

STANDARD AIRCRAFT CHARACTERISTICS

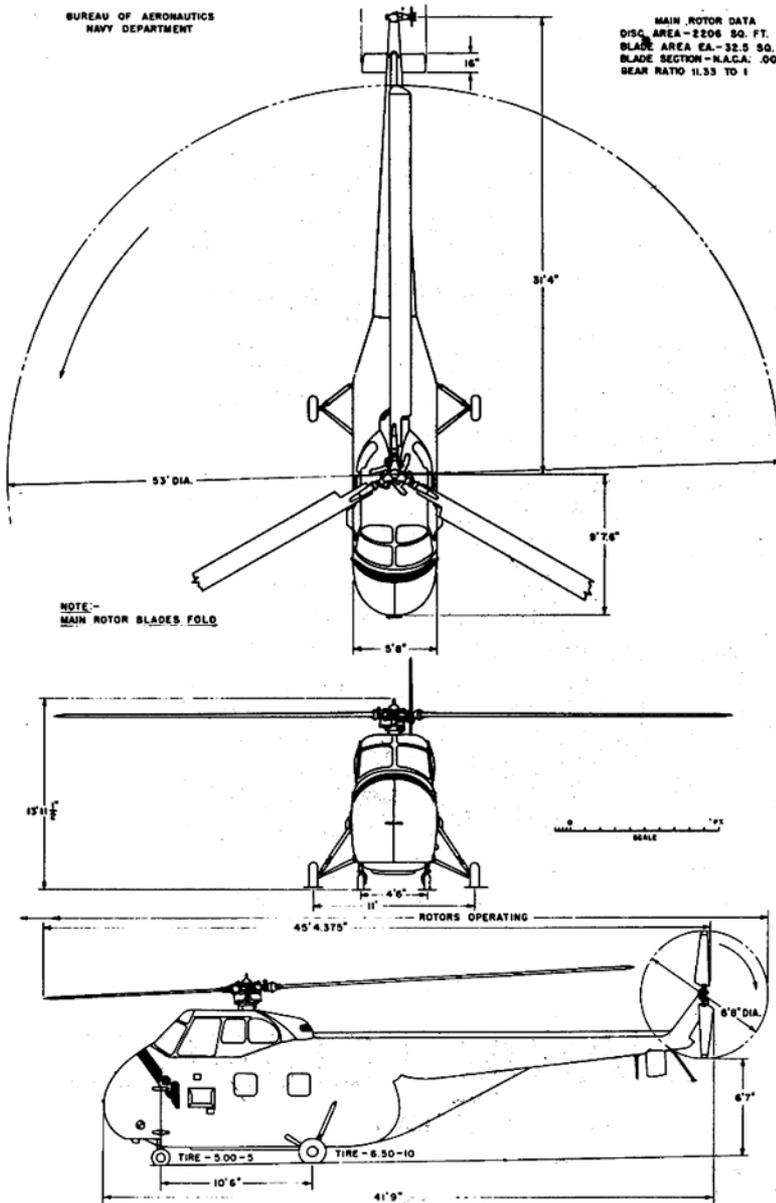
HO4S-1

SIKORSKY

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

BUREAU OF AERONAUTICS
NAVY DEPARTMENT

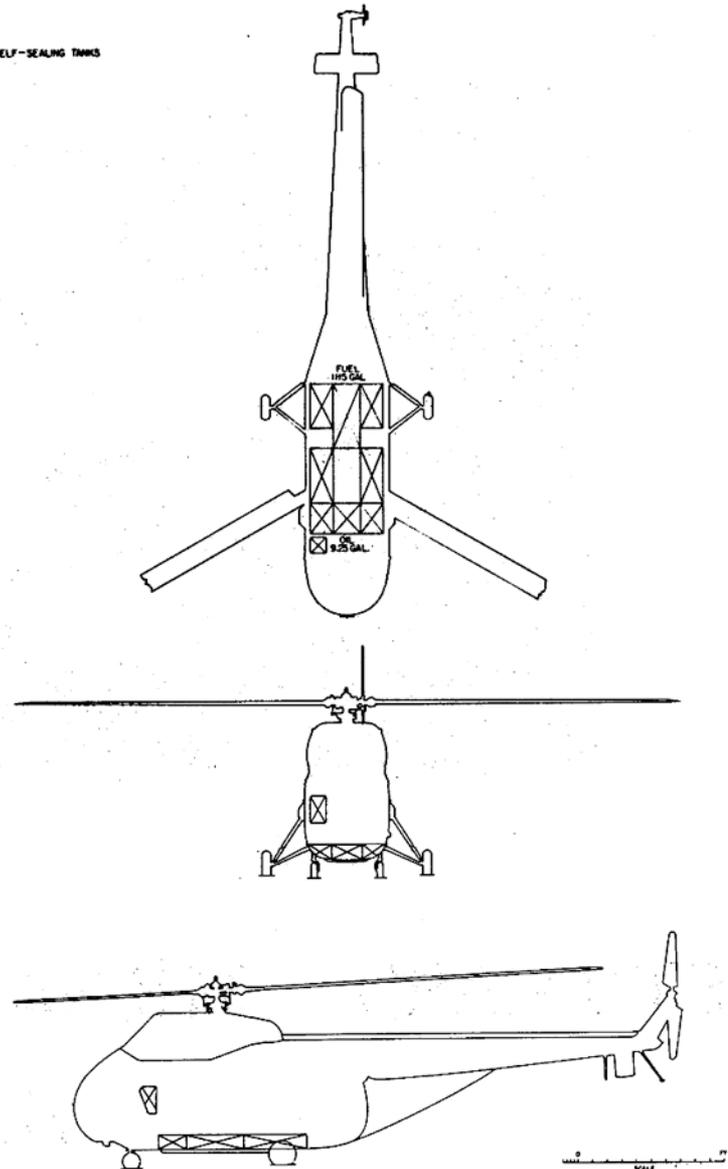
MAIN ROTOR DATA
DISC AREA - 2206 SQ. FT.
BLADE AREA EA. - 32.5 SQ. FT.
BLADE SECTION - N.A.C.A. .0042
GEAR RATIO 11.53 TO 1



DESCRIPTIVE ARRANGEMENT

BUREAU OF AERONAUTICS
NAVY DEPARTMENT

NON SELF-SEALING TANKS



ARMAMENT & TANKS

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

MISSION AND DESCRIPTION

The HO4S-1 is being procured as an interim ASW helicopter. In this capacity its mission will be to search for or attack submarines. It may also be used for ship-to-ship, ship-to-shore liaison and general utility.

As a search helicopter, it will be capable of carrying electronic, radio and safety equipment with a crew of three on flights which involve repeated hovering stops a few feet above the water in order to detect the presence of underwater craft.

As an attack helicopter it will be capable of carrying a mine or similar weapon weighing approximately 700 lbs. with a crew of two, plus certain electronic, radio and safety equipment for a distance of 75 nautical miles, release its weapon, and return to the ship base.

Design features include engine mounted behind clamshell doors in nose, cabin location directly beneath main rotor, both main and auxiliary rotor blades of all-metal construction, anti-coning blade restrainers for shipboard operation, and non-scuffing quadricycle type landing gear.

Mock-up held — May 1950
First flight — September 1950
Service use to start — January 1951

DIMENSIONS

DISC AREA.....2,206 sq. ft.
BLADE DIA.....53' - 0"
LENGTH*.....41' - 9"
HEIGHT.....14' - 0"
TREAD.....11' - 0"
BLADE AREA.....97.5 sq. ft.
STABILIZER AREA..5.78 sq. ft.

*Blades folded

WEIGHTS

Loadings	Lbs.	L.F.
EMPTY.....	4,788.....	
BASIC.....	4,990.....	
DESIGN.....	6,400.....	2.67
MAX.T.O.....	8,070.....	2.12
MAX.LAND.....	8,070.....	

All weights are estimated.

FUEL AND OIL

Gal.	No. Tanks	Location
185	1	Fuselage
FUEL GRADE.....91/98		
FUEL SPEC....MIL-F-5572		

OIL

CAPACITY (Gals.).....	9.25
GRADE.....	1100/1120
SPEC.....	MIL-O-6082

ELECTRONICS

VHF.....AN/ARC-1
RANGE RECEIVER.....R23A/ARC-5
HOMING RECEIVER.....AN/ARR-2A
RADIO ALTIMETER.....AN/APN-1

Provisions only for:

UHF.....AN/ARC-12
OMNI-RANGE.....AN/ARN-19
SONAR.....AN/AQS-4
IFF.....AN/APX-6

POWER PLANT

NO. & MODEL.....(1) R-1340-40
MFR.....Pratt and Whitney
SUPERCHG.....1 Stage, 1 Speed
ROTOR GEAR RATIO.....0.0882
TAIL ROTOR RATIO.....0.627

RATINGS

Bhp @ Rpm @ Alt.

T. O. 600 2,250 S.L. to
3,000'

NORMAL 550 2,200 5,000'

SPEC. NO. AN-1051

ORDNANCE

Type	Size	Location	No.
Mine	Mk-24 (690#)	External	1

ACCOMMODATIONS

CREW -- 3 (Search), 2 (Attack)
HOIST CAPACITY.....400 lbs.



PERFORMANCE SUMMARY

LOADING CONDITION		(1) ASW SEARCH	(2) ASW ATTACK 1 Mk. 24 Mine	
TAKE-OFF WEIGHT	lbs.	6,815	6,612	
Fuel	lbs.	828	528	
Pay Load	lbs.	330	734	
Engine Power	bhp/rpm.	550/2,200	550/2,200	
Disc Loading	lbs./sq.ft.	3.1	3.0	
Power Loading	(A) lbs./bhp.	12.4	12.0	
Maximum Speed-S.L.	(B) kn.	94	95	
Maximum Speed/Alt.	(B) kn./ft.	99/5,000	100/5,000	
Rate of Climb-S.L.	(B) ft./min.	920	1,010	
Speed for Rate of Climb-S.L.	(B) kn.	45	45	
Time-to-Climb 5,000 ft.	(B) min.	5.7	5.1	
Time-to-Climb 10,000 ft.	(B) min.	13.8	12.0	
Service Ceiling	(B) ft.	14,000	15,200	
Vertical Rate of Climb-S.L. (B/C)	ft./min.	160/470	350/650	
Abs. Hover Ceil. No Grd. Effect (B/C)	ft.	3,000/4,800	5,600/5,900	
Abs. Hover Ceil. In Grd. Effect (B/C)	ft.	6,200/6,700	7,300/7,800	
Combat Range/Vav 1,500 ft.	n.mi./kn.	265/78	160/78	
Search Endur. S. L.	hr.	2.8	—	
Combat Radius/Vav S. L.	n.mi./kn.	—	75/84	

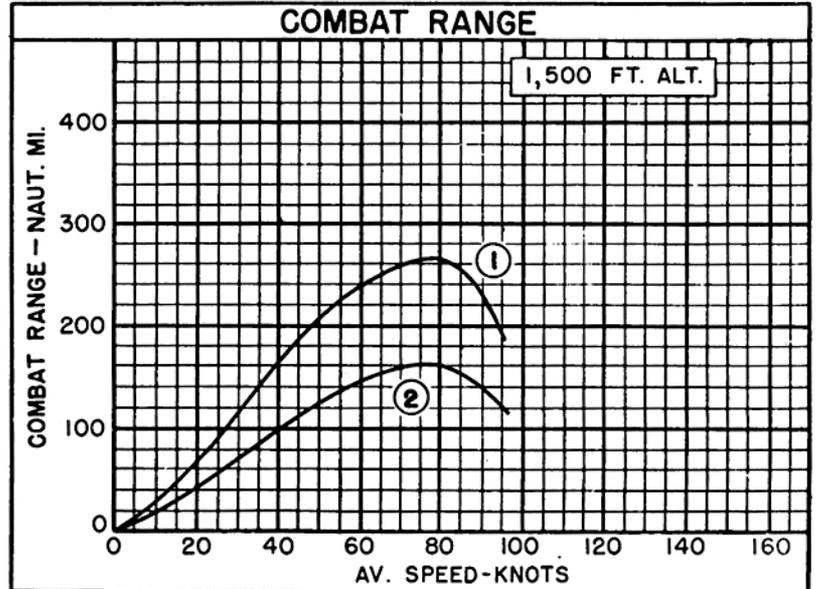
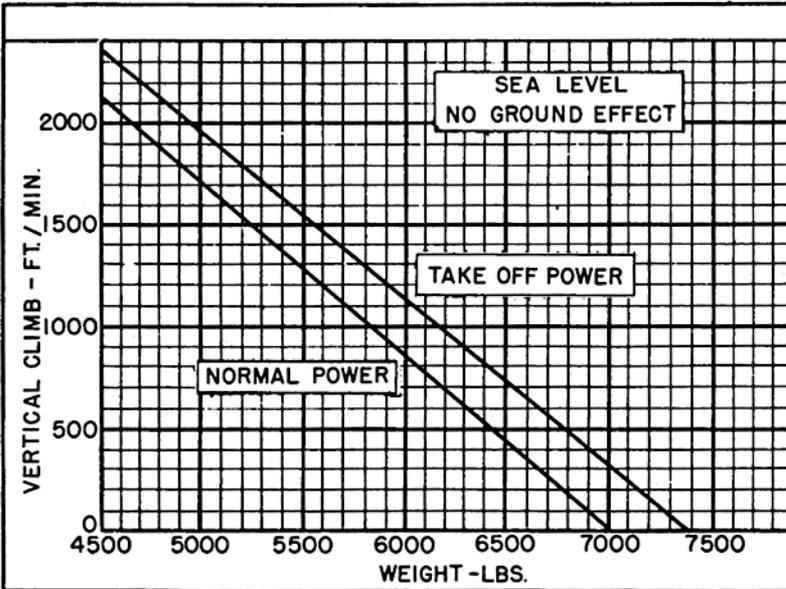
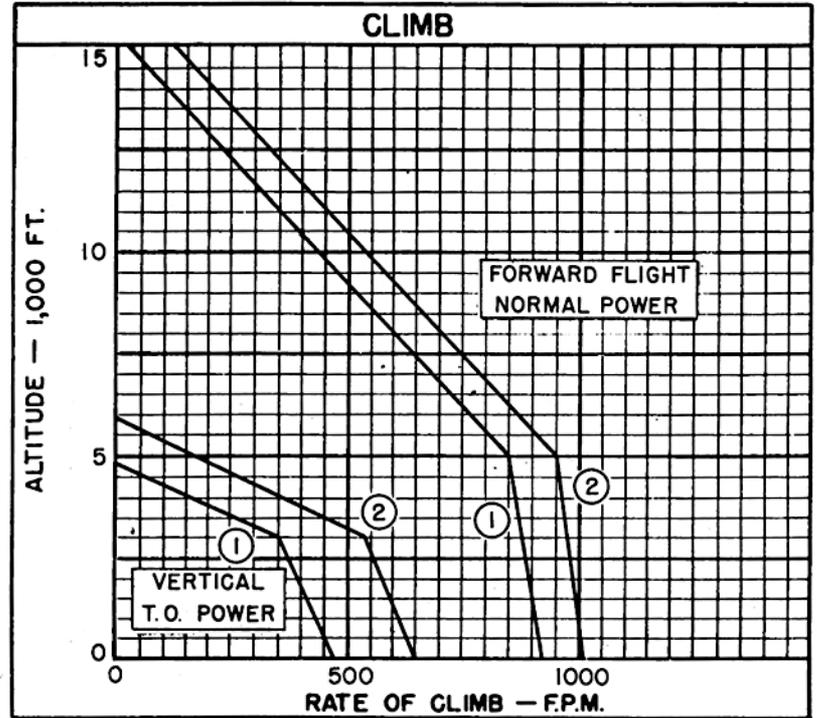
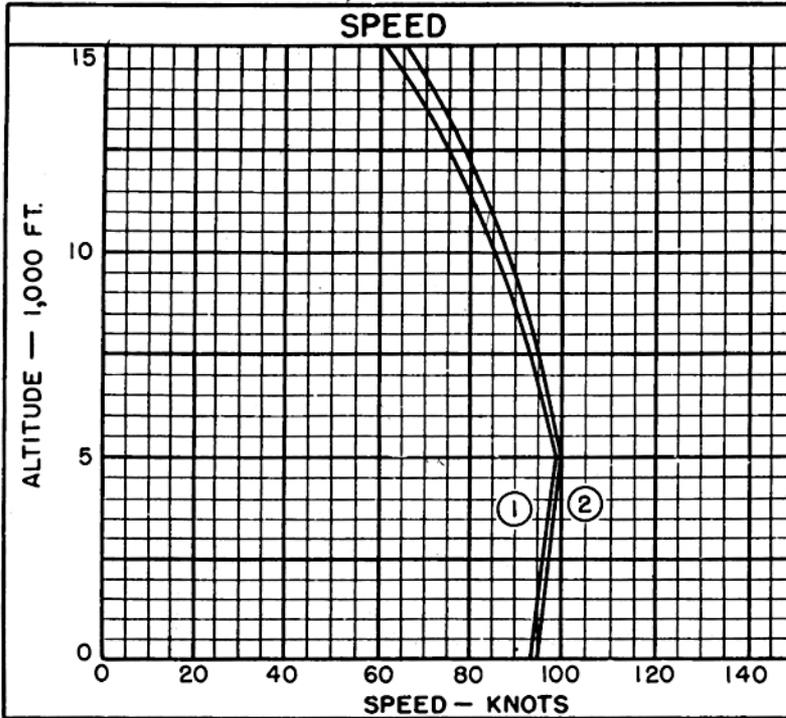
NOTES

- (A) BHP at Maximum Critical Altitude
 (B) Normal BHP
 (C) Take-Off Power

Performance is based on contractor's flight test of S-55, YH-19, and HO4S-1 helicopters.

Sea level data do not include ground effect. Performance in ground effect is based on the assumption that rotor disc is one radius above ground.

Combat range is based on engine specification fuel consumption data increased by 5% and allowing fuel for warm-up and take-off and a 10% fuel reserve. 2200 RPM is used at all speeds.



○ LOADING CONDITION COLUMN NUMBER

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

NOTES

ASW SEARCH ENDURANCE PROBLEM

<u>WARM-UP & TAKE-OFF</u> 10 min. at NRP	<u>CRUISE</u> at V max. range 40% of time at Sea Level	<u>HOVER</u> out of ground effect 60% of time at Sea Level	<u>RESERVE</u> 10% of initial fuel load
SEARCH ENDURANCE = CRUISE TIME / HOVER TIME			

ASW COMBAT RADIUS PROBLEM

<u>WARM-UP & TAKE-OFF</u> 10 min. at NRP	<u>CRUISE TO TARGET</u> at 90 Kn. at Sea Level	<u>DROP MINE</u>	<u>RETURN CRUISE</u> at V max. range at Sea Level	<u>RESERVE</u> 10% of initial fuel load
COMBAT RADIUS = CRUISE DISTANCE FROM START OF CRUISE TO TARGET				