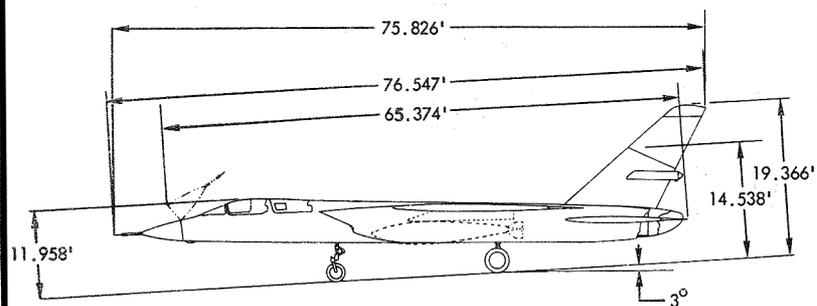
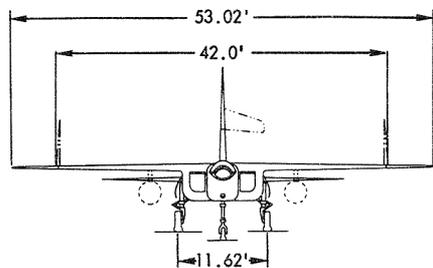
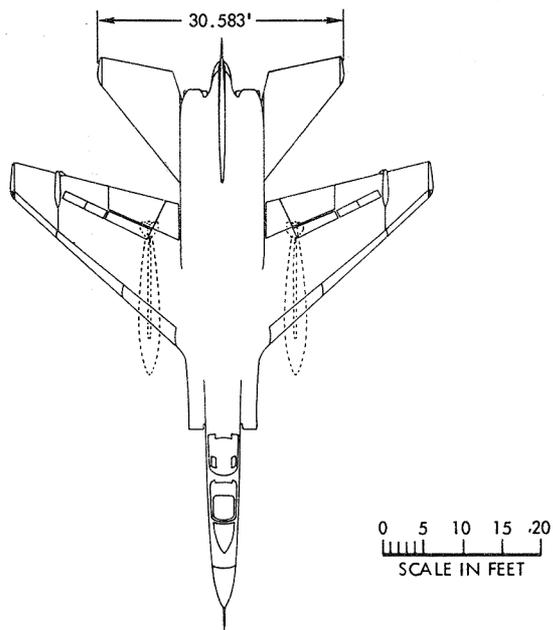
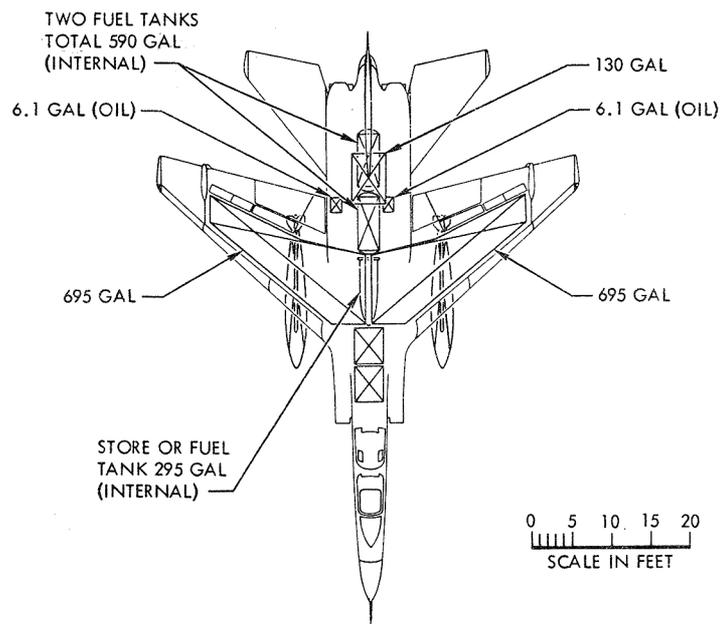


STANDARD AIRCRAFT CHARACTERISTICS
A3J-1 (J79-GE-8 ENGINE)
VIGILANTE

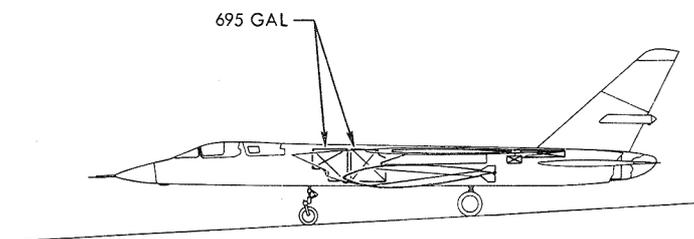
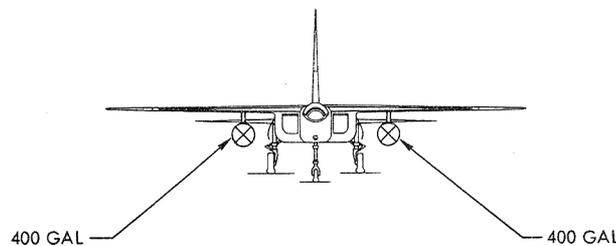
NORTH AMERICAN AVIATION, INC.



DESCRIPTIVE ARRANGEMENT



☒ NON-SELF-SEALING TANKS



TANKAGE

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

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

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 |

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 BA PRACTICE BOMB CONTAINER* |

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

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" |
|-------|----------|

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

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 | 50,900 | 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

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

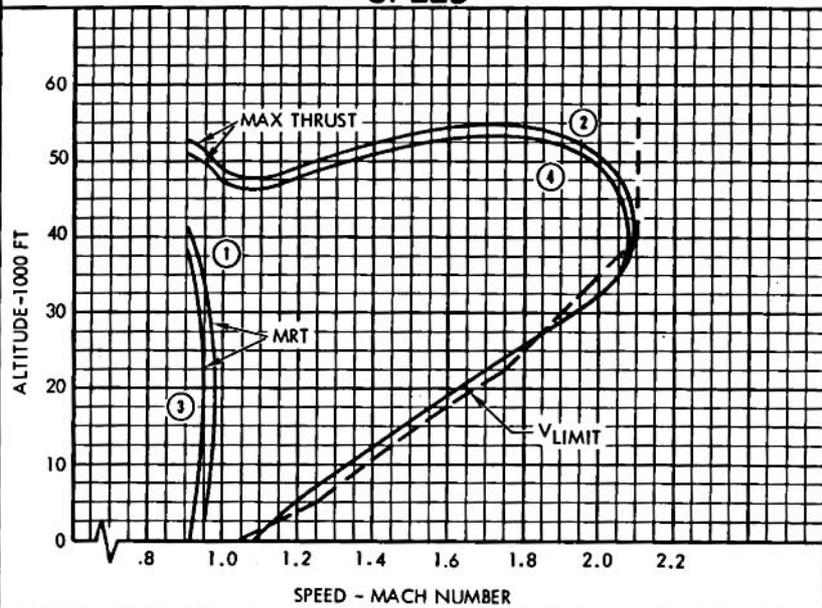
(F) With two 400-gal ext tanks, radius/mission time. . .naut mi/hr (885/4.00)

(G) Sea level delivery MK 27 store combat radius/mission time. . .naut mi/hr (600/2.79)

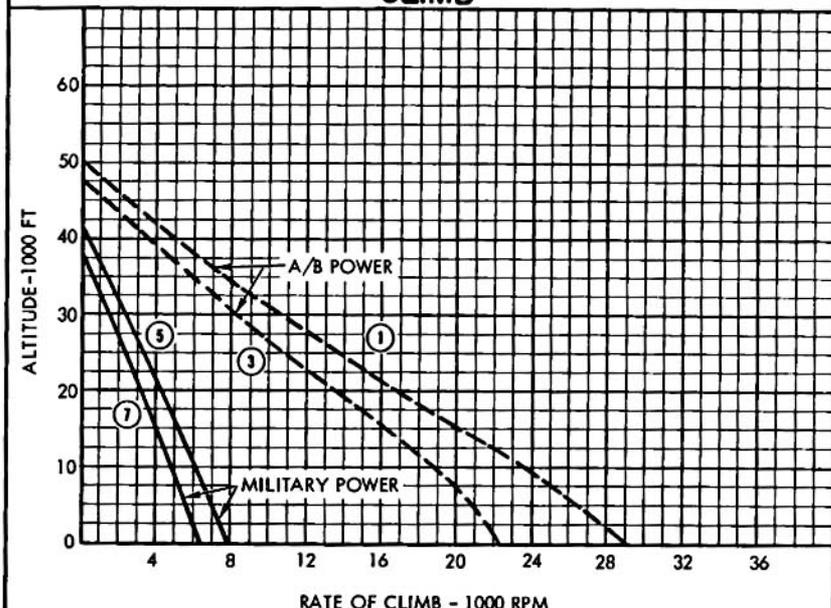
(H) Combat altitude presented for the Hi-Altitude Supersonic Attack Mission is supersonic combat ceiling instead of the altitude at the target.

(I) Buddy Tanker has 2 - 400 gal. external tanks plus 3 internal fuel cans

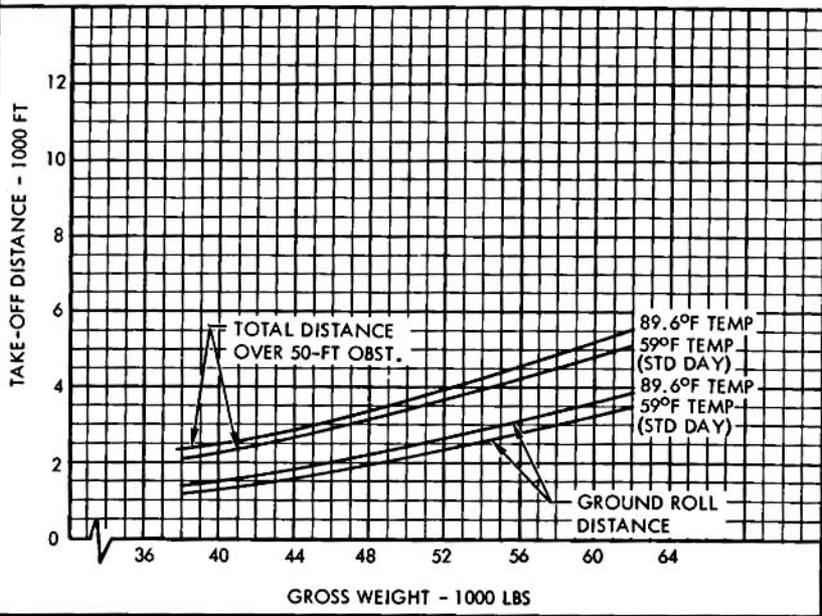
SPEED



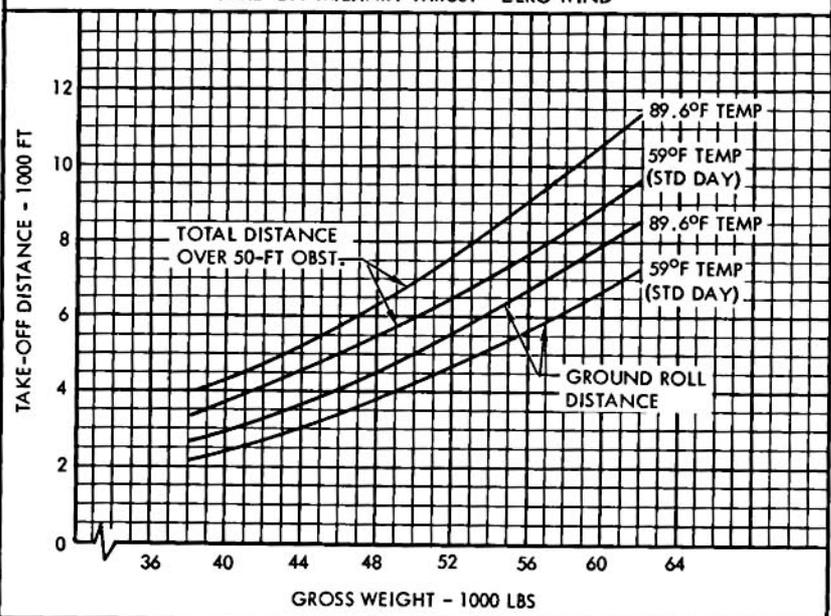
CLIMB



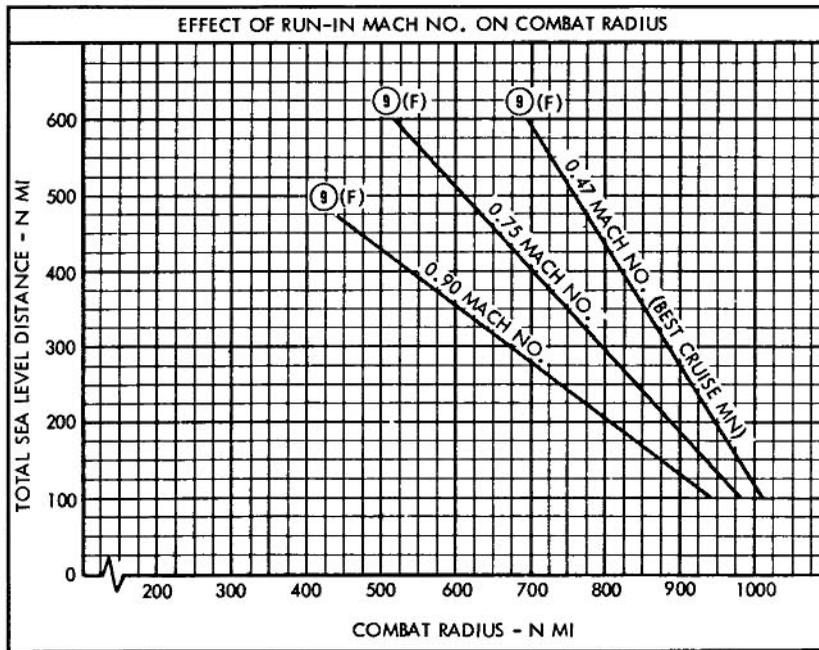
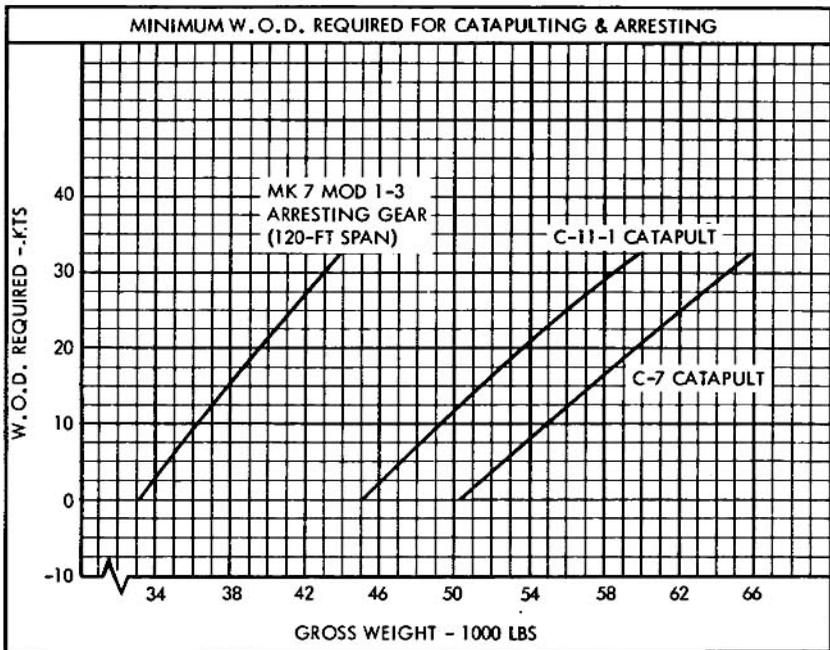
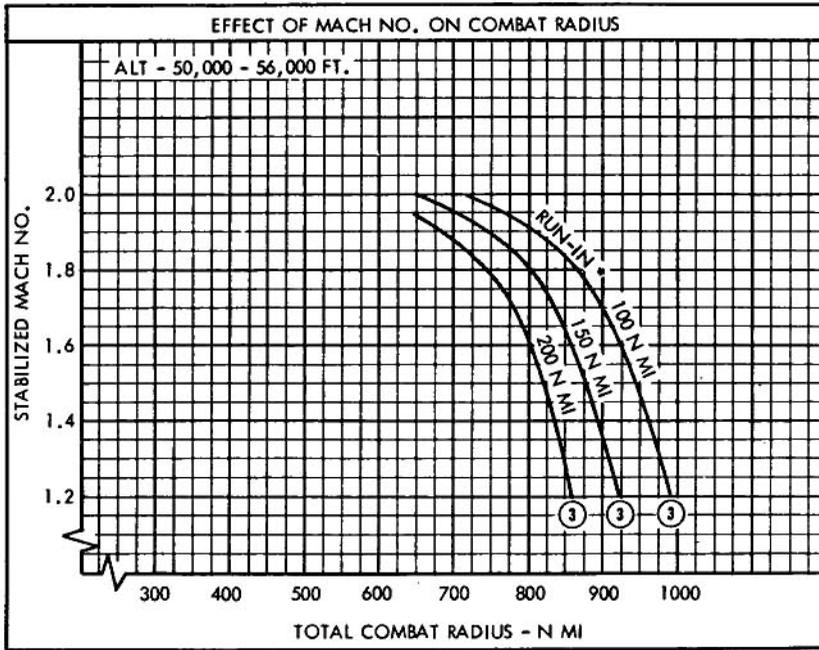
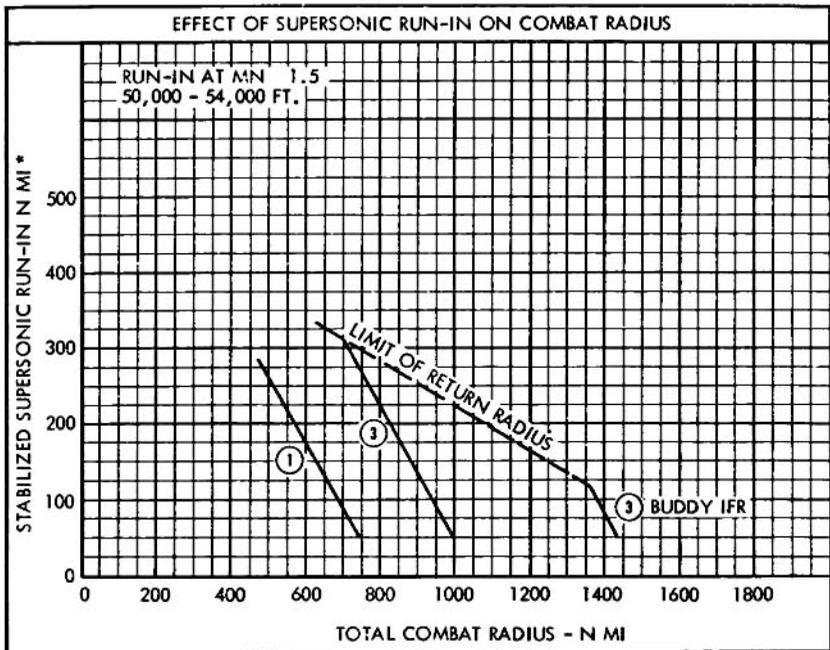
TAKE-OFF MAXIMUM THRUST - ZERO WIND



TAKE-OFF MILITARY THRUST - ZERO WIND



○ LOADING CONDITION COLUMN NUMBER



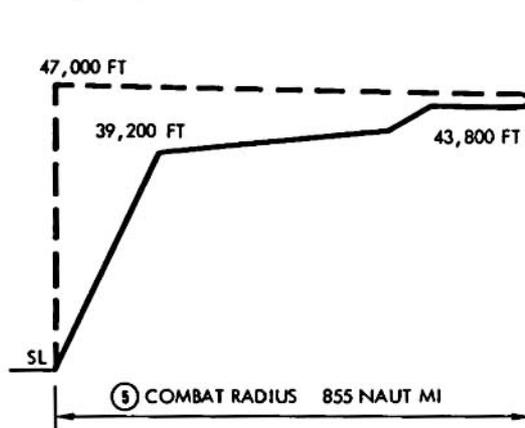
*Includes 10 miles store drop distance

○ LOADING CONDITION COLUMN NUMBER

NOTES

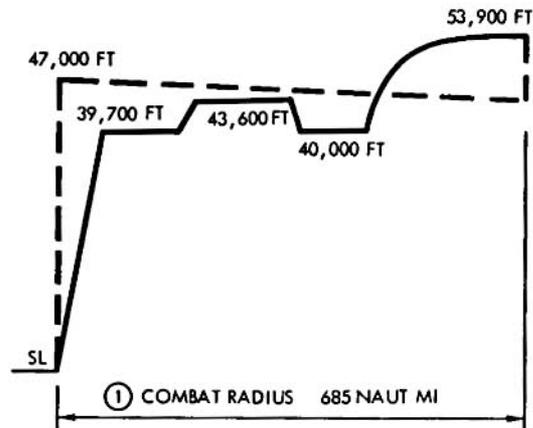
HIGH ALTITUDE ATTACK

- 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

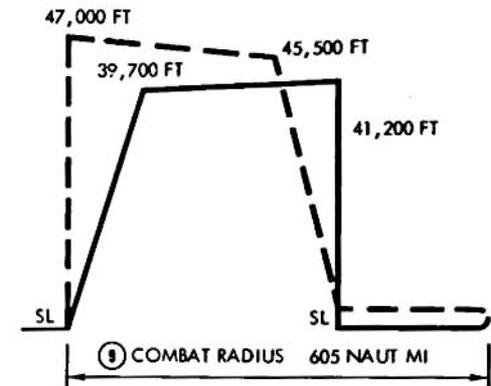
- WARM-UP, TAKE-OFF AND ACCELERATE:** 5 minutes at normal rated thrust at sea level.
- CLIMB:** On course to optimum cruise altitude with military rated thrust.
- CRUISE OUT:** At altitudes and speeds for maximum range.
- CLIMB:** At maximum rate of climb with military rated thrust, on course to cruise 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).



○ LOADING CONDITION COLUMN NUMBER

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).



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.