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SERVICE



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*AIR-9603*  
ON *1-10-83* *O. G. Persons*  
(DATE) (SIGNATURE) (RANK)  
NAVAL AIR SYSTEMS COMMAND  
DEPARTMENT OF THE NAVY

# STANDARD AIRCRAFT CHARACTERISTICS AD-4B "SKYRAIDER"

DOUGLAS

21

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

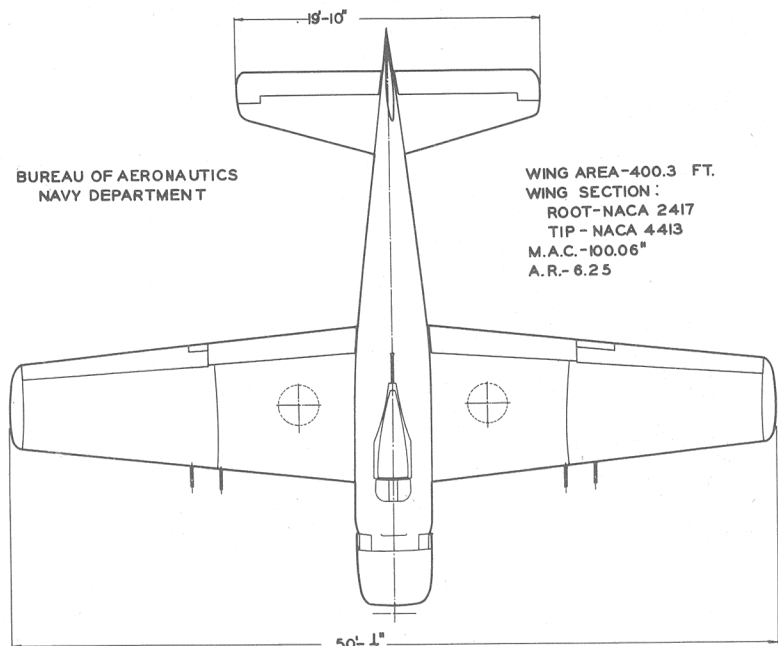
1 JULY 1954

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AD-4B

BUREAU OF AERONAUTICS  
NAVY DEPARTMENT

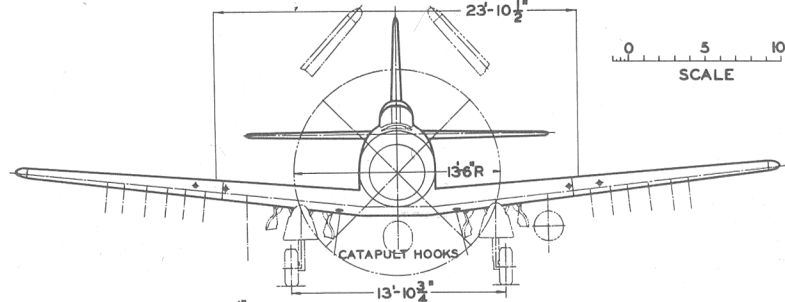
WING AREA-400.3 FT.  
WING SECTION:  
ROOT-NACA 2417  
TIP-NACA 4413  
M.A.C.-100.06"  
A.R.-6.25



50'- $\frac{1}{4}$ "

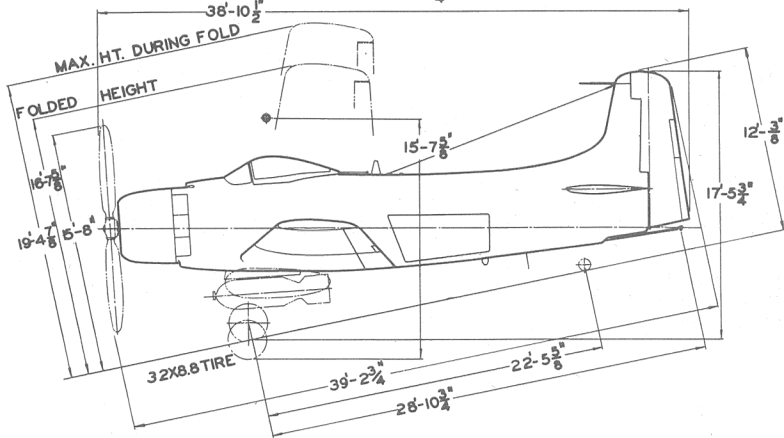
23'-10 $\frac{1}{2}$ "

0 5 10 FT.  
SCALE

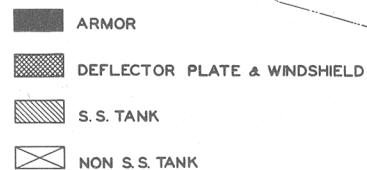


13'-10 $\frac{3}{4}$ "

38'-10 $\frac{1}{2}$ "

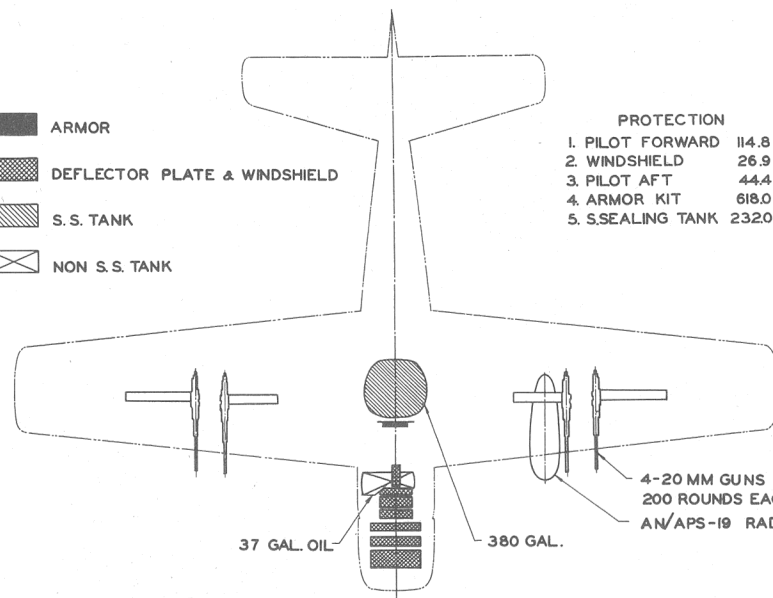


DESCRIPTIVE ARRANGEMENT



PROTECTION

1. PILOT FORWARD 114.8 LBS.
2. WINDSHIELD 26.9 LBS.
3. PILOT AFT 44.4 LBS.
4. ARMOR KIT 618.0 LBS.
5. S.SEALING TANK 232.0 LBS.



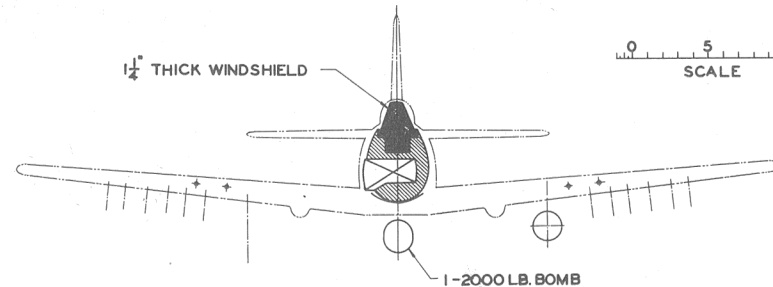
37 GAL. OIL

380 GAL.

4-20 MM GUNS  
200 ROUNDS EACH  
AN/APS-10 RADAR

1 $\frac{1}{2}$ " THICK WINDSHIELD

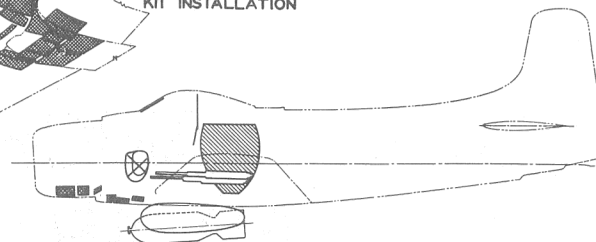
0 5 10 FT.  
SCALE



1-2000 LB. BOMB



ALTERNATE DEFLECTOR PLATE  
KIT INSTALLATION



ARMAMENT & TANKS

~~CONFIDENTIAL~~**POWER PLANT**

NO. & MODEL ... (1)R-3350-26WA  
 MFR ..... Wright Aero.  
 SUPERCH. .... 1 Stage, 2 Speed  
 RED. GR. RATIO ..... .4375  
 PROP. MFR ..... Aero Products  
 BLADE DESIGN ..... M20A2-162-0  
 NO. BL./DIA. .... 4/13' -6"

**RATINGS**

	BHP	@ RPM	@ ALT
COMBAT	3150	2900	S.L.
T.O.	2700	2900	S.L.
MIL.	2700	2900	S.L. to 3700'
	2100	2600	11,500' to 14,500'
NORM	2300	2600	S.L. to 6200'
	1900	2600	12,000' to 17,000'

SPEC. NO. N836-C

**ORDNANCE**

No.	Size	GUNS		Rds.
		Location		
4	20mm, M-3	Wing		800

**FIRE CONTROL**

MK 8 SIGHT  
 MK 3 MOD 5 BOS

**EXTERNAL LOAD**

Racks	No.	Location	Max. Cap.
Aero 14E	12	Outer wing	500 lbs.
14 & 30	1	Fuselage	3500 lbs.
Bomb Ejector			
MK 51-14	2	In. Wing	2000 lbs.

MAX. BOMB CAP. (Ship) .. 6200 lbs.  
 (Shore) .. 12000 lbs.

**MISSION AND DESCRIPTION**

The primary mission of the AD-4B is the destruction of sea and ground targets by dive bombing attacks. The airplane is also capable of torpedo, glide bombing, rocket attacks and tactical support missions.

The airplane is conventional in design and structure. The landing gear, canopy, flaps, wing folding, and three fuselage dive brakes are hydraulically operated. Flaps are of the single slotted trailing edge type. The pressure-balance type ailerons are operated by power boost, the rudder is equipped with a spring tab system and the longitudinal trim is achieved by an electrically adjustable stabilizer.

Oxygen for five hours is supplied. Twenty gallons of AD1 fluid are supplied for injection.

**DEVELOPMENT**

First flight.... August 1952  
 Service use..... July 1953

**DIMENSIONS**

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

**WEIGHTS**

LOADINGS	LBS	L.F.
EMPTY .....	11,837	.....
BASIC .....	13,364	.....
DESIGN .....	15,595	7.0
COMBAT .....	15,952	6.8
MAX. T.O. (Field) ..	25,000	4.1
(CAT) .....	25,000	.....
MAX. LAND. (FIELD) ..	21,000	.....
(Arrest) .....	17,500	6.1

All weights are calculated.

**FUEL AND OIL**

No. Tanks	Total Gal.	Location
1	380	Fuselage
1	300	Ctr. Drop
2	600	Wng. Drop

FUEL GRADE .... 115/145  
 FUEL SPEC. .... MIL-F-5572

**OIL**

CAPACITY (Gals) ..... 37  
 GRADE ..... 1120  
 SPEC ..... MIL-O-6082A

**ELECTRONICS**

UHF COMM .....	AN/ARC-27
	AN/ARC-1 Alternate
RANGE REC .....	R-23A/ARC-5
RADIO REC .....	AN/ARR-2A
RADIO COMPASS .....	AN/ARN-6
IFF .....	AN/APX-6
RADAR .....	AN/APS-19
	(P. S. I. AN/ARN-21)

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PERFORMANCE SUMMARY						
TAKE-OFF LOADING CONDITION		(1) ATTACK 1-1660 lb. store	(3) ATTACK 1-1660 lb. store 2-150 gal. ext. tanks	(5) ATTACK 1-1660 lb. store 2-300 gal. ext. tanks	(6) ATTACK 1-3250 lb. store	(7) ATTACK 1-3250 lb. store 2-300 gal. ext. tanks
TAKE-OFF WEIGHT	lb.	18,524	20,504	22,494	20,120	24,090
Fuel	lb.	2,280	4,080	5,880	2,280	5,880
Payload	lb.	1,660	1,660	1,660	3,250	3,250
Wing loading	lb./sq.ft.	46.3	51.3	56.2	50.3	60.2
Stall speed - power-off	kn.	81.6	85.9	89.9	85.0	93.1
Take-off run at S.L. - calm	ft.	840	1,140	1,770	1,060	2,510
Take-off run at S.L. 25 kn. wind	ft.	395	570	905	525	1,300
Take-off to clear 50 ft. - calm	ft.	-	-	-	-	-
Max. speed/altitude (A)	kn./ft.	288/19,600	274/19,300	264/19,200	287/19,600	261/19,200
Rate of climb at S.L. (A)	fpm	2,060	1,680	1,380	1,800	1,190
Time: S.L. to 10,000 ft. (A)	min.	5.2	6.5	8.4	6.0	9.7
Time: S.L. to 20,000 ft. (A)	min.	12.8	17.3	24.3	15.4	32.4
Service ceiling (100 fpm) (A)	ft.	27,400	24,300	21,700	25,600	20,400
Combat range	n.mi.	725	1,360	1,875	670	1,740
Average cruising speed	kn.	175	175	175	180	185
Cruising altitude(s)	ft.	5,000	5,000	5,000	5,000	5,000
Combat radius	n.mi.	270	610	670(B)	255	665(B)
Average cruising speed	kn.	170	170	175	170	175
Mission time	hr.	3.4	7.4	7.9	3.2	7.8
COMBAT LOADING CONDITION		(2) CLEAN	(4) CLEAN			
COMBAT WEIGHT	lb.	15,952	15,952			
Engine power		Combat	Military			
Fuel	lb.	1,368	1,368			
Combat speed/combat altitude	kn./ft.	297/S.L.	281/S.L.			
Rate of climb/combat altitude	fpm/ft.	3,940/S.L.	3,260/S.L.			
Combat ceiling (500 fpm)	ft.	-	29,100			
Rate of climb at S.L.	fpm	3,940	3,260			
Max. speed at S.L.	kn.	297	281			
Max. speed/altitude	kn./ft.	-	301/17,300			
LANDING WEIGHT	lb.	14,798				
Fuel	lb.	214				
Stall speed - power-off	kn.	72.9				
Stall speed - with approach power	kn.	69.8				

## NOTES

(A) Normal rated power

(B) Fuel dropped with external tanks prior to combat: 1152 lb. in loading (5) and 1018 lb. in loading (7).

Performance Basis: Calculations and contractors flight tests on the AD-2 and AD-4B airplane

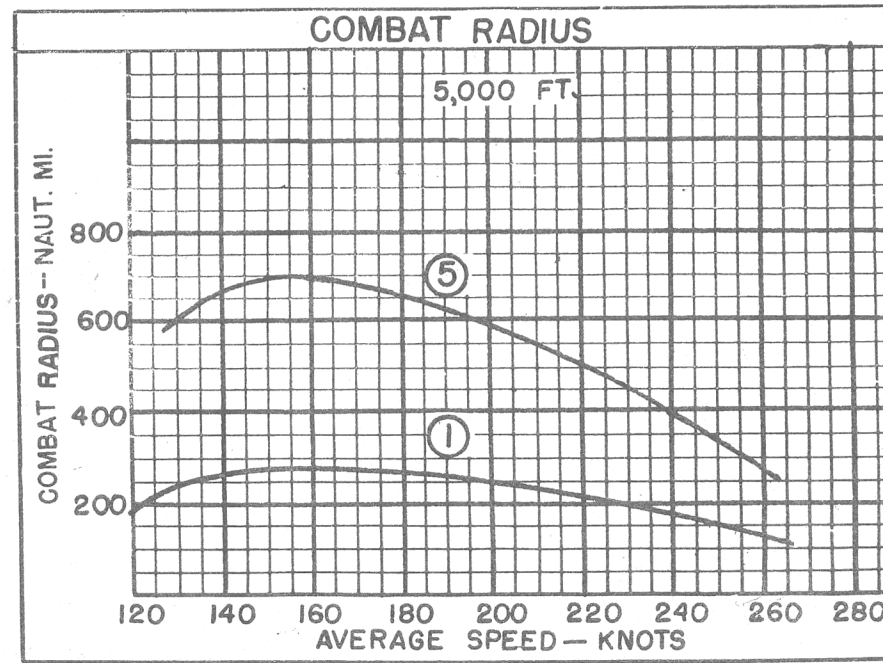
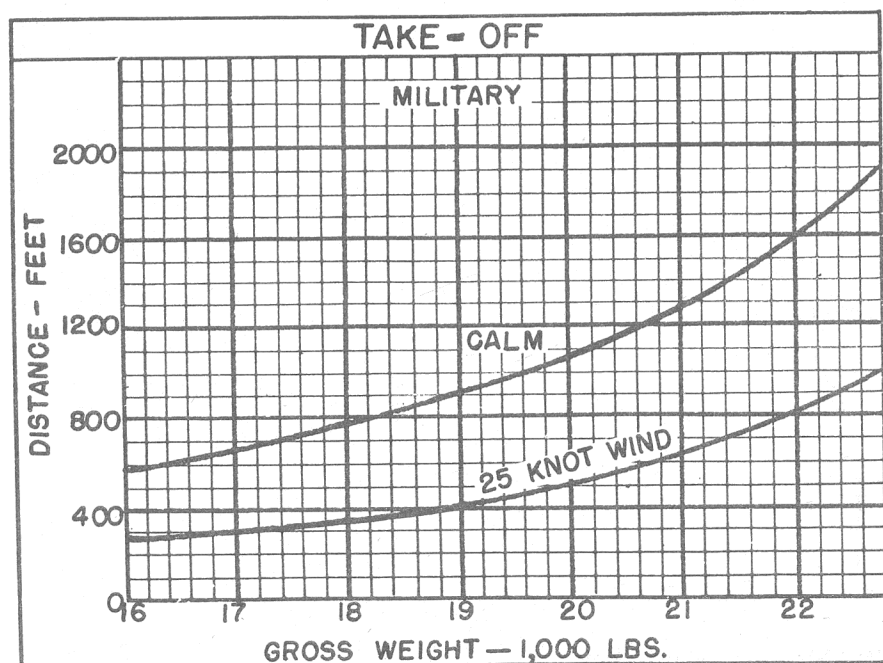
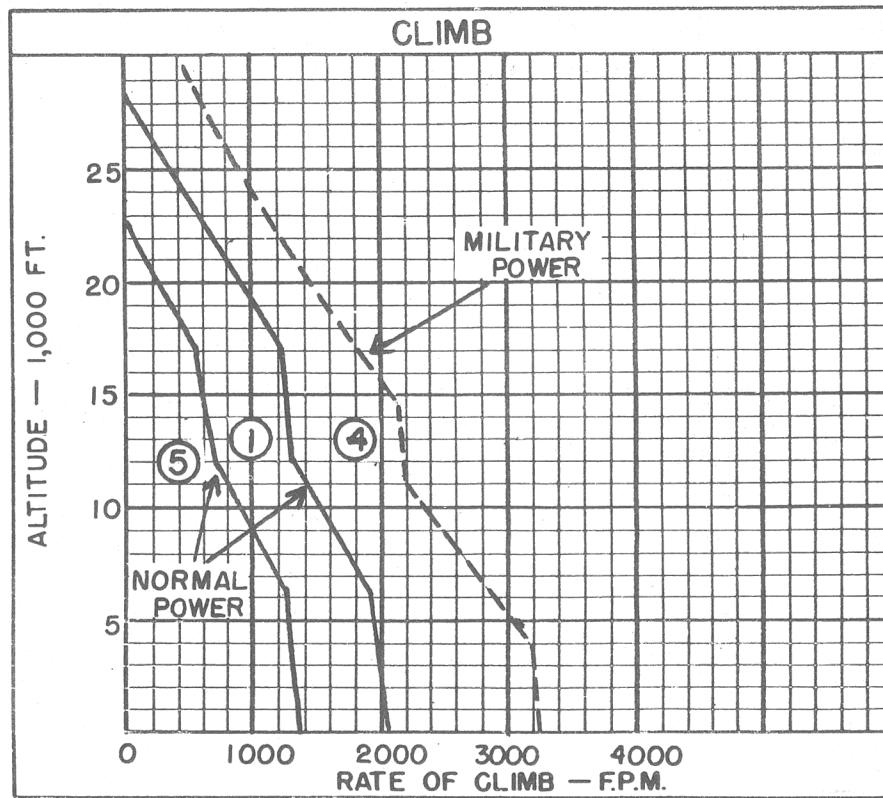
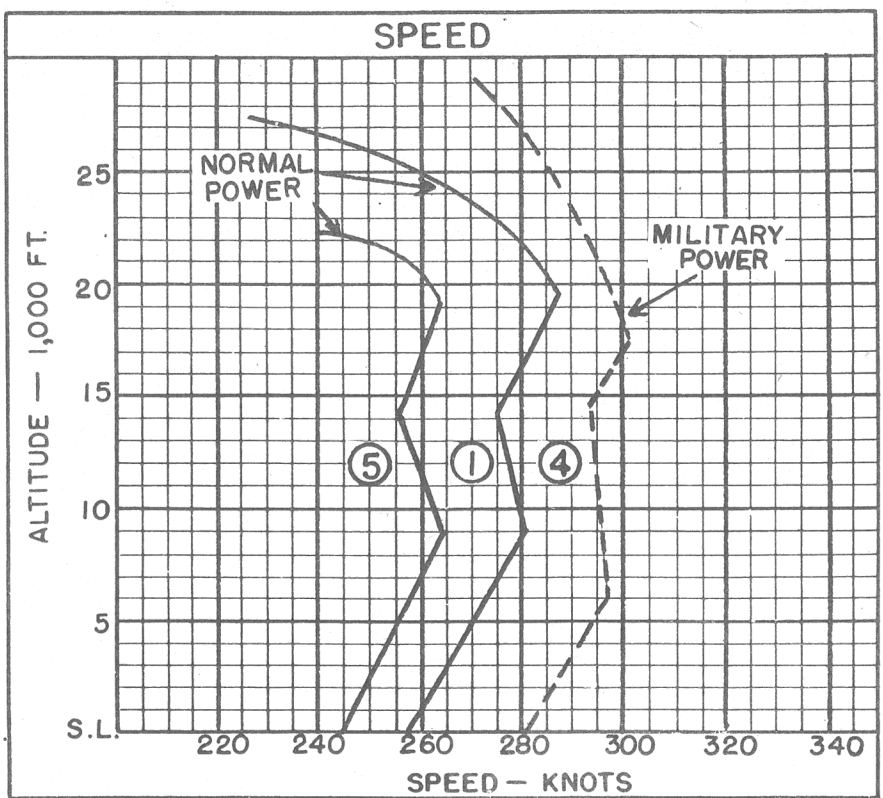
Range and radius are based on engine specification fuel consumption data increased by 5%.

All loadings include all main racks, 12 Aero 14 racks.

24

NAVAER-1335D (Rev. 10-51)

25



○ LOADING CONDITION COLUMN NUMBER

Standard Aircraft Characteristics NAVAER 1335E (REV. 2-50)

## NOTES

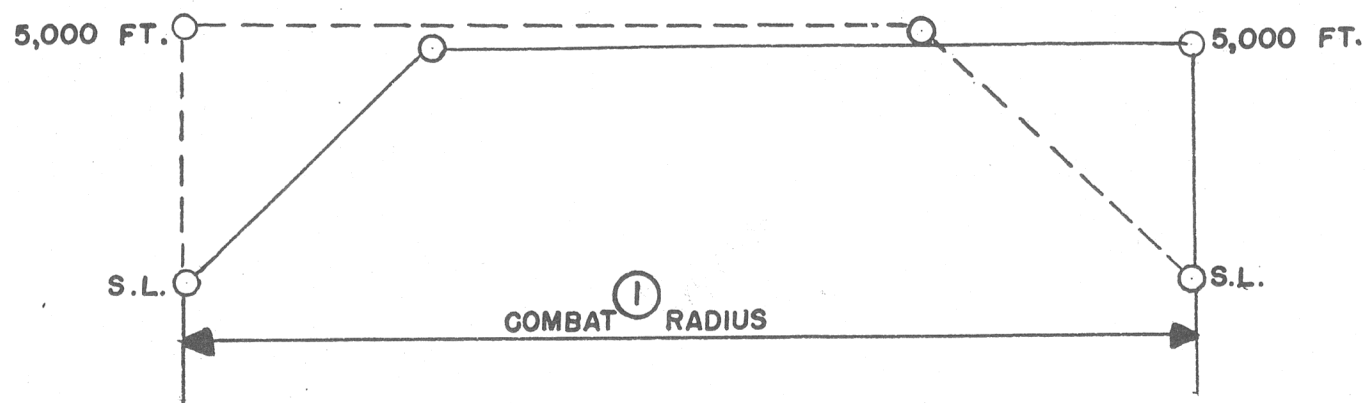
SPOTTING: A maximum operating spot aboard a CVA-19 (canted deck) class carrier consists of 42 aircraft on the flight deck with elevators and landing area clear and 41 aircraft on the hangar deck with hangar bay five doors and elevators clear. Total 83 aircraft.

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LOW ALTITUDE ATTACK AND GROUND SUPPORT PROBLEM

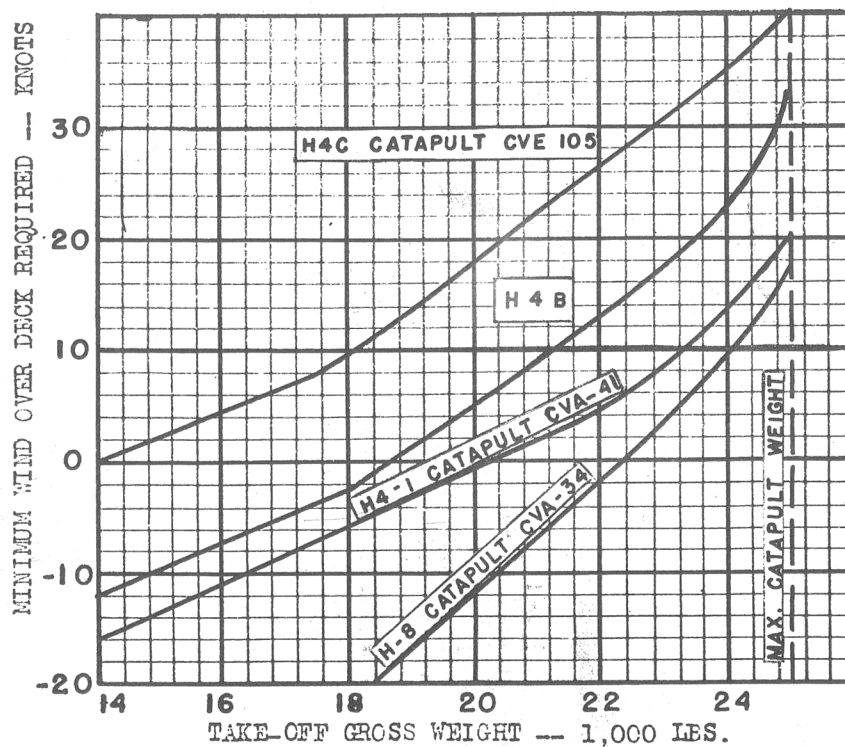
WARM-UP, TAKE-OFF, ACCELERATE: 10 minutes at normal rated power at sea level.  
 CLIMB: to 5000 feet at normal rated power.  
 CRUISE-OUT: At speed for long range at 5000 feet.  
 DESCEND: To sea level (No distance gained, no fuel used).  
 DROP BOMBS AND FIRE ROCKETS  
 COMBAT: 5 minutes at maximum power plus 10 minutes at normal rated power at sea level.  
 CLIMB: To 5000 feet with normal rated power.  
 CRUISE-BACK: At speed for long range at 5000 feet.  
 RESERVE: 20 minutes at speed for long range at sea level plus 5% of initial fuel load.

COMBAT RADIUS = CLIMB + CRUISE OUT = CLIMB + CRUISE BACK  
 MISSION TIME = TIME REQUIRED FOR CLIMB + CRUISE OUT + COMBAT + CLIMB + CRUISE BACK

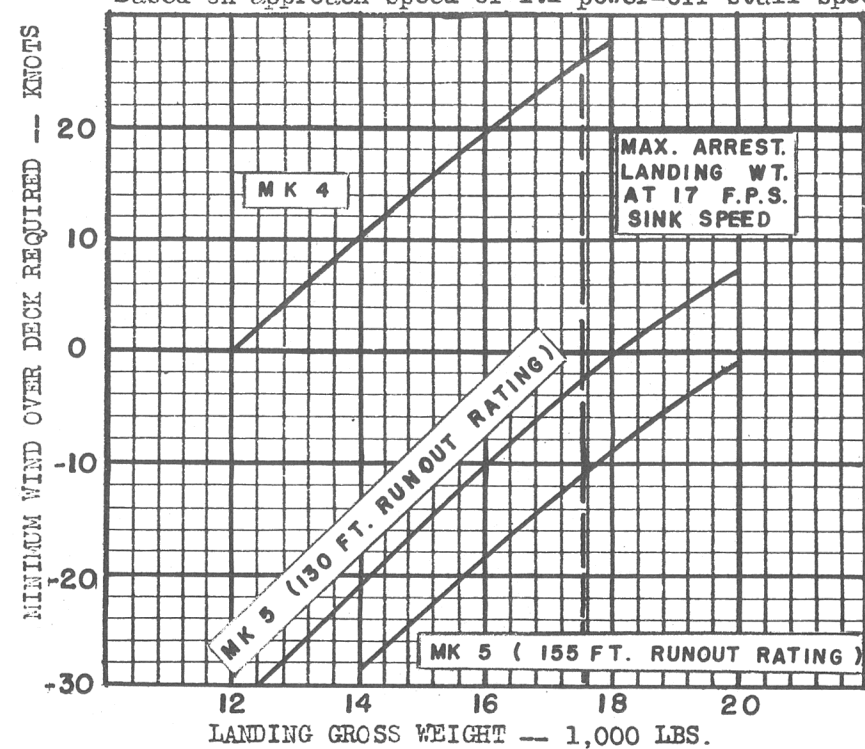


○ LOADING CONDITION COLUMN NUMBER

## CARRIER SUITABILITY

MINIMUM WIND OVER DECK REQUIRED FOR CATAPULTING  
VS. GROSS WEIGHTMINIMUM 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.

27

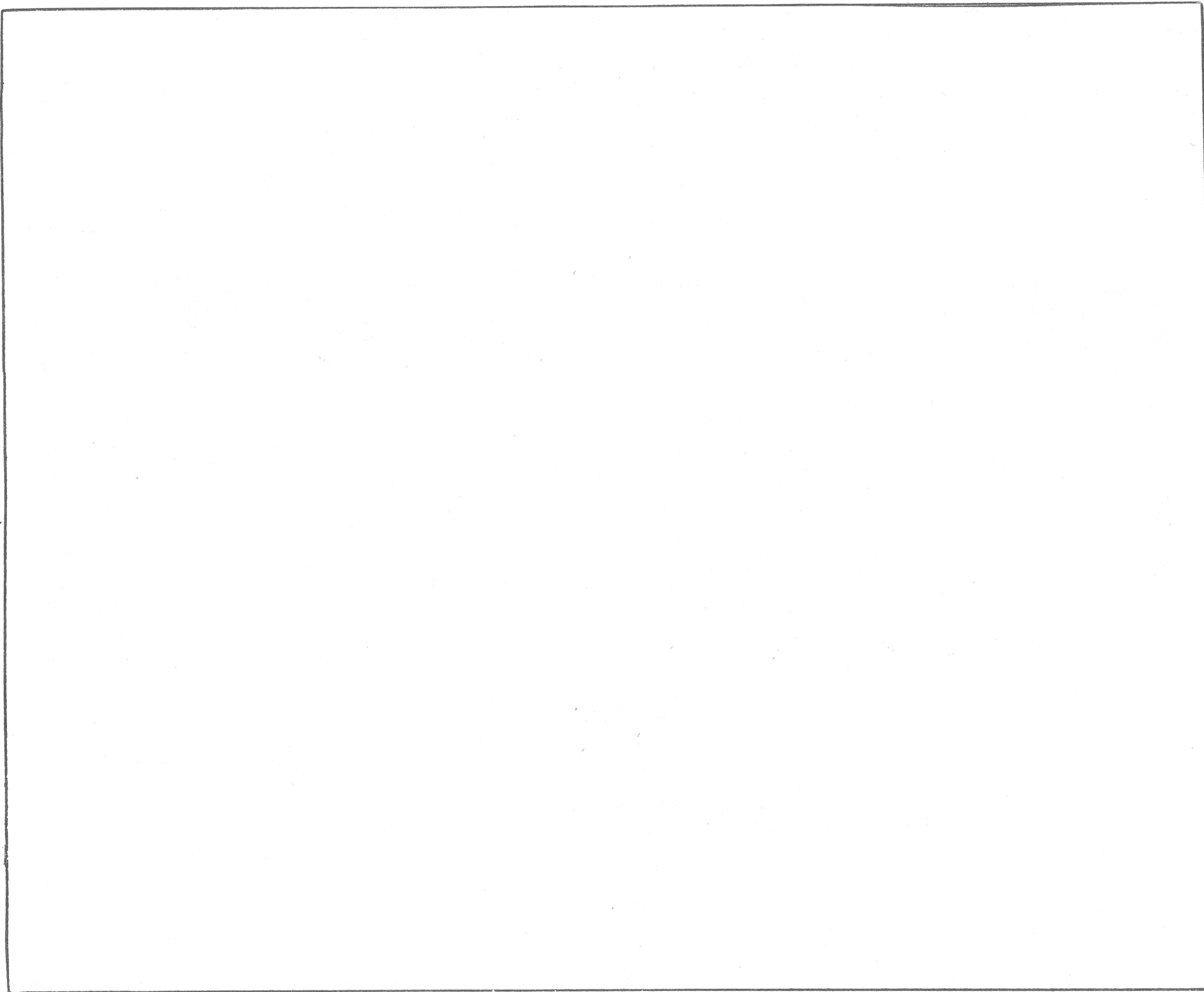
NAVAER-1335I (New 5-52)

1 JULY 1954

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AD-4B

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28

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

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