

Standard Aircraft Characteristics NAVAR 1335A (REV. 1-55)

STANDARD AIRCRAFT CHARACTERISTICS

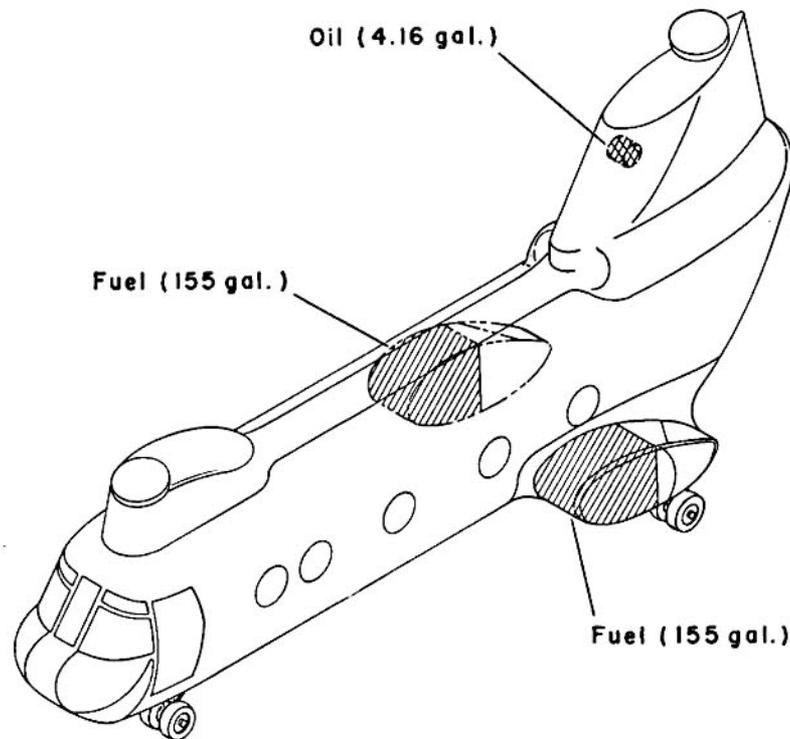
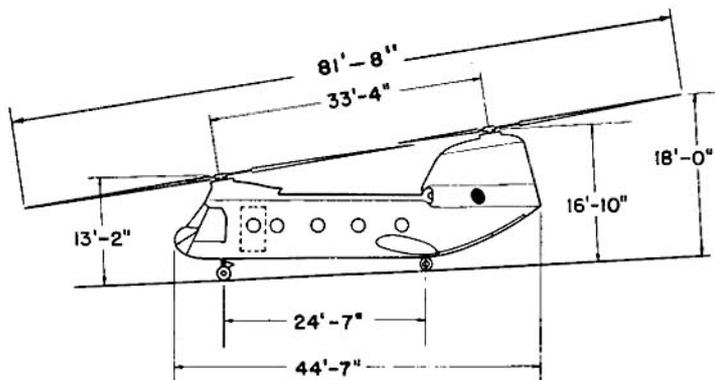
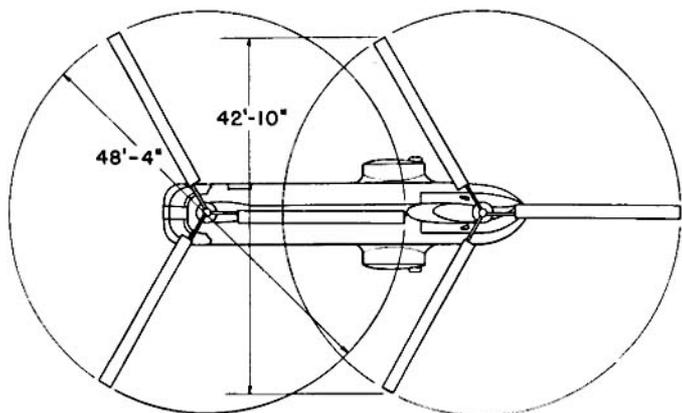
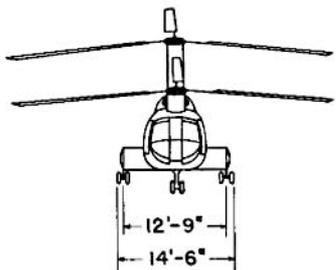
YHC-1A

VERTOL

Standard Aircraft Characteristics MAVER 1335B (Rev. 1-55)

Disc Area (projected) . . . 3310 sq. ft. Engine/Rotor Gear Ratio . . . 73.772 : 1
 Blade Area (each) . . . 36.25 sq. ft. Airfoil Section NACA 0012 (Mod)
 Blade Area (total) . . . 217.5 sq. ft. Blade Chord 18 inches

0 5 10
 SCALE-FT



TANKAGE INSTALLATION

Fuel (gal.)



Oil (gal.)



POWER PLANT

NO. & MODEL (2) T58-GE-6
 MFR..... General Electric
 ENGINE/ROTOR RATIO 73.772:1

RATINGS

| | SHP | RPM | ALT |
|----------|------|-------|-----|
| MILITARY | 1050 | 19500 | SSL |
| NORMAL | 900 | 19500 | SSL |

Engine Spec No. E-1012
 of 14 May 1957

CARGO

Cargo capacity is 866 cu.ft., not including ramp area. Floor area is 137.1 sq. ft. (290" x 68"). Cabin height is 72". Floor limit load is 200 lbs/sq.ft.

Cargo Capability:
 Normal Gross Weight: 3778 lbs.
 Overload Gross Weight: 4745 lbs.

ACCOMMODATIONS

Crew 3
 Troops 22
 or
 Litters 15

MISSION AND DESCRIPTION

The primary tactical mission of the YHC-1A VT Helicopter is to provide air transportation for troops, cargo and weapons within the combat area.

The YHC-1A is an overlapped tandem rotor twin turbine engine helicopter, with an all-metal, semi-monocoque, stressed skin fuselage. The two turbine engines, housed in the aft pylon, drive two 3-bladed, fully articulated, partially overlapping rotors, synchronized by positive gearing. Landing gear is of fixed tricycle type with twin nose wheels and main wheels.

A retractable power operated loading ramp is provided at the rear of the fuselage for straight in loading of troops, cargo and equipment. An automatically operated hatch is provided aft of the loading ramp to permit maximum head clearance for loading. Normal entrance and exit to the cabin enclosure may be made through the entrance door located on the right hand side of the cabin or thru the aft ramp. The ramp and door are capable of being operated in flight.

This aircraft incorporates a dual control system of the conventional stick and rudder pedal type, with collective pitch control lever, and a stick trim control. The aircraft is equipped with three axis SAS and has provisions for a four axis ASE.

DEVELOPMENT

First Flight August 1959
 Service Use Not presently contemplated

DIMENSIONS

Disc Area (proj) 3310 sq.ft.
 Blade Area (total)..... 217.5 sq.ft.
 Rotor Diameter 48.4"

Length

Fuselage 44'7"
 Rotor Blades Folded 44'7"
 Rotor Blades Turning 81'8"

Height

Max Rotor Tip 18'0"
 Max Fuselage 16'10"
 Tread 12'9"

WEIGHTS

| | LBS | L.F. |
|-------------|--------|------|
| EMPTY | 9,216 | |
| BASIC | 9,244 | |
| DESIGN | 15,550 | 2.67 |
| MAX. T.O. | 16,650 | 2.50 |
| MAX LANDING | 15,550 | 2.67 |

FUEL AND OIL

| NO TANKS | GALS | LOCATION |
|------------|------|-----------------|
| 1 | 155 | left stub wing |
| 1 | 155 | right stub wing |
| Fuel Grade | | JP-4 |
| Fuel Spec | | MIL-F-5624C |

OIL

Capacity 14.2 gals.
 Grade 1065
 Spec MIL-L-7808C(1)&MIL-L-6082B

ELECTRONICS

Radio Set (FM) AN/ARC-44
 Antenna Group AN/ARA-31
 Radio Set (UHF)..... AN/ARC-55
 Direction Finder Set (ADF). AN/ARN-59
 Marker Beacon AN/ARN-32
 *Radio Receiving Set (VOR).. AN/ARN-30
 *IFF Transponder AN/APX-44
 *Radio Receiving Set (FM)... AN/ARR-46
 *Altimeter AN/APN-117

*Provisions Only

PERFORMANCE SUMMARY

| TAKE-OFF LOADING CONDITION | (1) ASSAULT TRANSPORT | (2) CARGO OVERLOAD | (3) FERRY | | |
|---|-----------------------|--------------------|-----------|----------|--|
| TAKE-OFF WEIGHT | lb. | 15550 | 16650 | 11905 | |
| Fuel (JP-4) | lb. | 1882 | 2015 | 2015 | |
| Payload | lb. | 3778 | 4745 | 0 | |
| Vertical Rate of Climb, S.L. (A) | fpm. | 900 | 400 | 2460 | |
| Absolute Hovering Ceiling, Std. Day (A) | ft. | 9700 | 5700 | 18000 | |
| Absolute hovering ceiling 95°F Day (A) | ft. | 2250 | 400 | 9400 | |
| Max. rate of climb at S.L. (B) | fpm. | 1860 | 1420 | 2660 | |
| Service ceiling (100 fpm) (B) | ft. | 17400 | 15200 | 24800 | |
| Speed at S.L. (B) | kn. | 135 | 134 | 137 | |
| Max. speed/altitude (B) | kn./ft. | 137/3600 | 136/3600 | 140/7000 | |
| Combat range | n.mi. | - | 235 | 259 | |
| Average cruising speed | kn. | - | 125 | 124 | |
| Cruising altitude | ft. | - | 5000 | 5000 | |
| Combat radius | n.mi. | 108 | 114 | - | |
| Average cruising speed out/back | kn./kn. | 122/128 | 122/128 | - | |
| Cruising Altitude | ft. | 5000 | 5000 | - | |
| Maximum Endurance | hr. | 2.09 | 2.15 | - | |
| Average Cruising Speed/Altitude | kn/ft | 68/S.L. | 70/S.L. | - | |

NOTES

(A) MILITARY RATED POWER

(B) NORMAL RATED POWER

Performance Basis: Calculated data based on Flight Tests of Vertol 107 Prototype Aircraft
 Combat Range, Radius and Endurance are based on engine specific fuel consumption increased 5%.
 All performance out of ground effect.

Combat Radius Mission

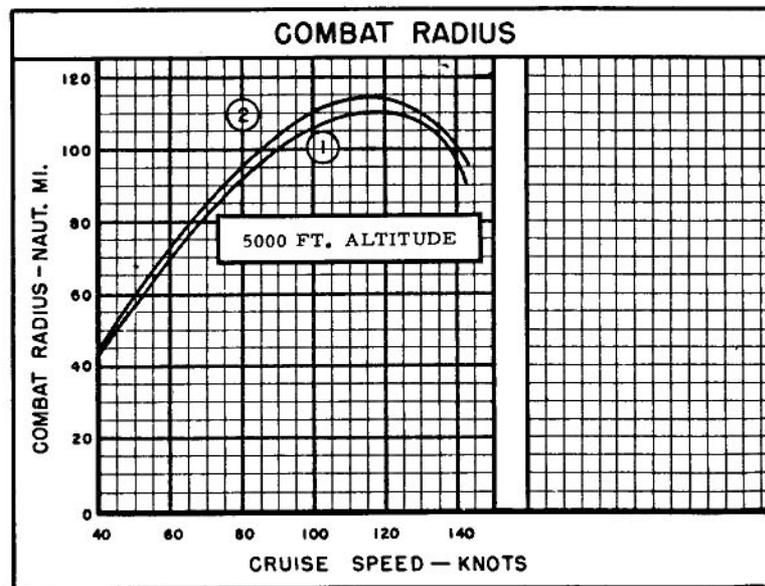
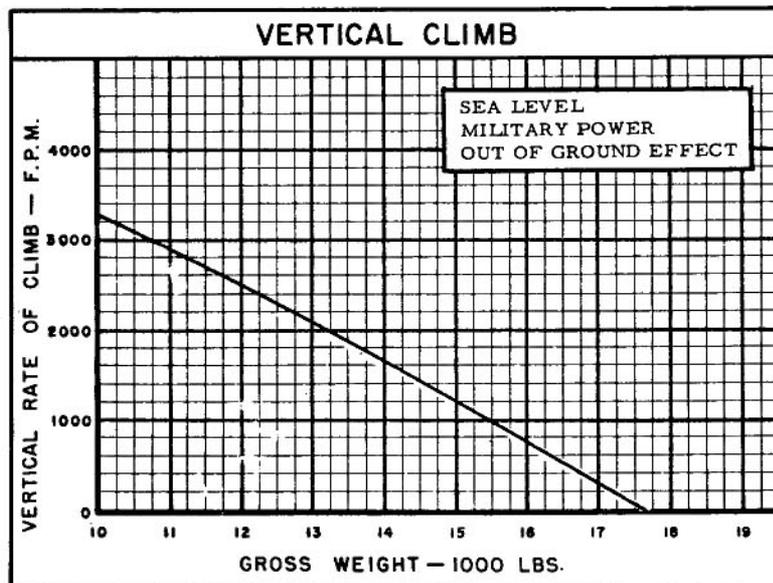
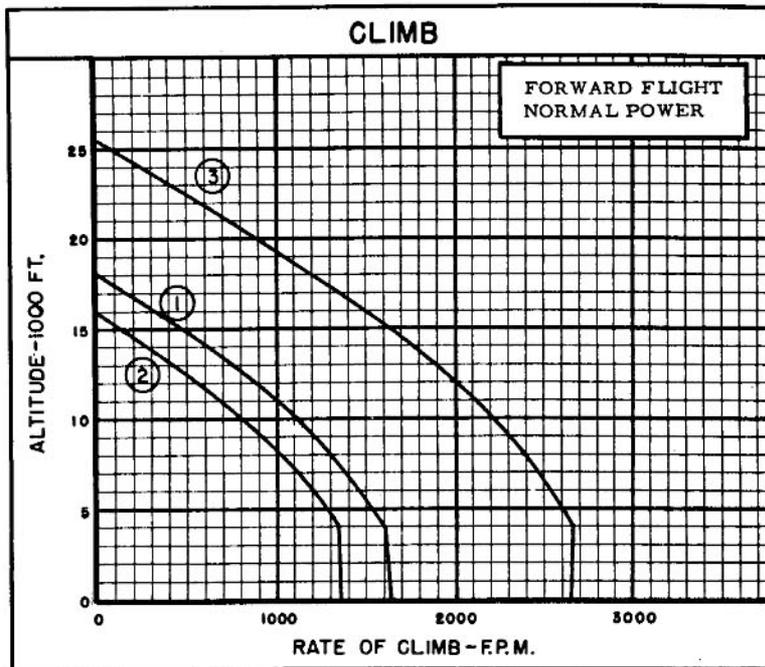
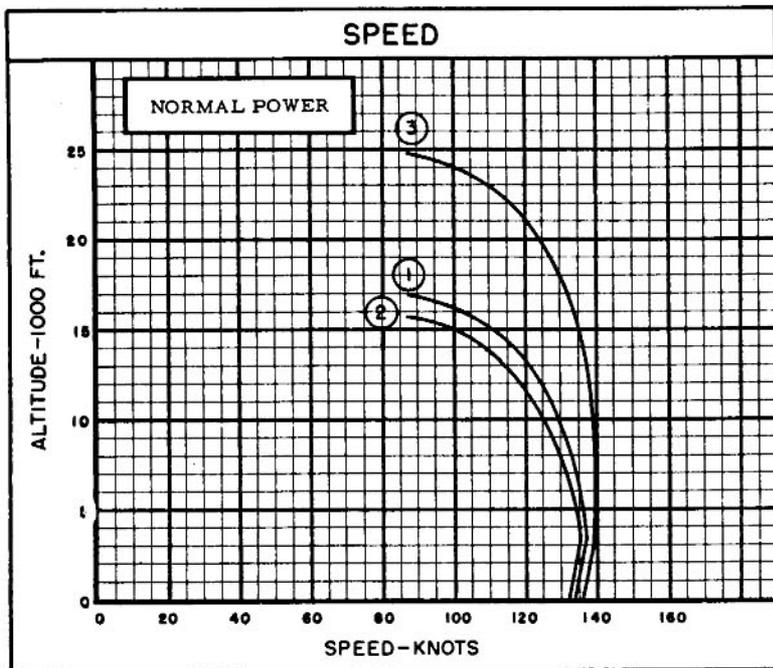
Warm-Up and Take-Off: 4 min. at sea level at normal power
 (including allowance for W. U. and T.O. at objective.)
 Climb: At maximum continuous power to 5000 ft. altitude
 Cruise Out: At not less than 122 knots
 Land: At objective and unload cargo
 Climb: At max. cont. power to 5000 ft. altitude
 Cruise Back: At not less than 128 knots
 Reserve: 10% of initial fuel load

Combat Range Mission:

Warm-Up and Take-Off: 2 min. at sea level at normal power
 Climb: At max. cont. power to cruise altitude
 Cruise Out: At speed for best range
 Reserve: 10% of Initial Fuel Load

Maximum Endurance Mission:

Warm-Up and Take-Off: 2 min at sea level at normal power
 Cruise Out: At speed for max. endurance at sea level
 Reserve: 10% of initial fuel load



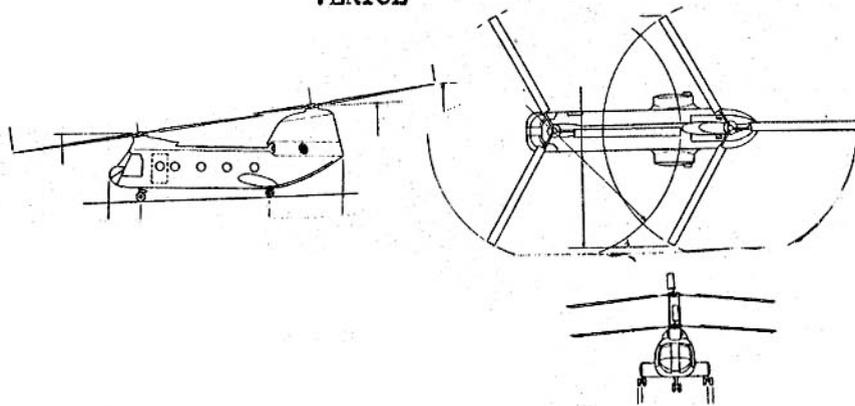
○ LOADING CONDITION COLUMN NUMBER

Standard Aircraft Characteristics NAVAER 1335E (Rev. 1-55)

CHARACTERISTICS SUMMARY

ASSAULT YHC-1A

VERTOL



DISC AREA 3310 sq. ft.

LENGTH 44' - 7"

ROTOR DIA. 48' - 4"

HEIGHT

| AVAILABILITY | | | PROCUREMENT | | | |
|------------------|---------|-------|-------------------------------------|--|--|--|
| NUMBER AVAILABLE | | | NUMBER DELIVERED IN FISCAL YEARS | | | |
| ACTIVE | RESERVE | TOTAL | | | | |
| | | | | | | |

| STATUS | |
|-------------------|-------------------------------|
| FIRST FLIGHT..... | AUGUST 1959 |
| SERVICE USE | NOT PRESENTLY CONTEMPLATED |

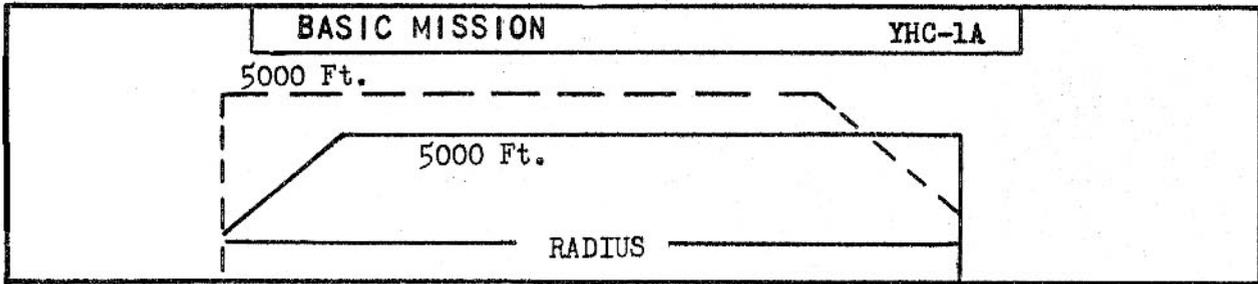
| ENGINES | | | |
|--------------|------------|------------|------------|
| (2) T58-GE-6 | | | |
| | <u>SHP</u> | <u>RPM</u> | <u>ALT</u> |
| MIL | 1050 | 19500 | SL |
| NORM | 900 | 19500 | SL |

| FEATURES |
|--|
| Dual Controls |
| Power Operated Loading Ramp |
| Three Axis SAS with Provisions For Four Axis ASE |

| ARMAMENT |
|---------------------|
| None |
| Crew 3 |
| Troops 22 |

NAWEPS-1519E (Rev. 6-56)

CHARACTERISTICS SUMMARY



| PERFORMANCE | | |
|---------------------------------------|--|--|
| ENDURANCE | RANGE | SPEED |
| 2.15 hours | 235 naut. mi. | 136 knots at 3600 ft. |
| 70 knots avg. | 125 knots avg. | 135 knots at S.L. ft. |
| S.L. ft. alt. | 5000 ft. alt. | Normal Gross Weight Normal Power |
| FORWARD FLIGHT CLIMB | SERVICE CEILING | HOVERING CEILING |
| 1660 ft./min. | 17,400 ft. | 2250 ft. |
| Sea Level, N. G. Wt., Normal Power | 100 ft./min., N. G. Wt., Normal Power | N. G. Wt., Maximum Power out of ground effect |
| | | ft. N. G. Wt., Power in ground effect |
| LOAD | WEIGHTS | VERTICAL CLIMB |
| Fuel 300 gal. | Empty 9216 lbs. | 900 ft./min. |
| Internal 310 gal. | Normal Gross 15,550 lbs. | Sea Level, N. G. Wt., Maximum Power |
| External gal. | Overload 16,650 lbs. | |
| Payload 4745 lbs. | | |

NOTES

Performance Based on Flight Tests of Vertol 107 Prototype Aircraft.
 Range, Radius and Engurance Based on Engine SFC Increased by 5%.
 All Performance Out of Ground Effect.

NAVAER-1519D (Rev. 6-56)