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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2021-1182; Project Identifier AD-2021-01393-E; Amendment 39-21902; AD 2022-02-05]

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 (P&W) PW1500G and PW1900G model turbofan engines. This AD was prompted by an analysis of an event involving an International Aero Engines AG (IAE) V2533-A5 model turbofan engine, which experienced an uncontained failure of a high-pressure turbine (HPT) 1st-stage disk that resulted in high-energy debris penetrating the engine cowling. This AD requires removing certain HPT 1st-stage and HPT 2nd-stage disks from service and replacing with parts eligible for installation. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective January 27, 2022.

The FAA must receive comments on this AD by February 28, 2022.

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.

For service information identified in this final rule, contact Pratt & Whitney, 400 Main Street, East Hartford, CT 06118; phone: (800) 565-0140; email: help24@prattwhitney.com; website: <https://fleetcare.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.

Examining the AD Docket

You may examine the AD docket at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2021-1182; 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.

FOR FURTHER INFORMATION CONTACT: Mark Taylor, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7229; fax: (781) 238-7199; email: Mark.Taylor@faa.gov.

SUPPLEMENTARY INFORMATION:

Background

On March 18, 2020, an Airbus Model A321-231 airplane, powered by IAE V2533-A5 model turbofan engines, experienced an uncontained HPT 1st-stage disk failure that resulted in high-energy debris penetrating the engine cowling. Based on a preliminary analysis of this event, on March 21, 2020, the FAA issued Emergency AD 2020-07-51 (followed by publication in the Federal Register on April 13, 2020, as a Final Rule, Request for Comments (85 FR 20402)), which requires the removal from service of certain HPT 1st-stage disks installed on IAE V2522-A5, V2524-A5, V2525-D5, V2527-A5, V2527E-A5, V2527M-A5, V2528-D5, V2530-A5, and V2533-A5 model turbofan engines.

Since the FAA issued AD 2020-07-51, P&W determined that the failure of the IAE V2533-A5 model turbofan engine was due to an undetected subsurface material defect in an HPT disk that may affect the life of the part. In June 2021, P&W expanded its root cause analysis to include a review of records for all other IAE and P&W engines that contain parts of similar material.

P&W's analysis identified a different population of HPT 1st-stage and HPT 2nd-stage disks installed on P&W PW1519G, PW1521G, PW1521G-3, PW1521GA, PW1524G, PW1524G-3, PW1525G, and PW1525G-3 (PW1500G) model turbofan engines, and P&W PW1919G, PW1921G, PW1922G, PW1923G, and PW1923G-A (PW1900G) model turbofan engines that are subject to the same unsafe condition identified in AD 2020-07-51 and require removal from service. This condition, if not addressed, could result in uncontained HPT disk failure, release of high-energy debris, damage to the engine, damage to the airplane, and loss of the airplane. The FAA is issuing this AD to address the unsafe condition on these products.

FAA's Determination

The FAA is issuing this AD because the agency has determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

Related Service Information

The FAA reviewed Pratt & Whitney Special Instruction (SI) No. 225F-21, dated December 1, 2021. This SI describes procedures for removing and replacing the affected HPT 1st-stage and HPT 2nd-stage disks, identified by part number (P/N) and serial number (S/N), installed on PW1500G model turbofan engines.

The FAA reviewed Pratt & Whitney SI No. 226F-21, dated December 1, 2021. This SI describes procedures for removing and replacing the affected HPT 1st-stage and HPT 2nd-stage disks, identified by P/N and S/N, installed on PW1900G model turbofan engines.

AD Requirements

This AD requires the removal from service of certain HPT 1st-stage and HPT 2nd-stage disks installed on PW1500G and PW1900G model turbofan engines.

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. 551 et seq.) 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 providing notice and seeking comment prior to issuance. Further, section 553(d) of the APA authorizes agencies to make rules effective in less than thirty 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 foregoing notice and comment prior to adoption of this rule. On March 18, 2020, an Airbus Model A321-231 airplane, powered by IAE V2533-A5 model turbofan engines, experienced an uncontained HPT 1st-stage disk failure that resulted in high-energy debris penetrating the engine cowling. Based on a preliminary analysis of this event, on March 21, 2020, the FAA issued Emergency AD 2020-07-51 (followed by publication in the Federal Register on April 13, 2020, as a Final Rule, Request for Comments (85 FR 20402)), which requires the removal from service of certain HPT 1st-stage disks installed on IAE V2522-A5, V2524-A5, V2525-D5, V2527-A5, V2527E-A5, V2527M-A5, V2528-D5, V2530-A5, and V2533-A5 model turbofan engines. Since the FAA issued AD 2020-07-51, the manufacturer conducted a root cause analysis and identified a different population of HPT 1st-stage and HPT 2nd-stage disks installed on P&W PW1500G and PW1900G model turbofan engines that are subject to the same unsafe condition identified in AD 2020-07-51. The FAA considers removal of the affected HPT 1st-stage and HPT 2nd-stage disks to be an urgent safety issue. These HPT disks have the highest risk of failure and removal is required within 30 days after the effective date of this AD to prevent additional HPT disk failures and maintain an acceptable level of safety. This unsafe condition, if not addressed, could result in uncontained HPT disk failure, release of high-energy debris, damage to the engine, damage to the airplane, and loss of the airplane. Accordingly, notice and opportunity for prior public comment are impracticable and contrary to the public interest pursuant to 5 U.S.C. 553(b)(3)(B).

In addition, 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, for the same reasons the FAA found good cause to forego notice and comment.

Comments Invited

The FAA invites you to send any written data, views, or arguments about this final rule. Send your comments to an address listed under ADDRESSES. Include “Docket No. FAA-2021-1182 and Project Identifier AD-2021-01393-E” at the beginning of your comments. The most helpful comments reference a specific portion of the final rule, 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 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 agency will also post a report summarizing each substantive verbal contact received about this final rule.

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 Mark Taylor, Aviation Safety 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 prior notice and comment, RFA analysis is not required.

Costs of Compliance

The FAA estimates that this AD affects 8 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 HPT 1st-stage or HPT 2nd-stage disk	316 work-hours × \$85 per hour = \$26,860	\$121,516	\$148,376	\$1,187,008

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.

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:



2022-02-05 Pratt & Whitney: Amendment 39-21902; Docket No. FAA-2021-1182; Project Identifier AD-2021-01393-E.

(a) Effective Date

This airworthiness directive (AD) is effective January 27, 2022.

(b) Affected ADs

None.

(c) Applicability

This AD applies to Pratt & Whitney (P&W) PW1519G, PW1521G, PW1521G-3, PW1521GA, PW1524G, PW1524G-3, PW1525G, PW1525G-3, PW1919G, PW1921G, PW1922G, PW1923G, and PW1923G-A model turbofan engines with an installed:

(1) High-pressure turbine (HPT) 1st-stage disk, part number (P/N) 30G5701, with serial number (S/N) LKLBCY9473, LKLBDG4865, LKLBDG4877, LKLBDG5064, LKLBDG4951, LKLBEH5482, LKLBCY9462, LKLBDG5142, LKLBF9238, or LKLBF88737; or

(2) HPT 2nd-stage disk, P/N 30G5002, with S/N LKLBDCT8724, LKLBD4633, LKLBD4689, LKLBD40801, LKLBD3603, LKLBD40863, LKLBDCT8771, LKLBD4691, LKLBD3600, LKLBD40830, or LKLBD40845.

(d) Subject

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

(e) Unsafe Condition

This AD was prompted by an analysis performed by P&W of an event involving an uncontained failure of an HPT 1st-stage disk that resulted in high-energy debris penetrating the engine cowling. The FAA is issuing this AD to prevent failure of HPT 1st-stage and HPT 2nd-stage disks. The unsafe condition, if not addressed, could result in uncontained HPT disk failure, release of high-energy debris, damage to the engine, damage to the airplane, and loss of the airplane.

(f) Compliance

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

(g) Required Actions

(1) For affected engines with an installed HPT 1st-stage disk, P/N 30G5701, having an S/N listed in paragraph (c)(1) of this AD, within 30 days after the effective date of the AD, remove the HPT 1st-stage disk from service and replace with a part eligible for installation.

(2) For affected engines with an installed HPT 2nd-stage disk, P/N 30G5002, having an S/N listed in paragraph (c)(2) of this AD, within 30 days after the effective date of the AD, remove the HPT 2nd-stage disk from service and replace with a part eligible for installation.

(h) Definition

For the purpose of this AD, a “part eligible for installation” is an HPT 1st-stage disk or HPT 2nd-stage disk that is not identified in paragraph (c)(1) or (2) of this AD.

(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. Information may be emailed 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 Mark Taylor, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7229; fax: (781) 238-7199; email: Mark.Taylor@faa.gov.

(k) Material Incorporated by Reference

None.

Issued on January 6, 2022.

Lance T. Gant,
Director, Compliance & Airworthiness Division, Aircraft Certification Service.
[FR Doc. 2022-00414 Filed 1-7-22; 4:15 pm]