

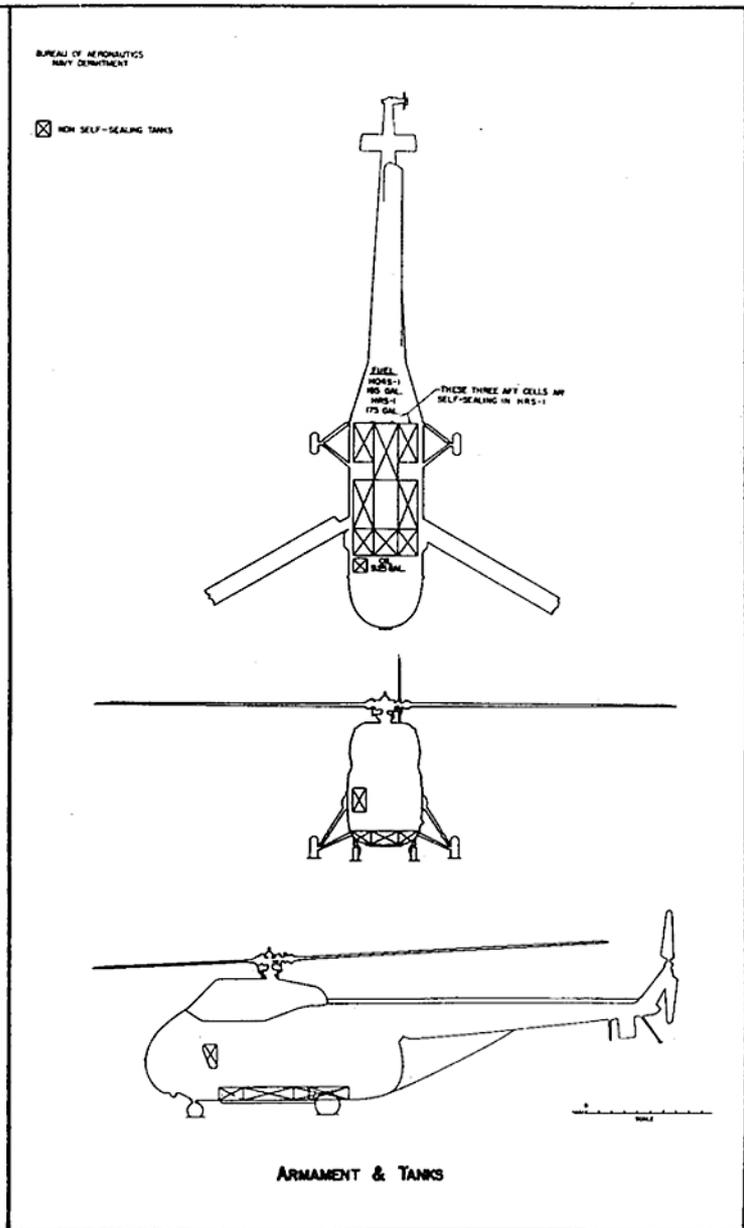
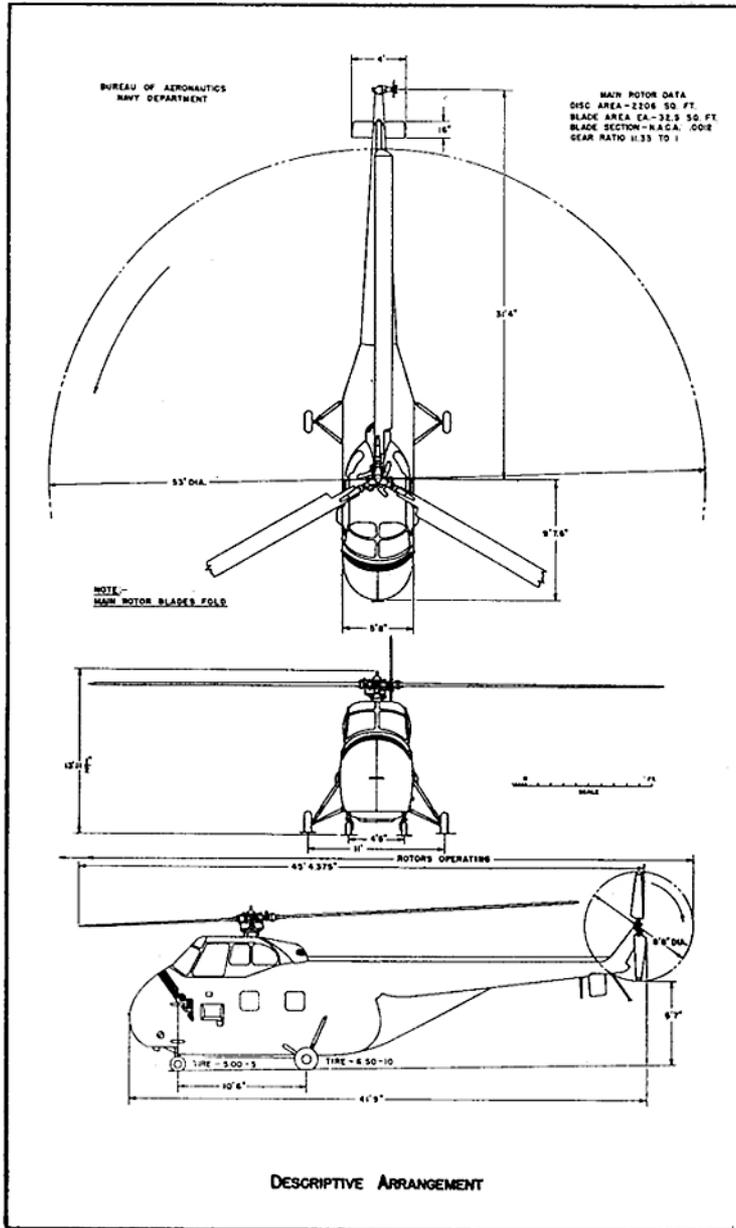
STANDARD AIRCRAFT CHARACTERISTICS

HRS-1,-2

SIKORSKY

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

SERVICE



HRS-1,2

1 MAY 1951

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

MISSION AND DESCRIPTION

The HRS-1 is being procured as an interim assault transport helicopter. The primary mission of this helicopter is to transport assault troops and equipment from ships or land bases to the objective area and the evacuation of wounded. It may also be used for ship-to-ship, ship-to-shore liaison and general utility.

As an assault transport it is capable of carrying 8 assault troops or 1,800 pounds of cargo. Provisions are made for an external cargo sling capable of carrying up to 2,000 pounds underneath the fuselage.

Design features include engine mounted behind clamshell doors in nose, a removable panel in the firewall between the engine compartment and the cabin, cabin located directly beneath the main rotor, both main and auxiliary rotor blades of all-metal construction, anti-coning blade restrainers for shipboard operation, instrumentation and lighting suitable for night contact flight, non-scutting quadricycle type landing gear, and self-sealing fuel tanks of 75 gallon capacity. Hydraulically operated servo controls are provided.

Mock-up held -- None
 First flight -- March 1951
 Service use to start -- March 1951

DIMENSIONS

DISC AREA.....2,206 sq. ft.
 BLADE AREA.....98 sq. ft.
 BLADE DIA.....53' - 0"
 LENGTH*.....41' - 9"
 HEIGHT.....14' - 0"
 TREAD.....11' - 0"
 STABILIZER AREA.....6 sq. ft.

*Blades Folded

WEIGHTS

Loadings	Lbs.	L.F.
EMPTY.....	4,642.....	
BASIC.....	4,706.....	
DESIGN.....	6,400.....	2.67
MAX.T.O.....	8,070.....	2.12
MAX.LAND.....	8,070.....	

All weights are actual.

FUEL AND OIL

Gal.	No. Tanks	Location
175	2	Fuselage
FUEL GRADE.....91/98		
FUEL SPEC...MIL-F-5572		

OIL

CAPACITY (Gals.).....	9
GRADE.....	1100/1120
SPEC.....	MIL-O-6082

ELECTRONICS

VHF TRANSMITTER...	T-23/ARC-5
VHF RECEIVER.....	R-19
MEF TRANSMITTER...	T-19/ARC-5
MHF RECEIVER.....	T-26/ARC-5
RANGE RECEIVER.....	R-11A

POWER PLANT

NO. & MODEL.....	(1) R-1340-57
MFR.....	Pratt and Whitney
SUPERCH.....	1 Stage, 1 Speed
ROTOR GEAR RATIO.....	0.0882
TAIL ROTOR RATIO.....	0.617

RATINGS

	Rpm	Alt.
T. O.	600	2,250 S.L. to 6,200'
NORMAL	550	2,200 8,000'

SPEC. NO. P&W 1066

ACCOMMODATIONS

PILOT.....	1
CO-PILOT.....	1
COMBAT TROOPS.....	10
LITTERS.....	3
DOOR SIZE.....	48" x 48"

MAX. CARGO LOAD....1,800 lbs.



PERFORMANCE SUMMARY

LOADING CONDITION		(1)	(2) RESCUE	(3)
		TROOP TRANSPORT 1 Pilot 8 Troops	1 Pilot 3 Litter Patients	CARGO TRANSPORT 1 Pilot 2,000# Cargo
TAKE-OFF WEIGHT	lbs.	7,153	6,595	7,181
Fuel	lbs.	402	1,050	210
Pay Load	lbs.	1,800	570	2,000
Engine Power	bhp/rpm.	550/2,200	550/2,200	550/2,200
Disc Loading	lbs./sq.ft.	3.2	3.0	3.3
Power Loading	(A) lbs./bhp.	13.0	12.0	13.1
Maximum Speed-S.L.	(B) kn.	99	101	99
Maximum Speed/Alt.	(B) kn./ft.	101/2,200	106/3,800	101/2,200
Rate of Climb-S.L.	(B) ft./min.	800	1,000	800
Speed for Rate of Climb-S.L.	(B) kn.	45	45	45
Time-to-Climb 5,000 ft.	(B) min.	6.5	5.1	6.5
Time-to-Climb 10,000 ft.	(B) min.	13.9	10.6	13.9
Service Ceiling	(B) ft.	14,500	16,800	14,500
Vertical Rate of Climb-S.L.(B/C)	ft./min.	-/80	210/530	-/50
Abs. Hover Ceil. No Grd. Effect (B/C)	ft.	-/2,800	4,700/7,700	-/2,400
Abs. Hover Ceil. In Grd. Effect (B/C)	ft.	3,900/6,800	9,100/9,400	3,700/6,600
Combat Range/Vav 1,500 ft.	n.mi./kn.	115/75	355/80	55/74
Max. Endur./Vav 1,500 ft.	hr./kn.	1.9/50	5.4/47	0.9/50
Combat Radius/Vav S. L.	n.mi./kn.	55/80	175/80	25/80

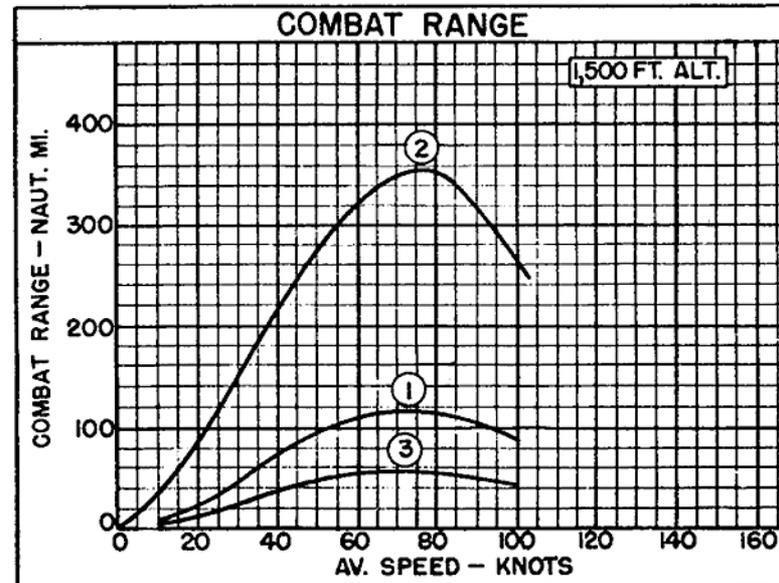
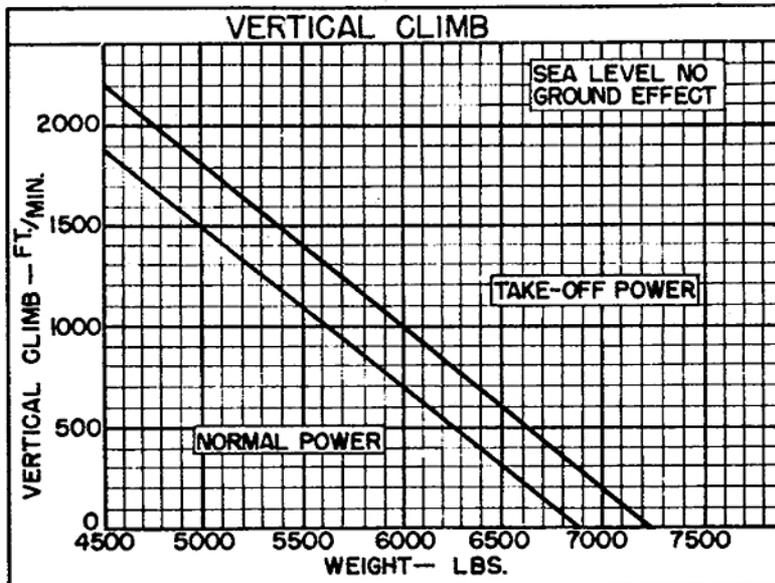
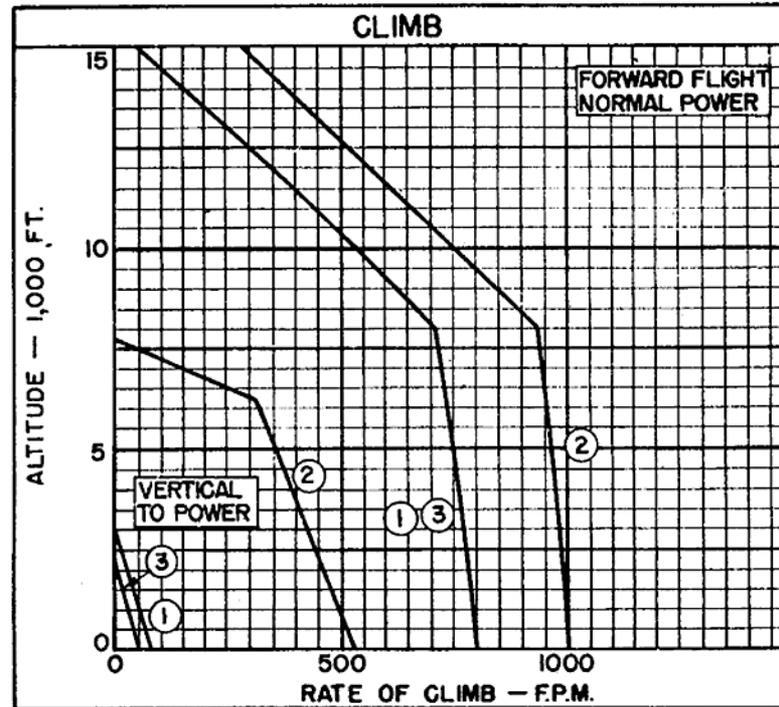
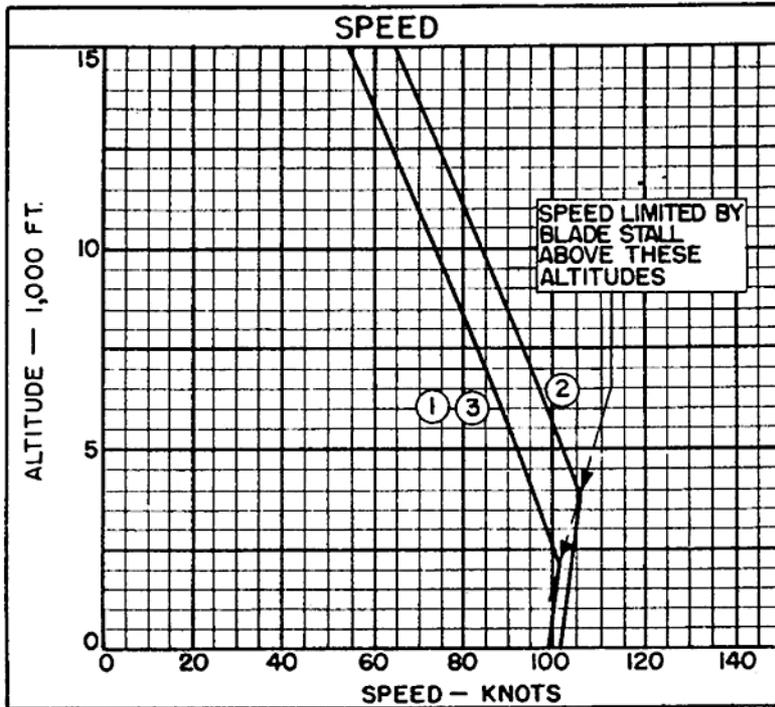
NOTES

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

Performance is based on 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.

Range, endurance, and radius are based on 2,200 RPM and engine specification fuel consumption increased by 5%. Range and endurance are based on fuel allowance for warm-up and take-off (5 min. at NRP) and a 10% fuel reserve.



○ LOADING CONDITION COLUMN NUMBER

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

NOTES

SPOTTING: 200 ft. length is required to spot 52 helicopters on the 96 ft. wide deck immediately aft of the forward ramp on the CV-9 class carriers.

ASSAULT COMBAT RADIUS PROBLEM

WARM-UP, TAKE-OFF, RENDEZVOUS, LANDING AND TAKE-OFF AT TARGET: 25 minutes at 1/2 normal RPM plus 3 minutes at take-off power.

CRUISE-OUT: At sea level at a velocity of 80 knots.

LAND AT TARGET AND TAKE-OFF: At same weight; no fuel used (fuel for second take-off is included in the first take-off allowance).

CRUISE-BACK: At sea level at a velocity of 80 knots.

RESERVE: 10% of initial fuel load.

HRS-2

The HRS-2 differs from the HRS-1 by an increase in weight empty of 130 pounds. This is a result of strengthening the airplane to make it suitable for incorporating at a later date the R-1300-3 engine, which is heavier and more powerful than the R-1340-57 engine.

If the payload of the HRS-2 is reduced by 130 pounds, performance is identical to the HRS-1. With the same payload as the HRS-1, performance of the HRS-2 is slightly reduced.
