



# 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-2023-60

**Effective Date:**

28 August 2023

**ATA:**

72

**Type Certificate:**

E-27

**Subject:**

Engine – Gas generator case to turbine support case retaining bolts – Inadequate fatigue life

**Applicability:**

Pratt & Whitney Canada (P&WC) engines:

Model PW535E Engines with build specification (BS)1229 and BS1348, all serial numbers;

Model PW535E1 Engines with BS1439, all serial numbers.

**Compliance:**

As indicated below, unless already accomplished.

**Background:**

The engine gas generator case and turbine support case are secured by a set of nuts and bolts on the joint flange. During a design review, P&WC identified that the existing low cycle fatigue (LCF) life of these flange bolts, at certain high stress circumferential locations, is inadequate.

Even though no fractured bolts have been reported to date in service, there is the potential that LCF cracks could develop on the flange bolt and lead to the bolt's fracture. Multiple fractured bolts could lead to flange separation or case rupture, which may damage the engine and aeroplane.

To address this potential bolt cracking issue, P&WC issued Service Bulletin (SB) PW500-72-30571, dated 9 June 2023, to inspect and/or replace the gas generator case to the turbine support case retaining bolts until they are replaced with new.

This AD mandates the inspection or replacement of the bolts Part Number (P/N) MS9696-08 and P/N MS9489-06, as indicated in the Corrective Actions below.

**Corrective Actions:**

For the purpose of this AD, the following definitions apply:

**Group 1 engines:** are engines that:

- have accomplished an Overhaul prior to November 2021 using the Overhaul manual P/N 3072703 (Pre-Revision 11), and have not incorporated P&WC SB PW500-72-30556;

or

- have accumulated 5000 cycles and greater and have not replaced the bolts P/N MS9696-08 and P/N MS9489-06 with new during maintenance/repair.

**Group 2 engines:** all engines.

**The applicable SB:** P&WC PW500-72-30571, dated 9 June 2023, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

- A. For Group 1 engines:
1. Inspect the bolts P/N MS9696-08 and P/N MS9489-06 within 400 cycles from the effective date of this AD, and rectify any discrepancy in accordance with the Accomplishment Instructions of the applicable SB.
  2. Repeat the above paragraph A.1. inspection and rectification requirements of this AD at intervals not to exceed 400 engine cycles, until the bolts are replaced, in accordance with paragraph B of this AD.

Replacement of the bolts in accordance with paragraph B of this AD meets the intent of inspection.

- B. For Group 2 engines, replace the bolts P/N MS9696-08 and P/N MS9489-06 with new at the next scheduled engine Hot Section Inspection or Overhaul, whichever occurs first, in accordance with the Accomplishment Instructions of the applicable SB.
- C. As of the effective date of this AD, bolts P/N MS9696-08 and P/N MS9489-06 removed in accordance with either paragraph A or B of this AD are not eligible for re-installation on the flange between the engine gas generator case and turbine support case on model PW535E engines (BS1229 and BS1348) and PW535E1 engines (BS1439).

**Authorization:**

For the Minister of Transport,

*ORIGINAL SIGNED BY*

Jenny Young  
Chief, Continuing Airworthiness  
Issued on 14 August 2023

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