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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2020-0299; Project Identifier AD-2020-00247-E; Amendment 39-21106; AD 2020-07-02]

RIN 2120-AA64

Airworthiness Directives; Pratt & Whitney Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule; request for comments.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for all Pratt & Whitney (PW) PW1519G, PW1521G, PW1521G-3, PW1521GA, PW1524G, PW1524G-3, PW1525G, and PW1525G-3 model turbofan engines. This AD requires the removal from service of certain electronic engine control (EEC) full authority digital electronic control (FADEC) software and the installation of a software version eligible for installation. This AD was prompted by reports of four in-flight shutdowns (IFSDs) due to failure of the low-pressure compressor (LPC) rotor 1 (R1) and by subsequent findings of cracked LPC R1s during inspections. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective April 15, 2020.

The FAA must receive comments on this AD by May 15, 2020.

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: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this final rule, contact Pratt & Whitney, 400 Main Street, East Hartford, CT 06118; phone: 800-565-0140; fax: 860-565-5442; email: help24@pw.utc.com;

internet: <https://fleetcare.pw.utc.com>. 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 <https://www.regulations.gov> by searching for and locating Docket No. FAA-2020-0299; 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 street address for the Docket Operations is listed above. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: Kevin M. Clark, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA, 01803; phone: 781-238-7088; fax: 781-238-7199; email: kevin.m.clark@faa.gov.

SUPPLEMENTARY INFORMATION:

Discussion

The FAA has received reports of four instances of IFSDs occurring on the affected model turbofan engines since 2019.

In response to the two IFSDs that occurred in July and September 2019, and in response to ongoing investigations of these IFSDs, the FAA issued AD 2019-19-11 (84 FR 50719, September 26, 2019), to perform inspections of the LPC R1 to prevent failures. The FAA subsequently superseded AD 2019-19-11, issuing AD 2019-21-11 (84 FR 57813, October 29, 2019) in response to another IFSD and to expand the population of affected engines that needed inspection of the LPC R1. Since the effective date of AD 2019-21-11, another IFSD occurred in February 2020. Analysis by the manufacturer determined that the LPC vane schedules were putting the engine in a condition to experience an acoustic resonance that damages the LPC R1, which then leads to LPC R1 failure. In response, the manufacturer updated the EEC FADEC software to improve vane scheduling to avoid acoustic resonance.

This condition, if not addressed, could result in uncontained release of the LPC R1, damage to the engine, and damage to the airplane. The FAA is issuing this AD to address the unsafe condition on these products.

Related Service Information

The FAA reviewed PW Service Bulletin (SB) PW1000G-A-73-00-0036-00A-930A-D, Issue No. 002, dated March 4, 2020, and PW SB PW1000G-A-73-00-0041-00A-930A-D, Issue No.001, dated March 4, 2020. These SBs describe procedures for replacing or modifying the EEC FADEC software.

FAA's Determination

The FAA is issuing this AD because it 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.

AD Requirements

This AD requires the removal from service of certain EEC FADEC software and the installation of a software version eligible for installation.

Interim Action

The FAA considers this AD interim action. The root cause of the LPC R1 failures is still being investigated and the FAA will consider further rulemaking depending on the results of the investigation.

Justification for Immediate Adoption and Determination of the Effective Date

Section 553(b)(3)(B) of the Administrative Procedure Act (APA) (5 U.S.C.) authorizes agencies to dispense with notice and comment procedures for rules when the agency, for “good cause,” finds that those procedures are “impracticable, unnecessary, or contrary to the public interest.” Under this section, an agency, upon finding good cause, may issue a final rule without seeking comment prior to the rulemaking. Similarly, Section 553(d) of the APA authorizes agencies to make rules effective in less than 30 days, upon a finding of good cause.

An unsafe condition exists that requires the immediate adoption of this AD without providing an opportunity for public comments prior to adoption. The FAA has found that the risk to the flying public justifies waiving notice and comment prior to adoption of this rule. In addition to three failures of the LPC R1 installed on PW1500G model turbofan engines occurring in 2019, an additional failure of the LPC R1 occurred on February 12, 2020. LPC rotor failures can release high-energy debris from the engine and damage the airplane (see AC 39-8, “Continued Airworthiness Assessments of Powerplant and Auxiliary Power Unit Installations of Transport Category Airplanes,” dated September 8, 2003).

The failures of the LPC R1 occurred on engines that were shipped to operators as spare engines and were not delivered installed on aircraft. The failures occurred within 300 flight cycles (FCs) since installation of the engine onto an aircraft. The manufacturer has recommended that the new engine software be loaded into the engine as soon as the engines are installed on an aircraft or within 15 FCs after installation if the engine was installed onto an aircraft recently. These engines are the highest risk for LPC R1 failures. The remainder of the fleet is also at risk for LPC R1 failures and needs to have the software upgraded within 90 days to prevent additional LPC R1 failures and maintain an acceptable level of safety.

The FAA considers these LPC R1 failures to be an urgent safety issue, requiring immediate action involving replacement of the EEC FADEC software. Accordingly, notice and opportunity for prior public comment are impracticable and contrary to public interest pursuant to 5 U.S.C. 553(b)(3)(B). In addition, for the reasons stated above, the FAA finds that good cause exists pursuant to 5 U.S.C. 553(d) for making this amendment effective in less than 30 days.

Comments Invited

This AD is a final rule that involves requirements affecting flight safety and was not preceded by notice and an opportunity for public comment. However, the FAA invites you to send any written data, views, or arguments about this final rule. Send your comments to an address listed under the ADDRESSES section. Include the docket number FAA-2020-0299 and Project Identifier AD-2020-00247-E at the beginning of your comments. The FAA specifically invites comments on the overall regulatory, economic, environmental, and energy aspects of this final rule. The FAA will consider all comments received by the closing date and may amend this final rule 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 FAA will also post a report summarizing each substantive verbal contact received about this AD.

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 AD 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 AD, 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 AD. Submissions containing CBI should be sent to Kevin M. Clark, 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.

Regulatory Flexibility Act

The requirements of the Regulatory Flexibility Act (RFA) do not apply when an agency finds good cause pursuant to 5 U.S.C. 553 to adopt a rule without prior notice and comment. Because FAA has determined that it has good cause to adopt this rule without notice and comment, RFA analysis is not required.

Costs of Compliance

The FAA estimates that this AD affects 58 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
Replace EEC software	2 work-hours × \$85 per hour = \$170	\$0	\$170	\$9,860

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

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, and
- (2) Will not affect intrastate aviation in Alaska.

List of Subjects in 14 CFR Part 39

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

Adoption of 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 adding the following new airworthiness directive (AD):



AIRWORTHINESS DIRECTIVE

www.faa.gov/aircraft/safety/alerts/
www.gpoaccess.gov/fr/advanced.html

2020-07-02 Pratt & Whitney: Amendment 39-21106; Docket No. FAA-2020-0299; Project Identifier AD-2020-00247-E.

(a) Effective Date

This AD is effective April 15, 2020.

(b) Affected ADs

None.

(c) Applicability

This AD applies to all Pratt & Whitney PW1519G, PW1521G, PW1521G-3, PW1521GA, PW1524G, PW1524G-3, PW1525G, and PW1525G-3 model turbofan engines.

(d) Subject

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

(e) Unsafe Condition

This AD was prompted by reports of in-flight shutdowns due to failure of the low-pressure compressor (LPC) rotor 1 (R1) and by subsequent findings of cracked LPC R1s during inspections. The FAA is issuing this AD to prevent failure of the LPC R1. The unsafe condition, if not addressed, could result in uncontained release of the LPC R1, damage to the engine, damage to the airplane, and loss of control of the airplane.

(f) Compliance

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

(g) Required Actions

(1) Remove the electronic engine control (EEC) software if the version is earlier than full authority digital electronic control (FADEC) software version V2.11.9.2 and install EEC FADEC software that is eligible for installation, as follows:

(i) For engines that have accumulated less than 300 flight cycles (FCs) since new or since the last engine shop visit, within 15 FCs after the effective date of this AD.

(ii) For all other engines, within 90 days after the effective date of this AD.

(2) After the effective date of this AD, do not install an engine listed in paragraph (c) of this AD on any aircraft unless you have replaced the EEC software required by paragraph (g)(1) of this AD.

Note to paragraph (g) of this AD: The engines identified in paragraphs (g)(1)(i) and (2) of this AD include engines originally delivered to operators as spare engines that have been subsequently installed on an airplane.

(h) Definitions

(1) For the purpose of this AD, an “engine shop visit” is the induction of an engine into the shop for maintenance involving the separation of pairs of major mating engine case flanges, except separation of engine flanges solely for the purposes of transportation of the engine without subsequent maintenance does not constitute an engine shop visit.

(2) For the purpose of this AD, “EEC FADEC software that is eligible for installation” is EEC FADEC software version V2.11.9.2 or later.

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

For more information about this AD, contact Kevin M. Clark, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: 781-238-7088; fax: 781-238-7199; email: kevin.m.clark@faa.gov.

(k) Material Incorporated by Reference

None.

Issued on March 25, 2020.
Lance T. Gant,
Director, Compliance & Airworthiness Division,
Aircraft Certification Service.