



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2020-0692; Project Identifier MCAI-2019-00140-E]

RIN 2120-AA64

Airworthiness Directives; Pratt & Whitney Canada Corp. Turboprop Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The FAA proposes to adopt a new airworthiness directive (AD) for all Pratt & Whitney Canada Corp. PT6A-34, -34B, -34AG, -114, and -114A model turboprop engines. This proposed AD was prompted by several reports of low-time fractures of compressor turbine (CT) blades resulting in loss of power or in-flight shutdown of the engine. This proposed AD would require replacement of certain CT vanes. This proposed AD would also require removal from service of certain CT blades when these blades have been operated with certain CT vanes. The FAA is proposing this AD to address the unsafe condition on these products.

DATES: The FAA must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <https://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12 140, 1200 New Jersey Avenue SE, Washington, DC 20590.

- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

Examining the AD Docket

You may examine the AD docket on the Internet at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2020-0692; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this NPRM, the mandatory continuing airworthiness information (MCAI), any comments received, and other information. The street address for Docket Operations is listed above. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: Barbara Caufield, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: 781-238-7146; fax: 781-238-7199; email: barbara.caufield@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under the ADDRESSES section. Include “Docket No. FAA-2020-0692; Project Identifier MCAI-2019-00140-E” at the beginning of your comments. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. The FAA will consider all comments received by the closing date and may amend this NPRM because of those comments.

Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in 14 CFR 11.35, the FAA will post all comments received, without change, to <https://www.regulations.gov>, including any

personal information you provide. The agency will also post a report summarizing each substantive verbal contact we received about this proposal.

Confidential Business Information

Confidential Business Information (CBI) is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to this NPRM contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to this NPRM, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as “PROPIN.” The FAA will treat such marked submissions as confidential under the FOIA, and they will not be placed in the public docket of this NPRM. Submissions containing CBI should be sent to Barbara Caufield, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803. Any commentary that the FAA receives which is not specifically designated as CBI will be placed in the public docket for this rulemaking.

Background

Transport Canada, which is the aviation authority for Canada, has issued Canada AD CF 2019-30R1, dated December 17, 2019 (referred to after this as “the MCAI”), to address the unsafe condition on these products. The MCAI states:

There have been several reported events of low time CT blade fractures resulting in power loss / In-flight shutdown (IFSD) on post P&WC Service Bulletin (SB) 1669 configured PT6A-114 engines, featuring new CMSX-6 CT blades. In addition, relatively low time failures of Non-P&WC CT blades have also been reported on PT6A-34 and -114 series engines.

In service data shows that these low time failures were reported on engines that had CT vanes installed that were repaired in accordance with repair specification number STI 72-50-254 held by Southwest Turbine Inc. (STI). Most of the affected engines are installed on single-engine powered aeroplanes and some events have resulted in the loss of the aeroplane and fatalities.

Dimensional checks and operational testing of the subject STI repaired CT vane removed from an incident engine, revealed that it did not conform to the engine manufacturer's CT vane type design criteria. The noted variations and features in the STI repaired CT vane can cause airflow distortion and subsequent aerofoil excitation of the CT blades resulting in High Cycle Fatigue (HCF) failure of the CT blades. Test data indicates that the stress levels induced in CT blades by the adverse effect of subject airflow distortion exceeds the design requirements for CMSX-6 CT blades. An IFSD or loss of power on a single-engine powered aeroplane under certain conditions can lead to an unsafe condition as seen in some past events. AD CF-2019-30 was issued on 19 August 2019 to address the potential hazard of power loss / IFSD as a result of CT blade failures on engines with CT vanes installed that were repaired in accordance with repair specification number STI 72-50-254.

This AD revision, CF-2019-30R1, is issued to update the background information and to clarify the affected P&WC CT blade Part Numbers (P/Ns).

You may obtain further information by examining the MCAI in the AD docket on the Internet at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2020-0692.

FAA's Determination

This product has been approved by the aviation authority of Canada and is approved for operation in the United States. Pursuant to our bilateral agreement with Canada, they have notified us of the unsafe condition described in the MCAI and service information referenced above. The FAA is issuing this NPRM because we evaluated all the relevant information provided by Transport Canada and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

Proposed AD Requirements

This proposed AD would require replacement of certain CT vanes. This proposed AD would also require removal from service of certain CT blades when these blades have been operated with certain CT vanes.

Costs of Compliance

The FAA estimates that this proposed AD affects 907 engines installed on airplanes of U.S. registry. The FAA estimates that 63 engines will need to replace the CT vanes and CT blades.

The FAA estimates the following costs to comply with this proposed AD:

Estimated costs

Action	Labor Cost	Parts Cost	Cost per product	Cost on U.S. operators
Remove and replace certain CT vanes	16 work-hours x \$85 per hour = \$1,360	\$115,789	\$117,149	\$7,380,387
Remove and replace	16 work-hours x \$85 per hour	\$90,271	\$91,631	\$5,772,753

CMSX-6 CT blade set	= \$1,360			
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Authority for This Rulemaking

Title 49 of the United States Code specifies the FAA’s authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency’s authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

The FAA determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify this proposed regulation:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Will not affect intrastate aviation in Alaska, and
- (3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

Pratt & Whitney Canada Corp.: Docket No. FAA-2020-0692; Project Identifier MCAI-2019-00140-E.

(a) Comments Due Date

The FAA must receive comments by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

This AD applies to all Pratt & Whitney Canada Corp. PT6A-34, -34B, -34AG, -114, and -114A model turboprop engines.

(d) Subject

Joint Aircraft System Component (JASC) Code 7250, Turbine Section.

(e) Unsafe Condition

This AD was prompted by several reports of low-time fractures of compressor turbine (CT) blades resulting in loss of power or in-flight shutdown of the engine. The FAA is issuing this AD to prevent failure of the CT blade. The unsafe condition, if not

addressed, could result in failure of the engine, in-flight shutdown, and loss of the airplane.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Required Actions

(1) Within 250 flight hours (FHs) or 270 days after the effective date of this AD, whichever occurs first:

(i) Remove from service any CT vane repaired in accordance with Southwest Turbine Inc. (STI) repair specification STI-72-50-254 and replace with a non-STI-repaired CT vane.

(ii) Remove from service any CMSX-6 CT blade that has been operated on an affected engine with a CT vane repaired in accordance with STI repair specification STI-72-50-254.

(2) [Reserved]

(h) Installation Prohibition

After the effective date of this AD, do not install on any engine a CT vane that was repaired in accordance with repair specification STI-72-50-254.

(i) Alternative Methods of Compliance (AMOCs)

(1) The Manager, ECO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the ECO Branch, send it to the attention of the person identified in paragraph (j)(1) of this AD. You may email your request to: ANE-AD-AMOC@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(j) Related Information

(1) For more information about this AD, contact Barbara Caufield, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: 781-238-7146; fax: 781-238-7199; email: barbara.caufield@faa.gov.

(2) Refer to Transport Canada AD CF 2019-30R1, dated December 17, 2019, for more information. You may examine the Transport Canada AD in the AD docket on the Internet at <https://www.regulations.gov> by searching for and locating it in Docket No. FAA-2020-0692.

Issued on August 10, 2020.

Lance T. Gant, Director,
Compliance & Airworthiness Division,
Aircraft Certification Service.

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