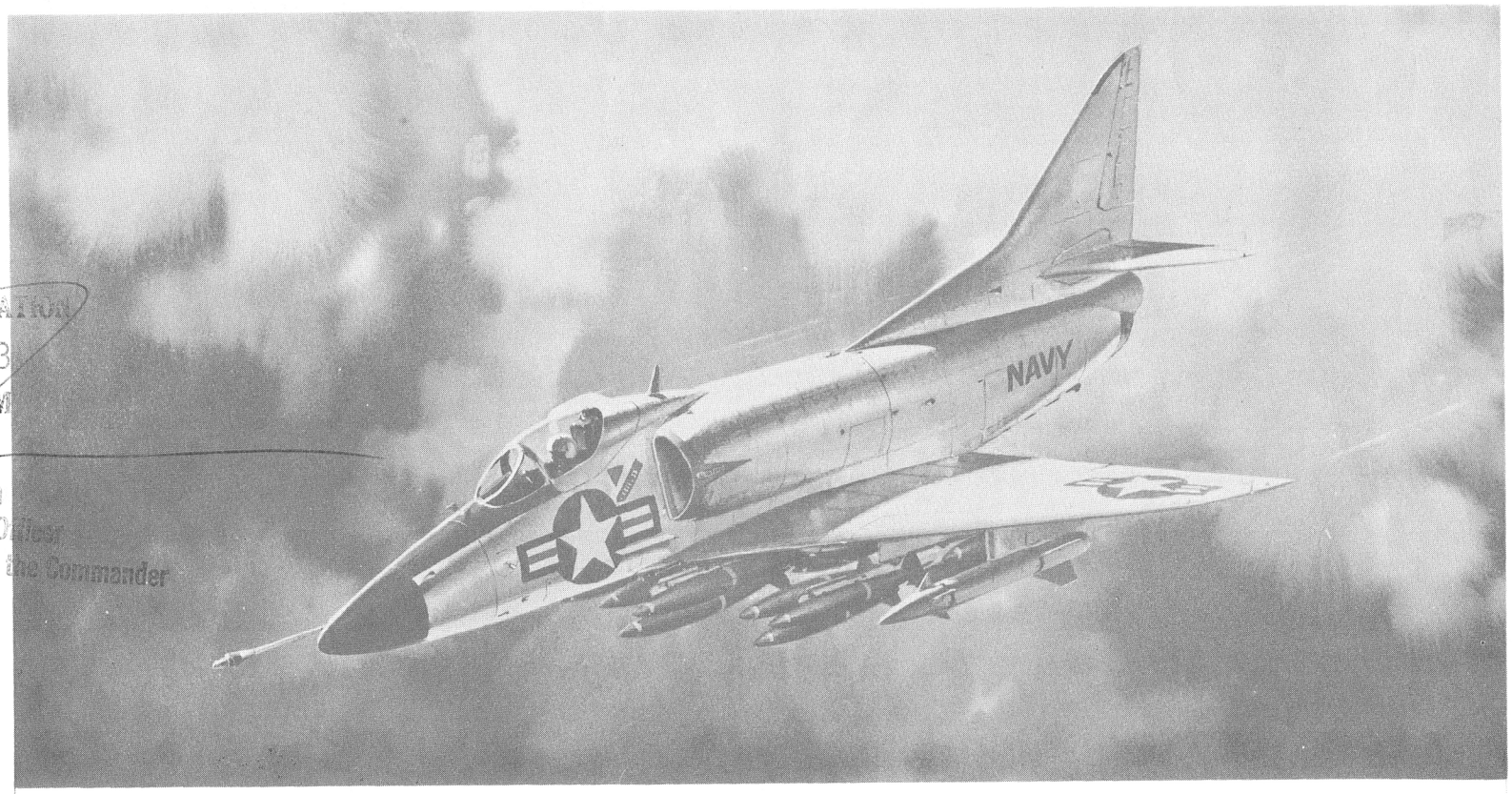
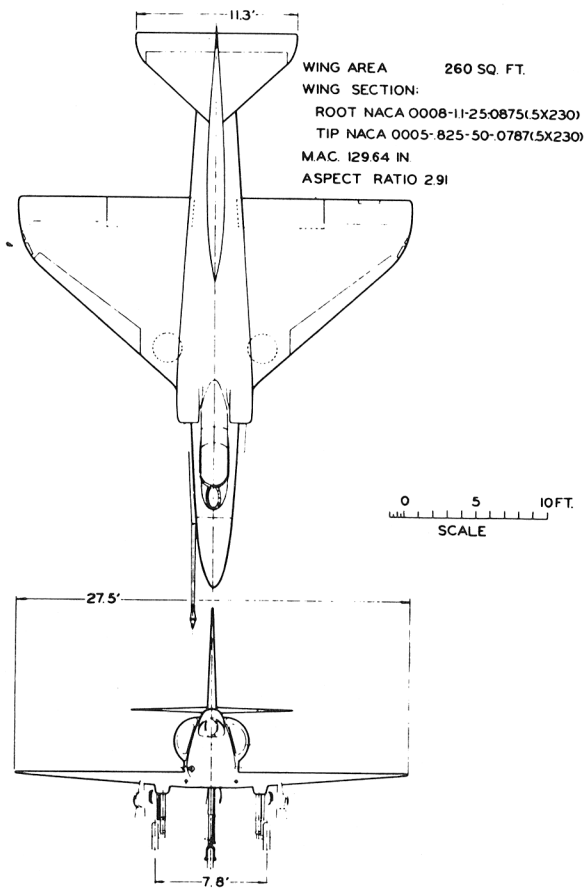


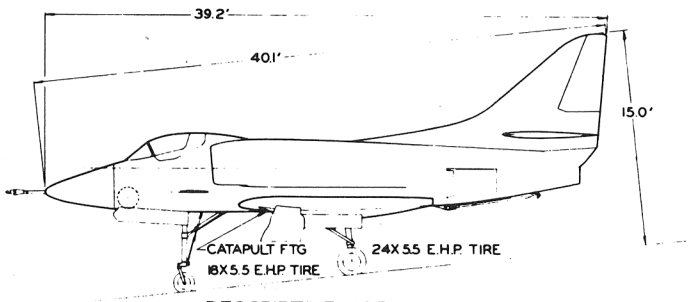
STANDARD AIRCRAFT CHARACTERISTICS

A4D-5 SKYHAWK

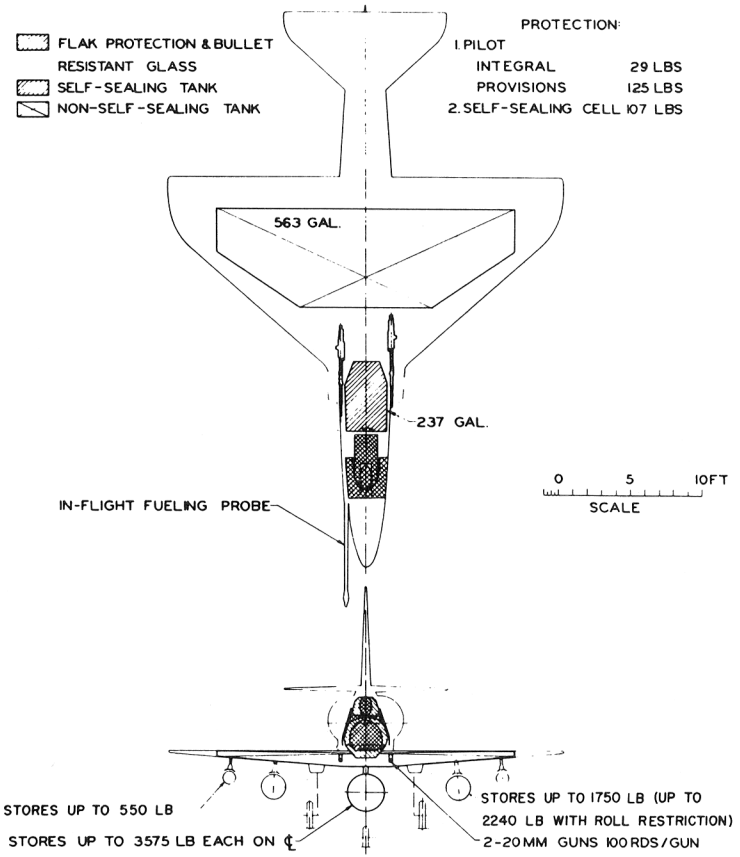
DOUGLAS AIRCRAFT COMPANY, INC., EL SEGUNDO DIVISION

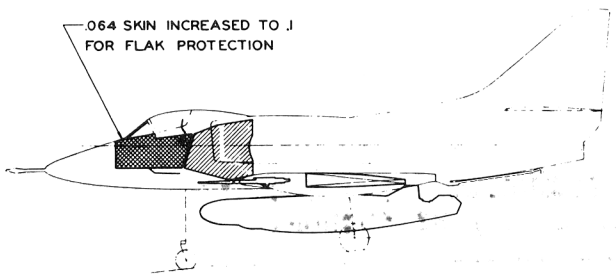
15 APRIL 1961





DESCRIPTIVE ARRANGEMENT





ARMAMENT & TANKAGE

ORDNANCE

FUSELAGE

Bombs	6-MK 81 (250 lb) or 6-MK 82 (500 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.	20.5 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	5.6
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
IFF
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	③ SEA LEVEL STORE DELIVERY 1-2025-LB STORE 2-300-GAL TANKS	⑤ CLOSE AIR SUPPORT 1-6X500-LB CLST 2-6X250-LB CLST	⑦ CLOSE AIR SUPPORT 1-300-GAL TANK 2-6X250-LB CLST 2-500-LB STORES	⑨ 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	79.0
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.	1020	1730	470	890	1080
Average cruising speed	kn.	437	435	404	418	421
Cruising altitude(s)	ft.	36,000-41,000	31,000-40,400	29,600-33,900	30,600-37,000	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		② STORE RETAINED	④ TANK DROPPED STORE RELEASED	⑥ BOMBS RELEASED	⑧ 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/combat altitude	kn./M/ft.	577/.87/S.L.	578/.87/S.L.	547/.84/5000	500/.77/5000	531/.82/5000
Rate of climb/combat altitude	fpm/ft.	9850/S.L.	9600/S.L.	8800/5000	5050/5000	6050/5000
Combat ceiling (500 fpm)	ft.	42,700	42,200	43,100	32,600	36,200
Rate of climb at 35,000 ft.	fpm	3200	3050	2950		850
Max. speed at 35,000 ft.	kn./M	520/.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	869
Stall speed - power-off/Appr. 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

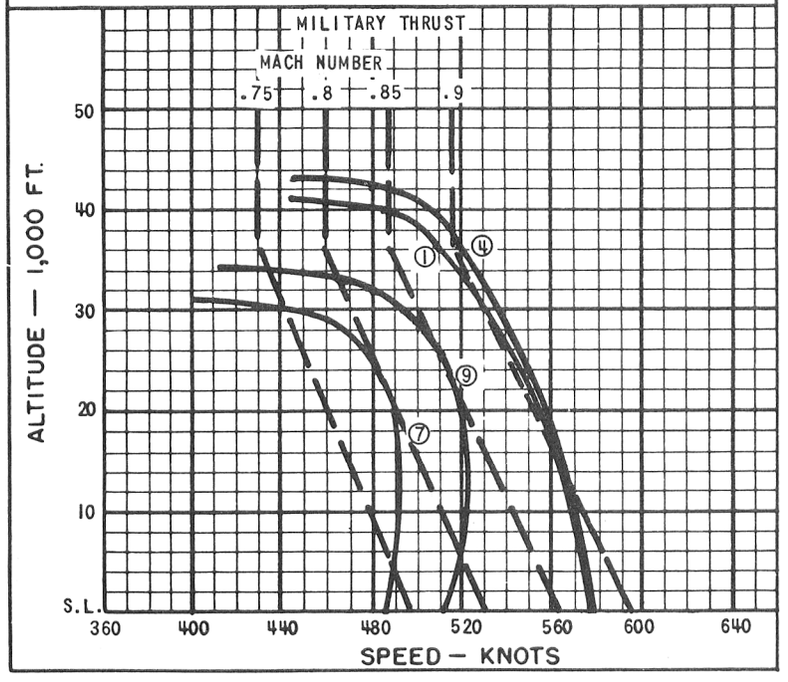
(A) One Buddy air fueling - fuel transferred at 30,000 ft. altitude.

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

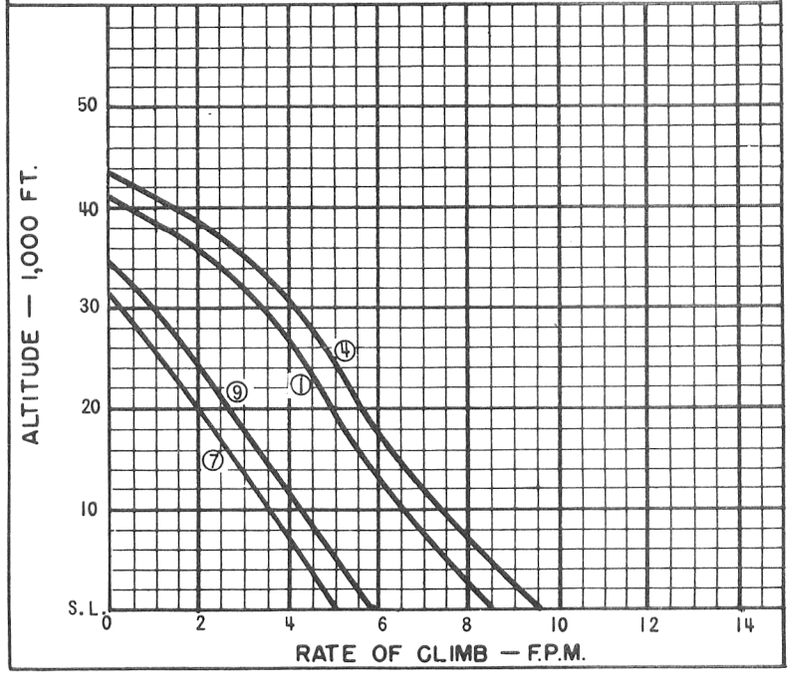
(C) Performance Basis: Contractor and NATC Flight Test Data on the Model(s) A4D-1,-2,-2N. Fuel consumption based on P & W J52-P-6 Engine Spec. No. N-1731-A dated 5-20-60 increased 5%.

(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.

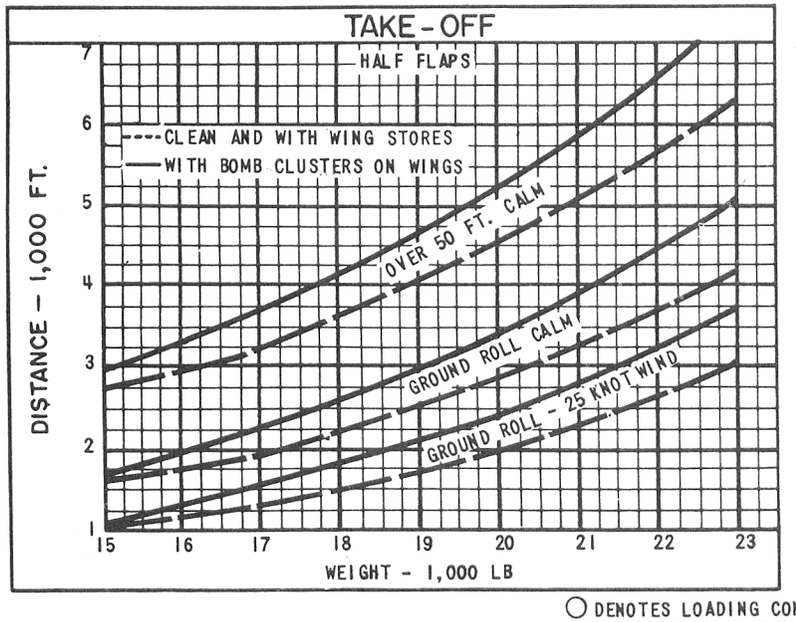
SPEED



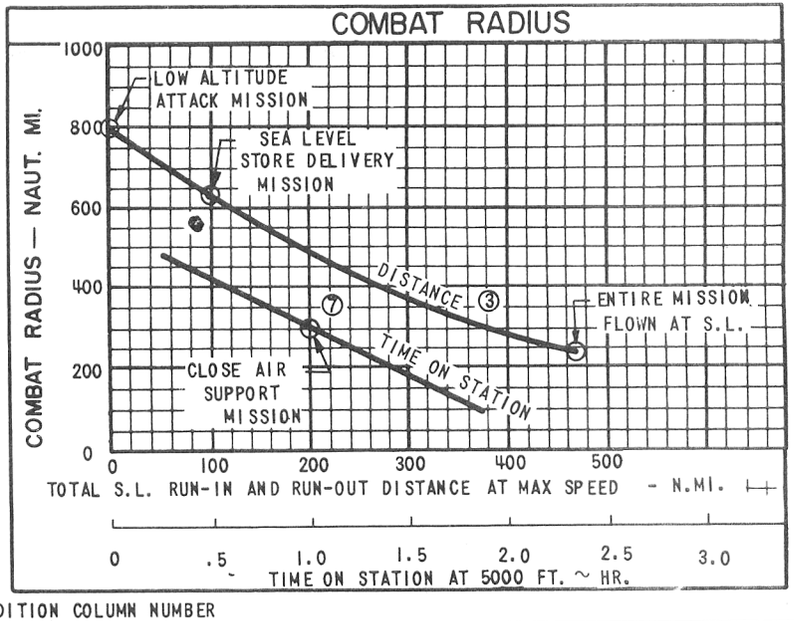
CLIMB



TAKE-OFF



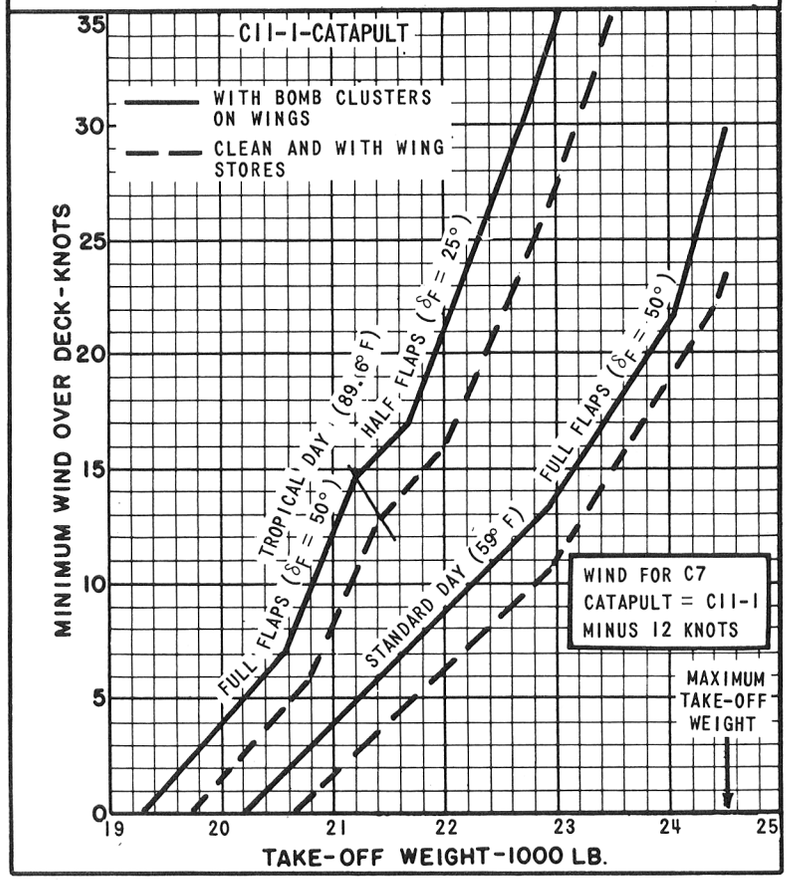
COMBAT RADIUS



○ DENOTES LOADING CONDITION COLUMN NUMBER

CARRIER SUITABILITY

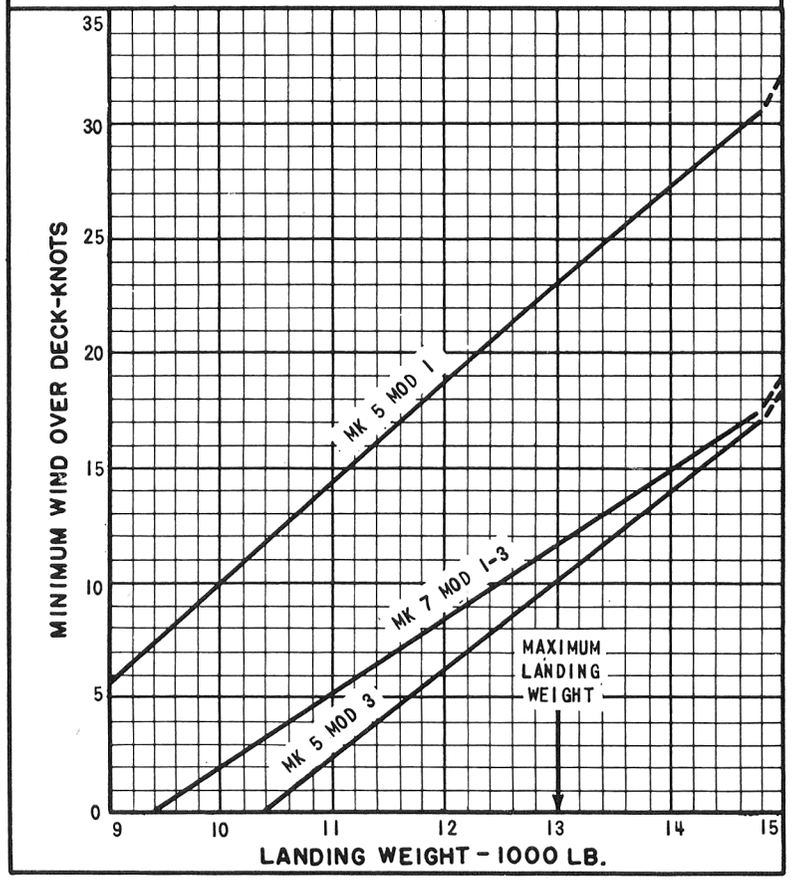
DECK WIND REQUIRED FOR CATAPULTING



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.

DECK WIND REQUIRED FOR LANDING



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).

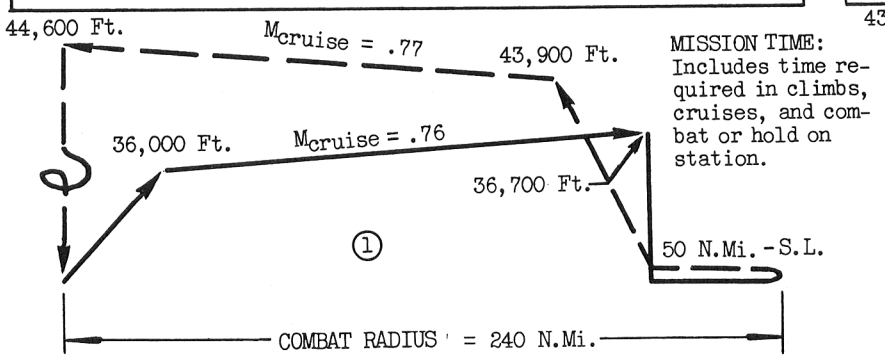
HOLD ON STATION: For one hour at maximum endurance speed at 5,000 ft altitude then drop bombs.

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.



MISSION TIME: Includes time required in climbs, cruises, and combat or hold on station.