



STANDARD AIRCRAFT CHARACTERISTICS
CH-46E SEA KNIGHT
BOEING-VERTOL

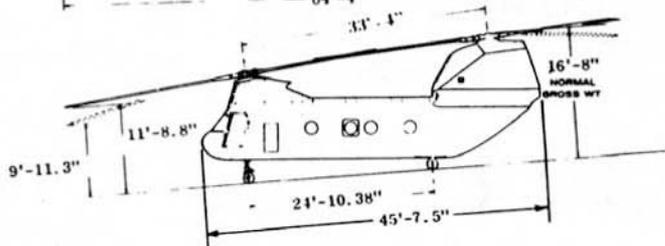
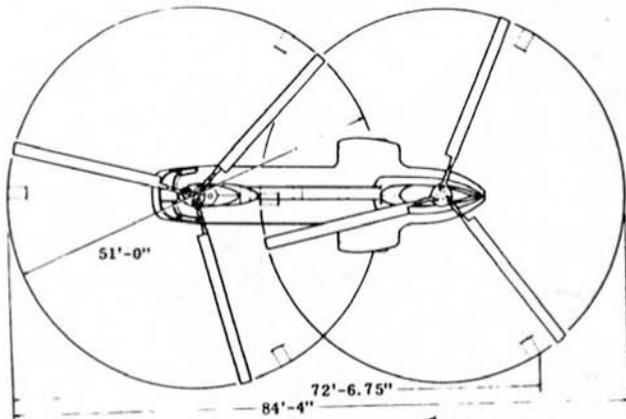
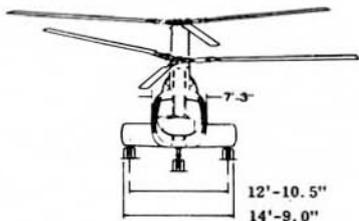
NOTE:

ALL INQUIRES CONCERNING DATA
IN THIS CHART SHOULD BE DIRECTED
TO NAVAIR, CODE AIR-53012

NAVAL AIR SYSTEMS COMMAND
NAVY DEPARTMENT

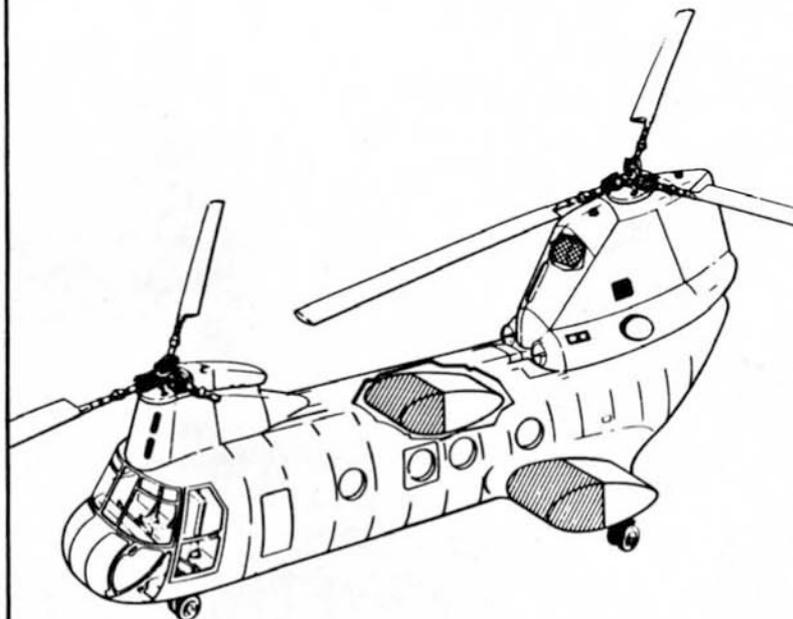
Disc Area (Swept) 4085.6 sq ft
Blade Area (each) 39.84 sq ft
Blade Area (total) 239.0 sq ft

Engine/Rotor Gear Ratio 73.772:1
Ames Modified Droop Nose 0012 (Mod)
Blade Chord 18.75 inches



DESCRIPTIVE ARRANGEMENT

NAVAL AIR SYSTEMS COMMAND
NAVY DEPARTMENT



FUEL



OIL



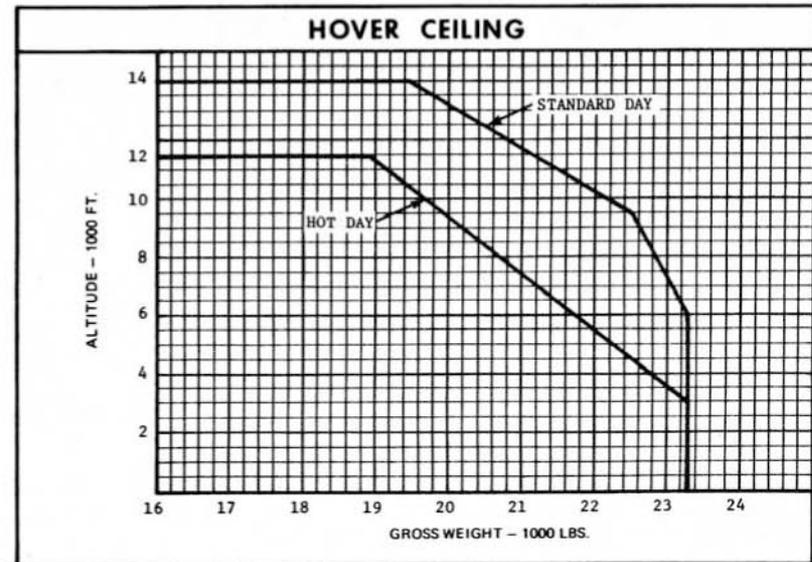
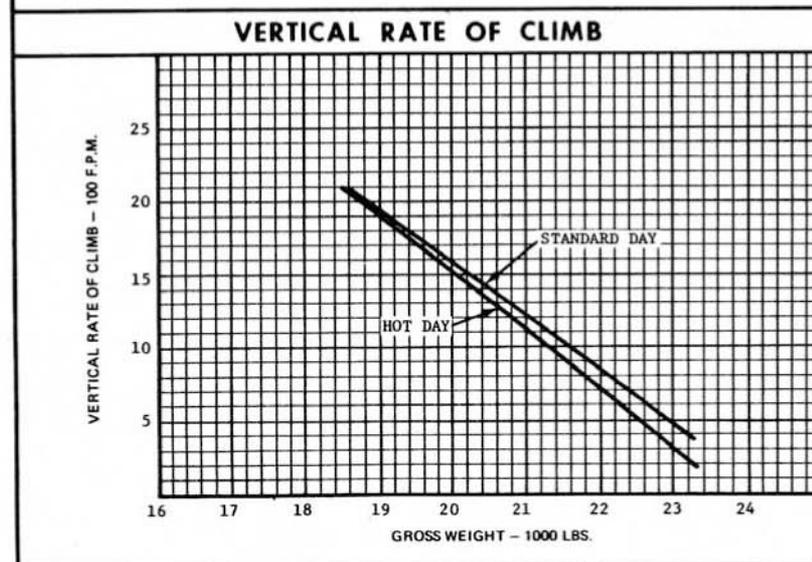
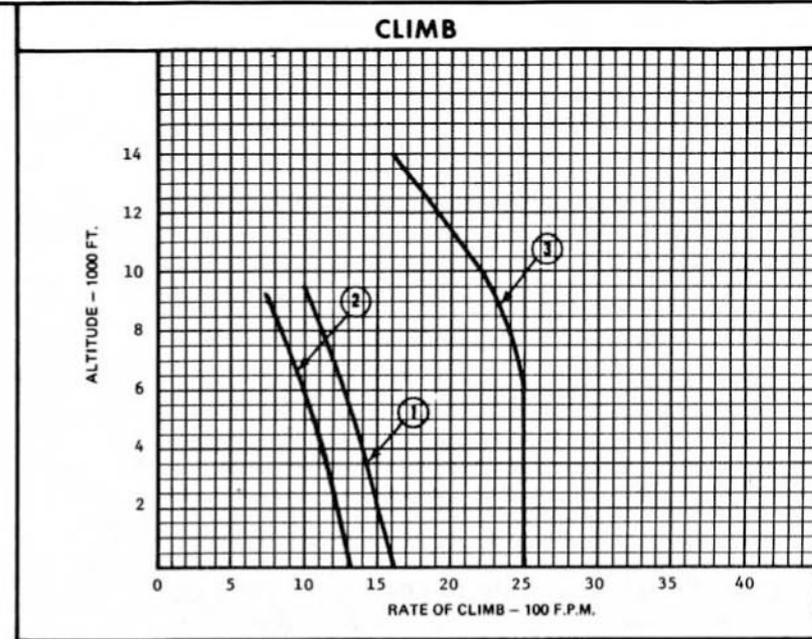
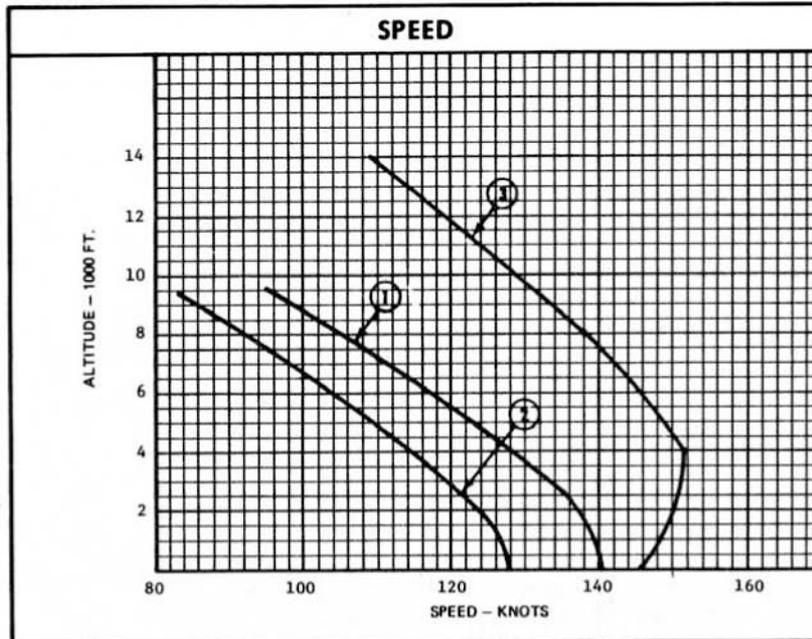
ARMAMENT AND TANKAGE

POWER PLANT	MISSION AND DESCRIPTION	WEIGHTS																														
<p>No. & Model (2) T-58-GE-16 Manufacturer General Electric Co. Rotor Gear Ratio 73.772:1</p> <p>RATINGS</p> <p>SHIP/RPM/ALT 1870/19500/SL 1770/19500/SL</p> <p>TRANSMISSION RATINGS</p> <p>Dual Engine Continuous 2800/19500/All Transmission Rating Single Engine Continuous 1870/19500/All Engine Spec. No. E-1105B 10 Jan 1974</p>	<p>The primary mission of this aircraft is to rapidly disperse combat troops, support equipment, and supplies from amphibious assault landing ships and established airfields to advanced bases in undeveloped areas with limited maintenance and logistic support under all-weather conditions, day or night.</p> <p>The Sea Knight is a twin turbine, tandem-rotor helicopter with an all-metal fuselage of semi-monocoque stressed skin construction. The engines drive two three-bladed fully articulated partially overlapping rotors, which are synchronized by positive gearing and an inter-connecting drive shaft. The composite rotor blades are interchangeable and have provisions for electrically heated deicing boots. Automatic blade folding within 60 seconds under 45 knot wind conditions is another feature included in the rotor system design.</p> <p>By scaling the fuselage during assembly, inherent flotation capability is achieved in the normal configuration for emergency water landings and take-offs. A rear loading ramp provides access to the unobstructed payload space for rapid straight-in loading and unloading of personnel, supplies, equipment and vehicles. The ramp is capable of being operated both on the ground and in flight.</p> <p>For instrument flight capabilities, a dual Stability Augmentation System (SAS) is included as standard equipment. It is a normal and integral part of the control system, and provides positive dynamic stability about the yaw, pitch, and roll axes throughout the entire speed range from hover to maximum forward speed.</p> <p>DEVELOPMENT</p> <p>FIRST FLIGHT July 1975 SERVICE USE Jan 1978</p>	<p>Lbs. L.F.</p> <p>Empty: 15198 - Basic*: 15935 - Design: 20800 2.50 Max. T.O. 23300 2.23 Max. T.O. (with external load): 24300 2.14 Max. Landing 23300 2.23</p> <p>*Includes two 50 cal. machine guns & ammo and closet armor.</p> <p>Data Base: Weighing of Boeing Vertol S/N155304 15 July 1976</p>																														
ELECTRONICS	MISSION AND DESCRIPTION	FUEL AND OIL																														
<p>Radio Set (UHF) AN/ARC-51A Radar Ident. Set AN/APX-72 ICS AN/AIC-14 ADF AN/ARN-59 TACAN AN/ARN-52 Radio Finder Group AN/ARN-25A Radar Altimeter AN/APN-171 FM Liaison AN/ARC-131 Compass MA-1 Altitude Gyro A24-G39 "X" Band Beacon AN/APN-154 HF Radio AN/ARC-94</p>	<p>FUEL</p> <table border="1"> <thead> <tr> <th>Tanks</th> <th>Gals</th> <th></th> </tr> </thead> <tbody> <tr> <td>2</td> <td>178</td> <td>Left and Right Stub Wings</td> </tr> <tr> <td colspan="2">Fuel Grade</td> <td>JP-4 or JP-5</td> </tr> <tr> <td colspan="2">Fuel Spec</td> <td>M11-F-5624C</td> </tr> </tbody> </table> <p>OIL</p> <table border="1"> <thead> <tr> <th>Capacity (Gals)</th> <th></th> </tr> </thead> <tbody> <tr> <td>Engine</td> <td>2.1</td> </tr> <tr> <td>Transmission</td> <td>14.4</td> </tr> <tr> <td>Oil Spec</td> <td>M11-L-23699</td> </tr> </tbody> </table>	Tanks	Gals		2	178	Left and Right Stub Wings	Fuel Grade		JP-4 or JP-5	Fuel Spec		M11-F-5624C	Capacity (Gals)		Engine	2.1	Transmission	14.4	Oil Spec	M11-L-23699	<p>ACCOMMODATIONS</p> <table border="1"> <tbody> <tr> <td>Crew</td> <td>4</td> </tr> <tr> <td>Troops (Combat Equipped)</td> <td>22*</td> </tr> <tr> <td colspan="2" style="text-align: center;">or</td> </tr> <tr> <td>Litters</td> <td>15</td> </tr> <tr> <td>Attendants</td> <td>2</td> </tr> </tbody> </table> <p>Cargo Compartment 1023 cu ft (including Ramp Area) Dimensions 6' x 6' x 24' 2" External Cargo Hook Capacity 10,000 lbs Floor Area 180 sq ft (incl. Ramp) Floor Limit Loads Roller Beams for 3000 lb Pallet 40" x 48" Wheel Tread 1000 lbs Dead Weight per Wheel @33 psi Tire Pressure Remaining Floor Area 300 lb/sq ft</p> <p>* 25 if two .50 cal guns not carried and crew reduced to three.</p>	Crew	4	Troops (Combat Equipped)	22*	or		Litters	15	Attendants	2
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PERFORMANCE SUMMARY								
TAKE-OFF LOADING CONDITION	①	ASSAULT MISSION	②	ASSAULT MISSION WITH EED'S	③	RETRIEVAL MISSION (A)	④	FERRY MISSION (B)
TAKE-OFF WEIGHT	lb.	23189		23300		18479		23300
Fuel internal/external (JP-5)	lb./lb.	2421/0		2287/0		2421/0		6447/0
Payload	lb.	4080		4080		6769		0
Disc loading (C)	lb./sq. ft.	6.42		6.45		5.11		6.45
Vertical rate of climb at S.L. (D)	fpm.	380		150		2105		360
Absolute hovering ceiling (OGE) (D)	ft.	6500		3800		14000 (E)		6000
Max. rate of climb at S.L. (D)	fpm.	1600		1310		2500		1560
Service ceiling (D)	ft.	9600 (E)		9400 (E)		14000 (E)		9400 (E)
Speed at S.L. (F)	kn.	140		128		146		140
Max speed/altitude	kn./ft.	140/SL		128/SL		152/4000		140/SL
O.E.I. Service ceiling	ft.	4500		SL		9200		4000
Min. speed (O.E.I.) (D)	kn.	38		50		19		39
Max. speed (O.E.I.) (D)	kn.	100		86		118		99
Combat radius	n. mi.	69		59		54		-
Mission time (J)	hrs.	1.1		1.0		1.25		-
Average cruising speed	kn.	142		130		109		-
Cruising altitude	ft.	SL		SL		SL		-
Range	n. mi.	146		123		-		569
Average cruising speed	kn.	124		113		-		127
Cruising altitude	ft.	SL		SL		-		8000-10000
Maximum endurance	hrs.	1.53		1.34		-		5.80
Endurance speed	kn.	70		67		-		74
Endurance altitude	ft.	SL		SL		-		8000-10000

NOTES

- (A) 26 Sq. Ft. external load; guns & ammo and fourth crewman not carried.
 (B) With three KC97 auxiliary tanks (729 Gal); guns & ammo and fourth crewman not carried.
 (C) Disc loading based on projected area of 3614 Sq. Ft.
 (D) At intermediate power or transmission limit (2800 Hp), whichever is less.
 (E) Limited by aircraft operating envelope.
 (F) At maximum continuous power, transmission limit (2800 Hp), or never exceed speed, whichever is less.
 (G) All data for Standard Day.
 (H) Unless otherwise noted all data without engine exhaust devices (EED'S) for I.R. suppression.
 (I) Data base flight test/NATOPS.
 (J) Mission Time - Time in air (excludes time before start of enroute climb and reserve.



○ LOADING CONDITION COLUMN NUMBER

NOTES

MISSION DEFINITIONS



ASSAULT MISSION

1. Engine start and takeoff: 5 min MCP at sea level.
2. Cruise out at MCP at sea level.
3. Land and unload troops.
4. Takeoff: 5 min MCP at sea level.
5. Cruise back at MCP at sea level.
6. Land with fuel for 20 min at best range speed at sea level.



RETRIEVAL MISSION

1. Engine start and takeoff: 5 min MCP at sea level.
2. Cruise out at speed for best range at sea level.
3. Hover 10 min at sea level OGE.
4. Pick up maximum external payload
5. Cruise back at speed for maximum range at sea level.
6. Hover 5 min at sea level with payload OGE.
7. Land with fuel for 20 min at speed for maximum range at sea level with load.



FERRY MISSION

1. Engine start and takeoff: 5 min MCP sea level Standard Day.
2. Cruise climb at 10,000 ft.
3. Cruise out at speed for maximum range.
4. Land with 10% initial fuel.



RANGE MISSION

1. Engine start and takeoff: 5 min MCP at sea level.
2. Cruise out at speed for best range.
3. Land with fuel for 20 min at best range speed at sea level.



ENDURANCE MISSION

1. Engine start and takeoff: 5 min MCP at sea level.
2. Climb to loiter altitude.
3. Loiter at speed for minimum fuel flow.
4. Land with fuel for 20 min at best range speed at sea level.



LOADING CONDITION COLUMN NUMBER