

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

H2EA
Revision 3
SIKORSKY
S-61A (U.S. Navy SH-3A, HSS-2)
(USAF CH-3B)
S-61D (U.S. Navy SH-3D)
S-61E (U.S. Navy RH-3A)
S-61V (U.S. Navy VH-3A, HSS-22)
February 26, 2003

TYPE CERTIFICATE DATA SHEET NO. H2EA

This data sheet which is a part of type certificate No. H2EA 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 Sikorsky Aircraft Corporation
6900 Main Street
Stratford, Connecticut 06615-9129

I - Model S-61A (Restricted Category), approved April 13, 1967.

Engine	2 General Electric T58-GE-8B (for SH-3A and HSS-2) 2 General Electric T58-GE-1 (for CH-3B)															
Fuel	Aviation Kerosene JP4 or JP5 (General Electric Co. Spec. No. D50T1011 or subsequent revisions thereto.)															
Engine limits	<table border="0"> <tr> <td></td> <td style="text-align: center;">Shaft HP</td> <td style="text-align: center;">Power Turbine R.P.M.</td> <td style="text-align: center;">Gas Gen. R.P.M.</td> <td style="text-align: center;">Power Turbine Inlet (T5)</td> </tr> <tr> <td>Military Power (30 min.)</td> <td style="text-align: center;">1250</td> <td style="text-align: center;">21275</td> <td style="text-align: center;">26300</td> <td style="text-align: center;">677°C (1250°F)</td> </tr> <tr> <td>Normal Cont. Cruise</td> <td style="text-align: center;">1050</td> <td style="text-align: center;">21275</td> <td style="text-align: center;">26300</td> <td style="text-align: center;">635°C (1175°F)</td> </tr> </table>		Shaft HP	Power Turbine R.P.M.	Gas Gen. R.P.M.	Power Turbine Inlet (T5)	Military Power (30 min.)	1250	21275	26300	677°C (1250°F)	Normal Cont. Cruise	1050	21275	26300	635°C (1175°F)
	Shaft HP	Power Turbine R.P.M.	Gas Gen. R.P.M.	Power Turbine Inlet (T5)												
Military Power (30 min.)	1250	21275	26300	677°C (1250°F)												
Normal Cont. Cruise	1050	21275	26300	635°C (1175°F)												
Rotor Limits	Maximum 238 r.p.m. (117%) Minimum 184 r.p.m. (91%)															
Airspeed limits	Never exceed 144 knots IAS															
C.G. range	258.0 to 276.0															
Maximum weight	19,100 lb.															
Maximum Crew	2 (pilot, co-pilot)															
Fuel capacity	698 gal. (345 gal. fwd. tank, 353 gal. aft tank for Models SH-3A and HSS-2) 1,141 gal. (347 gal. fwd. tank, 353 gal. aft tank, 441 gal. auxiliary tank for CH-3B)															
Oil capacity	6 gal. (two tanks, 3 gal. each)															

Page No.	1	2	3	4	5	6
Rev. No.	3	3	3	3	3	3

I - Model S-61A (Restricted Category), approved April 13, 1967. (Cont'd)

Other operating limitations	Models SH-3A and HSS-2: Naval Air Training and Operating Procedures Standardization (NATOPS) Flight Manual, Navy Model SH-3A Helicopters, NAVAIR 01-230HLC-1, dated 15 September 1966. Model CH- 3B: USAF Flight Manual, USAF Series CH-3B Helicopter, T.O. 1H- 3(C)B-1, dated 30 August 1966.
Serial Nos. eligible	See latest revision of FAA-approved Sikorsky Report SER-611975

II - Model S-61D (Restricted Category), approved April 13, 1967.

Engine	2 General Electric T58-GE-10															
Fuel	Aviation Kerosene JP4 or JP5 (General Electric Co. Spec. No. D50T1011 or subsequent revisions thereto.)															
Engine limits	<table border="0"> <tr> <td></td> <td style="text-align: center;">Shaft HP</td> <td style="text-align: center;">Power Turbine R.P.M.</td> <td style="text-align: center;">Gas Gen. R.P.M.</td> <td style="text-align: center;">Power Turbine Inlet (T5)</td> </tr> <tr> <td>Military Power (30 min.)</td> <td style="text-align: center;">1400</td> <td style="text-align: center;">21275</td> <td style="text-align: center;">26300</td> <td style="text-align: center;">696°C (1285°F)</td> </tr> <tr> <td>Normal Cont. Cruise</td> <td style="text-align: center;">1250</td> <td style="text-align: center;">21275</td> <td style="text-align: center;">26300</td> <td style="text-align: center;">660°C (1220°F)</td> </tr> </table>		Shaft HP	Power Turbine R.P.M.	Gas Gen. R.P.M.	Power Turbine Inlet (T5)	Military Power (30 min.)	1400	21275	26300	696°C (1285°F)	Normal Cont. Cruise	1250	21275	26300	660°C (1220°F)
	Shaft HP	Power Turbine R.P.M.	Gas Gen. R.P.M.	Power Turbine Inlet (T5)												
Military Power (30 min.)	1400	21275	26300	696°C (1285°F)												
Normal Cont. Cruise	1250	21275	26300	660°C (1220°F)												
Rotor Limits	Maximum 238 r.p.m. (117%) Minimum 184 r.p.m. (91%)															
Airspeed limits	Never exceed 144 knots IAS															
C.G. range	258.0 to 276.0															
Maximum weight	19,100 lb.															
Minimum Crew	2 (pilot, co-pilot)															
Fuel capacity	848 gal. (347 gal. fwd. tank, 148 gal. center tank, 353 gal. aft tank)															
Oil capacity	6 gal. (two tanks, 3 gal. each)															
Other operating limitations	Naval Air Training and Operating Procedures Standardization (NATOPS) Flight Manual, Navy Model SH-3D Helicopters, NAVAIR 01-230-HLE-1, dated 15 September 1966															
Serial Nos. eligible	See latest revision of FAA-approved Sikorsky Report SER-611975															

III - Model S-61E (Restricted Category), approved April 13, 1967.

Engine	2 General Electric T58-GE-8B
Fuel	Aviation Kerosene JP4 or JP5 (General Electric Co. Spec. No. D50T1011 or subsequent revisions thereto.)

III - Model S-61E (Restricted Category), approved April 13, 1967. (Cont'd)

Engine limits

	Shaft HP	Power Turbine R.P.M.	Gas Gen. R.P.M.	Power Turbine Inlet (T5)
Military Power (30 min.)	1250	21275	26300	677°C (1250°F)
Normal Cont. Cruise	1050	21275	26300	635°C (1175°F)

Rotor Limits Maximum 238 r.p.m. (117%)
 Minimum 184 r.p.m. (91%)

Airspeed limits Never exceed 144 knots IAS

C.G. range 258.0 to 276.0

Maximum weight 19,100 lb.

Minimum Crew 2 (pilot, co-pilot)

Fuel capacity 852 gal. (345 gal. fwd. tank, 353 gal. aft tank, 154 gal. auxiliary tank)

Oil capacity 8.6 gal. (two tanks, 3 gal. each plus one auxiliary tank, 2.6 gal.)

Other operating limitations Naval Air Training and Operating Procedures Standardization (NATOPS) Flight Manual, Navy Model RH-3A Helicopters, NAVAIR 01-230-HLCA-1, dated 1 November 1966

Serial Nos. eligible See latest revision of FAA-approved Sikorsky Report SER-611975

IV - Model S-61V (Restricted Category), approved April 13, 1967.

Engine 2 General Electric T58-GE-8C

Fuel Aviation Kerosene JP4 or JP5 (General Electric Co. Spec. No. D50T1011 or subsequent revisions thereto.)

Engine limits

	Shaft HP	Power Turbine R.P.M.	Gas Gen. R.P.M.	Power Turbine Inlet (T5)
Military Power (30 min.)	1250	21275	26300	677°C (1250°F)
Normal Cont. Cruise	1050	21275	26300	635°C (1175°F)

Rotor Limits Maximum 238 r.p.m. (117%)
 Minimum 184 r.p.m. (91%)

Airspeed limits Never exceed 144 knots IAS

C.G. range 258.0 to 276.0

Maximum weight 19,100 lb.

Maximum Crew 2 (pilot, co-pilot)

Fuel capacity 698 gal. (345 gal. fwd. tank, 353 gal. aft tank)

Oil capacity 6 gal. (two tanks, 3 gal. each)

IV - Model S-61V (Restricted Category), approved April 13, 1967. (Cont'd)

Other operating limitations Supplemental Handbook of Operation, Maintenance, and Repair Instructions with Parts Breakdown, Navy Models VH-3A and SH-3A (BuNos 147145 and 148037) Helicopters, NAVAIR 01-230HLY-23, dated 15 January 1967 and Naval Air Training and Operating Procedures Standardization (NATOPS) Flight Manual, Navy Model SH-3A Helicopters, NAVAIR 01-230-HLC-1, dated 15 September 1966

Serial Nos. eligible See latest revision of FAA-approved Sikorsky Report SER-611975

Data Pertinent to All Models

Datum 267.4 inches forward of the main rotor centroid

Certification Basis FAR 21.25 effective February 1, 1965
Type Certificate No. H2EA issued April 13, 1967, for the special purpose of transportation of cargo in the furtherance of the operator's or lessee's business only.
Date of Application for Type Certificate: February 27, 1967.

Production Basis None. No helicopters may be produced under this approval.

Equipment Equipment necessary for the particular special purpose operation must be installed (See NOTE 3).

- NOTE 1. Current weight and balance report including a list of equipment included in the certificated empty weight, and loading instructions when necessary, must be in each helicopter at the time of original airworthiness certification and all times thereafter. Refer to Handbook of Weight and Balance NAVAIR 01-1B-40 for Models S-61D and S-61E and to Handbook of Weight and Balance NAVAIR 01-1B-50 for Models S-61A and S-61V.
- NOTE 2. These helicopters must be serviced and maintained in compliance with Periodic Maintenance Requirements Manual NAVWEPS 01-230HLC-6 and with the following handbooks: Model S-61A: Handbook of Maintenance Instructions NAVAIR 01-230HLC-2; Model S-61D: Handbook of Maintenance Instructions 01-230HLE-2; Model S-61E: Handbook of Maintenance Instructions 01-230HLCA-2; Model S-61V: Handbook of Maintenance Instructions 01-230HLC-2 and Supplemental Handbook of Operation, Maintenance, and Repair Instructions with Parts Breakdown NAVAIR 01-230HLY-23.
- NOTE 3. Modifications to these rotorcraft or special equipment will be necessary, reference FAR 21.25(a)(2), prior to civil airworthiness certification for the special purpose of transportation of cargo.
- NOTE 4. See latest revision of FAA-approved Sikorsky Report SER-611975 for S-61A serial number eligibility information.
- NOTE 5. Prior to the civil airworthiness certification, compliance with the latest revision of FAA-approved Sikorsky Report SER-611974 must be accomplished.

NOTE 6. Service life limited parts must be retired in accordance with the following schedule:

	<u>Part No.</u>	<u>Service Life (Hours)</u>
Main Rotor Blades	S6115-20101	2000
Tail Rotor Blades	S6115-30001	3000
	S6115-30001-1	3000
Tail Rotor Hub	S6110-33003	2200
Tail Rotor Spindle	S6110-33006	850
Primary Servo Trunnion Assembly	S6165-20232	7700
Swashplate Guide	S6135-20553-1	5200
Main Transmission	S6135-20011-1	3600
Upper Housing	S6135-20011-6	3600
Primary Servo Housing Assembly	S6165-20202	8100
Rotary Wing Head Damper	S6110-26019-0	3400
Piston Rod Assembly	S6110-26019-1	3400

NOTE 7. The following placard must be prominently displayed in the cockpit in full view of the pilots:
"This rotorcraft must be operated in accordance with the restricted category operating limitations of FAR 91.39."

NOTE 8. Certain serial number aircraft listed in Sikorsky Report SER-611975 are also eligible with the accomplishment of certain applicable fuselage modifications (NOTE 5) and installation of optional engines listed below.

Optional engines eligible for installation and the applicable limitations: (See NOTE 12)

Engines (2): (a) General Electric CT58-140-1 (with Hamilton Standard Fuel Control JFC-26).

Engines Limits: Sea Level Static - Standard Day

	Shaft HP	Power Turbine R.P.M.	Gas Gen. R.P.M.	Power Turbine Inlet (T5)
Takeoff (5 min.)	1400	21275 (112%Nf)	26300(100%Ng)	1285°F(696°C)
One Engine Inoperative (30 min.) (See NOTE 11)	1400	21275 (112%Nf)	26300(100%Ng)	1285°F(696°C)
One Engine Inoperative (2 1/2 min.)	1500	21275 (112%Nf)	26800(102%Ng)	1330°F(721°C)
Maximum Continuous	1250	21275 (112%Nf)	26300(100%Ng)	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%Nf)	27600(105%Ng)	

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

Total power for two engine operation is limited to 2,500 hp. for takeoff. Maximum continuous total power for two engine operation is limited to 2100 hp.

See NOTE 9 for variations of sea level static power limit below 59°F.

The use of engine Model CT58-140-1 is permitted only when:

- Main gearbox part number S6135-20600-27, -3, or -39 is installed.
- Left engine cowl inst., part number S6130-80140-3, is used.
- Tail pipe assembly, part number S6130-80169-1, is installed (bolt-on versus clamp).
- Tube installation - air bleed dump R.H., part number S6120-62342-6, is installed.
- Engine Inlet Duct Assy. S6130-80179-2 is installed.

NOTE 9. Below 59°F the sea level static power limits vary as follows:

	<u>CT58-140-1</u>
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.

NOTE 10. Tail rotor blade S6117-30101-041, -042, and -043 are not usable on these models.

NOTE 11. 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 12. If any ratings on the CT58-140 series engines are exceeded refer to G.E. Engine Maintenance Manual No. SEI-182, Revision 7, November 1979.

...END...