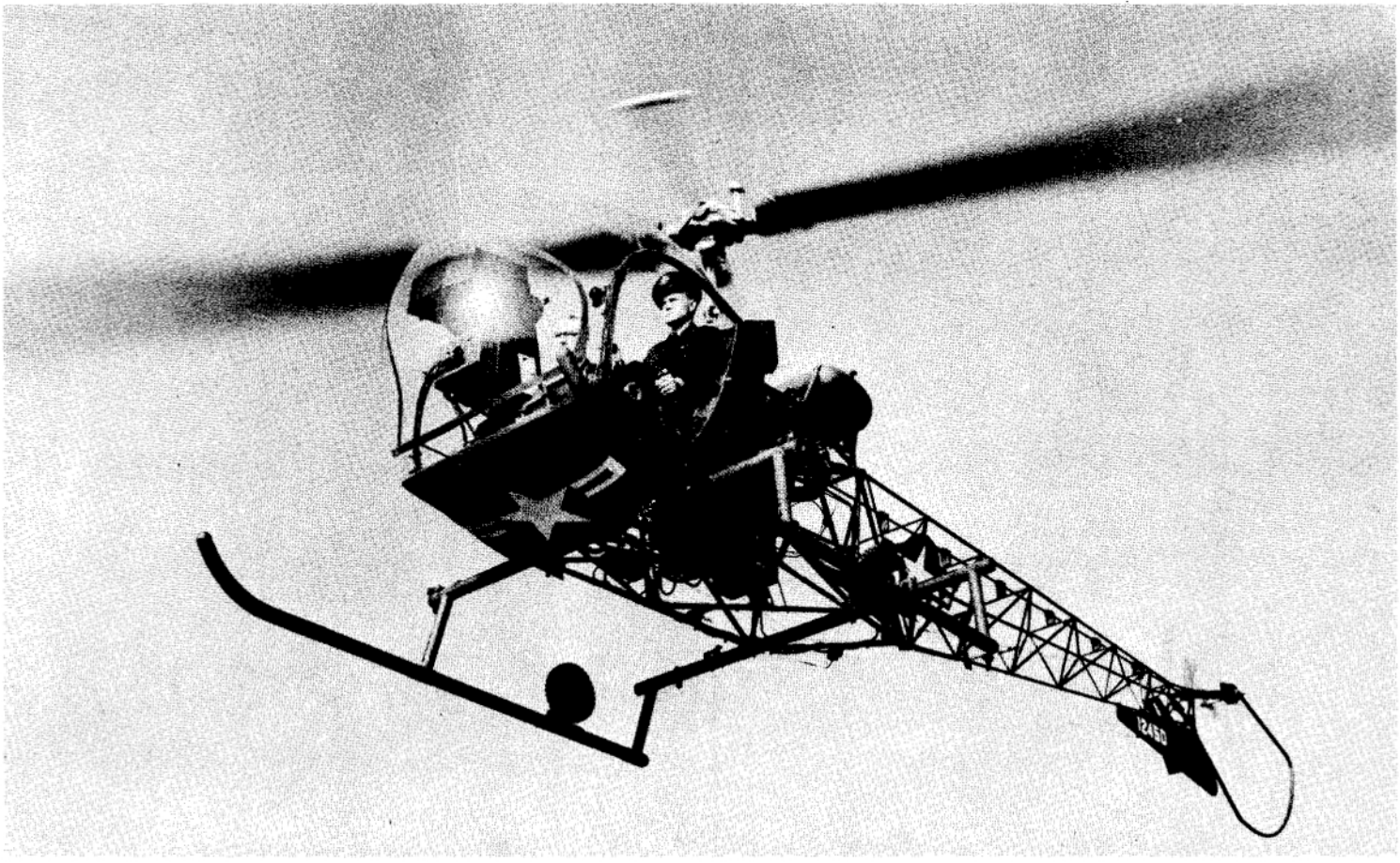


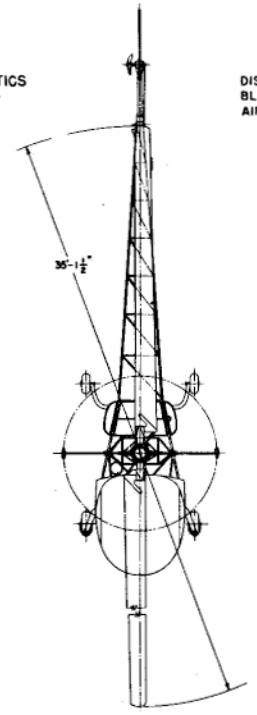
STANDARD AIRCRAFT CHARACTERISTICS

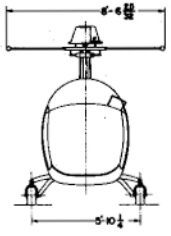
HTL-4

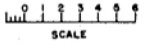
BELL

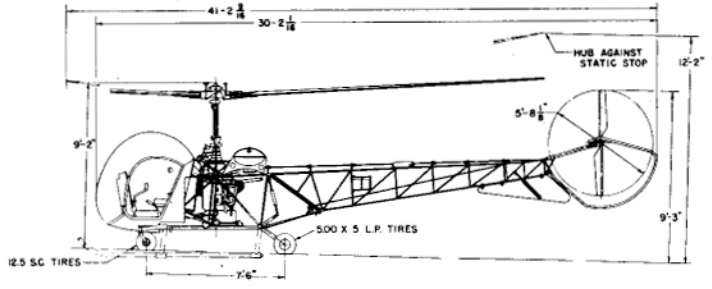
BUREAU OF AERONAUTICS
NAVY DEPARTMENT

DISC AREA: 965 SQ. FT.
BLADE AREA (2): 35.34 SQ. FT.
AIRFOIL SECTION: ROOT NACA 0017
TIP NACA 0011









DESCRIPTIVE ARRANGEMENT

POWER PLANT

NO. & MODEL.....(1) O-335-5
MFR.....Aircooled Motors
ROTOR GEAR RATIO.....0.111
TAIL ROTOR RATIO.....0.60

RATINGS

	Bhp @	Rpm @	Alt.
NORMAL	200	3,100	S. L.

SPEC. NO. 19017C

ACCOMMODATIONS

CREW AND PASSENGERS ON SEAT.....3
EXTERNAL LITTERS.....2

MISSION AND DESCRIPTION

The primary mission of the HTL-4 is training. It will also be used in combat areas for the evacuation of wounded, mine spotting, liaison, carrying limited amounts of critical supplies, and general utility.

It is similar in general configuration and rotor dimensions to the HTL-3 helicopter, but the removal of the fuselage covering aft of the pilot's enclosure and other equipment has made the helicopter 156 pounds lighter in the normal configuration. Modification of the tail rotor guard has increased the length 2 inches.

Some of the helicopters are being delivered with skid type gear and some with wheel type gear. Kits containing the other type of gear are being delivered with each helicopter.

The HTL-4 is a three-place, single engine helicopter equipped with a two-bladed main rotor with a gyroscopic action stabilizer bar. The main rotor is of the see-saw type, the blade being rigidly interconnected by means of the hub except that each blade is separately journaled to the hub for pitch change.

In service use -- November 1950

DIMENSIONS

DISC AREA.....969 sq. ft.
BLADE DIA.....35' - 2"
LENGTH.....41' - 5"
HEIGHT*.....11' - 3"
TREAD.....5' - 11"
BLADE AREA.....35 sq. ft.

* Blades in stowed position.

WEIGHTS

Loadings	Lbs.	L.F.
EMPTY	1,546	
BASIC	1,555	
DESIGN	2,350	2.5
MAX.T.O.	2,350	2.5
MAX.LAND	2,350*	

All weights are actual.

* Limited by performance

FUEL AND OIL

Gals.	No. Tanks	Location
29	1	Fuselage

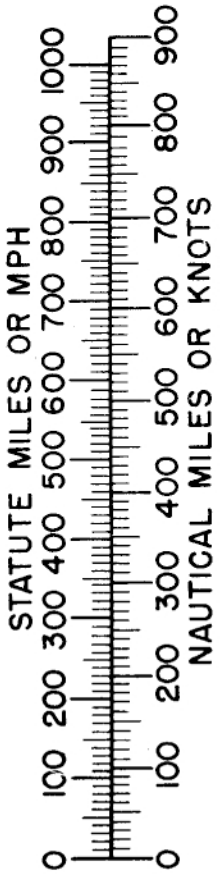
FUEL GRADE....91/98
FUEL SPEC...AN-F-48

OIL

CAPACITY (Gals.).....2
GRADE.....1100
SPEC.....AN-O-8

ELECTRONICS

VHF TRANSMITTER.....T-11A
VHF TRANSMITTER.....T-13
VHF REC.(118-148 mcs)....R-19
RANGE REC.(190-550 kcs).R-11A



PERFORMANCE SUMMARY

LOADING CONDITION		(1) TRAINER 1 Pilot 1 Student	(2) TRAINER 1 Pilot Cargo/Passen.		
TAKE-OFF WEIGHT	lbs.	2,124	2,350		
Fuel	lbs.	174	174		
Pay Load	lbs.	190	416		
Engine Power	bhp/rpm.	200/3,100	200/3,100		
Disc Loading	lbs./sq.ft.	2.2	2.4		
Power Loading (A)	lbs./bhp.	10.6	11.7		
Maximum Speed-S.L. (B)	kn.	80	80		
Maximum Speed/Alt. (B)	kn./ft.	82/1,900	80/S.L.		
Rate of Climb--S.L. (B)	ft./min.	990	850		
Speed for Rate of Climb--S.L. (B)	kn.	45	45		
Time-to-Climb 5,000 ft. (B)	min.	6.2	7.6		
Time-to-Climb 10,000 ft. (B)	min.	17.7	25.0		
Service Ceiling (B)	ft.	12,600	10,600		
Vertical Rate of Climb--S.L. (B/C)	ft./min.	340	--		
Abs. Hover Ceil. No Grd. Effect (B/C)	ft.	1,500	--		
Abs. Hover Ceil. In Grd. Effect (B/C)	ft.	--	--		
Combat Range/Vav 1,500 ft.	n.mi./kn.	105/65	95/65		
Max. Endur./Vav 1,500 ft.	hr./kn.	1.9/45	1.7/45		

NOTES

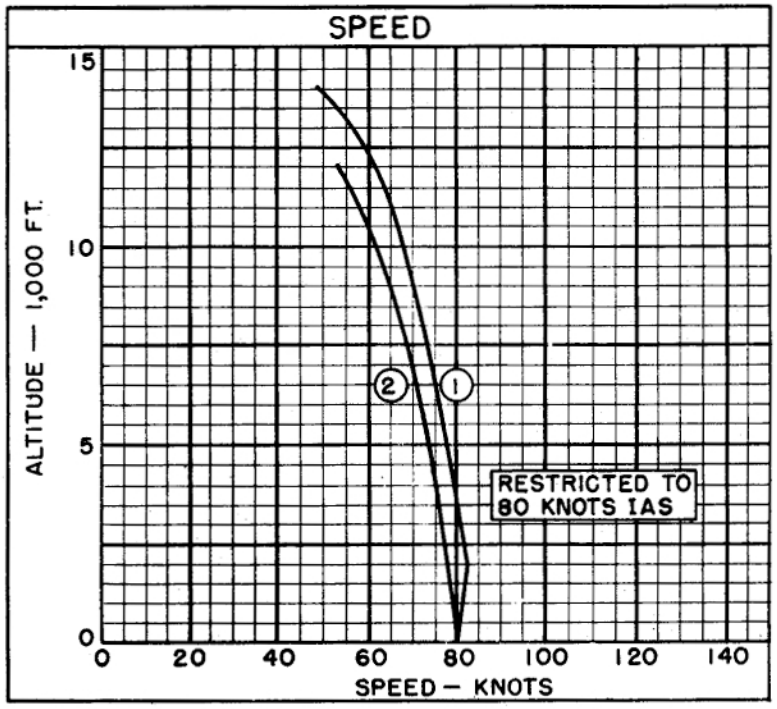
(A) BHP at Maximum Critical Altitude
(B) Normal BHP
(C) Take-Off Power

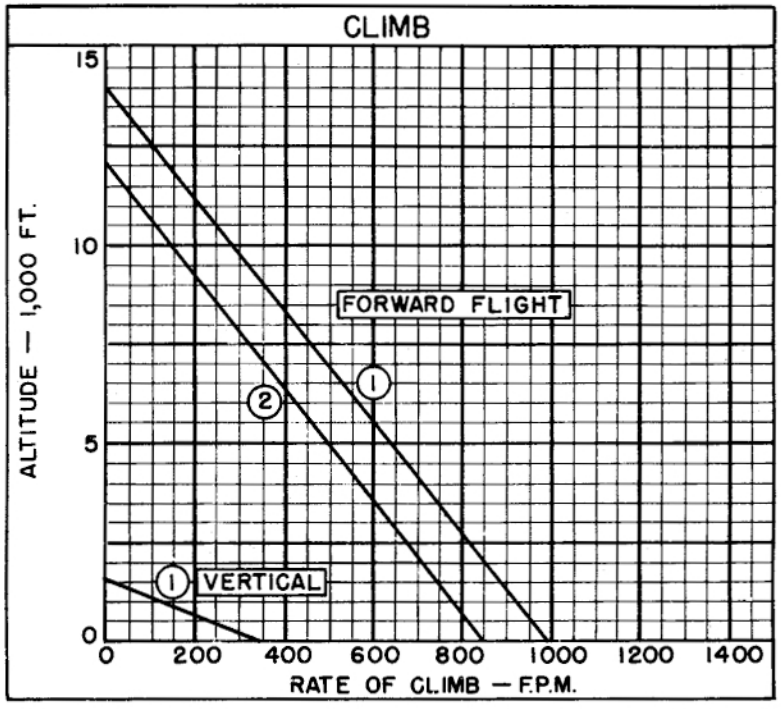
Performance is based on NATC flight test of the HTL-3 helicopter.

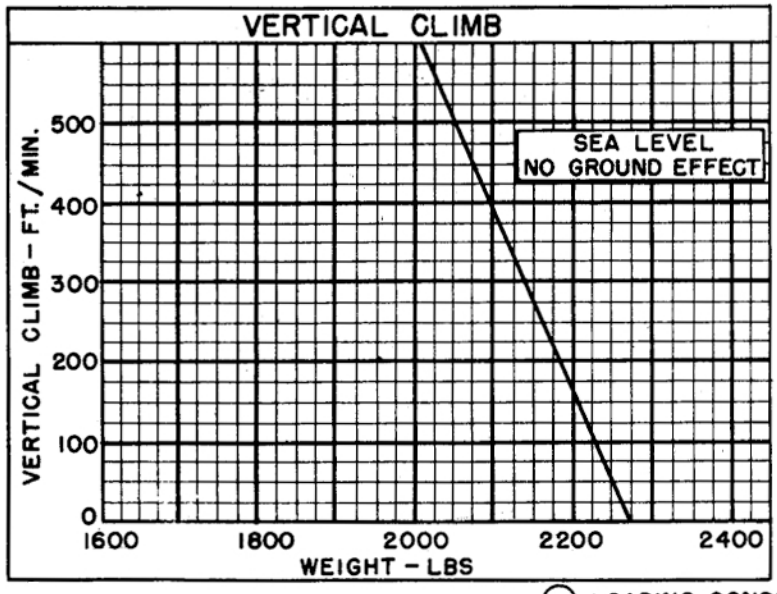
Combat range and maximum endurance are based on flight test fuel consumption data increased by 5% and allowing fuel for warm-up and take-off (5 minutes at NRP) and a 10% fuel reserve.

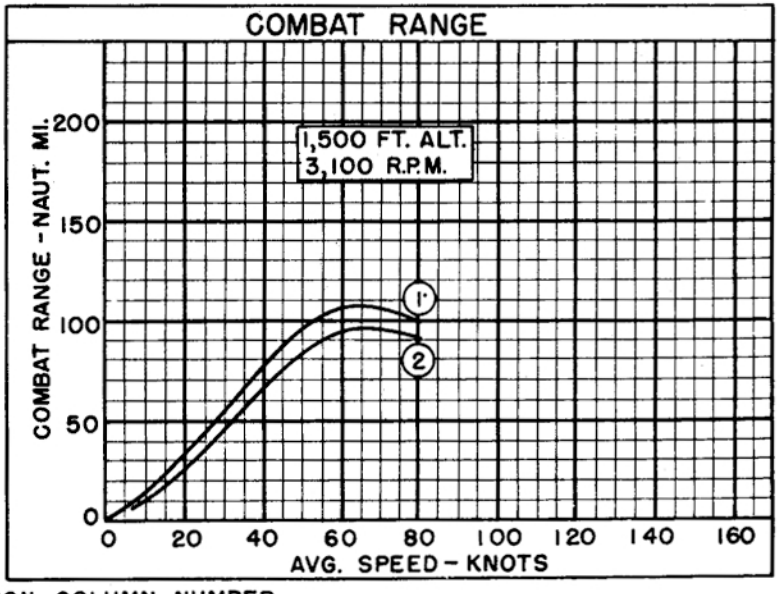
Maximum speed is restricted to 80 knots IAS by BUAER Technical Order No. 40-51 of 1 June 1951.

All performance is based on 3,100 RPM and is out of ground effect.







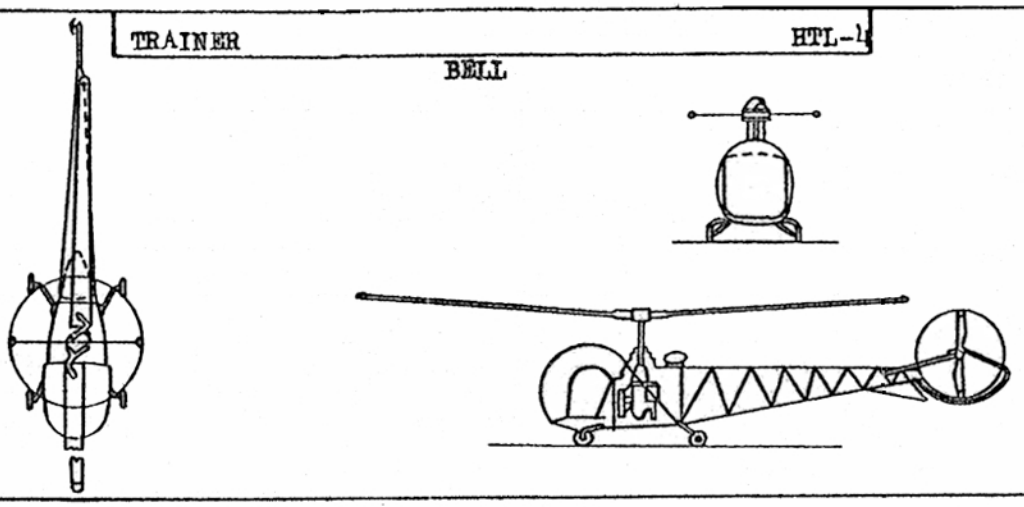


◯ LOADING CONDITION COLUMN NUMBER

CHARACTERISTICS SUMMARY

TRAINER HTL-4

BELL



DISC AREA 969 sq. ft.
ROTOR DIA. 35' - 2"

LENGTH 41' - 5"
HEIGHT 12' - 3"

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

STATUS

Off the shelf procurement (commercial model 47D-1) with minor Navy changes.

In service use -- November 1950

ENGINES

1 Aircooled O-355-5

	Bhp/ Rpm /Alt.
NORMAL	200/3,100/S.L.

FEATURES

2 Place Dual Control
Bubble Canopy
Wheel landing gear

Alternate Gear:
skid type or float type
Provisions for 2 external litters with skid type gear.

29 gallons fuel, maximum capacity

ARMAMENT

None

ACCOMMODATIONS

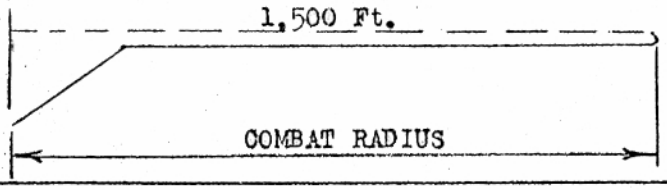
Pilot & passenger or Student on Seat.... 2
External Litters.....2 (with skid gear)

NAV 1519 E (NEW 4-51)

CHARACTERISTICS SUMMARY

BASIC MISSION

HTL-4



PERFORMANCE

MAXIMUM ENDURANCE	COMBAT RANGE	COMBAT SPEED
1.9 hours 45 knots avg. 1,500 ft. alt.	105 naut. mi. 65 knots avg. 1.6 hours 1,500 ft. alt.	80 knots at S. L., Max. Power
		MAXIMUM SPEED
		82 knots at 1,900ft., Max. Power
CLIMB	**CEILING**	**TAKE OFF**
990 ft./min. (forward flight) Sea Level, T. O. wt. Normal Power	12,600 ft. (forward flight) 100 ft./min., T. O. wt. Normal Power	Vertical
340 ft./min. (vertical) Sea Level, T. O. wt. Normal Power	1,500 ft. Absolute Hover Ceiling T. O. Wt. Normal Power	
LOAD	**WEIGHTS**	**STALLING SPEED**
Fuel 29 gal. fixed 29 drop --- Pay Load 190 lbs.	Empty 1,546 lbs. Combat --- Take-off 2,124 lbs.	knots Flaps down, T. O. wt.
		TIME TO CLIMB
		ft. in min. Combat Wt., Max. Power

NOTES

Performance is based on NATESTCEN flight test of HTL-3 helicopter.
Combat range and maximum endurance are based on flight test fuel consumption data increased by 5% and allowing fuel for warm-up and take-off (5 minutes at NRP) and a 10% fuel reserve.
All performance is out of ground effect.
This sheet previously issued 1 October 1951. Reason for reissue: More recent flight test data.