

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

H8EA Revision No. 1 Carson S-61L February 5, 1986

TYPE CERTIFICATION DATA SHEET NO. H8EA

This data sheet which is part of Type Certificate No. H8EA prescribes conditions and limitations under which the product for which type certificate was issued meets the airworthiness requirements of the Federal Aviation Administration.

Type Certificate Holder Carson Helicopters, Inc.
32-H Blooming Glen Road
Perkasie, Pennsylvania 18944

Model S-61L (Restricted Category) approved

Engines	2 General Electric CT58-140-1 (with Hamilton Standard Fuel Control JFC-26).			
Fuel	Aviation Kerosene JP4 or JP5 (General Electric Co. Spec. No. D50T1011 or subsequent revisions thereto).			
Engine Limits	Sea Level Static - Standard Day			
	<u>Shaft hp.</u>	<u>Power Turbine r.p.m.</u>	<u>Gas Gen. r.p.m.</u>	<u>Power Turbine Inlet (T5)</u>
Takeoff (5 min.)	1400	21275(112%N _P)	26300(100%N _G)	1285°F (696°C)
One Engine inoperative (30 min.) (See Note 4)	1400	21275(112%N _P)	26300(100%N _G)	1285°F (696°C)
One Engine inoperative (2 1/2 min.)	1500	21275(112%N _P)	26800(102%N _G)	1330°F (721°C)
Maximum continuous	1250	21275(112%N _P)	26300(100%N _G)	1220°F (660°C)
Maximum transient (2 sec.)				1545°F (840°C)
Starting (2 sec.)				1740°F (950°C)
Allowable Maximum overspeed (15 sec.)		23100(122%N _P)	27600(105%N _G)	

Takeoff and maximum continuous horsepower ratings are normally obtained at a power turbine speed of 18,966 r.p.m. (100%N_P).

Total power for two-engine operation is limited to 2300 hp. for takeoff for S-61L rotorcraft. Maximum continuous total power for two-engine operation is limited to 2100 hp.

Two-engine operational limits are increased to 2500 hp. for takeoff when the S6135-20600-1 through -15, -18, -19, or 23 through 41 main transmission is installed. The maximum continuous limit of 2100 hp. is unchanged.

Below 59°F the sea-level static power limits vary as follows:

CT58-140-1

2 1/2 Min. Helicopter	Increases linearly from 1500 hp. at 59°F to 1545 hp. at -65°F.
Takeoff and 30 Min. Helicopter	Increases linearly from 1400 hp. at 59°F to 1510 hp. at 22°F and to 1540 hp. at -65°F
Max. Continuous	Increases linearly from 1250 hp. at 59°F to 1390 hp. at 39°F and flat rated at 1390 hp. at 39°F and below.

Page No.	1	2	3
Rev No.	1	-	-

The use of engine Model CT58-140-1 is permitted only when main gear box P/N S6135-20600-8, -10, -12 through -15, -18, -19 or -21 through -41 is installed, and left engine cowl, P/N S6130-80142, is modified for increased cooling provisions per Sikorsky E. O. No. 65718. Refer to Rotorcraft Flight Manual for use of engine inlet duct P/N S6130-80179 with oil tank mounting ring P/N S6132-80205.

Rotor Limits	Maximum 225 r.p.m. Minimum 184 r.p.m.
Air Speed Limits	Never exceed 131 m.p.h. (114 knots) CAS
C.G. Range	(+258.0) to (+276.0) at 19,000 lb. (+258.0) to (+277.3) at 18,000 lb. (+254.0) to (+280.0) at 16,000 lb. or less
Empty Weight C.G. Range	None
Maximum Weight	19,000 lb.
Fuel Capacity	1104 gal. (210 gal. at 204, 200 gal. at 306, 244 gal. at 265, 450 gal. at 267.75) See Note 1 for data on system fuel.
Oil Capacity	5 gal. (181) 2 tanks 2.5 gal. each.
Rotor Blade and Control	For rigging information, refer to Sikorsky Maintenance Manual.
Serial Nos. Eligible	61032

Data Pertinent to Model

Datum	267.4 in forward of main rotor centroid
Leveling Means	Leveling plates on sill and upper frame of forward door.
Certification Basis	FAR 21.25(a)(1) effective February 1, 1965, including Amendment 21-42 dated 2/7/75. Type Certificate No. H8EA issued October 16, 1978, for special purpose of oil and mineral exploration. Date of application for Type Certificate June 30, 1978.
Production Basis	None. No helicopter may be produced under this approval.
Equipment	<p>The basic required equipment as prescribed in the applicable airworthiness regulations (See certification basis) must be installed in the helicopter for certification. In addition, the following items of equipment are required:</p> <p>(a) Equipment necessary for the particular special purpose operation must be installed (See Note 5 and 6)</p> <p>(b) FAA Approved Rotorcraft Flight Manual, Model S61L Helicopter (Publication No. SA 4045-30) dated November 2, 1961, reissued August 1, 1962. Revised December 10, 1974. (Serial numbers prior to 61425)</p> <p>NOTE: Flight manuals described below (b)(1) through (b)(8) are Sikorsky Rotorcraft Flight Manuals/Supplements.</p> <p>(1) Supplement No. 1 dated November 2, 1961. Reissued August 1, 1962. (S61L Acceptable Engine Fuels and Oils).</p>

Equipment (Cont'd)

- (2) Supplement No. 5 dated August 27, 1964. Revised September 27, 1972. (S61L AFCS)
- (3) Supplement No. 11 dated October 6, 1964. Revised January 12, 1965. (S61L HIR - Basic)
- (4) Supplement No. 12 dated October 6, 1964. Revised January 12, 1965. (S61L HIR Operational)
- (5) Supplement No. 14 dated October 29, 1965. Reissued May 5, 1967. Revised December 17, 1971. (S61L, CT58-140-1 and -2 Engine)
- (6) Supplement No. 15 dated December 30, 1965. Revised May 27, 1969. (S61L, S/N 61266)
- (7) Supplement No. 21 dated August 13, 1970. (S61L, Engine Inlet Screens)
- (8) Supplement No. 22 dated December 6, 1973. Reissued November 21, 1974. (S61L, Icing Equipment, -1401 and -2 Engines)
- (c) Carson Helicopters, Inc. Supplement No. 1 FAA Approved October 12, 1978, is required when S/N 61-032 is equipped with a 450 gallon auxiliary fuel tank.

- NOTE 1. A current weight and balance report containing a list of the equipment included in the certificated empty weight, and loading instructions when necessary, must be in the helicopter at the time of original airworthiness certification and at all times thereafter. The certificated empty weight and corresponding C.G. location must include unusable fuel of 68 lb. (+267.75).
- NOTE 2. The following placard must be displayed in front of and in clear view of the pilots:
- "This rotorcraft must be operated in accordance with the restricted category operating limitations of FAR 91.39".
- NOTE 3. Information essential to the proper maintenance of the helicopter is contained in the manufacturer's maintenance manual provided with the helicopter, which specifies that service life limited parts be retired in accordance with the following:
- Section 2.c. "List of retireable parts and time limits" of Sikorsky Service Bulletin No. 61B General - 1F, dated October 20, 1975, and later FAA approved revisions.
- NOTE 4. If takeoff power is used in cumulative excess of five minutes during any one emergency, the engine must be inspected in accordance with G.E. Commercial Engine Service Memorandum CT58-110-1, Maintenance No. 19, April 17, 1962.
- NOTE 5. Airplane certificated for special purpose of oil and mineral explorations.
- NOTE 6. Fabrication and installation of a 450 gallon auxiliary fuel tank in accordance with Carson Helicopters, Inc. Drawing No. C61-30-70000 dated April 20, 1978.

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