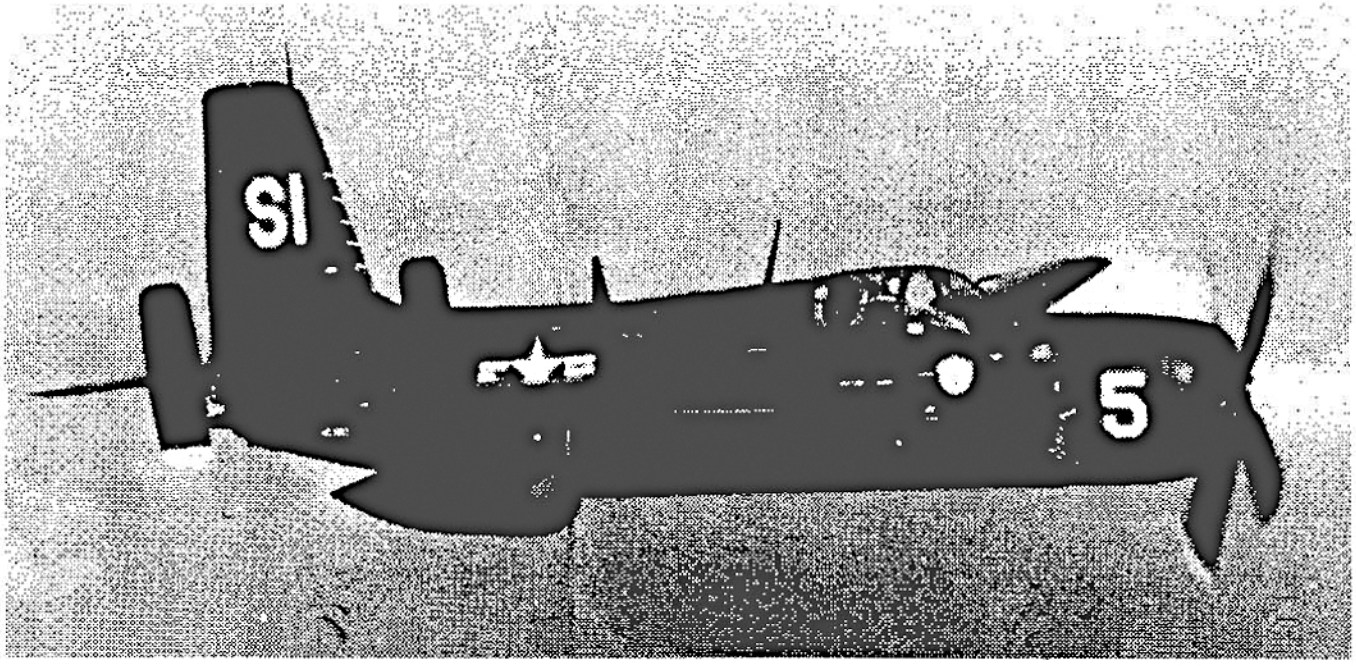


STANDARD AIRCRAFT CHARACTERISTICS

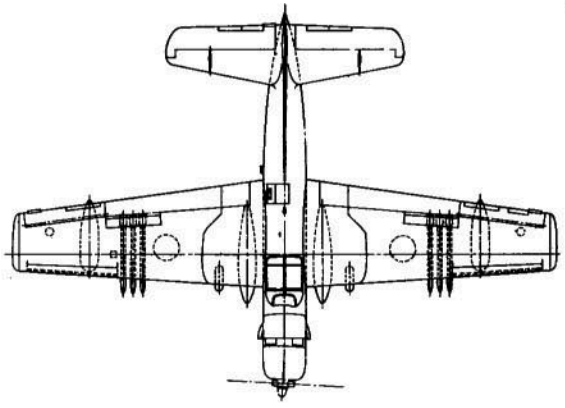
AF-2S "GUARDIAN"

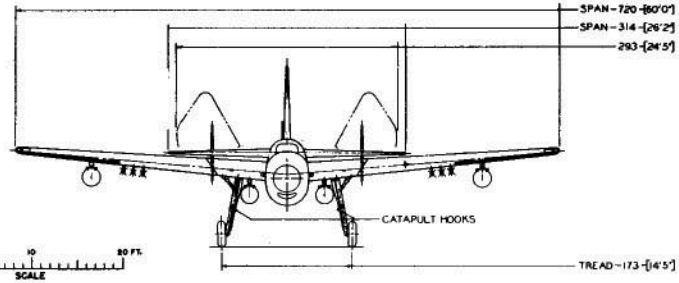
GRUMMAN

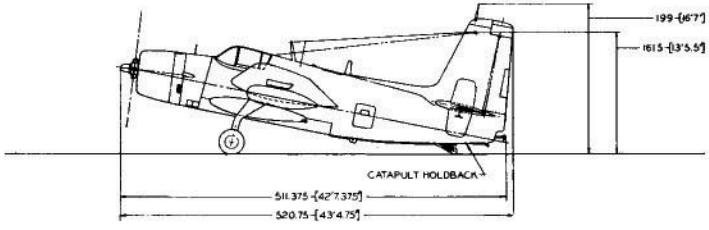
Standard Aircraft Characteristics NAVAER 1335A (REV. 1-49)

BUREAU OF AERONAUTICS
NAVY DEPARTMENT

WING AREA — 548.7
WING SECTION-
N.A.C.A. 23018-23012
M.A.C.- 115.07
ASPECT RATIO- 6.6



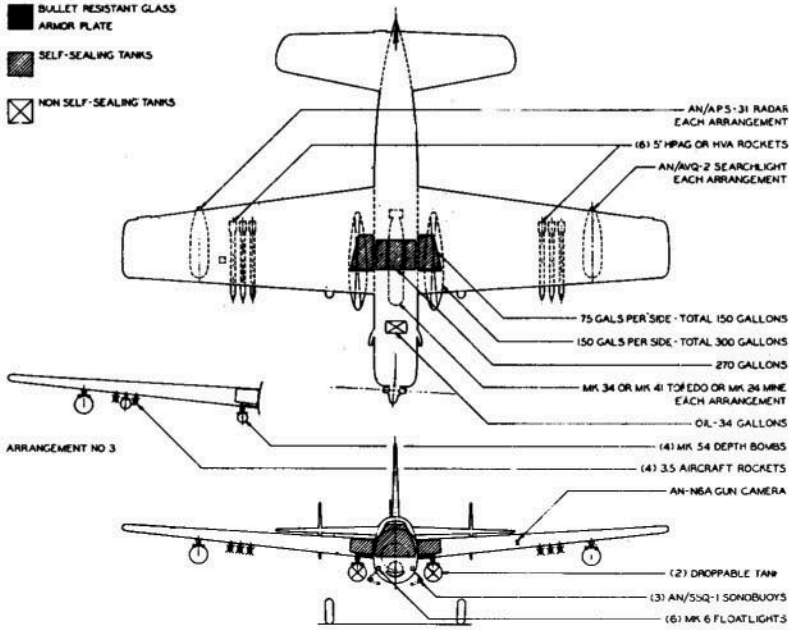




DESCRIPTIVE ARRANGEMENT

BUREAU OF AERONAUTICS
NAVY DEPARTMENT

BULLET RESISTANT GLASS ARMOR PLATE
SELF-SEALING TANKS
NON SELF-SEALING TANKS



ARMAMENT & TANKAGE

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

POWER PLANT

NO. & MODEL.....(1) R-2800-48
MFR.....Pratt & Whitney
SUPERCH.....1 Stage, 1 Speed
PROP. GEAR RATIO.....0.45
PROP. MFR.....Ham. Std.
PROP. DES. NO.....6557A-6
NO. BL./DIA.....4/13'-2"

RATINGS

	Bhp @	Rpm @	Alt.
T. O.	2,300	2,800	S. L.
MIL.	2,300	2,800	3,500'
NORMAL	1,900	2,600	7,000'

SPEC. NO. N-8132-C

ORDNANCE

BOMBS AND ROCKETS

Type	Size	Location	No.
Torp.	Mk. 41	Bomb Bay	1
Torp.	Mk. 34	Bomb Bay	1
Torp.	Mk. 24	Bomb Bay	1
D.B.	Mk. 54	Wings	4
	on 2 stub wing racks and 2 middle Aero 14A launchers (3.5" rockets only adjacent)		
HVAR	5"	Wings	6
	on 6 - Aero 14A launchers		
Sono. Disp.	Aero 2A	Wings	2

FIRE CONTROL

1 Bombsight, MK. 23-6 mounted on a MK. 41-3 Periscope
1 Gun Sight, MK. 8-8

CAMERAS

Gun Camera.....AN-N6A
Recon. Camera.....K-25A
MAX. BOMB CAPACITY....3,700 #

MISSION AND DESCRIPTION

The AF-2S airplane's primary mission is to attack enemy submarines after it has been directed to the submarine position last sighted by its companion aircraft, the AF-2W (search version). The AF-2S lays down a pattern of sonobuoys to determine exact location of the enemy submarine, after which, it launches its sonic-directed torpedo to complete the attack. Rockets and depth bombs may be carried to augment the attack.

The airplane is a 3 place land plane for operation ashore or aboard aircraft carriers, with or without the aid of a catapult.

The airplane is conventional in design and structure, with an all-metal 2 spar wing and a semi-monocoque fuselage. Landing gear, slotted flaps, wing folding and pilot's canopy are hydraulically operated. Ailerons are of sealed balance type with spring tabs and one trim tab. Rudder has a combination trim and 4 to 1 ratio balance tab. Elevators are interconnected; one is equipped with a spring tab and the other with a trim tab. Power plant installation is conventional with steel tube mount.

DIMENSIONS

WING AREA.....549 sq. ft.
SPAN.....60' - 0"
LENGTH.....43' - 5"
HEIGHT.....16' - 7"
TREAD.....14' - 5"
M.A.C.....9' - 7"
PROP. CLEAR.....9"

WEIGHTS

Loadings	Lbs.	L.F.
EMPTY	14,658	
BASIC	15,336	
DESIGN	19,200	5.0
COMBAT	18,123	5.0
MAX.T.O. (Field)	23,015*	4.2
MAX.LAND.(Field)	22,500	

All weights are actual.

*Maximum anticipated loading.

FUEL AND OIL

Gals.	No. Tanks	Location
270	1	Fuse., S.S.
150	2	Wing, S.S.
300	2	Wing, Drop

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

OIL

CAPACITY (Gals.).....32
GRADE.....1100
SPEC.....MIL-O-6082

ELECTRONICS

VHF COMMAND.....AN/ARC-1
UHF COMM....AN/ARC-27 or -27A (P.S.I., Repl. for AN/ARC-1)
MHF LIAISON.....AN/ARC-2
INTERPHONE....AN/AIC-4 or -4A
HOMING.....AN/ARR-2A
HOMING.....AN/ARN-21 (P.S.I., Repl. for AN/ARR-2A)
RANGE RECEIVER....R-23A/ARC-5
MARKER BEACON REC...AN/ARN-12
(Planned Service Installation)
RADAR ALT....AN/APN-1 or -22
Continued on NOTES sheet.

PERFORMANCE SUMMARY

TAKE-OFF LOADING CONDITION		(1) ATTACK 1-Mk. 34 Torp.	(3) ATTACK 1-Mk. 34 Torp. 3-Mk. 54 D.B. 4-3.5" ASW Rock.	(4) ATTACK 1-Mk.41-1 Torp. 6-5" HPAG Rock.	(5) ATTACK 1-Mk.41-1 Torp. 6-5" HPAG Rock. 1-150 Gal.Tank	
TAKE-OFF WEIGHT	lb.	20,298	21,555	21,463	22,565	
Fuel (Fixed/Drop)	lb.	2,520/-	2,520/-	2,520/-	2,520/900	
Payload	lb.	1,167	2,424	2,332	2,332	
Wing loading	lb./sq.ft.	37.0	39.3	39.1	41.1	
Stall speed - power-off	km.	76.9	79.2	79.0	81.0	
Take-off run at S.L. - calm	ft.	925	1,070	1,055	1,200	
Take-off run at S.L. 17.5km. wind	ft.	545	640	630	730	
Take-off to clear 50 ft. - calm	ft.	—	—	—	—	
Max. speed/altitude (1)	km./ft.	231/9,200	216/9,200	225/9,200	221/9,200	
Rate of climb at S.L. (1)	fpm	1,480	1,310	1,350	1,220	
Time: S.L. to 10,000 ft. (1)	min.	7.3	8.3	7.8	8.9	
Time: S.L. to 20,000 ft. (1)	min.	22.0	27.8	26.1	31.8	
Service ceiling (100 fpm) (1)	ft.	22,900	21,100	21,700	20,500	
Combat range	n.mi.	795	655	710	990	
Average cruising speed	km.	144	146	147	148	
Cruising altitude(s)	ft.	1,500	1,500	1,500	1,500	
Combat radius	n.mi.	320	260	285	395	
Average cruising speed	km.	144	146	147	148	

COMBAT LOADING CONDITION		(2) COMBAT
COMBAT WEIGHT	lb.	18,123
Engine power		Military
Fuel	lb.	1,512
Combat speed/combat altitude	km./ft.	233/1,500
Rate of climb/combat altitude	fpm/ft.	2,280/1,500
Combat ceiling (500 fpm)	ft.	21,600
Rate of climb at S.L.	fpm	2,300
Max. speed at S.L.	km.	230
Max. speed/altitude	km./ft.	239/4,000
LANDING WEIGHT	lb.	16,862
Fuel	lb.	249
Stall speed - power-off	km.	70.1
Stall speed - with approach power	km.	65.1

NOTES

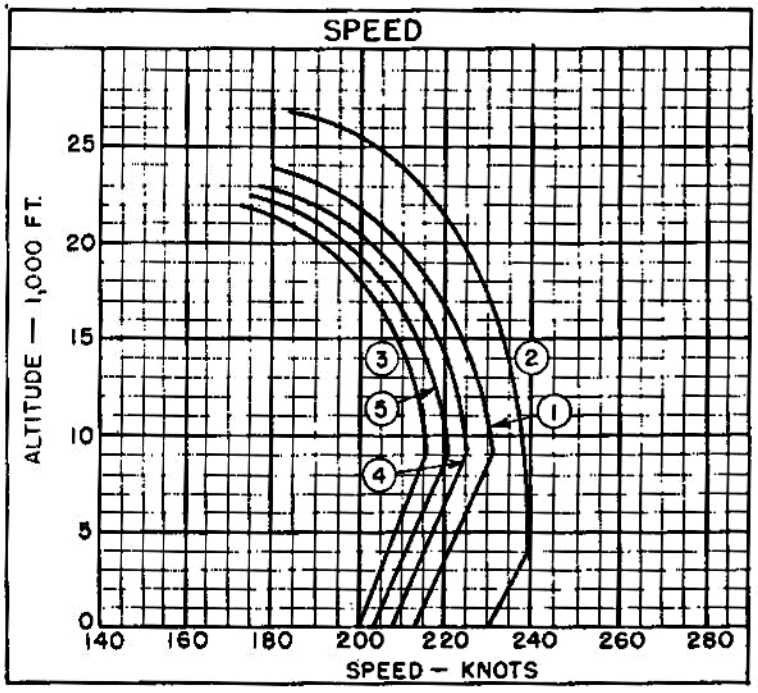
(1) Normal Power

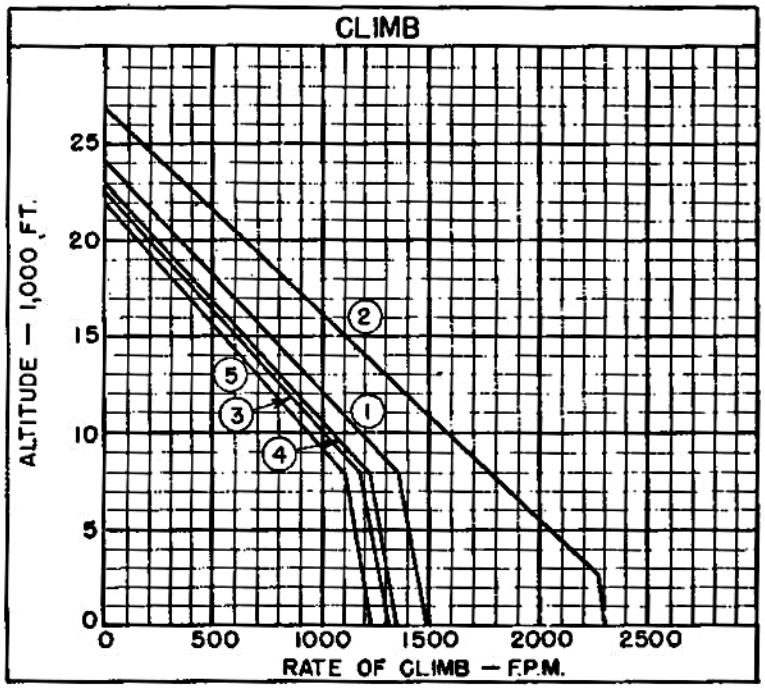
Performance is based on NATC flight test of the AF-2S airplane.

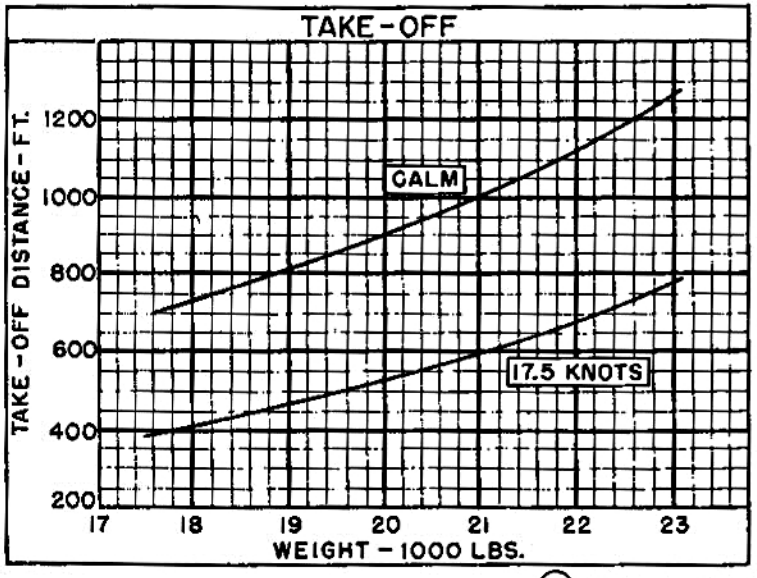
Range and radius are based on flight test fuel consumption data increased by 5%.

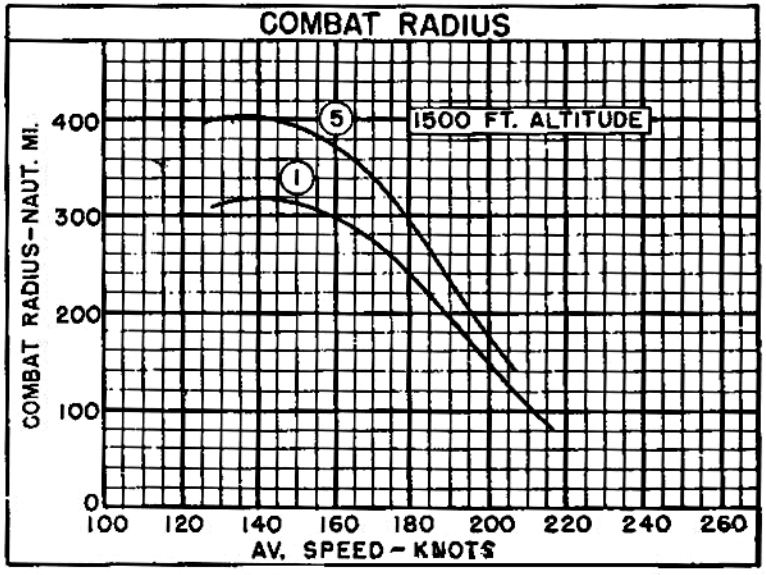
All conditions include AN/AVQ-2 searchlight on port wing and AN/APS-31 radome on starboard wing.

All climbs are made with rich mixture for satisfactory engine cooling.









◯ LOADING CONDITION COLUMN NUMBER

NOTES

Spotting: 200 ft. length is required to spot 16 airplanes on the 96 ft. wide deck immediately aft of the forward ramp on the CV-9 class carriers.

ASW RANGE AND RADIUS PROBLEM

WARM-UP, TAXI, TAKE-OFF: 10 minutes at normal power.
CLIMB: On course to 1,500 ft. at normal power.
COMBAT RANGE: Cruise at V for long range at 1,500 ft. External fuel tanks dropped when empty.
RESERVE: 20 minutes at V for long range plus 5% of initial fuel load.

COMBAT RADIUS = 40% OF COMBAT RANGE

ELECTRONICS (Continued)

COUNTERMEASURE REC. (RADAR).....AN/APR-9B
COUNTERMEASURE (RADAR).....AN/APA-70C
RADAR.....AN/APS-20C
SPEED CONTROL KIT.....AN/APS-20
RADAR RECEIVING SET.....AN/APR-12 (P.S.I.)
RADAR RELAY TRANS.....AN/ART-26 or -28
GROUND POSITION INDICATOR.AN/APA-57A or 57C
GROUND POSITION INDICATOR.....AN/APA-81
IFF.....AN/APX-2 or -2A
IFF.....AN/APX-6
IFF.....AN/APX-7
(P.S.I., Replacement for AN/APX-6)
COMBINED TILT-STABILIZED RADAR-IFF ANTENNA SYSTEM.....AS-539/APS-20
(P.S.I., when installed Speed Control Kit is to be removed)

This chart supersedes previously issued chart dated 1 October 1949.
Reason for reissue: NATC flight test data available.
