European Aviation Safety Agency

EASA

TYPE-CERTIFICATE
DATA SHEET

Number : IM.E.028
Issue : 01
Date : 12 March 2007
Type : Pratt & Whitney Canada Corp.
PW610 series engines

Variants

PW610F-A

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I. General:

1. Type/Variants:

Type: PW610

Variants: PW610F-A

2. Type Certificate Holder:

Pratt & Whitney Canada Corp.
1000 Marie-Victorin
Longueuil, Quebec
Canada J4G 1A1

3. Manufacturer:

Pratt & Whitney Canada Corp.
1000 Marie-Victorin
Longueuil, Quebec
Canada J4G 1A1

4. Certification Application Date for EASA Certification :

Oct 8, 2003

5. EASA Certification Reference Date : see also Canadian TCDS No. E-35

September 15, 2003

6. EASA Certification Date:

12 March 2007

II. Certification Basis:

1. Transport Canada Certification Basis (see also Canadian TC No. E-35):

1.1. Airworthiness Standards: CAM Chapter 533 change 6

1.2. Special Condition SCA 2005-01 “Continued Engine Operation during Transient Loss of Engine Control System Activity”

1.3. Airworthiness Manual, Chapter 516, Change 516-06, subchapter B “Aircraft Engine Emissions” which refers to ICAO Annex 16, Volume II

2. EASA Certification Basis:

2.1 Certification Specifications: JAR-E Amendment 12
CS-E 850 – Compressor, Fan and Turbine Shafts

2.2 Special Conditions: Certification of Programmable Logic Devices (PLDs)

2.3. Environmental Protection Requirements: ICAO Annex 16, Volume II, Part II, Chapter 2 – Fuel Venting
ICAO Annex 16, Volume II, Part III, Chapter 2 - Emissions

III. Technical Characteristics:

1. Type Design Definition:

The Engine Type Design is defined in PW610F-A Engine Assembly Drawing 35C0960 Revision D or later approved revision.

2. Description:

Two Spool Turbofan Engine consisting of a single front fan driven by a single stage fan turbine, 1 stage mixed flow and one stage centrifugal high pressure compressor driven by a single stage high pressure turbine; reverse flow combustor; accessory gearbox and dual channel Full Authority Digital Control System (FADEC).

3. Equipment: see Installation Manual

4. Dimensions:

The maximum diameter of the engine is about 704 mm.
Engine length is about 1153 mm

5. Dry Weight: 115,7 kg

6. Ratings (see Note 2 and Note 8)**:**

Take-off:	422,6 daN
Normal Take-off:	422,6 daN
Max. Continuous:	378,1 daN

7. Control System: The engines are controlled by a FADEC system P/N 35C4404-02 or later approved standard that is part of the engine Type Design. The EEC cards shall be installed as specified in the engine installation manual ER5961.

8. Fluids: Approved fuel and oil types are listed in the Maintenance Manual.

IV. Operating Limitations:

1. Temperature Limits

Interturbine Temperature [°C]:

Take-off	795
Normal Take-off	795
Max. Cont.	795
Starting	850
Transient(20sec.)	810

Fuel Temperatures: refer to section 7-1 of Installation Manual

Oil Temperatures: refer to Table 2-1 of Installation Manual

2. Permissible Rotational Speeds [min^{-1}]:

N1 Transient(20s)	22542 (102%) 22763 (103%)
N2 Transient(20s)	48000 (100%) 48960 (102%)
Min. N2 Flight Idle	25000 (52.1%)

3. Pressure Limits :

Fuel Pressures: Refer to Installation Manual, Section 7-1.

Oil Pressure: Refer to Installation Manual, Table 2-1

4. Bleed Air: Refer to Installation Manual, Section 2-3

5. Oil Consumption: Max. allowable oil consumption is 68 g/h

total oil capacity: 3,77 L
usable oil capacity: 2,96 L

V. Operating and Service Instructions:

1. Airworthiness LImitations Manual: P/N 3072697
2. Maintenance Manual: P/N 3059982
3. Line Maintenance Manual: P/N 3070895
4. Overhaul Manual: P/N 3059983
5. Installation Manual: ER5961

VI. Notes:

1. The Critical Parts Life Limits are included in the Airworthiness Limitations Manual.

2. The engine ratings are based on dry sea level static ICAO standard atmospheric conditions, no external accessory loads and no airbleed. The quoted ratings are obtainable on a test stand with the specified fuel and oil, and using the exhaust duct and intake bellmouth specified in the Intallation Manual.

3. The PW610F-A Engine is approved for multiple engine installation only. The installation requires an airframe mounted Fuel Shut-Off Valve (see Installation Manual Section 7-4).

4. HIRF and Lightning conformance and installation requirements are provided in the Installation Manual.

5. The software contained in the Electronic Engine Control has been designed, developed, tested and documented in accordance with the provisions of the Critical Category, Level A of RTCA/DO178B / EUROCAE ED-12B. Each EEC channel also includes a simple PLD that meets Level A of RTCA/DO254 / EUROCAE ED-80.

6. The engine is not approved for operation with a Thrust Reverser.

7. The Electronic Control Unit has not been fire tested and therefore must not be installed in a designated fire zone.

8. The take-off ratings that are normally limited to 5 minutes duration may be used for up to 10 minutes for OEI operations without adverse effects upon engine airworthiness. Such operations are anticipated on an infrequent basis and no limits or special inspections have been imposed.

9. Installation of Service Bulletin SB60001 is required for conformity.
