

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

R00014LA
Carson Helicopters, Inc.
SH-3H
August 6, 2009

TYPE CERTIFICATE DATA SHEET NO. R00014LA

This data sheet, which is a part of the Type Certificate R00014LA, prescribes conditions and limitations under which the product for which the type certificate was issued meets the airworthiness requirements of the 14 Code of Federal Regulations (14 CFR).

Type Certificate Holder: Carson Helicopters, Inc.
952 Blooming Glen Road
Perkasie, PA 18944

I - Model SH-3H (Restricted Category Rotorcraft) Approved August 6, 2009.

Engines (2) General Electric T58-GE-402

Fuel ASTM-D1655 (Jet A, Jet A-1, Jet B); JP4 or JP5 (General Electric Co. Spec. No. D50T1011 or subsequent revisions thereto). (See Note 13)

Engine Limits Engine Limits For T58-GE-402 (see Note 14 for horsepower)

Rating	Torque (%Q)	Power Turbine Speed (%N _f)	Gas Generator Speed (%N _g)	Turbine Inlet Temp. (T ₅ °C)
Take-Off (10 Min.)	103%	---	<103.7%	750°
One Engine Inoperative 30 Min.	103%	---	<103.7%	727°
Maximum Continuous (See Note 15)	86%	---	101.8%	691°
Overspeed (Any Time Period. (See Note 16)	106%	---	108%	---
Oscillations (See Note 17)	---	---	1%	---
Starting Normal (Momentary*) Min. For Normal Start For Battery Start			21% 19% 14%	950°
Acceleration or Compressor Stall (Momentary*)	---	---	---	950°
Stabilized or Slow Transient (20 Sec.)	---	---	---	780°
Ground Idle	---	---	56 ±3 %	575°

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Engine Limits-temperature Continued * A transient high-temperature condition is one of brief duration in which the peaks and falls off, either automatically or through the corrective action of the pilot.

The torque may exceed 103% Q on one engine to a maximum of 123% provided that the power of the other is reduced so that total torque for both engines is not over 206% Q for 30 minutes or 172% continuously, and that the single-engine N_g , T_5 , and Q limits are not exceeded. The governing parameter is the limit that occurs first.

Any time N_g exceeds 106%, the event and its duration must be recorded.

Maximum oil consumption rated during operation is 12 ounces per hour.

Refer to Carson Helicopters, Inc., CAR-110, "SH-3H Rotorcraft Flight Manual", dated August 4, 2009

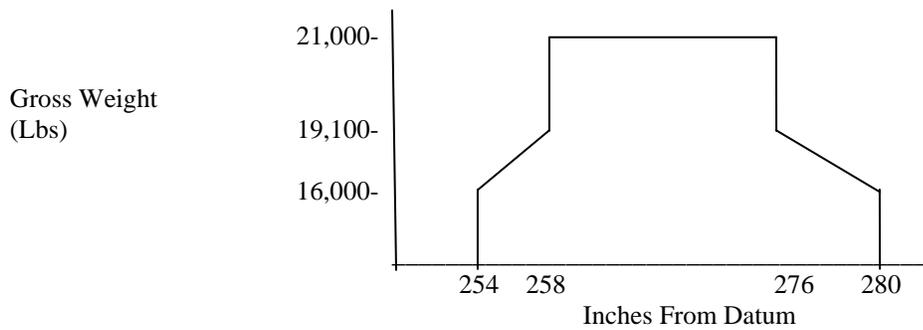
Rotor Limits Normal 91% to 112.5%
Maximum 117%

Transmission Torque Limits See Engine Limits and Notes 14 and 15

Airspeed Limits V_{ne} (Never exceed) speed 120 knots IAS.

Other Limits None

Center of Gravity (C.G. Range) Most Forward C.G. (+258.0) to (+259.6) at 19,100 to 21,000 lbs.
Most Aft C.G. (+276.0) to (+275.2) at 19,100 to 21,000 lbs.
(+254.0) to (+280.0) at 16,000 lbs. or less
Straight Line Variation Between Points Given. (See Chart)



Refer to Carson Helicopters, Inc. CAR-110 "SH-3H Rotorcraft Flight Manual", dated August 4, 2009. Proper loading shall be determined by use of NAVAIR 01-1B-50, Technical Manual USN Aircraft Weight and Balance Control. (See Note 1)

Empty Weight (C.G.) None

Datum 267.4 inches forward of main rotor centroid.

Leveling Means Leveling plates on sill and upper frame of cargo door. Leveling procedures contained in Dept. of Navy NAVAIR 01-230HLH-2-3.1, Technical Manual, Organizational Maintenance, General Maintenance, Ground Handling, and Servicing Navy Model SH-3H/UH-3H and NAVAIR 01-1B-40, Technical Manual Weight and Balance Data.

Maximum Weight 21,000 lbs.

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Minimum Crew	2 - Pilot and Copilot.
Number of Seats	11 – (2) at Sta. +147.0 Pilot and Copilot; (3) at Sta. +283.0 Left Side, (3) at Sta. +283.0 Right Side, (3) at Sta. +353.0 Left Side Aft (Fold Down Crew Member Seats).
Number of Passengers	None
Maximum Cargo	Refer to Carson Helicopters, Inc. CAR-110 “SH-3H Rotorcraft Flight Manual”, Note 7.
Fuel Capacity	848 Gal. Total (347 Gal. at Sta. 215.3, 148 Gal. at Sta. 263.7, 353 Gal. at Sta. 317.3). (Trapped/Unusable 6.1 Gal.)
Oil Capacity	5.4 Gal. (2 tanks 2.7 Gal. each at Sta. 181.0). (Trapped/unusable 0.67 Gal. Ref. NAVAIR 01-1B-40 Chart A)
Rotor Blade & Control Movements	For rigging information, See Note 4.
Serial No. Eligible	Refer to Carson Helicopters, Inc. Report No. CAR-104, Serial Numbers Approved, N.C, dated March 31, 2009, or later FAA approved revision. A current copy is on file at the Los Angeles ACO.
Certification Basis	14 CFR 21.25(a)(2) effective February 1, 1965, with Amendments 21-1 through 21-42. Type Certificate No. R00014LA issued on August 6, 2009 for the Special Purpose(s) of: (1) Agricultural Operations under 14 CFR 21.25(b)(1). Note: In accordance with 14 CFR 36.1(a)(4), compliance with the noise requirements was not shown. Therefore, aircraft certificated under this type certificate are only eligible for agricultural operations excepted by 14 CFR 36.1(a)(4) and defined under 14 CFR 137.3 (2) Forest and Wildlife Conservation Operations under 14 CFR 21.25(b)(2). Note: In accordance with 14 CFR 36.1(a)(4), compliance with the noise requirements was not shown. Therefore, aircraft certificated under this type certificate are only eligible for aerial dispensing of liquids excepted by 14 CFR 36.1(a)(4) and defined under 14 CFR 137.3 (3) External Load Operations under 14 CFR 21.25(b)(7). Note: In accordance with 14 CFR 36.1(a)(4), compliance with the noise requirements was not shown. Therefore, aircraft certificated under this type certificate are only eligible for external load operations excepted by 14 CFR 36.1(a)(4) and defined under 14 CFR 133.1(b). General Note: Any alteration to the aircraft for Special Purposes not identified above requires further FAA approval and in addition may require noise and /or flight testing.
Production Basis	None. No helicopters may be produced under this approval. Prior to adding serial numbers to this Type Certificate, each candidate helicopter must pass a conformity

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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 Order 8110.56, Restricted Category Type Certification, N.C., dated February 27, 2009, or later FAA approved revisions. Also, a check by the type certificate holder of the flight characteristics in accordance with all applicable portions of NATOPS Functional Check Flight Checklist NAVAIR 01-230HLH-1F as appropriate for each aircraft, or other FAA approved manual.

Equipment

The basic required equipment necessary for the particular special purpose operation must be installed for certification. Each helicopter is required to incorporate modifications as specified in:

1. Carson Helicopters, Inc. Engineering Configuration Report No. CAR-101, Rev. 1, dated May 22, 2009, or later FAA approved revisions.
2. U.S. Navy External Cargo Hook P/N S6152-62100-1 as part of the military configuration.

NOTES

NOTE 1.

A current weight and balance report including a list of equipment included in the certificated empty weight, and loading instructions when necessary, must be provided for each aircraft at the time of original airworthiness certification and at all times thereafter.

1. Refer to Carson Helicopters, Inc. CAR-110, SH-3H Rotorcraft Flight Manual, dated August 4, 2009.
2. Refer to Dept. of Navy NAVAIR 01-1B-50 Technical Manual USN Aircraft Weight and Balance Control, Initial Release, dated October 1, 1990.
3. Carson Helicopters, Inc. Weight and Balance Report No. CAR-106, N.C., dated March 31, 2009, or later FAA approved revisions.

NOTE 2.

The following placards, Carson Helicopters, Inc. Drawing No. CAR-1001, N.C., dated January 9, 2009, or later FAA approved revisions, must be prominently displayed in the cockpit in full view of the pilots.

Placard No. 1

"THIS ROTORCRAFT MUST BE OPERATED IN ACCORDANCE WITH THE RESTRICTED CATEGORY OPERATING LIMITATIONS OF 14 CFR part 91 § 91.313."

Placard No. 2

"THIS HELICOPTER MUST BE OPERATED IN COMPLIANCE WITH THE OPERATING LIMITATIONS SPECIFIED IN THE APPROVED HELICOPTER OPERATORS MANUAL. REFER TO CARSON HELICOPTERS, INC. CAR-110, SH-3H ROTORCRAFT FLIGHT MANUAL FOR OPERATING LIMITS AND RESTRICTIONS."

Placard No. 3

"EXTERNAL LOADS OPERATIONS: V_{ne} WILL BE DETERMINED FOR EACH PROPOSED EXTERNAL LOAD APPLICATION."

Placard No. 4

"VFR OPERATIONS ONLY."

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- NOTE 3. The builder's data plate required by 14 CFR part 45 § 45.13 must be installed in accordance with Carson Helicopters, Inc. Drawing No. CAR-1002, N.C., dated January 9, 2009, or later FAA approved revisions.
- NOTE 4. The helicopter(s) must be serviced, maintained, inspected, repaired, and overhauled in accordance with the requirements and documents specified in Carson Helicopters, Inc. Instructions for Continued Airworthiness Report No. CAR-102, Rev. 1, dated May 21, 2009, or later FAA accepted revisions, or inspected in accordance with other FAA accepted inspection programs. The service life limited parts overhaul and retirements intervals for these helicopters is specified in Carson Helicopters, Inc. Instructions for Continued Airworthiness Report No. CAR-102, Rev. 1, dated May 21, 2009, or later FAA approved revision. A FAA approved copy must accompany each helicopter on delivery. The TC Holder's Instructions for Continued Airworthiness Report is part of the TC Holder's Instructions for Continued Airworthiness.
- NOTE 5. The helicopter must be operated in accordance with Carson Helicopters, Inc. CAR-110, SH-3H Rotorcraft Flight Manual, dated August 4, 2009.
- NOTE 6. Prior to civil airworthiness certification, Carson Helicopters, Inc. Report No. CAR-101 Engineering Configuration Report, Rev. 1, dated May 22, 2009, or later FAA approved revisions, must be incorporated.
- NOTE 7. 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.
- NOTE 8. Restricted Category aircraft may not be operated in a foreign country without the express written approval of that country.
- NOTE 9. This aircraft has not been shown to meet the requirements of the applicable comprehensive and detailed airworthiness code as provided by Annex 8 to the Convention on International Civil Aviation.
- NOTE 10. 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 be in an airworthy condition.
- NOTE 11. The Airworthiness Directives and Department of Navy Safety of Flight (SOF) messages for the helicopter and engines contained in Carson Helicopters, Inc. Report No. CAR-105, Airworthiness Directives Compliance, N.C., dated December 4, 2008, or later FAA approved revisions, must be complied with prior to original airworthiness certification.
- NOTE 12. No person may be carried in this helicopter during flight unless that person is essential to the purpose of the flight. For additional mission configurations see Carson Helicopters, Inc. CAR-101 Engineering Configuration Report, Rev. 1, dated May 22, 2009 or later FAA approved revisions.
- NOTE 13. Alternative and emergency fuels are listed in Carson Helicopters, Inc. CAR-110, SH-3H Rotorcraft Flight Manual, dated August 4, 2009.

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- NOTE 14. Total power for two engine operation is limited to 2,500 hp (103% torque). For takeoff, maximum continuous total power for two engine operation is limited to 2,100 hp (86% torque). These engine power limitations are due to the main gearbox rating.
- NOTE 15. The 86% Engine Torque limit is due to the maximum continuous main gearbox rating.
- NOTE 16. Over-speed limits for the T58-GE-402 engine:
108% N_g not to exceed 15 seconds.
If less than 15 seconds corrective action is required to bring RPM within limits.
If more than 15 seconds, over-speed inspection is required.
- NOTE 17. For the T58-GE-402 engine: Maximum allowable at all power levels ($\pm 1\%$); oscillations may be higher in access drive mode. Limits do not apply during auto-rotations.
- NOTE 18. In addition to the standard helicopter requirements, the following additional data and/or helicopter configuration requirements must be met for each individual Carson Helicopters, Inc. model SH-3H helicopter upon application for an original Special Airworthiness Certificate:
1. A completed Application for Airworthiness Certificate, FAA Form 8130-6 that correctly identifies the type certificate holder's helicopter and its intended special purpose(s).
 2. Written confirmation from the certifying office that the affected serial number has been added to this Type Certificate.
 3. The application for airworthiness certification and the helicopter's registration certificate must match the information of the Carson Data Plate.
 4. The documents specified in Section III of the FAA accepted Carson Helicopters, Inc. Instructions for Continued Airworthiness Report CAR-102, Rev. 1, dated May 21, 2009, or later FAA accepted revision, are with the helicopter.
 5. The conditions and limitations specified in this Type Certificate Data Sheet are met.
- NOTE 19. 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. 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 may be overcome by the applicant substantiating, to the satisfaction of the FAA, through documents, 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 by an extent and in a manner equal to that of an Armed Force of the United States.
- NOTE 20. Carson Helicopters Inc. did not necessarily comply with standard category airworthiness design and airworthiness standards, under restricted category certification.
- NOTE 21. Any changes to the type design of this helicopter by means of an amended type certificate (TC), supplemental type certificate (STC), or amended STC, requiring instructions for continued airworthiness (ICA's) must be submitted through the project certification office for review and acceptance by the Fort Worth – Aircraft Evaluation Group (FTW-AEG) prior to the aircraft delivery, or upon issuance of the first airworthiness certificate for the affected aircraft, whichever occurs later as prescribed by Title 14 CFR 21.50.

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