



# AIRWORTHINESS DIRECTIVE

*This Airworthiness Directive (AD) is issued pursuant to Canadian Aviation Regulation (CAR) 521.427. No person shall conduct a take-off or permit a take-off to be conducted in an aircraft that is in their legal custody and control, unless the requirements of CAR 605.84 pertaining to ADs are met. Standard 625 - Aircraft Equipment and Maintenance Standards Appendix H provides information concerning alternative means of compliance (AMOC) with ADs.*

**Number:**

CF-2022-27

**Effective Date:**

2 June 2022

**ATA:**

72

**Type Certificate:**

E-11

**Subject:**

Engine – Engine Compressor Section – Impeller Fracture due to Machining Step

**Applicability:**

Pratt & Whitney Canada (P&WC) engines:

Model JT15D-1 with build specification (BS)407 and BS540 which are pre-Service Bulletin (SB) 7151 with impeller part number (P/N) 3020365 installed,

Model JT15D-1A with BS503 which are pre-SB 7151 with impeller P/N 3020365 installed,

Model JT15D-1B with BS623 which are pre-SB 7151 with impeller P/N 3020365 installed.

**Compliance:**

As indicated below, unless already accomplished.

**Background:**

There has been one recent in-service event of a JT15D-1A engine uncontained failure during a takeoff roll of the aeroplane. An investigation by P&WC has determined that a crack originated from machining marks on the back face of the impeller and subsequently propagated until the impeller fractured. There is evidence that the event engine had been previously inspected in accordance with P&WC SB 7590 (mandated by AD CF-2003-17), but it appears that the machining marks were not detected.

This condition, if not corrected, could lead to fracture of the impeller, and subsequent uncontained failure of the engine and damage to the aeroplane.

P&WC has released SB JT15D-72-7655 to inspect the back face of the impeller using a new borescope fluorescent penetrant inspection (FPI) procedure. This AD mandates this inspection at the next hot section inspection (HSI) until the impeller P/N 3020365 is replaced at the next scheduled engine overhaul.

**Corrective Actions:**

- A. At the next scheduled engine HSI, or when the Flange C (gas generator case to low turbine support case) is separated, whichever occurs first, perform a one-time inspection on the back face of the impeller in accordance with the Accomplishment Instructions of P&WC SB JT15D-72-7655, dated 14 April 2022, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.
- B. If any unacceptable machining witness lines, or crack indications are found during the inspections performed in accordance with Corrective Actions A above, before further flight, replace the impeller P/N 3020365 with a non-P/N 3020365 impeller.
- C. At the next scheduled engine overhaul, remove the impeller P/N 3020365 and replace with a non-P/N 3020365 impeller.

**Authorization:**

For the Minister of Transport,

*ORIGINAL SIGNED BY*

Daniel Gosselin  
Acting Chief, Continuing Airworthiness  
Issued on 19 May 2022

**Contact:**

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