

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

H1NW

Horizon
Helicopters

HH-43B/F
HH-43F

September 23, 2003
Revision 4

TYPE CERTIFICATE DATA SHEET NO. H1NW

This data sheet, which is a part of type certificate No. H1NW, 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: **Horizon Helicopters**
 14071 Highway 2 West
 Laclede, Idaho 83841

Type Certificate Owner Record: TC issued to Timber Coppers, Inc. on May 15, 1978
 TC transferred to Horizon Helicopters on September 23, 2003

Model HH-43B/F and HH-43F (Military Surplus, Restricted Category) approved May 15, 1978.

Engines: Lycoming T53-L-11A or T53-L-11D See Note 4.
 or
 Lycoming T53-L-13B R See Note 6.

Fuel: JP4, JP5, Jet A or Equal. See T.O. 1 H-43(H) F-1, Section 1 for approved
 alternate and emergency fuels and procedures.

Engine Limits: Maximum allowable power: 37.5 PSI/30 minutes
 Maximum continuous power: 31 PSI
 Under certain conditions the power may also be limited by exhaust gas
 temperature, see T.O. 1H-43(H) F-1 Section V for detailed engine operations
 specifications.

Maximum Engine Speed: N2 (ground operations): 5250 rpm
 N2 (in flight): 6340 rpm
 N2 (ground rigging and functional check): 6640 rpm
 N1 101%

Exhaust Gas Temperature: For Lycoming T53-L-11A or T53-L-11D
 Start: 650° to 760° for 5 seconds
 Maximum for flight: 640°C
 30 minute limit: 622°C to 640°C

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

Normal: 320°C to 620°C

For Lycoming T53-L13B R

Start: 650° to 760° for 5 seconds

Maximum for flight: 625°C

30 minute limit: 610°C to 625°C

Normal: 320°C to 610°C

Rotor Limits:

Minimum for autorotation: 201 rpm

Continuous powered flight: 211 to 260 rpm

Maximum for flight: 260 rpm

Airspeed Limits:

Vne 105 knots

Caution ranges: 95 to 105 knots (rotor speed 250 to 260 rpm)

Air speed/altitude combination: See approved Rotorcraft Flight Manual Supplement RFMS-TC-1.

Other Limits:

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 required.

CG Range:

All weights

FWD

AFT

Hover only

STA 117.5

STA 123

Unrestricted

STA 118.5

STA 123

Datum:

42.56 inches forward of the forward fuselage jack points.

Maximum Weight:

9150 pounds

Minimum Crew:

1 (pilot)

Fuel Capacity:

198 gallons, 182 gallons usable

Oil Capacity:

12 quarts engine, 12 quarts transmission

**Rotor Blade and
Control Movements:**

For rigging procedures refer to T.O. 1H-43(H)B-2, dated 16 September, 1966, with Change 40 dated 25 September 1974, or latest FAA approved revision.

Other Operating Limitations:

Refer to Department of the Air Force Technical Manual T.O. 1H-43(H)F-1 "Flight Manual USAF Series HH-43 F Helicopter," dated 22 September, 1966 with Change 12, dated 15 August, 1974, or latest FAA approved revision; and Timber Choppers Inc. (TCI) FAA approved Rotorcraft Flight Manual Supplement (RFMS), document No. RFMS-TC-1, dated May 15, 1978, or later FAA approved revision. Additionally, when the T53-L-13B engine is installed in accordance with Timber Choppers, Inc. Service Bulletin SB95-12, refer to Timber Choppers RFMS dated February 21, 1997, or later FAA approved revision.

Approved Serial No.'s.:

59-1556, 59-1564, 59-1576, 62-4526, 64-17558, and 60-0286 (See Note 4.)

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

Note: 62-4524 and 62-4528 were destroyed and have been removed from this TCDS.

Certification Basis:

FAR 21.25(a) (2) dated May 1974, Amendments 21-1 thru 21-46 effective March 1, 1978. Type Certificate number H1NW issued May 15, 1978, for the special purpose of:

(1) Rotorcraft External Load Operations under FAR 21.25(b)(7)

Note: In accordance with FAR 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 FAR 36.1(a)(4) and defined under FAR 137.3.

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

General Note: Any subsequent modifications to the helicopter type certificated 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 CAR Part 7 as effective October 1, 1959 or 14 CFR 29.

Date of Application:

March 31, 1978

Production Basis:

None. No helicopter may be produced under this type approval. 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 a request for conformity that will include, as a minimum, the inspection contained in the FAA Rotorcraft Directorate Restricted Category Conformity document dated September 25, 2001, or later FAA approved conformity documentation. (Note: the appropriate Air Force Documents and Forms must be substituted for the Army Documents and Forms that are referenced in FAA Rotorcraft Directorate Restricted Category Conformity document dated September 25, 2001.)

Equipment:

The basic required equipment as prescribed in the applicable airworthiness regulations (see certification basis), T.O. 1H-43(H)F-1 and Timber Choppers Inc. FAA approved Rotorcraft Flight Manual Supplements must be installed in the helicopter for certification. Additionally, equipment necessary for the special purpose must be installed.

NOTE 1:

Current weight and balance report including list of equipment included in certified empty weight, and loading instructions when necessary, must be in each helicopter at time of original airworthiness certification and at all times thereafter. Refer to Department of the Air Force Technical Manual T.O. 1H-43(H)F-1 and the FAA approved supplement for weight and balance information.

NOTE 2:

The following placards must be installed in clear view of the pilot.

“THIS HELICOPTER MUST BE OPERATED IN COMPLIANCE WITH THE OPERATING LIMITATIONS SPECIFIED IN DEPARTMENT OF THE AIR FORCE TECHNICAL MANUAL T.O. 1H-43(H)F-1 AND THE FAA APPROVED SUPPLEMENT THERETO.”

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

For additional placards, see Flight Manual and Supplement.

- NOTE 3:** This model helicopter must be serviced and maintained in compliance with Department of the Air Force Technical Manual 1H-43(H)B-2 “Maintenance Instructions Model HH-43B and HH-43F Helicopter” and Technical Manual 1H-43(H)B-6, “Aircraft Scheduled Inspection and Maintenance Requirements.”
- NOTE 4:** Prior to civil airworthiness certification, Lycoming Service Bulletins 0021, 0031, 0035, 0039, and 0048 must be accomplished on the T53-L-11A and T53-L-11D engines. In addition, the Lycoming T53-L-11D is eligible to be installed in and operated on the Kaman HH-43F(HH-43B/F) as a T53-L-11A when the following are accomplished:
- a) The K-4 reduction gear with a 24 tooth output shaft spline is installed instead of the 26 tooth shaft spline.
 - b) The Chandler Evans Model TA-2G fuel control and PTG-5 overspeed governor are installed.
 - c) An MS-24399D13 orifice is installed in the P3 pressure line to the bleed band actuator.
- NOTE 5:** The external load attaching means and quick release mechanisms meet the requirements specified by FAR 133.43 with 2300 pounds maximum load on the cargo hook. The external load automatic release system must be deactivated in accordance with Timber Choppers, Inc., document No. TC-43A dated May 12, 1978, or later FAA approved revision. The maximum load on the cargo hook may be increased to 3000 pounds if TCI Service Bulletin 95-10, Revision None, or later FAA approved revision, is incorporated.
- NOTE 6:** Only the model T53-L-13B, part number 1-000-060-22 engine is considered airworthy for installation on civilian aircraft. The model T53-L-13B, part number 1-000-060-10 is NOT considered airworthy and shall not be installed on civilian aircraft. The model T53-L-13B, part number 1-000-060-22-22 engine must be installed in accordance with TCI Service Bulletin 95-12, Revision None, or later FAA approved revision.
- NOTE 7:** All applicable airworthiness directives on the engine and airframe must be accomplished prior to civilian certification.
- NOTE 8:** For all military equipment certified to Revision 3 and subsequent revisions of this document, a record of compliance with the appropriate airworthiness directives and military documents must be maintained by aircraft serial number. TCI document number RC1 will contain this information.
- NOTE 9:** The following TCI Service Bulletins are approved for rotorcraft covered by this TCDS:

<u>Service Bulletin No.</u>	<u>Title</u>	<u>FAA Approval Date</u>
95-1	Main Rotor Blade Refinish	March 3, 1995
95-2	Main Rotor Flap Refinish	March 3, 1995
95-3	Removal of Auxiliary Skid Assemblies	March 3, 1995
95-4	Instrument Sub-Panel	January 21, 1998
95-5	Starter To Starter-Generator Conversion	November 2, 1995
95-6	Cyclic Wiring Changes	November 2, 1995
95-7	Fuel Tank Ventilation	February 21, 1997
95-10	3000 Pound External Load Installation	November 2, 1995
95-11	External Slipping Installation	November 17, 1995
95-12	T-53-L-13B Engine Installation	February 21, 1997
95-13	Engine and Engine Accessories Hose Interchangeability	April 21, 1995

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

95-14	Transmission Input Bevel Gear Shaft Locknut Torque Increase	July 6, 1995
95-15	Airframe and Accessories Hose Interchangeability	April 21, 1995

Later FAA approved revisions of the listed service bulletins may be used.

NOTE 10. In addition to the standard helicopter requirements, the following additional data and/or helicopter configuration requirements must be met for each individual model HH-43B/F or HH-43B helicopter upon application for an original Special Airworthiness Certificate:

- a) 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).
- b) Written conformation from the certifying office that the affected serial number has been added to this Type Certificate.
- c) The application for airworthiness certification and the helicopter's registration certificate must match the information on the TCI Data Plate.
- d) The documents specified NOTE 3.
- e) The conditions and limitations specified in this Type Certificate Data Sheet are met.

NOTE 11. These helicopters must be operated in accordance with the Department of the Air Force Technical Manual T.O. 1H-43(H)F-1 "Flight Manual USAF Series HH-43 F Helicopter" dated 22 September, 1966 with Change 12, dated 15 August, 1974, or latest FAA approved revision; and Timber Choppers Inc. (TCI) FAA approved Rotorcraft Flight Manual Supplement (RFMS), document No. RFMS-TC-1, dated May 15, 1978, or later FAA approved revision. Additionally, when the T53-L-13B engine is installed in accordance with Timber Choppers, Inc. Service Bulletin SB95-12, refer to Timber Coppers RFMS dated February 21, 1997, or later FAA approved revision.

VFR Restricted Category operations only.

NOTE 12. These helicopters are prohibited from carrying cargo for compensation or hire. Carriage of cargo is limited to such cargo that is incidental to the helicopter owners/operator's business and is other than air transportation.

NOTE 13. A restricted category helicopter may not be operated in a foreign country without the express written approval of that country.

NOTE 14. These helicopters have not been shown to meet the requirements of the applicable comprehensive and detailed Airworthiness Code as provided by annex 8, to the Convention of International Civil Aviation Organization.

NOTE 15. Military to Civil or Military to Military engine changes are allowed, provided the replacement engine is an equivalent 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 16. 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. Military Surplus engines and appliances that do not have the appropriate 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-

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

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 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 by a extent and in a manner equal to that of an Armed Force of the United States.

- NOTE 17.** An FAA representative must perform a detailed inspection for workmanship, materials, and conformity with approved technical data, and will verify that a maintenance flight test has been completed for each aircraft by qualified maintenance personnel in accordance with the appropriate Department of the Air Force maintenance test flight requirements
- NOTE 18.** Any alteration to the type design of this aircraft may require Instructions for Continued Airworthiness. If so, these instructions must be submitted and accepted by the FAA Fort Worth Aircraft Evaluation Group (FTW-AEG), prior to approval for return to service.
- NOTE 19.** No person may be carried in the helicopters during flight unless that person is essential to the purpose of the flight.

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