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NAVAIR 00-110AA5-1

GROUP 4 DOCUMENT
DECLASSIFIED AFTER 12 YEARS
DOD DIR 5200.10

Standard Aircraft Characteristics

NAVY MODEL
A-5A
AIRCRAFT

(TITLE UNCLASSIFIED)

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PUBLISHED BY DIRECTION OF THE COMMANDER OF THE NAVAL AIR SYSTEMS COMMAND

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A&A

1 JULY 1967

LIST OF CHANGED PAGES ISSUED

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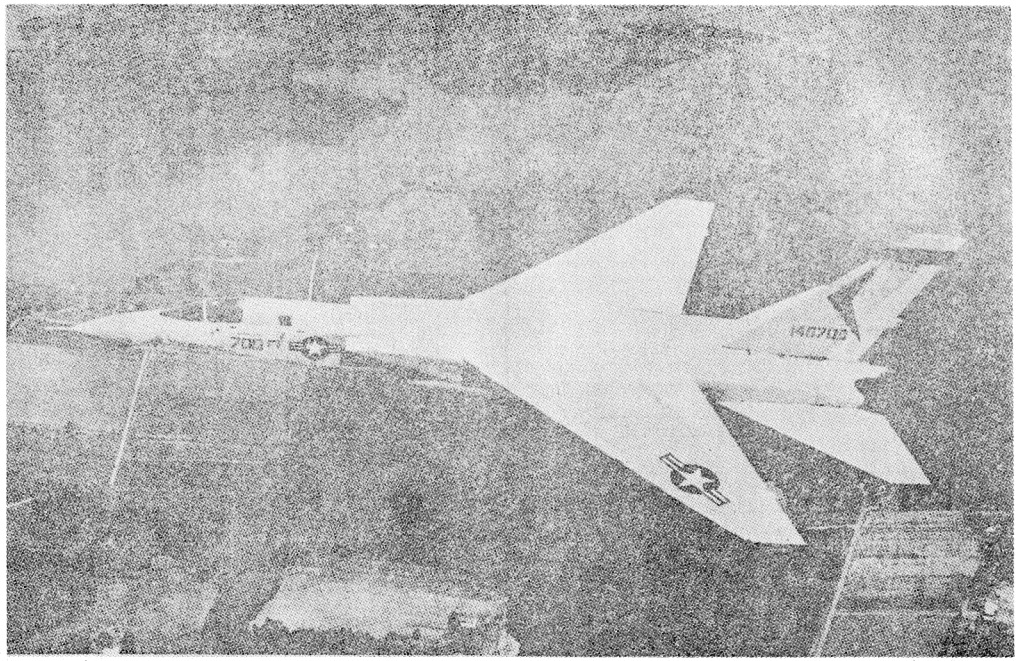
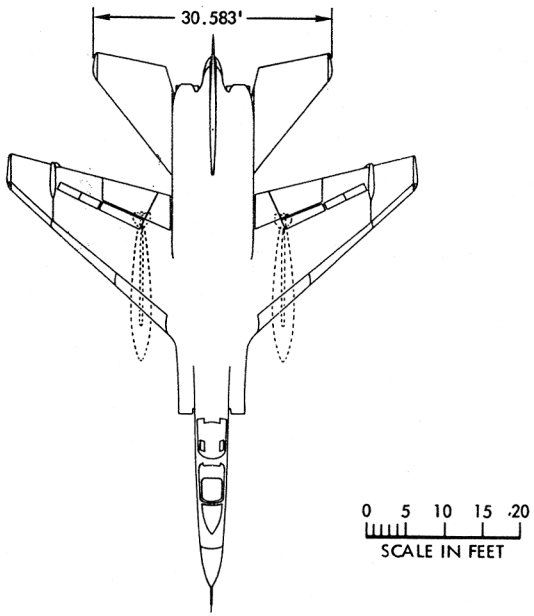
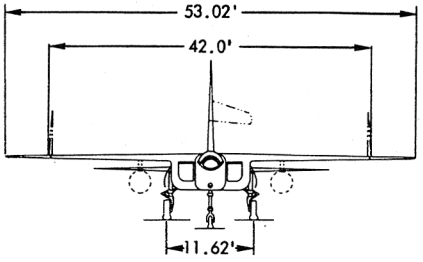


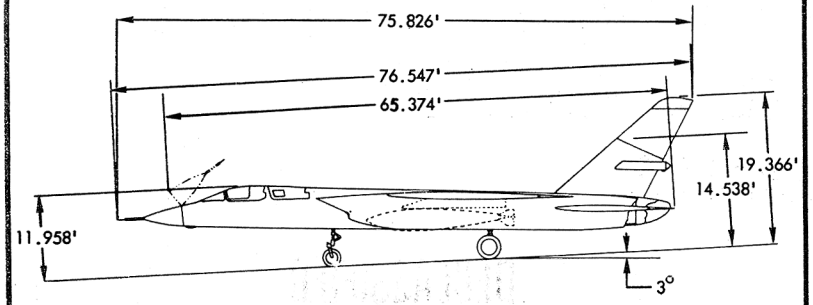
STANDARD AIRCRAFT CHARACTERISTICS

A-5A VIGILANTE

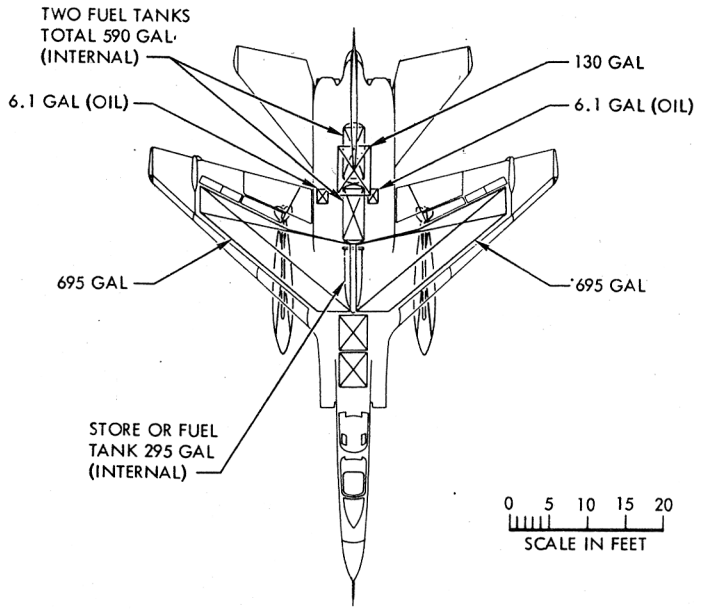
NORTH AMERICAN AVIATION, INC.



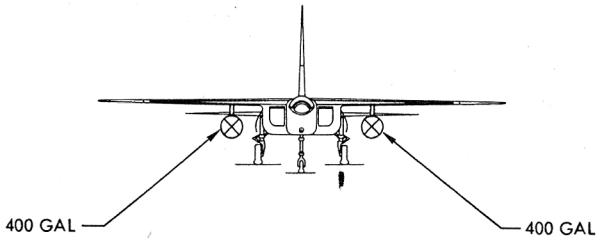


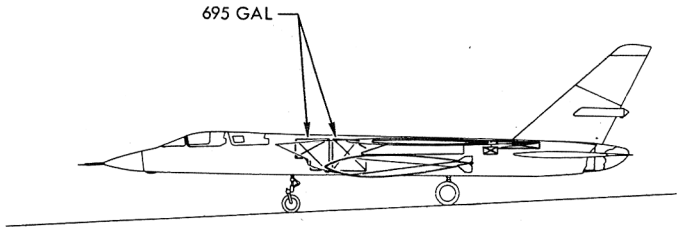


DESCRIPTIVE ARRANGEMENT



NON-SELF-SEALING TANKS





TANKAGE

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POWER PLANT

NO. & MODEL	(2) GE-J79-8
MFR	General Electric
TYPE	Axial Flow
LENGTH	207.3 in.
DIAMETER	31.6 in.
AUGMENTATION	A/B

RATINGS

	LBS	RPM
MAXIMUM	17,000	7685
MILITARY	10,900	7685
NORMAL	10,300	7385

STATIC SEA LEVEL

SPEC. NO. E763

ORDNANCE

INTERNAL ARMAMENT

NO.	DESCRIPTION
1	MK-28
1	MK-27
1	MK-43

EXTERNAL ARMAMENT

NO.	DESCRIPTION
2	MK-83 G.P.
2	MK-84 G.P.
2	MK-43

PRACTICE

NO.	DESCRIPTION
(2)	AERO 8A PRACTICE BOMB CONTAINER*

*CARRIES (8) MK-76'S OR MK-89'S OR MK-106'S

MISSION AND DESCRIPTION

The basic mission of the A3J-1 is to attack and destroy the enemy on the ground, by night or day, regardless of weather or enemy defenses. Primary missions also include destruction of shipyards and Naval facilities. Secondary missions include destruction of railroad marshalling yards, key bridges, and semistrategic targets, such as power stations.

The A3J-1 is a twin-engine, carrier-based, two-place attack bomber capable of strike action and delivery of special weapons at long range and supersonic speed. Special features of this airplane are swept-back wing (with droopable leading edges and boundary layer control flaps), swept-back tail, spoiler speed brakes, spoiler slot deflector lateral controls, all movable horizontal and vertical tails and hydraulic power-operated irreversible controls with artificial feel. It also has linear bomb bay and rearward ejection to insure weapon separation at supersonic speeds and various release attitudes and altitudes.

The cockpits are provided with differential pressurization, automatic heating and cooling, jettisonable canopies, advanced type ejection seats capable of sea level crew ejection and anti-G suit provisions.

First Flight	August 1958
Service Use - (Estimated)	April 1961

DIMENSIONS

WING

Area	700 sq ft.
Span	53' - 0"
M.A.C.	15' - 2"
Sweepback 25% Chord	37.5°
LENGTH	76' - 6"
HEIGHT	19' - 5"
TREAD	11' - 7"

WEIGHTS

LOADINGS	LBS	L.F.
EMPTY	32,714	
BASIC	33,124	
DESIGN	40,953	5.00 n_z
COMBAT	47,530	4.65 n_z
*MAX TAKE-OFF		
(Field)	56,293	3.93 n_z
(Cat)	56,293	3.93 n_z
MAX LANDING		
(Field)	55,160	4.00 n_z
(Cat)	38,500	3.86 n_x

ALL WEIGHTS ARE ESTIMATED
*OVERLOAD T.O. WT. 62,953 LBS

FUEL AND OIL

GALLONS	NO. TANKS	LOCATION
1390	2	Wing
825	2	Fuselage
590*	2*	Armament Tunnel

FUEL GRADE JP-5
FUEL SPEC. NO. (Applicable)MIL-F-5624C
*Ferry Mission 885 - 3

OIL

CAPACITY 8.74 (gals)
GRADE C
SPEC. NO. (Applicable)MIL-L-7808

ELECTRONICS

AN/ASB-12(XN-2) Inertial Bomb Nav
- Mapping Radar
- TV System
- Inertial Navigator
- Analog-Digital Computer

AN/ASQ-56 - CNI Communications, Navigation and Identification System
Autopilot
Supporting Systems
- Air Data Computer
- Augmented Flight Control System
- AN/APN-120(XN-2) Radar Altimeter
- AN/ASN-26 Master Flight Reference System

ICS - Intercommunications System
AC Electrical Power System
ECM - Electronic Countermeasures
- Radar Jamming System
- GCI - Communications Jamming System
- AN/APR-18(XN-1) - Passive Warning System
- IR - Warning System

Engine Inlet Duct Control System

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A5A

PERFORMANCE SUMMARY

TAKE-OFF LOADING CONDITION			① HI ALT SUPERSONIC ATTACK 1 MK 28 STORE	③ HI ALT SUPERSONIC ATTACK 1 MK 28 STORE 2 - 400 GAL DROP TANKS	⑤ HI ALT ATTACK 1 MK 27 STORE	⑦ HI ALT ATTACK 1 MK 27 STORE 2 - 400 GAL DROP TANKS	⑨ SEA LEVEL DELIVERY 1 MK 28 STORE
TAKE-OFF WEIGHT		lb	55,160	61,820	56,293	62,953	55,160
Fuel internal/external (JP-5)		lb/lb	19074/----	19074/5440	19074/----	19074/5440	19074/----
Payload		lb	1885	1885	3020	3020	1885
Wing loading		lb/sq ft	77.8	88.3	80.4	89.9	77.8
Stall speed - power off		kn	134.5	142.5	136.0	143.8	134.5
Take-off run at SL - calm	(A)	ft	2700	3500	2800	3600	2700
Take-off at SL 25 kn wind	(A)	ft	1800	2350	1900	2450	1800
Take-off to clear 50 ft - calm	(A)	ft	4050	5050	4200	5250	4050
Max Speed/altitude	(B)	kn/ft	597/20,000	582/20,000	597/20,000	582/20,000	597/20,000
Rate of climb at SL	(B)	fpm	8000	6400	7850	6350	8000
Time: SL to 20,000 ft	(B)	min	3.2	4.2	3.3	4.3	3.2
Time: SL to 30,000 ft	(B)	min	6.2	8.4	6.3	8.6	6.2
Service Ceiling	(B)	ft	41,400	37,700	41,000	37,400	41,400
COMBAT RANGE		naut mi	1750	2270	1725	2230	1750
Average cruising speed		kn	487	487	487	487	487
Cruising altitude		ft	39,700/45,700	36,200/45,700	39,200/45,000	35,800/45,000	39,200/45,700
COMBAT RADIUS/MISSION TIME		naut mi/hr	685/299 (C)	945/4.05 (C)(E)	855/3.85	1120/4.97 (E)	605/2.83 (G)(F)
Average cruising speed		kn	487	487	487	487	487
Buddy Refuel Radius/Mission Time	(I)	naut mi/hr	1160/5.02 (D)	1380/6.03 (D)(E)	1340/5.93	1570/7.01 (E)	1120/5.03
COMBAT LOADING CONDITION			② STORE RETAINED	④ STORE RETAINED	⑥ STORE RETAINED	⑧ STORE RETAINED	⑩ STORE RETAINED
COMBAT WEIGHT		lb	47,530	50,794	48,663	51,927	47,530
Engine thrust			MAXIMUM	MAXIMUM	MAXIMUM	MAXIMUM	MAXIMUM
Fuel		lb	11,444	14,708	11,444	14,708	11,444
Combat speed/combat altitude		kn/ft	1090/54,000 (H)	1090/53,000 (H)	1147/43,800	1147/42,900	700/SL
Rate of climb/combat altitude		fpm/ft	500/54,000 (H)	500/53,000 (H)	4000/43,800	3800/42,900	33,900/SL
Combat ceiling (500 fpm subsonic)		ft	52,100	50,900	51,700	50,500	52,100
Rate of climb at SL		fpm	33,900	31,700	33,100	31,000	33,900
Max speed at SL		kn	700	661	700	661	700
Max speed/altitude		kn/ft	1147/40,000	1147/40,000	1147/40,000	1147/40,000	1147/40,000
LANDING WEIGHT		lb	35,963	35,963	35,963	35,963	35,963
Fuel		lb	2334	2334	2334	2334	2334
Stall speed - power off/appr power		kn/kn	109/106	109/106	109/106	109/106	109/106
Distance - ground roll/over 50' obst		ft/ft	3150/4350	3150/4350	3150/4350	3150/4350	3150/4350

Performance Basis: See General Notes

(A) Maximum afterburner
(B) Military power
(C) High altitude attack combat radius/mission time naut mi/hr (870/3.90) (1135/5.00)
(D) High altitude attack buddy refuel radius/mission time naut mi/hr (1350/6.00) (1580/7.04)
(E) Tanks dropped when empty

NOTES

(F) With two 400-gal ext tanks, radius/mission time. . .naut mi/hr (885/4.00)
(G) Sea level delivery MK 27 store combat radius/mission time. . .naut mi/hr (600/2.79)
(H) Combat altitude presented for the Hi-Altitude Supersonic Attack Mission is supersonic combat ceiling instead of the altitude at the target.
(I) Buddy Tanker has 2 - 400 gal. external tanks plus 3 internal fuel cans

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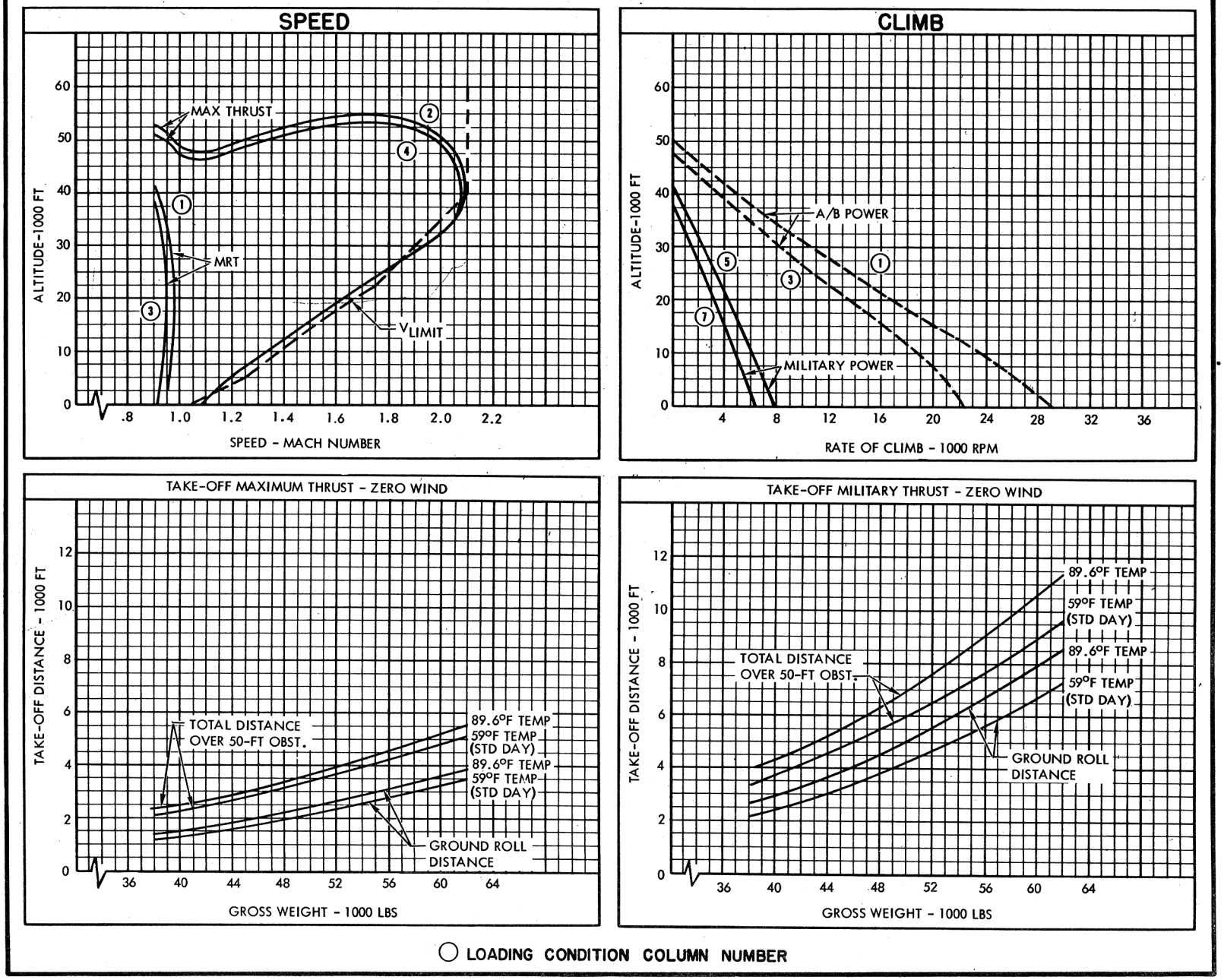

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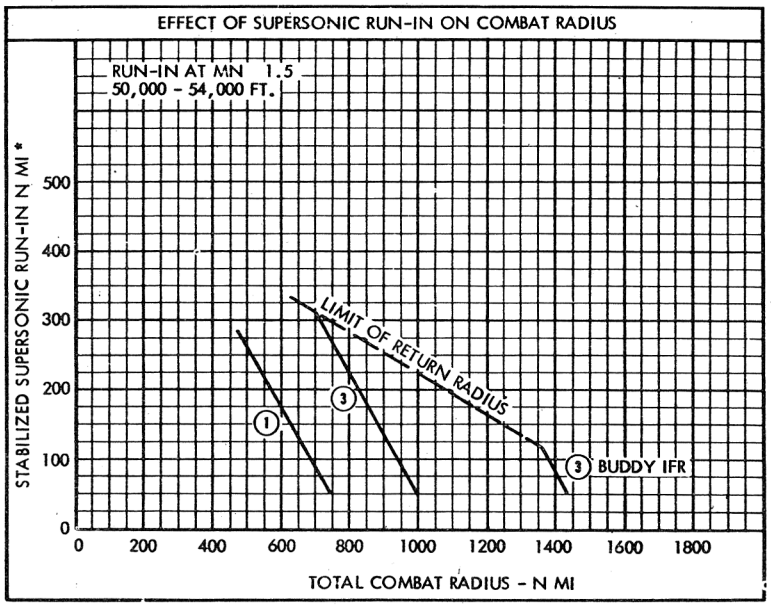

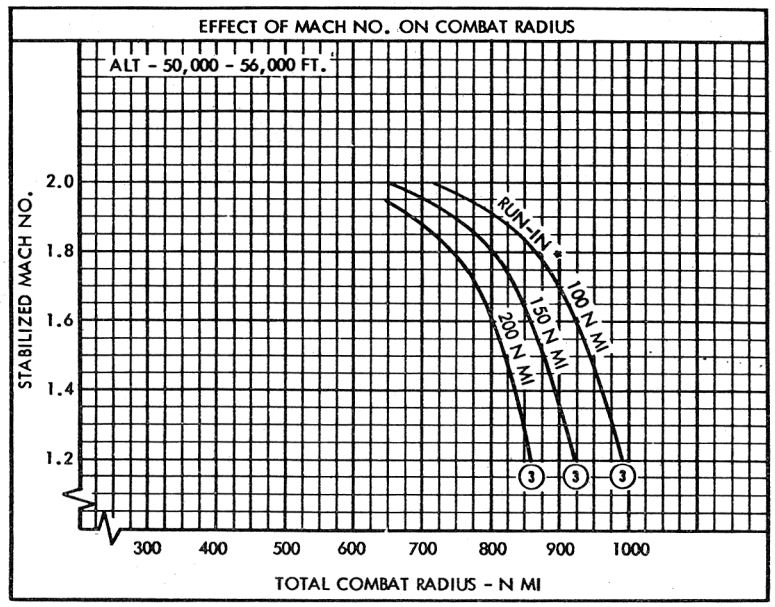

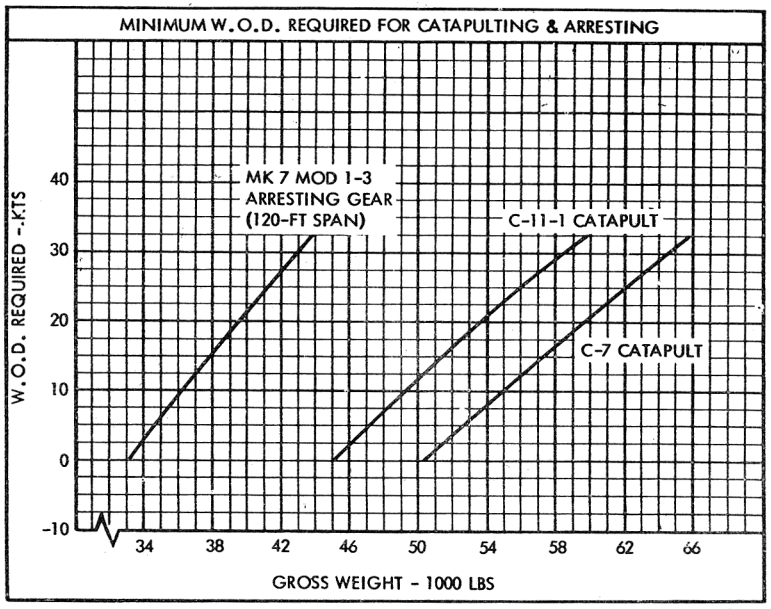

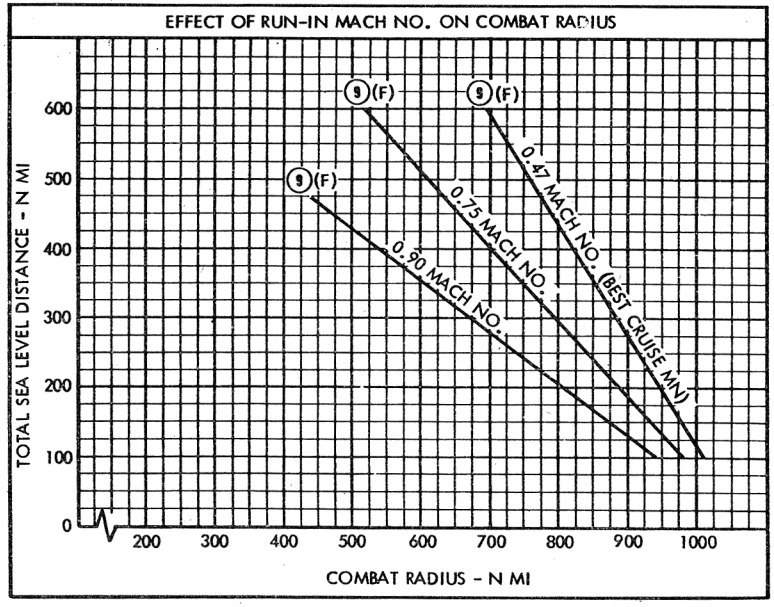

*Includes 10 miles store drop distance

○ LOADING CONDITION COLUMN NUMBER

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NOTES

HIGH ALTITUDE ATTACK

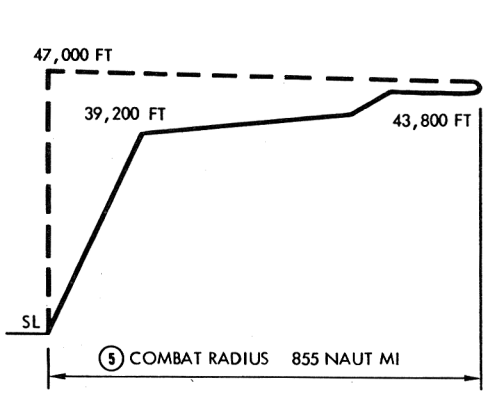
WARM-UP, TAKE-OFF AND ACCELERATE: 5 minutes at normal rated thrust at sea level.
CLIMB: On course to optimum cruise altitude with military rated thrust.
CRUISE OUT: At altitudes and speeds for maximum range.
CLIMB: At maximum rate of climb with military rated thrust, on course to cruise ceiling.
BOMB RUN: Cruise in level flight, 15 minutes at normal rated thrust.
DROP BOMBS
EVASIVE ACTION: 2 minutes at maximum speed with normal rated thrust at combat altitude (no distance gained).
ESCAPE AND RUN-OUT: 8 minutes at maximum speed with normal rated thrust. (Return to altitude for best range is accomplished during EVASIVE ACTION and ESCAPE.)
CRUISE BACK: At altitudes and speeds for maximum range.
RESERVE: 20 minutes at speed for maximum endurance at sea level plus 5% of initial fuel load (all engines operating).

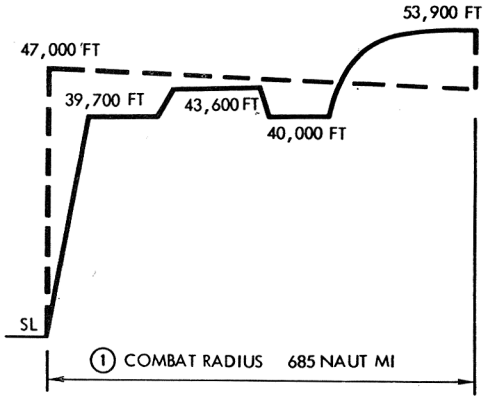
HIGH ALTITUDE SUPERSONIC ATTACK MISSION

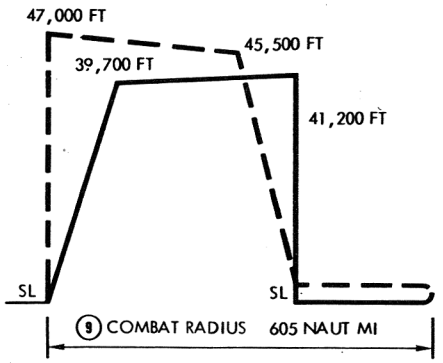
WARM-UP, TAKE-OFF AND ACCELERATE: 5 minutes at normal rated thrust at sea level.
CLIMB: On course to optimum cruise altitude with military rated thrust.
CRUISE OUT: At altitudes and speeds for maximum range.
CLIMB: At maximum rate of climb with military rated thrust, on course to cruise ceiling.
CRUISE OUT: At cruise ceiling, at speed for maximum range.
DIVE: At maximum A/B thrust (10-degree dive) to 40,000 feet.
ACCELERATE: At maximum A/B thrust to 1.5 Mach.
RUN-IN: At 100 N. Mi from target and 1.5 Mach, initiate climbing run-in with maximum A/B thrust.
RELEASE INTERNAL STORE: And return to altitude for best range (no distance gained or fuel accounted for).
CRUISE BACK: At altitudes and speeds for maximum range.
RESERVE: 20 minutes at speed for maximum endurance at sea level plus 5% of initial fuel load (all engines operating).

SEA LEVEL DELIVERY

WARM-UP, TAKE-OFF AND ACCELERATE: 5 minutes at normal rated thrust at sea level.
CLIMB: On course to optimum cruise altitude with military rated thrust.
CRUISE OUT: At altitudes and speeds for maximum range.
DESCEND: To sea level (no fuel used, no distance gained).
RUN-IN: 100 nautical miles at sea level at 0.75 Mach.
PULL-UP, STORE DELIVERY AND DIVE: One minute at military thrust.
RUN-OUT: 100 nautical miles at sea level at 0.75 Mach.
CLIMB: On course to optimum cruise altitude with military rated thrust.
CRUISE BACK: At altitudes and speeds for maximum range.
RESERVE: 20 minutes at speed for maximum endurance at sea level plus 5% of initial load (all engines operating).







○ LOADING CONDITION COLUMN NUMBER

GENERAL NOTES:

(1) Performance Basis
(a) Estimated data are based on North American Report No. NA60H-200, dated April 15, 1960 "Performance Data for Standard Aircraft Characteristic Charts of the A3J-1 Airplane with J79-GE-8 Engine Installation"

(b) Combat range and/or radius is based on R59FPD620, dated October 1959 "Estimated Performance J79-GE-8 Engine"

(c) Fuel consumption data are based on flight test data of the A3J-1 airplane, and therefore, the 5 percent increase in calculated fuel consumption data, normally allowed as a service tolerance, is not included.

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