

## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. FAA-2019-0771; Product Identifier 2019-NE-27-AD; Amendment 39-19747; AD 2019-19-11]

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 certain Pratt & Whitney (PW) PW1519G, PW1521G, PW1521GA, PW1524G, PW1525G, PW1521G-3, PW1524G-3, PW1525G-3, PW1919G, PW1921G, PW1922G, PW1923G, and PW1923G-A model turbofan engines. This AD requires initial and repetitive inspections of the low-pressure compressor (LPC) inlet guide vane (IGV) and the LPC rotor 1 (R1) and, depending on the results of the inspections, possible replacement of the LPC. This AD was prompted by two recent in-flight shutdowns (IFSDs) that occurred as the result of failures of the LPC R1. The FAA is issuing this AD to address the unsafe condition on these products.

**DATES:** This AD is effective September 26, 2019.

The FAA must receive comments on this AD by November 12, 2019.

**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: 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](mailto:help24@pw.utc.com); internet: <http://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. It is also available on the internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2019-0771.

## 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-2019-0771; 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, the regulatory evaluation, 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](mailto:kevin.m.clark@faa.gov).

## SUPPLEMENTARY INFORMATION: Discussion

The FAA received reports of two recent IFSDs on PW PW1524G-3 model turbofan engines. The first IFSD occurred on July 25, 2019 and the second IFSD occurred on September 16, 2019. These IFSDs were due to failure of the LPC R1, which resulted in the LPC R1 releasing from the LPC case and damaging the engine. LPC rotor failures historically have released high-energy debris that has resulted in damage to engines and airplanes (see Advisory Circular (AC) 39-8, "Continued Airworthiness Assessments of Powerplant and Auxiliary Power Unit Installations of Transport Category Airplanes," dated September 8, 2003, available at [rsl.faa.gov](http://rsl.faa.gov)).

Although these IFSDs occurred on PW PW1524G-3 model turbofan engines, the FAA is including PW PW1900 engines in the applicability of the AD because similarities in type design make these engines susceptible to the same unsafe condition as PW PW1500 engines. This condition, if not addressed, could result in uncontained release of the LPC R1, in-flight shutdown, damage to the engine, damage to the airplane, and loss of control of the airplane. The FAA is issuing this AD to address the unsafe condition on these products.

## Related Service Information

The FAA reviewed Pratt & Whitney Service Bulletin (SB) PW1000G-A-72-00-0125-00A-930A-D, Issue No. 001, dated September 23, 2019, and PW SB PW1000G-A-72-00-0075-00B-930A-D, Issue No. 001, dated September 23, 2019. The SBs contain procedures for performing borescope inspections of the LPC R1 and the LPC IGV actuation system on engines that have less than 300 flight cycles since new.

## 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 initial and repetitive borescope inspections of the LPC IGV and the LPC R1 and, depending on the results of the inspections, replacement of the LPC.

## Interim Action

The FAA considers this AD interim action. The investigation into the two recent failures on the PW PW1524G-3 model turbofan engines is on-going and the FAA may pursue further rulemaking action at a later date.

## 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. Two PW1524G-3 model turbofan engines recently experienced failures of the LPC R1. 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).

Both failures of the LPC R1 occurred at low flight cycles since new (154 and 230 flight cycles). The manufacturer has recommended that these inspections occur within the next 50 flight cycles and the FAA has adopted that recommendation. Based on current operational usage of the affected airplanes, 50 flight cycles equates to approximately 7 to 10 operating days. Therefore, the FAA has determined that low flight cycle rotors require inspections within the next 50 flight cycles from the effective date of this AD to prevent LPC R1 failures. Because of the need for operators to begin the required inspections within 50 flight cycles, the FAA has made this AD effective upon publication in the Federal Register. Accordingly, the FAA determined that the risk of operation of the affected engines without initial and repetitive inspections of the LPC IGV and the LPC R1 is unacceptable.

The FAA considers the need for initial and repetitive inspections of the LPC IGV and the LPC R1 to be an urgent safety issue. 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-2019-0771 and Product Identifier 2019-NE-27-AD 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.

The FAA will post all comments received, without change, to <http://www.regulations.gov>, including any personal information you provide. The FAA will also post a report summarizing each substantive verbal contact received about this final rule.

## 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 18 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
Borescope inspection per inspection cycle	4 work-hours × \$85 per hour = \$340	0	\$340	\$6,120

The FAA estimates the following costs to do any necessary replacements that would be required based on the results of the borescope inspections. The FAA has 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 LPC	40 work-hours × \$85 per hour = \$3,400	\$156,000	\$159,400

## 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.

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

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):



**2019-19-11 Pratt & Whitney:** Amendment 39-19747; Docket No. FAA-2019-0771; Product Identifier 2019-NE-27-AD.

**(a) Effective Date**

This AD is effective September 26, 2019.

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to Pratt & Whitney Models PW1519G, PW1521G, PW1521GA, PW1524G, PW1525G, PW1521G-3, PW1524G-3, PW1525G-3, PW1919G, PW1921G, PW1922G, PW1923G, and PW1923G-A turbofan engines that have accumulated fewer than 300 flight cycles.

**(d) Subject**

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

**(e) Unsafe Condition**

This AD was prompted by two recent in-flight shutdowns on PW PW1524G-3 model turbofan engines, due to failure of the low-pressure compressor (LPC) rotor 1 (R1). 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) Within 50 flight cycles from the effective date of this AD, and thereafter at intervals not to exceed 50 flight cycles until the engine accumulates 300 flight cycles, borescope inspect each LPC inlet guide vane (IGV) stem for proper alignment.
- (2) Within 50 flight cycles from the effective date of this AD, and thereafter at intervals not to exceed 50 flight cycles until the engine accumulates 300 flight cycles, borescope inspect the LPC R1 for damage and cracks at the following locations:
  - (i) The blades tips;
  - (ii) the leading edge;
  - (iii) the leading edge fillet to rotor platform radius; and



- (iv) the airfoil convex side root fillet to rotor platform radius.
- (3) As the result of the inspections required by paragraphs (g)(1) and (2) of this AD, before further flight, remove and replace the LPC if:
  - (i) An IGV is misaligned; or
  - (ii) there is damage on an LPC R1 that exceeds serviceable limits; or
  - (iii) there is any crack in the LPC R1.

Note 1 to paragraph (g): Guidance on determining serviceable limits can be found in PW Service Bulletin (SB) PW1000G-A-72-00-0125-00A-930A-D, Issue No. 001, dated September 23, 2019, and PW SB PW1000G-A-72-00-0075-00B-930A-D, Issue No. 001, dated September 23, 2019.

#### **(h) Definition**

For the purpose of this AD, a misaligned IGV is an IGV that is rotated about its radial axis at a different angle than the remainder of the IGVs in the circumferential set.

#### **(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 in Burlington, Massachusetts, on September 24, 2019.

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