DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

1H16
Revision 16
Columbia Helicopters, Inc
107-II

June 10, 2019

TYPE CERTIFICATE DATA SHEET NO. 1H16

This data sheet which is a part of type certificate No. 1H16 prescribes conditions and limitations under which the product for which the type certificate was issued meets the airworthiness requirements of the Civil Air Regulations/Federal Aviation Regulations.

Type Certificate Holder — Columbia Helicopters, Inc.
14452 Arndt Road NE
Aurora, OR 97002

Type Certificate Holder Record — Boeing Defense & Space Group transferred TC 1H16 to Columbia Helicopters, Inc. on December 15, 2006.

Model 107-II (Transport Helicopter - Category A and B), Approved January 26, 1962

Engine — 2 General Electric CT58-110-1 (with Hamilton Standard Fuel Control JFC-26, Ref. General Electric Service Bulletin No. 45) or 2 General Electric CT58-110-2 installed per Vertol Service Bulletin No. 107-277 or
2 General Electric CT58-140-1 installed per CHI Service Bulletin No. 107-71-0001 or
2 General Electric CT58-140-2 installed per CHI Service Bulletin No. 107-71-0001

Fuel — Aviation Kerosene, JP4, JP5, JP8 or TS-1 (General Electric Co., Spec. No. D50TF2.)
Approved fuels, Limitations and control adjustments are in the Rotorcraft Flight Manual, 107-1.

Engine Operating Limits For CT58-110 Engines — Sea level static

	Shaft hp	Power Turbine r.p.m.	Gas Gen. r.p.m.	Power Turbine Inlet Temp (T5)
Takeoff (5 min)	1250	21275 (109% Nf)	26300 (100.3% Ng)	1250°F (677°C)
One engine inoperative (30 min.) See NOTE 5	1250	21275 (109% Nf)	26300 (100.3% Ng)	1250°F (677°C)
One engine inoperative (2 1/2 min.) See NOTE 6	1350	21275 (109% Nf)	26800 (102.2% Ng)	1300°F (704°C)
Maximum continuous	1050	21275 (109% Nf)	26300 (100.3% Ng)	1175°F (635°C)
Maximum transient (2 sec.)				1545°F (840°C)
Starting (4 sec.)				1545°F (840°C)
Allowable maximum overspeed (15 sec.)		23100 (118.5% Nf)	27600 (105.3% Ng)	

Engine Operating Limits For CT58-140-1 Engines — Sea level static

	Shaft hp	Power Turbine r.p.m.	Gas Gen. r.p.m.	Power Turbine Inlet Temp (T5)
Takeoff (5 min)	1400	21275 (109% Nf)	26300 (100.3% Ng)	1285°F (696°C)
One engine inoperative (30 min.) See NOTE 5	1400	21275 (109% Nf)	26300 (100.3% Ng)	1285°F (696°C)
One engine inoperative (2 1/2 min.) See NOTE 6	1500	21275 (109% Nf)	26800 (103.6% Ng)	1330°F (721°C)
Maximum continuous	1250	21275 (109% Nf)	26300 (100.3% Ng)	1220°F (660°C)
Maximum transient (2 sec.)				1545°F (840°C)
Starting (4 sec.)				1740°F (949°C)
Allowable maximum overspeed (15 sec.)		23100 (118.5% Nf)	27600 (105.3% Ng)	

Engine Operating Limits For CT58-140-2 Engines — Sea level static

	Shaft hp	Power Turbine r.p.m.	Gas Gen. r.p.m.	Power Turbine Inlet Temp (T5)
Takeoff (5 min)	1400	21275 (109% Nf)	26300 (100.3% Ng)	1285°F (696°C)
One engine inoperative (30 min.) See NOTE 5	1400	21275 (109% Nf)	26300 (100.3% Ng)	1285°F (696°C)
One engine inoperative (2 1/2 min.) See NOTE 6	1500	21275 (109% Nf)	27200 (103.6% Ng)	1396°F (758°C)
Maximum continuous	1250	21275 (109% Nf)	26300 (100.3% Ng)	1220°F (660°C)
Maximum transient (2 sec.)				1545°F (840°C)
Starting (4 sec.)				1740°F (949°C)
Allowable maximum overspeed (15 sec.)		23100 (118.5% Nf)	27600 (105.3% Ng)	

Takeoff and maximum continuous horsepower ratings are normally obtained at a power turbine speed of 19,500 r.p.m. (100% Nf). Engine identifications and fuel control adjustment for alternate normal power turbine speed necessary for vertical operations are in the Rotorcraft Flight Manual, 107-1.

Total power for twin-engine operation is limited to 2440 hp. for takeoff and 2100 hp maximum continuous. Transmission input power and torque limitations are in the Rotorcraft Flight Manual, 107-1.

Rotor Limits — Maximum 299 r.p.m.
Minimum 233 r.p.m.

Airspeed Limits	Never exceed	168 m.p.h. (146 knots) CAS 170 m.p.h. (148 knots) IAS zero instrument error Variation of Vne with rotor r.p.m. and altitude is in the Rotorcraft Flight Manual, 107-1.
C.G. range	Category A:	(+267.5 in.) to (+307.5 in.) at 17,900 lb. (+267.5 in.) to (+317.0 in.) at 16,500 lb. or less C.G. limits vary linearly between 16,500 lbs. and 17,900 lbs.
	Category B:	(+276.5 in.) to (+299.0 in.) at 20,000 lb. (+271.0 in.) to (+300.0 in.) at 19,000 lb. (+267.5 in.) to (+306.0 in.) at 18,100 lb. (+267.5 in.) to (+317.0 in.) at 16,500 lb. or less C.G. limits vary linearly between 16,500 lbs. and 17,900 lbs., between 17,900 lbs. and 19,000 lbs., and between 19,000 lbs. and 20,000 lbs.
Empty weight C.G. range	None	
Datum	103.6 inches forward of forward jacking point.	
Leveling Means	Plumb line from top of main door frame.	
Maximum weight	Category A:	17,900 lb.
	Category B:	19,000 lb. (CT58-110 engines only) 20,000 lb. (CT58-140 engines only operation above 19,000 lbs. requires specific rotor pitch housing part numbers listed in NOTE 7)
	See NOTE 7 for increased gross weight.	
Minimum Crew	2 (Pilot, copilot)	
Maximum Passengers	Limited by emergency exit requirements: 39 For S/N's 2,4,5,6,11,101,107 and 108 when airliner "airstair" type main cabin door, P/N 107S8304-1, is installed 26 For S/N's 402, 404, 406, 408, 2002 and 2003, or when two piece utility type main cabin door, P/N 107S8303-1, is installed.	
Maximum Baggage	Baggage bin 1,500 lb. (+440). See NOTE 4 for cargo.	
Fuel capacity	350 gal. (+348.4) or 380 gal. (+363.0) when kit 107PK400 and A02S1006-1 and -2 Stub Wing Structures are installed.	
Oil capacity	4.2 gal. (+431.3) See NOTE 1 for data on system fuel and oil.	
Rotor blade and control movements	For rigging information, refer to Maintenance Manual 107-2.	
Serial Nos. Eligible	2, 4, 5, 6, 11, 101, 107, 108 402, 404, 406, 408 (See NOTE 8) 2002, 2003 (See NOTE 9)	
Certification basis	CAR 7 dated August 1, 1956 including amendments 7-1 through 7-4 and Special Conditions for Turbine Powered Rotorcraft in FAA letter to Vertol March 31, 1961; FAA Administrator telegram, Performance Requirements, dated August 7, 1961; Exemptions Nos. 188 dated November 27, 1961, 188A dated April 4, 1962 and 374 dated December 21, 1964; Equivalent Level of Safety finding dated March 30, 1994 for S/N 402, 404, 406 and 408 regarding emergency exits required under CAR 7.354 for a maximum of 26 passengers. Type Certificate 1H16 issued January 26, 1962.	

Date of Application for Type Certificate November 20, 1959.

Production basis — Production Certificate No. 727NM

Equipment: — 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:
(a) FAA Approved Rotorcraft Flight Manual 107-1

NOTE 1. Current weight and balance report including list of required equipment and equipment included in certificated empty weight, and loading instructions when necessary, must be provided for each helicopter at the time of original certification. The certificated empty weight and corresponding C.G. locations must include undrainable oil of 10 lb. (405) and unusable fuel of 9 lb. (362). Unusable fuel for vertical operation is 286 lb. (362).

NOTE 2. The following placard must be displayed in front of and in clear view of the pilot:
" THIS HELICOPTER MUST BE OPERATED IN COMPLIANCE WITH THE OPERATING LIMITATIONS SPECIFIED IN THE FAA APPROVED ROTORCRAFT FLIGHT MANUAL."

NOTE 3. Information essential to the proper maintenance of the helicopter including retirement times and required inspections is contained in the 107-II Maintenance Manual 107-2, Chapter 4 – Airworthiness Limitations Section provided with each helicopter. The values of the retirement times and inspection intervals cannot be changed without FAA Engineering Approval.

NOTE 4. The cabin floor area between fuselage stations 120 and 410 is structurally satisfactory for a uniformly distributed loading of 150 p.s.f. when used for cargo purposes. Bulkhead No. 107S4314 is moveable and can be installed at fuselage stations 284.3, 347.9 and 407.3. When this bulkhead is installed at fuselage station 347.9 or 284.3, the maximum total load permitted aft of it, including the contents of the baggage bin (1500 lb. maximum) is 5000 lb. The cabin floor loading of 150 p.s.f. should not be exceeded under any loading conditions.

NOTE 5. If takeoff power is used in cumulative excess of five minutes during any one emergency, the engine must be inspected in accordance with General Electric Commercial Engine Service Memorandum CT58-110-1, Maintenance No. 19, April 17, 1962 or CT58-140 General Electric Commercial Engine Operating Instructions SEI 197, Chapter VI-Abnormal Operations.

NOTE 6. Engine controls must be set for this rating for vertical operations (See engine limits).

NOTE 7. The Type Certificate holder has demonstrated compliance with FAR 133.43 for the 107-II helicopter for Class B (jettisonable cargo hook load) Rotorcraft - Load Combination at a maximum overall weight of 22,000 lb. and a maximum cargo hook load of 11,500 lb. when the helicopter is modified in accordance with Vertol Drawings 107S7350 and 107S7353. Rotor pitch housings P/N 107R2553-7, -8, -9, -10, -13, -14, -15 or -16 must be installed for operations in excess of 19,000 lb. the helicopter weight without cargo hook load is not to exceed certificated weight of 19,000 lb. For limitations, see pertinent FAA Approved Rotorcraft Flight Manual Supplement and Rotorcraft - Load Combination Flight Manual to be submitted by applicant for external load operator's certificate in accordance with FAR133.

NOTE 8. Serial Numbers 402, 404, 406 and 408 are identical to basic model 107-II as defined by Boeing Drawing 107X0040-1, except that this fuselage consists of the following components: 107S0012-1 Fuselage Structure Assembly-Cockpit-Helicopter, (Modified in accordance with 107X0024-2, Cockpit Mod Instl - CHI); 107S0013-1 Fuselage Structure Assembly-Cabin-Helicopter, (Modified in accordance with 107X0025-2 Cabin Fuselage Mod. Instl. - CHI); 107S0014-1 Fuselage Structure Assembly-Aft-Helicopter, (Modified in accordance with 107X0026-2 Aft Fuselage Mod Instl. - CHI); A02S1006-1 and -2 Stub Wing Structure, R.H. and L.H., (Modified in accordance with 107X0027-2 Alighting Gear Stub Assy. Mod. Instl - CHI); and has installed 107PK400-1 Kit Fuel System. This configuration is defined on Boeing Drawing 107X0040 as the -3 configuration.

NOTE 9. Serial Numbers 2002 and 2003 are identical to basic model 107-II as defined by Boeing Drawing 107X0040-1, except that these fuselages consist of the following components: A02S0003-1 Fuselage Structure Assy Cockpit - CH-46, (Modified in accordance with 107X0024-1, Cockpit Mod Instl - CHI); A02S0004-1 Fuselage Structure Assy Cabin CH-46, (Modified in accordance with 107X0025-1 Cabin Fuselage Mod. Instl - CHI); A02S0005-1 Fuselage Structure Assy Aft CH-46, (Modified in accordance with 107X0026-1 Aft Fuselage Mod Instl. - CHI); A02S1006-1 and -2 Stub Wing Structure R.H. and L.H., (Modified in accordance with 107X0027-1 Alighting Gear Stub Assy. Mod. Instl - CHI); and has installed 107PK400-1 Kit-Fuel System. This configuration is defined on Boeing Drawing 107X0040 as the -2 configuration.

NOTE 10. For revenue passenger service, an approved interior must be installed.

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