

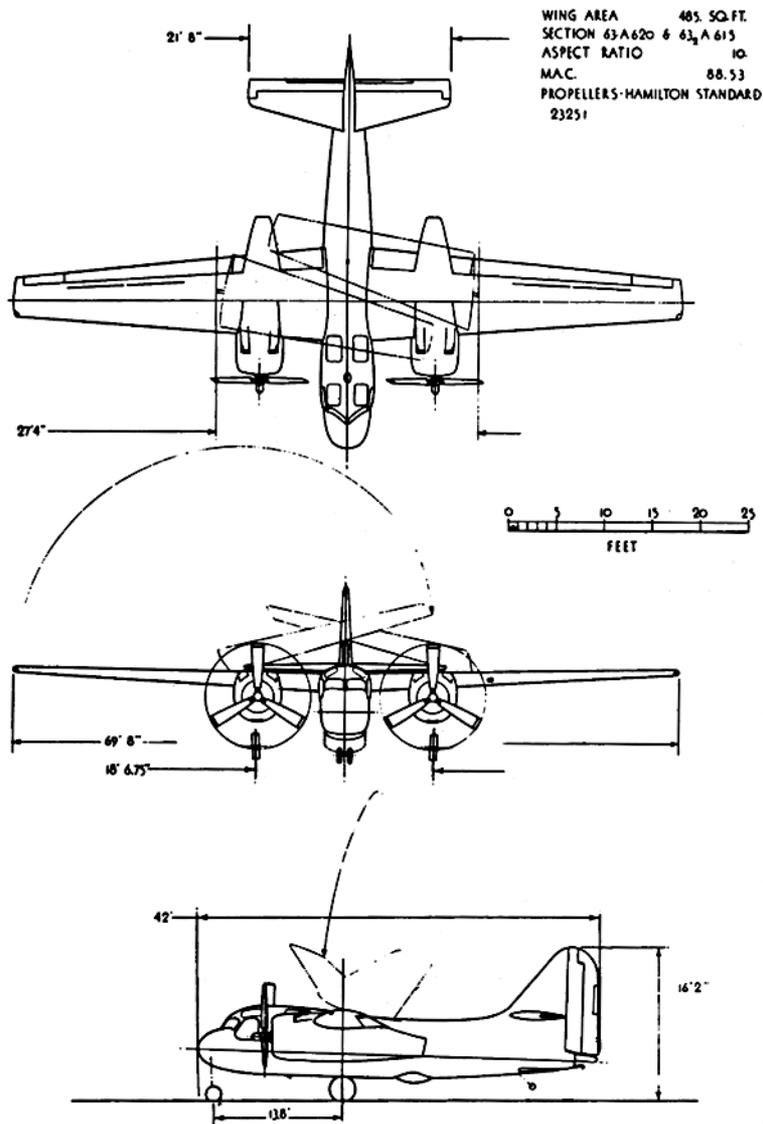
STANDARD AIRCRAFT CHARACTERISTICS

S2F-1

GRUMMAN

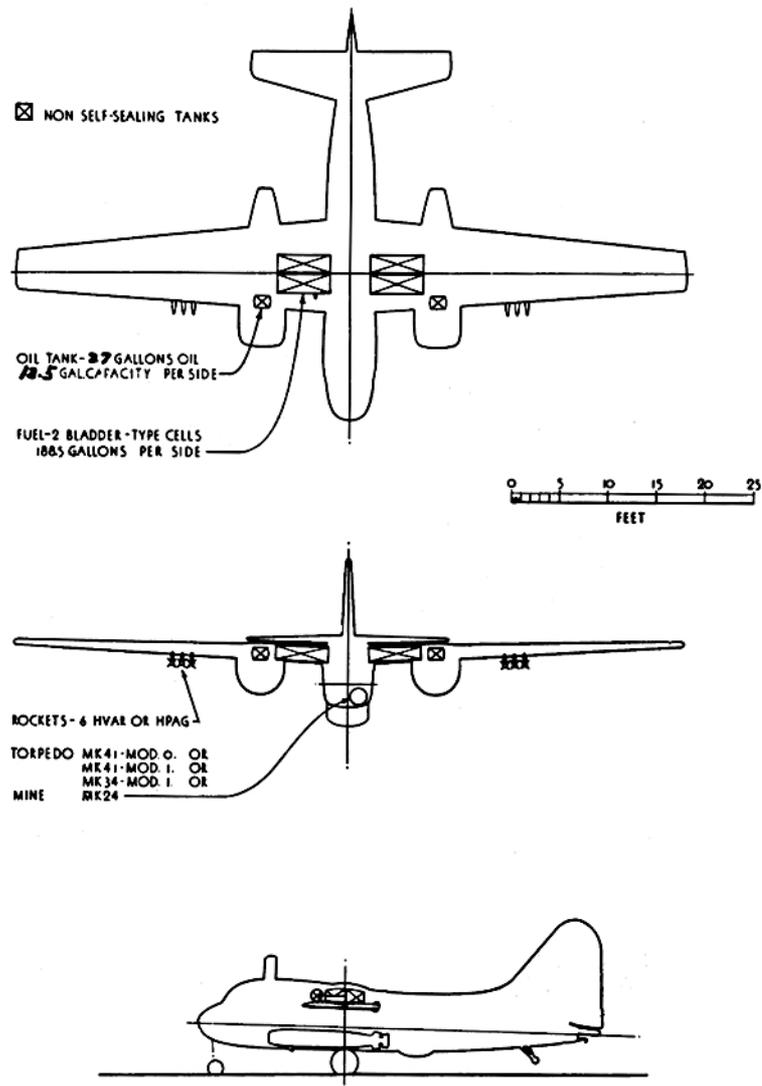
Standard Aircraft Characteristics NAVAER 1335A (REV. 1-49)

BUREAU OF AERONAUTICS
NAVY DEPARTMENT



DESCRIPTIVE ARRANGEMENT

BUREAU OF AERONAUTICS
NAVY DEPARTMENT



ARMAMENT AND TANKS

Standard Aircraft Characteristics NAVAR 13358 (REV. 1-49)

POWER PLANT

NO. & MODEL.....(2) R-1820-82
 MFR.....W.A.C.
 SUPERCH.....1 Stage, 1 Speed
 PROP.GEAR RATIO.....0.5625
 PROP.MFR.....Ham. Std.
 PROP.DES.NO.....43D51/6915A-7
 NO.BL./DIA.....3/11' -0"

RATINGS

	Bhp	Rpm	Alt
T.O. (DRY)	1,525	2,800	700'
MIL.	1,425	2,700	2,400'
NORMAL	1,275	2,500	3,500'

SPEC. No. N-867-A

ORDNANCE

GUNS
 NONE

TORPEDOES AND ROCKETS

Type	Size	Location	No
TORP.	MK.41-1	Bomb Bay	1
TORP.	MK.41-0	Bomb Bay	1
TORP.	MK.34-1	Bomb Bay	1
MINE	MK.24	Bomb Bay	1
MINES	MK.19-2	Wing	4
HVAR	5"	Wing	6
DEPTH BOMB	MK.-54	Wing	4
SONOBUOYS	AN/SSQ-1	Nacelle	4
SONOBUOYS	AN/SSQ-2	Nacelle	16

FIRE CONTROL

GUNSIGHT MK. 20 Mod. 3

MAX.TORPEDO CAP. -- 1,575 lbs.

MISSION AND DESCRIPTION

The mission of the S2F-1 twin-engine ASW airplane is to search for, detect and destroy enemy submarines. The airplane is designed to operate from CVE-105 or larger carriers, or from an ordinary airfield, without requiring JATO.

The airplane has accommodations for four; a pilot, co-pilot, MAD-countermeasure operator and a radar-sonobuoy operator. Dual surface controls are provided. Servicing of electronic equipment can be accomplished in flight. It is possible to interchange all crew positions in flight.

The wing is equipped with 85% span flaps. Ailerons in conjunction with circular arc spoilers provide lateral control. Wings fold upward and inboard.

Longitudinal and lateral trim is afforded by conventional means; directional trim, particularly for single engine operation at low speeds is accomplished by means of a rudder trimmer surface located between the fin and the rudder surfaces.

A "g" limiting device is provided to avoid inadvertent overstressing.

DEVELOPMENT

Mock-up date	December 1950
First flight	December 1952
Service use	July 1953

DIMENSIONS

WING AREA	485 sq. ft.
SPAN	69' -8"
LENGTH	42' -0"
HEIGHT	16' -2"
TREAD	18' -7"
PROP. CLEAR	12"
M.A.C.	7' -5"

WEIGHTS

Loadings	Lbs.	L.F.
EMPTY	16,802	
BASIC	17,015	
DESIGN	22,166	3.0
COMBAT	19,874	3.0
MAX.T.O.(Field)	24,300*	2.7
(Cat)	23,054	
MAX. LAND(Field)	21,800	
(Arrest)	21,000	

All weights are estimated.
 *Maximum anticipated loading.

FUEL AND OIL

Gals.	No. Tanks	Location
377	2	Wing
FUEL GRADE		115/145
FUEL SPEC		MIL-F-5572

OIL

CAPACITY (Gals)	27
GRADE	1120
SPEC	MIL-O-6082

ELECTRONICS

H.F./H.F. COMM.	AN/ARC-2, -27
ALTIMETER	AN/APN-1
VHF HOMING	AN/ARR-2A
MARKER BEACON	AN/ARN-12
SEARCH RADAR	AN/APS-33G
GRD.POS.IND.	AN/APA-57B
IFF	AN/APX-6
ECM HOMING	AN/APA-70B
ECM SEARCH REC	AN/APR-9B
SONOBUOY REC.	AN/ARR-26
M.A.D.	AN/ASQ-8
RADAR(IND.GRP)	AN/APA-91A
(See Note Page)	

PERFORMANCE SUMMARY

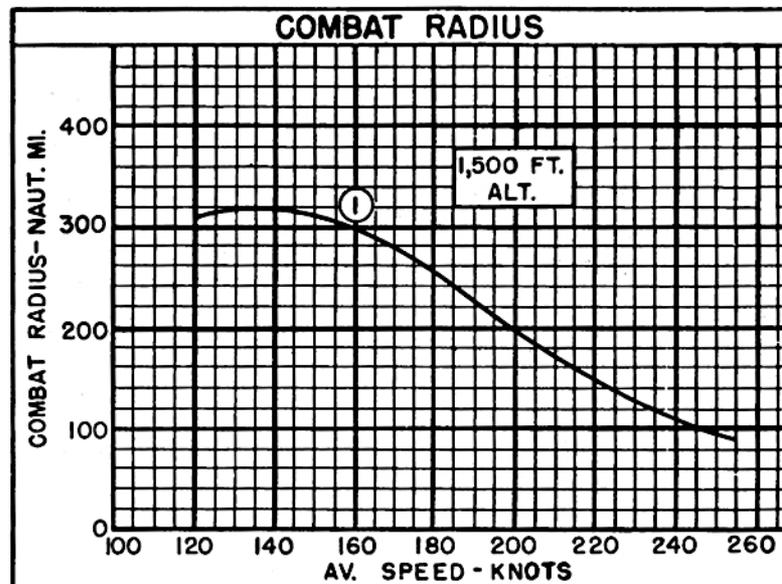
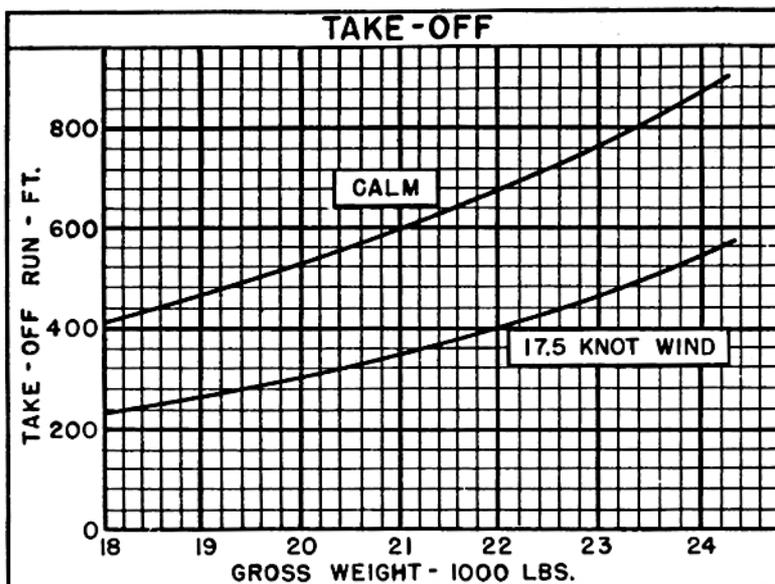
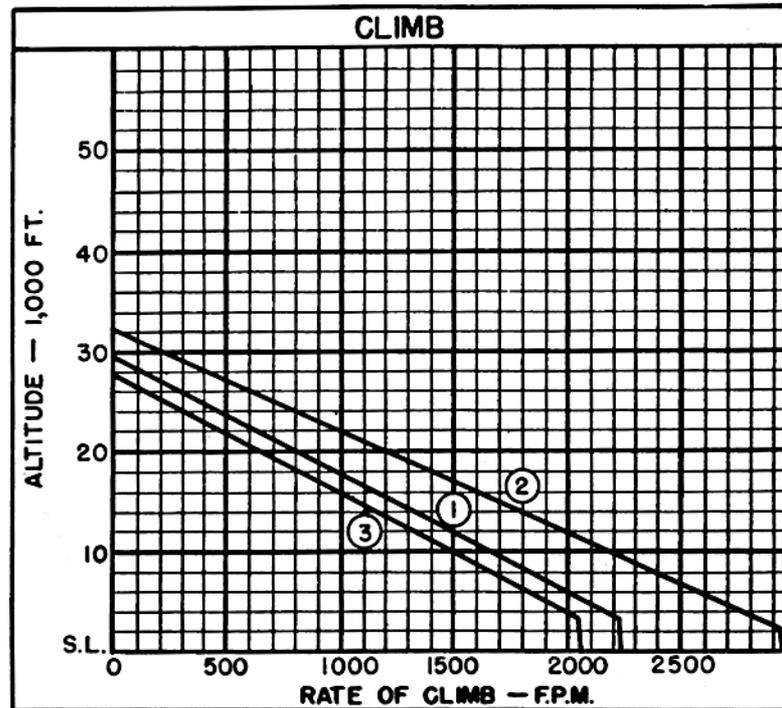
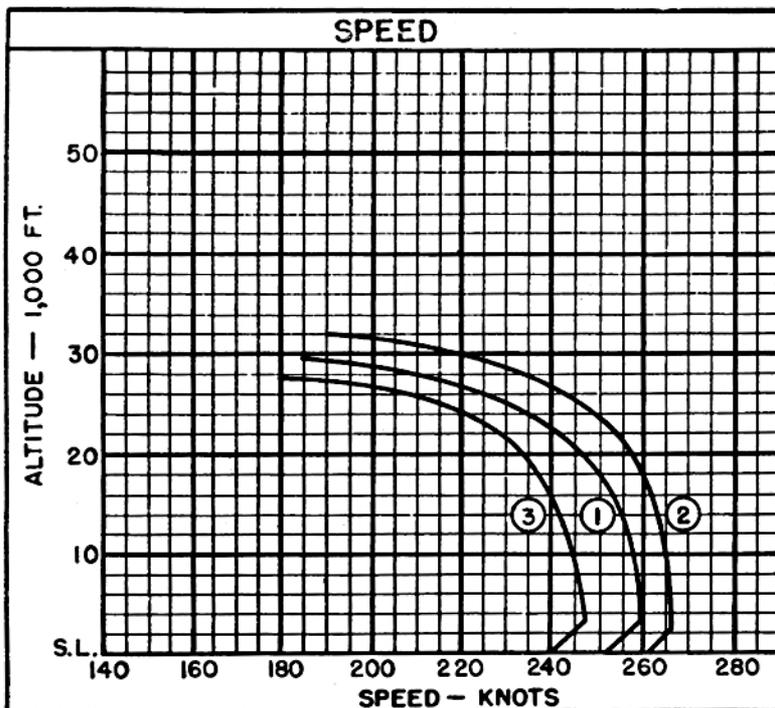
TAKE-OFF LOADING CONDITION		(1) ASW 1-Mk. 41-1 Torpedo	(3) ASW 1-Mk. 41-1 Torp 6-5" HVAR			
TAKE-OFF WEIGHT	lb.	22,166	23,094			
Fuel	lb.	2,262	2,262			
Payload	lb.	1,387	2,227			
Wing loading	lb./sq.ft.	45.7	47.6			
Stall speed - power-off	kn.	78.8	80.4			
Take-off run at S.L. - calm	ft.	686	775			
Take-off run at S.L. 17.5 kn. wind	ft.	410	469			
Take-off to clear 50 ft. - calm	ft.	--	--			
Max. speed/altitude	(A) kn./ft.	259/3,500	247/3,500			
Rate of climb at S.L.	(A) fpm	2,240	2,070			
Time: S.L. to 10,000 ft.	(A) min.	5.1	5.6			
Time: S.L. to 20,000 ft.	(A) min.	13.6	15.1			
Service ceiling (100 fpm)	(A) ft.	28,400	26,700			
Combat range	n.mi.	795	710			
Average cruising speed	kn.	145	145			
Cruising altitude(s)	ft.	1,500	1,500			
Combat radius	n.mi.	315	285			
Average cruising speed	kn.	145	145			
Endurance at 1,500 ft.	hr./kn.	6.0/130	5.5/130			
COMBAT LOADING CONDITION		(2) Torpedo sway				
COMBAT WEIGHT	lb.	19,874				
Engine power		Military				
Fuel	lb.	1,357				
Combat speed/combat altitude	kn./ft.	264/1,500				
Rate of climb/combat altitude	fpm/ft.	2,930/1,500				
Combat ceiling (500 fpm)	ft.	27,400				
Rate of climb at S.L.	fpm	2,940				
Max. speed at S.L.	kn.	261				
Max. speed/altitude	kn./ft.	266/2,600				
LANDING WEIGHT		18,712				
Fuel	lb.	195				
Stall speed - power-off	kn.	72.4				
Stall speed - with approach power	kn.	67.8				

NOTES

(A) Normal Power

 Performance is based on calculations.

 Range and radius are based on engine manufacturer's specification fuel consumption increased by 5%



○ LOADING CONDITION COLUMN NUMBER

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

NOTES

ELECTRONICS (continued)

Planned Service Installation:

UHF HOMING.....AN/ARA-25
 AIRWAYS NAV.....AN/ARN-30
 SWEEP INTEGRATOR KIT
 (Supplements AN/APS-33E)
 IFF.....AN/APX-17
 RECORDER MASTER.....IC/VRW-7W

Spotting: 200 ft. length is required to spot 15 planes (wings folded) 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.
 RESERVE: 20 minutes at V for long range plus 5% of initial fuel load.

COMBAT RADIUS = 40% OF COMBAT RANGE

ASW ENDURANCE PROBLEM

WARM-UP, TAXI, TAKE-OFF: 10 minutes at normal power.
 CLIMB: On course to 1,500 ft. at normal power
 ENDURANCE: Cruise at V for maximum endurance at 1,500 ft.
 RESERVE: 20 minutes at V for long range plus 5% of initial fuel load.

ENDURANCE = CRUISE TIME