European Union Aviation Safety Agency

TYPE-CERTIFICATE DATA SHEET

No. EASA.IM.E.013
Issue 03

for
PW545 Series Engines

Type Certificate Holder
Pratt and Whitney Canada Corp.

1000 Marie Victorin
Longueuil, Québec, J4G 1A1
Canada

For Models:
PW545A
PW545B
PW545C
PW545D

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Table of Contents

I. General

1. Type/ Model

PW545 / PW545A, PW545B, PW545C, PW545D

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

PW545A	PW545B	PW545C	PW545D	
11 August 1995	10 February 2003	22 January 2007	22 April 2022	

5. EASA Type Certification Date

PW545A	PW545B	PW545C	PW545D	
13 October 1998	18 October 2004	16 February 2009	18 December 2024	

EASA Type Certification for the PW545A engine model is granted, in accordance with article 2 paragraph 3 (a) of EU Commission Regulation EC 1702/2003, based on a CAA United Kingdom validation letter issued following the JAA Validation Recommendation.

II. Certification Basis

1. State of Design Authority Certification Basis:

see Transport Canada TCDS E-28

2. Reference Date for determining the applicable airworthiness requirements:

PW545A	PW545B	PW545C, PW545D	
7 September 1994	20 December 2002	17 April 2006	

3. EASA Certification Basis

3.1. Airworthiness Standards

PW545A
JAR-E change 8 dated 4 May 1990 plus Orange Paper E/91/1 dated 27 May 1991 and Orange Paper E/93/1 dated 17 May 1993.

PW545B
JAR-E amendment 11 dated 1 November 2001.
E 570(b)(1) of JAR-E at amendment 12

PW545C, PW545D
CS-E, Initial issue dated 24 October 2003

3.2. Special Conditions (SC)

PW545A
NPA-E-27 dated 16 September 1997 - Ingestion of Rain and Hail

3.3. Equivalent Safety Findings (ESF)

PW545A
JAR-E 840(a)(2) Rotor Integrity tests

PW545A, PW545B
JAR-E 890 Thrust Reverser Tests

3.4. Deviations

PW545A
JAR-E 570(a)(3) Oil System -oil pump inlet strainers
JAR-E 800 Bird Strike/Ingestion - medium birds

3.5. Environmental Protection

PW545A, PW545B, PW545C
Emissions and Fuel Venting: ICAO Annex 16, Volume II, 2nd Edition, 1993

PW545D
ICAO Annex 16 Volume II “Aircraft Engine Emissions”, Fourth Edition, July 2017, as amended by and including Amendment 10 effective 1 January 2021

III. Technical Characteristics

1. Type Design Definition

PW545A: Parts list EAPL A31J1900-01
PW545B: Engine Assembly Drawing No. 30J2622 Revision B and subsequent revisions
PW545C: Parts List for Engine Definition A30J2934
PW545D: Parts List for Engine Definition A30J4255

2. Description

Dual Spool, axial flow, medium bypass turbofan. The 2-stage axial and single stage centrifugal high pressure compressor is driven by a single stage high pressure turbine. The integrally bladed fan and single boost stage low pressure compressor is driven by a 3-stage low pressure turbine. Reverse flow annular combustion chamber.

3. Equipment

Engine equipment is specified by the applicable Type Design Definition.

4. Dimensions and Dry Weight

Overall Length	1.914m
Overall Width	1.047m
Dry Weight	376.5 kg, excluding all fluids and buyer furnished equipment

5. Ratings

Rating		PW545A	PW545B	PW545C	PW545D	
Thrust, daN (lbf)	Take-off (5 minutes)	1758 (3592)	1832 (4119)	1832 (4119)	1876 (4218)	
	Maximum Continuous	1500 (3372)	1500 (3372)	1500 (3372)	1536 (3453)	

Take off ratings quoted valid up to 25°C, maximum continuous ratings to 35°C

6. Control System

Engine control system comprises an Electronic engine control with full back-up by a hydromechanical Fuel Control Unit (PW545A and PW545B).
The PW545C and PW545D engine model is equipped with a Full Authority Digital Engine Control System (FADEC).

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

PW545A and PW545B: See applicable Engine Maintenance Manual Chapter 72 for specific approved oil, fuel and additives.

PW545C and PW545D: See approved Fuels and Oils List P /N 3137840

8. Aircraft Accessory Drives

Drive Pad	Rotation Facing Gearbox Pad	Gear Ratio to Core Speed	Maximum Torque (Nm)		Maximum Overhung Moment (Nm)
			Continuous	Static	
Starter Generator	CW	0.3633	27.120	180.8	23.73
Hydraulic Pump	CW	0.1280	25.4	180.8	4.52

CW = Clockwise facing accessory pad

9. Maximum Permissible Air Bleed Extraction

The maximum permissable bypass air bleed is 2% of the bypass mass flow throughout the flight envelope, 3% for PW545C and PW545D. For high pressure compressor air bleed information refer to the relevant Installation Manual Figure 2-9.

IV. Operational Limits

1. Temperature Limits

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

	PW545A	PW545B, PW545C, PW545D	
Take-off (5 Minutes)	720	740	
Maximum Continuous	720	720	
Starting (5 seconds)	720	740	
Transient (20 seconds maximum)	760	780	

1.2 Oil Temperature, °C :

Refer to relevant Installation Manual Section 8.

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1.3 Fuel Temperature

Refer to relevant Installation Manual Section 6..

2. Speed Limits

2.1 PW545A

	Take Off / Maximum Continuous	Transient (20s)	Minimum Flight Idle
Low Pressure Rotor N1 rpm (%)	13034 (100)	13295 (102)	--
High Pressure Rotor N2 rpm (%)	33289 (101.8)	33681 (103)	16841 (51.5)

2.2 PW545B

	Take Off / Maximum Continuous	Transient (20s)	Minimum Flight Idle	Transient (5s)
Low Pressure Rotor N1 rpm (%)	13034 (100)	13295 (102)	--	--
High Pressure Rotor N2 rpm (%)	33622(102.8)	34008 (104)	17396(53.2)	34727(106.2)

2.3 PW545C / PW545D

	Take Off / Maximum Continuous	Transient (20s)	Minimum Flight Idle	Transient (5s)
Low Pressure Rotor N1 rpm (%)	13034 (100)	13295 (102)	--	--
High Pressure Rotor N2 rpm (%)	33622(102.8)	34008 (104)	17723 (54.2)	34727(106.2)

3. Pressure Limits

3.1 Oil Pressure

Refer to relevant Installation Manual Section 8.

3.2 Fuel Pressure

Refer to relevant Installation Manual Section 6.

4. Time Limited Dispatch:

Not applicable to PW545A and PW545B series engines.

PW545C and PW545D: The engines are 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. The TLD dispatchable fault configuration is defined in ER6612-01 (PW545C) and ER11051 (PW545D) Part A Interface Control Document.

5. ETOPS Capability

The engines are not approved for ETOPS capability in accordance with CS-E 1040.

V. Operating and Service Instructions

Manuals:

Engine Model	Engine Operating Instructions	Engine Installation Manual	Control System Interface Control Document
PW545A	see Instl. Manual	PW545A	N/A
PW545B	see Instl. Manual	PW545B	N/A
PW545C	see Instl. Manual	PW545C	ER6612
PW545D	see Instl. Manual	PW545D	ER11051

Instructions for Continued Airworthiness (ICA)

Engine Model	Engine Maintenance Manual	Engine Overhaul Manual	Service Bulletins
PW545A	30J1272	3036123	As issued
PW545B	30J2242	3036123	As issued
PW545C	30J2302	3036133	As issued
PW545D	30J3292	3036133	As issued

VI. Notes

1. The EASA approved Airworthiness Limitations Section of the Instructions for Continued Airworthiness is published in applicable maintenance manual, chapter "Airworthiness Limitations Section".

2. The engine ratings are based on dry sea-level static ICAO Standard Atmospheric Conditions, no airbleed and no external accessory loads. The engine ratings specified are obtainable on a test stand with the specified fuel and oil, without intake ducting and using exhaust duct and intake specified in the Installation and Operating Instructions Manual.

3. The software for the Electronic Engine Control has been developed and tested in accordance with provisions of level A as defined in RTCA DO 178B.

4. 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 (as engine failures at take-off events are uncommon) and no limits or special inspections have been imposed.

5. The engine definition does not include a thrust reverser. Considerations for the installation of a thrust reverser are contained in the relevant Installation manual.

6. PW545C and PW545D: HIRF and Lightning conformance and installation requirements are provided in the Installation Manual.

7. PW545C and PW545D: 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 with portions of the PW545D software as Critical Category, Level A of RTCA DO178C.

8. PW545C and PW545D: Flight Idle is a function of Ambient Pressure.

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	18 Oct 2004	Initial issue, Addition of PW545B	18 Oct 2004
Issue 02	16 Febr 2009	Addition of PW545C	16 Febr 2009
Issue 03	18 Dec 2024	Addition of PW545D	18 Dec 2024

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