

STANDARD AIRCRAFT CHARACTERISTICS

AD-3 "SKYRAIDER"

DOUGLAS

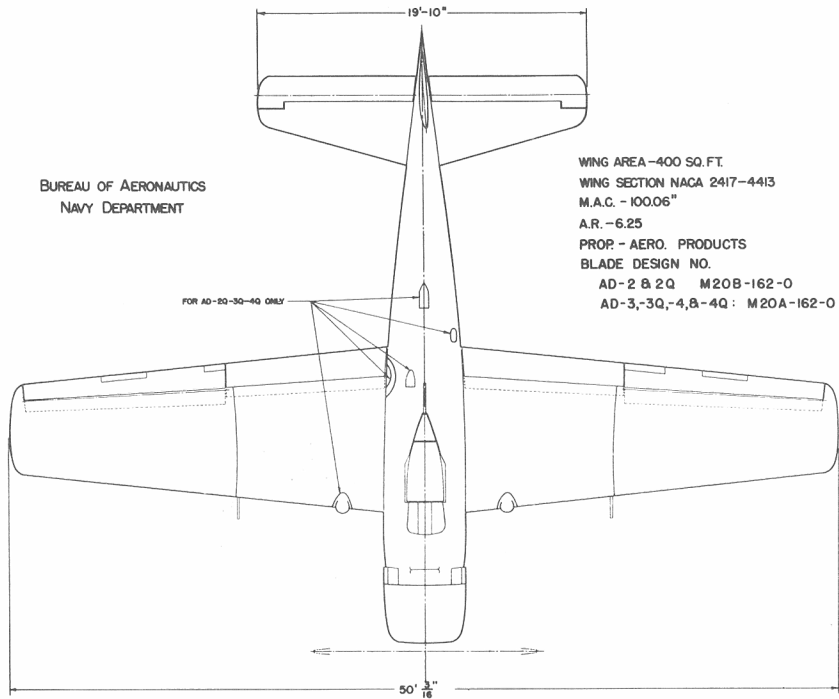
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W. Kline
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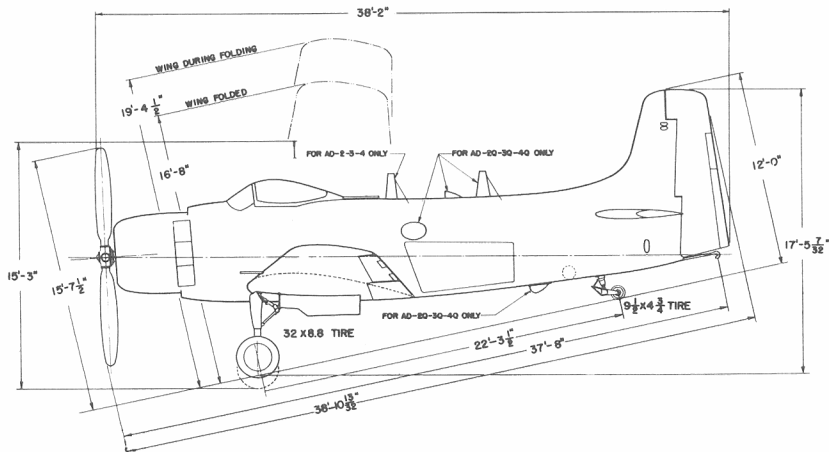
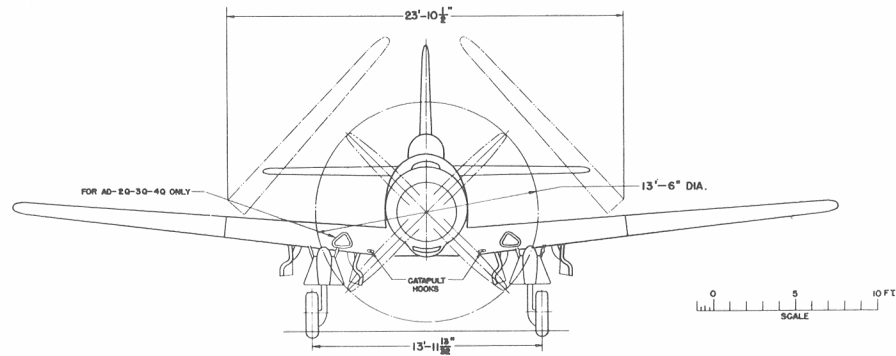
CONGRESSIONAL AND
PUBLIC AFFAIRS OFFICE
NAVAL AIR SYSTEMS COMMAND

Standard Aircraft Characteristics NAVAER 1335A (REV. 1-49)

BUREAU OF AERONAUTICS
NAVY DEPARTMENT



WING AREA - 400 SQ. FT.
WING SECTION NACA 2417-4413
M.A.C. - 100.06"
A.R. - 6.25
PROP - AERO. PRODUCTS
BLADE DESIGN NO.
AD - 2 & 2Q M20B-162-0
AD - 3, -3Q, -4, & -4Q: M20A-162-0



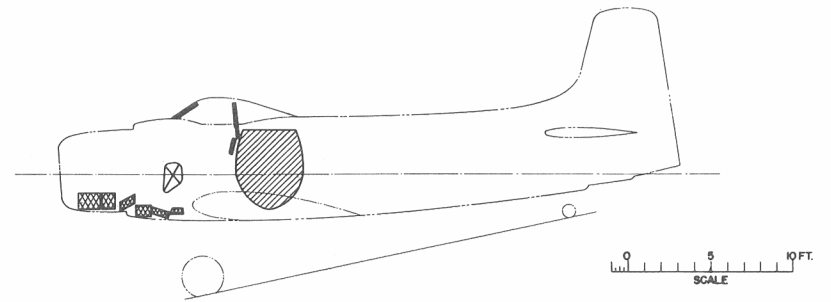
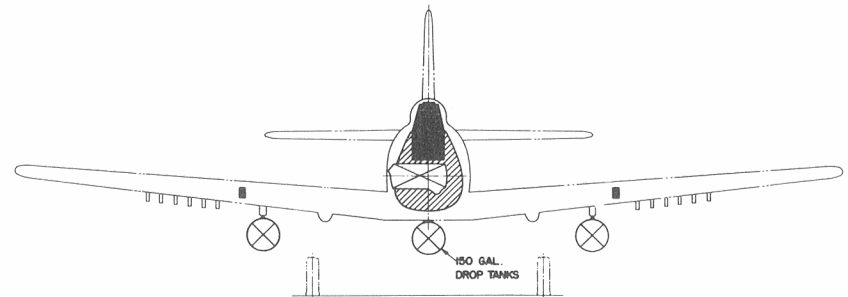
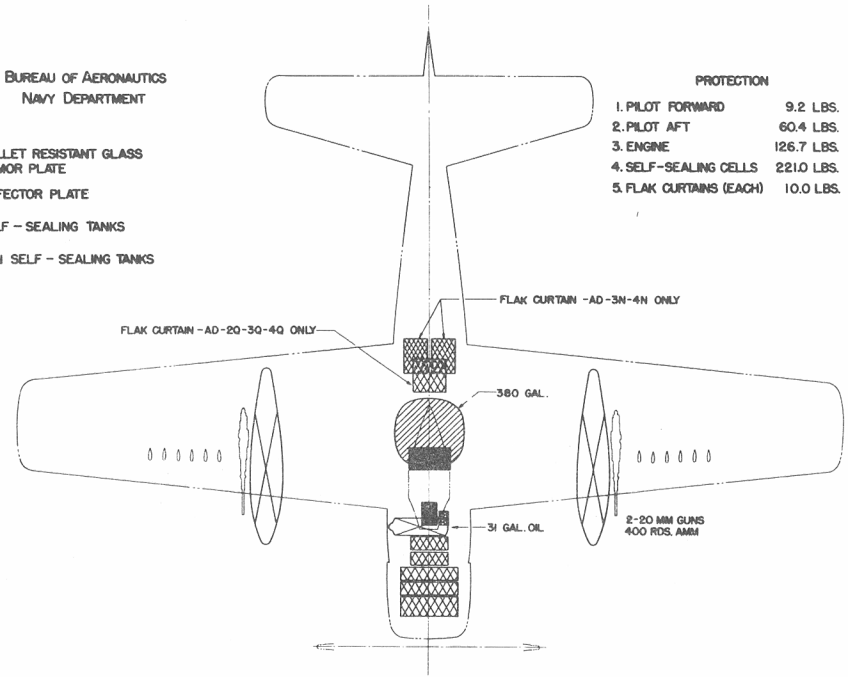
DESCRIPTIVE ARRANGEMENT

BUREAU OF AERONAUTICS
NAVY DEPARTMENT

- BULLET RESISTANT GLASS ARMOR PLATE
- DEFECTOR PLATE
- SELF-SEALING TANKS
- NON SELF-SEALING TANKS

PROTECTION

- | | |
|-------------------------|------------|
| 1. PILOT FORWARD | 9.2 LBS. |
| 2. PILOT AFT | 60.4 LBS. |
| 3. ENGINE | 126.7 LBS. |
| 4. SELF-SEALING CELLS | 221.0 LBS. |
| 5. FLAK CURTAINS (EACH) | 10.0 LBS. |



ARMAMENT AND TANKS

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MISSION AND DESCRIPTION

The primary mission of the AD-3 is the destruction of sea and ground targets by dive bombing attacks. The airplane is also capable of torpedo, glide bombing and rocket attacks. The AD-3 is designed to operate from all classes of naval aircraft carriers or from land bases.

The airplane is conventional in design and structure. Landing gear, canopy, slotted flaps, wing folding, and three fuselage dive brakes are hydraulically operated. The pressure-balance type ailerons are operated by power boost. The rudder is equipped with a spring tab system. Longitudinal trim is achieved by an electrically adjustable stabilizer. Elevators and interchangeable power plant are conventional with a monocoque engine mount. Oxygen for five hours is supplied. Bomb displacing gear at the centerline station is powder operated by a standard engine starter cartridge. Twenty gallons of ADI fluid are supplied for injection.

DIMENSIONS

WING AREA.....400 sq. ft.
SPAN.....50' - 0"
LENGTH.....38' - 2"
HEIGHT.....15' - 8"
TREAD.....13' - 11"
M.A.C.....8' - 4"
PROP. CLEAR.....6"

WEIGHTS

Loadings	Lbs.	L.F.
EMPTY.....	10,812
BASIC.....	11,284
DESIGN.....	15,600	7.0
COMBAT.....	14,378	7.0
MAX.T.O..(Cat.)..	19,700	5.5
(Field).....	23,378*	4.5
MAX.LD.(Smooth).....	19,000
(Rough).....	16,800
(Arrest).....	17,000
(Qualif.).....	15,600

*Tentative

All weights are actual.

FUEL AND OIL

Gal.	No. Tanks	Location
380	1	Fuse, S.S.
150	1	Ctr., Drop
300	2	Wing, Drop

FUEL GRADE.....115/145

FUEL SPEC.....AN-F-48

OIL

CAPACITY (GALS.).....31
GRADE.....1120
SPEC.....AN-O-8

ELECTRONICS

RANGE REC.....AN/ARC-5
HOMING.....AN/ARR-2A
VHF.....AN/ARC-1
RADIO ALTIMETER.....AN/APN-1
IFF.....AN/APX-2A
SEARCH.....AN/APS-4

POWER PLANT

NO. & MODEL....(1) R-3350-26W
MFR.....Wright
SUPERCH.....1 Stage, 2 Speed
PROP. GEAR RATIO.....0.4375
PROP. MFR.....Aero Prod
PROP. DES. NO.....M20A-162-0
NO. BL./DES.....4/13'-6"

RATINGS

	Bhp @	Rpm @	Alt.
T. O.	2,700	2,900	S. L.
COMBAT	3,020	2,900	S. L.
	2,570	2,600	8,900'
MIL.	2,700	2,900	3,700'
	2,100	2,600	14,500'
NORMAL	2,300	2,600	S. L.
	1,900	2,600	17,100'
SPEC. NO.	N-836		

ORDNANCE

<u>GUNS</u>			
No.	Size	Location	Rds.
2	20 mm	Wing	400

BOMBS & ROCKETS

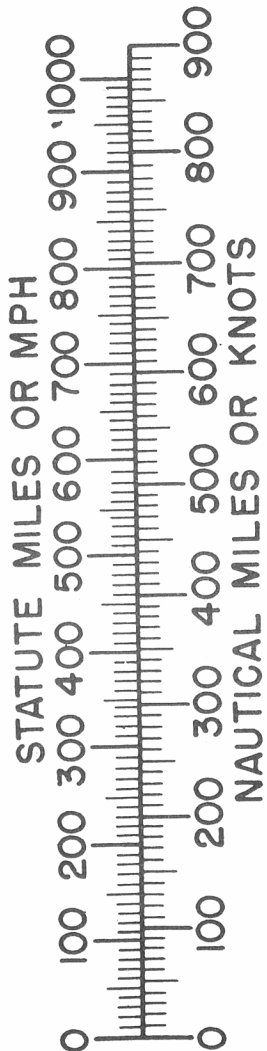
Type	Size	Location	No.
HVAR	5"	Wing	12
A.R.	11.75"	Wing	2
Torp.	Mk-13	External	3
D.B.	325#	External	3
Bomb	500#	External	3
Bomb	2,000#	External	3
Mine	1,000#	External	3
Mine	2,000#	External	3

FIRE CONTROLS

Sighting Sys.....Mk 1 Mod 2
Bomb Director.....AN/ASG-10A

MAX. BOMB CAP.....9,000 lbs.

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PERFORMANCE SUMMARY				
LOADING CONDITION		(1) ATTACK 1-2000# Bomb 2-150 Gal. Ext. Tanks		(5) ATTACK 1-2000# Bomb AN/APS-4
TAKE-OFF WEIGHT	lbs.	18,515		16,520
Fuel (Fixed/Drop)	lbs.	2,280/1,800		2,280
Bombs	lbs.	2,000		2,000
Wing/Power Loading (A) lbs/sq.ft; lbs/bhp.		46.3/9.7		41.3/8.7
Stall Speed--Power off	kn.	82.0		77.7
Stall Speed--Power off - No Fuel	kn.	72.6		72.0
Stall Speed--Power on	kn.	77.0		72.8
Maximum Speed/Alt (B)	kn/ft.	272/18,300		279/18,300
Take-off Distance, deck -- calm	ft.	872		668
Take-off Distance, deck 25 kn.	ft.	419		304
Take-off Distance, Airport	ft.			
Rate of climb -- sea level (B)	ft/min.	2,310		2,760
Service Ceiling (B)	ft.	29,900		32,300
Time-to-climb 10,000 ft. (B)	min.	4.7		3.9
Time-to-climb 20,000 ft. (B)	min.	11.5		9.1
Combat Range/V av 15,000	ft. n.mi./kn.	1,515/182		785/174
Combat Radius/V av B-1	ft. n.mi./kn.	730/177		275/176
LOADING CONDITION		(2) COMBAT	(3) COMBAT	(4) COMBAT
GROSS WEIGHT	lbs.	14,378	14,378	14,378
Engine power		Combat	Military	Normal
Fuel	lbs.	2,280	2,280	2,280
Bombs/Tanks				
Max. speed at sea level	kn.	319	298	281
Max. speed/Alt	kn/ft.	324/10,700	318/16,200	315/18,700
Combat speed/Alt	kn/ft.	318/1,500	302/1,500	285/1,500
Rate of climb SL	ft/min.	4,530	4,060	3,450
Ceiling for 500 fpm R/C	ft.	33,900	33,900	33,900
Time-to-climb/Alt.	min/ft.			

NOTES

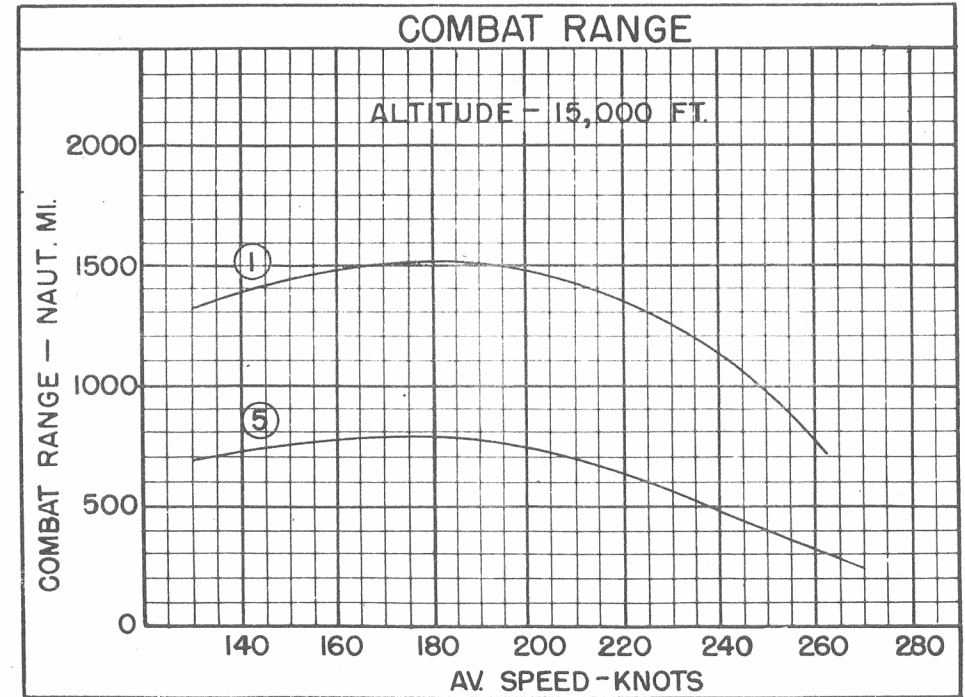
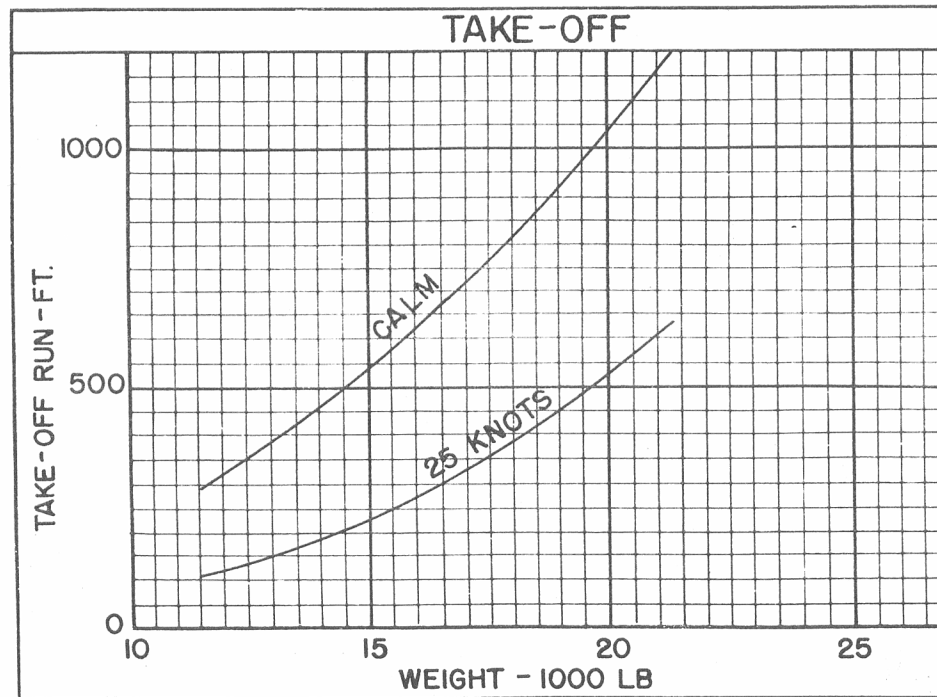
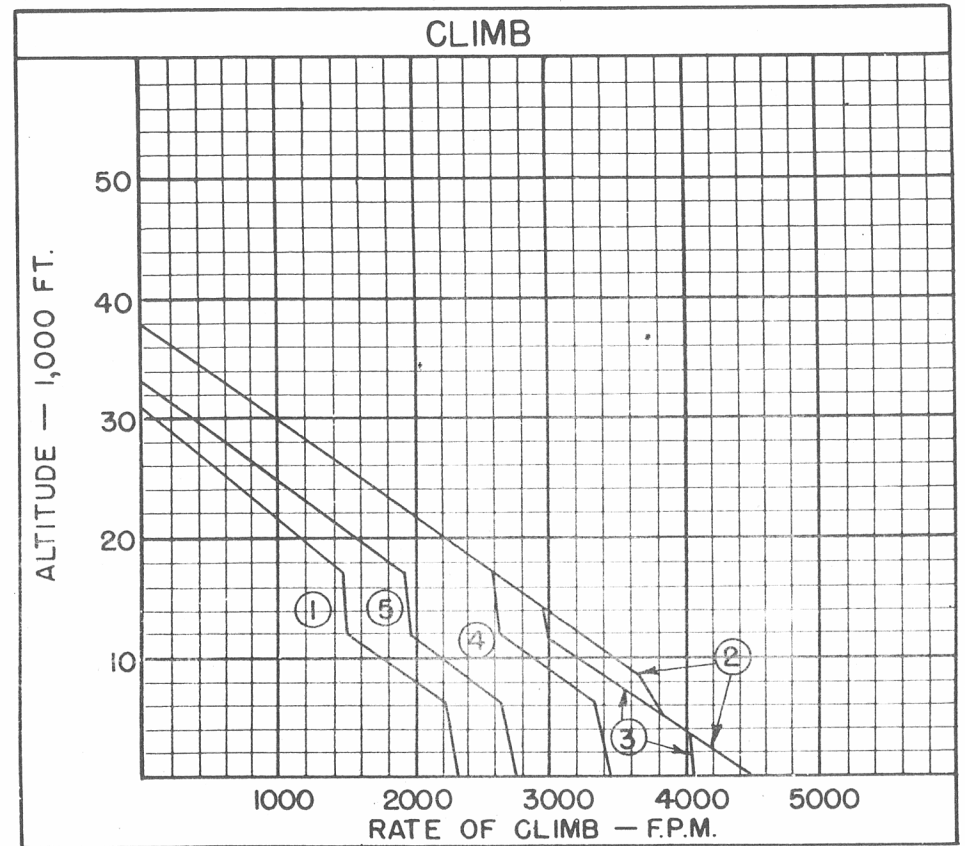
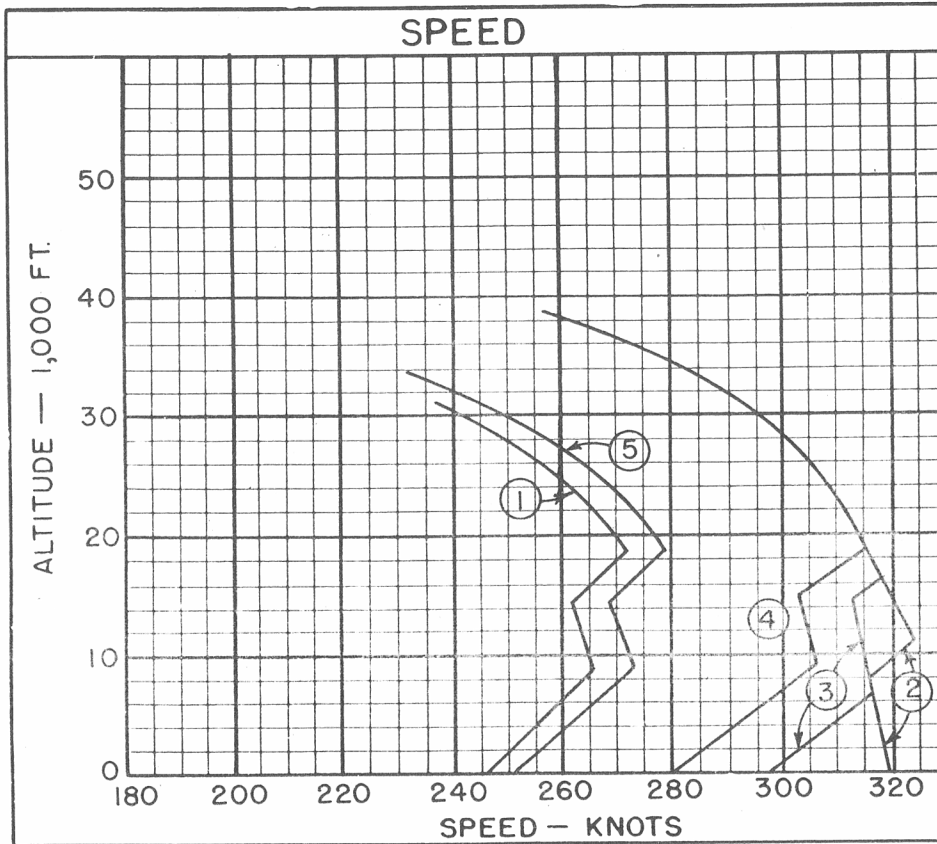
- (A) BHP at Maximum Critical Altitude
(B) Normal BHP

Performance is based on NATC flight test of AD-1 and AD-1Q.

Combat range and radius are based on engine manufacturer's specification fuel consumption data increased 5%.

Rocket launchers not aboard. Addition of 12 launchers to Cond. (2) reduces V_{max} . S. L. to 312 kn. and V_{max}/ACA to 317 kn./10,700 ft. Addition of 12 launchers and 12-5" HVAR increases gross weight of Cond. (2) to 16,102 lbs. and decreases V_{max} . S. L. to 293 kn. and V_{max}/ACA to 297 kn./10,700 ft.

012280
18
48
48



○ LOADING CONDITION COLUMN NUMBER

Standard Aircraft Characteristics NAVAER 1335E (REV. 1-49)

NOTES

All loadings include 2 Mk-51 wing bomb racks with sway bracing and fuselage bomb ejector with sway bracing.

AN/APS-4 radar is carried on port side wing bomb rack for Condition (5) only.

Twelve 100 lb. bombs or twelve 250 lb. bombs can be carried at Mk-9 rocket launcher positions by replacing launchers with Mk-55 bomb racks.

Twenty gallons of ADI fluid are available for 12 minutes at combat power.

200 ft. length is required to spot 20 planes on the 96 ft. wide deck immediately aft of the forward ramp on the CV-9 class carriers.

ATTACK COMBAT RADIUS FORMULS NO. B-1

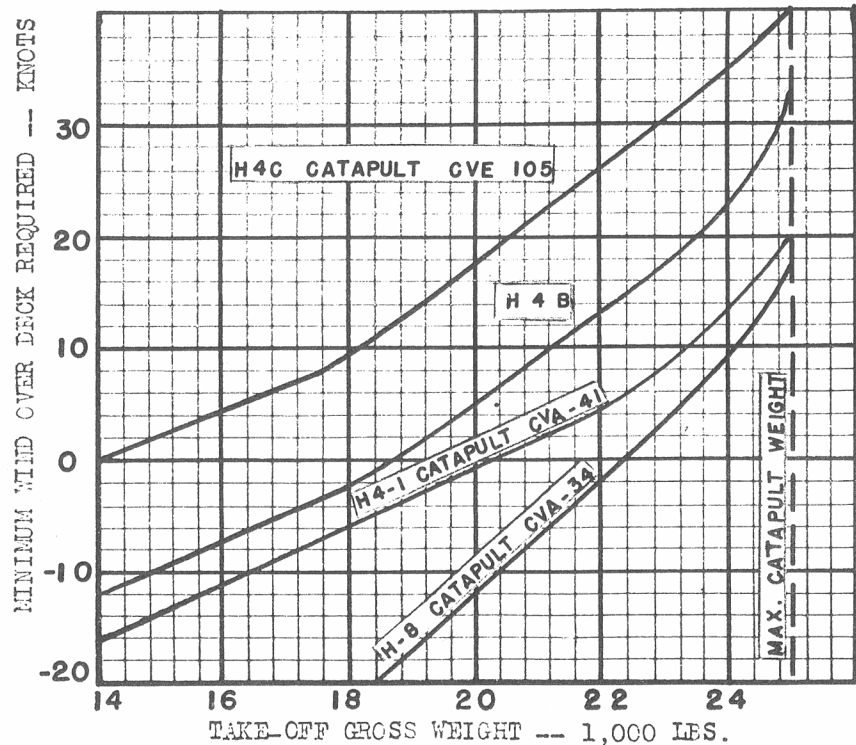
<u>WARM-UP</u> 20 min. ½ Normal RPM TAKE-OFF 1 min. at T.O.Pr.	<u>RENDEZVOUS</u> 20 min. at Sea Level at 60% N. Pr. Normal Mixture	<u>CLIMB</u> to 15000 ft. at Normal Power Normal Mixture	<u>CRUISE-OUT</u> at 15,000 ft. 180 kts. TAS Normal Mixture	<u>DROP TANKS</u> <u>DESCEND</u> to 1,500 ft. <u>DROP BOMBS</u> FIRE ROCKETS	<u>COMBAT</u> 15 min. at 1,500 ft. 5 min. combat and 10 min. N. Pr.	<u>CRUISE-BACK</u> at 1,500 ft. 170 kts. TAS Normal Mixture	<u>RESERVE</u> 60 min. at V for Max. Range at 1,500 ft. Normal Mixture
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RADIUS = CLIMB / CRUISE-OUT = CRUISE-BACK

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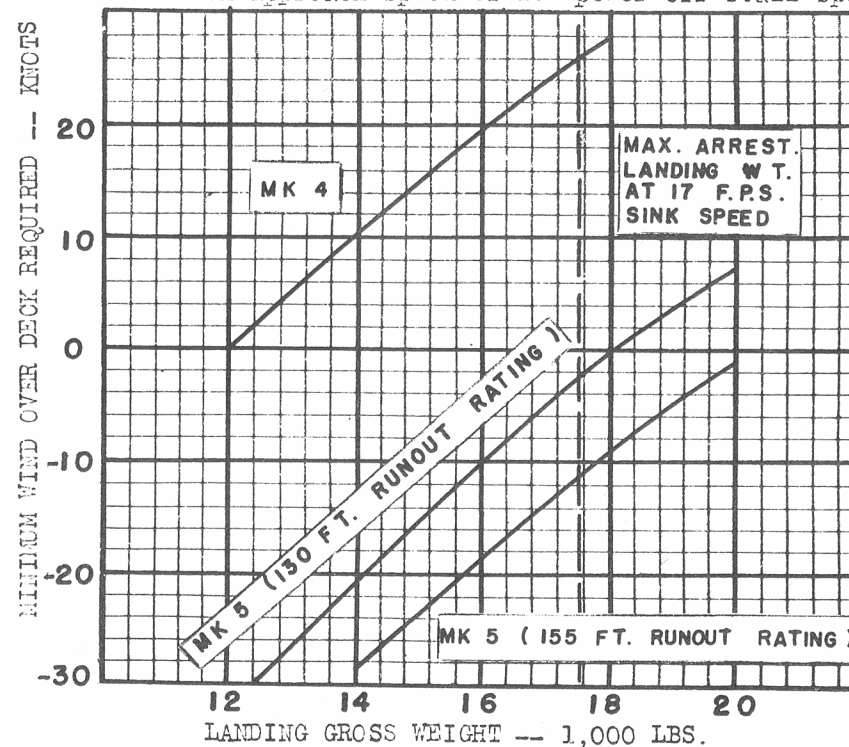
CARRIER SUITABILITY

MINIMUM WIND OVER DECK REQUIRED FOR CATAPULTING
VS. GROSS WEIGHT



MINIMUM WIND OVER DECK REQUIRED FOR LANDING
VS. GROSS WEIGHT

Based on approach speed of 1.2 power-off stall speed



NOTES

- (A) These curves should be used for planning purposes only. Actual catapult and arresting gear operation should be in accordance with applicable Aircraft Technical Orders, and Catapult and Arresting Gear Bulletins.
- (B) Based on NATC flight test.

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NAVAER-1335I (New 5-52)

