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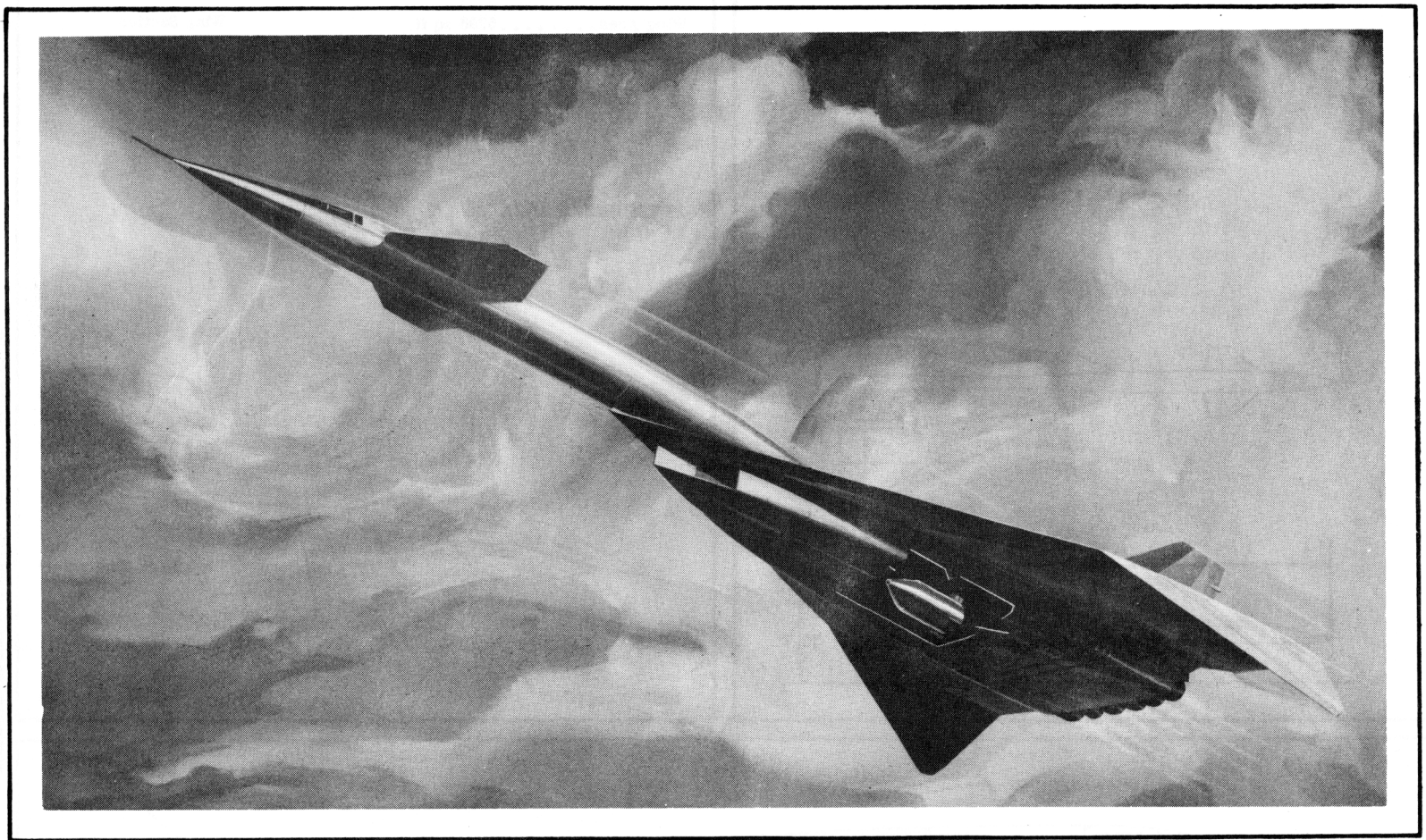
A-1
(X) B-70A/char

MOCKUP

Classification cancelled
or changed to

AUTH: *Doc by 29 am*
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Signature and Grade

~~RESTRICTED DATA~~
~~ADMINISTRATIVE CONTROL 1904~~



Standard Aircraft Characteristics

BY AUTHORITY OF
THE SECRETARY
OF THE AIR FORCE

B-70

SIX J93-GE -3

VALKYRIE
North American

GENERAL ELECTRIC

8 JUN 60

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Signature and Grade

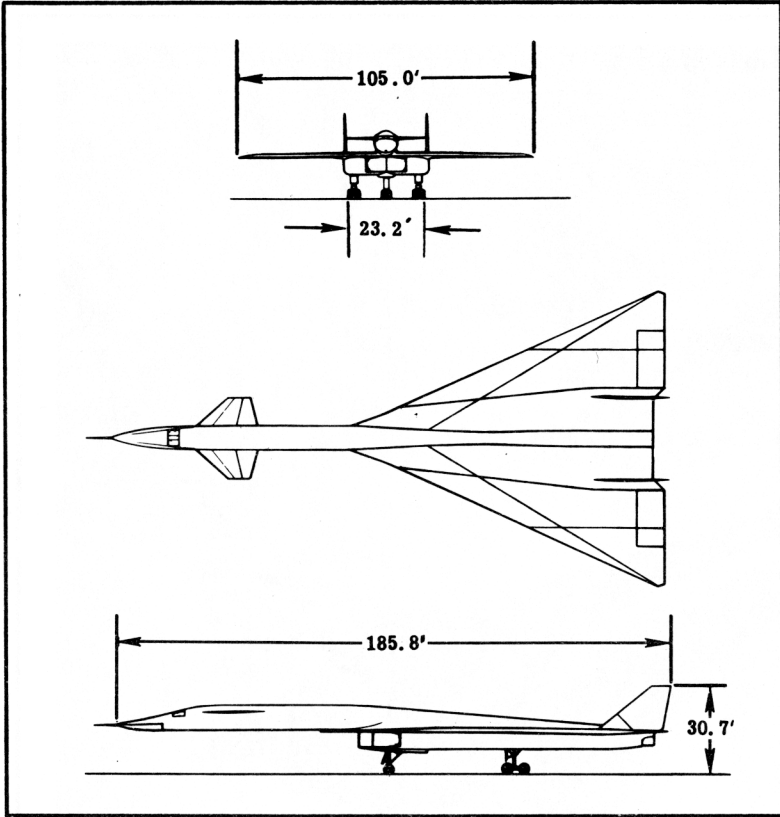
B-70

5th Ed addn #18

CLASSIFICATION CANCELLED
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BY AUTHORITY OF *[Signature]*
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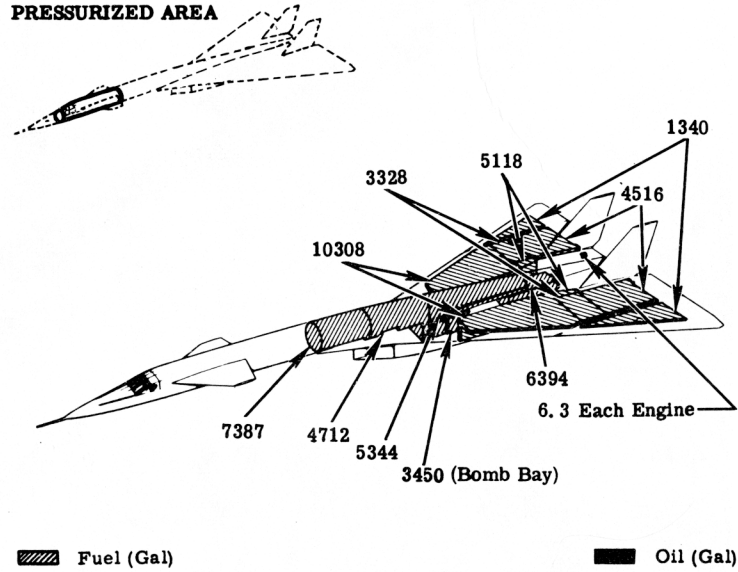
Classification cancelled
or changed to *unclassified*
AUTH: *S. Maj Paul K. Tachikawa*
3/10/77 [unclear] Info Sec. [unclear]
Shiraul M. White, 3/29/77, GS-9



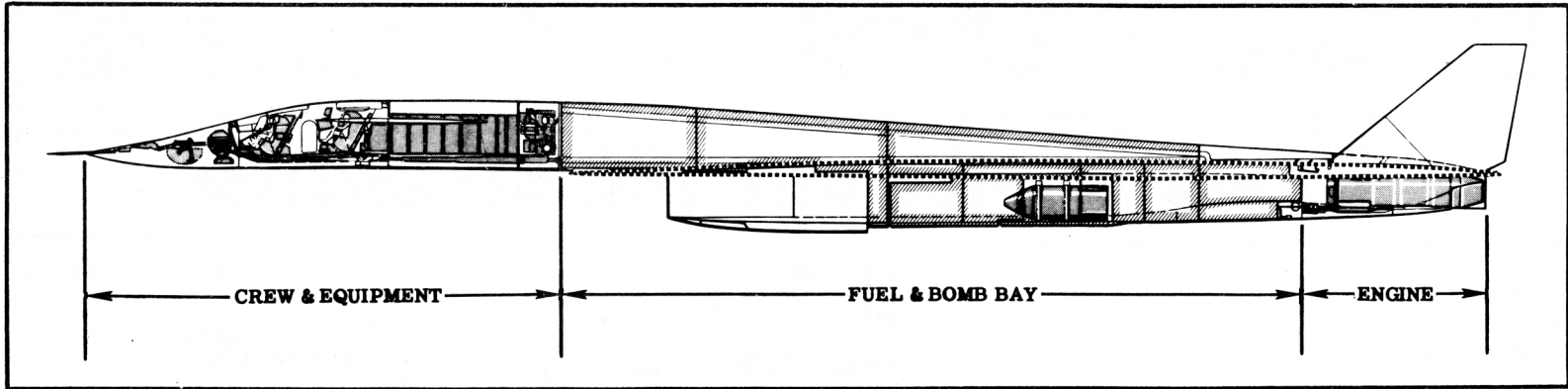
Wing Area 6298 sq ft
 Aspect Ratio 1.75
 M. A. C. 942.4 in.

Wing Section
 See Note "b" Page 7

PRESSURIZED AREA



RESEARCHED DATA
 ATOMIC ENERGY ACT 1954



POWER PLANT

Nr & Model (6) J93-GE-3
 Mfr General Electric
 Engine Spec Nr R58AGT288G
 Type Axial Turbo Jet
 Length 232.9"
 Diameter 52.6"
 Weight (dry) 4767 lb
 Tail Pipe . . . Mech, Variable C/D
 Augmentation Afterburner

ENGINE RATINGS

S. L. S. LB - RPM - MIN
 Max: 29,500 - 6825 - cont
 Mil: 20,900 - 6825 - cont
 Nor: 18,600 - 6825 - cont

DIMENSIONS

Wing
 Span 105.0'
 Incidence (root) 0°
 (tip) -5.0°
 Dihedral 0°
 Sweepback (25% chord) 58.8°
 Length 185.8'
 Height 30.7'
 Tread 23.2'

Mission and Description

Navy Equivalent: None Mfr's Model: NA-267

The principal mission of this aircraft is to destroy the military, logistic, industrial, economic, control and psychological strengths of the enemy.

Special features of this airplane are selective placement of wing, body and inlet duct for obtaining high lift-to-drag ratios, a canard configuration, variable area inlet with mechanically controlled convergent-divergent nozzle, and airframe construction of steel and titanium.

The crew of four consists of the pilot, co-pilot, bombardier-navigator and defense operator.

A Bombing and Navigation, Missile Guidance System (B & N & MG) is provided for the release of special stores and missiles.

An air defense system based on electronic countermeasures and chaff dispensing is employed.

Development

Design initiated Nov 55
 Date of contract Dec 57
 Mock-up Mar 59
 First Flight (est) Jan 62
 First Flight (XB-70) (est) Dec 62

WEIGHTS

Loading	Lb	L. F.
Empty	188,326(E)	
Basic	189,862(E)	
Design	240,892	2.0
Combat	*272,236	2.0
Max T.O.	**554,609	2.0
Max in Flt	† 554,609	2.0
Max Landing	‡ 283,510	

(E) Estimated
 * For Basic Mission
 ** Limited by Mission
 † By Aerial Refueling
 ‡ Limited by Structure

FUEL

Location	Nr. Tanks	Gal
Fuselage	5	28,955
Wing & Duct	8	19,492
Aux Armament Bay. 1		3,450
		51,897

Grade JP-6
 Specification MIL-F-25656

OIL

Fuselage 6 38
 Specification MIL-L-9236A

B O M B S

Nr	Special Weapons	Weight
1	*Class A	25,000
2	Class B	20,000
1	*Class B (FUFO)	15,000
2	Class C (FUFO)	17,000
4	Class D	8000
	Max Bomb Load	25,000

Alternate Loadings
 2 ASM's, external plus 1 Class B
 2 ASM's, external plus 4 Class D

* Space provisions only

ELECTRONICS

Bomb-Nav & Missile Guidance Sys.
 Digital Computer Equipment
 Interconnection Equipment
 Control & Display Equipment
 Radar Display Equipment
 Stellar Inertial Equipment
 Radar Sighting Equipment
 Doppler Radar Equipment
 Electronic Power Supply
 Flight Control Subsystem Group
 Primary Flight Control
 Secondary Flight Control
 Automatic Flight Control
 Central Air Data
 Auxiliary Gyro Platform
 Flight & Engine Display

ELECTRONICS

Defensive Subsystem
 Central Intelligence Control
 Electromagnetic Countermeasure
 Surveillance
 Electromagnetic and Thermal
 Thermal & Chaff Countermeasures
 Penetration Aids
 Active Defense
 Mission & Traffic Control Subsys
 Digital Data Terminal Equipment
 Recorder
 Approach and Landing
 Radio Navigation Aids
 Station Keeping & Rendezvous
 Identification - A/A and A/G
 Air Traffic Control Signalling

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 ATOMIC ENERGY ACT 1954

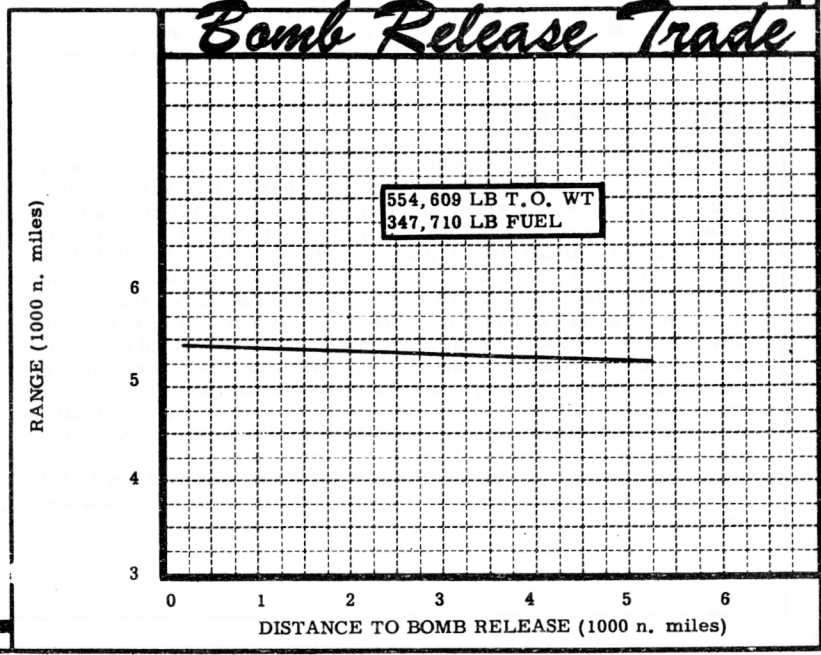
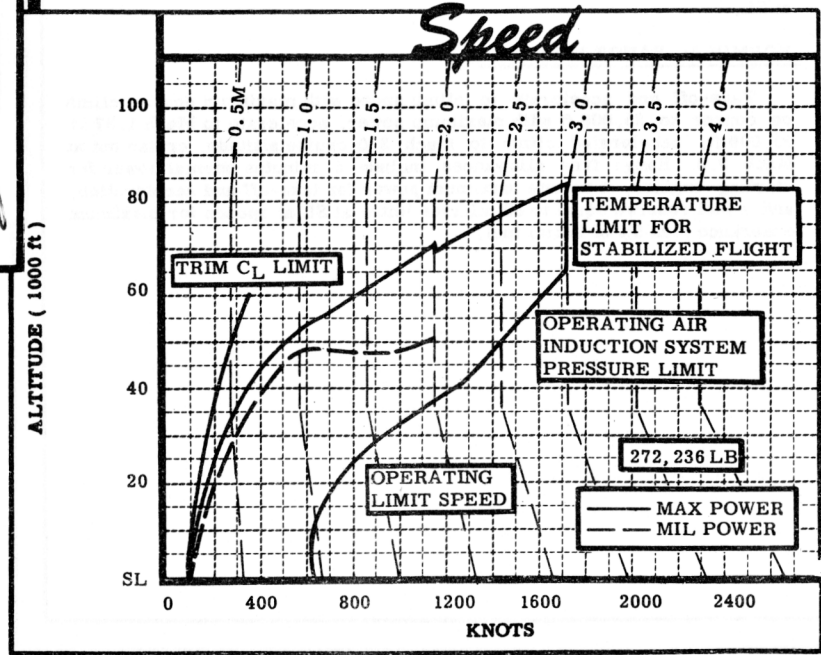
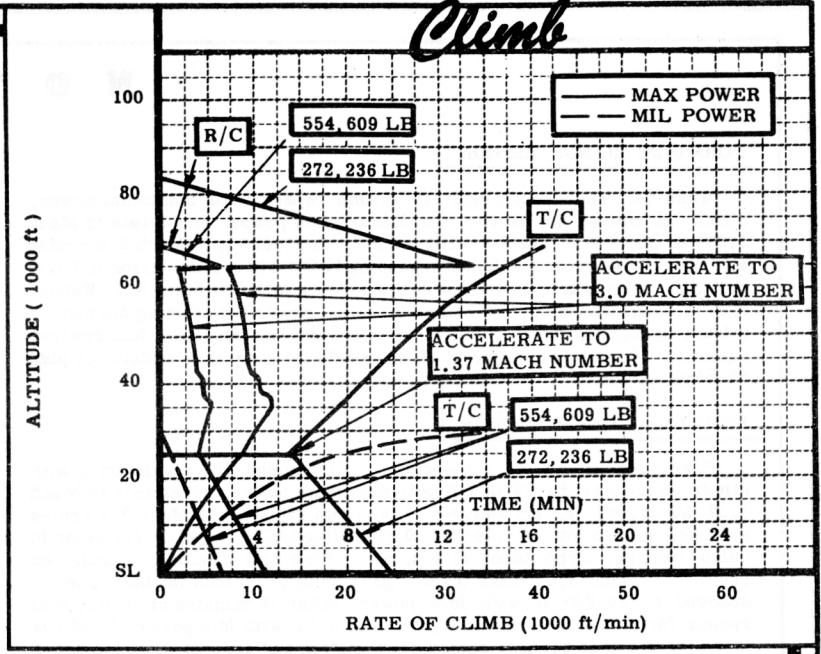
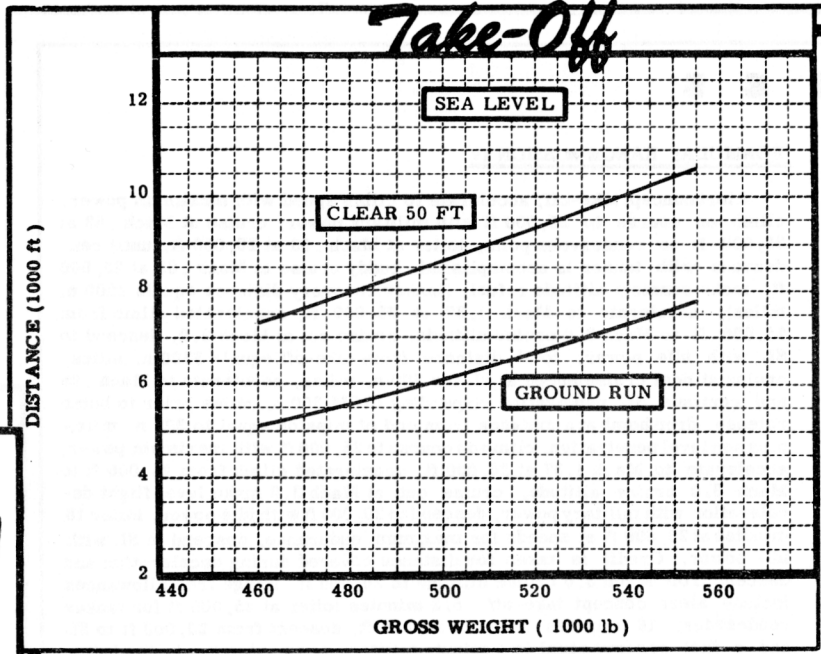
Loading and Performance—Typical Mission

C O N D I T I O N S			JP-6 FUEL ONLY				
			BASIC MISSION I	DESIGN MISSION II	ALTERNATE MISSIONS		FERRY RANGE V
					REFUELED HIGH ALTITUDE III	REFUELED S. L. PENETRATION IV	
TAKE-OFF WEIGHT	(lb)	554,609	554,609	554,609	554,609	543,709	
Fuel at 6.7 lb/gal (grade JP-6)	(lb)	347,710	347,710	347,710	347,710	347,710	
Payload (bombs & IRCM)	(lb)	10,900	10,900	10,900	10,900	None	
Wing loading	(psf)	88.0	88.0	88.0	88.0	86.3	
Stall speed (power off)	(kn)	147.5	147.5	147.5	147.5	146.0	
Take-off ground run at SL	① (ft)	7680	7680	7680	7680	7380	
Take-off to clear 50 ft	① (ft)	10,600	10,600	10,600	10,600	10,150	
Rate of climb at SL	(fpm)	10,800 ①	10,800 ①	5800 ②	5800 ②	11,200 ①	
Time: SL to 20,000 ft	③ (min)	2.4 ①	2.4 ①	5.2 ②	5.2 ②	2.3 ①	
Time: SL to acceleration altitude	③ (min)	3.4 ①	3.4 ①	8.0 ②	8.0 ②	3.3 ①	
Service ceiling (100 fpm)	(ft)	69,000 ①	69,000 ①	29,100 ②	29,100 ②	69,400 ①	
COMBAT RANGE	④ (n mi)	5309	6522	7826	5362	5461	
Recovery distance	(n mi)	1200	1200	1200	1181	—	
Average cruise speed (subsonic/supersonic)	(kn/kn)	—/1721	—/1721	500/1721	551/1721	—/1721	
Initial supersonic cruise altitude	(ft)	65,000	65,000	65,000	65,000	65,000	
Final supersonic cruise altitude	(ft)	76,100	77,700	77,700	77,700	76,100	
Refuel speed	(kn)	—	—	500	500	—	
Total mission time	(hr)	3.18	4.60	6.73	6.48	3.27	
COMBAT WEIGHT	(lb)	272,236	240,892	240,892	264,712	231,986	
Combat altitude	① (ft)	72,700	74,900	74,900	SL	76,100	
Combat speed	① (kn)	1721	1721	1721	628	1721	
Combat climb	① (fpm)	19,100	19,600	19,600	25,350	19,000	
Combat ceiling (500 fpm)	① (ft)	83,300	84,900	84,900	83,800	86,000	
Service ceiling (100 fpm)	① (ft)	83,500	85,100	85,100	84,000	86,300	
Max rate of climb at SL	① (fpm)	24,550	28,100	28,100	25,350	29,250	
Max speed at optimum altitude	① (kn/ft)	1724/83,300	1731/85,100	1731/85,100	1727/84,000	1735/86,300	
Basic speed at 35,000 ft	② (kn)	1089	1089	1089	1089	1089	
LANDING WEIGHT	(lb)	231,986	204,342	204,342	204,342	231,986	
Ground roll at SL	(ft)	6290	5440	5440	5440	6290	
Ground roll (auxiliary brake)	⑤ (ft)	3590	3160	3160	3160	3590	
Total from 50 ft	(ft)	7980	7030	7030	7030	7980	
Total from 50 ft (auxiliary brake)	⑤ (ft)	5300	4750	4750	4750	5300	
Stall speed (power off)	(kn)	95.0	89.0	89.0	89.0	95.0	

N O T E S	① Maximum power ② Military power ③ Allows for weight reduction during ground operation and climb	④ Detailed description of RANGE missions given on page 6 ⑤ With drag chute	PERFORMANCE BASIS: (a) Data source: Estimated (Not substantiated by WADD) (b) Performance is based on powers on page 7 (c) Fuel flow data used in computing BASIC and FERRY missions are increased 5%.
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~~ATOMIC ENERGY ACT 1954~~

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ATOMIC ENERGY ACT OF 1954



NOTES

FORMULA: RANGE MISSION I

Take-off and accelerate to climb speed with maximum power, climb on course to 25,000 ft with maximum power, accelerate to Mach 1.37 at 25,000 ft, accelerated climb from 25,000 ft to Mach 3.0 cruise altitude, cruise out at Mach 3.0 expending IRCM 300 n miles prior to bomb release, drop bomb, cruise on course 1200 n miles at Mach 3.0. Range free allowances include 5 minutes normal power for starting engines, 1 minute maximum power for take-off and acceleration, and a fuel reserve equal to 30 minutes loiter at SL at speeds for maximum endurance plus 5% of initial fuel.

FORMULA: RANGE MISSION II

Alert concept take-off, accelerate to climb speed with maximum power climb on course to 25,000 ft with maximum power, accelerate to Mach 1.37 at 25,000 ft, accelerated climb from 25,000 ft to Mach 3.0 cruise altitude, cruise out at Mach 3.0 expending IRCM 300 n. miles prior to bomb release, drop bomb 1200 n. miles from end of mission, cruise on course at Mach 3.0, make level flight deceleration with military power, descend to 20,000 ft with idle power, loiter 16 minutes at 20,000 ft at speeds for maximum endurance, descend to SL with idle power. Credit is taken for distance covered during deceleration and descent from Mach 3.0 cruise altitude to 20,000 ft. Range free allowances include alert concept take-off, 16 minutes loiter at 20,000 ft, descent from 20,000 ft to SL and a fuel reserve equal to 1 minute military power plus 9 minutes loiter at SL.

FORMULA: RANGE MISSION III

Alert concept take-off, accelerate to climb speed with maximum power, climb on course to 25,000 ft with military power, cruise at Mach .83 at 25,000 ft to rendezvous point, loiter at Mach .83 at 25,000 ft until rendezvous with tanker is accomplished, buddy cruise at Mach .83 at 25,000 ft, make constant altitude refuel (tanker recovery distance equals 1000 n. miles), accelerate to Mach 1.37 at 25,000 ft, accelerated climb from 25,000 ft to Mach 3.0 cruise altitude, cruise out at Mach 3.0 expending IRCM 300 n. miles prior to bomb release, drop bomb 1200 n. miles from end of mission, cruise on course at Mach 3.0, make level flight deceleration with military power, descend to 20,000 ft with idle power, loiter 16 minutes at 20,000 ft at speeds for maximum endurance, descend to SL with idle power. Credit is taken for distance covered during deceleration and descent from Mach 3.0 cruise altitude to 20,000 ft. Range free allowances include alert concept take-off, 5.3 minutes loiter at 25,000 ft for tanker rendezvous, 16 minutes loiter at 20,000 ft, descent from 20,000 ft to SL and a fuel reserve equal to 1 minute military power plus 9 minutes loiter at SL.

FORMULA: RANGE MISSION IV

Alert concept take-off, accelerate to climb speed with maximum power, climb on course to 25,000 ft with military power, cruise at Mach .83 at 25,000 ft to rendezvous point, loiter at Mach .83 at 25,000 ft. until rendezvous with tanker is accomplished, buddy cruise at Mach .83 at 25,000 ft, make constant altitude refuel, (tanker recovery distance equals 1000 n. miles), accelerate to Mach 1.37 at 25,000 ft, accelerated climb from 25,000 ft to Mach 3.0 cruise altitude, cruise out at Mach 3.0, descend to SL with idle power, total distance from take-off equals 3300 n. miles, cruise at best cruise speed at SL for 300 n. miles, accelerate to Mach .95 and continue SL penetration expending IRCM 300 n. miles prior to bomb release, drop bomb at a distance from end of mission equal to 300 n. miles plus sea level penetration, climb on course to 25,000 ft with maximum power, accelerate to Mach 1.37 at 25,000 ft, accelerated climb from 25,000 ft to Mach 3.0 cruise altitude, cruise out at Mach 3.0 make level flight deceleration with military power, descend to 20,000 ft with idle power, loiter 16 minutes at 20,000 ft at speeds for maximum endurance, descend to SL with idle power. Credit is taken for distance covered during deceleration and descent from Mach 3.0 cruise altitude to 20,000 ft. Range free allowances include alert concept take-off, 5.3 minutes loiter at 25,000 ft for tanker rendezvous, 16 minutes loiter at 20,000 ft, descent from 20,000 ft to SL and a fuel reserve equal to 1 minute military power plus 9 minutes loiter at SL.

FORMULA: RANGE MISSION V

Take-off and accelerate to climb speed with maximum power, climb on course to 25,000 ft with maximum power, accelerate to Mach 1.37 at 25,000 ft, accelerated climb to Mach 3.0 cruise altitude, cruise out at Mach 3.0. Range free allowances include 5 minutes normal power for starting engines, 1 minute maximum power for take-off and acceleration, and a fuel reserve equal to 30 minutes loiter at SL at speeds for maximum endurance plus 5% of initial fuel.

RESEARCHED DATA
 ATOMIC ENERGY RESEARCH

N O T E S

GENERAL DATA:

(a) Engine ratings shown on page 3 are guaranteed values. Installed values used in performance calculations are as follows:

(6) J93-GE-3		
S. L. Static	LB	RPM
Max:	26,723	6825
Mil:	18,963	6825
Nor:	17,021	6825

(b) Wing Section
 W.S. 186 2.0% 30-.70 Hex (Mod)
 W.S. 460 to W.S. 630 2.5% 30-.70 Hex (Mod)

Leading Edge Droop Deflection Angle:

In the Airstream -5.0°
 Normal to Hingeline -13.0°
 Sweepback of Droop Foldline 67.8°

PERFORMANCE BASIS:

North Americans Report No. NA-59-268-1, "Estimated Performance and Drag Substantiation Report for the B-70 Primary Air Vehicle, Contract AF33(600)-38669", dated 15 July 1959.

REVISION BASIS:

To reflect change from J93-GE-5 engines to J93-GE-3 engines. Air vehicle performance data are predicated on the J93-GE-5 engine. However, installation of the J93-GE-3 engines and the associated weight and fuel capacity changes will result in less than 1% variation from the quoted performance. Therefore, the performance data contained herein are representative of the B-70 Air Vehicle with the J93-GE-3 engines installed.

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Category	Item	Value
1
2
3
4

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~~ATOMIC ENERGY ACT 1954~~

57WC-4984

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