

29

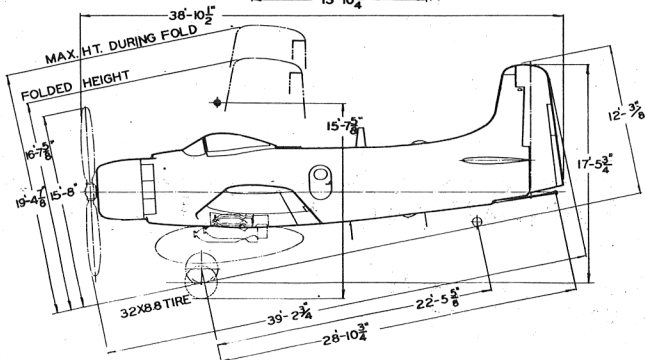
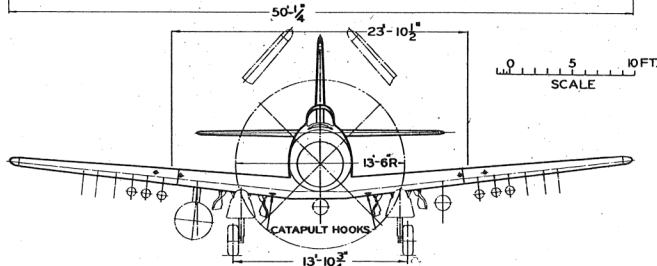
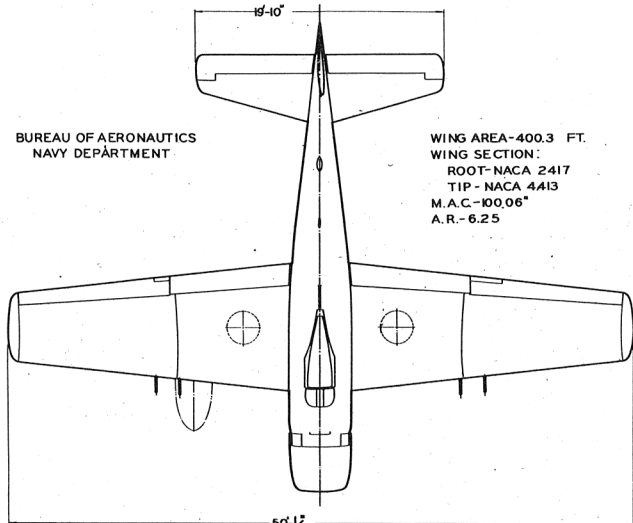
Standard Aircraft Characteristics NAVAER 1335A (REV. 1-49)

STANDARD AIRCRAFT CHARACTERISTICS AD-4N "SKYRAIDER"

DOUGLAS

BUREAU OF AERONAUTICS
NAVY DEPARTMENT

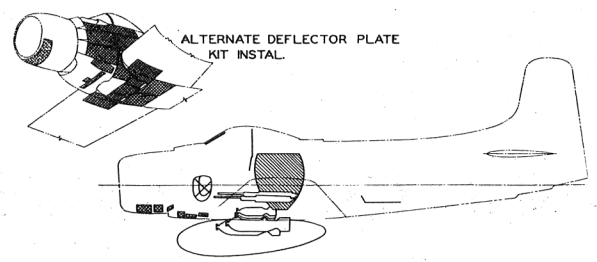
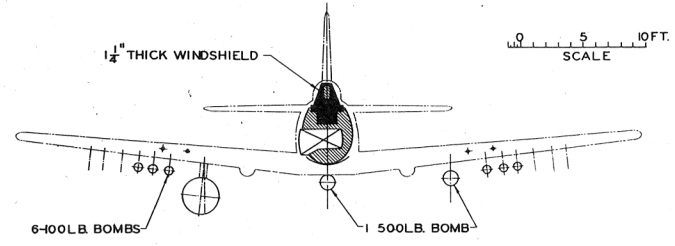
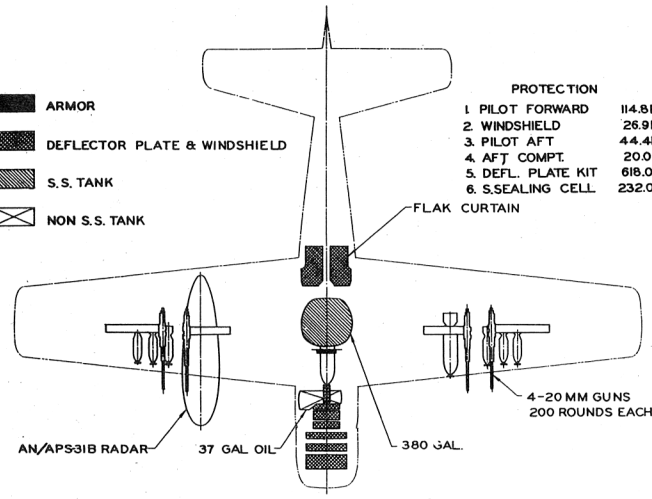
WING AREA-400.3 FT.
WING SECTION:
ROOT-NACA 2417
TIP-NACA 4413
M.A.C.-100.06"
A.R.-6.25



DESCRIPTIVE ARRANGEMENT

- ARMOR
- DEFLECTOR PLATE & WINDSHIELD
- S. S. TANK
- NON S. S. TANK

- PROTECTION
- 1 PILOT FORWARD 114.8LBS.
 - 2 WINDSHIELD 26.9LBS.
 - 3 PILOT AFT 44.4LBS.
 - 4 AFT COMPT. 20.0LBS.
 - 5 DEFL. PLATE KIT 618.0LBS.
 - 6 S.SEALING CELL 232.0LBS.



ARMAMENT & TANKS

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

31

Standard Aircraft Characteristics NAVAER-1335C

POWER PLANT	
NO. & MODEL.....	(1)R-3350-26WA
MFR.....	Wright
SUPERCH.....	1 Stage, 2 Speed
RED. GR. RATIO.....	0.4375
PROP. MFR.....	Aero. Prod.
BLADE DESIGN.....	A642G8/M20A-162-0
NO. BL./DIA.....	4/13' -6"

RATINGS	
	<u>Bhp @ Rpm @ Alt</u>
	<u>S.L.</u>
T.O.	2,700 2,900 S.L. to
MIL	2,700 2,900 S.L. to
	3,700'
	2,100 2,600 11,500 to
	14,500'
NORMAL	2,300 2,600 S.L. to
	6,200"
	1,900 2,600 12,000
SPEC. NO.	to 17,000
	NG36-B

ORDNANCE			
<u>GUNS</u>			
<u>No.</u>	<u>Size</u>	<u>Location</u>	<u>Rds.</u>
4	20 mm	Wing	800
Mk. 1 Mod. 4 Gunsight.			
<u>BOMBS & ROCKETS STATIONS</u>			
<u>Racks</u>	<u>Max. Cap.</u>	<u>Location</u>	<u>No.</u>
Mk. 51	2,000#	Inner Wing	2
Douglas	2,000#	Center	1
Ejector		Fuselage	
Aero 14A	500#	Outer Wing	12
Maximum Bomb Capacity:			
	(Ship)	6,500 lbs.	
	(Shore)	9,000 lbs.	

MISSION AND DESCRIPTION	
<p>The primary mission of the AD-4N airplane is that of night attack and radar counter-measures. It may also be used as a bomber, torpedo or scout airplane. The equipment includes sonobuoys, searchlight, periscope, and APA-16 for ASW attack missions. The AD-4N is a single engine, three place attack, land-plane with equipment for operation from carriers.</p> <p>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, and wing folding 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 counter-measures equipment. An entrance door is provided on each side of the aft compartment for normal access and is equipped with emergency release for bail-out.</p>	
DEVELOPMENT	
First Flight	----- Feb 1950
Service Use	----- May 1950

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		
<u>Loadings</u>	<u>Lbs.</u>	<u>L.F.</u>
EMPTY.....	12,715.....	
BASIC.....	13,621.....	
DESIGN.....	15,595..6.0..	
COMBAT.....	16,573..5.7..	
MAX. T.O. (Field)	24,000.....	
(Cat.)	20,500.....	
MAX. LAND (Field)	21,000.....	
(Arrest)	17,500.....	

All weights are actual

FUEL AND OIL		
<u>Gals.</u>	<u>No. Tanks</u>	<u>Location</u>
380	1	Fuse., S.S.
150	1	Ctr. Drop
300	2	Wing 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-1A or AN/ARC-27
TRANS REC.....	AN/ARC-2
INTERPHONE.....	AN/AIC-4A
RADIO ALTM.....	AN/APN-1
RANGE REC.....	R-23A/ARC-5
RADIO REC.....	AN/ARR-2A
IFF.....	AN/APX-6
SEARCHLIGHT.....	AN/AVQ-2A
RADAR.....	AN/APS-31B
RADAR RELAY REC.....	AN/ARR-27A

(Cont'd on Note Page)

PERFORMANCE SUMMARY

TAKE-OFF LOADING CONDITION	(1) Night Attack 12-100# 1-500# 1-1000# Bombs	(3) Countermeasures AN/APT-16 Radar MX900A Wind Disp.	(4) ASW Attack Sngl. Disp. Srchlt. 8-5 HPAG Rockets 1-Mk. 41 Torpedo
TAKE-OFF WEIGHT	lb. 20,185	18,124	20,416
Fuel	lb. 2,280	2,280	2,280
Payload Bombs/Rockets	lb. 2,700/ None	None/ None	None/1,000
Wing loading	lb./sq.ft. 50.4	45.3	51.1
Stall speed - power-off	kn. 85.2	80.7	85.7
Take-off run at S.L. - calm	ft. 1,070	790	1,115
Take-off run at S.L. 25 kn. wind	ft. 525	370	555
Take-off to clear 50 ft. - calm	ft. -	-	-
Max. speed/altitude (A)	kn./ft. 235/18,400	292/19,700	258/19,000
Rate of climb at S.L. (A)	fpm 1,500	2,150	1,640
Time: S.L. to 10,000 ft. (A)	min. 7.3	4.8	6.5
Time: S.L. to 20,000 ft. (A)	min. 20.3	11.8	16.5
Service ceiling (100 fpm) (A)	ft. 22,700	28,300	24,300
Combat range	n.mi. 435	710	580
Average cruising speed	kn. 190	202	157
Cruising altitude(s)	ft. 15,000	15,000	1,500
Combat radius	n.mi. 160	230	* 230
Average cruising speed	kn. 168	174	157
COMBAT LOADING CONDITION	(2) Combat		
COMBAT WEIGHT	lb. 16,573		
Engine power	Military		
Fuel	lb. 1,368		
Combat speed/combat altitude	kn./ft. 281/S.L.		
Rate of climb/combat altitude	fpm/ft. 3,090		
Combat ceiling (500 fpm)	ft. 27,100		
Rate of climb at S.L.	fpm 3,090		
Max. speed at S.L.	kn. 281		
Max. speed/altitude	kn./ft. 304/17,500		
LANDING WEIGHT	lb. 15,421		
Fuel	lb. 512		
Stall speed - power-off	kn. 74.5		
Stall speed - with approach power	kn. 72.1		

See ASW problem listed on note page.
(A) Normal rated power.

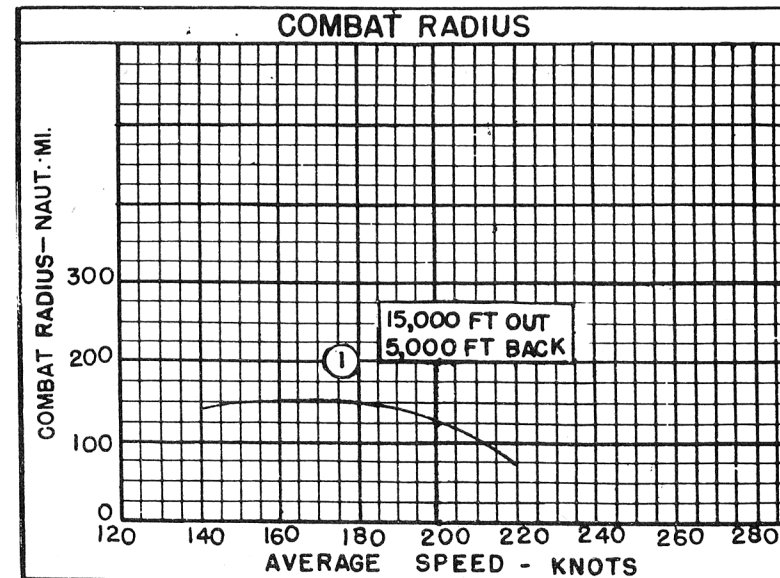
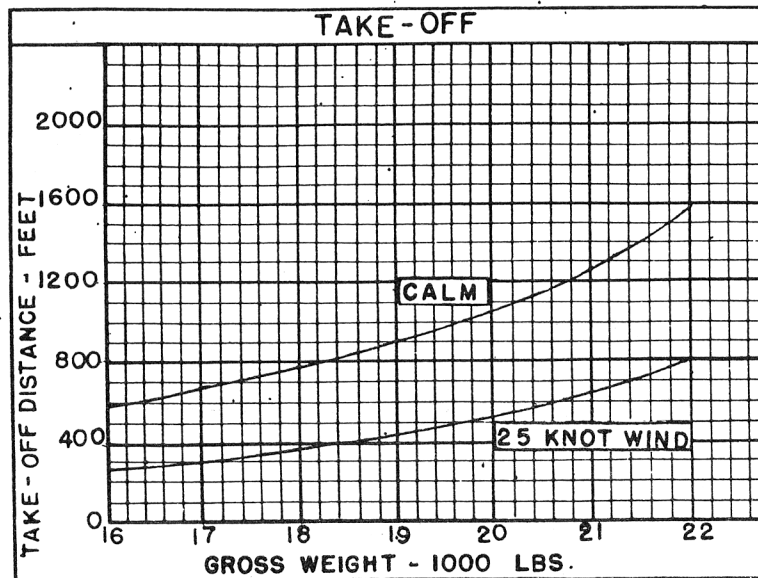
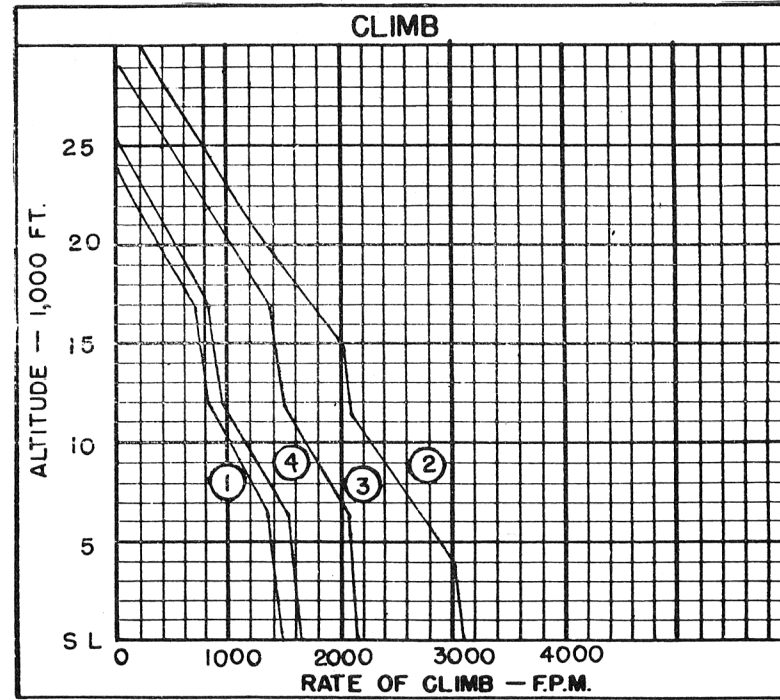
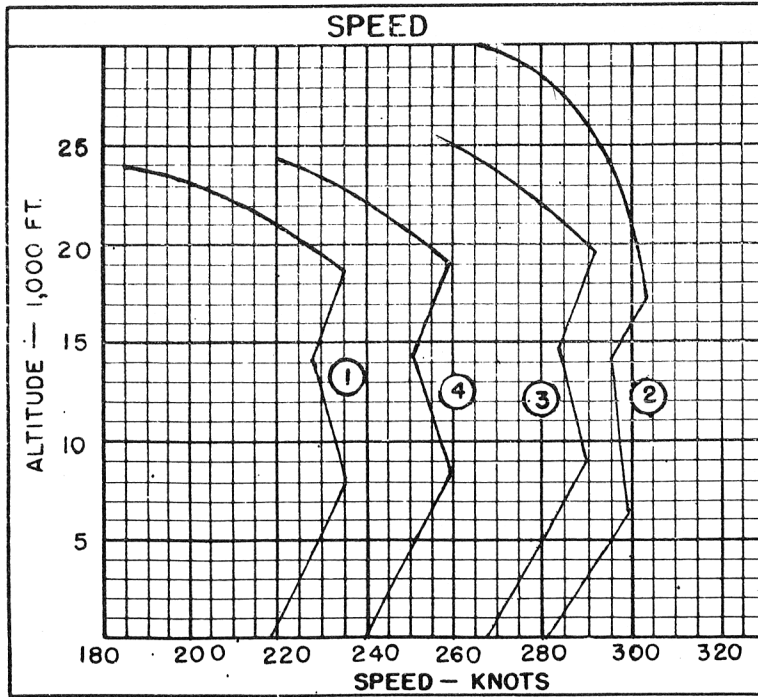
NOTES

- Performance is based on AD series flight tests.
- Range and radius are based on AD series flight test fuel consumption data increased 5%.
- All loadings include 12 Aero-14A racks and AN/APS-31 radar.
- All loadings but (4) include 4-20 mm guns.
- 20 airplanes (wings folded) can be spotted in a rectangular area 200 feet long and 96 feet wide.

32

NAVAIR-1335D (Rev. 10-51)

33



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

○ LOADING CONDITION COLUMN NUMBER

NOTES

Addition of External Armor Plate (See Armament and Tanks Description) increases the gross weight 600 pounds and results in the following performance changes:

- Δ Maximum speed at sea level (military power) = -1 knot.
- Δ Maximum speed at A.C.A. (military power) = -2 knots.
- Δ Stall speed (power off) = +1.4 knots
- Δ Service ceiling (normal power) = -800 feet.
- Δ Take-off distance, deck 25 knot wind = +48 feet.
- Δ Combat radius = -10 nautical miles.

LOADING CONDITIONS (1) AND (3)

LOW ALTITUDE ATTACK COMBAT RADIUS PROBLEM (RECIPROCATING ENGINE)

WARM-UP, TAXI, TAKE-OFF: 10 minutes at normal power.

CLIMB: On course to 15,000 feet at normal power.

CRUISE-OUT: At 15,000 feet, at V for long range. External fuel tanks dropped when empty.

DESCEND: To sea level. (No fuel used, no distance gained).

DROP BOMBS, FIRE ROCKETS.

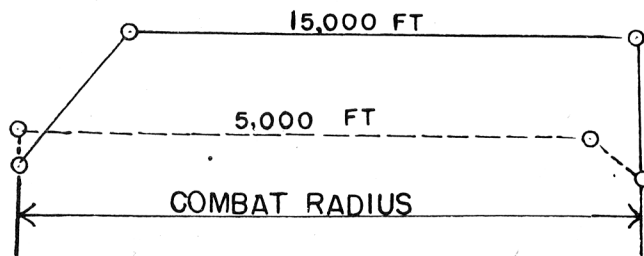
COMBAT: 15 minutes at sea level. (5 minutes at military power and 10 minutes at normal power.)

CLIMB: On course to 5,000 feet at normal power.

CRUISE-BACK: At 5,000 feet at V for long range.

RESERVE: 20 minutes at V for long range at sea level plus 5% of initial fuel load.

$$\text{COMBAT RADIUS} = \text{CLIMB} + \text{CRUISE-OUT} = \text{CLIMB} + \text{CRUISE-BACK}$$



ASW RANGE AND RADIUS PROBLEM

WARM-UP, TAXI, TAKE-OFF: 10 minutes at normal power.

CLIMB: On course to 1,500 feet at normal power.

CRUISE: At V for long range at 1,500 feet. External fuel tanks dropped when empty.

RESERVE: 20 minutes at V for long range plus 5% of initial fuel load.

$$\text{COMBAT RANGE} = \text{CLIMB} + \text{CRUISE}$$

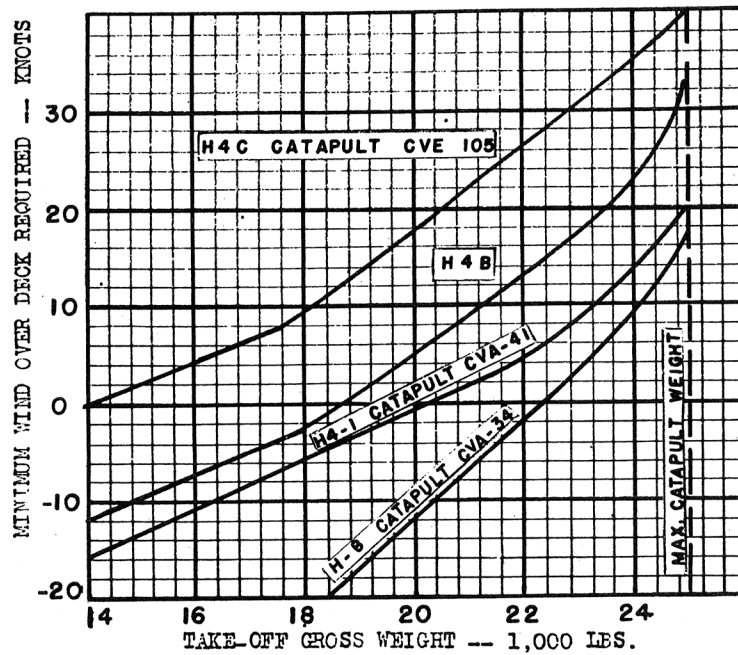
$$\text{COMBAT RADIUS} = 40\% \text{ OF COMBAT RANGE}$$

ELECTRONICS (Cont'd)

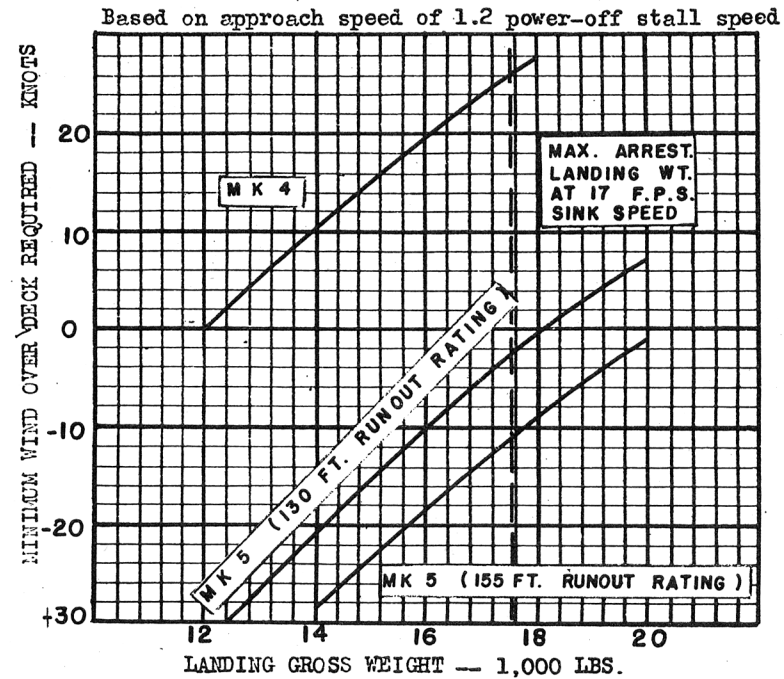
SONOBUOY REC.....AN/ARR-26
 WIRE RECORDER.....IC/VRW-7
 ECM DF.....AN/APA-70B
 ECM RECEIVER.....AN/APR-9B

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)

