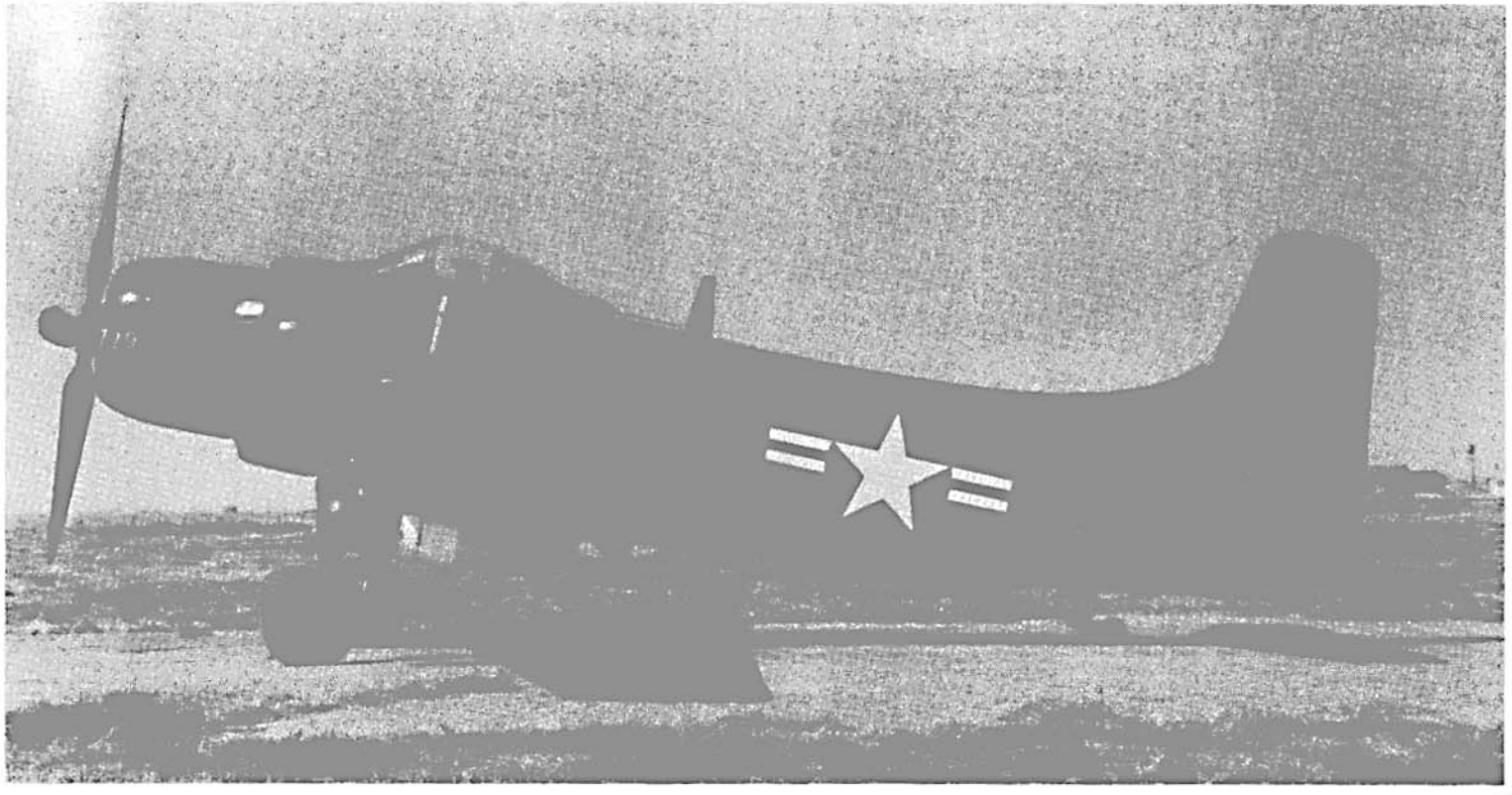
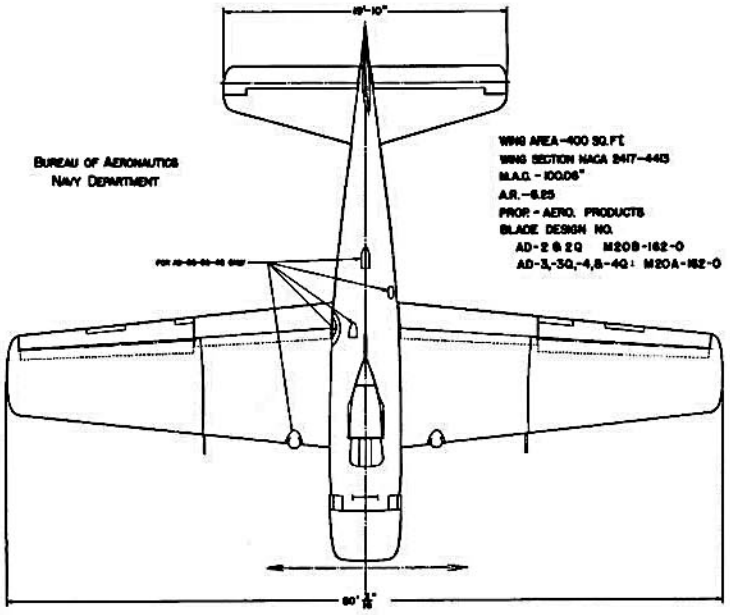


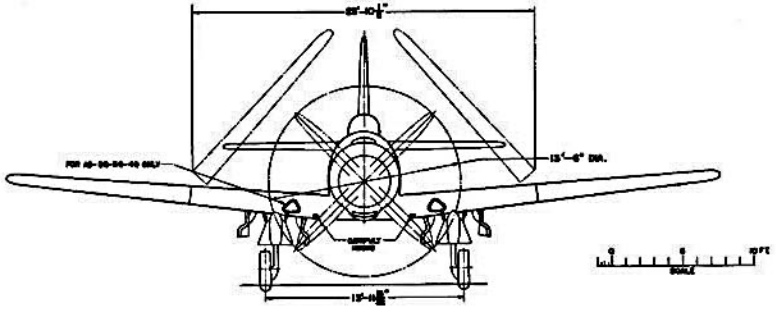
# STANDARD AIRCRAFT CHARACTERISTICS

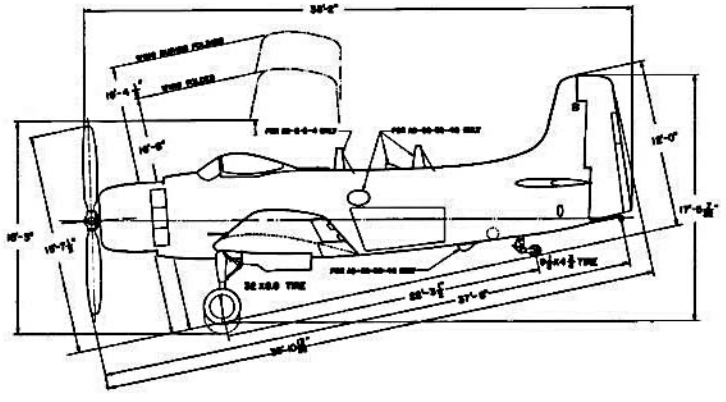
# AD-3 "SKYRAIDER"

DOUGLAS

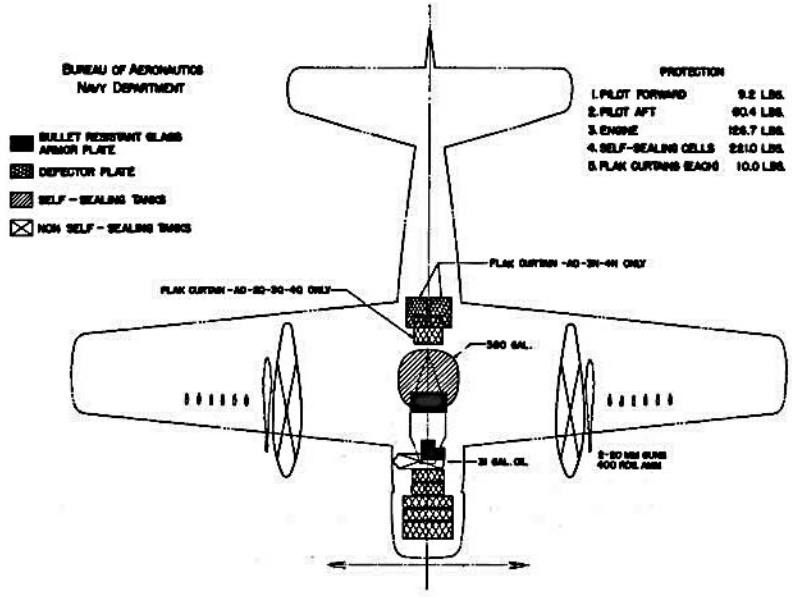
Standard Aircraft Characteristics NAVAER 1335A (REV. 1-49)

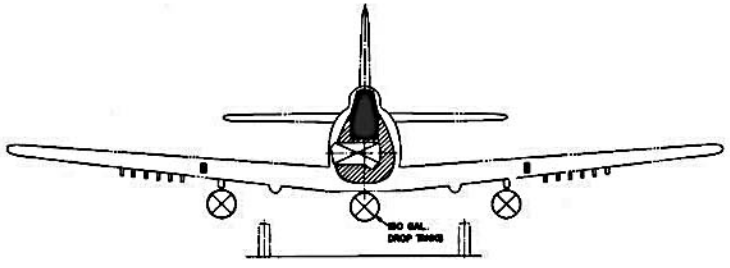


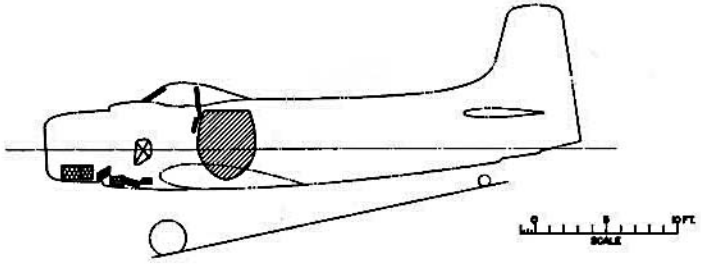



DESCRIPTIVE ARRANGEMENT




ARMAMENT AND TANKS

## 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.

## 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

## 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

GUNS

| 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

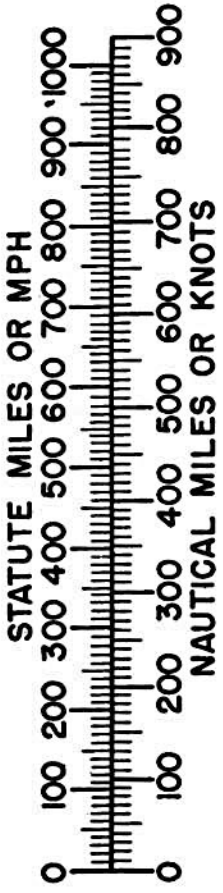
MAX. BOMB CAP.....9,000 lbs.

## 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"

## 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




## 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.

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

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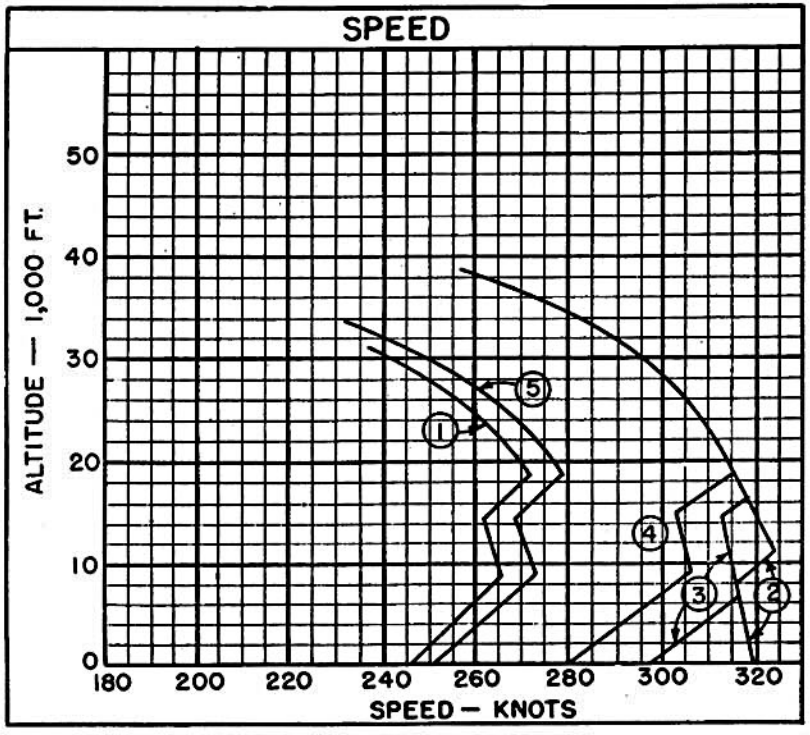
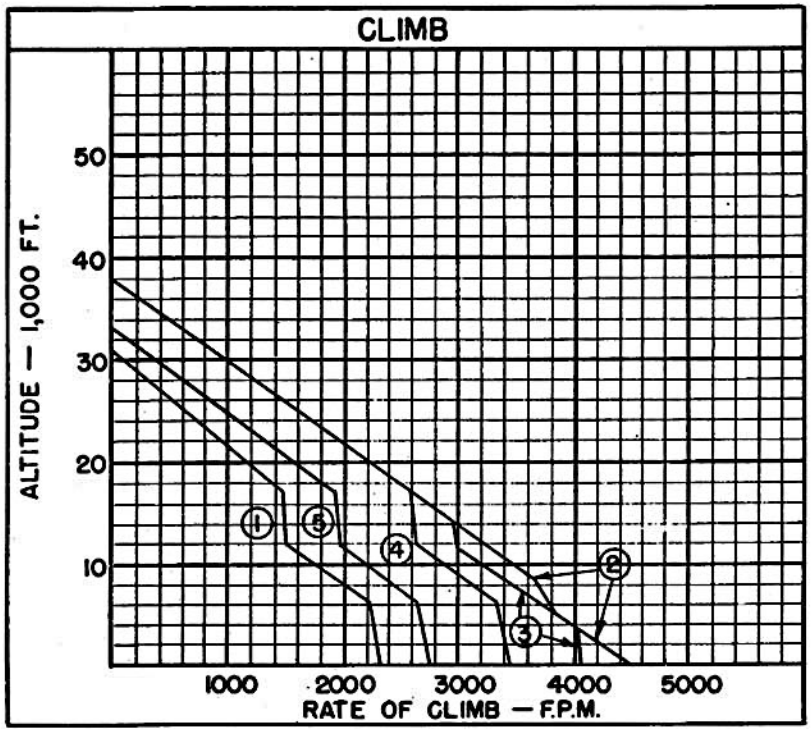
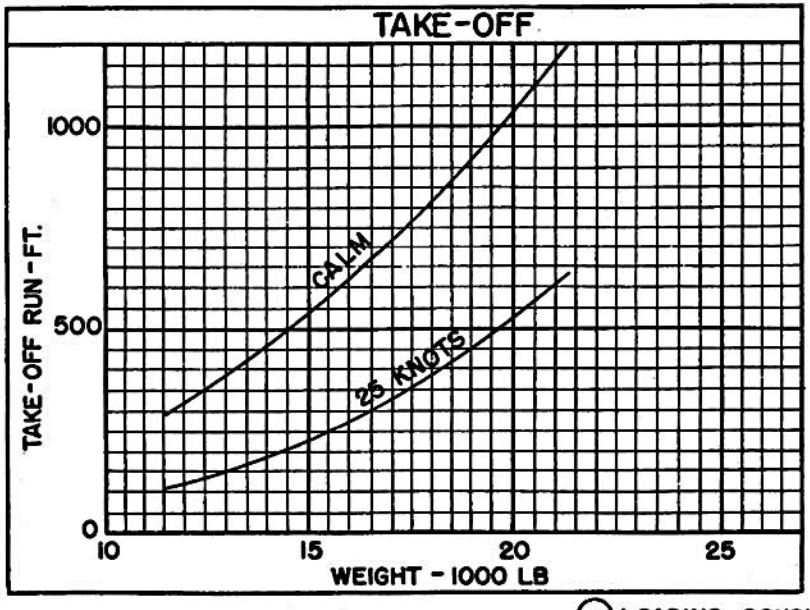
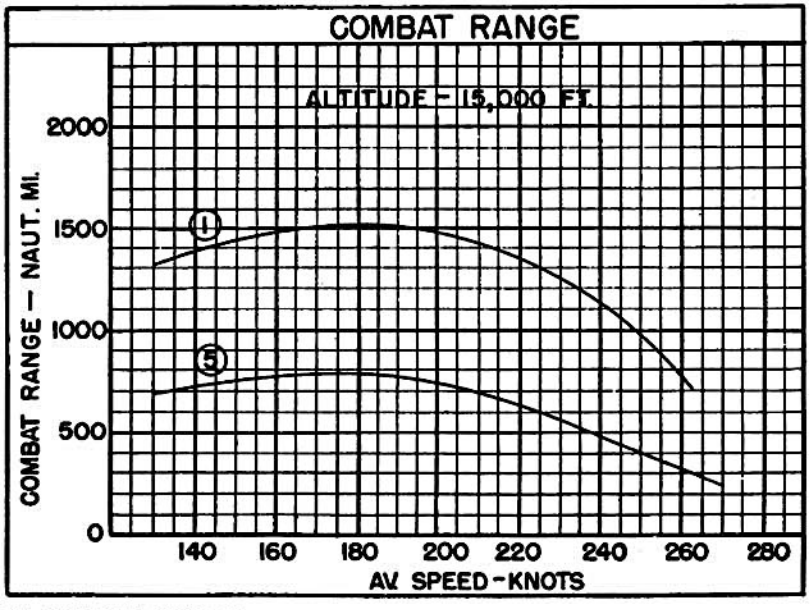
Rocket launchers not aboard. Addition of 12 launchers to Cond. (2) reduces $V_{max.}$ S. L. to 312 kn. and $V_{max.}$/ACA to 317 kn./10,700 ft. Addition of 12 launchers and 12-5" HVAR increases gross weight of Cond. (2) to 16,102 lbs. and decreases $V_{max.}$ S. L. to 293 kn. and $V_{max.}$/ACA to 297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

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




◯ 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.

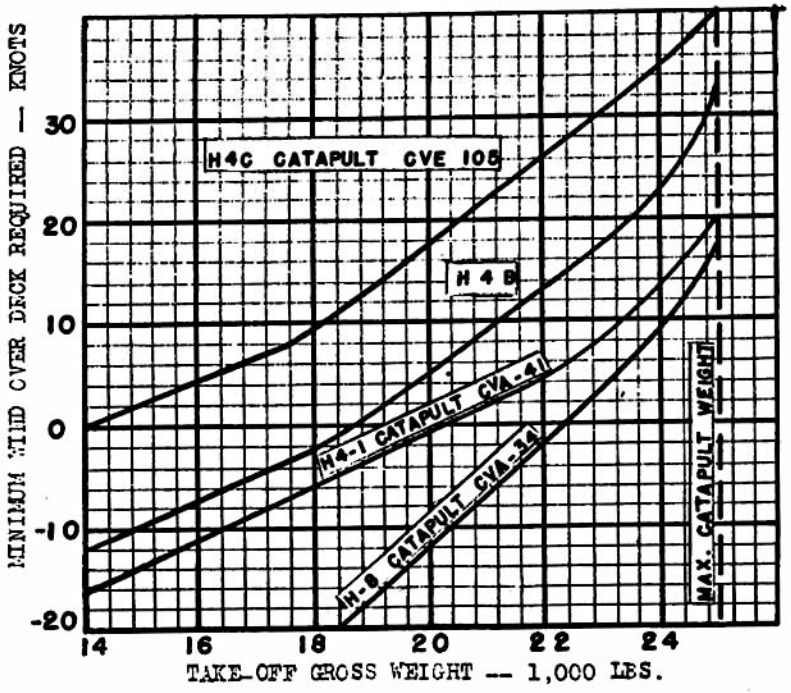
ATTACK COMBAT RADIUS FORMULS NO. B-1

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

RADIUS = CLIMB / CRUISE-OUT = CRUISE-BACK

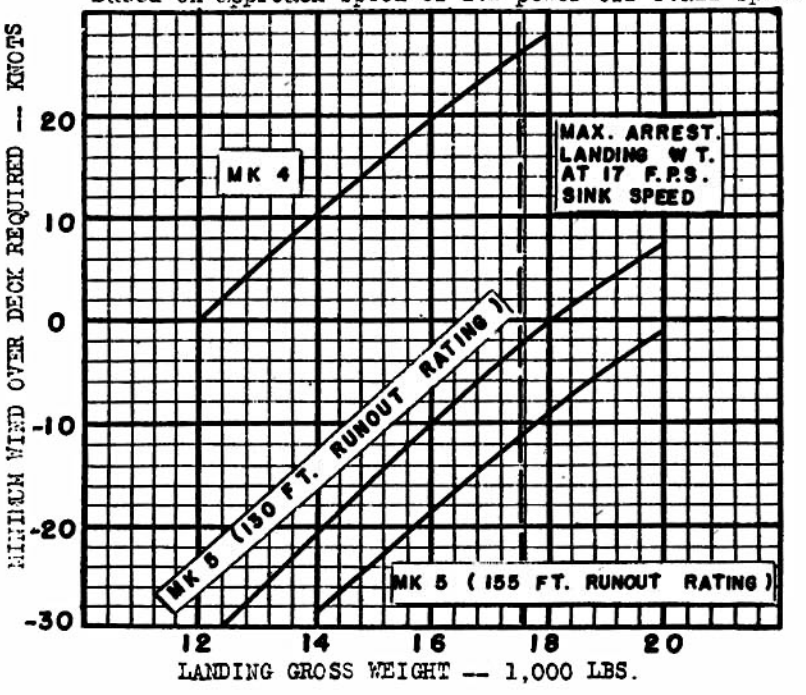
# CARRIER SUITABILITY

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.