



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-2022-22

Effective Date:

6 May 2022

ATA:

72

Type Certificate:

E-31

Subject:

Engine – Combustion Chamber Outer Case – Inadequate Fatigue Life of Forward Flange Bolts

Applicability:

Pratt & Whitney Canada (P&WC) engines:

Model PW308A with build specification (BS)935 and BS1249, serial numbers PCE-CE0180 and prior, Model PW308C with BS1047 and BS1238, serial numbers PCE-CF0967 and prior.

Compliance:

As indicated below, unless already accomplished.

Background:

The combustion chamber outer case (CCOC) and rear compressor case (RCC) 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) PW300-72-26380, dated 25 November 2020, to introduce new flange bolts made of an improved fatigue resistant material. Subsequently, to accommodate the new bolt geometry and improve the bolt head radial clearance, P&WC issued SB PW300-72-26389, dated 15 July 2021, to modify the CCOC and the inner bypass duct flange with chamfers and reverse the installation direction of the flange bolts.

This AD mandates the installation of the new bolt configuration, modifications to the CCOC and inner bypass duct, and prevents the installation of the old bolt configuration, on the affected engines. In addition, P&WC has revised the engine Maintenance Manual and Overhaul Manual procedures to incorporate the above-mentioned changes.

Corrective Actions:

- A. For engines or modules that have not incorporated P&WC SB PW300-72-26380 prior to the effective date of this AD, accomplish the following the next time the engine or module is at a maintenance facility that can do the procedures, but not to exceed 5000 engine cycles since new or since the last time the flange between the CCOC and the RCC was separated, whichever occurs later:

Note: The flange between the CCOC and the RCC is separated during engine overhaul, hot section inspection, and incorporation of P&WC SB PW300-72-26249, PW300-72-26259, PW300-72-26306 or PW300-72-26378.

- 1. Replace all CCOC flange bolts part numbers (P/Ns) MS9698-08 and MS9698-09 with new bolts P/Ns AS3611-5-12 and AS3611-5-13, respectively, in accordance with the Accomplishment

Instructions of P&WC SB PW300-72-26380, Revision 3, dated 4 February 2022, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada;

2. Modify the CCOC and inner bypass ducts in accordance with the Accomplishment Instructions of P&WC SB PW300-72-26389, Revision 2, dated 9 February 2022, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.
- B. For engines or modules that have incorporated P&WC SB PW300-72-26380 prior to the effective date of this AD, within 6000 engine cycles from incorporation of SB PW300-72-26380, remove CCOC/RCC flange bolts P/Ns AS3611-5-12 and AS3611-5-13, modify the CCOC and inner bypass ducts, and install post-SB PW300-72-26380 bolts in accordance with the Accomplishment Instructions of P&WC SB PW300-72-26389, Revision 2, dated 9 February 2022, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.
- These removed bolts P/Ns AS3611-5-12 and AS3611-5-13 are not eligible for re-installation.
- C. For engines or modules that have incorporated P&WC SB PW300-72-26389, Revision 1, dated 4 February 2022, prior to the effective date of this AD, the modified CCOC and inner bypass ducts are considered acceptable for compliance with the corresponding actions specified in paragraph B of this AD.
- D. As of the effective date of this AD, bolts P/Ns MS9698-08 and MS9698-09 are not eligible for re-installation on the flange between the CCOC and the RCC on model PW308A engines with BS935 and BS1249, and model PW308C engines with BS1047 and BS1238.

Authorization:

For the Minister of Transport,

ORIGINAL SIGNED BY

Rémy Knoerr
Chief, Continuing Airworthiness
Issued on 22 April 2022

Contact:

Zhiwei Wang, Continuing Airworthiness, Ottawa, telephone 888-663-3639, facsimile 613-996-9178 or e-mail TC.AirworthinessDirectives-Consignesdenavigabilite.TC@tc.gc.ca or any Transport Canada Centre.