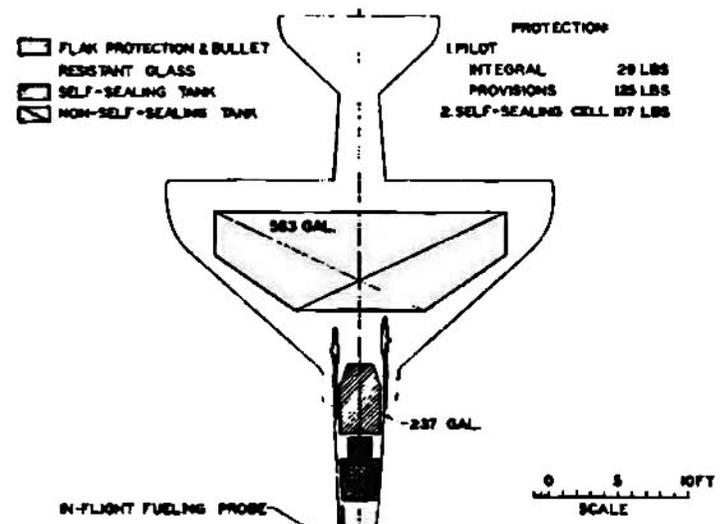
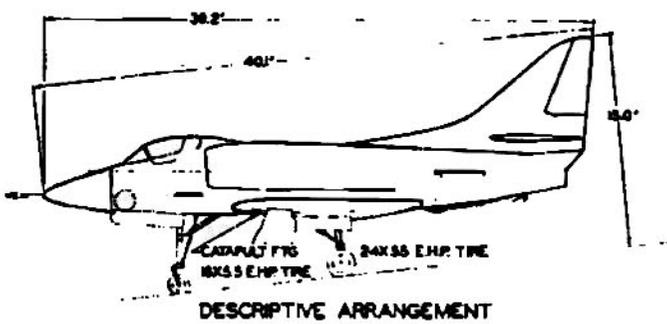
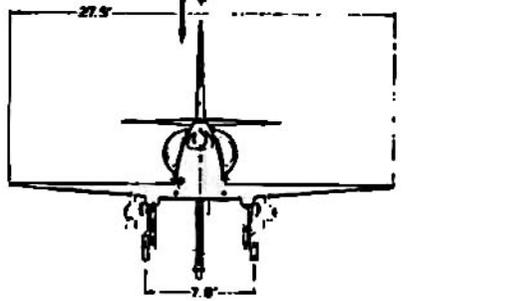
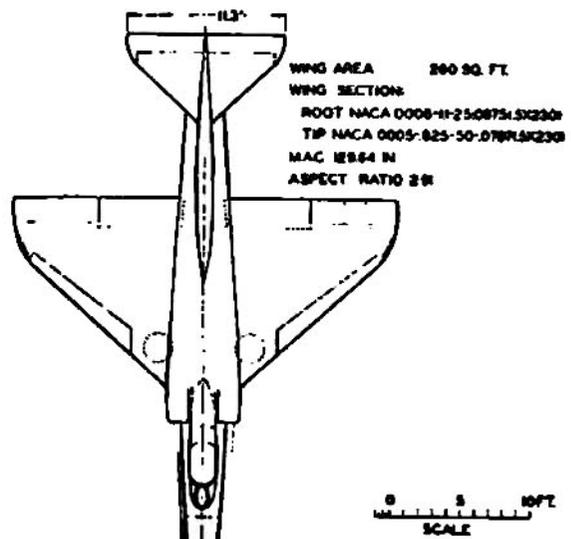


STANDARD AIRCRAFT CHARACTERISTICS
A4D-5 SKYHAWK

DOUGLAS AIRCRAFT COMPANY, INC., EL SEGUNDO DIVISION

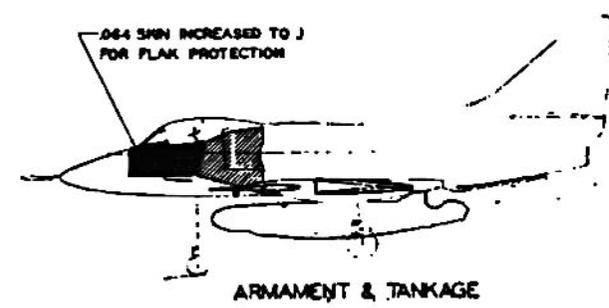


STORES UP TO 550 LB

STORES UP TO 1750 LB (UP TO 3240 LB WITH ROLL RESTRICTION)

STORES UP TO 3575 LB EACH ON

2-20MM GUNS 100RDS/GUN



ORDNANCE**FUSELAGE**

Bombs	6-MK 81 (250 lb) or 6-MK 82 (500 lb) can be carried on Douglas Multiple Bomb Rack. 1-MK 81 G.P. (250 lb) 1-MK 82 G.P. (500 lb) 1-MK 83 G.P. (1000 lb) 1-MK 84 G.P. (2000 lb)
Stores	1-1480 lb MK 105 S.W. 1-2025 lb MK 28 S.W. 1-3500 lb MK 91 S.W.
Spray Tank	1-Aero 14B
Fire Bomb	1-MK 79 (1000 lb) or 1-150 gal. Aero 1A fuel tank
Rockets	1-pkg. (7) 2.75" Aero 6A-1 1-pkg. (19) 2.75" Aero 7D 1-pkg. (4) 5.00" LAU/10A
Prac. Bombs	1-Aero 5A prac. bomb cont.
Drop Tanks	1-150 gal. Aero 1A (2 fins) 1-300 gal. Aero 1A (no fins)
Radio	1-NAVPAC unit
Misc.	1-In-flight Refueling Store 300 gallon
Missile	1-ASM-N-7 Bullpup

INBOARD WING

Bombs	6-MK 81 (250 lb) can be carried on Douglas Multiple Bomb Rack. 2-MK 81 G.P. (250 lb) * 2-MK 82 G.P. (500 lb) * 2-MK 83 G.P. (1000 lb)
Drop Tank	2-150 gal. Aero 1A (2 fins) 2-300 gal. Aero 1A (2 fins)
Fire Bomb	2-MK 79 or 2-150 gal. fuel tanks
Rockets	2-pkgs. (7) 2.75" Aero 6A-1 * 2-pkgs. (19) 2.75" Aero 7D * 2-pkgs. (4) 5.00" LAU/10A *
Missile	2-ASM-N-7 Bullpup *

OUTBOARD WING

* Items marked thus can be carried on outboard wing stations.

FIXED GUNS/RDS. AMM.

2 MK 12 20mm/100 rds. per gun

MISSION AND DESCRIPTION

The A4D-5 airplane is a lightweight, high performance, carrier-based, jet-powered attack airplane capable of dive, glide and loft bombing, in-flight refueling (tanker or receiver), carrying an air-to-surface missile, and firing conventional guns and rockets. It can operate from CVL and CVA type carriers. Limited all-weather navigational aids are provided. The A4D-5 is an A4D-2N with a J52 engine and two additional wing weapon stations.

The arrangement is conventional with all-metal semi-monocoque structure and three-spar low aspect-ratio wing. Landing gear, flaps and speed-brakes are hydraulically operated. An electrically operated, fully adjustable stabilizer is used to trim throughout the normal flight range. The aileron, elevator, and rudder systems are hydraulic-power operated. Manual control is provided for emergencies. An automatic flight control system is provided for pilot relief.

The small size of the airplane precludes the need for folding wings. The aft fuselage is readily removable to permit quick engine change.

DEVELOPMENT

Navy authority to proceed 1 June 1960

Contract NOA(s) 60-0128 - 2 airplanes

DIMENSIONS

Span.....	27.5 ft.
Length.....	40.1 ft.*
Height.....	15.0 ft.
Max. Tread.....	7.8 ft.
Turn. Rad.....	20.3 ft.*
Wing Area.....	260 sq. ft.

*Without Refueling Probe

POWER PLANT

No. & Model (1)	J-52-P6
Axial Flow Twin Spool	
Turbojet Without	
Afterburner	
MFR. - P & W Aircraft	
Spec. No. - P & W	
Specification N1731-A	
Length.....	116 in.
Diameter.....	31 in.

RATINGS

MIL.	11,650 RPM	8500 lb
Norm.	11,400 RPM	7500 lb

WEIGHTS

Loadings	LB	L.F.
Empty (E)	9284	-
Basic	10,069	-
Flight		
Design	12,504	7.0
Combat	15,533	5.8
Max T.O.	22,500	3.9
Max Landing		
(Arrest)	13,000	6.7
(Airfield)	16,000	5.5

FUEL AND OIL

Gal.	No. Tanks	Location
563	1	Wing
237	1	Fuselage
In-flight fueling provided.		
Fuel Spec.....MIL-F-5624		

OIL

5.0 gal. mounted on engine
Oil Spec MIL-L-7808

ELECTRONICS

Electronics Central AN/ASQ-17B consisting of	
UHF Communications	
IPF	
SIF	
AN/ARA-25	
TACAN.....	AN/ASN-21
Auto. Dead Reckon.....	AN/ASN-19
LABS.....	AN/AJB-3
Radar.....	AN/APG-53A
Auto Pilot.....	Douglas
Store Arming.....	T-249

PERFORMANCE SUMMARY						
TAKE-OFF LOADING CONDITION	① SEA LEVEL STORE DELIVERY 1-2025-LB STORE	② SEA LEVEL STORE DELIVERY 1-2025-LB STORE 2-300-GAL TANKS	③ CLOSE AIR SUPPORT 1-6X500-LB CLST 2-6X250-LB CLST	④ CLOSE AIR SUPPORT 1-300-GAL TANK 2-6X250-LB CLST 2-500-LB STORES	⑤ CLOSE AIR SUPPORT 1-300-GAL TANK 4-ASM-N-7A BULLPUP	
TAKE-OFF WEIGHT lb.	17,709	22,304	22,226	22,404	20,532	
Fuel - Internal/External (JP-5) lb./lb.	5440/NONE	5440/4080	5440/NONE	5440/2040	5440/2040	
Payload lb.	2025	2025	6000	4000	2200	
Wing loading lb./sq. ft.	68.1	85.8	85.5	86.2	72.0	
Stall speed - power-off kn.	116	132	139	139	126	
Take-off run at S.L. - calm ft.	2150	3900	4640	4750	3120	
Take-off run at S.L. 25 kn. wind ft.	1410	2800	3380	3460	2150	
Take-off to clear 50 ft. - calm ft.	3520	5910	6810	6950	4840	
Max. speed/altitude kn./ft.	576/S.L.	544/4200	467/14,700	491/14,800	522/15,000	
Rate of climb at S.L. fpm	8500	5800	4700	5000	5850	
Time: S.L. to 20,000 ft. min.	3.0	4.9	6.6	6.0	4.8	
Time: S.L. to 30,000 ft. min.	5.4	10.4	-	15.4	10.3	
Service ceiling (100 fpm) ft.	40,900	34,200	29,900	31,200	34,500	
Combat range n.mi.	1080	1730	470	890	1080	
Average cruising speed kn.	437	435	404	419	421	
Cruising altitude(s) ft.	36,000-41,000	31,000-40,400	29,600-33,900	30,800-37,000	34,700-39,800	
Combat radius/Mission Time n.mi./hr.	240/1.1	630/2.9	80/1.6	290/2.5	370/2.5	
Average cruising speed kn.	439	436	262	427	431	
IFR - Radius/Mission Time (A) n.mi./hr.		1060/5.0				
IFR - Fuel Tran./Distance (A) lb/n.mi.		4239/555				
COMBAT LOADING CONDITION	⑥ STORE RETAINED	⑦ TANK DROPPED STORE RELEASED	⑧ BOMBS RELEASED	⑨ TANK DROPPED BOMBS RETAINED	⑩ TANK DROPPED MISSILES RETAINED	
COMBAT WEIGHT lb.	15,533	15,799	14,050	20,183	18,311	
Engine power	Military	Military	Military	Military	Military	
Fuel	60% Internal	Full Internal	60% Internal	Full Internal	Full Internal	
Combat speed/altitude kn./M/ft.	577/.87/S.L.	578/.87/S.L.	547/.84/5000	500/.77/5000	531/.82/5000	
Rate of climb/altitude fpm/ft.	9650/S.L.	9800/S.L.	8800/5000	5050/5000	6050/5000	
Combat ceiling (500 fpm) ft.	42,700	42,200	43,100	38,600	36,200	
Rate of climb at 35,000 ft. fpm	3200	3050	2850		850	
Max. speed at 35,000 ft. kn./M	530/.90	523/.91	513/.89		488/.85	
Max. speed/altitude kn./M/ft.	577/.87/S.L.	578/.87/S.L.	547/.87/13,500	505/.81/15,000	534/.84/12,500	
LANDING WEIGHT lb.	10,976	11,312	11,543	11,627	11,540	
Fuel lb.	732	953	757	884	889	
Stall speed - power-off/Anpr. pwr./kn./kn.	94/92	96/93	97/94	97/94	97/94	
Dist. - Grnd. Run/Over 50 ft. OBST. ft./ft.	2775/3490	2860/3575	2915/3630	2940/3655	2915/3630	

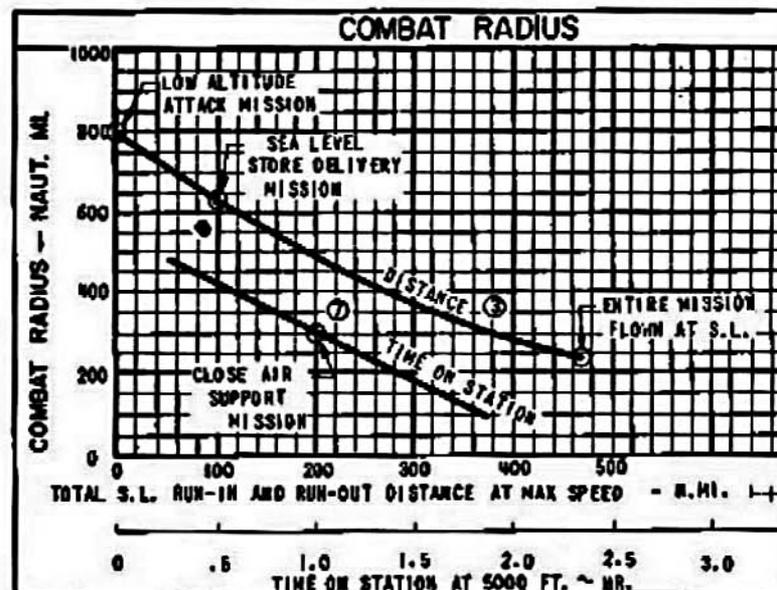
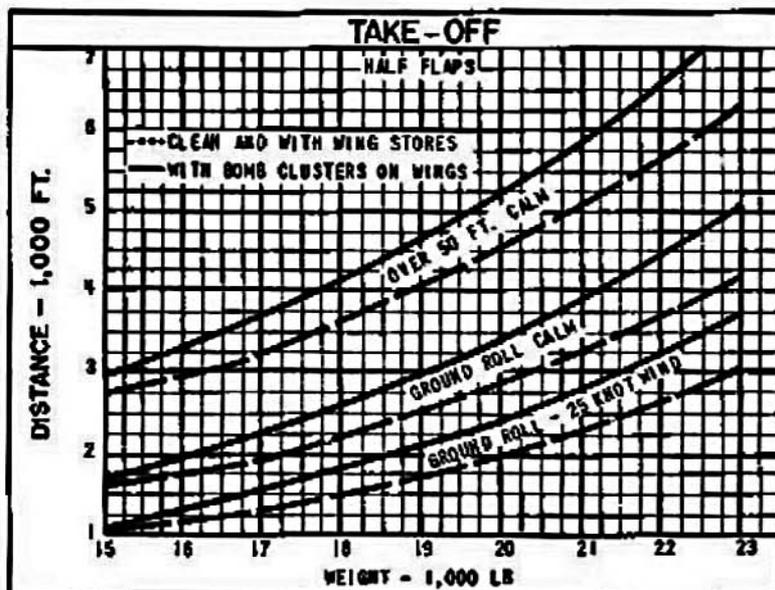
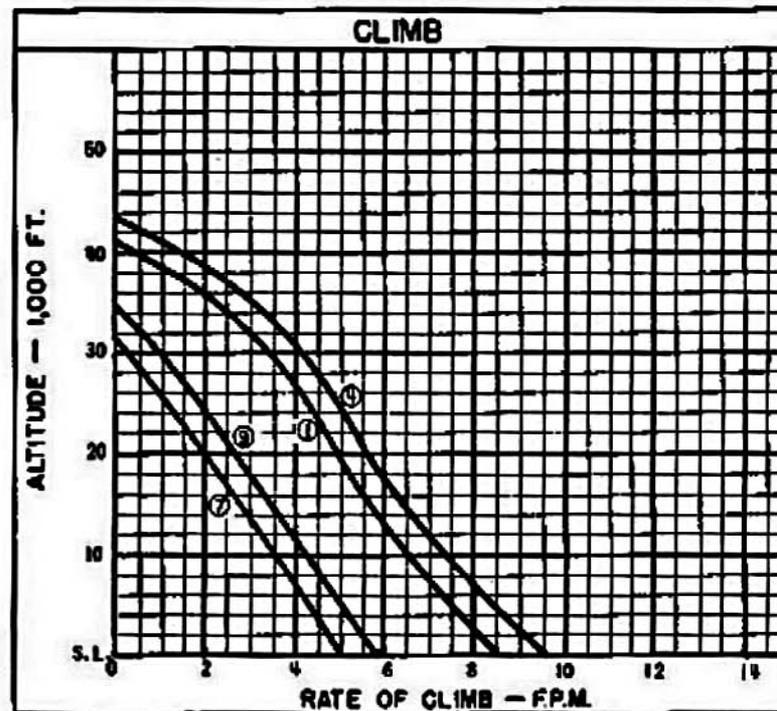
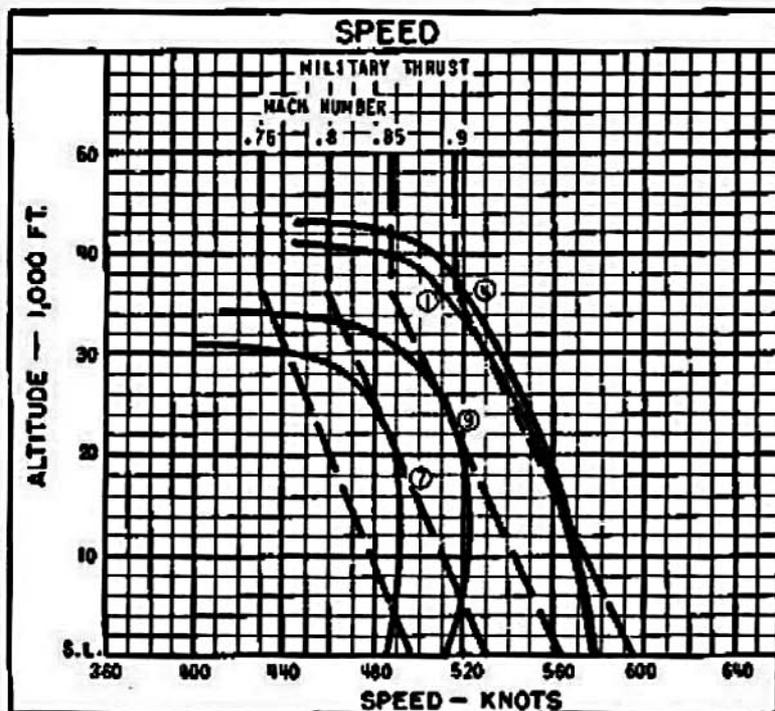
NOTES

(A) One Buddy air fueling - fuel transferred at 30,000 ft. altitude.

(B) All loadings include air refueling probe, guns and ammunition.

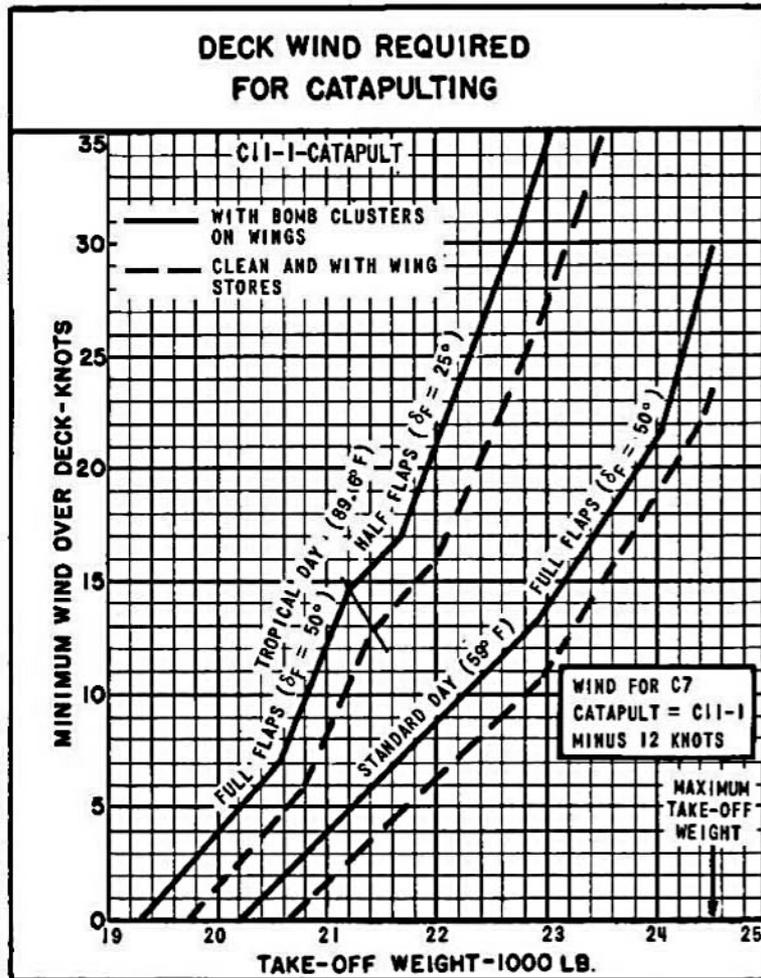
(C) Performance Basis: Contractor and NATC Flight Test Data on the Model(s) A4D-1, -2, -2N. Fuel consumption based on P & W J52-P-6 Engine Spec. No. N-1731-A dated 5-20-60 increased 5%.

(D) Operational Spotting: A total of 106 aircraft with refueling probes can be accommodated in a landing spot on the flight and hangar decks of a CVA-19 class Angled-Deck Carrier.



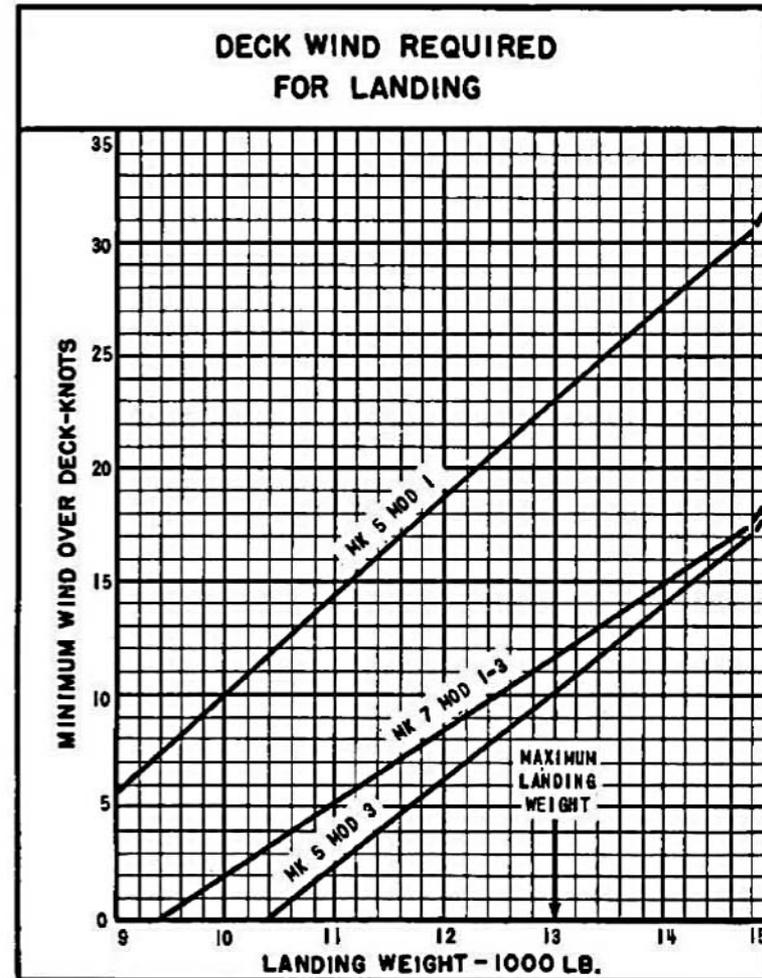
○ DENOTES LOADING CONDITION COLUMN NUMBER

CARRIER SUITABILITY



Catapult take-off speeds based on NATC minimums.

Below a take-off weight of 22,950 lb on the C11-1 catapult and 22,850 lb on the C7 catapult, the catapult end speed is limited by a maximum peak acceleration of 5.47g. Above these take-off weights the catapult end speed is limited by a maximum tow force of 120,000 lb.



Approach speed based on speeds recommended in the flight handbook as approved by NATC and corresponds to 1.25 $V_{S,L}$ with wing stores.

Good for all configurations.

NOTES

S.L. STORE DELIVERY COMBAT RADIUS MISSION

START ENGINES, T.O. AND ACCELERATE: Fuel for 5 minutes sea level, normal static thrust.

CLIMB-OUT: At maximum rate of climb with military thrust, on course to optimum cruise altitude or cruise ceiling whichever is lower.

CRUISE-OUT: At speed for maximum range at optimum cruising altitude or cruise ceiling (Drop tanks when empty).

DESCEND: To S.L. (no fuel consumed - no distance covered).

RUN-IN: At S.L. for 50 n.mi. at maximum speed with military thrust. Drop bombs.

COMBAT: For 5 minutes at sea level maximum speed with military thrust (no distance covered).

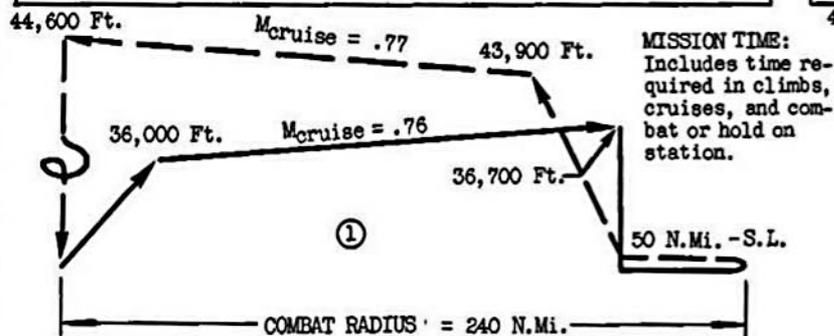
RUN-OUT: At S.L. for 50 n.mi. at maximum speed with military thrust.

CLIMB-BACK: At maximum rate of climb with military thrust, on course to optimum cruise altitude.

CRUISE-BACK: At speed for maximum range at optimum cruising altitude.

DESCEND: To S.L. (no fuel consumed - no distance covered).

RESERVE AND LANDING: 5% initial fuel load plus fuel for 20 minutes at sea level at speed for maximum endurance.



CLOSE AIR SUPPORT COMBAT RADIUS MISSION

START ENGINES, T.O. AND ACCELERATE: Fuel for 5 minutes sea level, normal static thrust.

CLIMB-OUT: At maximum rate of climb with military thrust, on course to optimum cruise altitude or cruise ceiling whichever is lower.

CRUISE-OUT: At speed for maximum range at optimum cruising altitude or cruise ceiling (Drop tanks when empty).

DESCEND: To 5,000 ft altitude (no fuel consumed - no distance covered).

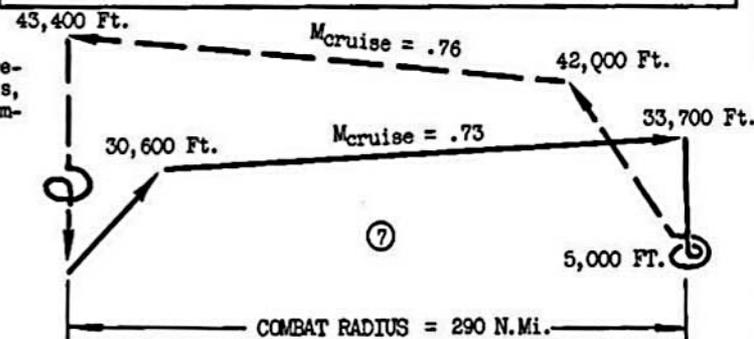
HOLD ON STATION: For one hour at maximum endurance speed at 5,000 ft altitude then drop bombs.

CLIMB-BACK: At maximum rate of climb with military thrust, on course to optimum cruise altitude.

CRUISE-BACK: At speed for maximum range at optimum cruising altitude.

DESCEND: To sea level (no fuel consumed - no distance covered).

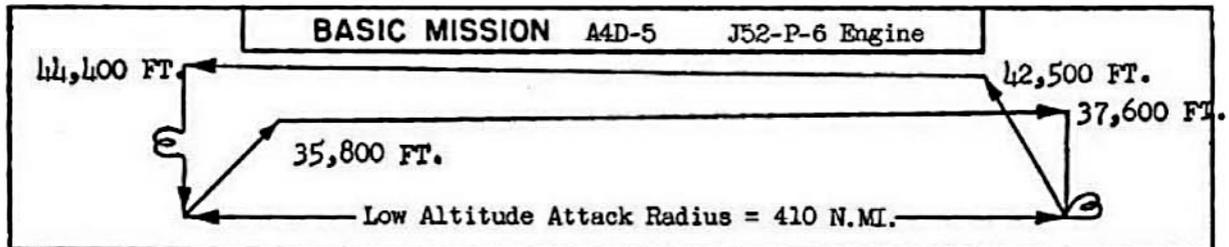
RESERVE AND LANDING: 5% initial fuel load plus fuel for 20 minutes at sea level at speed for maximum endurance.



15 APRIL 1961

A4D-5

CHARACTERISTICS SUMMARY



PERFORMANCE

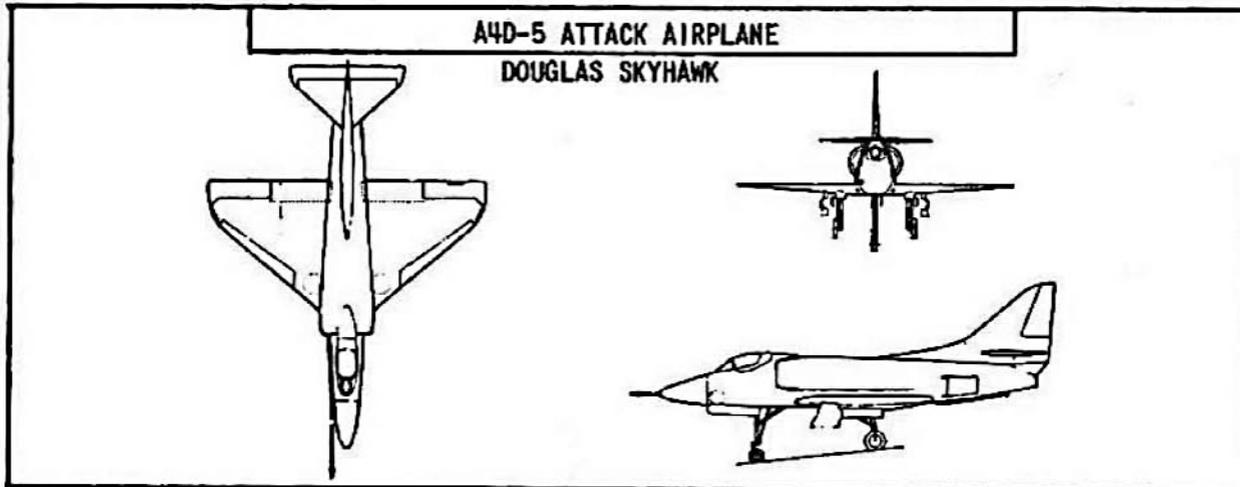
COMBAT RADIUS (A)	COMBAT RANGE	SPEED
410 nautical miles at 439 knots average speed in 2.0 hours	1010 nautical miles at 437 knots average speed in 2.3 hours	577 kn. (M = .87) at Sea Level, Military Thrust, Combat Weight, Store On 520 kn. (M = .90) at 35,000 ft., Military Thrust, Combat Weight, Store On
CLIMB	CEILING	TAKE OFF
8400 ft./min. Sea Level, Military Thrust Take-off Weight	40,700 ft. 100 ft./min. Rate of Climb, Take-off Weight Military Thrust	2480 ft. Take-off Run, No Wind, Sea Level, Take-off Weight Military Thrust
9750 ft./min. Sea Level, Military Thrust Combat Weight, Store On	42,000 ft. 500 ft./min. Rate of Climb, Combat Weight Military Thrust	3890 ft. T.O. over 50 ft. Obstacle, No Wind, S.L. Take-off Weight Military Thrust
LOAD	WEIGHTS	STALLING SPEED
Fuel 800 gal. (JP-5) 1 2025-lb Store Air Refueling Probe 2 - 20mm Guns and Ammo.	Basic 10,388 lb. Landing 11,120 lb. Combat 15,677 lb. (60% Fuel, Store On) Take-off 17,853 lb.	120 knots Take-off Weight Power-off
		TIME TO CLIMB
		5.4 min. to 30,000 ft. Take-off Weight Military Thrust

NOTES

- (A) With 2 150-gal. tanks, radius is 610 nautical miles
With 2 300-gal. tanks, radius is 770 nautical miles

This issue based on contractor and NATC flight test data on the Model(s) A4D-1, -2, -2N and engine performance from Pratt & Whitney specification N-1731-A dated 20 May 1960 with fuel consumptions increased 5%.

CHARACTERISTICS SUMMARY



WING AREA 260 sq. ft.
WING SPAN 27.5 ft.

LENGTH 40.1 ft.
HEIGHT 15.0 ft.

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

STATUS	
Contract: NOa(s) 60-0128 NOw(s) 61-0022	SERVICE
First Flight: 12 July 1961	

ENGINES	
(1) P&W J52-P-6 without afterburner	
<u>Rating</u>	<u>Thrust</u>
	lb.
Military	8500
Normal	7500

FEATURES
Single Place Carrier Based Tanker and Receiver Fueling Provisions All-Weather Navigation Aids Adjustable Stabilizer Liquid Oxygen System No Wing Fold

ARMAMENT
<u>Fuselage Bomb Rack:</u> Bombs or Stores up to 3575 lb
<u>Wing Bomb Racks:</u> Inbd.: Bombs or Stores up to 2240 lb (with roll restriction) Outbd.: Up to 550 lb
<u>Guns:</u> Two MK 12 Mod Q <u>Maximum Bomb Capacity:</u> 8175 lb (without roll restriction)