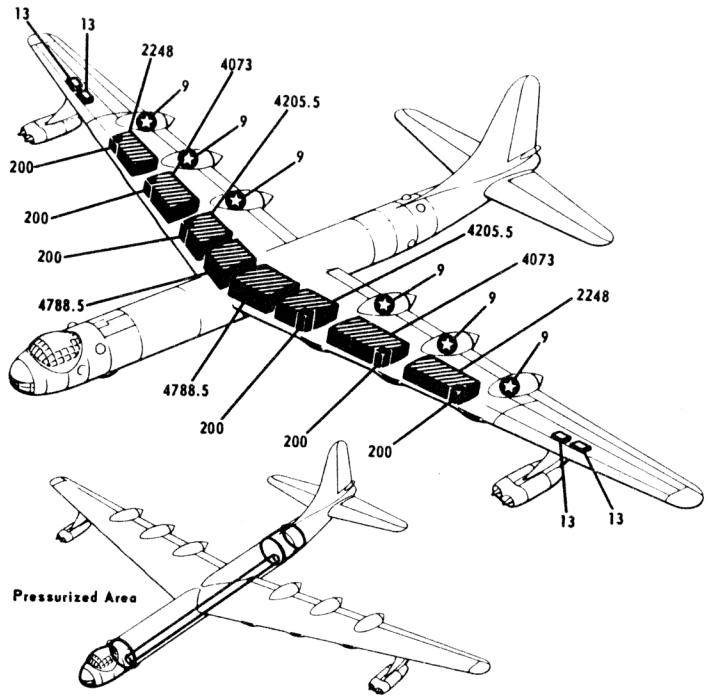
Consolidated-Vultee

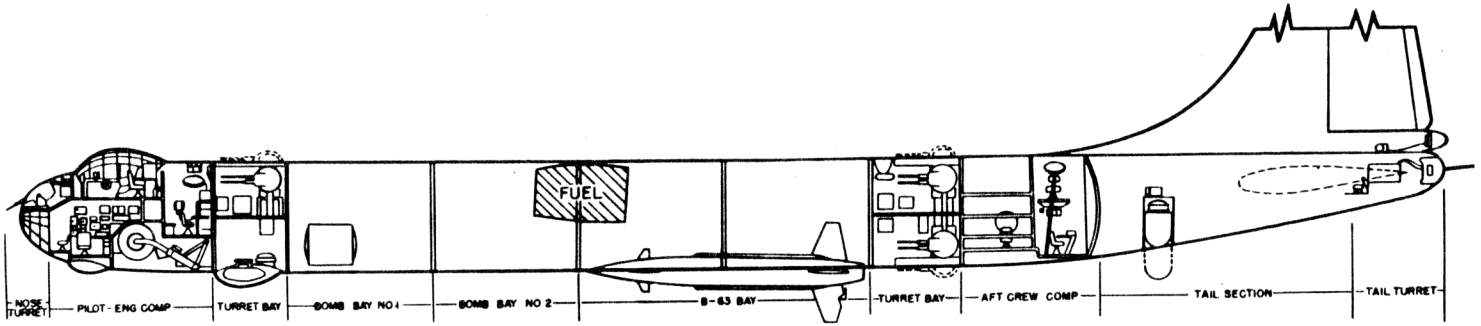
SIX R-4360-53
PRATT & WHITNEY
FOUR J47-GE-19
GENERAL ELECTRIC



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 (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

*Alternade blades; A.D.Smith, SP-36D

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

S. L. Static	LB	RPM	MIN
Max:	5200	7950	5
Mil:	5200	7950	30
Nor:	4730	7630	Cont

Mission and Description

Navy Equivalent: None Mfr's Model: 36

The principal mission of the DB-36H is transporting, launching, and directing the GAM-63 missile for the destruction of ground and naval materiel objectives.

The crew of 15 consists of pilot, co-pilot, engineer, navigator, radar-director, nose turret gunner, radio operator, (2) upper forward gunners, (2) upper aft gunners, (2) lower aft gunners, APG-41A operator, and auxiliary crew members.

Crew 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.

A modified K-3A Bombing-Navigational System and radar equipment are provided for launching and directing the GAM-63.

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 DB-36H from the B-36H are fairings in lieu of aft bomb bay doors, removal of all bomb racks, and the installation of GAM-63 supporting structures, release mechanism, and guidance equipment in the bomb bays.

Conversion of the DB-36H to a conventional bomber can be accomplished in approximately twelve hours.

For additional characteristics and performance data for the GAM-63, see "GAM-63 Standard Aircraft Characteristics", dated 27 Apr 55.

Development

First Flight Prototype with GAM-63	Jul 53
First Delivery	(est) Mar 56
Production Completion	(est) Aug 56

WEIGHTS

Loading	Lb	L. F.
Empty	170,512 (C)	
Basic	176,584 (C)	
Design	370,000	2.0
Combat *	252,600	
Max T.O. **	370,000	2.0
Max Land **	357,500	

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

FUEL

Location	No. Tanks	Gal
Wg, outbd*	2	4496
Wg, ctr*	2	8146
Wg, inbd	2	8411
Center sec	2	9577
*Part. self sealing	Total	30,630
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

Note: Bomb bay fuel tank removed.

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"

BOMBS

No.	Class (lb)
GAM-63 Pilotless Aircraft	
Gross Weight	18,200 lb
Warhead	3000 lb

GUNS

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, lwr, aft
2	M24A1	20mm	600	Fus, tail

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
Omni-Range	AN/ARN-14
Glide Path	AN/ARN-5B
Bombing-Nav Radar	K-3A
Loran	AN-APN-9A
Gun-Laying Radar	AN/APG-41A
Interphone	USAF Combat
Range Recv'r	BC-453B

Defensive ECM
DB-36H/B-63 Guidance Equipment

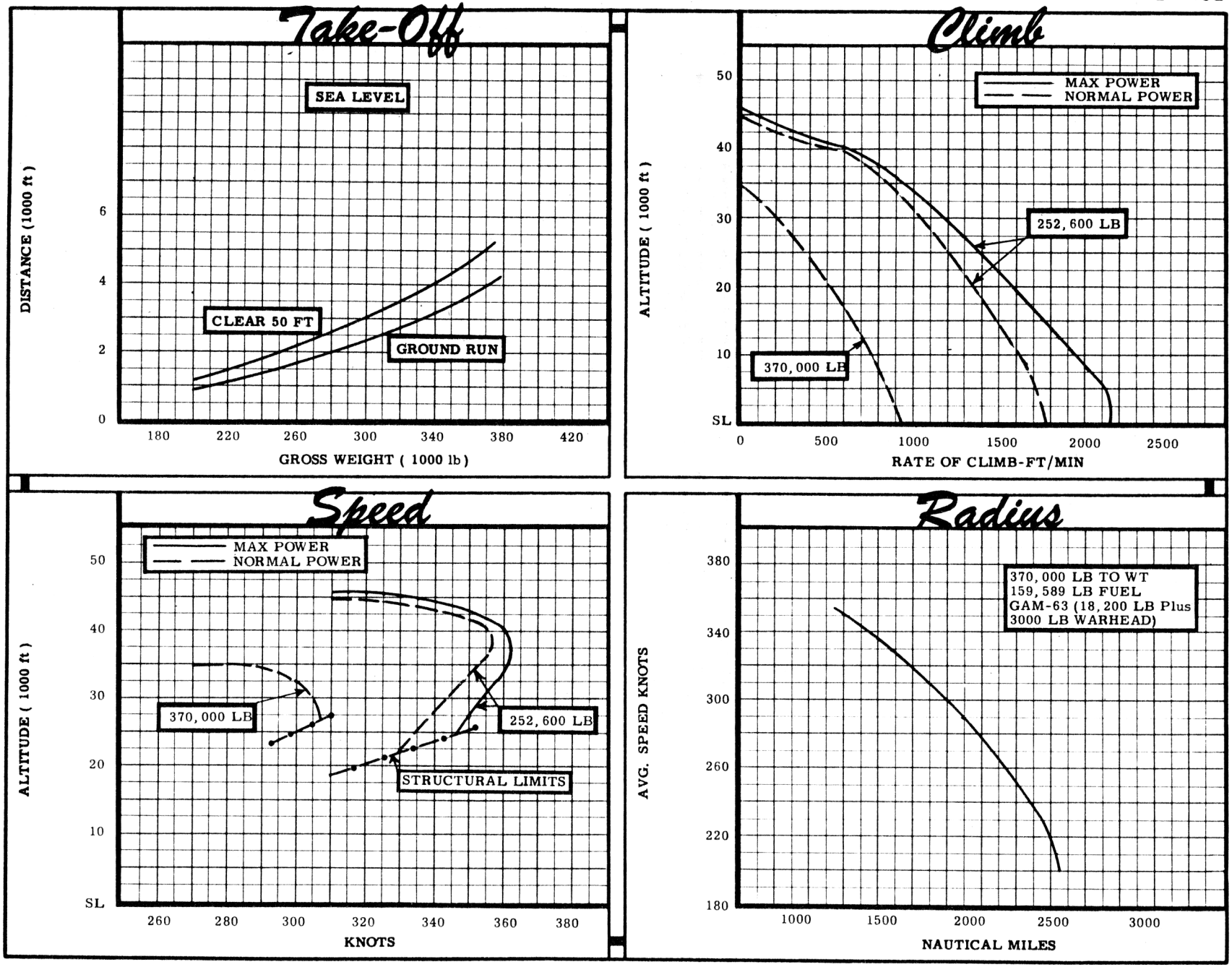
Loading and Performance—Typical Mission

CONDITIONS		BASIC MISSION	MAX ALTITUDE	HIGH SPEED	FERRY RANGE
		I	II	III	IV
TAKE-OFF WEIGHT	(lb)	370,000	370,000	370,000	370,000
Fuel at 60 lb/gal (grade 115/145)	(lb)	159,589	159,589	159,589	179,197
Payload(GAM-63) ⑤	(lb)	18,200	18,200	18,200	None
Payload(Chaff)	(lb)	1408	1408	1408	None
Wing loading	(lb/sq ft)	77.5	77.5	77.5	77.5
Stall speed (power off)	(kn)	107	107	107	107
Take-off ground run at SL ①	(ft)	3990	3990	3990	3990
Take-off to clear 50 ft ①	(ft)	5110	5110	5110	5110
Rate of climb at SL ③	(fpm)	930	930	930	930
Rate of climb at SL (one engine out) ②	(fpm)	940	940	940	940
Time: SL to 10,000 ft ③	(min)	12	12	12	12
Time: SL to 20,000 ft ③	(min)	26	26	26	26
Service ceiling (100 fpm) ③	(ft)	32,750	32,750	32,750	32,750
Service ceiling (one engine out) ②	(ft)	30,350	30,350	30,350	30,350
COMBAT RANGE ④	(n. mi)	———	———	———	6555
Combat Range(Director & Missile) ④ ⑥	(n. mi)	2560	2420	1270	———
Director Average Cruising Speed	(kn)	202	203	353	192
Director Initial Cruising Altitude	(ft)	5000	5000	30,000	5000
Launch speed ②	(kn)	346	322	340	———
Launch altitude	(ft)	39,900	43,250	39,300	———
Missile maximum altitude	(ft)	60,000	60,000	60,000	———
Missile maximum speed	(kn)	1380	1380	1380	———
Missile range	(n. mi)	100	100	100	———
Missile endurance	(min)	7	7	7	———
Director final cruise altitude	(ft)	27,800	27,800	40,000	27,500
Director total mission time	(hr)	24.04	22.11	7.03	34.20
COMBAT WEIGHT (Director only)	(lb)	252,600	250,250	260,200	201,077
Combat altitude	(ft)	39,900	43,250	39,300	27,500
Combat speed ②	(kn)	361	350	359	357
Combat climb ②	(fpm)	560	235	536	1895
Combat ceiling (500 fpm) ②	(ft)	40,600	40,700	39,600	44,500
Service ceiling (100 fpm) ③	(ft)	43,800	44,000	43,100	48,000
Service ceiling (one eng. out) ③	(ft)	41,200	41,400	40,700	45,400
Max rate of climb at S. L. ②	(fpm)	2160	2165	2045	2850
Max speed at optimum altitude ②	(kn)	363/37,500	363/37,500	361/37,000	374/38,700
Basic speed at 25,000 ft ②	(kn)	362	362	360	372
LANDING WEIGHT	(lb)	200,092	200,092	200,092	201,077
Ground roll at SL	(ft)	1950	1950	1950	1950
Ground roll (auxiliary brake) ⑦	(ft)	1700	1700	1700	1700
Total from 50 ft	(ft)	3380	3380	3380	3390
Total from 50 ft (auxiliary brake) ⑦	(ft)	3160	3160	3160	3170

NOTES

① Take-off power
② Max power
③ Normal power
④ Detailed descriptions of RADIUS and RANGE misssions given on page 6.
⑤ 3000 lb Warhead
⑥ Director radius is 90 n. mi. less than combat radius
⑦ Props reversed

PERFORMANCE BASIS:
(a) Data source: Calculations based on flight test of YDB-36H.
(b) Performance is based on powers shown on page 6.


Take-Off
SEA LEVEL
CLEAR 50 FT
GROUND RUN
DISTANCE (1000 ft)
0
2
4
6
180
220
260
300
340
380
420
GROSS WEIGHT (1000 lb)
Climb
MAX POWER
NORMAL POWER
252, 600 LB
370, 000 LB
ALTITUDE (1000 ft)
SL
10
20
30
40
50
0
500
1000
1500
2000
2500
RATE OF CLIMB-FT/MIN
Speed
MAX POWER
NORMAL POWER
370, 000 LB
252, 600 LB
STRUCTURAL LIMITS
ALTITUDE (1000 ft)
SL
10
20
30
40
50
260
280
300
320
340
360
380
KNOTS
Radius
370, 000 LB TO WT
159, 589 LB FUEL
GAM-63 (18, 200 LB Plus
3000 LB WARHEAD)
AVG. SPEED KNOTS
180
220
260
300
340
380
1000
1500
2000
2500
3000
NAUTICAL MILES

NOTES

FORMULA: RADIUS MISSION I

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. Climb so as to arrive at cruise ceiling 400 nautical miles before release of GAM-63. Cruise at long range speeds at launch altitude, using best engine (jet-reciprocating) combination; 15 minutes from target, conduct 10 engine normal power run-in, launch GAM-63, conduct 2 minutes evasive action and 8 minutes escape at normal power. After leaving launch area, cruise back at long range speeds using best engine combination until 400 nautical miles from point of launch; 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 at sea level for long range speeds (reciprocating engines only) plus 5% of initial fuel load for landing and endurance reserve.

FORMULA: RADIUS MISSION II

Warm-up, take-off and climb on course to 25,000 feet at normal power, cruise out at long range speeds at this altitude to point of climb so as to arrive at cruise ceiling 400 nautical miles before release of GAM-63. Cruise on maximum attainable altitude flight path except for the last 15 minutes before missile release which are flown at normal power at the altitude attained at start of normal power cruise. Launch GAM-63 and chaff, conduct 2 minutes normal power evasive action, eight minutes normal power excape, and cruise toward base using long range speed at combat until 400 nautical miles from missile release. Descend to optimum altitude long range flight path and cruise back to base. Range free allowances are the same as for RADIUS MISSION I.

FORMULA: RADIUS MISSION III

Entire mission is flown at normal power, warm-up, take-off and climb on course to optimum altitude for high speed, cruise at optimum altitude for high speed to point where climb is made so as to arrive at cruise ceiling 400 nautical miles before release of GAM-63. Cruise at launch altitude to point of release, launch GAM-63, conduct 2 minutes of evasive action and cruise back 400 nautical miles. Descend to optimum altitude for high speed and return to base. If, after launching GAM-63, the flight path is above combat altitude, climb is begun after 2 minutes of evasive action. Range free allowances are the same as for RADIUS MISSION I.

FORMULA: FERRY RANGE MISSION IV

Warm-up, take-off and climb on course to 5000 feet at normal power, cruise climb at long range speeds until all usable fuel is consumed. Range free allowances are the same as for Radius Mission I except for ommission of 2 minutes evasive action.

GENERAL DATA:

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

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

(6) R-4360-53		and	(4) J47-19	
	BHP - RPM - ALT - MIN		S.L.STATIC	LB - RPM - MIN
T.O.	*3800 - 2800 - SL - 5		T.O.	5010 - 7950 - 5
Max:	3500 - 2800 - Up to 35,000** - 30		Max:	5010 - 7950 - 30
Nor:	2800 - 2600 - Up to 39,000** - Cont		Nor:	4700 - 7630 - Cont

*Wet
** Turbo supercharger limitation

(c) Take-off at 370,000 lb gross weight is authorized only for airplanes on which structural modifications to the main landing gear have been accomplished in accordance with ECP 1890B and ECP 1890L.

PERFORMANCE REFERENCE:

Consolidated Vultee Aircraft Corp. Report FZA-36-291, dated 26 Aug 1953, Rev. 15 June 1955.

REVISION BASIS:

To reflect latest performance due to weight change.

(15 JUNE 55)

SUPPLEMENTAL

HIGH ALTITUDE COMBAT ZONE CAPABILITIES