

# STANDARD AIRCRAFT CHARACTERISTICS

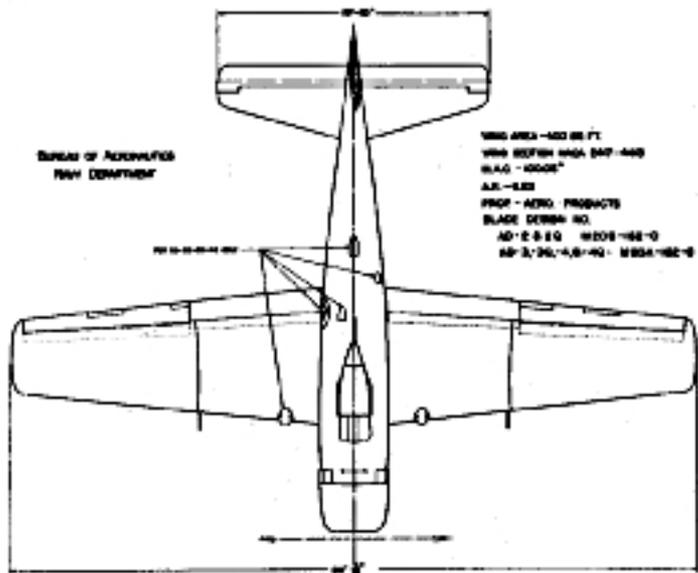
## AD-4Q "SKYRAIDER"

DOUGLAS

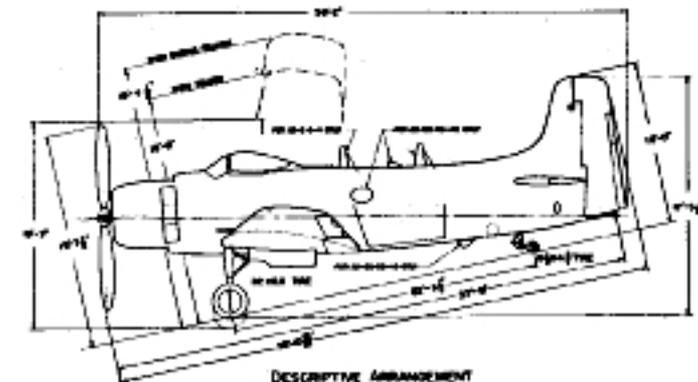
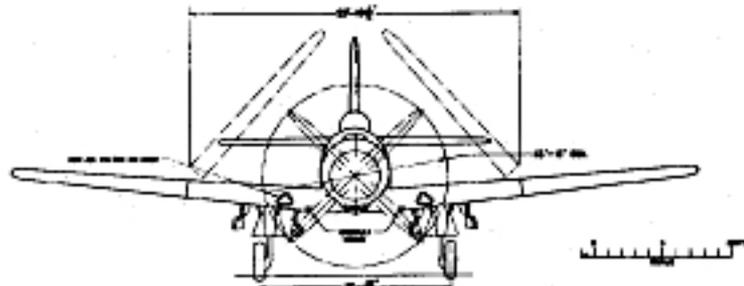
STANDARD AIRCRAFT CHARACTERISTICS, NAVY AIR 33554 (REV. 1-49)

# SERVICE

BUREAU OF AERONAUTICS  
NAVY DEPARTMENT



WING AREA - 450 SQ. FT.  
WING SPAN - 48 FT. 4 IN.  
WING CHORD - 100 IN.  
A.L. - 6.52  
PROP - AERO. PRODUCTS  
BLADE DESIGN NO.  
AD-2 8 8 Q W 208 100 0  
AD-2 26 4 8 10 0 M 204 102 0



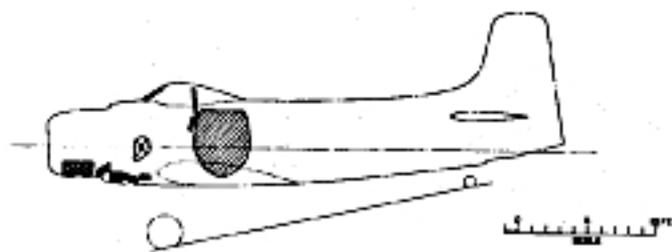
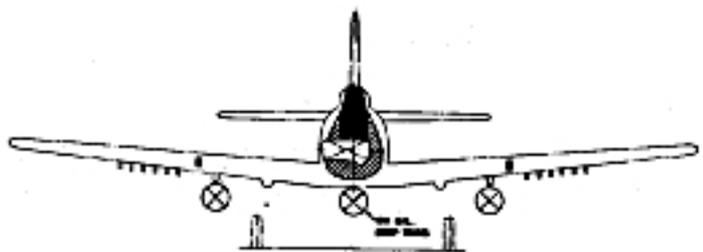
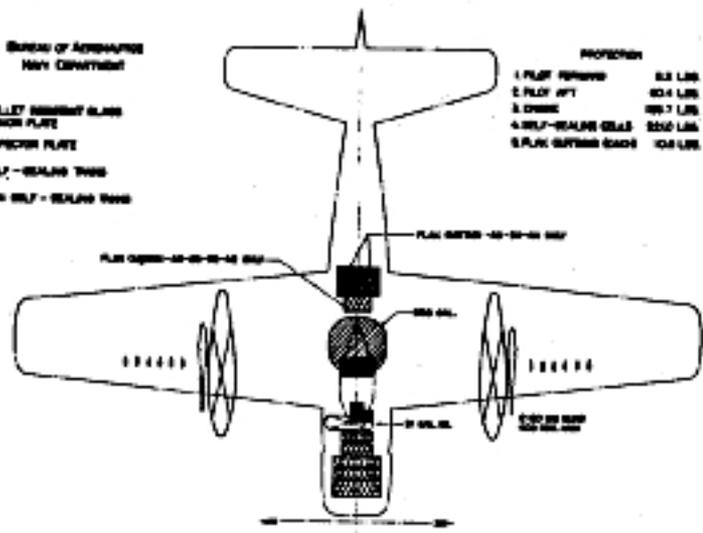
DESCRIPTIVE ARRANGEMENT

BUREAU OF AERONAUTICS  
NAVY DEPARTMENT

- VALVE MOUNTING PLATE
- CORRECTION PLATE
- SELF-SEALING TANK
- ⊗ NON SELF-SEALING TANK

PROFILING

- 1. FUEL FORWARD 63 LBS.
- 2. FUEL AFT 104 LBS.
- 3. OILS 107 LBS.
- 4. SELF-SEALING CELLS 220 LBS.
- 5. FUEL SAFETYING CELLS 104 LBS.



ARMAMENT AND TANKS

Standard Aircraft Characteristics Number 1335 (REV. 1-49)

**MISSION AND DESCRIPTION**

The AD-4Q model is primarily designed for use as a radar countermeasures airplane. As such it can be used for the effective search and jamming of enemy radar. This airplane has accommodation for an RCM operator in the rear. General arrangement is similar to the AD-3Q airplane.

This modification of the AD-4 airplane can also be used for dive and glide bombing and torpedo and rocket attacks. The structure and basic equipment are identical to the AD-4 except that the RCM operator's compartment is provided aft of the fuel tank with partial controls for the radio and complete controls for radar and radar countermeasures equipment. An entrance door (incorporating a window) for this compartment is provided on the right side of the fuselage. The airplane has provisions for mounting an external tow-target reel on the centerline bomb rack for utility operations.

**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.....	11,736.....	
BASIC.....	12,254.....	
DESIGN.....	15,600..7.0	
COMBAT.....	15,595..7.0	
MAX.T.O..(Cat.)..	19,700..5.5	
(Field).....	24,595*.4.3	
MAX.LD.(Smooth).....	19,000.....	
(Rough).....	16,800.....	
(Arrest.).....	17,000.....	
(Qualif.).....	15,600.....	

\*Tentative. Limited by space.  
All weights are calculated.

**FUEL AND OIL**

Gal.	No. Tanks	Location
380	1	Fus., 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  
RANGE REC.....AN/ARC-5  
VHF NAVIGATION.....AN/ARR-2A  
RADIO ALTM.....AN/APN-1  
SEARCH & AIM EDR.....AN/APS-19A  
RCM HOMING ADAP.....AN/APA-70A  
RCM RECEIVER.....AN/APR-9  
RCM PULSE ANAL.....AN/APA-64  
IFF.....AN/APX-2  
IFF.....AN/APX-6  
VHF HOMING.....AN/ARA-8

**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**

	Hhp @	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. B-836

**ORDNANCE**

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

<u>BOMBS &amp; ROCKETS</u>			
Type	Size	Location	No.
HPAG	5"	Wing	12
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

**FIFTE CONTROLS**

Sighting Sys.....Mk. 1 Mod. 3  
Bomb Director....Mk. 3 Mod. 3

SEE NOTES

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



PERFORMANCE SUMMARY				
LOADING CONDITION		(1) ATTACK 1-2,000 # Bomb 2-150 Gal. Ext. Tanks		(5) ATTACK 1-2,000 # Bomb AN/APS-19A Radar
TAKE-OFF WEIGHT	lbs.	19,738		17,767
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.		49.3/10.4		44.4/9.4
Stall Speed--Power off	kn.	84.7		80.4
Stall Speed--Power off - No Fuel	kn.	75.5		75.1
Stall Speed--Power on	kn.	79.4		75.4
Maximum Speed/Alt (B)	kn/ft.	267/18,300		275/18,300
Take-off Distance, deck - calm	ft.	1,087		792
Take-off Distance, deck 25 kn.	ft.	549		373
Take-off Distance, Airport	ft.			
Rate of climb -- sea level (B)	ft./min.	2,070		2,470
Service Ceiling (B)	ft.	28,100		30,800
Time-to-climb 10,000 ft. (B)	min.	5.3		4.4
Time-to-climb 20,000 ft. (B)	min.	13.6		10.6
Combat Range/V av 15,000 ft. n.mi./kn.		1,395/181		720/178
Combat Radius/V av A-1 ft. n.mi./kn.		670/176		250/175
LOADING CONDITION		(2) COMBAT	(3) COMBAT	(4) COMBAT
GROSS WEIGHT	lbs.	15,595	15,595	15,595
Engine power		Combat	Military	Normal
Fuel	lbs.	2,280	2,280	2,280
Bombs/Tanks				
Max. speed at sea level	kn.	315	294	277
Max. speed/Alt	kn/ft.	319/10,700	313/16,200	310/18,700
Combat speed/Alt	kn/ft.	314/1,500	298/1,500	281/1,500
Rate of climb SL	ft./min.	4,070	3,680	3,100
Ceiling for 500 fpm R/C	ft.	31,900	31,900	31,900
Time-to-climb/Alt.	min/ft.			

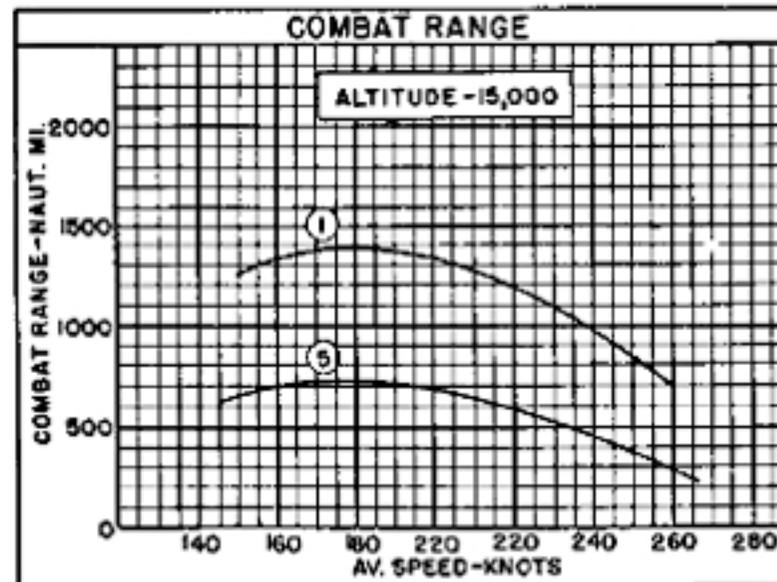
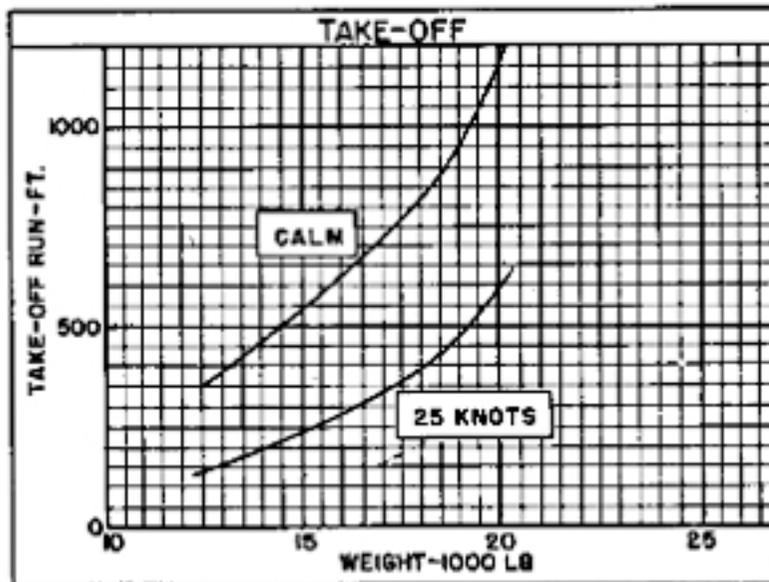
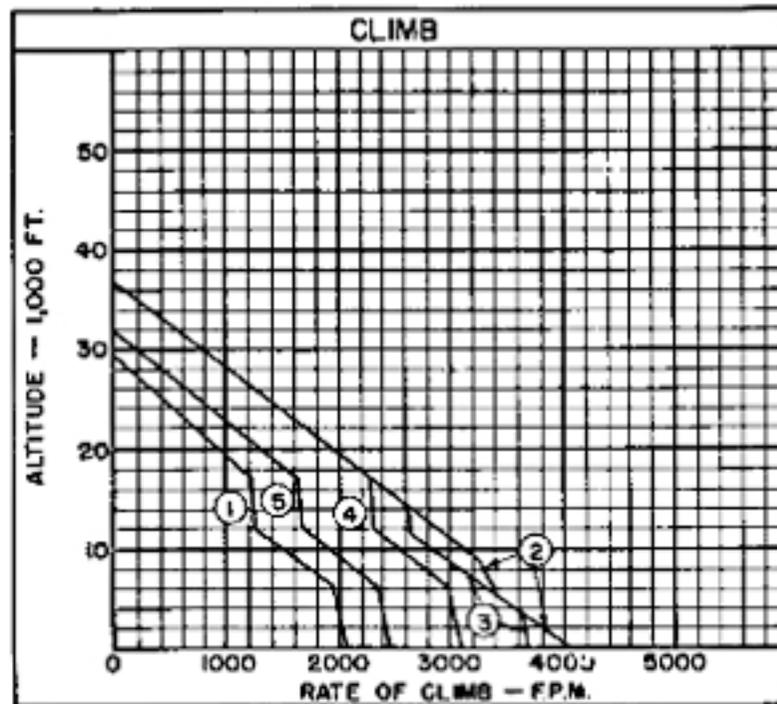
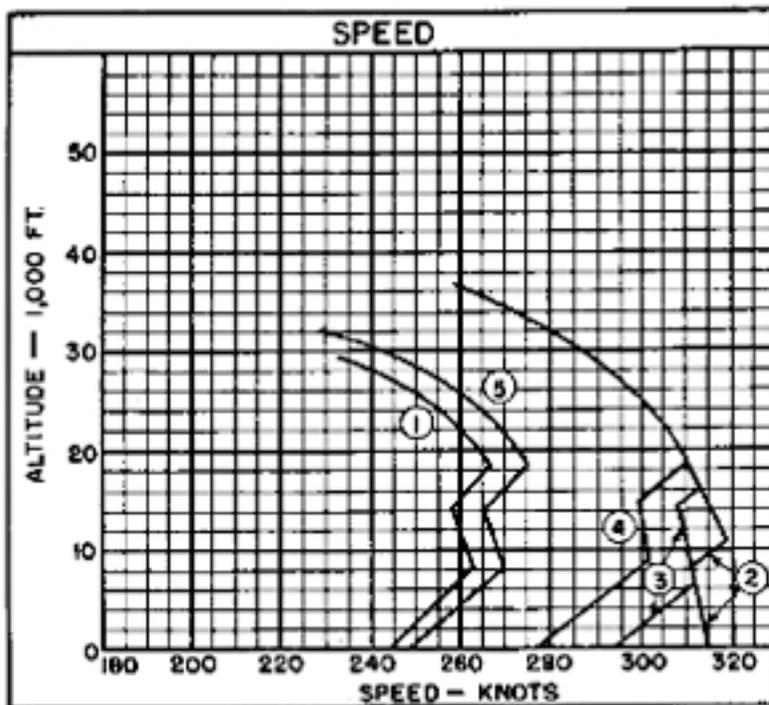
## NOTES

- (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 308 kn. and  $V_{max./ACA}$  to 312 kn./10,700 ft. Addition of 12 launchers and 12-5" HVAR increases gross weight of Cond. (2) to 17,324 lbs. and decreases  $V_{max}$ , S. L. to 289 kn. and  $V_{max./ACA}$  to 292 kn./10,700 ft.

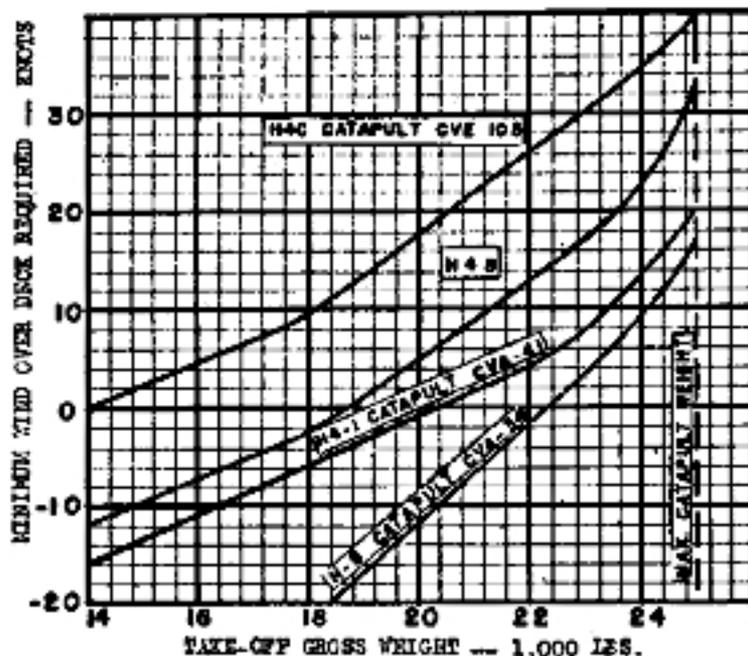


○ LOADING CONDITION COLUMN NUMBER

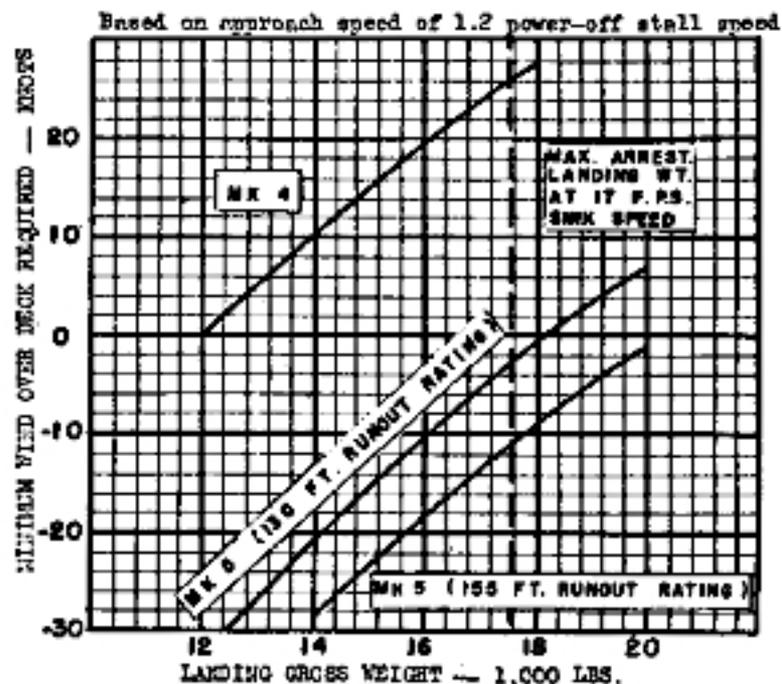
Standard air craft characteristics NUMBER 1336E (REV. 1-45)

# 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 NASC flight test.

NAVAER-3351 (Rev 5-52)

## NOTES

All AD-4Q aircraft are equipped with towing provisions including Mk-8 Mod-0 target reel.

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 Addition of Mk-23 sleeve type tow target with 7,000 ft. of 1/8 inch cable to Cond. (4) reduces  $V_{max}$ . S. L. to 241 km. and  $V_{max./ACA}$  to 266 km./18,400 ft.

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 Addition of window dispenser to Cond. (5) increases gross weight to 17,966 lbs., decreases  $V_{max}$ . S. L. 9 km., decreases combat range 53 nautical miles and increases T. O. distance (25 km.) 21 ft.

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

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 AN/APS-19A radar is carried on port side wing bomb rack for Condition (5) only.

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 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.

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

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 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. ½ Normal RPM	<u>RENDEZVOUS</u> 20 min. at Sea Level at 60% W. Pr.	<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. W. 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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$$\text{RADIUS} = \text{CLIMB} / \text{CRUISE-OUT} = \text{CRUISE-BACK}$$

Standard Aircraft Characteristics Number 1335F (REV. 1-49)