

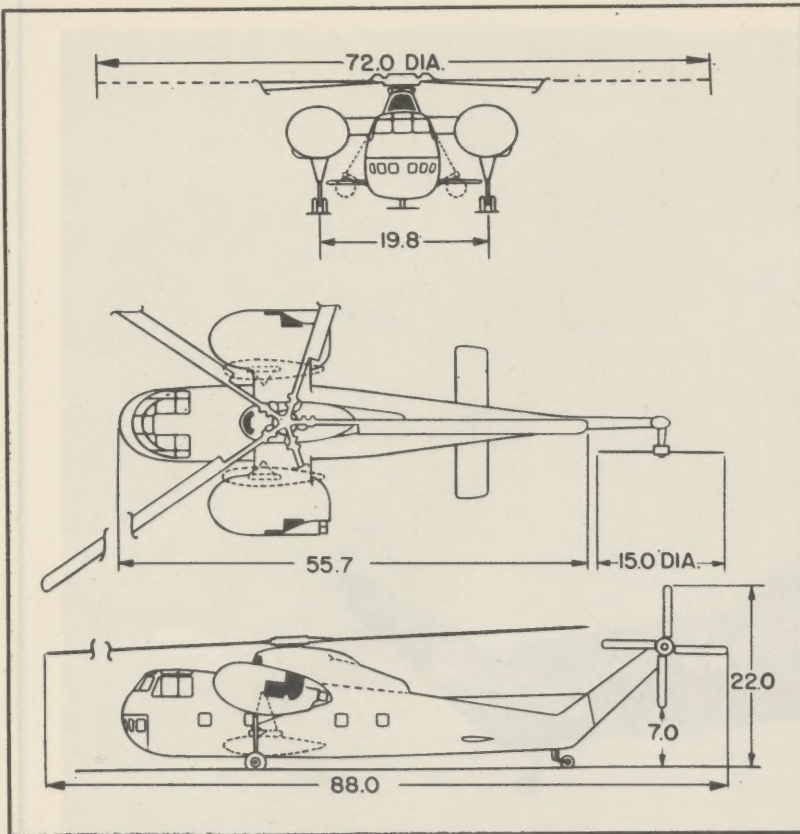


Standard Aircraft Characteristics

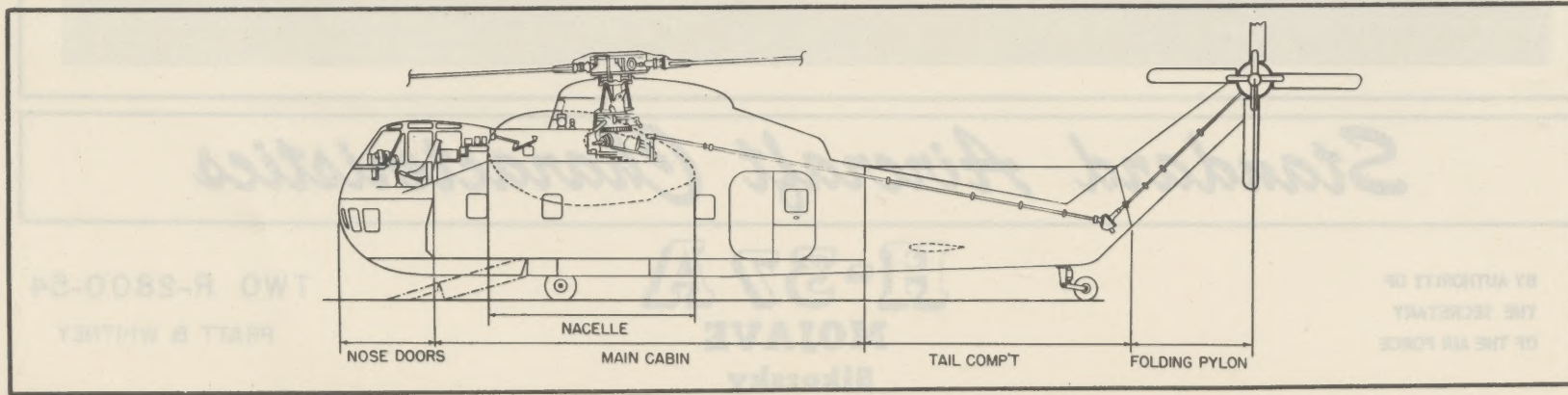
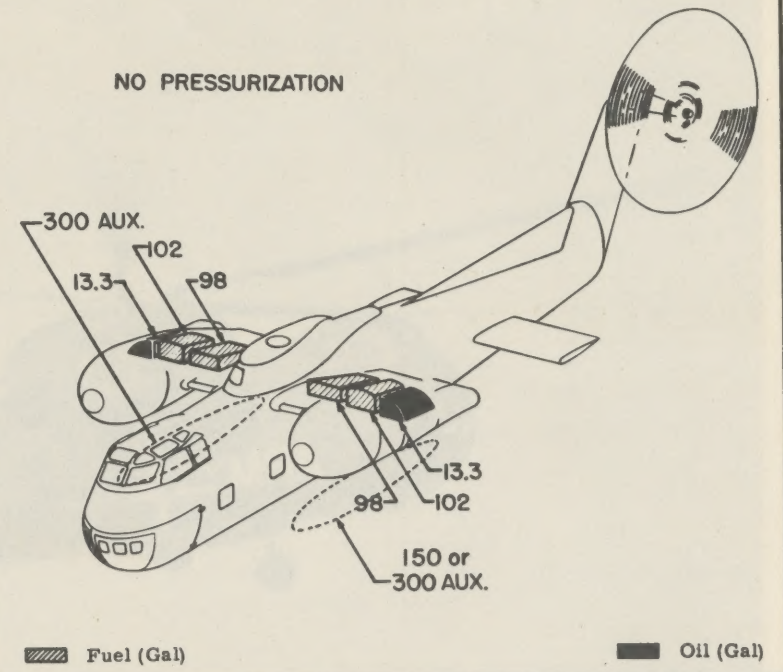
BY AUTHORITY OF
THE SECRETARY
OF THE AIR FORCE

H-37 A
MOJAVE
Sikorsky

TWO R-2800-54
PRATT & WHITNEY



Disc Area	4072.0 sq ft	Wing Area	250.6 sq ft
Blade Area (ea)	52.3 sq ft	Aspect Ratio	4.5
Blade Airfoil Section	NACA 0012	M. A. C.	68.0 in.
Blade Chord	21.5 in.		
Engine/Rotor Gear Ratio	14.01:1		



POWER PLANT

Nr & Model (2) R-2800-54
 Mfr Pratt & Whitney
 Engine Spec. Nr N-8143B
 Superch 1 stg, 1 spd
 Red Gear Ratio D.D.

ENGINE RATINGS

BHP - RPM - ALT - MIN

T. O: 2100 - 2700 - 5000 - 5

†Nor: *1900 - 2600 - 7000 - Cont

*See "General Data", notes (a) and (c), page 6.

†Meto power (Max except take-off)

DIMENSIONS

Rotor Dia 72.0'
 Wing Span 27.3'
 Incidence 8°
 Dihedral 0°
 Length:
 Rotors Operating 88.0'
 Rotors Static 80.0'
 Rotors & Tail Pylon Folded 55.7'
 Fuselage 64.2'
 Height 22.0'
 Tread 19.8'
 Main Rotor Ground Clearance
 Idling 14.1'
 Static 11.5'
 Tail Rotor Ground Clearance 7.0'

Mission and Description

Navy Equivalent: HR2S-1

Mfr's Model: S-56

The principal mission of the H-37A is transportation of cargo, equipment, and troops. Other capabilities include evacuation of casualties, rescue, and observation operations.

This helicopter is of the twin engine, single main rotor type with an automatic torque compensating tail rotor and a controllable horizontal stabilizer. It incorporates a dual control system, supplemented by a collective pitch control lever synchronized with the throttle to provide constant rotor speed. The mechanical flight controls are augmented by primary and secondary hydraulic servo systems. The engine nacelles are mounted in the outer ends of the wing section. The main rotor blades and the tail pylon are foldable. A utility hydraulic system provides for the operation of the nose cargo doors, cargo loading ramp, and main landing gear retracting mechanism. Special equipment includes provisions for an auxiliary fuel system to allow for optional installation of external droppable fuel tanks.

Development

Contract date Oct 54
 First Flight May 56
 First Acceptance Sep 56
 Production Status In production

WEIGHTS

Loading	Lb	L. F.
Empty	20,717(A)	
Basic	21,017(A)	
Design	30,342	2.50
Combat	*23,008	3.30
Max T.O. (overload)†	31,000	2.45
Max T.O. (normal) ‡	30,217	2.51
Max Land	‡‡31,000	2.45

(A) Actual
 * For Basic Mission
 † Limited by Spec. Max Alternate T.O. Wt
 ‡ Limited by Design Wt
 ‡‡ Limited by Max T.O. Wt.

F U E L

Location	Nr Tanks	Gal
Wgs*	2	204
Nacelles	2	196
Wg, ext, drop . † 2		600
Total 1000		
Grade	T.	115/145
Specification		Mil-F-5572
*Self-sealing		
† 2x150 Gal drop tanks can be carried in lieu of 300 gal tanks.		

OIL

Nacelles	2	(tot) 26.6
Grade		1065 & 1100
Specification		Mil-L-6082A

CAPACITIES

Max Cargo: See "Payload-Distance" graph, page 5
 Cargo Compartment:
 Length 30.1'
 Width (max) 7.3'
 Height (max) 6.7'
 Volume 1252.7 cu ft
 Floor Area 202.4 sq ft
 Side Cargo Door:
 Height 5.9'
 Width 5.8'
 Nose Opening (cargo loading ramp retracted)
 Height 3.8'
 Width 7.3'

PERSONNEL

Crew (normal) 3
 Pilot
 Co-pilot
 Flight Engineer
 Troops 23
 or
 Litters 24

ELECTRONICS

Aircraft Radio Corp.
 VHF Command Type 12
 Transmitter T-11B
 Transmitter T-13A
 Receiver R-19
 Marker Beacon AN/ARN-12
 Radio Compass AN/ARN-6
 FM Interphone AN/ARC-44
 Omni-Direction Receiver
 *AN/ARN-30
 Lightweight IFF *AN/APX
 UHF Command †AN/ARC-27
 *Provisions only
 †Alternate to VHF Command - Type 12

Loading and Performance - Typical Mission

C O N D I T I O N S		BASIC MISSION	DESIGN	100 MILE RADIUS	EVACUATION	FERRY RANGE	MAX FERRY RANGE
		I	II	III	IV	V	VI
TAKE-OFF WEIGHT	⑤ (lb)	31,000	30,217	31,000	24,311	24,217	28,396
Fuel at 6.0 lb/gal (grade 115/145)	(lb)	2400	2400	3757	2400	2400	6000
Payload (outbound)	(lb)	6783	6000	5109	None	None	None
Payload (inbound)	(lb)	None	None	None	6000	None	None
Take-off power loading	(lb/bhp)	7.39	7.20	7.39	5.79	5.77	6.76
Disc loading	(lb/sq ft)	7.61	7.42	7.61	5.97	5.95	6.97
Autorotation speed (min R/D)	(kn)	85	85	85	85	85	85
Take-off ground run at SL/clear 50 ft	① (ft)	170/390	0/0	170/390	0/0	0/0	0/0
Vertical rate of climb at SL	① (fpm)	—	115	—	1730	1755	705
Max rate of climb at SL	② (fpm)	970	1050	970	1740	1755	1245
Speed for max rate of climb at SL	② (kn)	60	60	60	60	60	60
Time: SL to 5000 ft	② (min)	5.4	5.1	5.4	2.9	2.9	4.1
Time: SL to 10,000 ft	② (min)	15.2	13.2	15.2	6.0	5.9	9.0
Service ceiling (100 fpm)	② (ft)	9650	10,400	9650	16,150	16,250	12,200
Absolute hovering ceiling	① (ft)	—	1100	—	9100	9200	4300
COMBAT RANGE	③ (n mi)	125	132	207	—	159	372
Average cruising speed	(kn)	98	102	98	—	106	101
Cruising altitude	(ft)	5000	5000	5000	—	5000	5000
Total mission time	(hr)	1.3	1.3	2.2	—	1.5	3.7
COMBAT RADIUS	③ (n mi)	58	60	100	61	—	—
Average cruising speed	(kn)	100	103	99	104	—	—
Cruising altitude	(ft)	5000	5000	5000	5000	—	—
Total mission time	(hr)	1.2	1.2	2.1	1.2	—	—
FIRST LANDING WEIGHT	④ (lb)	29,791	29,034	29,132	23,301	—	—
Ground roll at SL/clear 50 ft	(ft)	0/0	0/0	0/0	0/0	—	—
COMBAT WEIGHT	④ (lb)	23,008	23,034	24,023	29,301	22,057	22,636
Combat altitude	(ft)	5000	5000	5000	5000	5000	5000
Combat speed	② (kn)	132	132	131	114	135	134
Combat climb	② (fpm)	1870	1860	1725	1035	2000	1915
Combat ceiling (500 fpm)	② (ft)	15,950	15,950	15,000	9750	16,900	16,350
Service ceiling (100 fpm)	② (ft)	17,400	17,400	16,400	11,300	18,300	17,750
Absolute hovering ceiling	① (ft)	10,700	10,660	9480	3240	11,850	11,150
Take-off ground run at SL/clear 50 ft	① (ft)	0/0	0/0	0/0	0/0	0/0	0/0
Max rate of climb at SL	② (fpm)	1915	1915	1780	1140	2045	1970
Speed for max rate of climb	② (kn)	60	60	60	60	60	60
Max speed at SL	② (kn)	135	135	134	123	135	135
Basic speed at 5000 ft	② (kn)	132	132	131	114	135	134
LANDING WEIGHT	④ (lb)	22,057	22,057	22,330	28,151	22,057	22,636
Ground roll at SL/clear 50 ft	(ft)	0/0	0/0	0/0	0/0	0/0	0/0

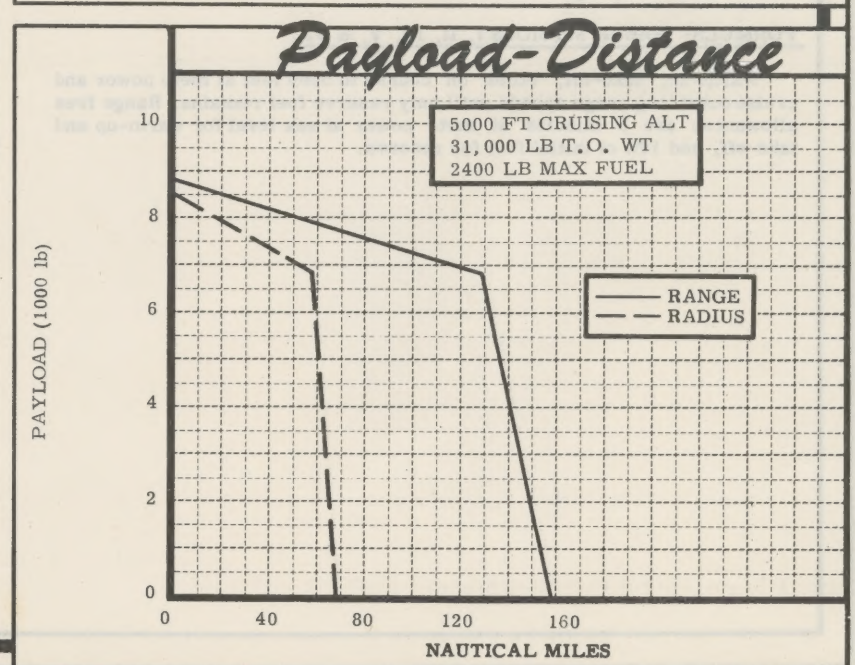
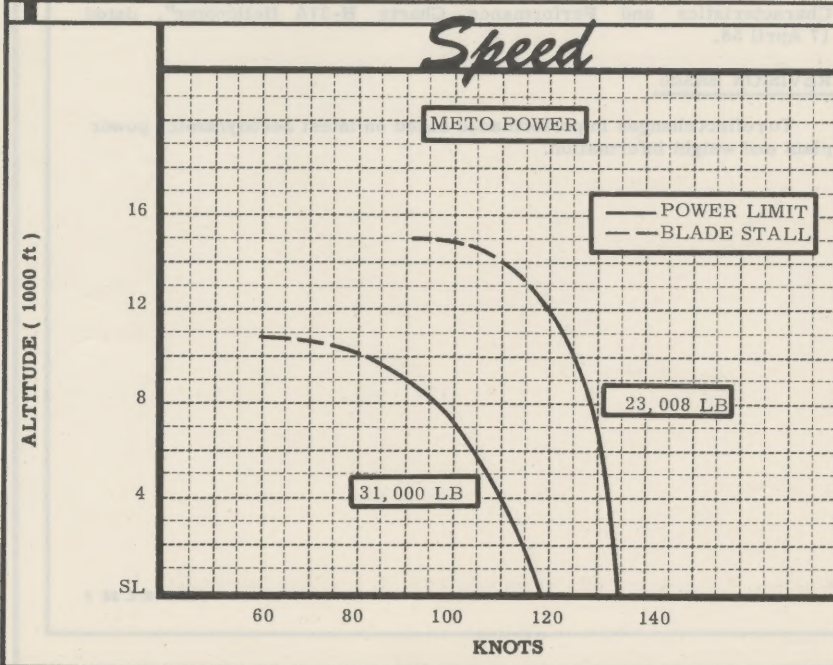
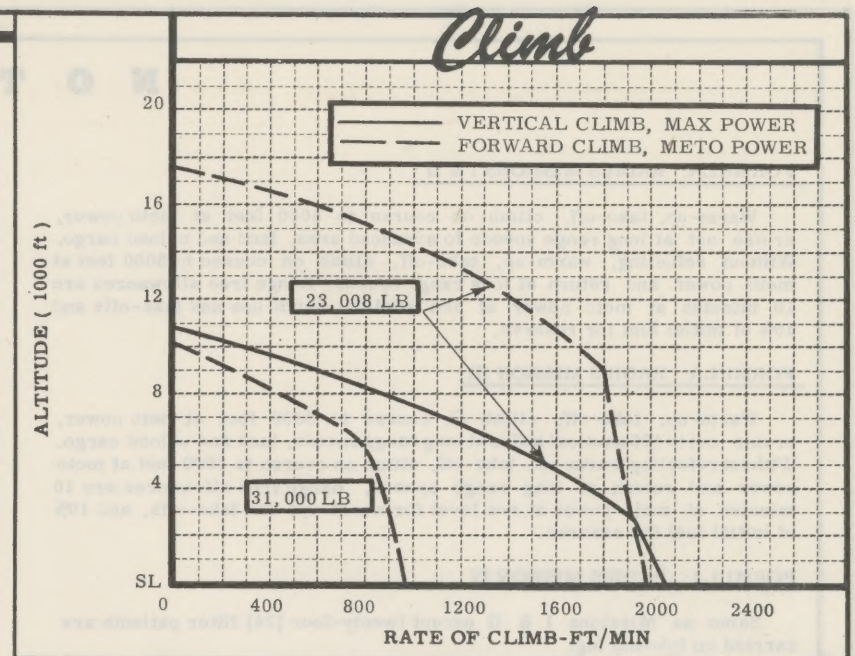
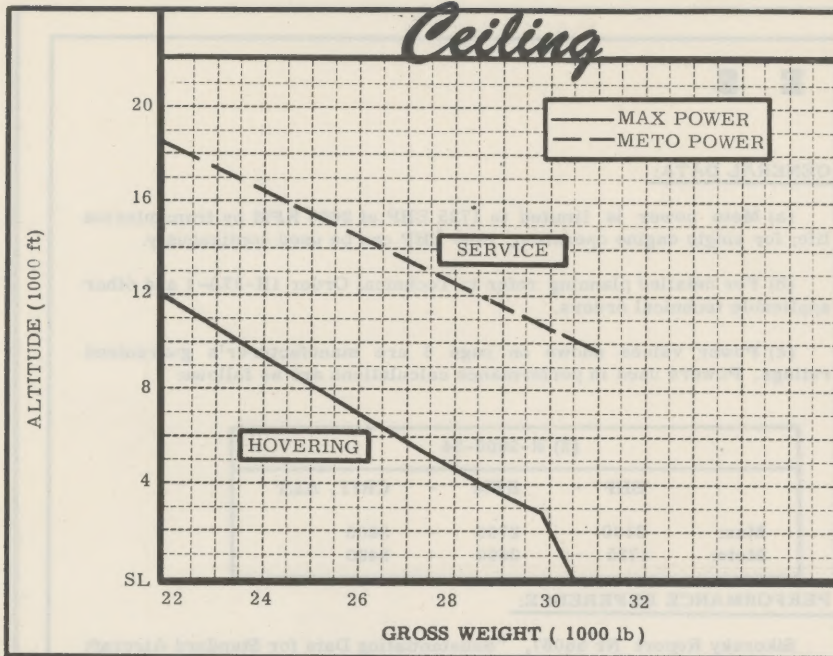
NOTES

- ① Max power
 ② Meto power (Max except take-off)
 ③ Detailed descriptions of Radius and Range Missions are given on page 6.
 ④ For Radius Mission if radius is shown

- ⑤ Includes crew of 3 at 200 lb each
 ⑥ Time to service ceiling

PERFORMANCE BASIS:

- (a) Data Source: Navy Flight Tests on H-37A
 (b) Performance is based on powers shown on page 6.
 (c) Data do not include ground effect except for take-off and landing



NOTES

FORMULA: RADIUS MISSIONS I & II

Warm-up, take-off, climb on course to 5000 feet at meto power, cruise out at long range speeds to advanced area, land and unload cargo. Without refueling, warm-up, take-off, climb on course to 5000 feet at meto power and return at long range speeds. Range free allowances are 10 minutes at meto power at sea level for warm-ups and take-offs and 10% of initial fuel for reserve.

FORMULA: RADIUS MISSION III

Warm-up, take-off, climb on course to 5000 feet at meto power, cruise out to 100 nautical miles at long range speeds, land and unload cargo. Without refueling warm-up, take-off, climb on course to 5000 feet at meto power and return at long range speeds. Range free allowances are 10 minutes at meto power at sea level for warm-ups and take-offs, and 10% of initial fuel for reserve.

FORMULA: RADIUS MISSION IV

Same as Missions I & II except twenty-four (24) litter patients are carried on inbound leg.

FORMULA: RANGE MISSIONS I, II, III, V, & VI

Warm-up, take-off, climb on course to 5000 feet at meto power and cruise out at long range speeds until only reserve fuel remains. Range free allowances are 5 minutes at meto power at sea level for warm-up and take-off, and 10% of initial fuel for reserve.

GENERAL DATA:

(a) Meto power is limited to 1725 BHP at 2600 RPM by transmission life; for single engine operation, 1900 BHP can be used continuously.

(b) For detailed planning refer to Technical Order 1H-37A-1 and other applicable technical orders.

(c) Power values shown on page 3 are manufacturer's guaranteed ratings. Powers used in performance calculations are as follows:

(2) R-2800-54			
	BHP -	RPM -	CRIT. ALT
Max:	2100 -	2700 -	3000
Meto:	1725 -	2600 -	9400

PERFORMANCE REFERENCE:

Sikorsky Report Nr 56087, "Substantiating Data for Standard Aircraft Characteristics and Performance Charts H-37A Helicopter", dated 17 April 58.

REVISION BASIS:

To reflect changes in performance based on latest aerodynamic, power plant and weight information.

(17 APRIL 58)