AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL - BRASIL

TYPE CERTIFICATE DATA SHEET Nº EM-2009T07

Type Certificate Holder:

GENERAL ELECTRIC COMPANY
AIRCRAFT ENGINES
1000 Western Avenue
Lynn, MA 01910
USA

GENERAL ELECTRIC COMPANY

CT7-8A, CT7-8E

26 May 2009

Engines of models described herein conforming with this data sheet, which is part of Type Certificate No. 2009T07, meet the minimum standards for use in certificated aircraft in accordance with pertinent aircraft data sheets and applicable portions of the Brazilian Aeronautical Regulations provided they are installed, operated, and maintained as prescribed by the approved manufacturer's manuals and other instructions.

MODEL CT7-8A, CT7-8E

TYPE Axial flow, free turbine turboshaft, Five-stage axial / single-stage centrifugal compressor: annualar combustion chamber; two-stage gas generator turbine; two-stage power turbine. The engines are FADEC-controlled.

RATINGS

	CT7-8A	CT7-8E
Max. continuous, sea level:		
Shaft, kW (hp)	1 523.4 (2 043)	1 521.9 (2 041)
Output, rpm	21 945	20 872
Normal takeoff (5 min), sea level:		
Shaft, kW (hp)	1 879.1 (2 520)	1 884.3 (2 527)
Output, rpm	21 945	20 872

RATINGS (Cont.)

	CT7-8A	CT7-8E
30-Minute, sea level:		
Shaft, kW (hp)	1 741.9 (2 336)	1 855.3 (2 488)
Output, rpm	21 945	20 872
Continuous OEI, sea level:		
Shaft, kW (hp)	1 862.7 (2 498)	1 855.3 (2 488)
Output, rpm	21 945	20 872
2-Minute OEI, sea level:		
Shaft, kW (hp)	1 879.1 (2 520)	1 880.6 (2 522)
Output, rpm	20 900	20 872
30-second OEI, sea level:		
Shaft, kW (hp)	2 043.2 (2 740)	2 042.4 (2 739)
Output, rpm	20 900	20 872

OIL TEMPERATURE ºC (ºF)

Maximum Steady State	132 (270)	--
Minimum (for starting and ground idle)		
Type I oils	-48 (-54)	--
Type II oils	-40 (-40)	--
Maximum Transient (15 min) (Refer to Installation Manual)	149 (300)	--

MAXIMUM ACCESSORY TEMPERATURE

The engine compartment shall be ventilated as necessary to keep the air temperature surrounding accessory components from exceeding the limits defined in the Installation Manual.

ELECTRICAL SYSTEM

Refer to Section A-14 and A-16 of the Installation Manual for HIRF and Lightning qualification and conformance.

MAXIMUM WEIGHT

245.8 kg (542.0 lb) - (Dry, including basic components and sensors required for engine operation and monitoring.)

PRINCIPAL DIMENSIONS

Refer to Installation Drawing in approved Installation Manual.

C.G. LOCATION

Refer to Installation Drawing in approved Installation Manual.

FUEL

Fuel Pressure

At engine boost pump inlet: For all operation, including starts, the minimum pressure shall be 1.0 psi above true vapor pressure of the fuel, with a vapor/liquid ratio less than or equal to 1.0. Maximum fuel pressure shall be 50.0 psi above absolute ambient atmospheric pressure. In addition, maximum fuel pressure during starting shall be no lower than atmospheric pressure (or tank pressure, whichever is higher) minus 2.8 psi.

Fuel temperature

Refer to Installation Manual SEI-866 for proper information.

Fuel type

Fuels and additives conforming to the Operating Instructions GEK105157 are approved for use.

LUBRICATION

Oil Pressure (psig)	CT7-8A	CT7-8E
Minimum at ground idle	20	--
Minimum operating	30	--
Maximum, Steady State	100	--
(Refer to Installation Manual)		
Oil Tank Capacity		
Total capacity (liters)	6.70	--
Imperial gallons	1.47	--
U.S. gallons	1.77	
Usable capacity (liters)	3.60	--
Imperial gallons	0.79	--
U.S. gallons	0.95	--

Oil Type:

Oils conforming to the specifications listed in the CT7-8A / -8E Maintenance Manual are approved for use.

AIR BLEED

A. The engine provides for compressor air extraction. The quantity of bleed air specified for customer use is that quantity available over and above the bleed air needed by the engine during power transients, engine anti-icing and any other engine system requirements. Two bleed ports are provided for customer bleed air extraction from the compressor fifth stage.

B. Maximum permissible customer air bleed extraction is 6.5 percent.

C. Bleed air contamination meets Para. 3.1.2.11.3 of MIL-E-5007E

EQUIPMENT

Equipment such as the Engine Electronic Control (EEC), Fuel Metering Unit (FMU), Fuel Pump, Bleed Valve Actuator, Fuel Oil Heat Exchanger, Air Cooled Oil Cooler (ACOC), Ignition Exciter, Ignition Plug, fuel and oil filters, engine harness with integral low pressure spool speed sensor and inlet temperature probe electrically de-iced using airframe supplied power, oil system chip detector collector, are standard equipments as shown on the approved Installation Drawing. For output drive specification, accessory drives, principal dimensions, weights, inertias and C.G. locations, refer to Installation Manual.

IMPORT REQUIREMENTS

Each engine imported separately and/or spare parts must be accompanied by an export airworthiness approvals issued by FAA (or a third country authority, in case of used engine imported from such country) attesting that the particular engine and/or parts were submitted for airworthiness authority inspection before delivery and are in conformity with the ANAC approved type design. The ANAC type design corresponds to the FAA approved type design, as stated in ANAC Report V33-0150-0.

CERTIFICATION BASIS

For Models CT7-8A / CT7-8E	Model	Application	Issued TC
RBHA 33 (Brazilian Requirements for Aeronautical Certification), which endorses the 14 CFR Part 33 Amendments 1 through 20 inclusive, effective 13 December 2000 and RBHA 34, which endorses the 14 CFR Part 34, Amendment 3, effective 03 February 1999 plus FAA Special Conditions Number 33-022-SC and 33-005-SC.	CT7-8A CT7-8E	10 October 2008 10 October 2008	26 May 2009 26 May 2009

NOTES:

NOTE 1

The engine ratings for the CT7-8A / -8E engine models are based on dry sea level static ICAO standard atmospheric conditions. No accessory loads or air bleed. No anti-icing airflow. Engine intake and exhaust as described in the approved Installation Manual.

NOTE 2

The power extraction from the start generator pad under continuous operation is limited to a maximum of 14.91 kW (20 hp). The power extraction from the starter generator pad under overload conditions occurring for periods up to 5 minutes, at the frequency of once per 4 hours is limited to 22.37 kW (30 hp). The power extraction from the start generator pad under overload conditions occurring for periods up to 5 seconds, at the frequency of once per 4 hours is limited to 29.83 kW (40 hp).

NOTE 2 (Cont.)

Accessory Drives

The following apply to the accessory drives, which are provided by the engine and included in the basic engine weight:

Drive		Speed Ratio to N2	Maximum Torque (in.lb)	Maximum Torque (in.lb)	Operating Range (rpm)
Drive Driven by High Rotor	Rotation	Shaft	Continuous	Static	
Starter	CW	0.64979:1	336	900	zero to 29,715

CW - Clockwise facing accessory pad.

NOTE 3

Certain engine parts are life limited. Life limits are listed in the Chapter 5 of the CT7-8A / -8E Maintenance Manual P/N GEK105159.

NOTE 4

Recommended overhaul and inspection intervals are listed in the CT7-8A / -8E Maintenance Manual P/N GEK105159.

NOTE 5

The software contained in the Electronic Engine Control (EEC) has being designed, developed tested and documented in accordance with the provision of the Critical Category, Level A of RTCA/DO178B.

NOTE 6

Approved Documents / Publications for CT7-8A / -8E engine models:

- Installation Manual SEI-866
- Operating Instructions GEK105157
- Engineering Assembly Drawing 3066390G02 (CT7-8A) and 3066390G06 (CT7-8E).

Instructions for Continued Airworthiness

- Maintenance Manual P/N GEK105159
- Overhaul Manual P/N GEK105157

NOTE 7

For the CT7-8A / -8E engine models, FADEC system isochronously governs engine output shaft speed/aircraft main rotor speed(Np/Nr) and incorporates torque matching between engines. Automatic operational limiters are provided for torque, speed and power turbine inlet temperature (T4.5/ITT).

NOTE 8

For the CT7-8A / -8E engine models, the power turbine inlet temperature (T4.5/ITT) and torque data are required for the aircraft system to alert the pilot and track the time when the engine is at the 30-second and 2-minute OEI ratings. See Installation Manual for additional information.

NOTE 9 The engines are not approved for single engine installation.

NOTE 10 The engine is equipped with an anti-icing system that, when activated, will prevent the formation of ice on engine inlet surfaces during icing condition encountered throughout the rated flight envelope in accordance with 14 CFR 33.68 and 14 CFR Part 25 Appendix C.

NOTE 11 The CT7-8A / -8E Electronic Engine Control is approved with Time Limited Dispatch (TLD) limitations. The dispatch criteria and time limits are contained in the Time Limited Dispatch Manual GEK112652.

NOTE 12 Limits have been established for certain models with regard to Electromagnetic Interference (EMI) and lightning. Refer to CT7-8A / -8E Installation Manual SEI-866, Section A-16 for more detailed descriptions of EMI and lightning capabilities and limits.

NOTE 13 Service Bulletins, Overhaul and Maintenance Manuals, which are FAA-approved, are accepted by the ANAC and are considered ANAC-approved unless otherwise noted. These approvals pertain to the type design only.

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