

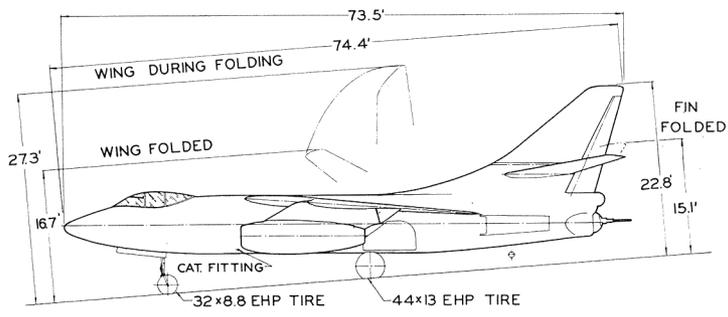
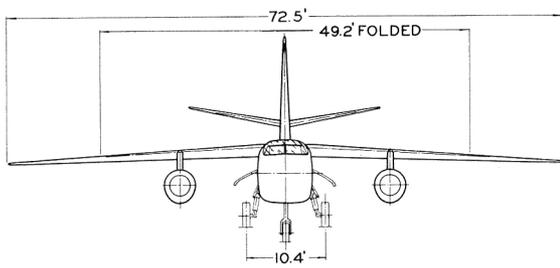
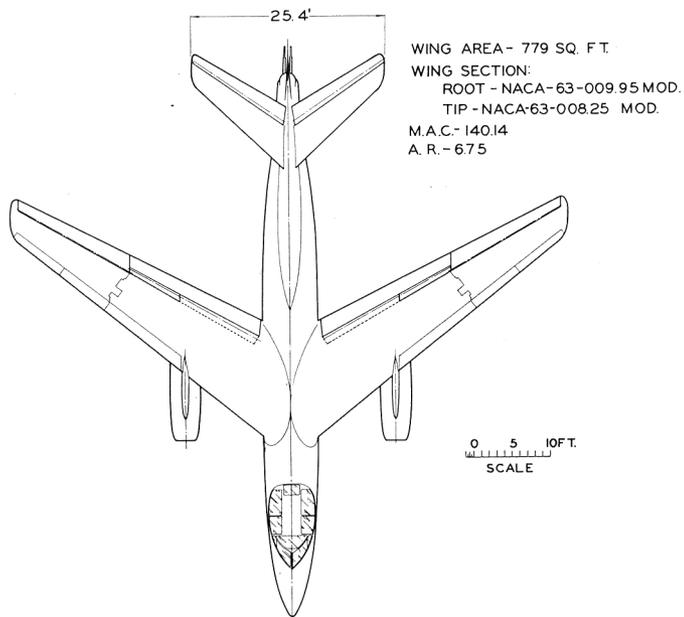
Standard Aircraft Characteristics NAVAER 1335A (REV. 1-55)

STANDARD AIRCRAFT CHARACTERISTICS

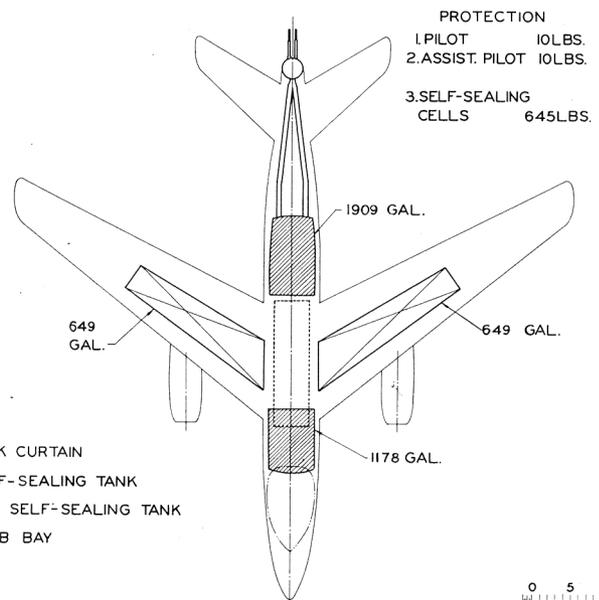
A3D-1 "SKYWARRIOR"

DOUGLAS

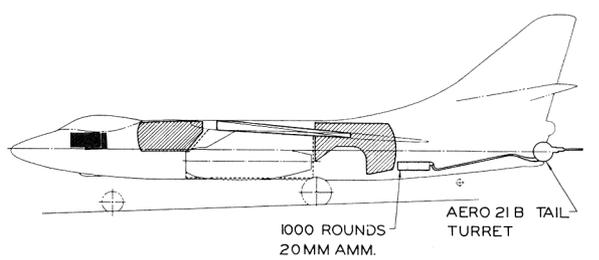
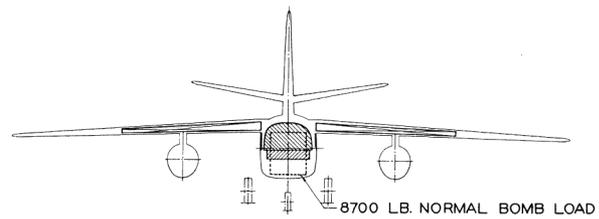
SERVICE



DESCRIPTIVE ARRANGEMENT



- FLAK CURTAIN
- ▨ SELF-SEALING TANK
- ▧ NON SELF-SEALING TANK
- ▤ BOMB BAY



ARMAMENT & TANKAGE

POWER PLANT

No. & Model ----- (2) J57-P-6
 Mfr. ----- Pratt & Whitney
 Eng. Spec. No. --- N-1671-E (5-10-55)
 Type ----- Axial Comp
 Length ----- 159 in.
 Diameter ----- 41 in.
 No. & Type Assist--12-5KS4500 JATO
 Tail Pipe Nozzle---Const. Exit Area

RATINGS

Sea Level Static

| | Thrust st | | R.P.M. | |
|----------|----------------------|----------------|----------------|--|
| | Lb. | N ₁ | N ₂ | |
| Maximum | 10000 | 6130 | 9900 | |
| Military | 9500 | 6030 | 9800 | |
| Normal | 8250 | 5770 | 9550 | |

Spec No. N-1671-E

ORDNANCE

Maximum Bomb Capacity:
 12,800 lbs.

| | | |
|------------|------------|------|
| Bombs----- | 4-2000 lb. | G.P. |
| | 8-1600 lb. | A.P. |
| | 6-1000 lb. | G.P. |
| | 8-500 lb. | G.P. |

| | | |
|-------------|------------|-------|
| Mines ----- | 2-2000 lb. | Mk.10 |
| | 4-2000 lb. | Mk.25 |
| | 6-1000 lb. | Mk.36 |
| | 8-500 lb. | Mk.50 |

Special Stores

Guns/Amm.

2-20mm M3L/500 rounds per gun.

Tail Turret System ----- Aero 21B
 Bomb Director Mk.5 ASB-1A

MISSION AND DESCRIPTION

The primary mission of the A3D-1 airplane is the attack and destruction of enemy ground and surface targets.

The airplane has a conventional swept-wing structure. Two turbo-jet engines are enclosed in under-wing nacelles. Provisions are made for a three-man crew; a pilot, a bomber-assistant pilot, and a gunner-navigator.

The tricycle landing gear, arresting gear, wing-fold and tail-fold mechanisms, single-slotted wing flaps, fuselage speed brakes, and power mechanisms for rudder, elevator and ailerons are operated by hydraulic power. The horizontal stabilizer is adjustable for trim in flight. Leading edge slats are actuated automatically by aerodynamic loads.

Anti-skid braking is provided. The JATO installation accommodates twelve 4500-pound-thrust bottles. In-flight refueling provisions are provided. A landing deceleration chute is provided.

DEVELOPMENT

First Flight ----- September 1953
 Service Use ----- April 1956

DIMENSIONS

Wing:
 Area----- 779 sq. ft.
 Span-----72.5 ft.
 M.A.C.-----140.14 in.
 Sweepback----- 36°
 Length----- 74.4 ft.
 Height----- 22.8 ft.
 Tread -----10.4 ft.

WEIGHTS

| Loading | Lbs. | L.F. |
|-----------------|------------|------|
| Empty | 35,999 (A) | |
| Basic | 36,178 | |
| Design | 55,942 | 2.67 |
| Combat | 59,942 | 2.49 |
| Take-Off, Field | 70,000 | 2.13 |
| Landing Cat. | 70,000 | 2.13 |
| a. Field | 56,000 | |
| b. Carrier | 49,000 | |

FUEL AND OIL

| Gal. | No Tanks | Location |
|------------------------------------|----------|----------|
| 3087 | 2 | Fuselage |
| 1298 | 2 | Wing |
| Fuel Grade-----JP-4 or JP-5 | | |
| Fuel Spec (applicable)--MIL-F-5624 | | |

OIL

| Gal. | No. Tanks | Location |
|-------------------------|-----------|----------------------|
| 11 | 2 | Integral with Engine |
| Oil Spec-----MIL-L-7808 | | |

ELECTRONICS

UHF Dir. Finder ----- AN/ARA-25
 VOR Homing-----*AN/ARN-14E
 VHF Trans-Rec.-----AN/ARC-27A
 HF Transmitter-----AN/ART-13
 HF Receiver-----AN-ARR-15A
 IFF-----AN/APX-6B & AN/APA-89
 Interphone -----AN/AIC-4A
 Radio Altimeter AN/APN-22

* Alternate ----- AN/ARN-21

PERFORMANCE SUMMARY

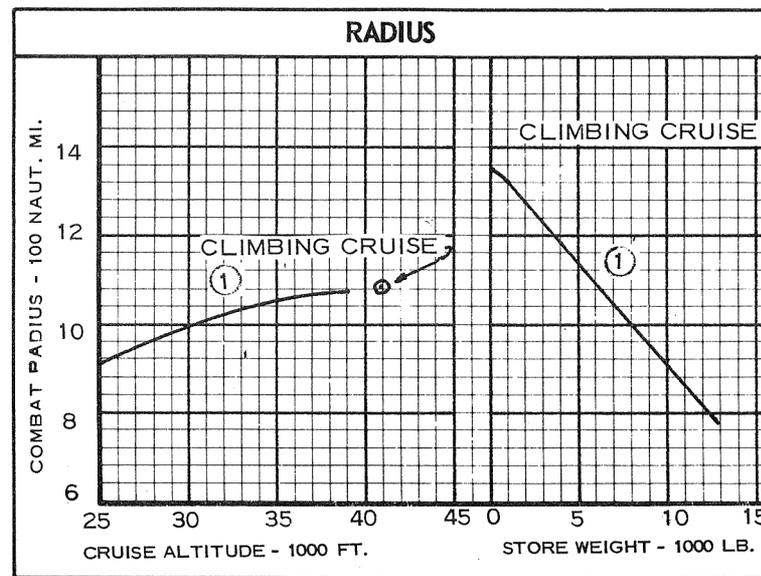
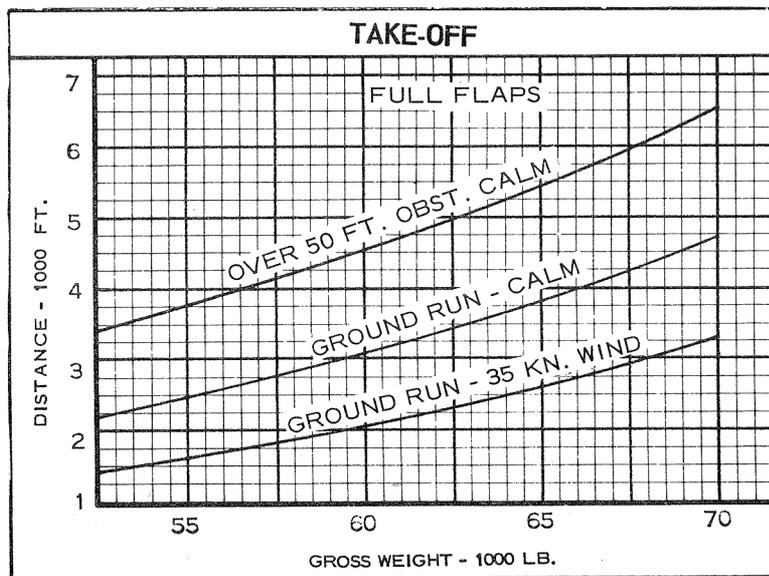
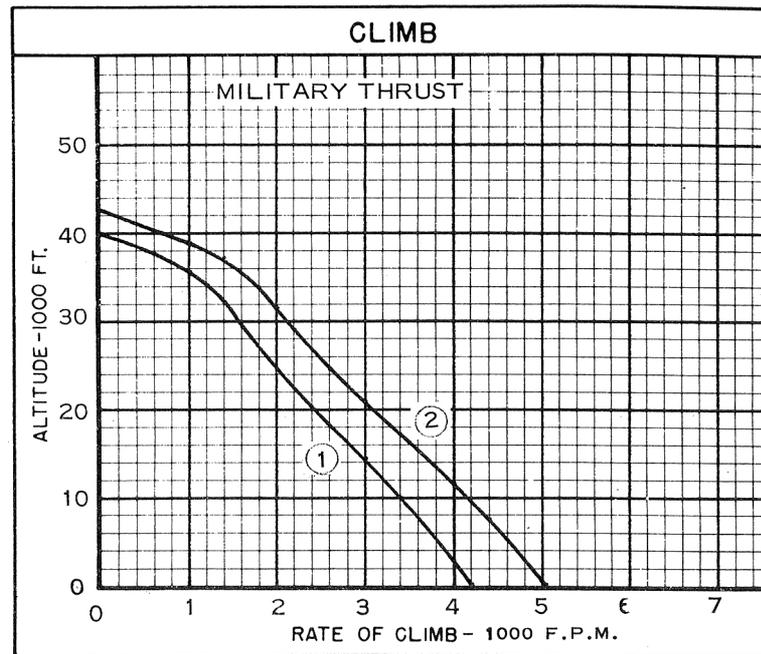
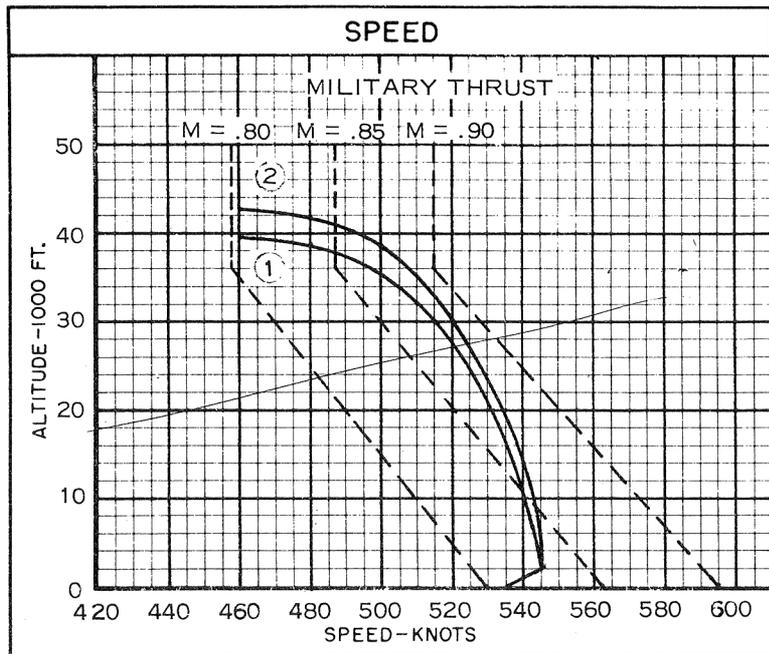
| TAKE-OFF LOADING CONDITION | (1) HIGH ALTITUDE ATTACK 2-3100 LB. STORES | (3) HIGH ALTITUDE ATTACK 2-2025 LB. STORES | (5) LOW ALTITUDE ATTACK 3-1300 LB. STORES | (7) LOW ALTITUDE ATTACK 1-2025 LB. STORE | (9) FERRY NO STORES FULL INT. FUEL | |
|--|--|--|---|--|--|--------------|
| TAKE-OFF WEIGHT | lb. | 70,000 | 70,000 | 70,000 | 70,000 | 68,377 |
| Fuel (JP-5) | lb. | 25,145 | 27,290 | 27,352 | 29,411 | 29,818 |
| Fayload | lb. | 6200 | 4050 | 3900 | 2025 | NONE |
| Wing loading | lb./sq.ft. | 89.9 | 89.9 | 89.9 | 89.9 | 87.8 |
| Stall speed - power-off | kn. | 129.5 | 129.5 | 129.5 | 129.5 | 127.9 |
| Take-off run at S.L. - calm (A) | ft. | 4740 | 4740 | 4740 | 4740 | 4410 |
| Take-off run at S.L. 25 kn. wind (A) | ft. | 3320 | 3320 | 3320 | 3320 | 3090 |
| Take-off to clear 50 ft. - calm (B) | ft. | 6550 | 6550 | 6550 | 6550 | 6140 |
| Max. speed/altitude (A) | kn./ft. | 544/1700 | 544/1700 | 544/1700 | 544/1700 | 544/1700 |
| Rate of climb at S.L. (A) | fpm. | 4190 | 4190 | 4190 | 4190 | 4300 |
| Time: S.L. to 20,000 ft. (A) | min. | 6.0 | 6.0 | 6.0 | 6.0 | 5.8 |
| Time: S.L. to 30,000 ft. (A) | min. | 11.0 | 11.0 | 11.0 | 11.0 | 10.5 |
| Service ceiling (100 fpm) (A) | ft. | 39,200 | 39,200 | 39,200 | 39,200 | 39,700 |
| Combat range | n.mi. | 2070 | 2325 | 2345 | 2600 | 2680 (c) |
| Average cruising speed | kn. | 457 | 457 | 457 | 457 | 457 |
| Cruising altitude(s) | ft. | 36,400/43,000 | 36,400/43,950 | 36,400/44,300 | 36,400/45,200 | 37000/45,900 |
| Combat radius/Mission time | n.mi./hr. | 1080/4.7 | 1180/5.2 | 1085/4.9 | 1195/5.3 | |
| Average cruising speed | kn. | 457 | 457 | 457 | 457 | |
| IFR-Radius/Mission time (B) | n.mi./hr. | 1778/8.0 | | | 1775/8.1 | |
| IFR-Fuel Transf/distance (B) | lb./n.mi. | 16730/800 | | | 13880/940 | |
| COMBAT LOADING CONDITION | (2) 60% FUEL STORES RETAINED | (4) 60% FUEL STORES RETAINED | (6) 60% FUEL STORES RETAINED | (8) 60% FUEL STORES RETAINED | | |
| COMBAT WEIGHT | lb. | 59,942 | 59,084 | 59,059 | 58,236 | |
| Engine power | | MAXIMUM | MAXIMUM | MAXIMUM | MAXIMUM | |
| Fuel | lb. | 15,087 | 16,374 | 16,411 | 17,647 | |
| Combat speed/combat altitude | kn./ft. | 495/39,800 | 494/40,200 | 535/Sea Level | 535/Sea Level | |
| Rate of climb/combat altitude | fpm/ft. | 770/39,800 | 700/40,200 | 5140/Sea Level | 5230/Sea Level | |
| Combat ceiling (500 fpm) | ft. | 40,900 | 41,200 | 41,200 | 41,500 | |
| Rate of climb at S.L. | fpm. | 5050 | 5130 | 5140 | 5230 | |
| Max. speed at S.L. | kn./M | 535/.810 | 535/.810 | 535/.810 | 535/.810 | |
| Max. speed/Mach No./Alt. | kn./ft. | 545/.829/1700 | 545/.829/1700 | 545/.829/1700 | 546/.830/1700 | |
| Max. speed at 35,000 ft. | lb. | 510/.886 | 510/.886 | 510/.886 | 510/.886 | |
| LANDING WEIGHT | lb. | 41,862 | 41,984 | 41,424 | 41,344 | |
| Fuel | lb. | 3207 | 3324 | 2676 | 2780 | |
| Stall speed - power-off | appr.pwr. kn/ kn. | 100.1/98.2 | 100.2/98.4 | 99.6/97.7 | 99.5/97.5 | |
| Landing Distance - Ground run/50 ft. obst. | ft./ft. | 4630/6620 | 4640/6630 | 4590/6580 | 4580/6570 | |

NOTES

PERFORMANCE BASIS: Naval Air Test Center flight tests of A3D-1 and Contractor flight tests of the A3D-2.

- (A) Maximum Thrust
 (B) One rendezvous in-flight refueling from A3D-2 Tanker
 (C) With JP-4 fuel (28,503 lb.) instead of JP-5, ferry range is decreased to 2540 n.mi.

SPOTTING: A total of 27 airplanes can be accommodated in a landing spot on the flight and hangar decks of a CVA-19 class angled deck carrier.



○ LOADING CONDITION COLUMN NUMBER

Standard Aircraft Characteristics NAVAER 1335E (Rev. 1-55)

NOTES

HIGH ALTITUDE ATTACK

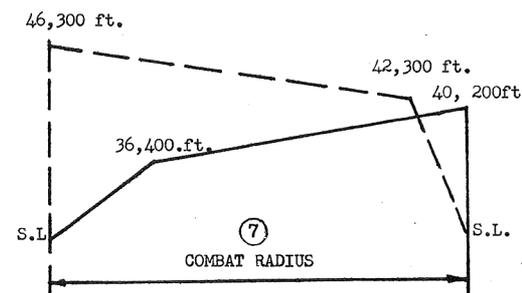
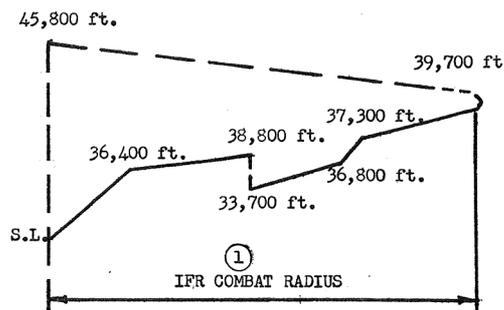
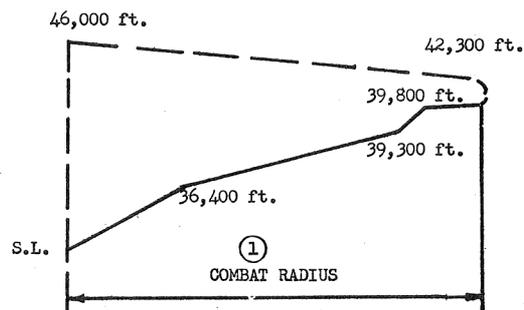
WARM-UP, TAKE-OFF AND ACCELERATE: 5 minutes at normal rated thrust at sea level
 CLIMB: On course to optimum cruise altitude with maximum rated thrust
 CRUISE-OUT: At altitudes and speeds for maximum range
 CLIMB: At maximum rate of climb with maximum rated thrust on course to cruise ceiling.
 BOMB RUN: Cruise in level flight 15 minutes at normal rated thrust at combat altitude
 DROP BOMBS
 EVASIVE ACTION: 2 minutes at maximum speed with normal rated thrust at combat altitude (no distance gained).
 ESCAPE: 8 minutes at maximum speed with normal rated thrust (climb to optimum cruising altitude is accomplished in evasive action and escape periods).
 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

HIGH ALTITUDE ATTACK WITH IN-FLIGHT REFUELING

WARM-UP, TAKE-OFF AND ACCELERATE: 5 minutes at normal rated thrust at sea level
 CLIMB: On course to optimum cruise altitude with maximum rated thrust.
 CRUISE-OUT: At altitudes and speeds for maximum range.
 REFUEL: 15 minutes at 35,000 feet at speed for maximum endurance. Refuel to full internal fuel
 CRUISE-OUT: At altitudes and speeds for maximum range
 CLIMB: At maximum rate of climb with maximum rated thrust on course to cruise ceiling
 BOMB RUN: Cruise in level flight 15 minutes at normal rated thrust at combat altitude
 DROP BOMBS
 EVASIVE ACTION: 2 minutes at maximum speed with normal rated thrust at combat altitude (no distance gained).
 ESCAPE: 8 minutes at maximum speed with normal rated thrust (climb to optimum cruising altitude is accomplished in evasive action and escape periods).
 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.

LOW 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 maximum rated thrust.
 CRUISE-OUT: At altitudes and speeds for maximum range
 DESCEND TO SEA LEVEL: No fuel consumed. No distance credit
 DROP BOMBS
 COMBAT: 5 minutes at maximum rated power at sea level (no distance gained)
 CLIMB: On course to optimum cruise altitude with maximum 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 fuel load



○ LOADING CONDITION COLUMN NUMBER



Douglas Navy A3D Skywarrior