

STANDARD AIRCRAFT CHARACTERISTICS

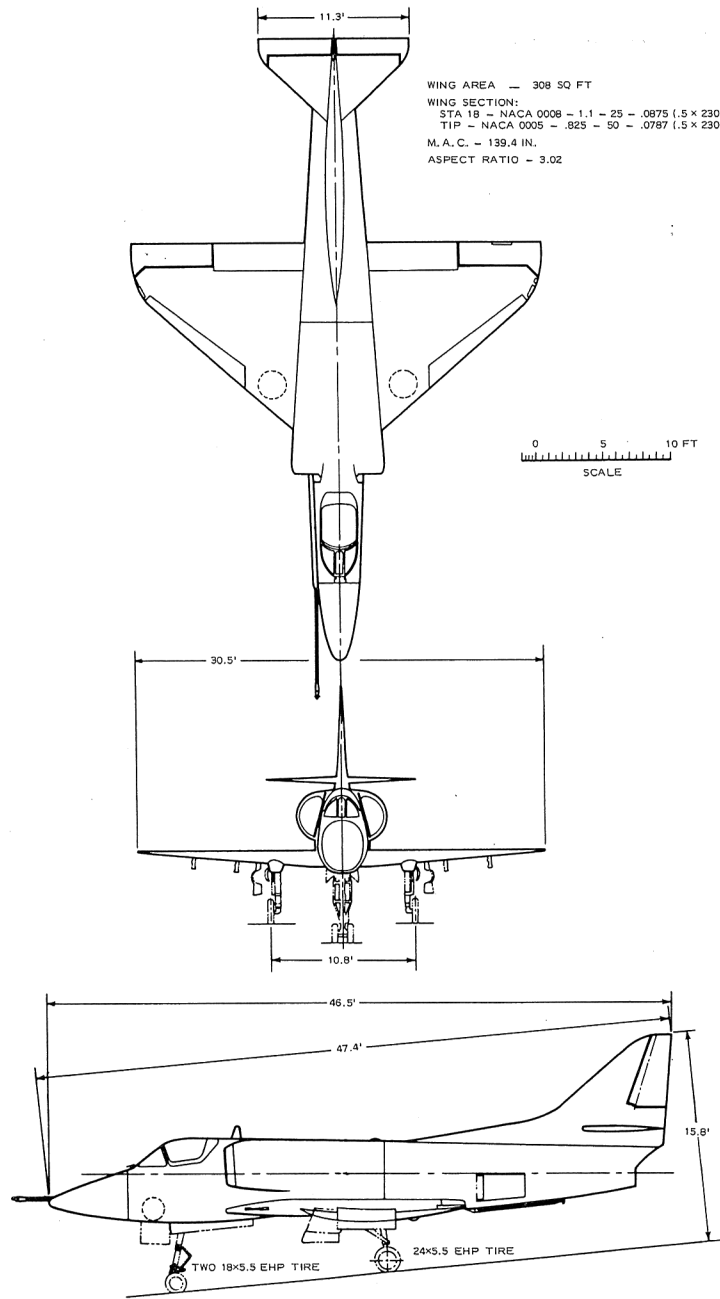
A4D-6 SKYHAWK

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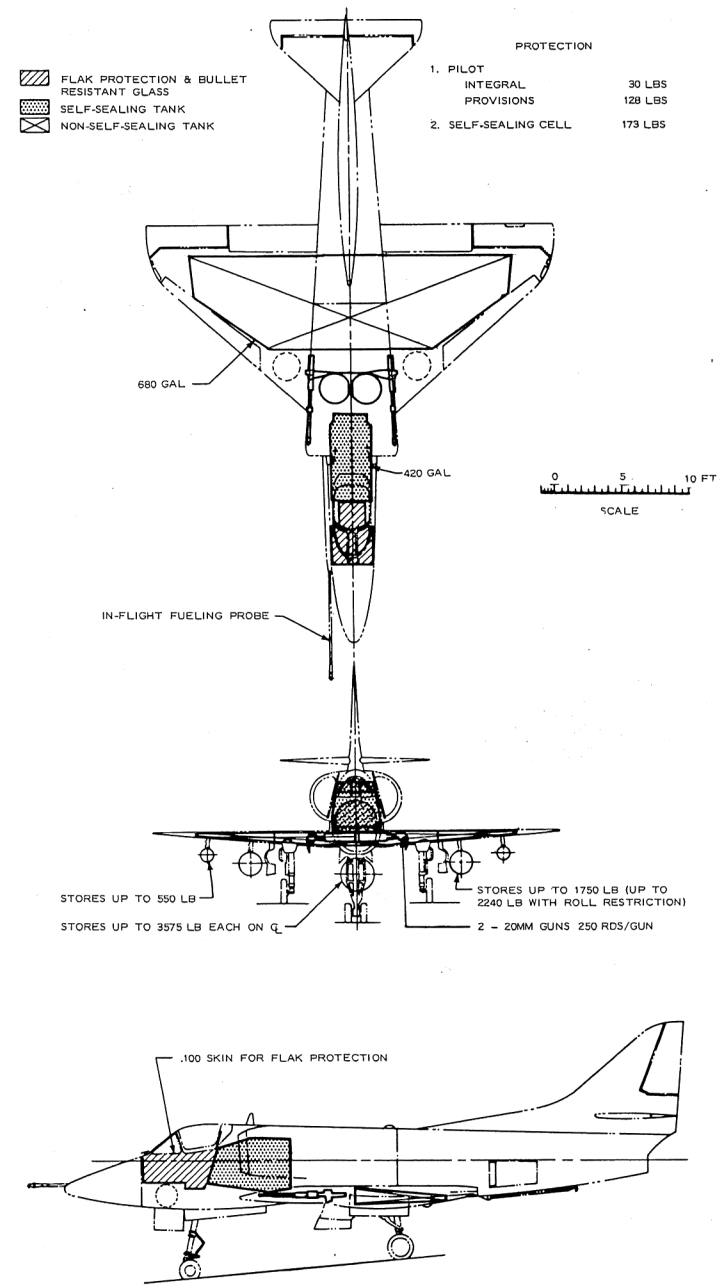
REGRADED TO DOUGLAS
 BY AUTHORITY OF DD-254, 1-12-64

RETURN TO C1-250
 ADVANCED DEVELOPMENTS
 TECHNICAL DATA CENTER

GROUP 4 DOCUMENT
 DOWNGRADED AT 3-YEAR INTERVALS
 DECLASSIFIED AFTER 12 YEARS
 DOD DIR 5200.10



DESCRIPTIVE ARRANGEMENT



ARMAMENT AND TANKAGE

ORDNANCE

FUSELAGE

Bombs 6xMK81 (250lb) or 6xMK82 (500 lb) can be carried on Douglas Multiple Bomb Rack.
 1-MK81 G.P. (250 lb)
 1-MK82 G.P. (500) lb)
 1-MK83 G.P. (1000 lb)
 1-MK84 G.P. (2000 lb)

Stores 1-1480 lb MK105
 1-2025 lb MK28
 1-350Q lb MK91
 1-2035 lb MK43

Spray Tank .. 1-Aero 14B

Fire Bomb 1-MK79 (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 gal

Missile 1-ASM-N-7 Bullpup

INBOARD WING

Bombs 2-6xMK81 (250 lb) can be carried on Douglas Multiple Bomb Rack.
 2-MK81 G.P. (250 lb)*
 2-MK82 G.P. (500 lb)*
 2-MK83 G.P. (1000 lb)

Drop Tank 2-150 gal. Aero 1A (2 fins)
 2-300 gal. Aero 1A (2 fins)

Fire Bomb .. 2-MK79 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/ROUNDS AMMUNITION

2-MK 12 20mm/250 rounds per gun

MISSION AND DESCRIPTION

The proposed A4D-6 is a single place, carrier based, multi-purpose attack and close support airplane. It is capable of dive, glide, and loft bombing using both conventional bombs and special weapons. The A4D-6 is equipped with 5 external store stations to carry a wide variety of ordnance and external fuel tanks. Inflight fueling (tanker and receiver) capability is provided. Limited all weather navigational aids are standard equipment.

The A4D-6 is an advanced version of the A4D-5 incorporating an enlarged fuselage and wing, installation of the JTF10A-8 turbofan engine, nose wheel steering, nose gear catapult tow, wing tank compartmentation, increased internal fuel capacity, and increased cockpit-canopy size.

The structure of the A4D-6 is conventional, with an all-metal, semi-monocoque fuselage and a modified delta wing. Landing gear, flaps, spoilers, and speed brakes, as well as aileron, elevator and rudder systems are hydraulically operated. Wing leading edge slats are aerodynamically actuated. An electrically operated, fully adjustable stabilizer is used to trim throughout the normal flight range. Manual control is provided for emergencies. An automatic flight control system is provided.

DEVELOPMENT*

Proposed authority to proceed October, 1962
Proposed first flight March, 1964
Proposed first fleet delivery (12th aircraft)..... August, 1965

*REF: Report 30970 Program Summary

DIMENSIONS

Span 30.5 ft
Length 47.4* ft
Height 15.8 ft
Max. Tread 10.8 ft
Wing Area 308 sq ft
Spotting Factor 1.10 (compared to A4D-5)

*without refueling probe

POWER PLANT

No. and Model.. (1) JTF10A-8
Mfr. Pratt & Whitney
Type Turbofan
Length 125 in.
Diameter 38 in.
Assist Device
Two 5KS-4500 JATO Units

RATINGS

Military 11,350 lb
Normal 9,100 lb
Assist Device
JATO (2) 4,500 lb each

WEIGHTS

Loadings	Pounds	Load Factor
Empty (E)	11,150	
Basic	11,313	
Flight Design	18,199	7.0
Combat	16,164	7.0
Max. Design	25,531	5.0
Overload.....	27,531	4.6
Landing Design		
Landplane	17,574	
Carrier	16,600	

FUEL AND OIL

Gal.	No. Tanks	Location
680	1	Wing
420	1	Fuselage
In-Flight Fueling Provisions		
Fuel Spec	MIL-F-5624	

OIL

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

ELECTRONICS

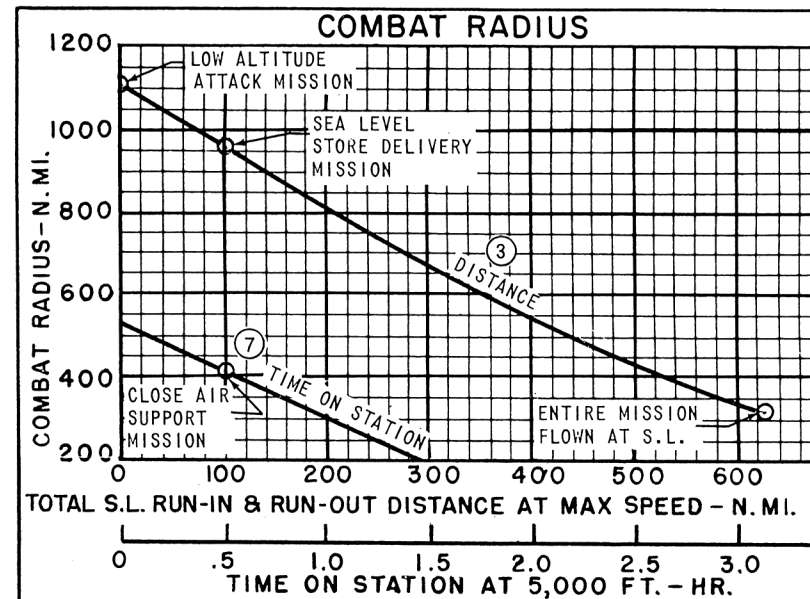
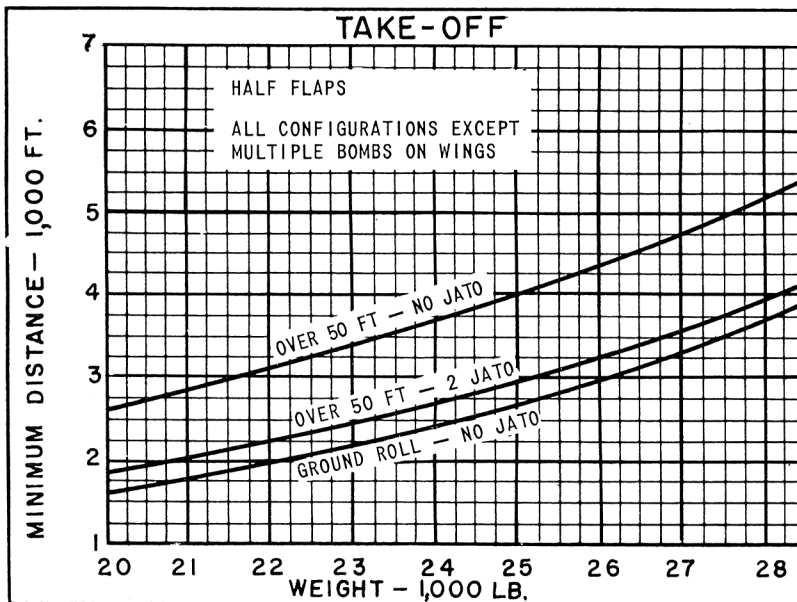
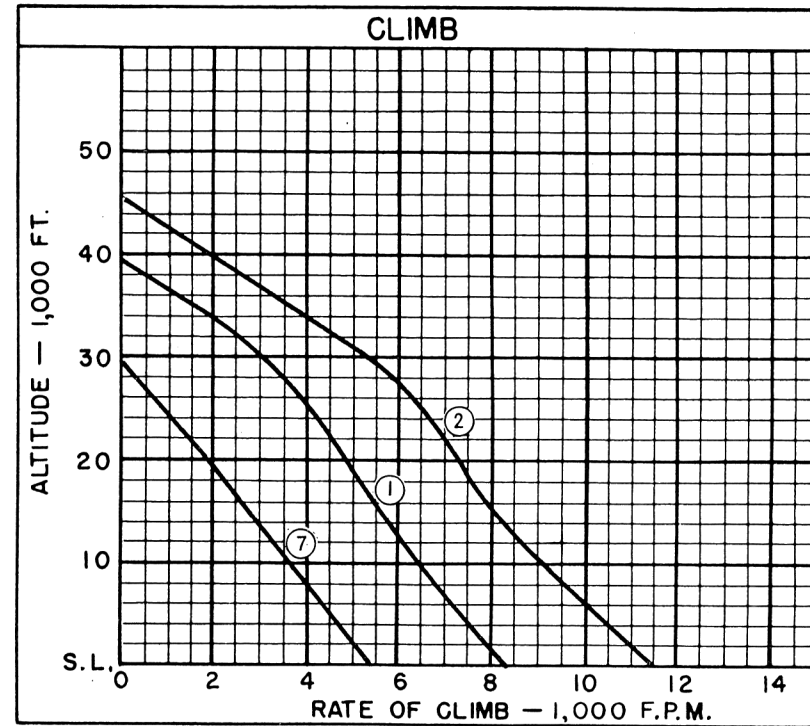
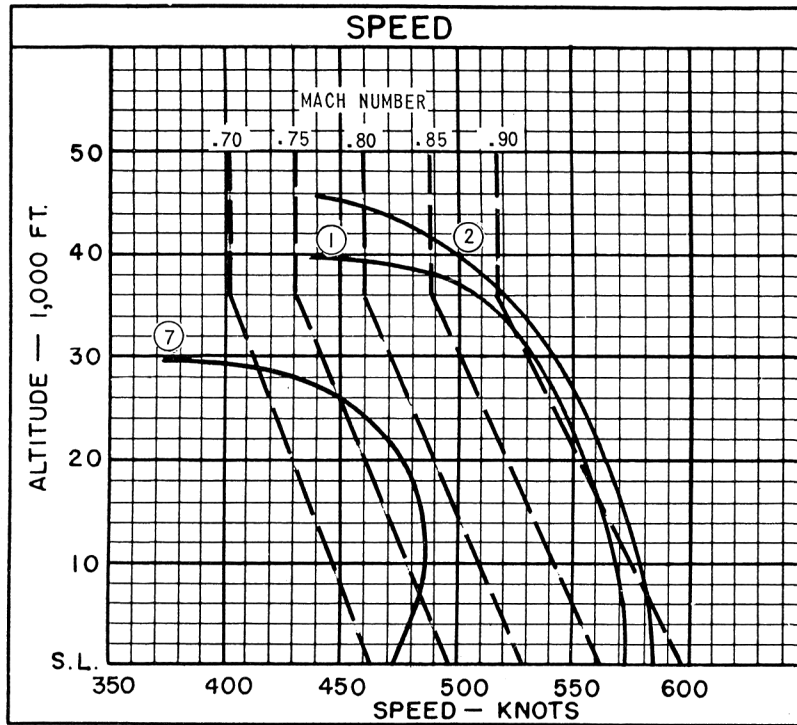
Electronics Central AN/ASQ-17B, consisting of:
UHF Communications
IFF
SIF
AN/ARA-25
Radio Nav. AN/ARN-52
Auto. Dead Reckoning .. AN/ASN-41
TAS Computer
Doppler
Radio Altitude AN/APN-141
Radar AN/APG-53A
Auto Pilot Douglas
LABS AN/AJB-3A
Store Arming DCU/75

PERFORMANCE SUMMARY					
TAKE-OFF LOADING CONDITION	(1) SEA LEVEL STORE DELIVERY 1-MK 43	(3) SEA LEVEL STORE DELIVERY 1-MK 43 2-300 GAL TANKS	(5) CLOSE AIR SUPPORT 3-1000 LB MK 83 2-500 LB MK 82	(7) CLOSE AIR SUPPORT 1-6x500 LB MK 82 2-6x250 LB MK 81	
TAKE-OFF WEIGHT lb.	21,191	25,784	21,553	26,424	
Fuel - Internal/External (JP-5) lb/lb.	7480/NONE	7480/4080	4979/NONE (A)	7480/NONE	
Payload lb.	2035	2035	4000	6000	
Wing loading lb./sq. ft.	68.7	83.7	69.9	85.7	
Stall speed - power-off kn.	120	135	123	138	
Take-off run at S.L. ft.	1830	2900	1900	3180	
Take-off to clear 50 ft. - no JATO ft.	2900	4280	3000	4600	
Take-off to clear 50 ft. - with JATO ft.	2170	3350	2240	3620	
Max. speed/altitude kn./M/ft.	573/.88/3000	545/.85/7500	549/.86/8500	486/.77/12,500	
Rate of climb at S.L. fpm	8350	6150	7650	5300	
Time: S.L. to 20,000 ft. min.	3.1	4.6	3.6	6.0	
Time: S.L. to 30,000 ft. min.	5.6	10.5	7.2	—	
Service ceiling (100 fpm) ft.	39,200	33,400	37,400	29,400	
Combat range n.mi.	1650	2290		840	
Average cruising speed kn.	429	427		396	
Cruising altitude(s) ft.	34,800 - 41,600	30,600 - 41,100		27,300 - 33,100	
Combat radius/Mission time n. mi./hr.	580/2.7	960/4.5	300/1.9	410/2.6	
Average cruising speed kn.	430	427	423	409	
IFR - Radius/Mission time (B) n.mi./hr.		1450/6.9			
IFR - Fuel transferred/Distance (B) lb./n.mi.		4794/743			
COMBAT LOADING CONDITION	(2) STORE RELEASED	(4) TANKS DROPPED STORE RETAINED	(6) STORES RETAINED	(8) STORES RETAINED	
COMBAT WEIGHT lb.	16,164	21,308	19,561	23,432	
Engine power	Military	Military	Military	Military	
Fuel	60% Internal	Full Internal	60% Internal	60% Internal	
Combat speed/combat altitude kn./M/ft.	584/.88/S.L.	563/.85/S.L.	550/.85/5000	483/.74/5000	
Rate of climb/combat altitude fpm/ft.	11,450/S.L.	8150/S.L.	7650/5000	5350/5000	
Combat ceiling (500 fpm) ft.	44,100	37,600	38,300	29,900	
Rate of climb at 35,000 ft. fpm	3550	1350	1450	—	
Max. speed at 35,000 ft. kn./M	525/.91	502/.87	490/.85	—	
Max. speed/altitude kn./M/ft.	584/.88/S.L.	566/.87/6000	551/.86/8500	490/.78/13,500	
LANDING WEIGHT lb.	12,484	12,820	13,293	13,813	
Fuel lb.	808	1027	719	869	
Stall speed - power-off/Appr pwr kn./kn.	92/88	93/89	95/91	97/92	
Dist.-Ground run/over 50 ft. ft./ft.	2030/2740	2080/2790	2140/2850	2210/2920	

NOTES

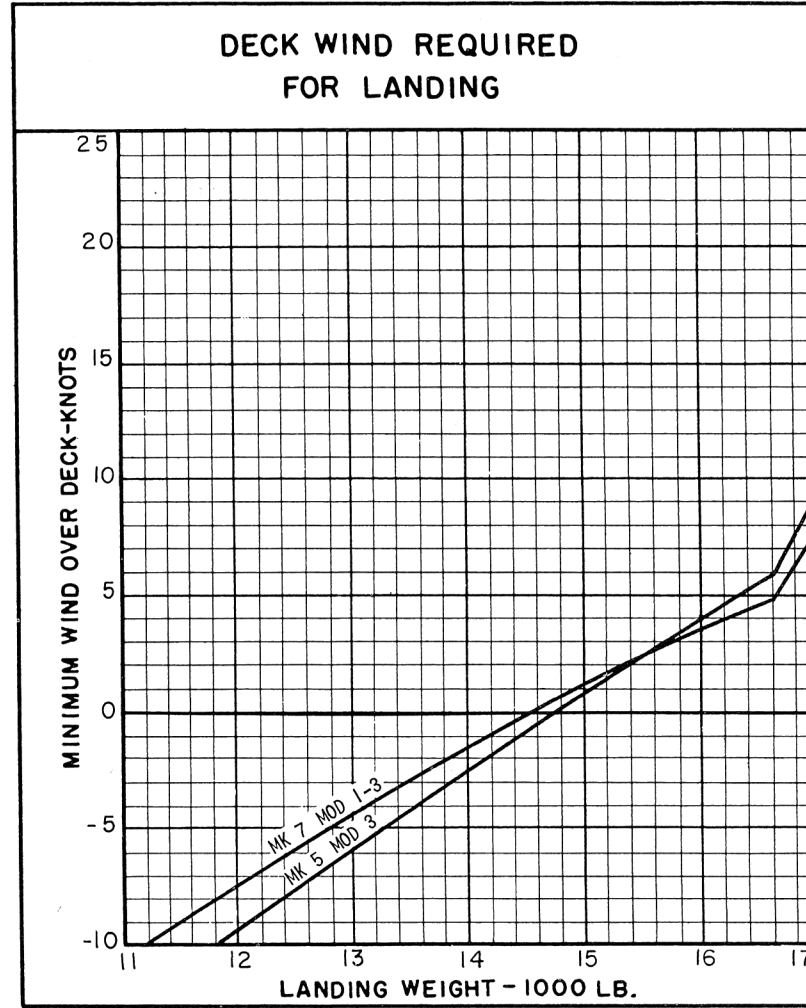
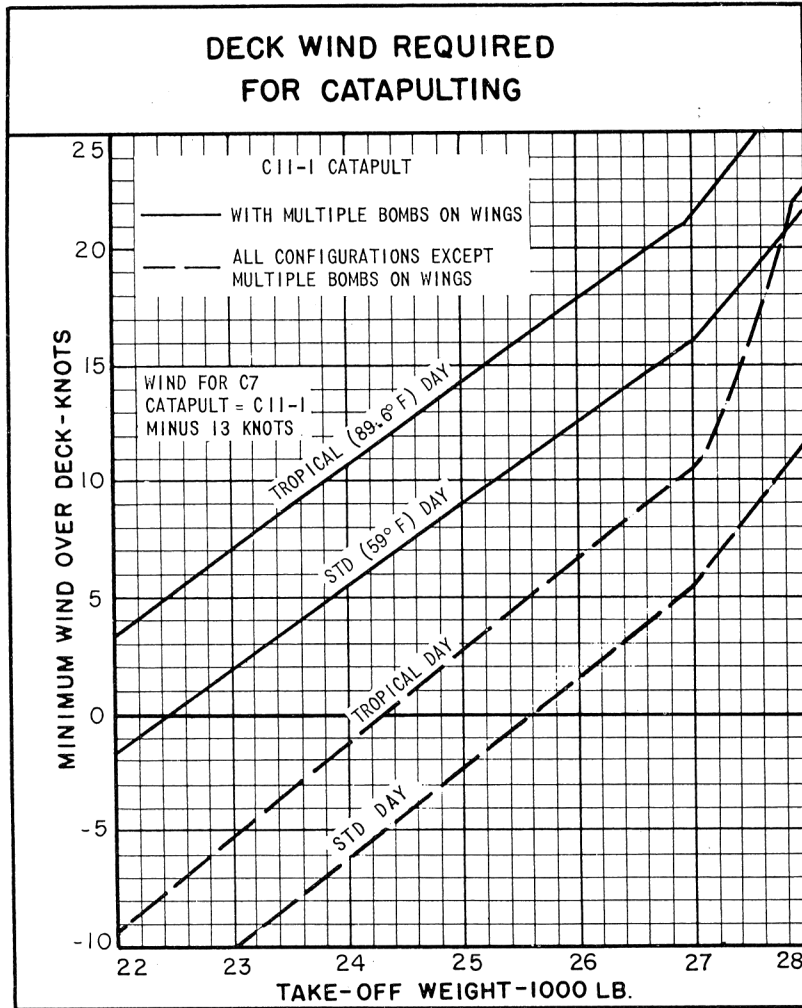
- (A) Fuel required for 300 n.mi. radius and 30 min. time on station.
- (B) One buddy air fueling—fuel transferred at 30,000 ft. altitude.
- (C) All loadings include air fueling probe. Loadings (5), (6), (7), and (8) include guns and 500 rounds of ammunition.

- (D) Performance Basis: Contractor and NATC Flight Test Data on the A4D-1, -2, -2N. Fuel consumption based on P&W JTF10A-8 preliminary engine data increased 5%.
- (E) Operational Spotting: A total of 108 aircraft with air fueling 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 are derived from a correlation with NATC minimums shown in A4D launching bulletin No. 8-36D.

Below a take-off weight of 26,980 lb on the C11-1 catapult and 26,920 lb on the C7 catapult, the catapult end speed is limited by a maximum peak acceleration of 5.66g. Above these take-off weights the catapult end speed is limited by a maximum tow force of 146,500 lb.

Approach speed based on speeds approved by NATC for A4D-2 & -2N and corresponds to 1.23 $V_{S.L.}$ no wing stores.

Good for all configurations.

Below a landing weight of 16,600 lb the engaging speed is limited by a maximum horizontal load factor of 5.67g. Above this landing weight the engaging speed is limited by a maximum horizontal hook load of 94,220 lb.

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.

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

HOLD ON STATION: For 30 minutes 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.

