



AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL - BRASIL

TYPE CERTIFICATE DATA SHEET Nº EM-8403

Type Certificate Holder:

PRATT&WHITNEY CANADA CORP.
1000 Marie-Victorin
Longueuil, Quebec, J4G 1A1
CANADA

EM-8403-02

Sheet 01

**PRATT&WHITNEY
CANADA**
JT15D-4, -4B, - 5A, -5,
-5D, **-5R**

14 November 2008

Engines of models described herein conforming with this data sheet, which is part of Type Certificate No. 8403, 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.

I - MODEL	JT15D-4, -4B, - 5A, -5, -5D				
TYPE	Twin spool with a single stage fan, one axial compressor stage and one centrifugal compressor stage, three stage turbine, annular reverse-flow combustor and full length annular bypass duct.				
RATINGS	JT15D-4	JT15D-4B	JT15D-5A	JT15D-5	JT15D-5D
Max. continuous, daN (lb):	1 056.5 (2 375)	--	1 290 (2 900)	--	1354.5 (3 045)
Takeoff (5 min), daN (lb):	1 112.1 (2 500)	--	1 290 (2 900)	1 319 (2 965)	1354.5 (3 045)

Legend: "--" Same as preceding model; "#" Not applicable

RATINGS (Cont.)	JT15D-4	JT15D-4B	JT15D-5A	JT15D-5	JT15D-5D
Engine Speed Limitations (rpm)					
Maximum steady state N1	16 540	16 860	16 540	--	16 860
Maximum steady state N2	31 450	31 800	31 450	--	31 777
Interturbine Temperature (ITT) °C (°F)					
Maximum for acceleration	700 (1 292)	710 (1 310)	700 (1 292)	--	720 (1328)
Takeoff (5 min) (See Note 7)	700 (1 292)	710 (1 310)	700 (1 292)	--	720 (1328)
Maximum continuous	680 (1 256)	690 (1 274)	680 (1 256)	--	700 (1 292)
Transient (2 seconds)	720 (1 328)	730 (1 346)	720 (1 328)	--	740 (1364)
Starting (5 seconds)	500 (932)	--	550 (1 022)	--	--
OIL TEMPERATURE °C (°F)					
Maximum	121 (250)	--	--	--	--
Minimum (for starting and ground idle)	-40 (-40)	--	--	--	--
Transient maximum (90 sec)	138 (280)	--	#	#	#
Transient maximum (15 sec)	#	#	135 (275)	--	--
LUBRICATION					
Oil Pressure (psig)					
Minimum at 20 000 rpm N2 & above	70	--	60	--	--
Minimum below 20000 rpm N2	35	--	40	--	--
Maximum	95	--	83	--	90
Maximum transient (90 sec)	N/A	--	95	--	100
Oil Tank Capacity					
Total capacity (liters)	7.86	--	7.68	--	7.91
Imperial gallons	1.73	--	1.69	--	1.74
U.S. gallons	2.08	--	2.03	--	2.09
Usable capacity (liters)					
	5.0	--	4.55	--	5.32
Imperial gallons	1.10	--	1.00	--	0.97
U.S. gallons	1.21	--	1.20	--	1.17
Oil Type: Synthetic type conforming to the current PWA 521 (Type II) Specifications (See approved Installation Manual). P&WC Engine Service Bulletin Number 7001 lists approved oil brands.					

		JT15D-4	JT15D-4B	JT15D-5A	JT15D-5	JT15D-5D
ENGINE WEIGHT	kg (lb) (Dry, including basic components and sensors required for engine operation and monitoring)	252.6 (557.0)	257.8 (568.3)	286.7 (632.0)	293.5 (647.0)	297.4 (655.6)
II - MODEL	JT15D -5R					
TYPE	Twin spool with a single stage fan, one axial compressor stage and one centrifugal compressor stage, three stage turbine, annular reverse-flow combustor and full length annular bypass duct.					
RATINGS		JT15D-5R				
	Max. continuous, daN (lb):	1 290 (2 900)				
	Takeoff (5 min), daN (lb):	1 319 (2 965)				
	Engine Speed Limitations (rpm)					
	Maximum steady state N1	16 540				
	Maximum steady state N2	31 450				
	Interturbine Temperature (ITT) °C (°F)					
	Maximum for acceleration	700 (1 292)				
	Takeoff (5 min) (See Note 7)	700 (1 292)				
	Maximum continuous	680 (1 256)				
	Transient (2 seconds)	720 (1 328)				
	Starting (5 seconds)	550 (1 022)				
OIL TEMPERATURE °C (°F)	Maximum	121 (250)				
	Minimum (for starting and ground idle)	-40 (-40)				
	Transient maximum (15 sec)	135 (275)				
LUBRICATION	Oil Pressure (psig)					
	Minimum at 20 000 rpm N2 & above	60				
	Minimum below 20000 rpm N2	40				
	Maximum	85				
	Maximum transient (90 sec)	95				

LUBRICATION (Cont.)

JT15D-5R

Oil Tank Capacity

Total capacity (liters)

8.20

Imperial gallons

1.81

U.S. gallons

2.17

Usable capacity (liters)

4.54

Imperial gallons

1.00

U.S. gallons

1.20

Oil Type:

Synthetic type conforming to the current PWA 521 (Type II) Specifications (See approved Installation Manual).

P&WC Engine Service Bulletin Number 7001 lists approved oil brands.

ENGINE WEIGHTkg (lb) (Dry, including basic components
and sensors required for engine
operation and monitoring) 293.5 (647.0)**PRINCIPAL DIMENSIONS**

Refer to Installation Drawing in approved Installation Manual.

C.G. LOCATION

Refer to Installation Drawing in approved Installation Manual.

**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 6 of the Installation Manual for HIRF and Lightning qualification and conformance.

FUEL

Fuel Bleed

Fuel from pump delivery may be extracted to drive jet or turbine pumps in the aircraft fuel system. Refer to applicable Installation Manual.

Fuel Pressure

Refer to applicable Installation Manual.

Fuel temperature

Maximum fuel pump inlet temperature for starting and operating is 57°C (135°F); minimum inlet temperature is -54°C (-65°F), subject to a viscosity limit of 12 centistokes (for the JT15D-4, 7 centistokes for cold-soaked starting). **See Note 14 for the JT15D-5R operation at temperatures above -40°C.**

Fuel type

JP-1, JP-4 and JP-5 type conforming to PWA Specification No. CPW 204 and later revisions, plus Icing Inhibitor (Fuel System to CGSB Specification 3-GP-526a or MIL-I-27686) in the absence of an approved fuel heater. **Wide cut fuels and Avgas are not permitted for the JT15D-5R (See SB7144).**

FUEL CONTROL

	Fuel Control	Fuel Flow Divider	Fuel Pump
JT15D-4	Aviation Electric DPL-2	Lucas FD206	Standard 025493/TRW 398600
JT15D-4B	Aviation Electric DPL-2	Lucas FD206	Standard 025493/TRW 398600
JT15D-5A	Bendix Avelex DPL-2	Lucas 26060 or 26280	Argo Tech 717100
JT15D-5	ECU Hamilton Standard EEC 118-31 HMU Hamilton Standard JFC 118-31	Goodrich 25950-2	TRW 706600 Argo Tech 717100
JT15D-5D	Bendix Avelex DPL-2	Lucas 26280	Argo Tech 717100
JT15D-5R	ECU Hamilton Standard EEC 118-31 HMU Hamilton Standard JFC 118-31	Goodrich 25950-2	Argo Tech 845400

AIR BLEED

- A. High compressor bleed: for the JT15D-4 and -4B, the maximum external bleed air available is 10% of high compressor flow to 22 000 feet, decreasing linearly to 7% at 43 000 feet; for the JT15D-5A, -5, -5D **and -5R**, the maximum external bleed air available is 10% of high compressor flow to 22 000 feet, decreasing linearly to 5% at 45 000 feet. No more than 5% may be taken from either of the bleed ports.
- B. Bypass bleed: for JT15D-4 and -4B, the maximum external bleed air available is 2% of the bypass flow throughout the flight envelope.
- C. During starting, bleed shall not exceed that taken by a 0.3-inch diameter orifice throat.
- D. Bleed air contamination meets Para. 3.18 of MIL-E-5007C.

EQUIPMENT

Equipment such as the Engine Electronic Control (EEC), Motive Flow Ejector Port Hydromechanical Fuel Metering Unit (HMU), Fuel Pump, Fuel-Oil Heat Exchanger (FOHE), Ignition Exciter, Ignition Plug, fuel and oil filters, oil system chip detector collector, are standard equipments as shown in the Approved Engine Bill of Material. For output drive specification, accessory drives, principal dimensions, weights, inertias and C.G. locations, refer to Installations Manual.

IMPORT REQUIREMENTS

Each engine imported separately and/or spare parts must be accompanied by an export airworthiness approvals issued by TCCA (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 TCCA approved type design, as stated in ANAC Report V33-0290-0.

CERTIFICATION BASISFor Models JT15D-4, -4B:

RBHA 33 (Brazilian Requirements for Aeronautical Certification), which endorses the 14 CFR Part 33 Amendments 1 through 4 inclusive, and Para. 33.68 of Amend. 33.6.

For Models JT15D-5A, -5, -5D, -5R:

RBHA 33 (Brazilian Requirements for Aeronautical Certification), which endorses the 14 CFR Part 33 Amendments 1 through 9 inclusive, with the exception of Para. 33.77, 33.88 and 33.92; and AC 33-1B and 33.3.

<u>Model</u>	<u>Application</u>	<u>Issued TC</u>
JT15D-4	14 July 1983	18 April 1984
JT15D-4B	09 August 1984	16 July 1990
JT15D-5A	31 March 1989	16 July 1990
JT15D-5	28 February 1994	10 July 1994
JT15D-5D	11 April 1994	24 October 1994
JT15D-5R	21 August 2008	14 November 2008

NOTES:**NOTE 1**

The engine ratings are based on static sea level conditions:

- Compressor inlet air (dry) 59°F (JT15D-5, -5A, -5D and -5R are rated at 80°F, at takeoff and 59°F at max. continuous);
- 29.92 in.Hg;
- No accessory loads or air bleed.
- Engine intake and exhaust as described in the approved Installation Manual.

NOTE 2Accessory 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)	Maximum Overhang (in.lb)
Drive Driven by High Rotor	Rotation	Shaft	Continuous	Static	
High rotor tachometer	CW	0.1282:1	7	50	10
Hydraulic pump	CW	0.1282:1	225	1600	125
Starter generator	CW	0.3640:1	210	1 600	180
Driven by Low Rotor					
Low rotor tachometer	CCW	0.2642:1	7	50	0

CW - Clockwise; CCW - Counterclockwise -- facing accessory pad.

NOTE 3

Certain engine parts are life limited. Life limits are listed in P&WC Engine Service Bulletin Number 7002.

NOTE 4

Emergency operation on gasoline (MIL-G-5572, all grades) is limited to a total of 50 hours in any engine overhaul period. For alternate fuels, see applicable Installation Manual.

NOTE 5

The JT15D engine models incorporate the following characteristics:

JT15D-4 Similar to JT15D-1 except for additional single stage axial compressor and increased ratings.

JT15D-4B Similar to JT15D-4 except for increased rotor speed and gas path temperature limitations.

JT15D-5A Similar to JT15D-5 except for hydromechanical fuel control unit and the ignition system (two separate exciters) and the dual idle solenoid.

JT15D-5 Similar to JT15D-4 except for increased thrust ratings and electronic fuel control.

JT15D-5D Similar to JT15D-5A except for increased thrust ratings.

JT15D-5R Similar to JT15D-5 except for addition of a fuel heater and filter with appropriate external and accessory changes.

NOTE 6

Approved Publications and Instructions for Continued Airworthiness for JT15D engine models:

- JT15D-(model) Installation Manuals
- Maintenance Manuals:
 - P/N 3017542 for the JT15D-4, -4B
 - P/N 3033442 for the JT15D-5, -5R
 - P/N 3037322 for the JT15D-5A
 - P/N 3040342 for the JT15D-5D
- Overhaul Manuals:
 - P/N 3017543 for the JT15D-4, -4B
 - P/N 3033443 for the JT15D-5, -5R
 - P/N 3037323 for the JT15D-5A
 - P/N 3040343 for the JT15D-5D

NOTE 7

Take-off ratings that are 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 failure during take-off events is uncommon) and no limits or special inspections have been imposed.

NOTE 8

Certain JT15D engines carry an additional designation in the form of a build specification number shown on the Supplementary data plate. Designation and users are listed in P&WC Service Bulletin Number 7151.

NOTE 9

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

NOTE 10

The JT15D-5R engine model may be used at temperatures above -40°C (-40°F) without the use of fuel system icing inhibitor.



HÉLIO TARQUÍNIO JÚNIOR
Gerente-Geral Substituto, Certificação de Produto Aeronáutico
(Acting Manager, Aeronautical Product Certification)