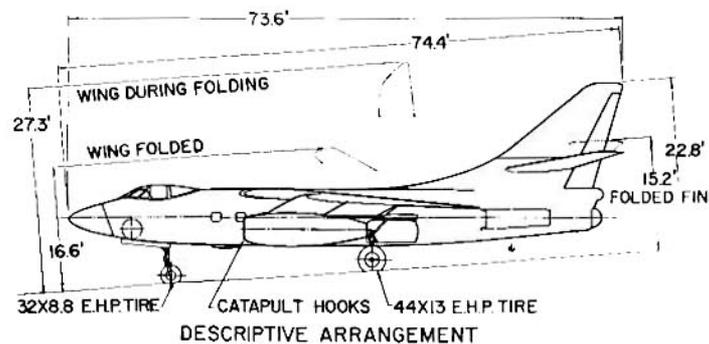
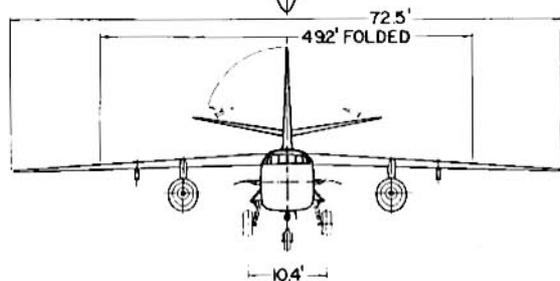
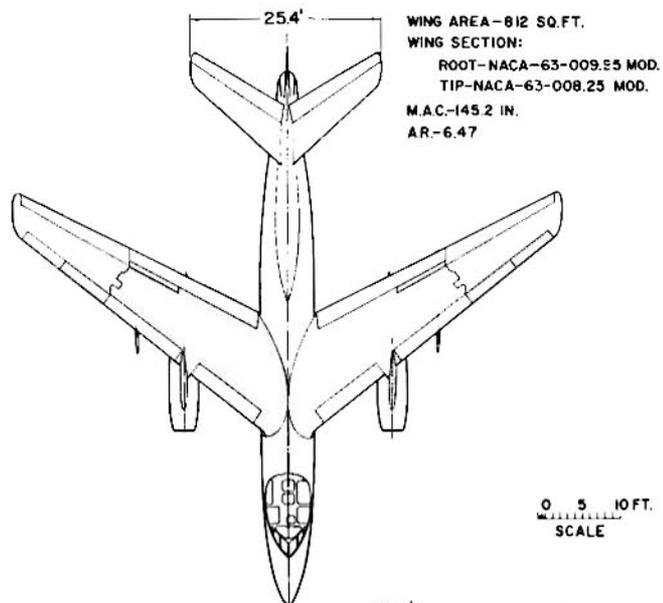


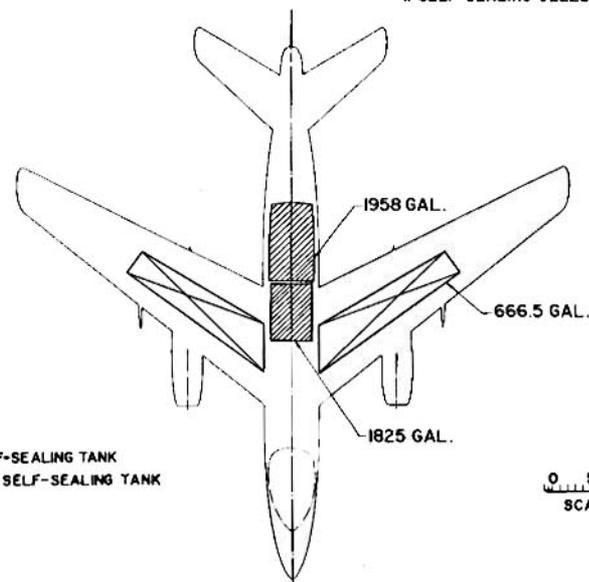
# STANDARD AIRCRAFT CHARACTERISTICS

## A3D-2T "SKY WARRIOR"

DOUGLAS



PROTECTION  
I. SELF-SEALING CELLS 739 LBS.

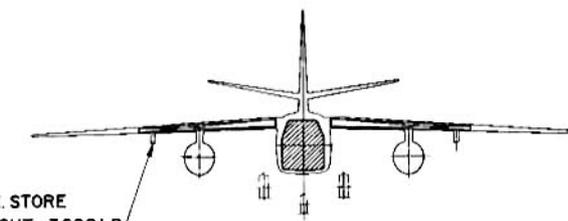


SELF-SEALING TANK

NON SELF-SEALING TANK

0 5 10 FT.  
SCALE

MAX. STORE  
WEIGHT= 3600LB.



ARMAMENT & TANKAGE

Standard Aircraft Characteristics NAVAR 1339B (Rev. 1-55)

## POWER PLANT

No. & Model----- (2) J57-P-10  
 MFR.-----Pratt & Whitney  
 Type----- Turbojet  
 Compr----- Dual Rotor Axial Flow  
 Length-----158 in.  
 Diameter-----41 in.  
 No. & Type Assist...12-SKS4500Jato  
 Tail Pipe No. 22LE--Constant Exit  
 Area

## RATINGS

SEA LEVEL STATIC  
 THRUST RPM

	LB.	N <sub>1</sub> *	N <sub>2</sub> **
Maximum	10500	6450	9900
Military	10500	6150	9900
Normal	9000	5900	9650

\*N<sub>1</sub> Speed of Low Pressure  
 Compressor

\*\*N<sub>2</sub> Speed of High Pressure  
 Compressor

Eng. Spec. No. N-1700-A

## ORDNANCE

## WING PYLONS

- 2 3343 Lb. T-65 Training Shapes
- 2 750 Lb. Aero 8A Practice Bomb Dispensers Carrying 4-MK 89 Bombs Each

No Provision for Internal Carriage of Stores

## MISSION AND DESCRIPTION

The primary mission of the A3D-2T airplane is that of a trainer for bombardiers and navigators. The airplane is designed to operate from land bases and from CVA-19 and CVA-59 class carriers.

The airplane has a conventional swept wing and swept tail arrangement. Two turbo-jet engines are pylon-mounted in underwing nacelles. Provisions are made for a crew of eight men, consisting of a pilot, an instructor and six bombardier-navigator trainees.

The basic structure is nearly identical to the A3D-2Q. The wing has a cambered leading edge and full-span slats. One bomb rack is located under each wing to carry practice bomb dispensers. The rear compartment floor is adaptable to carrying cargo or transport type seats.

## DEVELOPMENT

First Flight-----May 1959  
 Service Use (Estimated)-----October 1959

## DIMENSIONS

WING  
 AREA-----812 sq. ft.\*  
 SPAN-----72.5 ft.  
 M.A.C.-----145.2 in.\*  
 SWEEPBACK-----36°  
 LENGTH-----74.4 ft.  
 HEIGHT-----22.8 ft.  
 TREAD-----10.4 ft.

\*All aerodynamic coefficients are based on the original wing area of 779 square feet and MAC of 140.14 inches

## WEIGHTS

LOADING	LBS.	LF.
Empty	39933	
Basic	40579	
Design	55942	3.4
Combat	59690	
Max T.O.(Land)	78000	2.44
Max T.O. (Cat.)	73000	2.60
Catapult Design	70000	2.72
Max. Landing (Land)	56000	
Max. Landing (Carrier)	49000 (with ASC 155)	
	46000 (without ASC 155)	

## FUEL AND OIL

GAL.	NO. TANKS	LOCATION
*1825	1	Fwd. Fuselage
*1958	1	Aft Fuselage
666.5 ea.	2	Wing

\* Self Sealing  
 Total Fuel Capacity 5116 Gals.  
 Fuel Grade-----JP-5  
 Fuel Spec-----MIL-F-5624

## OIL

GAL.	NO. TANKS	LOCATION
11	2	Integral with Engine

Oil Spec-----MIL-L-7808

## ELECTRONICS

Radio Rec. ( VOR)----AN/ARN-14-E  
 Radio Compass-----AN/ARN-6  
 Tacan-----AN/ARN-21  
 Direction Finder, ( UHF)---AN/ARA-25  
 Radio Altimeter-----AN/APN-22  
 IFF Transponder-----AN/APX-6B  
 Coder Group-----AN/APA-89

(without video coder)

Trans-Receiver,( UHF)---AN/ARC-27A  
 Communication Radio---AN/ARC-38  
 Radio Receiver ( UHF)---AN/ARR-40  
 Radar Bomb Director-----ASB-1A  
 Antenna Coupler-----CU-509() /AR

PERFORMANCE SUMMARY						
TAKE-OFF LOADING CONDITION		(1) HIGH ALTITUDE ATTACK 2 AERO 8A DISPENSERS	(3) HIGH ALTITUDE ATTACK 2 AERO 8A DISPENSER	(5) HIGH ALTITUDE ATTACK WITH TWO T-65 TRAINING STORES		
TAKE-OFF WEIGHT	lb.	70,000	78,000	78,000		
Fuel (JP-5)	lb.	25,781	33,788	28,595		
Fayload	lb.	1500	1500	6686		
Wing loading	lb./sq.ft.	86.2	96.1	96.1		
Stall speed - power-off	kn.	119.7	126.4	126.4		
Take-off run at S.L. - calm (A)	ft.	4600	5900	5900		
Take-off To Clear 50 ft. - Calm (A)	ft.	4920	6300	6300		
Take-off to clear 50 ft. - JATO (B)	ft.	2000	2850	2850		
Max. speed/altitude (C)	kn./ft.	531/S.L.	531/S.L.	533/S.L.		
Rate of climb at S.L. (C)	fpm	4800	4200	4230		
Time: S.L. to 20,000 ft. (C)	min.	5.4	6.2	6.2		
Time: S.L. to 30,000 ft. (C)	min.	9.2	10.7	10.7		
Service ceiling (100 fpm) (C)	ft.	41,500	39,400	39,400		
Combat range	n.mi.	2200	2815	2295		
Average cruising speed	kn.	430	430	430		
Cruising altitude(s)	ft.	37600/44500	35600/44900	35600/42600		
Combat radius	n.mi.	1100	1405 (D)	1190		
Average cruising speed	kn.	430	430	430		
Mission Time	hr.	5.2	6.6	5.1		
Low Altitude Attack (Radius/Mission Time)	n.mi./hr.			1270/6.0		
COMBAT LOADING CONDITION		(2) 60% FUEL WITH STORES	(4) 60% FUEL WITH STORES	(6) 60% FUEL WITH STORES		
COMBAT WEIGHT	lb.	59,698	64,485	66,562		
Engine power		MILITARY	MILITARY	MILITARY		
Fuel	lb.	15,469	20,273	17,157		
Combat speed/combat altitude	kn./ft.	469/42,400	467/41,000	467/40,500		
Rate of climb/combat altitude	fpm/ft.	650/42	700/41,000	700/40,500		
Combat ceiling (500 fpm)	ft.	43,200	41,700	44,900		
Rate of climb at S.L.	fpm	5720	5200	5080		
Max. speed at S.L.	kn.	531	531	533		
Max. speed/altitude	kn./ft.	505/35,000	502/35,000	506/35,000		
LANDING WEIGHT	lb.	46,288	46,703	45,366		
Fuel	lb.	2521	2943	2647		
Stall speed - power-off	kn.	97.2	97.6	96.1		
Stall speed - with approach power	kn.	95.4	96.0	94.5		

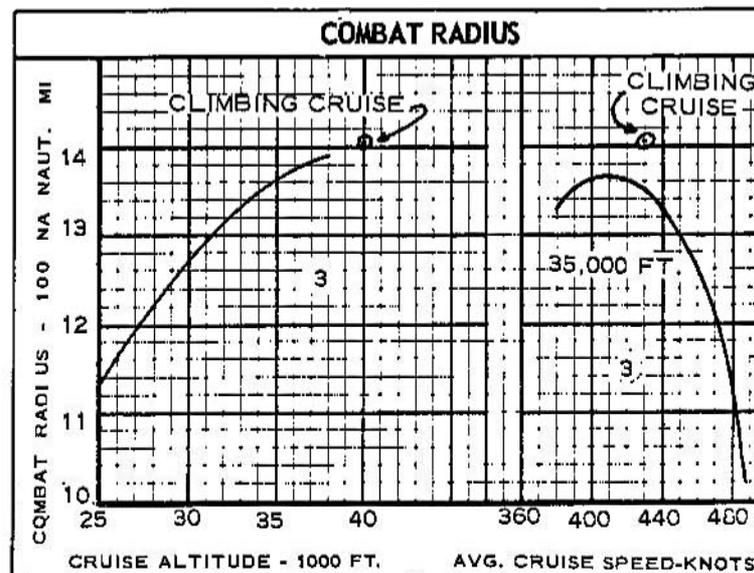
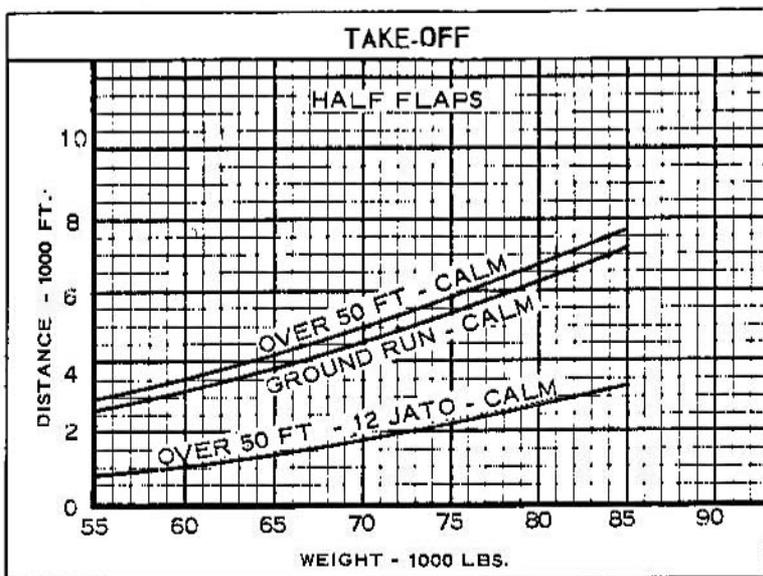
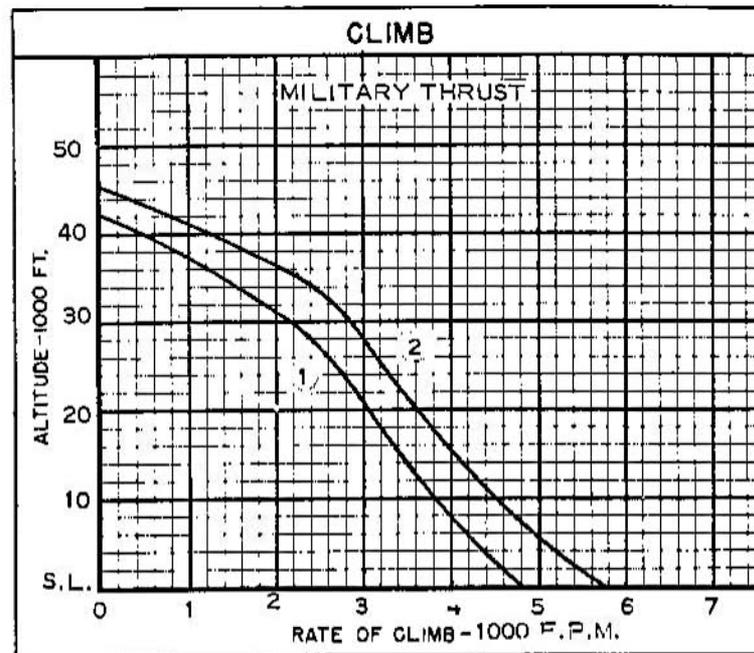
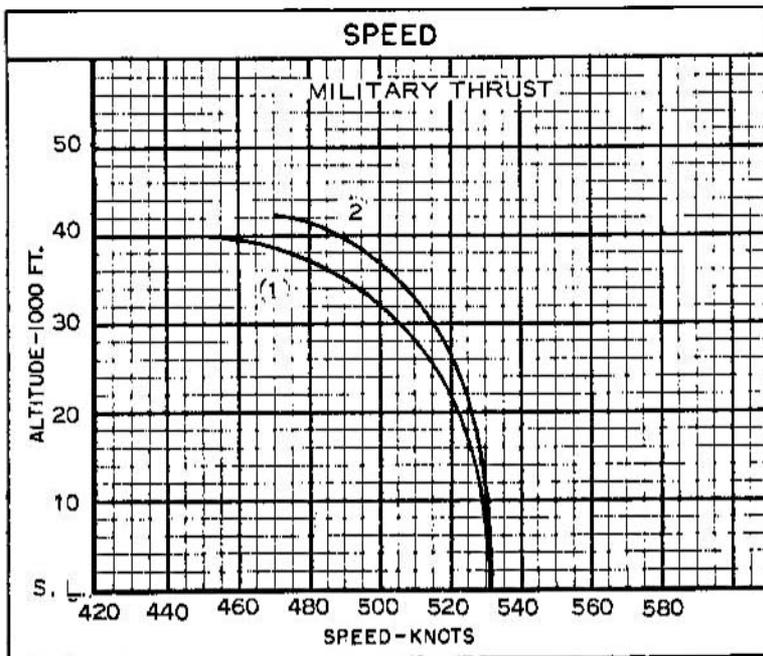
## NOTES

PERFORMANCE BASIS: Flight Test of A3D-1, wind tunnel tests of A3D-2 (cambered wing) and calculations

RANGE AND RADIUS are based on engine spec. fuel consumption increased by 5%

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

- (A) HALF FLAPS  
 (B) HALF FLAPS 12 JATO UNITS INCREASE TAKE-OFF WEIGHTS SHOWN BY 271.2 LBS.  
 (C) MILITARY THRUST  
 (D) WITH ONE REFUELING ON THE OUTBOUND LEG, THE HIGH ALTITUDE ATTACK RADIUS IS INCREASED TO 2036 N.MI. (WITH A MISSION TIME OF 9.54 HOURS)



○ LOADING CONDITION COLUMN NUMBER

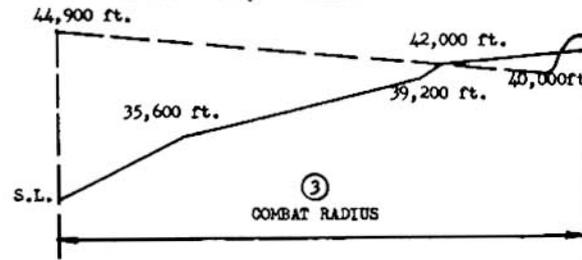
Standard Aircraft Characteristics AAV-42A (Rev. 1-55)

# NOTES

## HIGH ALTITUDE ATTACK

**WARM-UP, TAKE-OFF AND ACCELERATE:** 5 minutes at normal thrust at sea level  
**CLIMB:** On course to optimum cruise altitude with military thrust  
**CRUISE-OUT:** At altitudes and speeds for maximum range  
**CLIMB:** With maximum thrust on course to cruise ceiling  
**BOMB RUN:** 15 minutes at normal thrust at combat altitude  
**DROP BOMBS:**  
**EVASIVE ACTION:** 2 minutes with normal thrust at combat altitude (no distance gained)  
**ESCAPE:** 8 minutes with normal thrust (assume escape ends at optimum cruise back altitude)  
**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

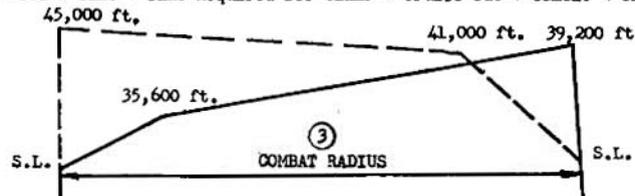
Combat Radius = Climb + Cruise-Out + Climb + Run-In + Escape + Cruise-Back  
 Mission Time = Time Required for Climb + Cruise-Out + Climb + Bomb Run + Evasive Action + Escape + Cruise-Back



## LOW ALTITUDE ATTACK AND GROUND SUPPORT

**WARM-UP, TAKE-OFF AND ACCELERATE:** 5 minutes at normal thrust at sea level  
**CLIMB:** On course to optimum cruise altitude with military thrust  
**CRUISE-OUT:** At altitudes and speeds for maximum range  
**DESCEND TO SEA LEVEL:** No fuel consumed, no distance gained  
**DROP BOMBS:**  
**COMBAT:** 5 minutes at military thrust at sea level (no distance gained)  
**CLIMB:** On course to optimum cruise altitude with military 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

Combat Radius = Climb + Cruise-Out + Climb + Cruise-Back  
 Mission Time = Time Required for Climb + Cruise-Out + Combat + Climb + Cruise-Back



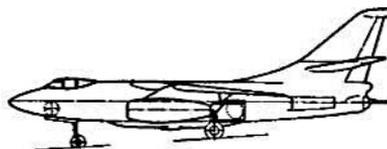
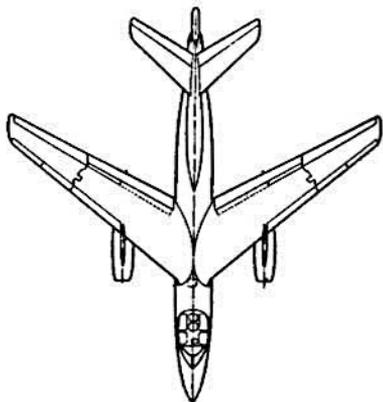
LOADING CONDITION COLUMN NUMBER

# CHARACTERISTICS SUMMARY

HIGH ALTITUDE ATTACK

A3D-2T

DOUGLAS



WING AREA: 812 Sq. ft.

LENGTH 75.7 ft.

WING SPAN: 72.5 ft.

HEIGHT 22.8 ft.

AVAILABILITY			PROCUREMENT			
NUMBER AVAILABLE			NUMBER DELIVERED IN FISCAL YEARS			
ACTIVE	RESERVE	TOTAL				

## STATUS

First Flight..... May 1959  
 Service Use (Estimated).....October 1959

### ENGINES

(2) Pratt and Whitney  
 J57-P-10  
 Sea Level Static

Thrust  
lbs.

Maximum.....10,500  
 Military.....10,500  
 Normal.....9,000

### FEATURES

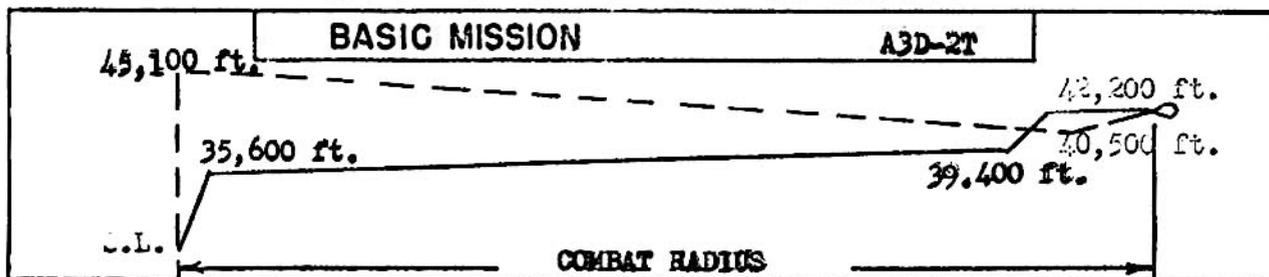
Crew - 8  
 Cambered Wing  
 Full Span Slats  
 Wing Mounted Practice  
 Bomb Dispensers  
 Folding Wings and Tail

### ARMAMENT

#### BASIC MISSION TRAINER

Wing Pylons  
 (2) 3343 lb. T.-65  
 Training Shapes  
 OR  
 (2) 750 lb. Aero 8A  
 Bomb Dispensers  
 Carrying  
 4-Mk. 89 Bombs  
 each

# CHARACTERISTICS SUMMARY



## PERFORMANCE

COMBAT RADIUS		COMBAT RANGE		SPEED	
1100	naut. mi.	2200	naut. mi.	531	knots at S.L. ft.
430	knots avg.	430	knots avg.	505	knots at 35,000 ft.
		5.2	hours		knots at ft.
					Combat Weight Military Power
CLIMB		CEILING		TAKE OFF	
4800	ft./min.	41,500	ft.	4600 ft. - S.L. Calm	
Sea Level, T. O. wt. Military Power		100 ft./min., T. O. wt. Military Power		4920 ft. - S.L.-50 ft. obst.	
650	ft./min.	43,200	ft.	2000 ft. S.L. Calm - 12 JATO	
42,400 ft. Combat Weight Military Power		500 ft./min Combat Weight Military Power		50 ft. Obstacle	
LOAD		WEIGHTS		STALLING SPEED	
Fuel 3900	gal.	Empty 38,846	lbs.	119.7 knots	
fixed 3900	drop	Combat 59,658	lbs.	Power off Flaps down, T. O. wt.	
		Take-off 70,000	lbs.	TIME TO CLIMB	
				20,000 ft. in 5.4 min.	
				Combat Wt., Max. Power	

## NOTES

Performance Basis: A3D-1 Flight Tests, A3D-2 (Cambered wing) wind tunnel tests

Fuel: JP-5 Weighing 6.8 lb/gal.

RANGE & RADIUS are based on enging specification fuel consumption increased by 5%.