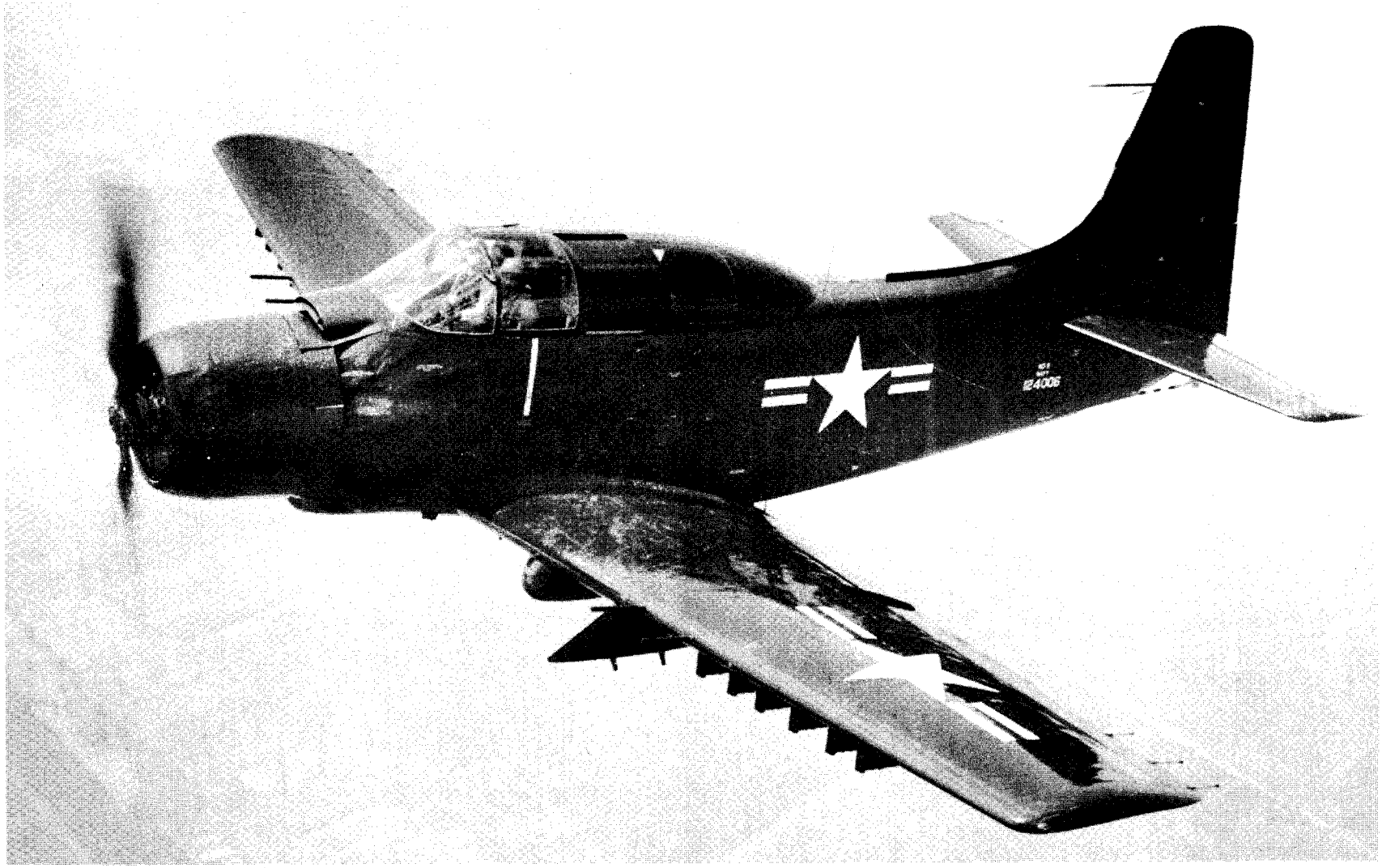
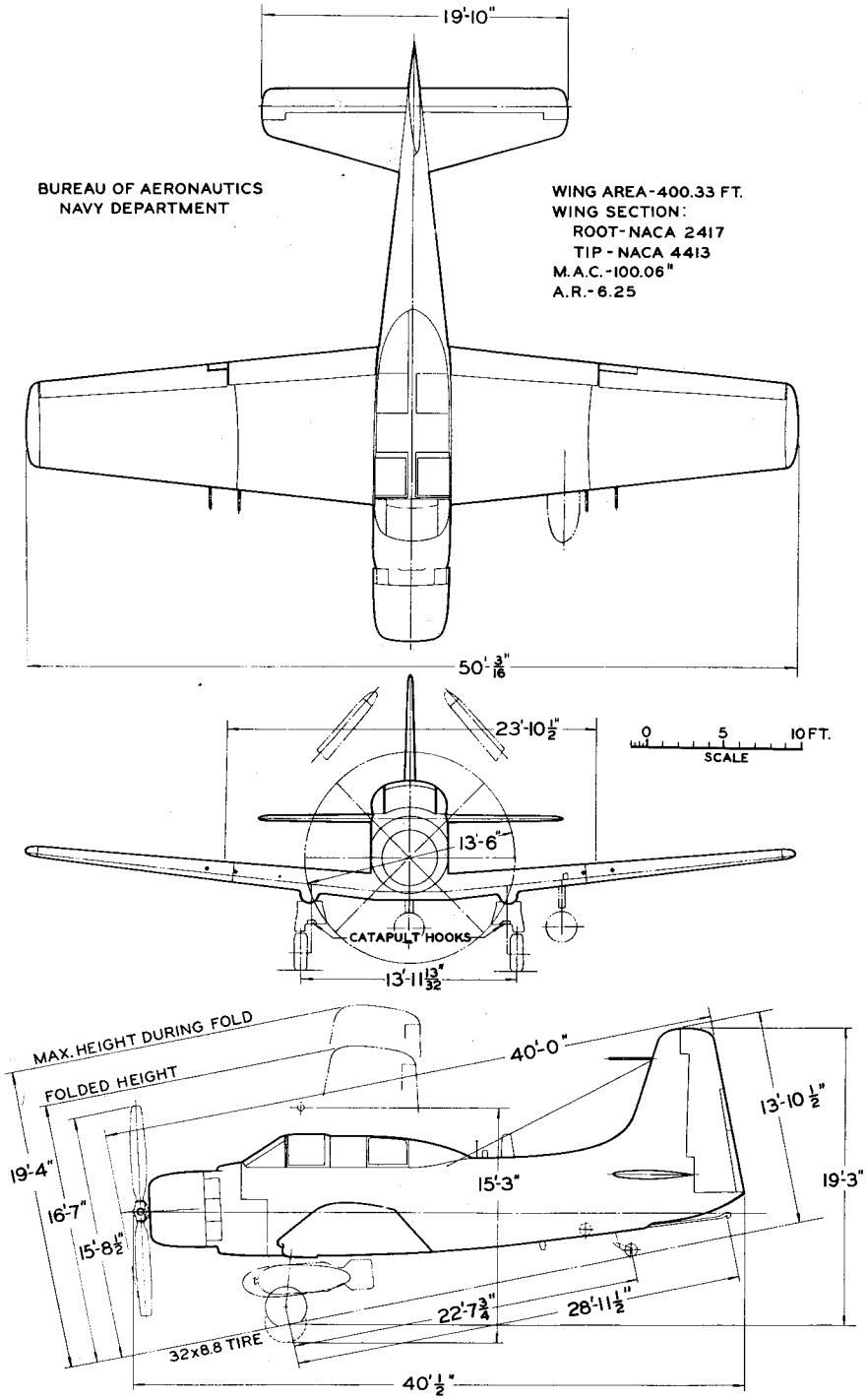


STANDARD AIRCRAFT CHARACTERISTICS

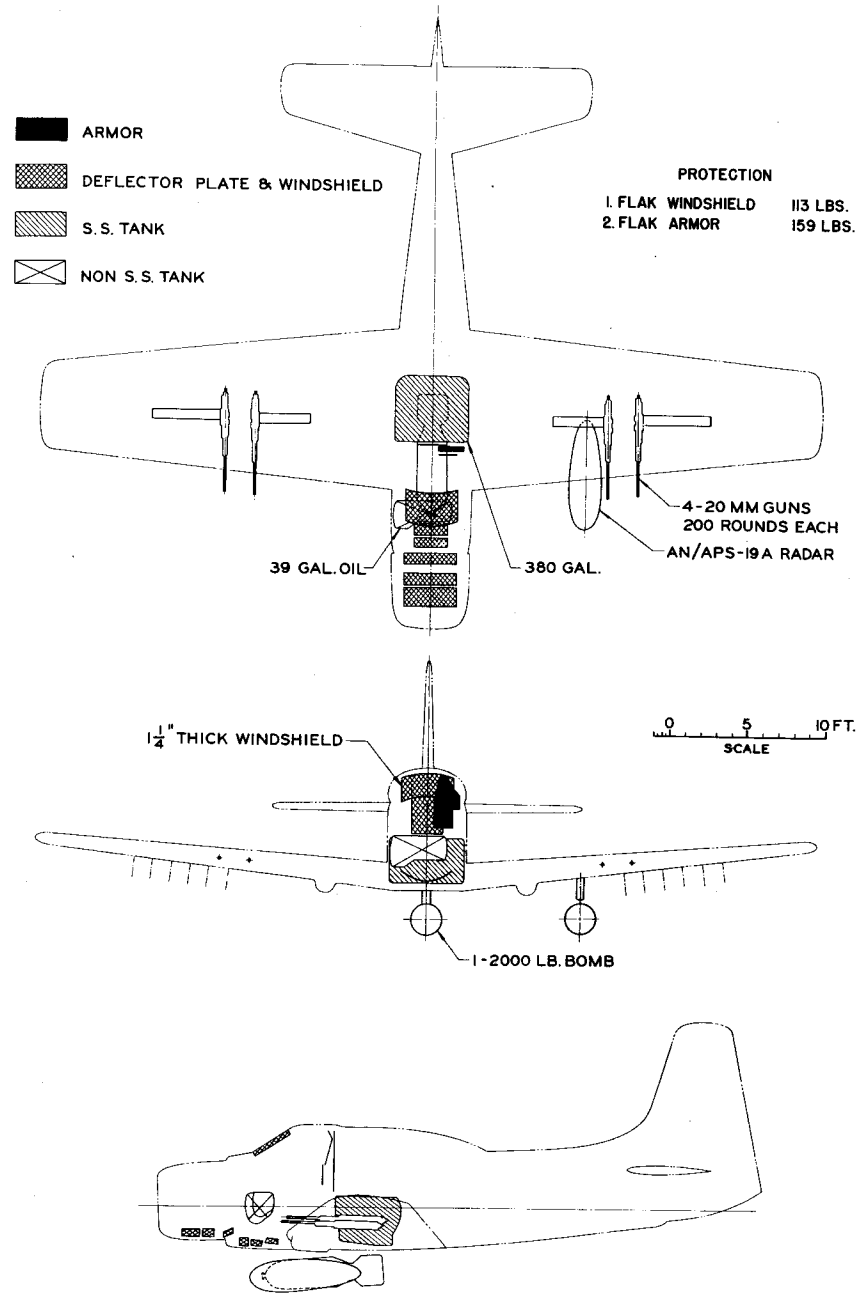
AD-5 "SKYRAIDER"

DOUGLAS

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



DESCRIPTIVE ARRANGEMENT



ARMAMENT & TANKS

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.
MIL.	2,700	2,900	3,700'
	2,100	2,600	14,500'
NORM.	2,300	2,600	S. L.
	1,900	2,600	17,100'

SPEC. NO. N-836

ORDNANCE

GUNS

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

Illum. Sight.....Mk. 8-10

BOMBS & ROCKETS

Type	Size	Location	No.
Bombs	250#	Wings & Fuse.	15
Bombs	500#	Wings & Fuse.	9
Bombs	1000#	Wings & Fuse.	3
Bombs	2000#	Wings & Fuse.	3
D.B.	350#	Wings & Fuse.	15
Mines	500#	Wings & Fuse.	9
Mines	2000#	Wings & Fuse.	3
Torp.	2160#	Wings & Fuse.	3
Rock.	11.75"	Wings	2
HPAG	5"	Wings	12
HVAR	5"	Wings	12

12 Combination Bomb Rack and Rocket Launchers....Aero 14A

MAX. BOMB LOAD.....9,000 lbs.

MISSION AND DESCRIPTION

The principal mission of the AD-5 is that of general purpose attack and ground support. It is also an effective torpedo, mine layer, or scout airplane capable of operating from any type fleet carrier or from land bases. The AD-5 is a development of the AD series and incorporates side-by-side seating for an assistant pilot, increased armament, improved equipment arrangement, and improved aerodynamic characteristics. The revised crew arrangement facilitates all-weather operation and permits utilization for long range navigation, radar search, spotting and observation, air support coordination, instrument training, pilot familiarization, and other operations requiring a second crew member. Controls, armament, and tactical equipment are located for single pilot operation. A single dive brake is provided for dive bombing and maneuvering control.

The AD-5 can be converted rapidly aboard a carrier for operation as a passenger-cargo, ambulance, tow target, or photographic airplane by installation of appropriate conversion kits supplied as alternate equipment. This model also retains complete structural provisions for installing any item of tactical equipment normally carried on any other AD-5 model.

First flight -- 17 August 1951
Service use to start -- April 1953

DIMENSIONS

WING AREA.....400 sq. ft.
SPAN.....50' - 0"
LENGTH.....40' - 0"
HEIGHT.....15' - 9"
TREAD.....13' - 11"
M.A.C.....8' - 4"
PROP. CLEAR.....6"

WEIGHTS

Loadings	Lbs.	L.F.
EMPTY	12,110	.....
BASIC	13,563	.....
DESIGN	17,800	6.0
COMBAT	15,793	6.9
MAX.T.O..(Field)	23,400*	4.4
(Cat.)	23,400	.....
MAX.LAND.(Field)	21,000	.....
(Arrest)	17,000	.....

All weights are calculated.

*Maximum anticipated loading.

FUEL AND OIL

Gals.	No. Tanks	Location
380	1	Fuse., S.S.
150 (or 300)	1	Ctr., Drop
150 (or 300)	2	Wing, Drop

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

OIL

CAPACITY (Gals.).....39
GRADE.....1120
SPEC.....MIL-O-6082

ELECTRONICS

VHF TRANS-REC.....AN/ARC-27A
NAV. REC.....AN/ARR-2A
MARKER BEACON.....AN/ARN-12
IFF.....AN/APX-6
RADAR.....AN/APS-19C
INTERPHONE.....AN/AIC-4A
ALTIMETER.....AN/APN-1 or -22
RADIO COMPASS.....AN/ARN-6
UHF D.F.....AN/ARA-25
RADIO SET.....AN/ARN-21
(Planned Service Installation)

(Continued on NOTES)

PERFORMANCE SUMMARY

TAKE-OFF LOADING CONDITION		(1) DAY ATTACK 1-2000 Lb. Bomb AN/APS-19A Radar	(3) DAY ATTACK 1-2000 Lb. Bomb 2-150 Gal. Tanks 12-5 In. HVAR			
TAKE-OFF WEIGHT	lb.	18,705	22,264			
Fuel (Fixed/Drop)	lb.	2,280/-	2,280/1,800			
Payload (Bombs, Rockets)	lb.	2,000/-	2,000/1,680			
Wing loading	lb./sq.ft.	46.8	55.7			
Stall speed - power-off	kn.	82.0	89.5			
Take-off run at S.L. - calm	ft.	860	1,650			
Take-off run at S.L. 25 kn. wind	ft.	410	860			
Take-off to clear 50 ft. - calm	ft.	—	—			
Max. speed/altitude (A)	kn./ft.	285/19,500	255/18,700			
Rate of climb at S.L. (A)	fpm	2,010	1,355			
Time: S.L. to 10,000 ft. (A)	min.	5.4	8.4			
Time: S.L. to 20,000 ft. (A)	min.	13.6	25.8			
Service ceiling (100 fpm) (A)	ft.	27,100	21,800			
Combat range	n.mi.	650	1,080			
Average cruising speed	kn.	200	205			
Cruising altitude(s)	ft.	15,000	15,000			
Combat radius	n.mi.	225	510			
Average cruising speed	kn.	187	192			
COMBAT LOADING CONDITION		(2) COMBAT (Bomb Away)				
COMBAT WEIGHT	lb.	15,793				
Engine power		Military				
Fuel	lb.	1,368				
Combat speed/combat altitude	kn./ft.	281/S.L.				
Rate of climb/combat altitude	fpm/ft.	3,290/S.L.				
Combat ceiling (500 fpm)	ft.	28,300				
Rate of climb at S.L.	fpm	3,290				
Max. speed at S.L.	kn.	281				
Max. speed/altitude	kn./ft.	305/17,400				
LANDING WEIGHT	lb.	14,644				
Fuel	lb.	219				
Stall speed - power-off	kn.	72.6				
Stall speed - with approach power	kn.	67.1				

NOTES

(A) Normal Power

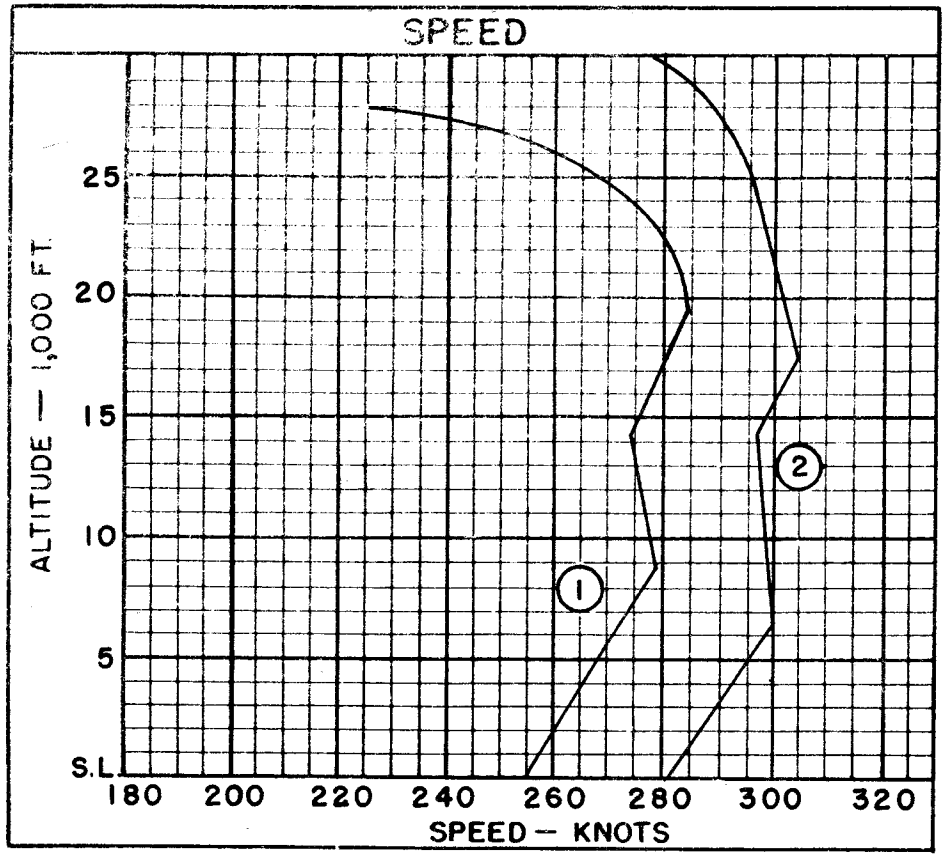
Performance is based on AD series flight test.

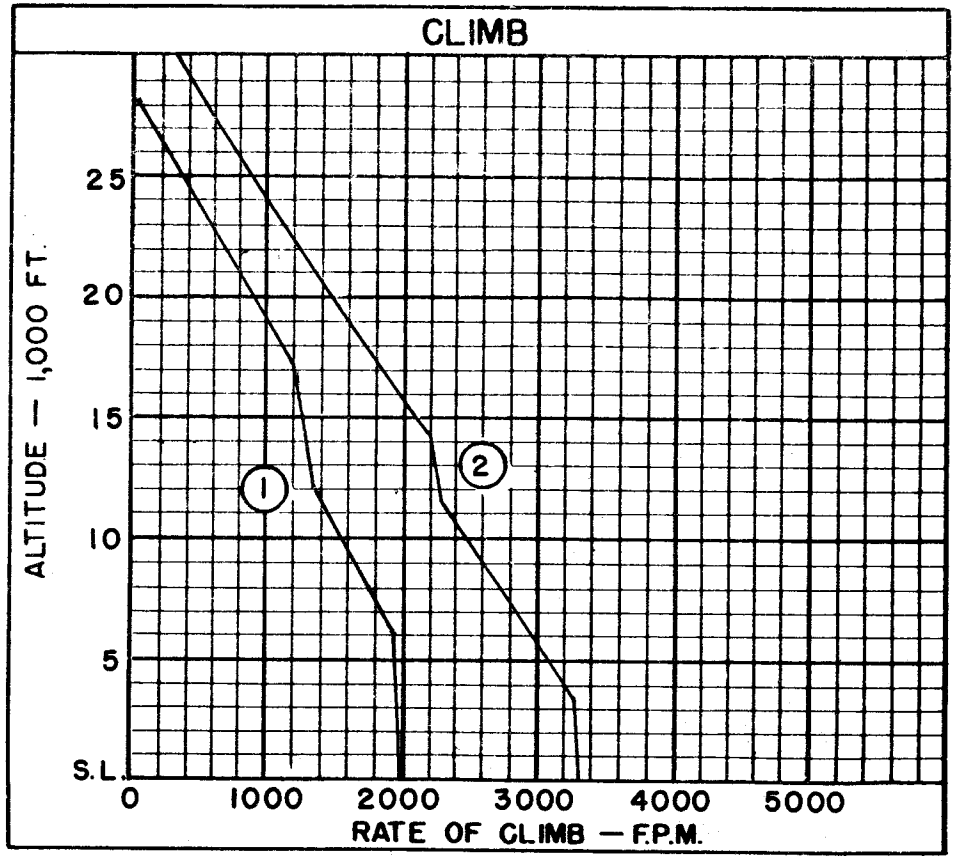
- -

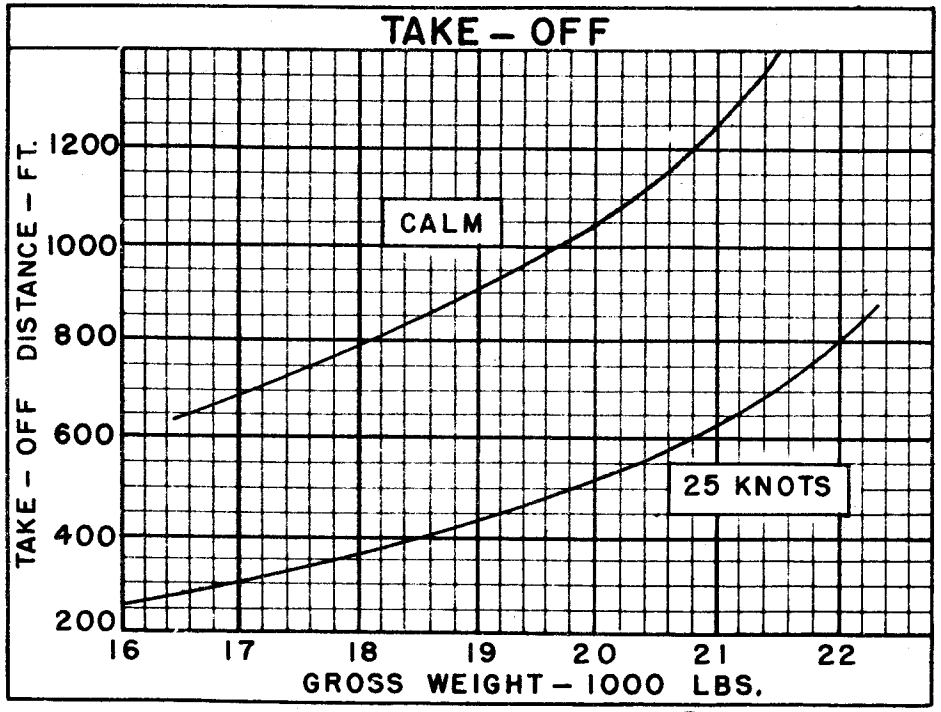
Range and radius are based on AD series flight test fuel consumption data increased 5%.

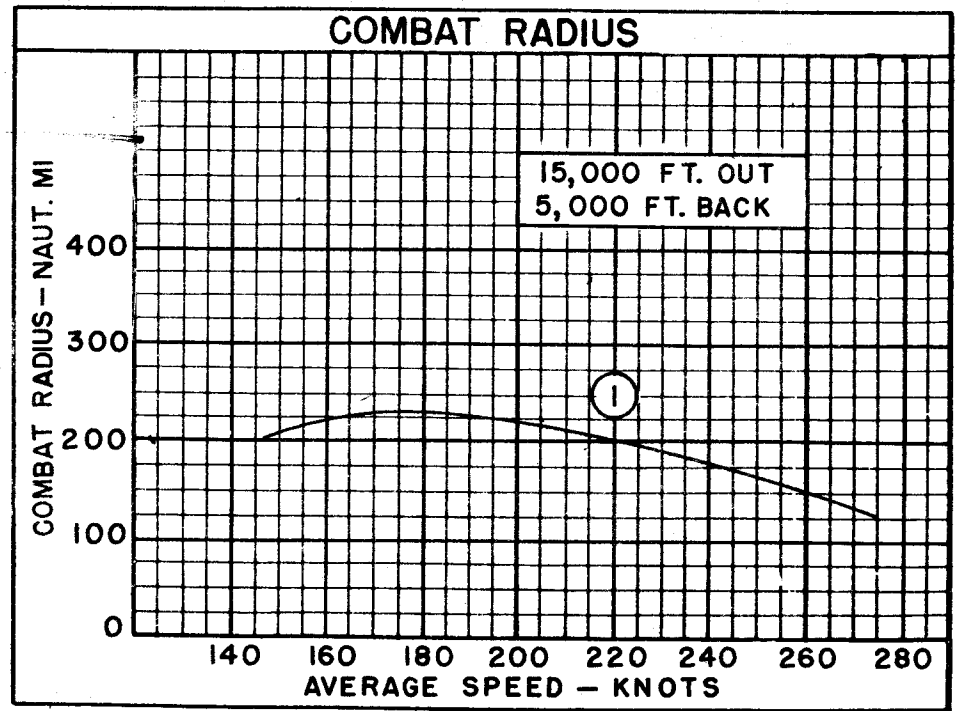
- -

All loadings include 12 Aero-14A racks and 1 Mk. 51 rack.


SPEED
ALTITUDE — 1,000 FT.
25
20
15
10
5
S.L.
180
200
220
240
260
280
300
320
SPEED — KNOTS
1
2


CLIMB
ALTITUDE — 1,000 FT.
25
20
15
10
5
S.L.
0
1000
2000
3000
4000
5000
RATE OF CLIMB — F.P.M.
1
2


TAKE — OFF
TAKE — OFF DISTANCE — FT.
1200
1000
800
600
400
200
16
17
18
19
20
21
22
GROSS WEIGHT — 1000 LBS.
CALM
25 KNOTS


COMBAT RADIUS
COMBAT RADIUS — NAUT. MI
400
300
200
100
0
140
160
180
200
220
240
260
280
AVERAGE SPEED — KNOTS
15,000 FT. OUT
5,000 FT. BACK
1

NOTES

Spotting: 200 ft. length is required to spot 19 airplanes (wings folded) on the 96 ft. wide deck immediately aft of the forward ramp on CV-9 carriers.

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.

COMBAT RADIUS = CLIMB + CRUISE-OUT = CLIMB + CRUISE-BACK

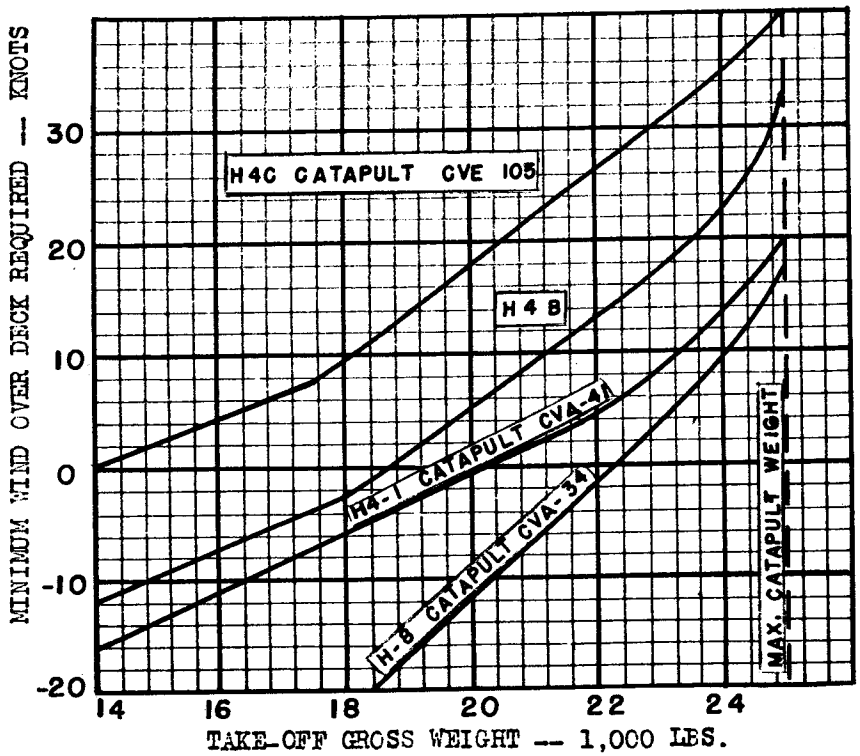
ELECTRONICS (Continued)

RADIO BOMB DETECTING SET.....AN/ARB-2
(Planned Service Installation)
Provisions for:
VHF COMM.....AN/ARC-1

Every aircraft has complete provisions for AN/APS-19C radar, but every fourth aircraft has complete installation of AN/APS-19C.

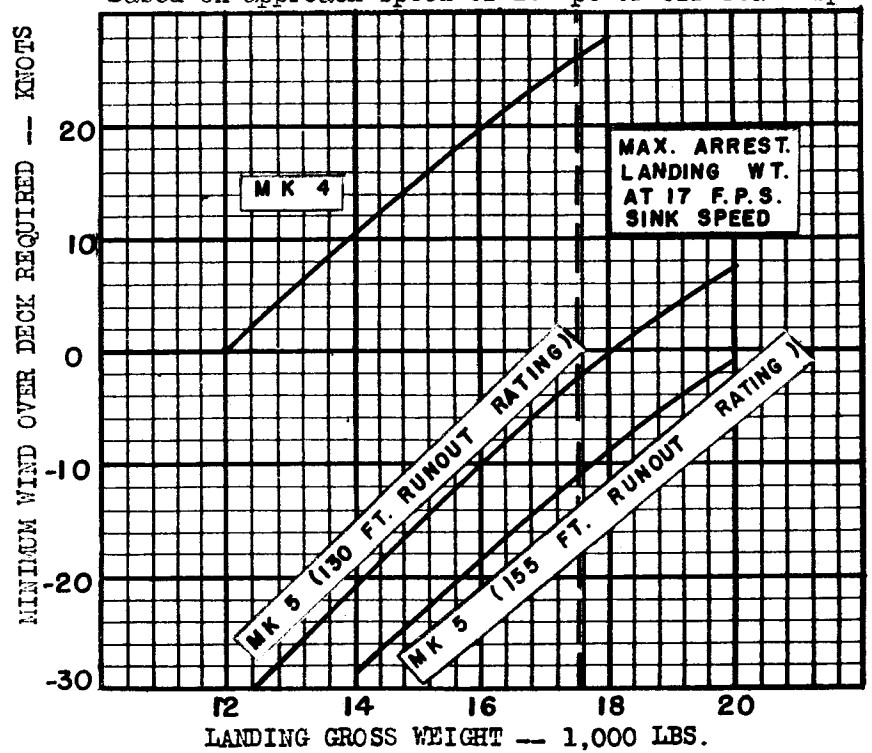
CARRIER SUITABILITY

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.