



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2023-0940; Project Identifier AD-2022-01521-E; Amendment 39-22552; AD 2023-19-02]

RIN 2120-AA64

Airworthiness Directives; Pratt & Whitney Division Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is superseding Airworthiness Directive (AD) 2018-21-11, which applied to all Pratt & Whitney Division (PW) Model PW4074D, PW4077D, PW4084D, PW4090, and PW4090-3 engines with a low-pressure compressor (LPC) fan hub, part number (P/N) 51B821 or P/N 52B521, installed. AD 2018-21-11 required performing repetitive eddy current inspections (ECIs) and fluorescent penetrant inspections (FPIs) for cracks in certain LPC fan hubs and removing LPC fan hubs from service that fail any inspection. Since the FAA issued AD 2018-21-11, the FAA determined that affected LPC fan hub assemblies can meet the published certificated life limit without the need for the required repetitive FPI inspections in AD 2018-21-11, and the repetitive ECI inspections require shortened intervals. Based on a report of another incident, the FAA determined that the unsafe condition is likely to exist or develop on additional LPC fan hub assemblies and PW model engines. This AD expands the applicability to include Model PW4074, PW4074D, PW4077, PW4077D, PW4084D, PW4090, and PW4090-3 engines with any part number LPC fan hub assembly installed and requires performing repetitive ECIs of the LPC fan hub assembly and, depending on the results of the inspections, removing the LPC fan hub assembly from service. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES:

AD Docket: You may examine the AD docket at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2023-0940; 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 final rule, any comments received, and other information. The address for Docket Operations is U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

Material Incorporated by Reference:

- For Pratt & Whitney Division service information identified in this final rule, contact Pratt & Whitney Division, 400 Main Street, East Hartford, CT 06118; phone: (860) 565-0140; email: help24@prattwhitney.com; website: connect.prattwhitney.com.

- You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (817) 222-5110. It is also available at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2023-0940.

FOR FURTHER INFORMATION CONTACT: Carol Nguyen, Aviation Safety Engineer, FAA, 2200 South 216th Street, Des Moines, WA 98198; phone: (781) 238-7655; email: carol.nguyen@faa.gov.

SUPPLEMENTARY INFORMATION:

Background

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to supersede AD 2018-21-11, Amendment 39-19469 (83 FR 54663, October 31, 2018) ("AD 2018-21-11"). AD 2018-21-11 applied to all PW Model PW4074, PW4074D, PW4077, PW4077D, PW4084D, PW4090, and PW4090-3 engines. The NPRM published in the *Federal Register* on May 23, 2023 (88 FR 32978), which proposed to supersede AD 2018-21-11. The NPRM was prompted by an updated analysis by the

engine manufacturer, which indicated certain LPC fan hubs could crack before their published life limit. However, the FAA determined that affected LPC fan hub assemblies can meet the published certificated life limit without the need for the required repetitive FPI inspections in AD 2018-21-11, and the repetitive ECI inspections require shortened intervals. Additionally, the FAA also received a report of an uncontained failure of the fan hub assembly on an Engine Alliance GP7270 engine on an Air France flight. Investigation of this uncontained failure revealed that, due to the similarity of design and material processing for the LPC fan hub assembly, the ECI inspections should be done on all LPC fan hub assembly part numbers installed on PW Model PW4074, PW4074D, PW4077, PW4077D, PW4084D, PW4090, and PW4090-3 engines. In the NPRM, the FAA proposed to expand the applicability to include Model PW4074, PW4074D, PW4077, PW4077D, PW4084D, PW4090, and PW4090-3 engines with any P/N LPC fan hub assembly installed. In the NPRM, the FAA also proposed to require performing repetitive ECIs of the LPC fan hub assembly and, depending on the results of the inspections, removing the LPC fan hub assembly from service. The FAA is issuing this AD to prevent failure of the LPC fan hub assembly. This condition, if not addressed, could result in uncontained debris release, damage to the engine, and damage to the aircraft.

Actions Since the NPRM Was Issued

Since the FAA published the NPRM, PW revised Alert Service Bulletin (ASB) PW4G-112-A72-362, Revision No. 1, dated January 20, 2022, to ASB PW4G-112-A72-362, Revision No. 2, dated August 2, 2023. This service bulletin revision does not include the specification to remove LPC fan hub assemblies with reportable indications from service. PW also added instructions pertaining to reporting inspection results.

As a result, the FAA changed paragraph (g)(2) from “If a reportable or rejectable indication is found” to “If a rejectable indication is found,” added paragraph (j), Credit for Previous Actions, to give full credit for anyone already accomplishing this action before the effective date using Revision No. 1, and re-designated subsequent paragraphs accordingly. This AD does not require reporting inspection results.

Discussion of Final Airworthiness Directive

Comments

The FAA received comments from two commenters. Commenters included The Boeing Company and The Air Line Pilots Association, International. Both commenters support the NPRM without change.

Conclusion

The FAA reviewed the relevant data, considered the comments received, and determined that air safety requires adopting the AD as proposed. Accordingly, the FAA is issuing this AD to address the unsafe condition on these products. Except for minor editorial changes, which include updating the service information and removing the requirement for removing LPC fan hub assemblies with reportable indications from service, this AD is adopted as proposed in the NPRM.

Related Service Information under 1 CFR Part 51

The FAA reviewed Pratt & Whitney ASB PW4G-112-A72-362, Revision No. 2, dated August 2, 2023. This service information specifies procedures for ECIs of the LPC fan hub assembly for cracks. This service information also specifies reporting inspection results to PW.

This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in ADDRESSES.

Costs of Compliance

The FAA estimates that this AD affects 65 engines installed on airplanes of U.S. registry.

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

Estimated costs

Action	Labor Cost	Parts Cost	Cost per product	Cost on U.S. operators
Perform ECI of LPC fan hub assembly	14 work-hours x \$85 per hour = \$1,190	\$0	\$1,190	\$77,350

The FAA estimates the following costs to do any necessary replacements that would be required based on the results of the inspection. The agency has no way of determining the number of engines that might need this replacement:

On-condition costs

Action	Labor Cost	Parts Cost	Cost per product
Replace LPC fan hub assembly	65 work-hours x \$85 per hour = \$5,525	\$1,194,000	\$1,199,525

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 has determined that this AD will not have federalism implications under Executive Order 13132. This AD will 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 that this AD:

- (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 Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 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:

a. Removing Airworthiness Directive 2018-21-11, Amendment 39-19469 (83 FR 54663, October 31, 2018); and

b. Adding the following new airworthiness directive:

2023-19-02 Pratt & Whitney Division: Amendment 39-22552; Docket No. FAA-2023-0940; Project Identifier AD-2022-01521-E.

(a) Effective Date

This airworthiness directive (AD) is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

This AD replaces AD 2018-21-11, Amendment 39-19469 (83 FR 54663, October 31, 2018).

(c) Applicability

This AD applies to all Pratt & Whitney Division Model PW4074, PW4074D, PW4077, PW4077D, PW4084D, PW4090, and PW4090-3 engines.

(d) Subject

Joint Aircraft System Component (JASC) Code 7230, Turbine Engine Compressor Section.

(e) Unsafe Condition

This AD was prompted by an updated analysis by the engine manufacturer, which indicated certain low-pressure compressor (LPC) fan hubs could crack before their

published life limit. We are issuing this AD to prevent failure of the LPC fan hub. The unsafe condition, if not addressed, could result in uncontained hub release, damage to the engine, and damage to the airplane.

(f) Compliance

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

(g) Required Actions

(1) Before accumulating 550 flight cycles (FC) after the effective date of this AD, and thereafter at intervals not to exceed 550 FC since the last eddy current inspection (ECI), perform an ECI of the LPC fan hub assembly, in accordance with the Accomplishment Instructions, For Engines Installed on Aircraft, paragraph 2., or For Engines Not Installed on Aircraft, paragraph 3; of Pratt & Whitney Alert Service Bulletin (ASB) PW4G-112-A72-362, Revision No. 2, dated August 2, 2023 (ASB PW4G-112-A72-362, Revision 2).

(2) If a rejectable indication is found during the inspections required by paragraph (g)(1) of this AD, before further flight, replace the LPC fan hub assembly with a part eligible for installation.

(h) Installation Prohibition

After the effective date of this AD, do not install an LPC fan hub assembly on any engine, unless it is a part eligible for installation as defined in paragraph (k) of this AD.

(i) No Reporting Requirement

This AD does not require reporting certain information to the manufacturer as specified in ASB PW4G-112-A72-362, Revision 2.

(j) Credit for Previous Actions

Inspections and corrective actions on an engine, accomplished before the effective date of this AD in accordance with the instructions of Pratt & Whitney ASB PW4G-112-A72-362, Revision No. 1, dated January 20, 2022, are acceptable to comply with the requirements of paragraph (g)(1) of this AD.

(k) Definitions

For the purposes of this AD, a “part eligible for installation” is an affected LPC fan hub assembly that has been inspected as required by paragraph (g)(1) of this AD and

does not have a rejectable or reportable indication or a LPC fan hub assembly with zero cycles since new.

(l) Alternative Methods of Compliance (AMOCs)

(1) The Manager, AIR-520, Continued Operational Safety 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 certification office, send it to the attention of the person identified in paragraph (m)(1) of this AD.

(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.

(m) Additional Information

(1) For more information about this AD, contact Carol Nguyen, Aviation Safety Engineer, FAA, 2200 South 216th Street, Des Moines, WA 98198; phone: (781) 238-7655; email: carol.nguyen@faa.gov.

(2) Service information identified in this AD that is not incorporated by reference is available at the addresses specified in paragraphs (n)(3) and (4) of this AD.

(n) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) Pratt & Whitney Alert Service Bulletin PW4G-112-A72-362, Revision No. 2, dated August 2, 2023.

(ii) [Reserved]

(3) For service information identified in this AD, contact Pratt & Whitney Division, 400 Main Street, East Hartford, CT 06118; phone: (860) 565-0140; email: help24@prattwhitney.com; website: connect.prattwhitney.com.

(4) You may view this service information at FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (817) 222-5110.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email: fr.inspection@nara.gov, or go to: www.archives.gov/federal-register/cfr/ibr-locations.html.

Issued on September 15, 2023.

Victor Wicklund, Deputy Director,
Compliance & Airworthiness Division,
Aircraft Certification Service.

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