

CONFIDENTIAL

Unclassified
~~SECRET~~

A-1
F-108A / CHAR
PRE-MOCKUP

Initial Issue

DOWNGRADED AT 3 YEAR INTERVALS;
DECLASSIFIED AFTER 12 YEARS.

DOD DIR 5200.10

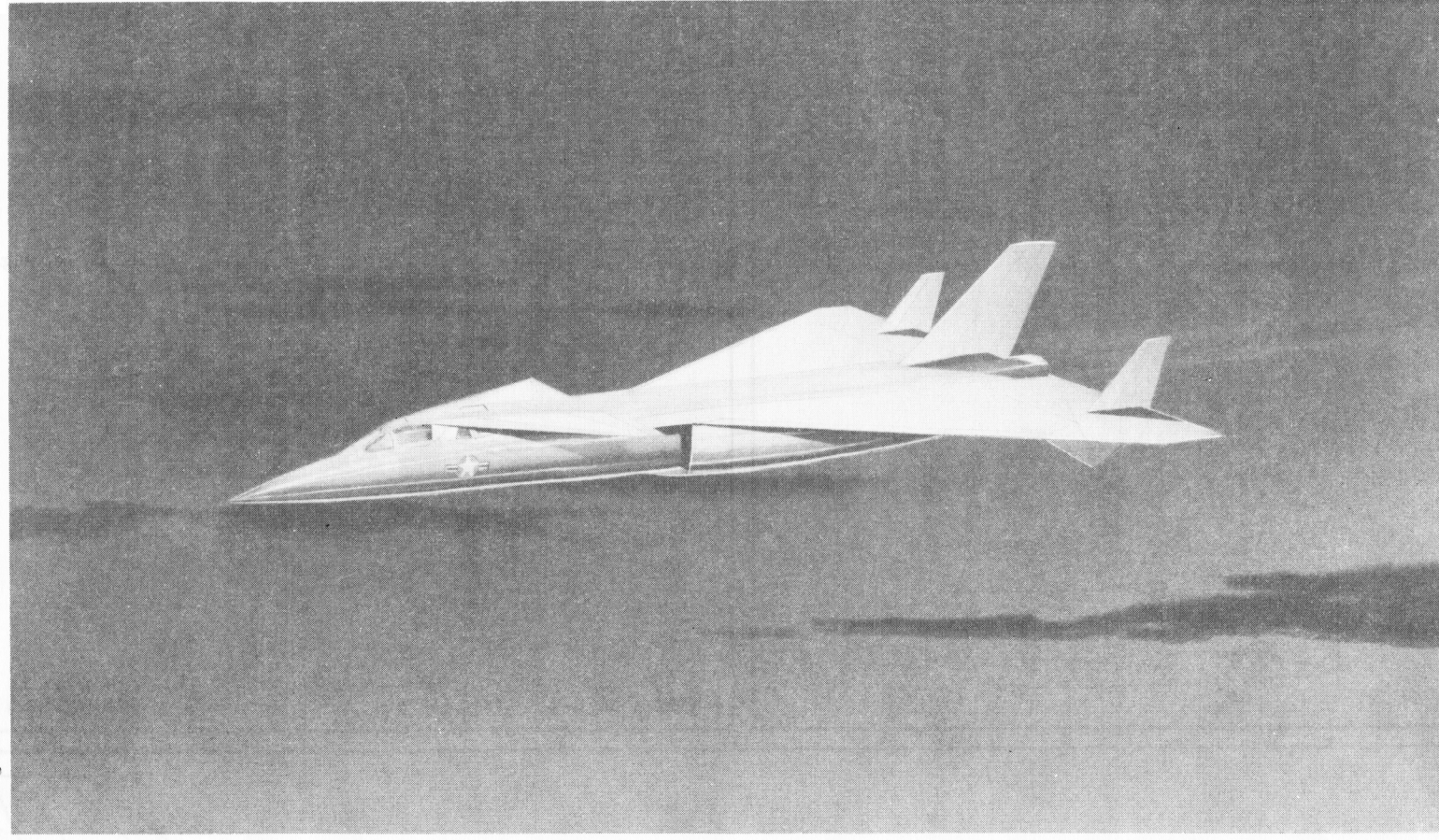
a. R. Somerton
21 Mar 67

Revised to reflect
latest configuration changes

CLASSIFICATION CANCELLED
(OR CHANGED TO UNCLASSIFIED)

BY AUTHORITY OF THE SECRETARY OF THE AIR FORCE
a. R. Somerton
20 July 70

BY AUTHORITY OF THE SECRETARY OF THE AIR FORCE
(UNLESS OTHERWISE INDICATED)



Standard Aircraft Characteristics

F-108 A

BY AUTHORITY OF
THE SECRETARY
OF THE AIR FORCE

TWO J93-GE-1
GENERAL ELECTRIC

North American

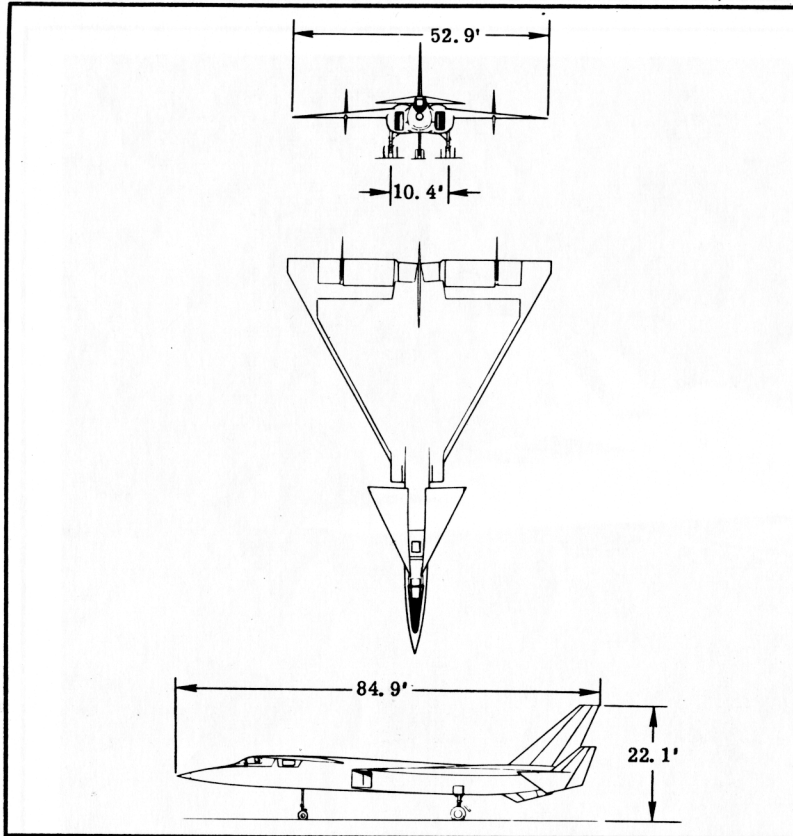
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F-108A

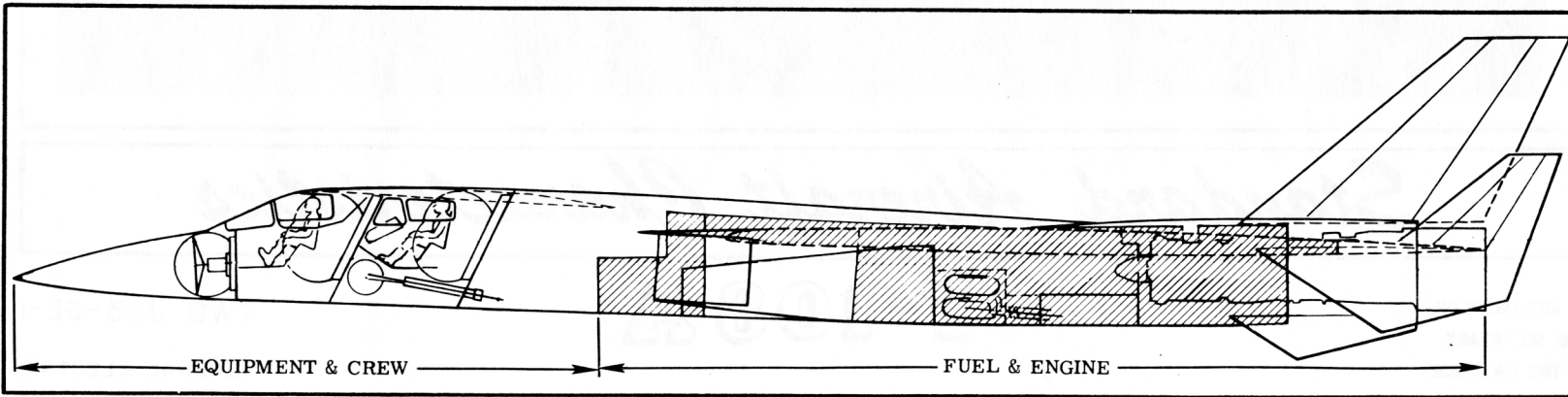
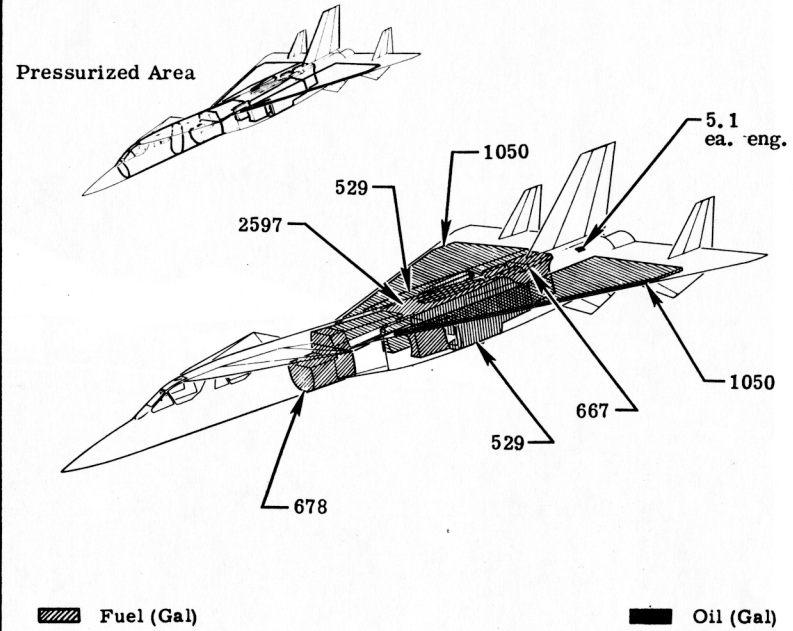
JUN 6 1958

533

57WC 4984



Wing Area	1400 sq ft	Wing Section	
Aspect Ratio	2.0	RootNACA660032
M. A. C.	404.8"	Tip	NACA660032



Loading and Performance—Typical Mission

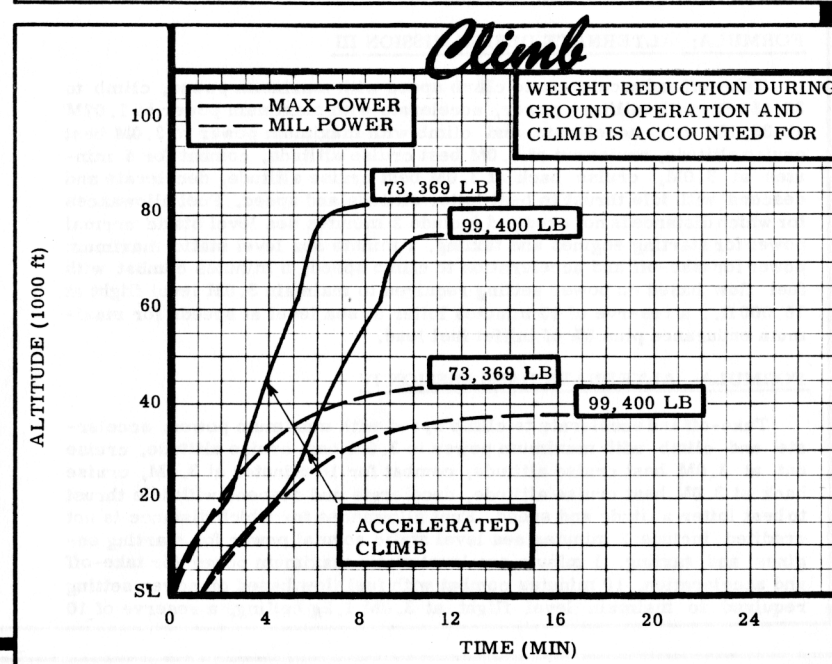
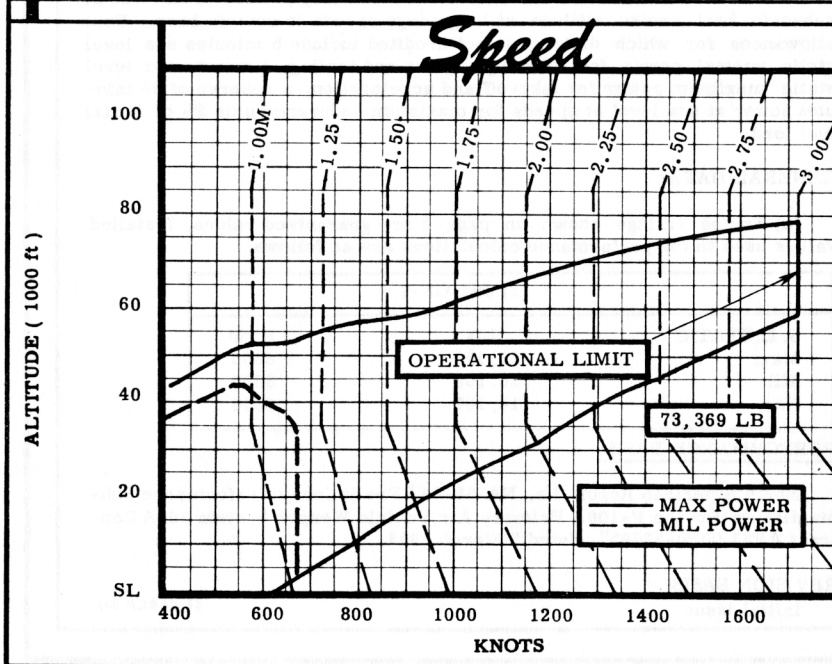
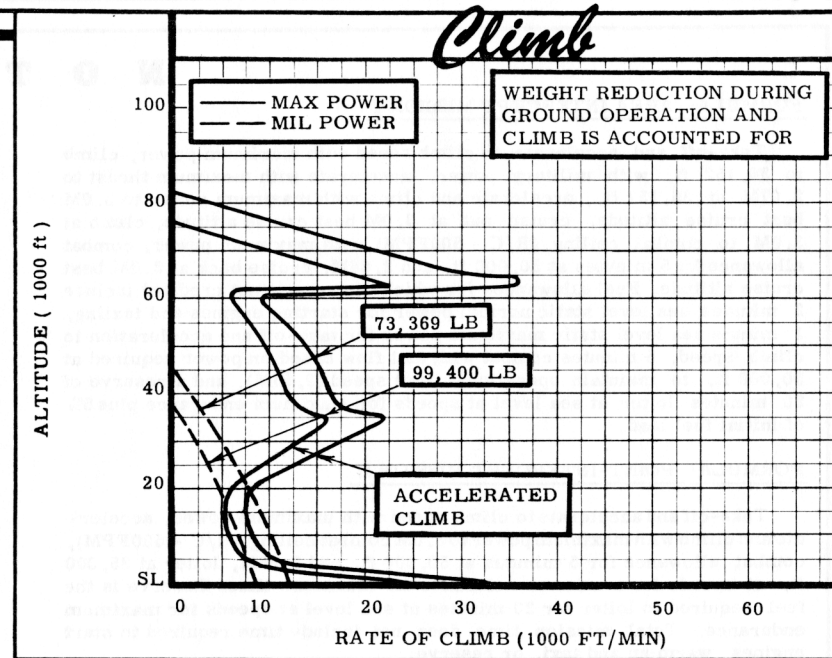
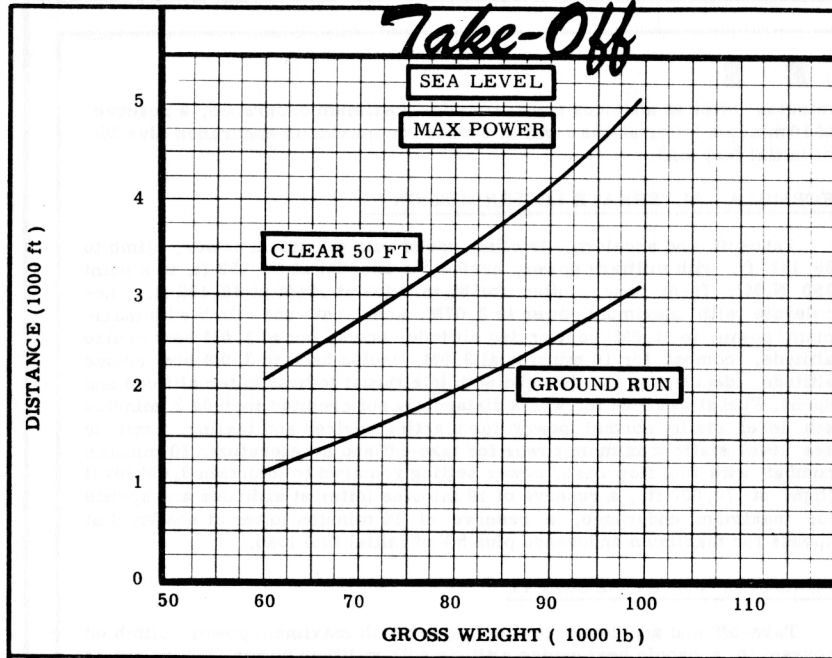
C O N D I T I O N S			I N T E R C E P T O R M I S S I O N S					F E R R Y R A N G E
			B A S I C		A L T E R N A T E			
			AREA	POINT	DESIGN	DASH	LOITER	
		I	II	III	IV	V	VI	
TAKE-OFF WEIGHT	(lb)	99,400	99,400	99,400	80,171	99,400	97,240	
Fuel at 6.7 lb/gal (grade JP-6)	(lb)	47,570	47,570	47,570	28,341	47,570	47,570	
Payload (missile)	(lb)	2160	2160	2160	2160	2160	none	
Wing loading	(psf)	71.0	71.0	71.0	57.3	71.0	69.6	
Stall speed (power off)	(kn)	131.5	131.5	131.5	118.5	131.5	130.0	
Take-off ground roll at SL	(ft)	3100	3100	3100	2020	3100	2980	
Take-off to clear 50 ft	(ft)	5060	5060	5060	3420	5060	4860	
Rate of climb at SL	(fpm)	24,100	24,100	24,100	30,250	24,100	24,700	
Time: SL to 40,000 ft	(min)	6.2 (6)	6.2 (6)	6.2 (6)	4.9 (5)	6.2 (6)	6.0 (6)	
Time: SL to 50,000 ft	(min)	7.1 (6)	7.1 (6)	7.1 (6)	5.6 (5)	7.1 (6)	6.9 (6)	
Service ceiling (100 fpm)	(ft)	72,550	72,550	72,550	76,950	72,550	72,950	
COMBAT RANGE	(n mi)	—	—	—	—	—	1984	
COMBAT RADIUS	(n mi)	877	—	1002	350	604	—	
Average speed	(kn)	1721	—	1721	1721	1210	550	
Initial cruising altitude	(ft)	68,700	—	68,700	73,100	36,152	33,200	
Final cruising altitude	(ft)	75,600	—	75,700	76,000	75,700	45,400	
Total mission time	(hr)	1.25	—	1.49	.70	2.31	3.61	
TOTAL MISSION TIME	(hr)	—	2.91	—	—	—	—	
Interception altitude	(ft)	—	76,300	—	—	—	—	
COMBAT WEIGHT	(lb)	73,369	81,765	71,665	63,381	67,960	55,809	
Combat altitude	(ft)	78,600	76,300	71,800	74,000	72,800	45,400 (2)	
Combat speed	(kn)	1721	1721	1721	1721	1721	1415	
Combat climb	(fpm)	500	500	13,400	13,800	13,550	65,500	
Combat ceiling (500 fpm)	(ft)	78,600	76,300	—	—	—	83,700	
Combat ceiling (1.2g)	(ft)	—	—	75,600	78,200	76,700	—	
Service ceiling (100 fpm)	(ft)	78,850	76,550	79,350	81,900	80,400	84,000	
Max rate of climb at SL	(fpm)	33,250	29,700	34,000	38,700	36,000	44,000	
Max speed at optimum altitude	(kn/ft)	1721/75,100	1721/72,800	1721/75,600	1721/74,000	1721/76,700	1721/80,700	
Basic speed at 50,000 ft	(kn)	1525	1525	1525	1525	1525	1525	
LANDING WEIGHT	(lb)	58,059	55,580	56,109	55,127	56,109	55,809	
Ground roll at SL	(ft)	1900	1800	1820	1790	1820	1810	
Total from 50 ft	(ft)	3200	3075	3100	3050	3100	3090	

N O T E S

① Maximum power
 ② Military power
 ③ Detailed descriptions of RADIUS and RANGE missions given on page 6
 ④ Allows for weight reduction during ground operations and climb

⑤ Allows 0.8 min for take-off and acceleration to best climb speed
 ⑥ Allows 1.2 min for take-off and acceleration to best climb speed
 ⑦ With 40% military thrust reverser

PERFORMANCE BASIS:
 (a) Data source: Estimated
 (b) Performance is based on powers shown on page 6.



NOTES

FORMULA: AREA INTERCEPT MISSION I

Take-off and accelerate to climb speed with maximum power, climb to 36,152 ft. with military power, accelerate with maximum thrust to 2.07M at 36,152 ft., accelerate and climb with maximum power to 3.0M best cruise altitude, cruise out at 3.0M best cruise altitude, climb at 3.0M to combat ceiling (R/C - 500FPM) with maximum power, combat allowance for 5 minutes at 50,000 ft. and 2.66M, cruise back at 3.0M best cruise altitude. Fuel allowances for which distance is not credited include 2 minutes sea level static normal power for starting engines and taxiing, 1 minute sea level static maximum power for take-off and acceleration to climb speed, 5 minutes combat with fuel flow based on power required at 50,000 ft. to maintain operational limit speed (2.66M), and a reserve of 20 minutes loiter at sea level at speeds for maximum endurance plus 5% of initial fuel load.

FORMULA: POINT-INTERCEPT MISSION II

Take-off and accelerate to climb speed with maximum power, accelerate and climb with maximum power to 3.0M combat ceiling (R/C - 500FPM), combat allowance for 5 minutes at 50,000 ft. and 2.66M, loiter at 35,000 ft. at speeds for maximum endurance for maximum time. Reserve is the fuel required to loiter for 20 minutes at sea level at speeds for maximum endurance. Total mission time does not include time required to start engines, warm up and taxi, or reserve.

FORMULA: ALTERNATE DESIGN MISSION III

Take-off and accelerate to climb speed with maximum power, climb to 36,152 ft. with military power, accelerate with maximum power to 2.07M at 36,152 ft., accelerate and climb with maximum power to 3.0M best cruise altitude, cruise out at 3.0M best cruise altitude, combat for 5 minutes at 3.0M, cruise back at 3.0M best cruise altitude, decelerate and descend with idle thrust to best loiter altitude and speed. Fuel allowances for which distance is not credited include 2 minutes sea level static normal power for starting engines and taxiing, 1 minute sea level static maximum power for take-off and acceleration to climb speed, 5 minutes combat with fuel flow based on power setting required to maintain 3.0M level flight at 70,000 ft., a reserve of 10 minutes loiter at sea level at speeds for maximum endurance plus 5% of initial fuel load.

FORMULA: ALTERNATE DASH MISSION IV

Take-off and accelerate to climb speed with maximum power, accelerate and climb with maximum power to 3.0M best cruise altitude, cruise out at 3.0M best cruise altitude, combat for 10 minutes at 3.0M, cruise back at 3.0M best cruise altitude, decelerate and descend with idle thrust to best loiter altitude and speed. Fuel allowances for which distance is not credited include 2 minutes sea level static normal power for starting engines and taxiing, 1 minute sea level static maximum power for take-off and acceleration, 10 minutes combat with fuel flow based on power setting required to maintain level flight at 3.0M 1.2g ceiling, a reserve of 10

minutes loiter at altitudes and speeds for maximum endurance, a reserve of 10 minutes loiter at sea level at speeds for maximum endurance plus 5% of initial fuel load.

FORMULA: ALTERNATE LOITER MISSION V

Take-off and accelerate to climb speed with maximum power, climb to 36,152 ft. with military power, cruise out at .94M at 36,152 ft. to a point 250 N.Mi. from base, loiter for 60 minutes at .94M at 36,152 ft., accelerate with maximum power to 2.07M, accelerate and climb with maximum power to 3.0M best cruise altitude, cruise out at 3.0M best cruise altitude, combat for 10 minutes at 3.0M, cruise back to 3.0M best cruise altitude, decelerate and descend with idle thrust to best loiter altitude and speed. Fuel allowances for which distance is not credited include 2 minutes sea level static normal power for starting engines and taxiing, 1 minute sea level static maximum power for take-off and acceleration, 10 minutes combat with fuel flow based power setting required to maintain 3.0M level flight at 70,000 ft., a reserve of 10 minutes loiter at altitudes and speeds for maximum endurance, a reserve of 10 minutes loiter at sea level at speeds for maximum endurance plus 5% of initial fuel load.

FORMULA: FERRY MISSION VI

Take-off and accelerate to climb speed with maximum power, climb on course to subsonic best cruise altitude with military power, cruise out at subsonic best cruise altitude at long range speeds to remote base. Fuel allowances for which distance is not credited include 5 minutes sea level static normal power for starting engines and taxiing, 1 minute sea level static maximum power for take-off and acceleration, a reserve of 20 minutes loiter at sea level at speeds for maximum endurance plus 5% of initial fuel load.

GENERAL DATA:

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

(2) J93-GE-1		
S. L. STATIC	LB	RPM
Max:	22,150	6650
Mil:	15,100	6650
Nor:	14,100	6650

PERFORMANCE BASIS:

North American Report Nr. NA-58-84 "Preliminary Performance Substantiation for the F-108A Primary Air Vehicle Weapon System 202A Contract AF33 (600)-33605", dated 7 March 1958.

REVISION BASIS:

Initial issue

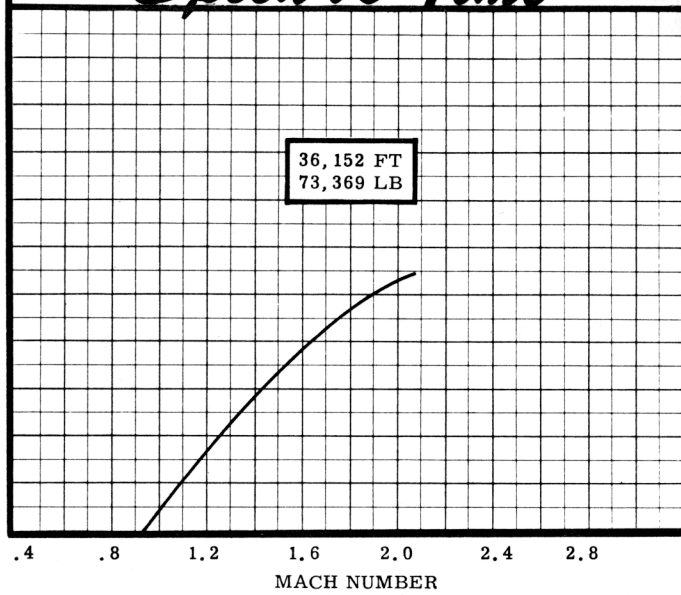
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Speed vs Time

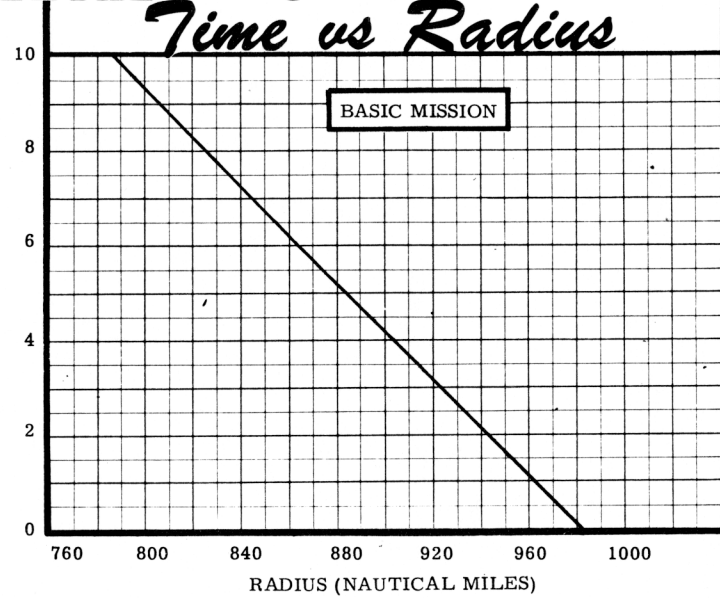
SUPPLEMENTAL

Combat Time vs Radius

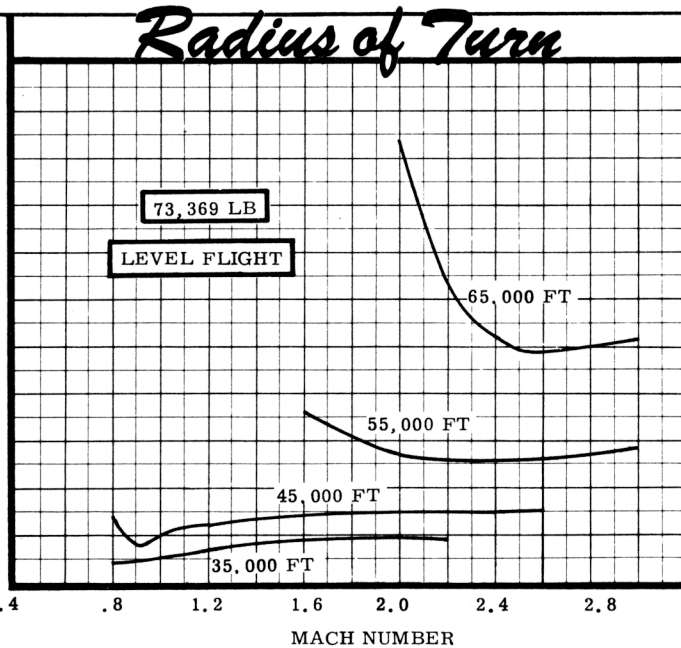
TIME (MIN)



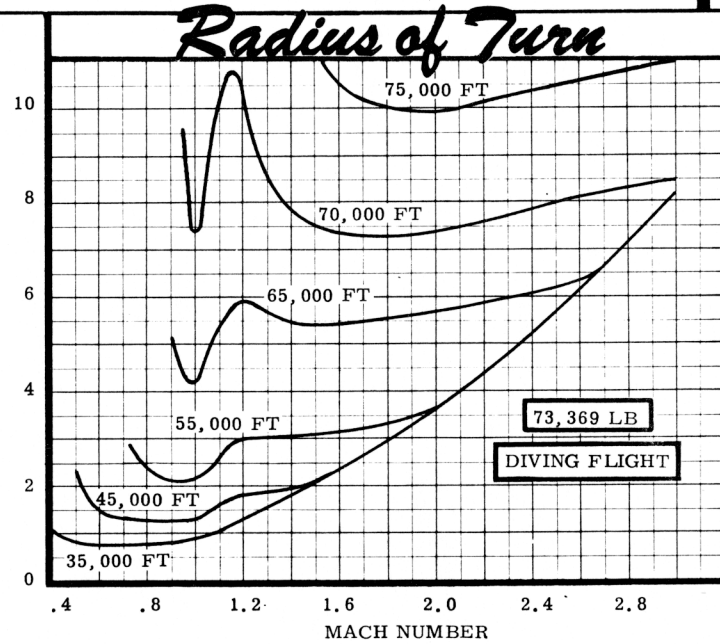
TIME (MIN)



RADIUS OF TURN (NAUTICAL MILES)



RADIUS OF TURN (NAUTICAL MILES)



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