



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-2022-31

Effective Date:

23 June 2022

ATA:

72

Type Certificate:

E-33

Subject:

Engine – High Pressure Turbine (HPT) – 2nd-Stage Disk with Suspected Material Defect

Applicability:

Pratt & Whitney Canada (P&WC) model PW307D engines, serial numbers CM0226 and CM0238 with an installed HPT 2nd-stage disk part number (P/N) 30P3182-01 with serial numbers A004D8X1 and A004E9K3 respectively.

Compliance:

Within 100 engine cycles from the effective date of this AD, unless already accomplished.

Background:

On 18 March 2020, an Airbus model A321-231 aeroplane, powered by International Aero Engines AG (IAE) V2533-A5 model turbofan engines, experienced an uncontained HPT 1st-stage disk failure that resulted in an aborted takeoff. The uncontained failure of the HPT 1st-stage disk resulted in high-energy debris penetrating the engine cowling. Following this event, the Federal Aviation Administration (FAA) issued AD 2020-07-51 and other follow-on ADs to address the risk of uncontained failure. Pratt & Whitney (P&W) determined that failure of the IAE V2533-A5 model turbofan engine was due to an undetected subsurface material defect in an HPT disk that may affect the life of the part.

In collaboration with P&W, P&WC conducted an initial analysis and records review of PW307A and PW307D engines that contain parts made of similar material and identified two affected disks (serial numbers A004D8X1 and A004E9K3) that may have the material defect which could reduce the life of the part. This condition, if not addressed, could result in uncontained HPT disk failure, release of high-energy debris, and damage to the engine and aeroplane. Transport Canada is issuing this AD to address this unsafe condition.

Corrective Actions:

- A. Remove the affected HPT 2nd-stage disks from service on applicable engines.

Note: For removal of the 2nd-stage HPT disk, refer to the procedure in the P&WC PW307D Overhaul Manual (Part Number 30P3243) Chapter 72-51-03 Disassembly-01.

- B. Once removed, the affected HPT 2nd-stage disks, P/N 30P3182-01 with serial numbers A004D8X1 and A004E9K3, are not eligible for reinstallation on engines.

Authorization:

For the Minister of Transport,

ORIGINAL SIGNED BY

Matthew Weeks
Acting Chief, Continuing Airworthiness
Issued on 9 June 2022

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