TYPE-CERTIFICATE DATA SHEET

No. EASA.IM.E.022
Issue 05

for
PT6C-67 Series Engines

Type Certificate Holder
Pratt and Whitney Canada Corp.

1000 Marie Victorin
Longueuil, Québec, J4G 1A1
Canada

For Models:
PT6C-67C
PT6C-67E
PT6C-67A

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Table of Contents

I. General

1. Type/ Model

PT6C-67 / PT6C-67C, PT6C-67E, PT6C-67A

2. Type Certificate Holder

Pratt and Whitney Canada Corp.
1000 Marie Victorin
Longueuil, Québec, J4G 1A1
Canada

3. Manufacturer

Pratt and Whitney Canada Corp.

4. Date of Application

17 May 2002 to ENAC Italy (PT6C-67C)
24 March 2008 (PT6C-67E)
03 March 2016 (PT6C-67A)

5. EASA Type Certification Date

09 June 2003 (PT6C-67C)
09 November 2012 (PT6C-67E)
31 October 2019 (PT6C-67A)

II. Certification Basis

1. State of Design Authority Certification Basis:

see Transport Canada TCDS E-32

2. Reference Date for determining the applicable airworthiness requirements:

27 March 1998 (PT6C-67C)
02 November 2009 (PT6C-67E)
12 September 2014 (PT6C-67A)

3. EASA Certification Basis

3.1. Airworthiness Standards

JAR E Change 9 dated 21 October 1994 (PT6C-67C)
CS-E Amendment 1, dated 03 December 2007 (PT6C-67E)
CS-E Amendment 3, dated 23 December 2010 (PT6C-67A)

3.2. Special Conditions (SC)

30-minute Take-off Power Rating (PT6C-67E)

3.3. Equivalent Safety Findings (ESF)

None

3.4. Deviations

None

3.5. Environmental Protection

Fuel Venting:
ICAO Annex 16 Volume II, 2nd Edition, 1993 (PT6C-67C)
CS-34.1, Fuel Venting (initial issue dated 17 October 2003 for PT6C-67E, Amendment 1 dated 29 January 2013 for PT6C-67A)

III. Technical Characteristics

1. Type Design Definition

As defined by the applicable PT6C-67C, PT6C-67E resp. PT6C-67A Engine Parts List:
PT6C-67C: Manual No. 3045334
PT6C-67E: Manual No. 3072874
PT6C-67A: Manual No. 3045084

2. Description

Four axial stages and single stage centrifugal compressor, reverse flow annular combustor, single stage high pressure turbine, two stage free power turbine. Single channel Engine Electronic Control System (EEC) with manual back-up for PT6C-67C, dual channel EEC without manual back-up for PT6C-67E, hydromechanical fuel control unit for PT6C-67A. The starter and engine mounts are not part of the engine definition.

3. Equipment

Engine equipment is specified by the applicable Type Design Definition.

4. Dimensions and

5. Dry Weight

Model	Overall Length (mm)	Overall Diameter (mm)	Dry Spec. Weight (kg)
PT6C-67C	1500	570	205
PT6C-67E	1500	570	217
PT6C-67A	1676	644	207.3

The Dry Weight includes Pratt & Whitney Canada supplied engine build-up components.

6. Ratings

6.1 All Engine Operative Power (kW)

Model	30 Minutes Power	Take-off Power (5 minutes)	Maximum Continuous Power	Maximum Cruise
PT6C-67C	-	861	815	-
PT6C-67E	969	969	900	-
PT6C-67A	-	1166	1024	843

6.2 One Engine Inoperative (OEI) Power (kW)

Model	30 sec. OEI	2½-Minute OEI	2 Minute OEI	30 Minute OEI	Continuous OEI
PT6C-67C	-	1217	-	-	1064
PT6C-67E	1485	-	1321	-	1154
PT6C-67A	1749	-	1445	1322	1322

7. Control System

Fuel controls and power management are controlled by an Electronic Engine Control (EEC) with a backup hydro-mechanical control for the PT6C-67C, a dual channel EEC for the PT6C-67E, and a hydromechanical fuel control unit for the PT6C-67A. The hardware and software configuration of the electronic system and the associated engine fuel pump and hydro-mechanical unit (PT6C-67C) or fuel control unit (PT6C-67E) are controlled by the approved engine equipment list for the specific engine model and aircraft application.

8. Fluids (Fuel, Oil, Coolant, Additives)

See applicable Engine Maintenance Manual for specific approved oil, fuel and additives.

9. Aircraft Accessory Drives

Model	Drive	Rotation	Speed Ratio To Gas Generator	Max. Torque Continuous Nm	Max. Torque Static Nm	Max. Moment Overhang Nm
PT6C-67C, PT6C-67E	Starter Generator	CW	0.2899:1	24.0	200.7	28.2
PT6C-67A	Starter Generator	CW	0.2985:1	24.07	201.11	28.25

10. Maximum Permissible Air Bleed Extraction

PT6C-67C, PT6C-67E: The maximum permissible air bleed extraction is 5.25% of the engine inlet airflow and nil during start.

PT6C-67A: The maximum permissible air bleed extraction is 4 % of the engine inlet airflow and 5% during start. See Installation Manual for allowances above 4% of inlet airflow.

IV. Operational Limits

1. Temperature Limits

1.1 Maximum Interstage Turbine Temperature (ITT), °C :

Rating and Transient	PT6C-67C	PT6C-67E	PT6C-67A
30 sec. OEI	-	915	925
2½ Minute OEI	835	-	-
2 Minute OEI	-	865	865
30 Minute OEI			845
Continuous OEI	775	820	815
30 min Power	-	815	-
Take-off (5 minutes)	775	815	815
Maximum Continuous	735	775	780
Starting (2 seconds)	1100	Per Installation Manual	
Transient	847 (10 sec.)	925 (20 sec.)	877 (5 sec)

1.2 Oil Temperature, °C :

	PT6C-67C, PT6C-67E	PT6C-67A
Minimum for starting	-50	-40
Minimum for continuous operation	10	10
Maximum for continuous operation	140	120

1.3 Fuel Temperature, °C:

The minimum fuel temperature at the pump inlet shall be that equivalent to a viscosity of 12 centistokes. Refer to the relevant Installation Manual for the recommended additives.

	PT6C-67C	PT6C-67E	PT6C-67A
Minimum for starting for:			
JP4, Jet B fuel types	-50	-	-40
Jet A, A-1 fuel types	-34	-29	-34
JP5 fuel type	-30	-29	-30

	PT6C-67C	PT6C-67E	PT6C-67A
Maximum	50 (all types)	60 (Jet A, A1, JP5 & JP8 only)	50 (Jet A, A-1, JP5 & JP8) 15 (for JP4 & Jet B)

2. Speed Limits

2.1 All Engine Operative:

PT6C-67C:

Rotor Shaft	Take-off (5 Minutes)	Maximum Continuous	Transient 10 seconds
Output Shaft	21420	21420	23310
Gas Generator	39100	38200	40900
Power Turbine	21420	21420	23310

PT6C-67E:

Rotor Shaft	30 Min Power	Take-off (5 Minutes)	Maximum Continuous	Transient 20 seconds
Output Shaft	22470	22470	22470	23470
Gas Generator	39200	39200	38500	39500
Power Turbine	22470	22470	22470	23470

PT6C-67A:

Rotor Shaft	Take-off (5 Minutes)	Maximum Continuous	Maximum Cruise	Transient 5 seconds
Output Shaft	30633	30633	25227	33335
Gas Generator	38600	38000	38000	39500
Power Turbine	30633	30633	25227	33335

2.2 One Engine Operative:

PT6C-67C:

Rotor Shaft	2½ Minute OEI	Continuous OEI
Output Shaft	21420	21420
Gas Generator	40500	39100
Power Turbine	21420	21420

100% reference speeds: Power Turbine: 21000 rpm
Gas Generator: 38200 rpm

PT6C-67E:

Rotor Shaft	30 sec. OEI	2 Minute OEI	Continuous OEI
Output Shaft	21000	21000	21000
Gas Generator	41600	40500	39500
Power Turbine	21000	21000	21000

100% reference speeds: Power Turbine: 21000 RPM
Gas Generator: 37468 RPM

PT6C-67A:

Rotor Shaft	30 sec. OEI	2 Minute OEI	30 Minute OEI	Continuous OEI
Output Shaft	30633	30633	30633	30633
Gas Generator	40500	39300	39100	38600
Power Turbine	30633	30633	30633	30633

100% reference speeds: Power Turbine: 30032 RPM
Gas Generator: 37468 RPM

3. Maximum Permissible Torque Limits (Nm):

PT6C-67C :

2½ Minute OEI	Continuous OEI	Take-off (5 minutes)	Maximum Continuous	Transient (10 sec.)
542	475	384	363	597

PT6C-67E :

30 sec OEI	2 Minute OEI	Continuous OEI	30 min Power	Take-off (5 minutes)	Maximum Continuous	Transient (20 sec.)
675	600	525	441	441	410	543

PT6C-67A :

30 sec OEI	2 Minute OEI	30 Minute OEI, Continuous OEI	Take-off (5 minutes)	Maximum Continuous, Max. Cruise	Transient (5 sec.)
545	450	412	363	319	597

4. Pressure Limits

4.1 Fuel Pump Inlet Pressure

Minimum pressure at maximum fuel temperature, at Sea Level, kPa

Fuel Type	PT6C-67C	PT6C-67E		PT6C-67A
		Aircraft Boost Pumps Operational	Aircraft Boost Pumps Not-Operational	
Jet A, Jet A1, JP5	22.8	TVP + 0.29	V/L = 0.48 max up to 15000 ft (4572 m) linearly decreasing to V/L = 0.44 max at 20000 ft (6096 m)	22.8 (except TS-1) 24.3 (TS-1 only)
JP4	49.0	-	-	41.4

(TVP: True Vapour Pressure, V/L: Vapour to Liquid Ratio)

The minimum required fuel pressure at the engine fuel pump inlet varies with altitude (see the relevant Installation Manual).

Maximum pressure: 206.9 kPa for the PT6C-67C and PT6C-67A , 276 kPa for the PT6C-67E

4.2 Oil Pressure Limits

Maximum for starting PT6C-67C & E: 1517 kPa
Maximum for starting PT6C-67A: 1724 kPa

The minimum and maximum oil pressures during operation vary with the gas generator speed (see the relevant Installation Manual).

5. Time Limited Dispatch:

The PT6C-67E engine is approved for Time Limited Dispatch in accordance with CS-E 1030. The maximum rectification period for each dispatchable state is specified in the Airworthiness Limitations Section of the Maintenance Manual.
For PT6C-67C see Note 8.
The PT6C-67A is not approved for Time Limited Dispatch in accordance with CS-E 1030.

6. ETOPS Capability

The engine is not approved for ETOPS capability in accordance with CS-E 1040.

V. Operating and Service Instructions

Manuals	PT6C-67C	PT6C-67E	PT6C-67A
Installation Manual	ER 4218	ER 6857	ER 9011
Operating Instruction Manual			
Interface Control Document	ER 4206	ER 6750	ER 9012

Instructions for Continued Airworthiness (ICA)	PT6C-67C	PT6C-67E	PT6C-67A
Engine Maintenance Manual	3045332	3072872	3045082
Engine Repair Manual	3075447	3075447	3075447
Engine Overhaul Manual	3045333	3072873	

Service Bulletins as issued for each engine model.

VI. Notes

1. The EASA approved Airworthiness Limitations Section of the Instructions for Continued Airworthiness is published in the PT6C-67C, PT6C-67E and PT6C-67A maintenance manual, chapter "Airworthiness Limitations Section".

2. The engine ratings are based on dry sea level ICAO standard atmospheric conditions, with no external accessory loads and no air bleed. The quoted ratings are obtainable on a test stand with the fuel, oil, reference intake and exhaust ducts as specified in the relevant Installation Manual.

3. The engines are approved to be fitted to rotorcraft only where the installation precludes foreign objects from entering the engine inlet as defined in JAR-E 790(c) and JAR-E 800 (PT6C-67C) resp. CS-E 790(b) and CS-E 800 (PT6C-67E, PT6C-67A).

4. The uninstalled engine meets the JAR (PT6C-67C) resp. CS (PT6C-67E, PT6C-67A) requirement for operation in icing conditions within the envelope defined in JAR/FAR/CS-29 Appendix C when installed and operated in accordance with the Installation Manual.

5. The Electronic Engine Control Unit must not be installed in a designated fire zone.

6. The software for the Electronic Engine Control has been developed and tested in accordance with the provisions of Flight Critical category (level A) of RTCA DO 178B.
7. Lightning protection levels and electromagnetic interference are specified in the Installation Manual, Section 7.

8. For PT6C-67C: Dispatch is not permitted with faults in the EEC or in any engine-associated equipment unless it is included in an approved MMEL. Aircraft dispatchability with failed engine ITT thermocouple assembly is permitted for one ferry flight only and within the envelope declared in the relevant Installation Manual, Section 2.

9. Prior to issue of Transport Canada accepted Overhaul Manual, overhauls are not permitted and engine may be re-manufactured to new production configuration.

10. The PT6C-67A receives gas generator rotor speed demand via analog electrical signals directly from the aircraft Flight Control Computers (FCCs). The FCC is required to limit the interturbine temperature (ITT) during the application of the 30 second one engine out (OEI) power.

SECTION: ADMINISTRATIVE

I. Acronyms and Abbreviations

n/a

II. Type Certificate Holder Record

n/a

III. Change Record

Issue	Date	Changes	TC issue
Issue 01	13 June 2005	Initial Issue	Initial Issue, 13 June 2005
Issue 02	09 November 2012	Addition of PT6C-67E model	First Revision 09 November 2012
Issue 03	28 January 2015	Editorial corrections	
Issue 04	16 June 2017	TLD for PT6C-67E (EASA Major Change Approval 10062191)	
Issue 05	31 October 2019	Addition of PT6C-67A model	Second Revision 31 October 2019

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