



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2018-0826; Product Identifier 2018-NE-27-AD]

RIN 2120-AA64

Airworthiness Directives; Pratt & Whitney Division (PW) Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: We propose to adopt a new airworthiness directive (AD) for certain Pratt & Whitney Division (PW) PW4074, PW4074D, PW4077, PW4077D, PW4084D, PW4090, and PW4090-3 turbofan engines. This proposed AD was prompted by an in-flight failure of a 1st stage low-pressure compressor (LPC) blade. This proposed AD would require initial and repetitive thermal acoustic imaging (TAI) inspections for cracks in certain 1st stage LPC blades and removal of those blades that fail inspection. We are proposing this AD to address the unsafe condition on these products.

DATES: We 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 <http://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.

For service information identified in this NPRM, contact Pratt & Whitney Division, 400 Main St., East Hartford, CT, 06118; phone: 800-565-0140; fax: 860-565-5442. You may view this service information at the FAA, Engine and Propeller Standards Branch, 1200 District Avenue, Burlington, MA, 01803. For information on the availability of this material at the FAA, call 781-238-7759.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2018-0826; 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 regulatory evaluation, any comments received, and other information. The street address for Docket Operations (phone: 800-647-5527) is listed above. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: Jo-Ann Theriault, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA, 01803; phone: 781-238-7105; fax: 781-238-7199; email: jo-ann.theriault@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite 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-2018-0826; Product Identifier 2018-NE-27-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this NPRM. We will consider all comments received by the closing date and may amend this NPRM because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this NPRM.

Discussion

We learned of an uncontained 1st stage LPC blade failure and inlet separation on a PW4000-112 series turbofan engine that occurred during a revenue flight. The fracture in the blade initiated from a low cycle fatigue crack in the airfoil. This blade failure was contained by the engine case, but there was subsequent uncontained forward release of the inlet cowl, causing damage to the aircraft and prompting an emergency descent. This condition, if not addressed, could result in an uncontained failure of a 1st stage LPC blade, damage to the engine, and damage to the airplane.

Related Service Information under 1 CFR part 51

We reviewed PW Alert Service Bulletin (ASB) PW4G-112-A72-268, Revision No. 7, dated September 6, 2018. This PW ASB describes procedures for performing 1st stage LPC blade TAI inspections. 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 the ADDRESSES section.

FAA's Determination

We are proposing this AD because we evaluated all the relevant information 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 initial and repetitive TAI inspections of 1st stage LPC blades and removal of blades that fail inspection.

Costs of Compliance

We estimate that this proposed AD affects 120 engines installed on airplanes of U.S. registry. We estimate the following costs to comply with this proposed AD:

Estimated costs

| Action | Labor cost | Parts cost | Cost per product | Cost on U.S. operators |
|------------|---|------------|------------------|------------------------|
| Inspection | 22 work-hours X \$85 per hour = \$1,870 | \$0 | \$1,870 | \$224,400 |

We estimate the following costs to do any necessary replacements that would be required based on the results of the proposed inspection. We have no way of determining the number of aircraft that might need these replacements:

On-condition costs

| Action | Labor cost | Parts cost | Cost per product |
|-----------------------------|------------------------------------|------------|------------------|
| Replace 1st stage LPC blade | 0 work-hours X \$85 per hour = \$0 | \$125,000 | \$125,000 |

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.

We are 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.

This AD is issued in accordance with authority delegated by the Executive Director, Aircraft Certification Service, as authorized by FAA Order 8000.51C. In accordance with that order, issuance of ADs is normally a function of the Compliance and Airworthiness Division, but during this transition period, the Executive Director has delegated the authority to issue ADs applicable to engines, propellers, and associated appliances to the Manager, Engine and Propeller Standards Branch, Policy and Innovation Division.

Regulatory Findings

We 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) Is not a “significant rule” under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) 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 Division: Docket No. FAA-2018-0826; Product Identifier 2018-NE-27-AD.

(a) Comments Due Date

We 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 Division (PW) PW4074, PW4074D, PW4077, PW4077D, PW4084D, PW4090, and PW4090-3 turbofan engines, with 1st stage low-pressure compressor (LPC) blade, part numbers 52A241, 55A801, 55A801-001, 55A901, 55A901-001, 56A201, 56A201-001, or 56A221, installed.

(d) Subject

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

(e) Unsafe Condition

This AD was prompted by an uncontained 1st stage LPC blade failure. We are issuing this AD to prevent failure of the 1st stage LPC blade. The unsafe condition, if not addressed, could result in uncontained blade 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) After the effective date of this AD, perform an initial Thermal Acoustic Imaging (TAI) inspection of the 1st stage LPC blades as follows:

(i) For 1st stage LPC blades that have accumulated fewer than 6,500 cycles since new (CSN), perform a TAI inspection the next time the engine is separated at the M-flange, or prior to the 1st stage LPC blade accumulating 7,000 CSN, whichever occurs first.

(ii) For 1st stage LPC blades that have accumulated 6,500 or more CSN, or if the cycles since the blade was new cannot be determined, or if the cycles since the blade was last TAI inspected cannot be determined, perform a TAI inspection within 500 flight cycles or 180 days from the effective date of this AD, whichever occurs first.

(2) Thereafter, perform a TAI inspection of 1st stage LPC blades every time the engine is separated at the M-flange and the blades have accumulated 1,000 or more flight cycles since the last TAI inspection, not to exceed 6,500 flight cycles since the last TAI inspection.

(3) If any 1st stage LPC blade fails the inspection required by paragraph (g)(1) or (2) of this AD, remove the blade from service and replace with a part eligible for installation before further flight.

(4) The TAI inspection and disposition required for compliance with this AD must be accomplished by a method approved by the FAA. You can find a vendor that has an FAA-approved TAI inspection listed in the Vendor Services Section of PW Alert Service Bulletin (ASB) PW4G-112-A72-268, Revision No. 7, dated September 6, 2018.

(h) Credit for Previous Actions

You may take credit for the initial TAI inspection required by paragraph (g)(1) of this AD if you performed the TAI inspection before the effective date of this AD using PW ASB PW4G-112-A72-268, Revision No. 6, dated August 5, 2014.

(i) Installation Prohibition

Do not install any 1st stage LPC blade that has accumulated 1,000 or more flight cycles into any engine unless it has passed the inspection required by paragraph (g)(1) of this AD.

(j) 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 certification office, send it to the attention of the person identified in paragraph (k) 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.

(k) Related Information

(1) For more information about this AD, contact Jo-Ann Theriault, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA, 01803; phone: 781-238-7105; fax: 781-238-7199; email: jo-ann.theriault@faa.gov.

(2) For service information identified in this AD, contact Pratt & Whitney Division, 400 Main St., East Hartford, CT 06118; phone: 800-565-0140; fax: 860-565-5442. You may view this referenced service information at the FAA, Engine & Propeller Standards Branch, 1200 District Avenue, Burlington, MA, 01803. For information on the availability of this material at the FAA, call 781-238-7759.

Issued in Burlington, Massachusetts, on September 28, 2018.

Robert J. Ganley,
Manager, Engine and Propeller Standards Branch,
Aircraft Certification Service.

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