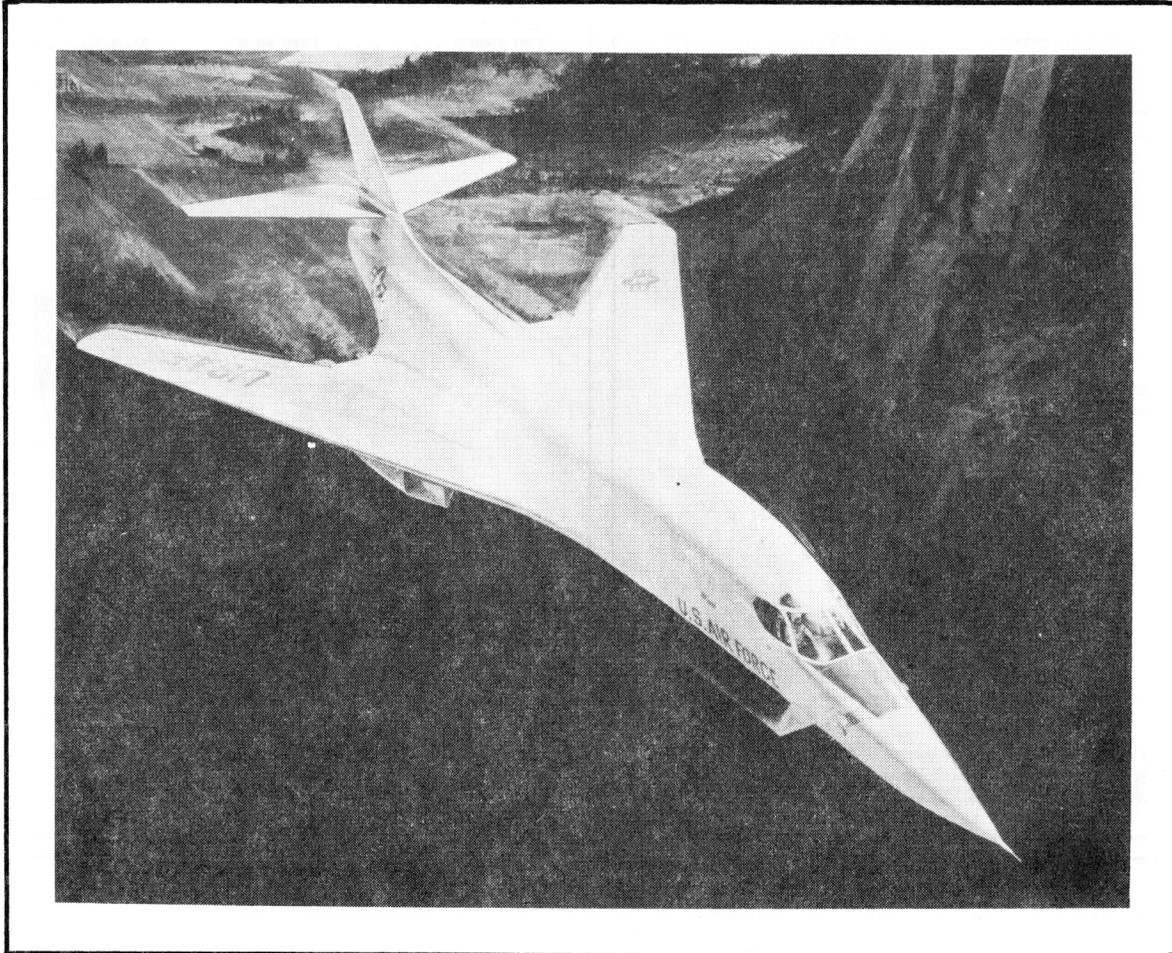


AI (Rockwell-International)

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PRE-MOCK-UP



Standard Aircraft Characteristics

BY AUTHORITY OF
THE SECRETARY
OF THE AIR FORCE

B-1

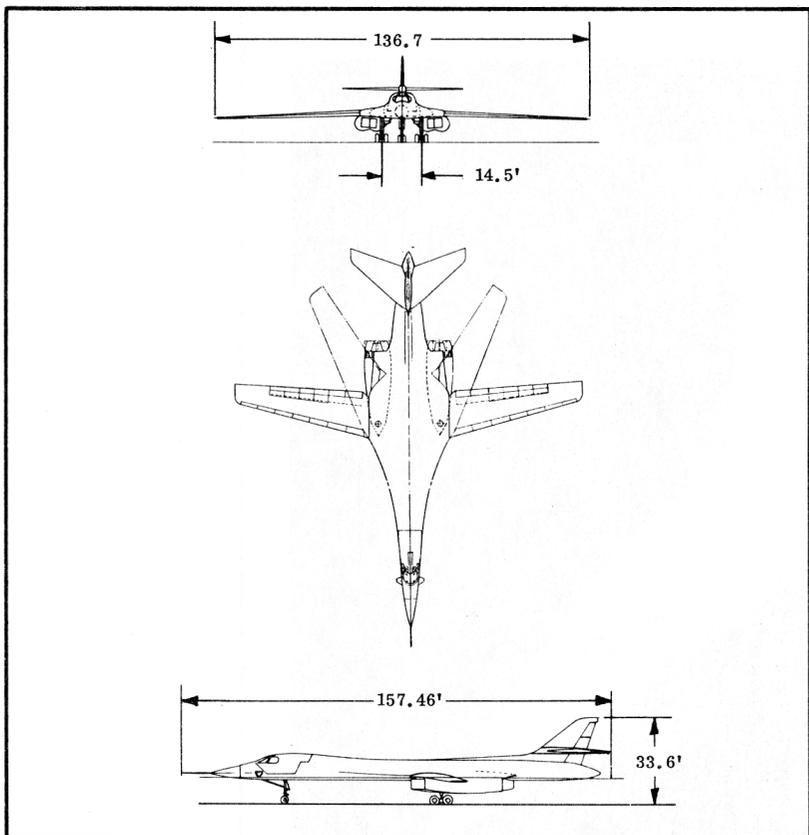
FOUR F101-GE-100
GENERAL ELECTRIC

NORTH AMERICAN ROCKWELL

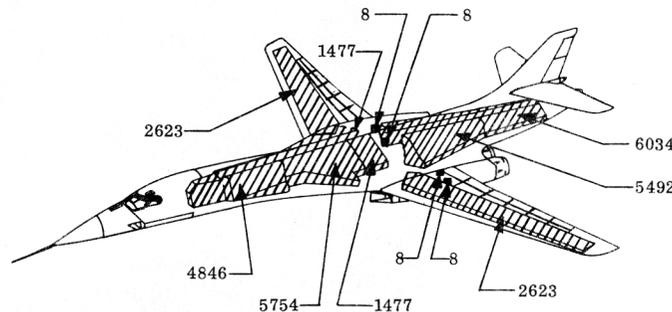
DOWNGRADED AT 3 YEAR INTERVALS;
DECLASSIFIED AFTER 12 YEARS
DOD DIR 5200.10

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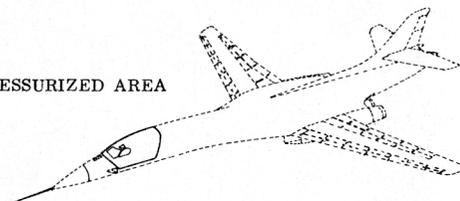
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Wing Area (15° LE)	Wing Section* NR Developed
fwd sweep 1946 sq ft	M.A.C. 184.1 in.
Aspect Ratio 9.0	*t/c11394
	t/c11561

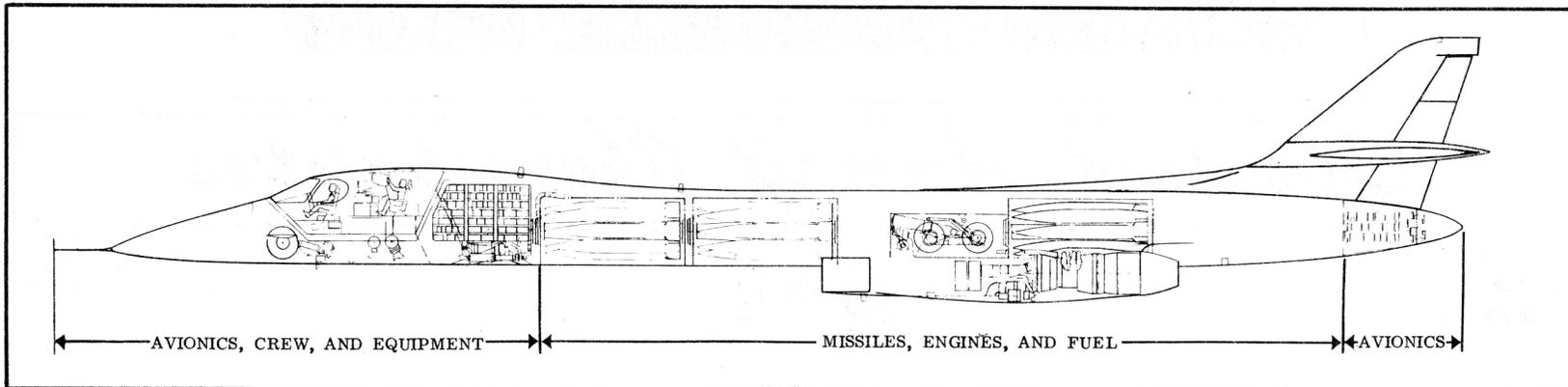


PRESSURIZED AREA



▨ Fuel (Gal)

■ Oil (Gal)



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POWER PLANT

Nr & Model (4) F101-GE-100
 Mfr General Electric
 Engine Spec Nr CP45-B0002
 Type Axial Turbofan
 Length 177.0"
 Diameter 62.3"
 Weight (Dry) 4272 lb
 Tail Pipe Auto, Multi Area
 Augmentation Afterburner

ENGINE RATINGS

S, L, Static Lb - RPM - Min
 Max: *29,850 - † - Cont
 Intermediate: 16,110 - † - Cont

* Afterburner
 † HPR/LPR 14,670/7960
 ‡ HPR/LPR 14,710/7960

DIMENSIONS

Wing
 *Span 136.7'
 Incidence (Butt Line 163.5) 2°
 (Tip) 0°0'
 +Dihedral -1°56'
 Sweepback (LE) Variable 15° -65°
 Length 157.46'
 Height 33.6'
 Tread 14.5'

*Most fwd sweep position (15° 0')
 +At 40% chord line

Mission and Description

Navy Equivalent: None Mfr's Model: W/S 139A

The principal mission of the B-1 is to deliver a 50,000 pound payload at high speed at sea level or a 25,000 pound payload at supersonic speed and high altitude to a distant target.

The crew consists of aircraft commander (pilot), co-pilot and two subsystems operators, one for offensive systems and the second for defensive systems.

The B-1 is a variable-sweep low-wing, trailing-tail air vehicle with the blended wing-body concept, structural mode control vanes for sea-level high speed penetration, mixed compression inlet and rotary missile launchers.

Other features include double-slotted flaps with a fowler action extension, leading-edge slats, rolling panel tail, spoilers, power-operated controls, automatic pilot and single-point ground and air refueling provisions.

The crew escape system consists of an ejectable module which forms an integral part of the overall fuselage structure and contains the crew compartment. The crew compartment provides a "shirt-sleeve" environment.

Development

Date of Contract Jun 70
 First Flight Feb 74 (est)

WEIGHTS

Loading	Lb	L, F.
Empty	143,000 (E)	
Basic	147,340 (E)	
Combat	*200,102	3.0
Max. Taxi	360,000	
Max. T.O.	†360,000	2.0
Max. Inflt	391,000	—
Max Land	346,500	

(E) Estimated
 * For Basic Mission
 † Limited by strength (landing gear)

F U E L

Location	Nr Tanks	Gal
Wing	2	5246
Fuselage	6	25,080
Max Internal	(Total)	30,326
Weapon bay	1	3385
External	2	6000
	Total	39,711
Grade		JP-4
Specification		MIL-T-5624

OIL

Nacelles	4	32
Grade		Synthetic
Specification		MIL-L-7808

MISSILES

Nr	Type	Designation
24 (Internal)	SRAM	AGM-69A
8 (External)	SRAM	AGM-69A

B O M B S

Nr	Class (Lb.)
30	M117 or M117R 750
	New Series
84	MK82 or MK82SN 500
24	MK84 2000
135	Bluff Shape 500
Max Bomb Load	75,000 lb

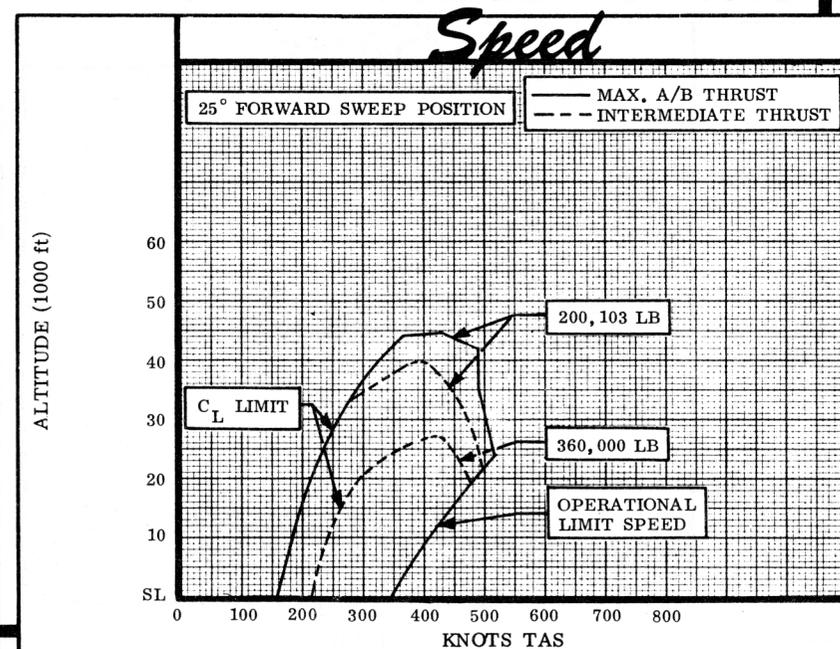
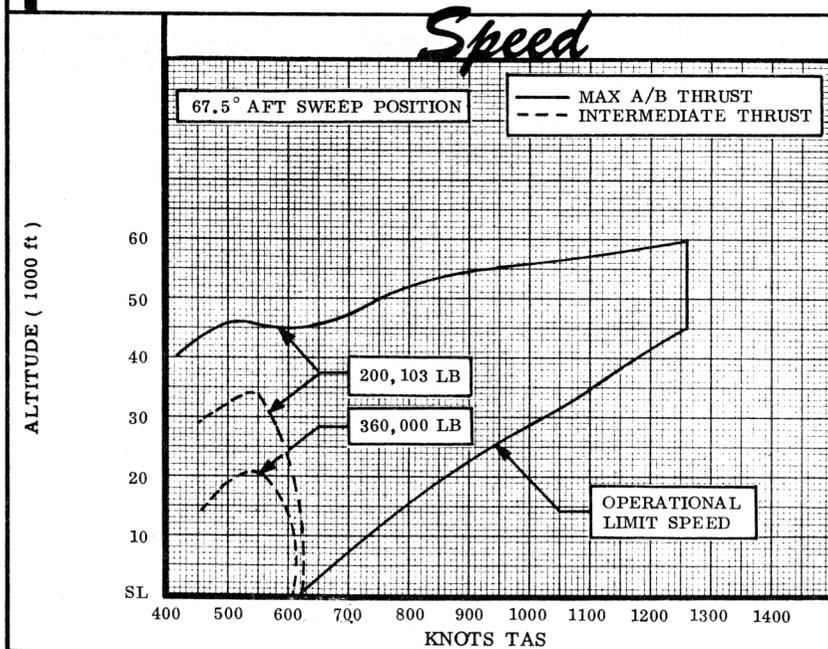
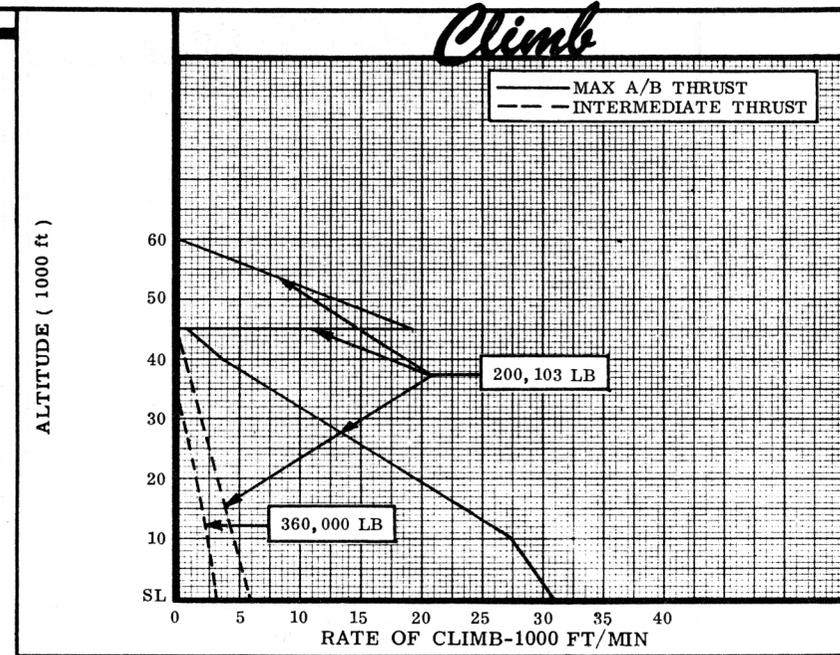
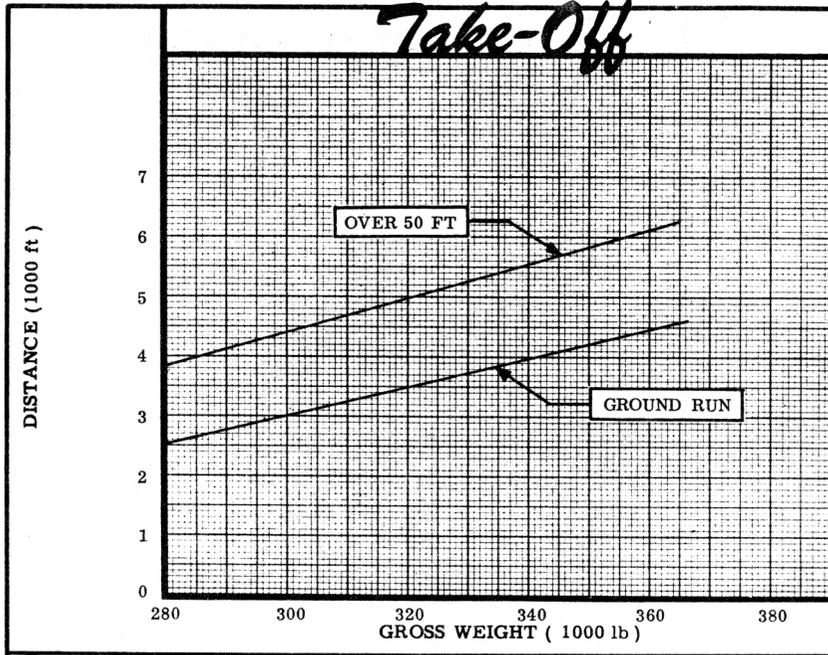
ELECTRONICS

The avionics system functional requirements have been defined; however, the selection of specific equipment has not been made but will be determined during the RDT&E program. The air vehicle is designed to accommodate a standardized avionics system with a weight allowance of 10,450 pounds, 300-cubic-foot volume, and an ac power requirement of 200 kva with 180 kw heat dissipation. The air vehicle performance is based on an initial avionics system with a weight allowance of 5400 pounds, 150-cubic-foot volume, and an ac power requirement of 90 kva with 80 kw heat dissipation.

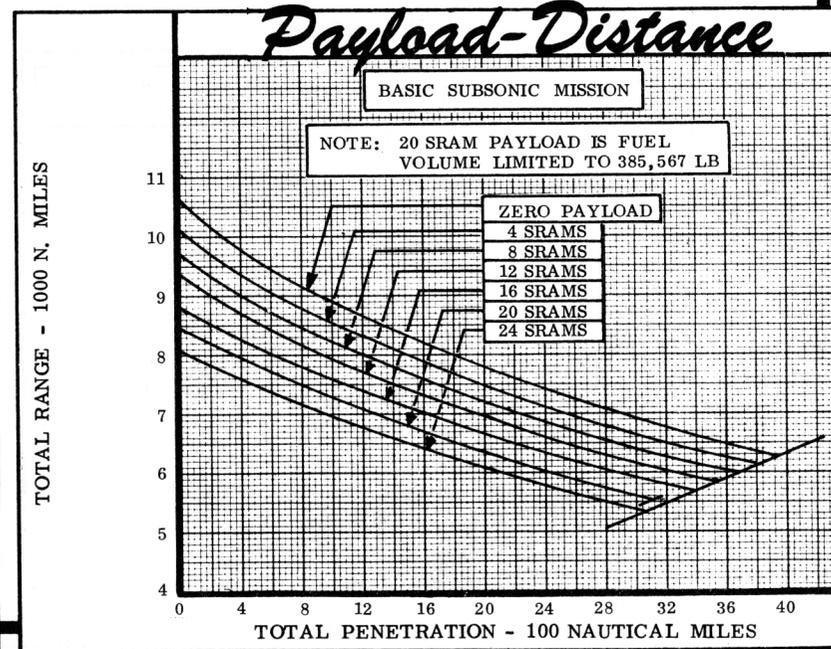
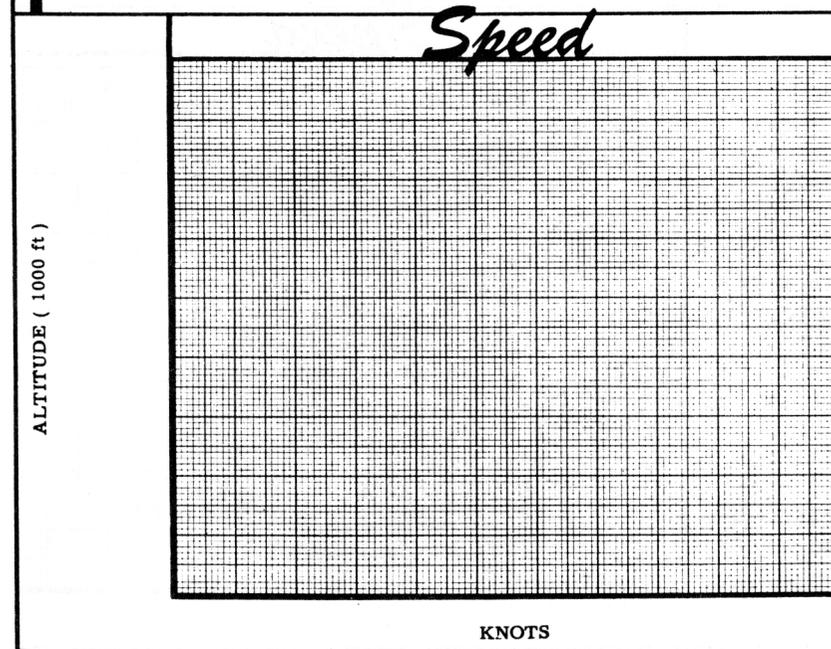
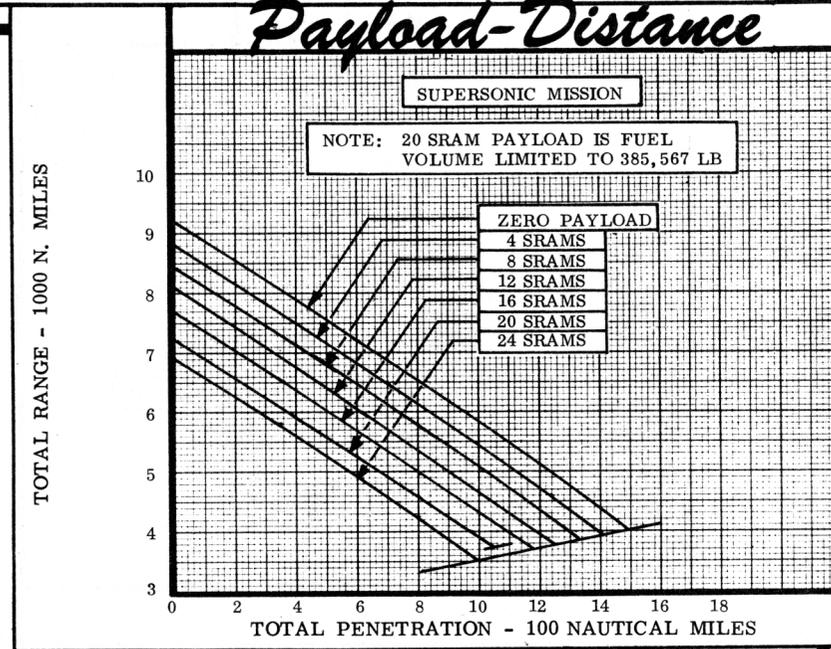
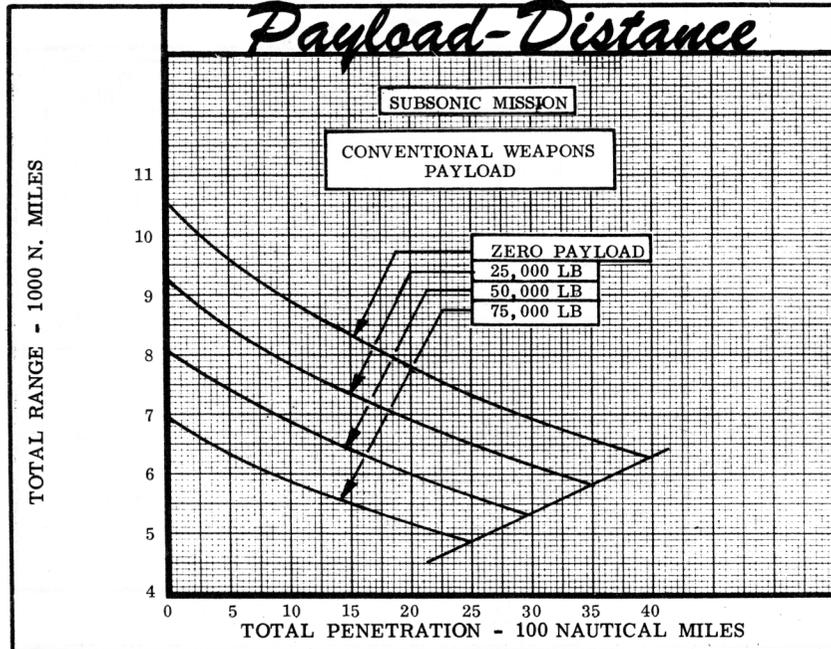
Loading and Performance - Typical Mission

C O N D I T I O N S	I		II		III	
	BASIC MISSION		SUPERSONIC MISSION		FERRY MISSION	
TAKEOFF WEIGHT (lb)		360,000		360,000		360,000
Fuel at 6.5 lb/gal (JP-4) (lb)		161,120		186,080		212,180
Payload (internal) (lb)		50,000 (6)		25,000 (7)		None
Wing loading (lb/sq ft)		185		185		185
Stall speed (Power off) (kn)		145		145		145
Takeoff ground run at SL (1) (ft)		4440		4440		4440
Takeoff to clear 50 ft (1) (ft)		6135		6135		6135
Rate of climb at SL (2) (fpm)		2820		3020		3020
Rate of climb at SL (one engine out) (1) (fpm)		5900		5900		5900
Time: SL to 20,000 ft (2) (min)		10.0		10.0		10.0
Time: SL to initial cruise alt. (2) (ft)		11.8		11.8		11.8
Service ceiling (100 fpm) (2) (ft)		27,000		27,000		27,000
Service ceiling (one engine out) (1) (5) (ft)		32,000		32,000		32,000
REFUELED WEIGHT (lb)		391,000		391,000		----
Transferred fuel (lb)		103,287		103,287		----
Wing loading (lb)		200.9		200.9		----
Service ceiling (100 fpm) (2) (ft)		24,000		24,000		----
Service ceiling (one engine out) (1) (5) (ft)		30,000		30,000		----
COMBAT RANGE (3) (n. mi)		6103		5025		7706
Penetration distance (n. mi)		2000		900		----
Penetration speed (M/kn)		.85/562		2.2/1262		----
Target speed (4) (M/kn)		.85/562		2.2/1262		----
Target altitude (ft)		200		55,882		----
Average cruise speed outside penetration zone (kn)		420		419		407
Initial cruising altitude (ft)		22,537		22,537		22,536
Final cruising altitude (ft)		39,397		39,222		39,194
Total mission time (hr)		14.0		10.4		18.9
COMBAT WEIGHT (lb)		200,102		195,821		162,002
Combat altitude (ft)		200		55,882		39,194
Combat speed (1) (M/kn)		.95/628		2.2/1262		2.1/1205
Combat climb (1) (fpm)		30,931		4070		24,400
Combat ceiling (500 fpm) (1) (ft)		58,800		59,100		60,900
Service ceiling (100 fpm) (ft)		39,300 (2)		59,100 (1)		42,000 (2)
Service ceiling (one engine out) (2) (5) (ft)		33,000		33,700		37,000
Maximum rate of climb at SL (1) (fpm)		30,930		31,580		37,100
Maximum speed at optimum altitude (1) (M/kn/ft)		2.2/1262/59,000		2.2/1262/59,300		2.2/1262/61,500
Basic speed at 35,000 ft (1) (M/kn)		1.9/1092		1.9/1092		1.9/1092
LANDING WEIGHT (lb)		160,357		161,776		162,002
Ground roll at SL (ft)		2320		2350		2350
Total from 50 ft (ft)		3380		3400		3400

N O T E S	(1) Maximum afterburner thrust	(5) All one engine out ceilings are subsonic ceilings	PERFORMANCE BASIS: (a) Data source: Estimated data (b) Performance is based on powers shown on page 3.
	(2) Intermediate thrust	(6) 24 SRAM missiles	
	(3) Detailed description of RANGE missions are given on page 7.	(7) 12 SRAM missiles	
	(4) Cruise thrust		



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N O T E SFORMULA: RANGE MISSION I

Take-off and accelerate to climb speed with maximum afterburner thrust, climb on course with intermediate thrust to buddy cruise altitude and mach number, buddy cruise at mach .695 to optimum refuel point, descend to 25,000 feet and refuel from a maximum gross weight KC-135 tanker having a 1000 nautical mile recovery. After refuel descend to best cruise altitude, cruise at maximum range speed and altitude, descend to 200 feet, penetrate at mach 0.85 for 1333 nautical miles, deliver 50,000 pound payload at target, cruise at mach 0.55 and 200 feet altitude for 667 nautical miles, climb on course with intermediate thrust to best cruise altitude, cruise out at maximum range speed and altitude for a total recovery distance of 500 nautical miles. Range free allowances include 5 minutes at intermediate thrust plus 1 minute at maximum afterburner thrust for starting, taxi, take-off and accelerate to climb speed, 5% of fuel used prior to refuel for hook-up and contingency allowance and 30 minutes at maximum endurance at sea level plus 5% of initial fuel.

FORMULA: RANGE MISSION II

Same as Range Mission I through refuel and descent to best cruise altitude. Cruise at maximum range speed and altitude, climb and accelerate with maximum afterburner thrust to mach 2.2 penetration altitude, cruise at mach 2.2 for 600 nautical miles, deliver 25,000 pound payload at target, cruise at mach 2.2 for 300 nautical miles, descend to best cruise altitude, cruise at maximum range speed and altitude for 500 nautical mile recovery distance. Range free allowances are the same as noted for RANGE MISSION I.

FORMULA: FERRY MISSION

Take-off and accelerate to climb speed with maximum afterburner thrust, climb on course with intermediate thrust to best cruise altitude, cruise out at maximum range speed and altitude until fuel for mission is consumed.

Range free allowances include 5 minutes at intermediate thrust plus 1 minute at maximum afterburner thrust for starting, taxi, takeoff, and accelerate to climb speed, reserve fuel equal to 30 minutes at maximum endurance speed at sea level plus 5% of initial fuel.

GENERAL NOTESPERFORMANCE REFERENCE

North American Rockwell Report Nr NA-71-276 dtd 1 April 1971.

REVISION BASIS: To show latest characteristics and performance data. (Change in design of Horizontal tail, page 2)

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