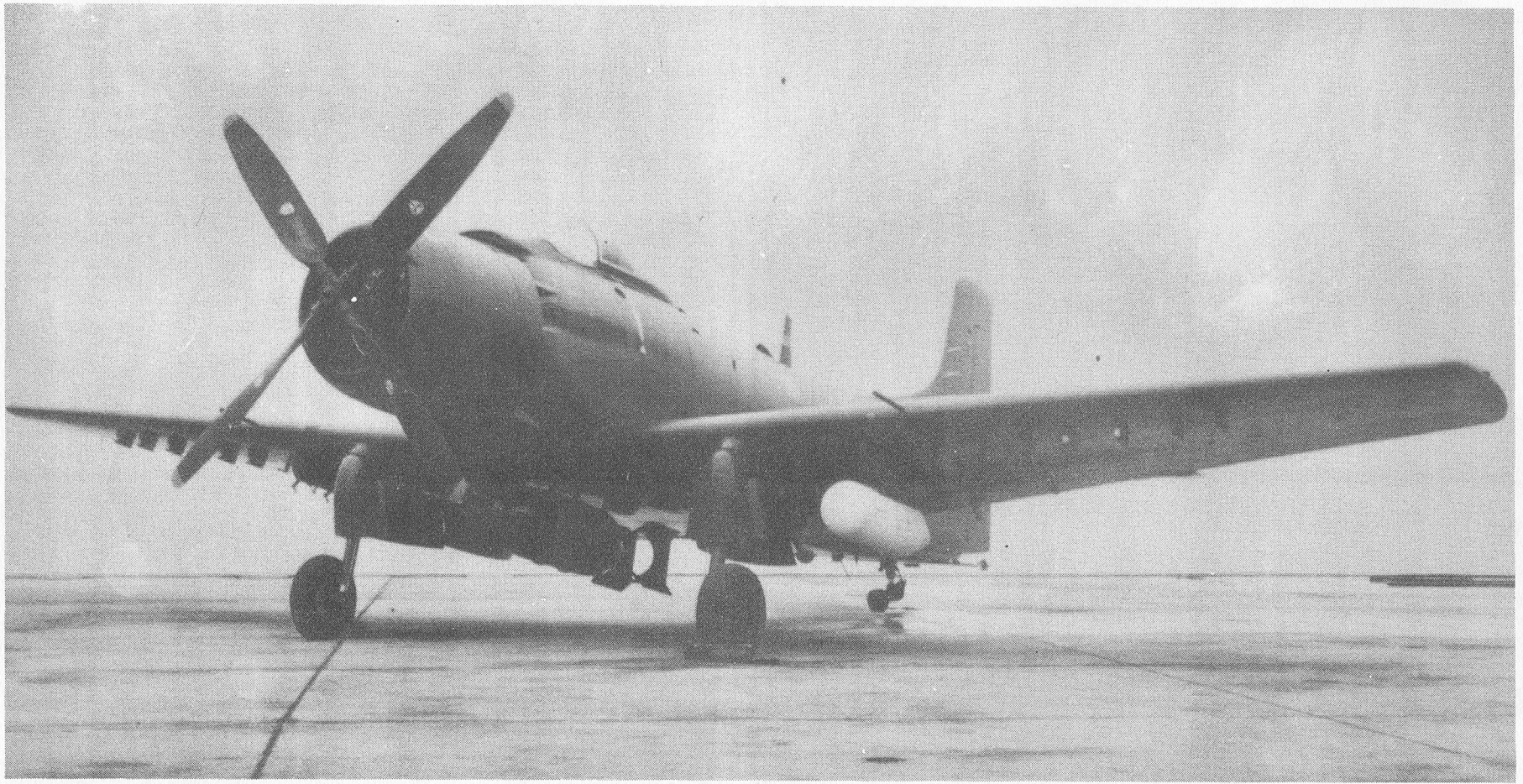


UNCLASSIFIED
RESTRICTED

SERVICE



STANDARD AIRCRAFT CHARACTERISTICS

AD-3N "SKYRAIDER"

DOUGLAS

UNCLASSIFIED

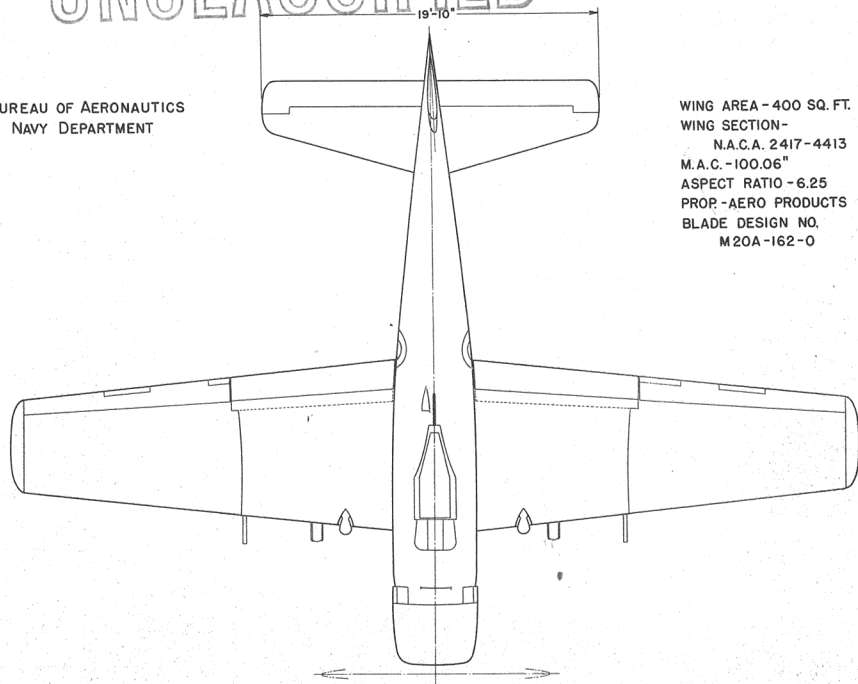
RESTRICTED

SERVICE

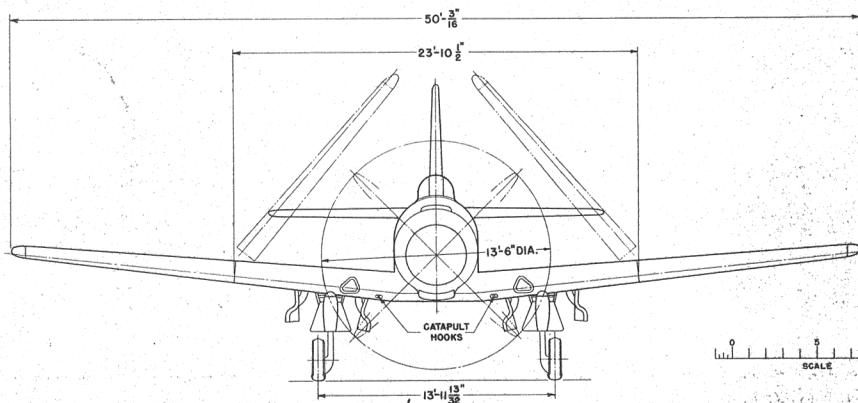
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RESTRICTED

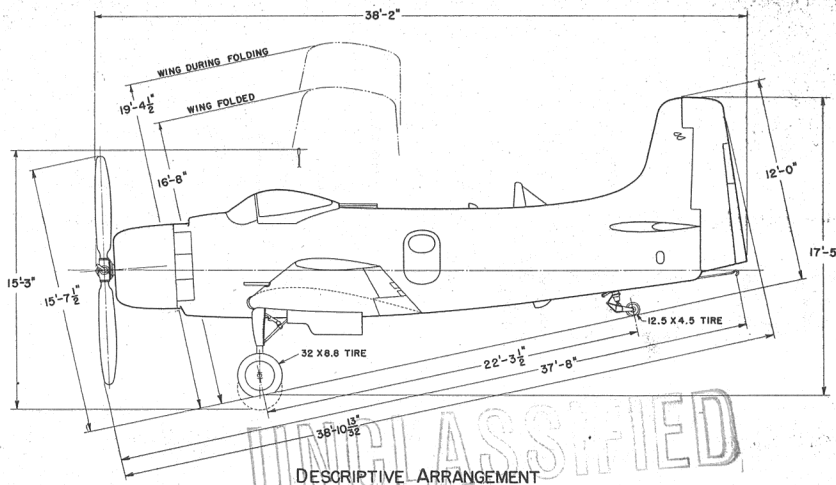
BUREAU OF AERONAUTICS
NAVY DEPARTMENT



WING AREA - 400 SQ. FT.
WING SECTION -
N.A.C.A. 2417-4413
M.A.C. - 100.06"
ASPECT RATIO - 6.25
PROP. - AERO PRODUCTS
BLADE DESIGN NO.
M20A-162-O



0 10 FT.
SCALE



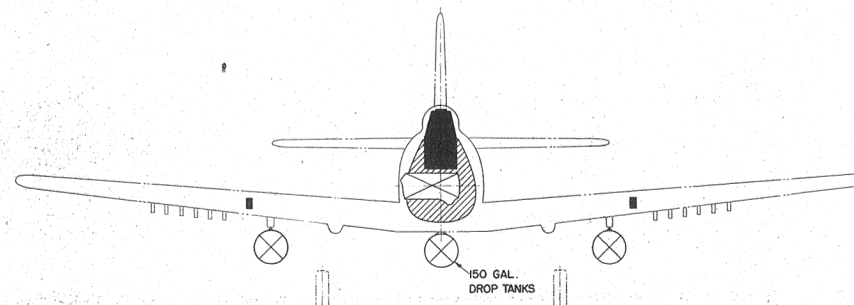
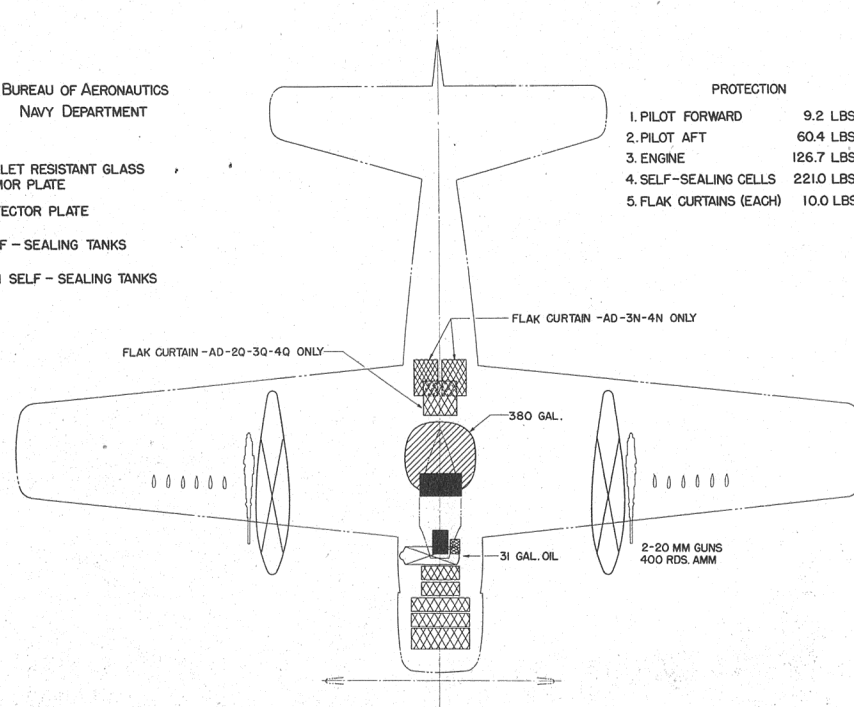
DESCRIPTIVE ARRANGEMENT

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. |



0 5 10 FT.
SCALE

ARMAMENT AND TANKS

AD-3N

RESTRICTED

1 DECEMBER 1949

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

MISSION AND DESCRIPTION

The principal mission of the AD-3N airplane is that of night attack and radar countermeasures. It may also be used as a torpedo plane or scout. This model of the AD-3 series is a single-engine, three place attack airplane with all necessary equipment for carrier operation. This version is not equipped with dive brakes.

The fuselage arrangement provides separate compartments for the pilot and radar operators. The pilot's cockpit contains the flight controls and instruments, bombing, torpedo, arresting gear, wing folding, etc. controls. The aft cockpit has accommodations for a radar operator-navigator with partial control of the radio, complete control of radar equipment, radar bombing attachment, auto pilot, and complete navigation instruments, and for an RCM operator with partial control of the radio and complete control of the radar countermeasures equipment. An entrance door is provided on each side of the aft compartment for normal access and through emergency release for bail-out.

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.....	11,483.....	
BASIC.....	12,173.....	
DESIGN.....	15,600.....	7.0
COMBAT.....	15,910.....	6.9
MAX.T.O..(Cat.)..	19,700.....	5.5
(Field).....	24,721*.....	4.3
MAX.LD.(Smooth) ..	19,000.....	
(Rough).....	16,800.....	
(Arrest.).....	17,000.....	
(Qualif.).....	15,600.....	

*Tentative. Limited by space.
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

VHF COMM.....AN/ARC-1
MHF COMM.....AN/ARC-2
RANGE REC.....AN/ARC-5
VHF NAVIGATION.....AN/ARR-2A
SEARCH & AIM RDR..AN/APS-19A
RCM HOMING.....AN/APA-70A
RCM RECEIVER.....AN/APR-9
ALT. INJECTION.....AN/APA-61
RCM PULSE ANAL.....AN/APA-64
IFF.....AN/APX-2
RADIO ALTM.....AN/APN-1
LAB BOMB SIGHT.....AN/APA-16

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./DIA.....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**GUNS**

No.	Size	Location	Rds.
2	20 mm	Wing	400

BOMBS & ROCKETS

Type	Size	Location	No.
HVAR	5"	Wing	12 or
Bomb	250#	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

Illuminated Sight....Mk. 20-0

MAX. BOMB CAP.....7,000 lbs.

PERFORMANCE SUMMARY

LOADING CONDITION	(1) ATTACK 1-500#, 6-100# Bombs, 1-150 Gal. Tank	(5) ATTACK 1 MK.13-3 Top. 1-150 Gal. Tank	(6) ATTACK 12-5" HVAR 2-150 Gal. Tanks
TAKE-OFF WEIGHT	lbs. 18,044	19,093	19,664
Fuel (Fixed/Drop)	lbs. 2,280/900	2,280/900	2,280/1,800
Bombs	lbs. 1,100	2,192	
Wing/Power Loading (A) lbs/sq.ft; lbs/bhp.	45.1/9.5	47.7/10.0	49.2/10.3
Stall Speed--Power off	kn. 81.0	83.3	84.5
Stall Speed--Power off - No Fuel	kn. 73.6	76.2	75.4
Stall Speed--Power on	kn. 76.0	78.1	79.3
Maximum Speed/Alt (B)	kn/ft. 257/18,100	261/18,200	252/18,000
Take-off Distance, deck -- calm	ft. 843	975	1,094
Take-off Distance, deck 25 kn.	ft. 401	481	552
Take-off Distance, Airport	ft.		
Rate of climb -- sea level (B)	ft/min. 2,260	2,110	1,900
Service Ceiling (B)	ft. 28,800	28,400	26,600
Time-to-climb 10,000 ft. (B)	min. 4.8	5.2	5.9
Time-to-climb 20,000 ft. (B)	min. 12.3	13.5	16.3
Combat Range/V av 15,000 ft. n.mi./kn.	1,020/171	1,010/180	1,270/174
Combat Radius/V av A-1 ft. n.mi./kn.	420/175	420/175	610/175
LOADING CONDITION	(2) COMBAT	(3) COMBAT	(4) COMBAT
GROSS WEIGHT	lbs. 15,910	15,910	15,910
Engine power	Combat	Military	Normal
Fuel	lbs. 2,280	2,280	2,280
Bombs/Tanks	AN/APS-19A	AN/APS-19A	AN/APS-19A
Max. speed at sea level	kn. 298	278	261
Max. speed/Alt	kn/ft. 301/10,700	294/16,000	291/18,400
Combat speed/Alt	kn/ft. 297/1,500	282/1,500	265/1,500
Rate of climb SL	ft/min. 3,920	3,490	2,920
Ceiling for 500 fpm R/C	ft. 30,600	30,600	30,600
Time-to-climb/Alt.	min/ft.		

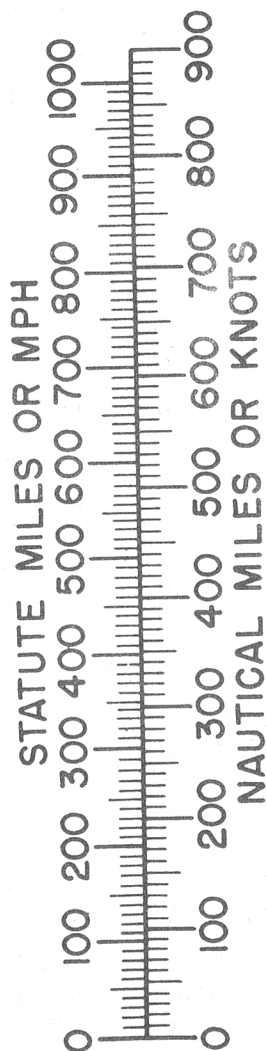
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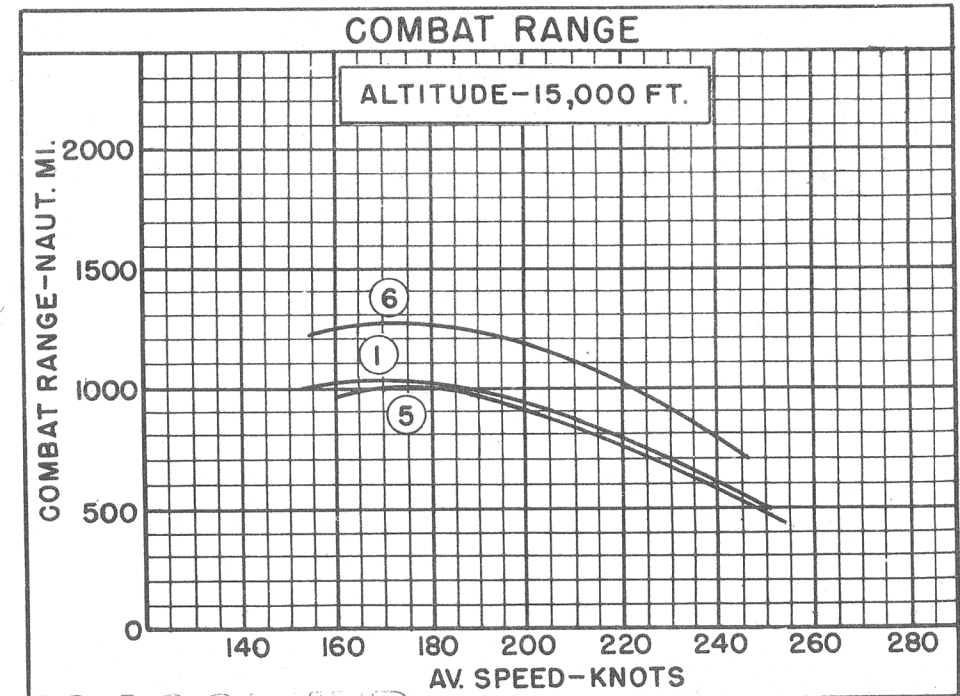
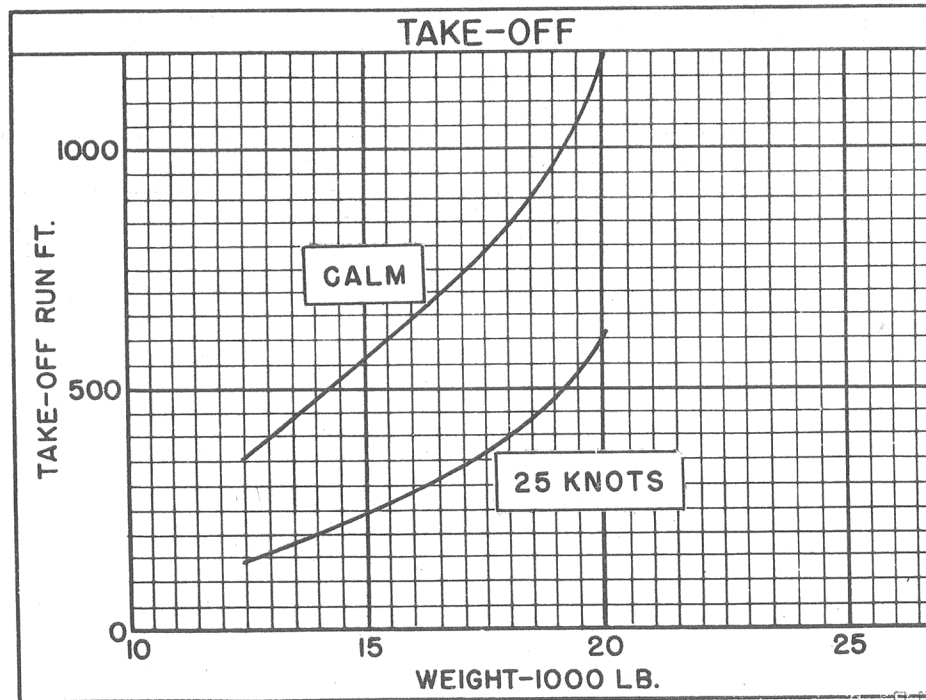
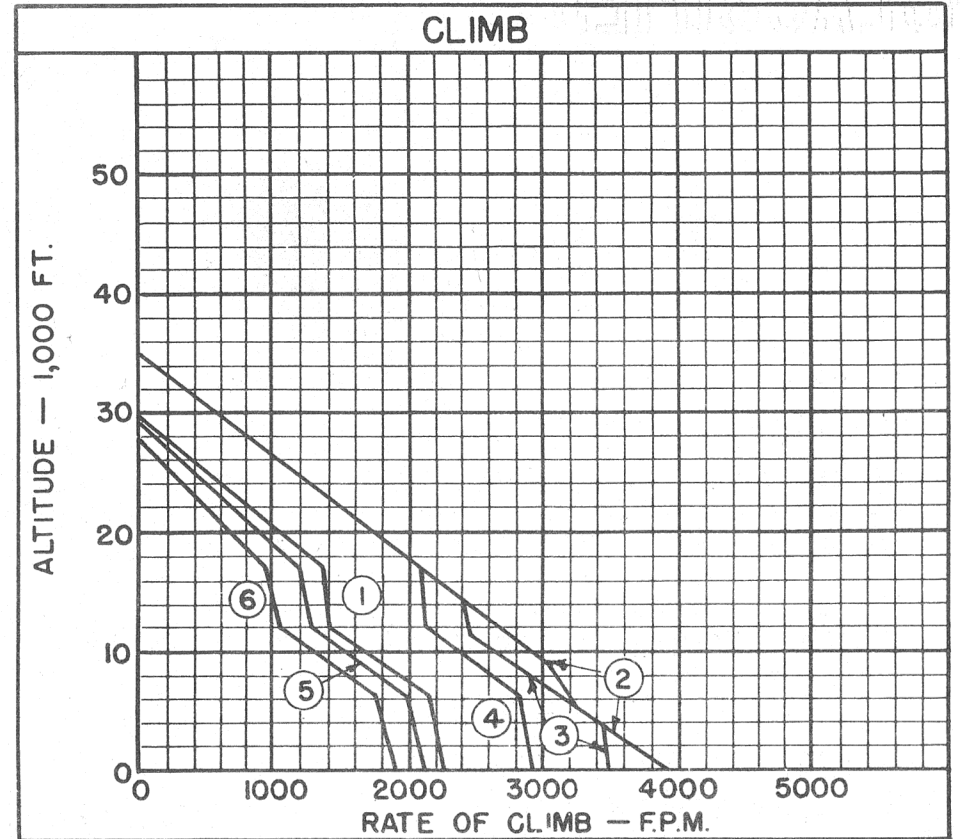
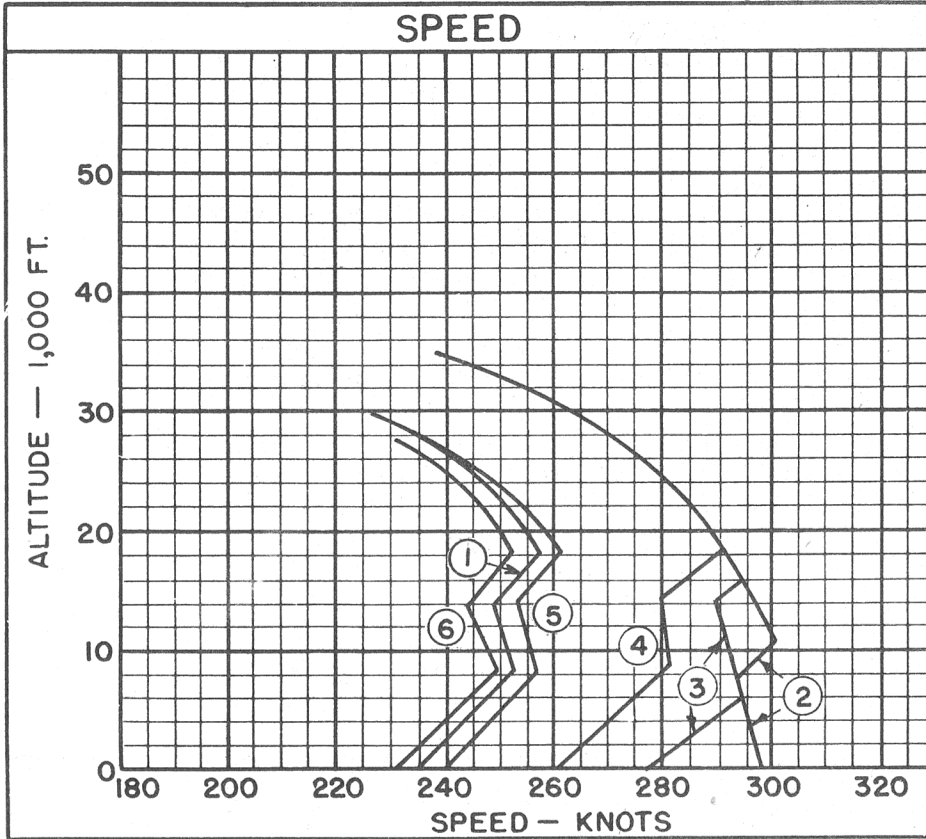
- (A) BHP at Maximum Critical Altitude
(B) Normal BHP

Performance is based on flight test of AD-1 and AD-1Q. Combat range and radius are based on engine manufacturer's specification fuel consumption data increased 5%.

AN/APS-19A radar carried in all conditions.

Combat conditions (2), (3), and (4) include 6 MK-55 wing racks.





○ LOADING CONDITION COLUMN NUMBER

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NOTES

Rocket launchers aboard for Cond. (6) only. Removal of 6 Mk-55 wing racks and addition of 12 Mk-9 rocket launchers to Cond. (2) reduces V_{max} , S. L. to 294 kn. and V_{max}/ACA to 297 kn./10,700 ft. Addition of 12 launchers and 12 - 5" HVAR increases gross weight of Cond. (2) to 17,596 lbs. and decreases V_{max} , S. L. to 275 kn. and V_{max}/ACA to 277 kn./10,700 ft.

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.

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

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

Spotting: 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 FORMULA NO. A-1

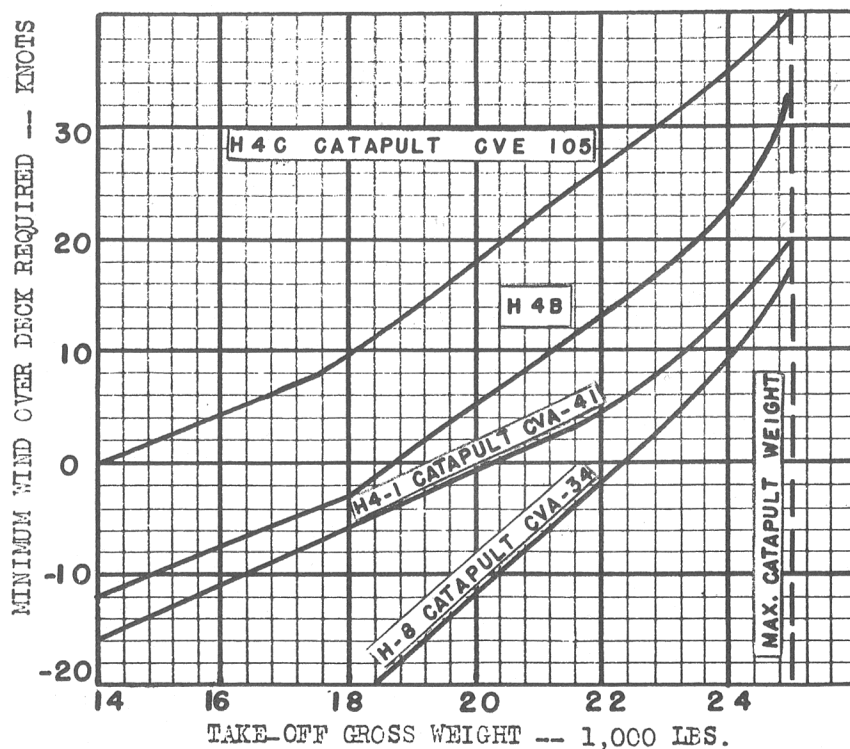
<u>WARM-UP</u> 20 min. $\frac{1}{2}$ Normal RPM	<u>RENDEZVOUS</u> 20 min. at Sea Level at 60%	<u>CLIMB</u> to 15,000 ft. at Normal Power	<u>CRUISE-OUT</u> at 15,000 ft. 180 kts. TAS Normal Mixture	<u>DROP TANKS</u> <u>DESCEND</u> to 1,500 ft. <u>DROP BOMBS</u> FIRE ROCKETS	<u>COMBAT</u> 15 min. at 1,500 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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$$\text{RADIUS} = \text{CLIMB} / \text{CRUISE-OUT} = \text{CRUISE-BACK}$$

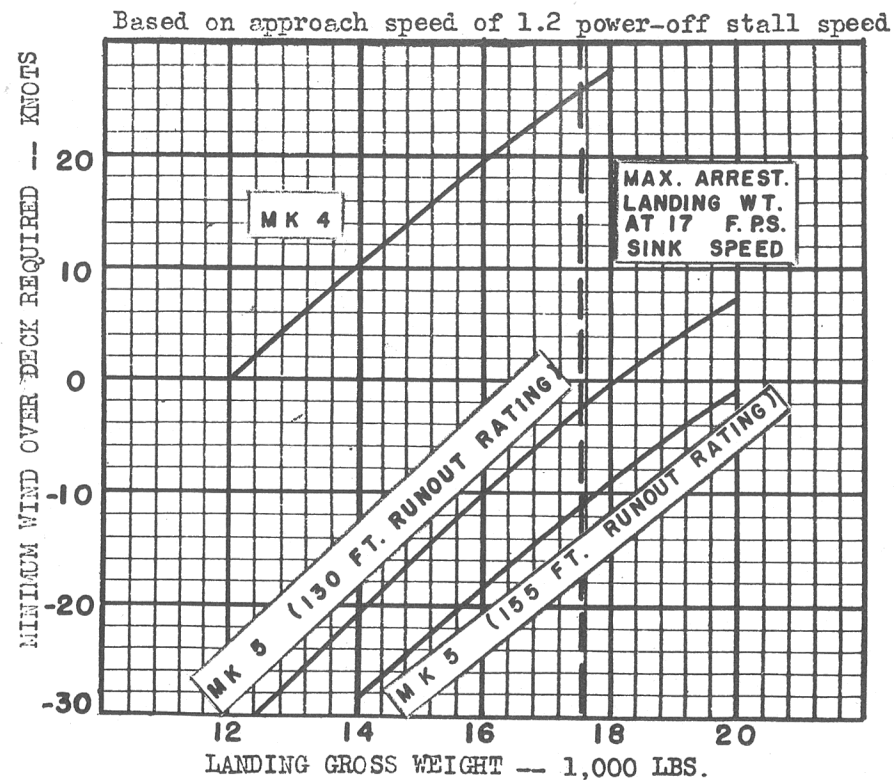
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CARRIER SUITABILITY

MINIMUM WIND OVER DECK REQUIRED FOR CATAPULTING
VS. GROSS WEIGHT



MINIMUM WIND OVER DECK REQUIRED FOR LANDING
VS. GROSS WEIGHT



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.

NAVAER-1335I (New 5-52)

