

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

H5NM
Revision 10
Rotorcraft Dev. Corp.
UH-1E
UH-1L
TH-1L
HH-1K
August 1, 2012

TYPE CERTIFICATE DATA SHEET NO. H5NM

This data sheet which is part of Type Certificate No. H5NM prescribes conditions and limitations under which the product for which the type certificate was issued meets the airworthiness requirements of the Federal Aviation Regulations.

Type Certificate Holder Rotorcraft Development Corporation
132 Skalkaho Hwy.
Hamilton, Montana 59840

Type Certificate Holder Record Garlick Helicopter, Inc. transferred TC H5NM to Garlick Helicopter Corporation on June 29, 2007.

Roy D. Regan & James P. Ross (Co-Partners) transferred TC H5NM to Garlick Helicopters, Inc. on November 21, 1989.

I - Model UH-1E - (Restricted Category Military Surplus Helicopter)

Engine Lycoming T-53-L-11D (See Notes 8 & 13 for Alternate Engines)

Fuel Grade JP-4, JP-5, or see U.S. Navy NAVAIR 01-110HCA-1 for substitute and emergency fuels.

Engine Limits	Torque Pressure (PSI)	Output RPM	Exhaust Gas Temperature (Deg. C)
Max. Continuous	46.0 (900 HP)	6600	620
30 Min. Operation	48.0 (1000 HP)	6600	620-640
Maximum Allowable	50.0 (1100 HP)	6600	640

Rotor Limits	<u>Power Off</u>	<u>Power On</u>
	Maximum 339 RPM	Maximum 324 RPM
	Minimum 295 RPM	Minimum 294 RPM
	Continuous Operation	294-324 RPM

Airspeed Limits Never Exceed 140 knots up to and including 6600 lb G.W. Sea level to 2000 ft. Sideward and rearward flight airspeed limitation 30 knots.

Other Limits Flight Hours are counted from takeoff to landing.

The helicopters approved under this type certificate are done so under the concept of limited exposure associated with escape from inadvertent ice encounters, and are prohibited against flight into known icing. The helicopters must be re-evaluated if certification to the General Ice protection Airworthiness Regulations is requested.

Page No.	1	2	3	4	5	6	7
Rev. No.	9	9	9	9	9	9	10

I - Model UH-1E (cont'd)

C.G Range	Most forward C.G. up to 8150 lb G.W. Fuse Sta. 125.0 Most forward C.G. at 8,500 lb G.W. Fuse Sta. 125.5 / 9,500 lb G.W. Fuse Sta. 126.7 Most aft C.G. up to 7,000 lb G.W. Fuse. Sta. 138.0 Most aft C.G. at 8,500 lb G.W. Fuse. Sta. 134.4 / 9,500 lb G.W. Fuse Sta. 132.0
Empty Weight C.G. Range	(+125.0) to (+138.0)
Maximum Weight	9,500 lb all conditions.
Minimum Crew	1 (pilot) for VFR flight.
Maximum Passengers	(See Note 13.)
Fuel Capacity Useable	242 U.S. Gallons
Oil Capacity	3.25 U.S. Gallons
Rotor Blade and Control Movements	For rigging information refer to U.S. Navy Technical Manual NAVAIR 01-110HCA-2
Approved Serial Nos.	Surplus UH-1 E helicopters are identified in FAA Approved Garlick Helicopters Report No. GHI-TC02, dated April 7, 1995 or later approved revision.

II - Model UH-1L TH-1L and HH-1K- 9PCLH (Utility Helicopter Restricted Category)

Engine	Lycoming T-53-L-13B (See Notes 8 & 15 for Alternate Engines).		
Fuel	Grade JP-4, JP-5, or see U.S. Navy NAVAIR 01-110HCA-1 for alternate fuels.		
Engine Limits		Torque Pressure (PSI)	Output RPM
			Exhaust Gas Temperature (Deg. C)
	Max. Continuous	46.0	6600
	30 Min. Operation	48.0	6600
	Maximum Allowable	50.0 (1100 HP)	6600
Rotor Limits	<u>Power Off</u>	<u>Power On</u>	
	Maximum 339 RPM	Maximum 324 RPM	
	Minimum 295 RPM	Minimum 294 RPM	
	Continuous Operation 294-324 RPM		
Airspeed Limits	Never Exceed 140 knots up to and including 6600 lb G.W. Sea level to 2000 ft. Sideward and rearward flight airspeed limitation 30 knots.		
Other Limits	Flight Hours are counted from takeoff to landing.		
	The helicopters approved under this type certificate are done so under the concept of limited exposure associated with escape from inadvertent ice encounters, and are prohibited against flight into known icing. The helicopters must be re-evaluated if certification to the General Ice protection Airworthiness Regulations is requested.		

II - Model UH-1L TH-1L and HH-1K- 9PCLH (cont'd)

Maximum Weight	9,500 lb all conditions.
C.G. Range	Most forward C.G. up to 8150 lb G.W. Fuse Sta. 125.0 Most forward C.G. at 8,500 lb G.W. Fuse Sta. 125.5 / 9,500 lb G.W. Fuse Sta. 126.7 Most aft C.G. up to 7,000 lb G.W. Fuse. Sta. 138.0 Most aft C.G. at 8,500 lb G.W. Fuse. Sta. 134.4 / 9,500 lb G.W. Fuse Sta. 132.0
Empty Weight C.G. Range	(+125.0) to (+138.0)
Minimum Crew	1 (pilot) for VFR flight.
Maximum Passengers	(See Note 14.)
Fuel Capacity Useable	242 U.S. Gallons
Oil Capacity	3.25 U.S. Gallons
Rotor Bade and Control Movements	For rigging information refer to U.S. NAVAIR 01-110HCA-2
Approved Serial Nos.	Surplus UH-1 L, TH-1 L or HH-1 K helicopters as identified in FAA Approved Garlick Helicopters Report No. GHI-TC02, dated April 7, 1995 or later approved revision.

DATA PERTINENT TO ALL MODELS

Leveling Means	Plumb line dropped from slotted plate in cabin roof directly above leveling plate. The leveling plate is located on the cabin floor just inside the left cargo door.
Datum	7.6" aft of aircraft nose
Certification Basis	Federal Aviation Regulations FAR 21.25(a)(2) Amendments 21-1 through 21-56 effective February 8, 1982. Type Certificate No. H5NM issued for the purpose of: (1) Agriculture Operations under FAR 21.25(b)(1) (2) Forest and Wildlife Conservation under FAR 21.25(b)(2) (3) Aerial Surveying Operations under FAR 21.25(b)(3) (4) Patrolling Operations under FAR 21.25(b)(4) (5) External Cargo Operation under FAR 21.25(b)(7)

Any alteration to the helicopter for Special Purposes not identified above require further FAA approval and in addition, may require additional noise and/or flight testing.

Note: In accordance with FAR 36.1(a)(4), compliance with the noise requirements has been shown for Garlick Models UH-1H. No determination has been made by the Federal Aviation Administration that the noise levels of this aircraft are or should be acceptable or unacceptable for operation at, into, or out of, any airport.

General Note: Any subsequent modifications to the helicopters type certified under this Type Certificate are to have the certification basis for that modification established under 14 CFR 21.101 published June 7, 2000 which became effective June 10, 2003. Otherwise non-significant modifications are to meet the requirements of 14 CFR 29 airworthiness standards, transport category, Amendment 1, effective August 12, 1965, plus special conditions for turbine engine installations and 14 CFR 29.1529, Instructions for Continued Airworthiness, Amendment 20, effective September 11, 1980.

DATA PERTINENT TO ALL MODELS (cont'd)

Production Basis	None. No helicopter may be produced under this approval. (See Note 4) Prior to adding serial numbers to this Type Certificate, each candidate helicopter must undergo a conformity inspection. The conformity inspection will be conducted in accordance with a Type Inspection Authorization, Part 1, or request for conformity that will include as a minimum, the inspections contained in the FAA Rotorcraft Directorate Restricted Category Conformity document dated September 25, 2001 or later FAA approved revisions.
Equipment	The basic required equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed in each type helicopter for certification. In addition the Flight Manual U.S. NAVAIR 01 110HCA-1 is required.

NOTES

- NOTE 1. Current weight and balance information including list of equipment in certificated empty weight and loading instructions must be in each helicopter at time of original airworthiness certification and at all times thereafter.
- NOTE 2. The following placards must be prominently displayed in the cockpit in full view of the pilot.

MODEL UH-1E, UH-1L, TH-1L, and HH-1K**OPERATING LIMITATIONS**

GROSS WEIGHT	7500	8500	9500
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AIRSPED POWER ON	140	130	125
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DECREASE AIRSPED 3 KNOTS/1000 FT. ABOVE 3000 FT.

POWER ON 314 TO 324 RPM (6400 TO 6600 RPM)

POWER OFF 300 TO 339 RPM (6100 TO 6900 RPM)

TURN ON ENGINE DE-ICE WHEN OPERATING IN VISIBLE MOISTURE AT TEMPERATURES BELOW 32°F (0°C).

THIS HELICOPTER MUST BE OPERATED IN ACCORDANCE WITH THE RESTRICTED CATEGORY OPERATING LIMITATIONS OF FAR 91.39 AND WITH THE LIMITATIONS NOTED IN U.S. NAVY NAVAIR 01110HCA-1.

In addition, a placard identifying the specific type of T53 Series engine installed must be installed in view of the pilot.

- NOTE 3. The helicopter(s) must be serviced, maintained and inspected in accordance with the documents specified in Garlick Helicopters Inc. Instructions for continued Airworthiness Report, GH-H5NM-CA1 dated 10-22-02 or later accepted version. Or other FAA accepted inspection program. The Garlick Helicopters Inc. Report GH-H5NM-CA1 is part of the Garlick Helicopters Inc. Instructions for Continued Airworthiness. Retirement times and component overhaul intervals are listed in FAA Approved Airworthiness Limitations Section (Section II of the above document) dated 10-22-02 or later approved version.

NOTES (cont'd)

- NOTE 4. In addition to the standard helicopter requirements, the following additional data and/or helicopter configuration requirements must be met for each individual model UH-1E, UH-1L, TH-1L, and HH-1K helicopter upon application for an original Special Airworthiness Certificate:
- a) A completed application for airworthiness certificate, FAA Form 8130-6 that has correctly identified the type certificate holder's helicopter and its intended special purpose(s).
 - b) Written confirmation from the certifying office that the affected serial number has been added to Garlick Helicopters Inc. type certificate.
 - c) The application for airworthiness certification and the helicopter's registration certification match the information on Garlick Helicopter, Inc. data plate.
 - d) Each helicopter must satisfactorily pass inspections for conformity with U.S. Navy Document NAVAIR 01-0110HCA-2, possible hidden damage, and for workmanship and materials used in making any repairs and/or alterations. GHI Document GH-H5NM-CA1 Instructions for Continued Airworthiness dated 10-22-02, or later accepted revision, and TCDS H5NM dated Oct 22, 2002 or later approved revision.
 - e) The Maintenance, overhaul, and modification records of each helicopter must be reviewed for changes made by the military services that may affect the airworthiness of the aircraft. Modifications and changes of equipment, which may affect the safety or performance of the helicopter must be approved by the Federal Aviation Administration.
 - f) FAA Airworthiness Directives listed in FAA Approved GHI AD Review list for Certification and continued Airworthiness dated 5-14-01, as revised, for UH1 series helicopters, Lycoming T53-L-11 and L-13 Series engines and aircraft appliances must be reviewed for applicability and complied with accordingly.
 - g) The U.S. Navy Technical Directives listed in Hercules Report Number 1401Y dated October 24, 1985, must be complied with.
- NOTE 5. This aircraft is prohibited from carrying cargo for compensation or hire, carriage of cargo is limited to such cargo that is incidental to the aircraft owner / operator's business which is other than air transportation. (This note applies to aircraft that have the Special Purpose, "Carriage of Cargo".)
- NOTE 6. Restricted Category aircraft may not be operated in a foreign country without the expressed written approval of that country.
- NOTE 7. The following note must be placed under "exceptions" on all Export Certificates of Airworthiness for this aircraft. "This aircraft is type certificated in the restricted category and has not been determined to meet the international standards concerning the airworthiness of aircraft as provided for in Annex 8 to the Convention of International Civil Aviation (Chicago Convention) of December 7, 1944.
- NOTE 8. Military to Civil or Military to Military engine changes are allowed provided the replacement engine is of the same make and model as identified in this TCDS. The military or civil replacement engine must have proper military or civil records and have the applicable FAA Airworthiness Inspection accomplished and is in an airworthy condition.
- NOTE 9. This approval applies to the basic United States Navy UH-1E, UH-1L, TH-1L, and HH-1K helicopters modified in accordance with Hercules Report Number 1400Y dated January 2, 1985.

NOTES (cont'd)

- NOTE 10. Torque pressure output by the engine torque sensing system varies with individual engines. A calibration of this value is required on each engine and the value corresponding to take-off power is stamped on the engine data plate.
- NOTE 11. Helicopters that do not have documentation showing they were surplus from an Armed Force of the United States are not eligible for certification under this type certificate. Engines and appliances that do not have documentation showing they were surplus from an Armed Force of the United States are not eligible for installation on a helicopter under this type certificate. Helicopter(s), engine(s), and appliances that have records indicating time-in-service by a foreign military or a foreign government will be presumed to be ineligible for certification or installation under this type certificate. This presumption maybe overcome by the applicant substantiating, to the satisfaction of the FAA, through documentation, tests, computations, evaluations, analyses, or other means or methods that the helicopter, engine, or appliance, during its time-in-service by the foreign military or foreign government, was maintained to an extent and in a manner equal to that of an Armed Force of the United States.
- NOTE 12. Gas producer speed, as shown under "Engine Limits", are maximum permissible speeds. The gas producer speed for rated power output varies with individual engines and must be determined during engine calibration and stamped on the engine data plate. The rated gas producer speed shown on the temperature limit placard installed on the instrument panel must correspond to the data plate gas producer speed. Gas producer speed limits also vary with OAT in accordance with the schedule as shown on the Temperature Limit (GO-NO-GO TAKE-OFF) placard on the instrument panel.
- NOTE 13. Lycoming engine models T53-L-11 (s/n suffix "A"), T53-L-11B and T53-L-11C are approved for use as alternate engines under this Type Certificate. Engines Identified above will be maintained on a 1200 hr. (T53-L-11C, 1800 hr.) overhaul schedule and in accordance with the U.S Military maintenance, overhaul and parts manuals, listed in Report GH-H5NM-CA1 applicable to that engine.
- The Model UH-1 E helicopter is eligible with Lycoming T53-L-13/-13A/-13B, engine when installed in accordance with NAVAIR 01-110HCA-2 installation instructions and when the engine instruments are marked according to the U.S. Navy NAVAIR 01-110HCA-1 instrument markings 'for the respective engine on the Models UH-1 L, TH-1 L and HH-1 K helicopters. Hercules Flight Manual Supplement Number UH-1 E-13 must be included with the Flight Manual.
- NOTE 14. Ref. FAR Part 91.313 subparagraphs (b) and (c)
- (b) No person may operate a restricted category civil aircraft carrying persons or property for compensation or hire. For the purposes of this paragraph, a special purpose operation involving the carriage of persons or materials necessary for the accomplishment of that operation. Such as crop dusting, seeding, spraying, and banner towing (including the carrying of required persons, or materials to the locations of that operation), and an operation for the purpose of providing flight crewmember training in a special purpose operation are not considered to be the carrying of persons or property for compensation or hire.
- (c) No person may be carried on a restricted category civil aircraft unless:
- (1) He is a flight crewmember,
 - (2) He is a flight crewmember trainee;
 - (3) He performs an essential function in connection with a special purpose operation for which the aircraft is certificated; or
 - (4) He is necessary for the accomplishment of the work activity directly associated with that special purpose.
- NOTE 15. Lycoming engine models T53-L-13, T53-L-13A, are approved for use as alternate engines under this Type Certificate. Military engines Identified above will be maintained

NOTE 15 (cont'd)

on a 2400 hr. overhaul schedule and in accordance with the U.S Military maintenance, overhaul and parts manuals, listed in Report GH-H5NM-CA1 applicable to that engine.

The Models UH-1L, TH-1L and HH-1K helicopters are eligible with Lycoming T53-L-11 (SN. Suffix A), -11B, -11C, Series engines when installed in accordance with NAVAIR 01-110HCA-2. Installation Instructions and when the engine instruments are marked according to the U.S. Navy NAVAIR 01-110HCA1 instrument markings for the respective engine on the Model UH-1E helicopter. Hercules Flight Manual Supplement Number UH/TH-1 L-11 must be included with the Flight Manual.

- NOTE 16. The T53-L-11 engine is rated to an output torque equivalent to 1100 horsepower at 6,600 RPM for takeoff and 900 horsepower at 6,600 RPM for continuous operation. The T53-L-13 gas turbine powerplant in these installations is rated to an output torque value equivalent to 1400 horsepower at 6,600 RPM take-off and 1250 horsepower continuous; however the transmission is restricted to a maximum of 1100 horsepower at 6,600 RPM (50 PSI). The T53-L-13 and T53-L-13A engines are limited to 97 percent gas generator speed or 24,400 RPM. The aircraft equipped with the T53-L-13B engines are not limited by this powerplant restriction; therefore, the pilot must ascertain which engine is installed prior to start. Performance charts have been included in NAVAIR 01-110HCA-1 to cover this reduction in power.
- NOTE 17. Carriage of hazardous materials is prohibited unless compliance is shown with applicable regulations in Code of Regulations Title 49, Part 175.
- NOTE 18. Alternate and emergency fuels are listed in U.S. Navy NAVAIR 01-110HCA-1. Some limitations apply for the use of certain alternative fuels. These limitations are listed in the Overhaul Manual.
- NOTE 19. Any Alteration to the type design of this aircraft may require Instructions for Continued Airworthiness (ICA's). Changes to the Type Design by means of a Supplemental Type Certificate (STC) requiring ICA's or changes to existing ICA's must be submitted and reviewed by the Fort Worth Aircraft Evaluation Group (FTW-AEG). Type Design Changes by means of a Field Approval that require ICA's must have those ICA's reviewed by the Flight Standards District Office (FSDO) managing the Field Approval or the FTW-AEG.

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