DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

1E3
Revision 15
General Electric
CT58-100-2
CT58-110-1
CT58-110-2
CT58-140-1
CT58-140-2

April 17, 1985

TYPE CERTIFICATE DATA SHEET NO. 1E3

Engines of models described herein conforming with this data sheet (which is a part of type certificate No. 1E3) and other approved data on file with the Federal Aviation Administration, meet the minimum standards for use in certificated aircraft in accordance with pertinent aircraft data sheets and applicable portions of the Civil Air Regulations/Federal Aviation Regulations provided they are installed, operated, and maintained as prescribed by the approved manufacturer's manuals and other approved instructions.

Type Certificate Holder — General Electric Company
Aircraft Engine Group
Lynn, Massachusetts 01910

Model	CT58-100-2	CT58-110-1	CT58-110-2	CT58-140-1 CT58-140-2
Type Axial flow, free turbine turboshaft Ten stage compressor Annular combustion chamber Two stage gas generator turbine Single stage power turbine				
Ratings (See NOTE 14)				
At nominal power turbine speed of 19,500 r.p.m.				
Max. continuous at sea level; hp.	990	1050	- -	1250
Takeoff (5 min.) at sea level; hp.	1050	1250	- -	1400
30 min. helicopter rating at sea level; hp.	—	1250	- -	1400
2½ min. helicopter rating at sea level; hp.	—	1350	- -	1500
Alternate rating (See NOTE 9)				
Max. continuous & takeoff at sea level; hp.	730	- -	- -	- -
Fuel control	Hamilton Standard JFC-26 & Pesco 023104 gear type fuel pump with integral boost.	- -	- -	- -
Fuel (See NOTE 15)	Fuel conforming to General Electric Company Jet Fuel Specification No. D50TF2, current revision. Kerosene, JF4 and JP5 fuels are acceptable but whenever a change is made, re-adjustment of the fuel control to the appropriate setting must be made.	- -	- -	- -

Model (cont'd)	CT58-100-2	CT58-110-1	CT58-110-2	CT58-140-1 CT58-140-2
Oil	Oil conforming to General Electric Specification No. D50TF1, current revision. See applicable Operations Bulletin for specific oils approved per the subject specification.	- -	- -	- -
Principal dimensions				
Length, in.	59	- -	- -	- -
Max. diameter, in.	16	- -	- -	- -
Weight (dry), lb. (includes essential engine accessories and turbine bucket guard)	295	315	335	340
C.G. Location with down exhaust				
Aft of front mount centerline, in.	18.45	- -	18.88	19.65
Below engine centerline, in.	1.50	- -	- -	1.80
Ignition system (24 volts D.C. 150 watts max.)	Bendix Scintilla dual ignition unit type TGLN with integral junction box assembly and two igniter plugs	- -	- -	- -
Igniter plugs	P/N 37B200275	- -	- -	- -
NOTES	1 through 13, 15, 17, & 18	1 thru 18	- -	1 thru 15, 17, & 18

"- -" indicates "same as preceding model"
"—" indicates "does not apply"

Certification basis:

Regulations & Amendments	Model	Date of Application	Date Type Certificate No. 1E3 Issued/Revised	Date of Cancellation
CAR 13, effective June 15, 1956 as amended by 13-1, 13-2, 13-3, 13-4, 13-5, & 13-6	CT58-100-1	June 2, 1958	July 1, 1959	September 15, 1982
	CT58-100-2	September 15, 1959	December 29, 1960	
	CT58-110-1	September 24, 1959	July 13, 1961	
	CT58-140-1	June 23, 1964	June 10, 1965	
	CT58-110-2	October 31, 1967	March 29, 1968	
	CT58-140-2	January 25, 1968	April 18, 1968	

Production basis: Production Certificate No. 107.

NOTE 1. Maximum permissible gas generator operating speeds (r.p.m.) are as follows:

	CT58-100-2	CT58-110-1	CT58-110-2	CT58-140-1	CT58-140-2
2½ minute helicopter rating	—	26,800	- -	- -	27,200
30 minute helicopter rating	—	26,300	- -	- -	- -
Takeoff	25,600	26,300	- -	- -	- -
Maximum continuous	25,600	24,300	- -	- -	- -
Alternate rating	24,300	- -	- -	- -	- -

NOTE 2. Maximum permissible temperatures:

	CT58-100-2	CT58-110-1	CT58-110-2	CT58-140-1	CT58-140-2
Power Turbine Inlet (T_5)*					
2½ minute helicopter rating	—	1300°F	- -	1330°F	1397°
30 minute helicopter rating	—	1250°F	- -	1285°F	- -
Takeoff	1175°F	1250°F	- -	1285°F	- -
Maximum continuous	1115°F	1175°F	- -	1220°F	- -
Maximum transient	1545°F (2 sec.)	- -	- -	1545°F (2 sec.) 1465°F (20 sec.)	- -
Starting	1545°F (4 sec.)	- -	- -	1740°F (2 sec.)	- -
Oil inlet	250°F	- -	- -	- -	- -

*The power turbine inlet gas temperature is measured by eight (8) thermocouples mounted in a radial plane in the second stage turbine casing. Refer to General Electric Maintenance Manual SEI 101 CT58-100-2/-110-1/-110-2) and SEI-182 (CT58-140-1/140-2) for inspection requirements when limits are exceeded.

NOTE 3. Fuel and oil pressure limits:

Fuel: Minimum at engine pump inlet, 0.3 V/L (max.) with maximum 50 p.s.i. above ambient atmospheric pressure.

Oil: At ground idle, 8 p.s.i.g. minimum
Operating range, 20 to 60 p.s.i.g.

NOTE 4. Accessory drive provisions:

Drive	Type	Rotation Facing Engine Pad	Speed	Max. Torque (in. lb.) Continuous	Static
Starter	Special	CC	1.0*	180	336
Gas generator tachometer	AND 20005 Type XVB	C	0.160*	7	50
Power turbine tachometer	AND 20005 Type XVB	CC	0.200**	7	50
Dynamic fuel filter	Special	CC	0.160*	5	50

"C"- Clockwise, "CC" - Counter-clockwise
* Speed - Times gas generator r.p.m.
** Speed - Times power turbine r.p.m.

NOTE 5. Engine ratings are based on calibrated test stand performance under the following conditions:

Static sea level standard conditions of 59°F and 29.92 in. Hg.
General Electric air inlet #1076669-886 and bullet nose #1076669-424.
No external air bleed or accessory drive power for aircraft accessories.
Exhaust configuration as defined by G.E. drawing #37E500110 (100-2, 110-1, 110-2) & #4006T87 (140-1, 140-2).
No anti-icing airflow.
Additional performance parameters are contained in General Electric Operating Instructions SEI-103 (100-2), SEI-180 (110-1, 110-2) and SEI-197 (140-1, 140-2).

NOTE 6. Maximum permissible air bleed extraction is 5.6 percent at standard conditions for 100-2, 110-1, and 110-2; and 3.0 percent for 140-1 and 140-2.

NOTE 7. Power Turbine Normal Operating Range. The nominal power turbine operating speed is 19,500 r.p.m. An alternate nominal speed of 20,250 r.p.m. can also be provided. For engine identification and fuel control requirements refer to G.E. Service Bulletin 124. The engine control system provides for power turbine speed governing within the following limits:

Model	Min. Governing Speed	Governor Topping Speed
100-2	16,600 r.p.m.	21,275 r.p.m.
110-1, 110-2	16,600 r.p.m.	21,275 r.p.m.
140-1, 140-2	17,000 r.p.m.	21,275 r.p.m.

NOTE 8. Power Turbine Shaft Torque Limits - All Models:

Static	11,100 in. lb.
Maximum continuous	No limit, provided that all other power, speed and temperature limits are maintained.

NOTE 9. All models can be provided with alternate power ratings as noted. A fuel control change is required to make this rating change. Refer to CT58 Service Bulletin #45 for listing of approved fuel controls. In addition the following CT58-140 ratings are provided:

	CT58-140-1 Horsepower		CT58-140-2 Horsepower	
Rating	59°F	80°F	59°F	80°F
2½ Minute	1500	1350	1500	1500
30 Minute & Takeoff	1250	1250	1250	1250
Maximum Continuous	1050	1050	1050	1050

NOTE 10. To be eligible for use in certificated aircraft, the engine installation must include an accurate engine output torque measuring device or an acceptable alternate means of determining engine power.

NOTE 11. This engine meets FAA requirements for operation in icing conditions, for adequate turbine disc integrity and rotor blade containment and does not require airframe-mounted armoring.

NOTE 12. Maximum permissible overspeeds are:
Gas generator 27,600 r.p.m. for 15 seconds (CT58-100-2/-110-1/-110-2) 28,300 rpm for 20 seconds (CT58-140-1/140-2)
Power Turbine 23,100 r.p.m. for 15 seconds.
When either of these limits is exceeded, the engine must be disassembled for inspection.

NOTE 13. Because of differences in engine application and installation, each engine installation design must be evaluated with regard to engine overspeed protection and an airframe-mounted speed switch provided if deemed necessary.

NOTE 14. Below 59°F the sea level static power limits for the CT58-110-1/-2 and CT58-140-1/-2 engines will vary as follows:

Rating	CT58-110-1/110-2	CT58-140-1	CT58-140-2
2½ Min. Helicopter	No variation - engine is flat rated at 1350 hp. at 59°F and below.	Increases linearly from 1500 hp. at 59°F to 1545 hp. at -65°F	Increases linearly from 1500 hp. at 59°F to 1560 hp. at -65°F.
Takeoff & 30 Min. Helicopter	Increases from 1250 hp. at 59°F to 1350 hp. at +23°F and flat rated below this temperatures.	Increases linearly from 1400 hp. at 59°F to 1510 hp. at 22°F and to 1540 hp. at -65°F.	Increases linearly from 1400 hp. at 59° to 1530 hp. at 13°F and to 1560 hp. at -65°F.
Max. Continuous	Increases linearly from 1050 hp. at 59°F to 1230 hp. at 29°F and flat rated at 1230 hp. at 29°F and below	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.	- -

For power rating variation between standard day conditions and the temperatures listed above, refer to General Electric Operating Instructions No. 180 (CT58-110-1, 110-2) and No. 197 (CT58-140-1, 140-2). The ratings referred to herein and the limitations on the usage of these ratings are defined in the applicable FARs.

Engines with individual performance characteristics and capabilities to develop the low temperature power ratings noted above at higher ambient temperatures may be operated up to these power limits at any ambient conditions provided all other engine parameters are not exceeded.

NOTE 15. The only optional additives which may be used in approved fuels are as follows:

(1) Phillips PFA-55MB or anti-icing additives to specification MIL-I-27686E at a concentration not in excess of 0.15% by volume.

(2) SOHIO Biobor JF biocide additive at a concentration not in excess of 20 p.p.m. elemental boron (270 ppm total additive).

(3) Shell ASA-3 anti-static additive at a concentration that will provide not in excess of 300 conductivity units which is approximately equivalent to 1 p.p.m.

The above additives may be used in combination.

NOTE 16. A speed decreaser gear defined by General Electric drawing 37R600175 is eligible for use on CT58-110-1, -110-2 engines. This provides a gear reduction ratio of 3.25 to 1 and includes an integral torque sensing device. Oil conforming to General Electric Specification No. 050TF1 must be supplied to the gear box from the airframe oil supply system. Normal oil pressure operating limits for the gear box are 35 to 75 p.s.i.

NOTE 17. The CT58-100-2 and CT58-110-1 engines incorporate improved hot section parts to permit operation at higher turbine inlet temperatures and increased ratings. The CT58-100-2 does not utilize the higher rating.

"Military T58-GE-1 engines with serial numbers below 277135 were manufactured identical to the CT58-110-1, and military T58-GE-5 engines with serial numbers below 285373 and below 291053 were manufactured identical to the CT58-140-1. These engines are eligible for use in certificated aircraft if they conform to the FAA approved parts lists, are in an acceptable airworthiness condition, and the engine nameplate has been revised or replaced to include the corresponding civil model designation and Type Certificate number. Consult General Electric for specified requirements. The T58-GE-1 and T58-GE-5 models were removed from active certification status on 16 September 1971."

The CT58-140-1 engine is similar to the CT58-110-1 except for improved parts, increased airflow and compressor efficiency.

The CT58-110-2 engine is similar to the CT58-110-1 with selected CT58-140-1 hardware incorporated for life and performance improvements.

The CT58-140-2 engine is identical to the CT58-140-1 except for improved performance at above standard day temperature conditions and an increased flow fuel control. Refer to NOTES 9 and 14.

NOTE 18. "Life limits established for critical rotating components are published in the CT58 Overhaul Manuals SEI-102 (CT58-100-2/-110-1/-110-2) and SEI-183 (CT58-140-1, -2)."

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