



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2023-1714; Project Identifier AD-2023-00902-E; Amendment 39-22526; AD 2023-16-07]

RIN 2120-AA64

Airworthiness Directives; International Aero Engines, LLC 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 International Aero Engines, LLC (IAE LLC) Model PW1122G-JM, PW1124G1-JM, PW1124G-JM, PW1127G-JM, PW1127G1-JM, PW1127GA-JM, PW1129G-JM, PW1130G-JM, PW1133G-JM, PW1133GA-JM, PW1428G-JM, PW1428GA-JM, PW1428GH-JM, PW1431G-JM, PW1431GA-JM, and PW1431GH-JM engines. This AD was prompted by an updated analysis of an event involving an IAE LLC Model PW1127GA-JM engine, which experienced a high-pressure compressor (HPC) 7th-stage integrally bladed rotor (IBR-7) separation that resulted in an aborted takeoff. This AD requires performing an ultrasonic inspection (USI) of the high-pressure turbine (HPT) 1st-stage hub and HPT 2nd-stage hub for cracks and, depending on the results of the inspections, replacing the HPT 1st-stage hub or HPT 2nd-stage hub. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective [INSERT DATE 5 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of [INSERT DATE 5 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of a certain other publication listed in this AD as of November 7, 2022 (87 FR 59660, October 3, 2022; corrected 87 FR 64156, October 24, 2022).

The FAA must receive comments on this 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 [regulations.gov](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.

AD Docket: You may examine the AD docket at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2023-1714; 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 Docket Operations is listed above.

- For Pratt & Whitney (PW) service information identified in this final rule, contact International Aero Engines, LLC, 400 Main Street, East Hartford, CT 06118; phone: (860) 690-9667; email: help24@pw.utc.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-2023-1714.

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

SUPPLEMENTARY INFORMATION:

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-2023-1714; Project Identifier AD-2023-00902-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 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 Carol Nguyen, Aviation Safety Engineer, 2200 South 216th Street, Des Moines, WA 98198. Any commentary that the FAA receives which is not specifically designated as CBI will be placed in the public docket for this rulemaking.

Background

On March 18, 2020, an Airbus Model A321-231 airplane, powered by International Aero Engines AG (IAE AG) Model V2533-A5 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 AG Model V2522-A5, V2524-A5, V2525-D5, V2527-A5, V2527E-A5, V2527M-A5, V2528-D5, V2530-A5, and V2533-A5 engines. A manufacturer investigation found that the failure of the HPT 1st-stage disk was a result of a material anomaly attributed to deficiencies in the manufacturing process.

Based on the analysis performed since that March 2020 event, the manufacturer, PW, identified a different population of HPT 1st-stage disks and HPT 2nd-stage disks that are subject to the same unsafe condition identified in AD 2020-07-51. In response, the FAA issued AD 2021-19-10, Amendment 39-21728 (86 FR 50610, September 10, 2021) (AD 2021-19-10), which requires the removal from service of certain HPT 1st-stage disks and HPT 2nd-stage disks installed on IAE LLC Model PW1122G-JM, PW1124G1-JM, PW1124G-JM, PW1127G1-JM, PW1127GA-JM, PW1127G-JM, PW1129G-JM, PW1130G-JM, PW1133GA-JM, and PW1133G-JM engines.

Since the FAA issued AD 2021-19-10, PW identified another subpopulation of HPT 1st-stage disks and HPT 2nd-stage disks that, because of their susceptibility to the same material anomaly, require inspection and possible removal from service. In response, the FAA issued AD 2022-19-15, Amendment 39-22184 (87 FR 59660, October 3, 2022; corrected 87 FR 64156, October 24, 2022) (AD 2022-19-15), which requires performing a USI of the HPT 1st-stage disk and HPT 2nd-stage disk and, depending on the results of the inspections, replacement of the HPT 1st-stage disk or HPT 2nd-stage disk installed on IAE LLC Model PW1122G-JM, PW1124G1-JM, PW1124G-JM, PW1127G1-JM, PW1127GA-JM, PW1127G-JM, PW1129G-JM, PW1130G-JM, PW1133GA-JM, and PW1133G-JM engines.

Since the FAA issued AD 2022-19-15, on December 24, 2022 an Airbus Model A320neo airplane powered by IAE LLC Model PW1127GA-JM engines, experienced an HPC IBR-7 failure that resulted in engine shutdown and aborted take-off. Following this

event, the manufacturer conducted a records review of production and field-returned parts, and re-evaluated their engineering analysis methodology. The new analysis identified HPT 1st-stage hubs and HPT 2nd-stage hubs that are susceptible to failure much earlier than previously determined. On August 4, 2023, PW issued service information to instructing operators to conduct a USI to detect cracks and prevent premature failure. The new service information necessitates action much earlier than the timing mandated in AD 2022-19-15. The manufacturer's updated analysis also identified PW1400G series engines that contain HPT 1st-stage hubs and HPT 2nd-stage hubs that are also subject to this vulnerability and therefore need immediate inspection. This condition, if not addressed, could result in uncontained 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 under 1 CFR Part 51

The FAA reviewed PW Special Instruction No. 149F-23, dated August 4, 2023. This service information provides the list of affected HPT 1st-stage hubs and HPT 2nd-stage hubs, identified by part number and serial number, installed on certain IAE LLC engines.

Pratt & Whitney Service Bulletin PW1000G-C-72-00-0188-00A-930A-D, Issue No: 002, dated July 8, 2022, was previously approved for incorporation by reference on November 7, 2022 (87 FR 59660, October 3, 2022; corrected 87 FR 64156, October 24, 2022).

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.

AD Requirements

This AD requires performing a USI of the HPT 1st-stage hub and HPT 2nd-stage hub and, depending on the results of the inspections, replacement of the HPT 1st-stage hub or HPT 2nd-stage hub.

Differences Between the AD and the Service Information

PW Service Bulletin PW1000G-C-72-00-0188-00A-930A-D, Issue No: 002, dated July 8, 2022, includes only PW1100G-JM series engines in its applicability. This AD applies to both PW1100G-JM series engines and PW1400G-JM series engines.

Interim Action

The FAA considers this AD to be an interim action. This unsafe condition is still under investigation by the manufacturer and, depending on the results of that investigation, the FAA may consider further rulemaking action.

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 forgoing notice and comment prior to adoption of this rule. The presence of material anomalies in the HPT 1st-stage hubs and HPT 2nd-stage hubs discovered after the December 24, 2022 engine shutdown and aborted take-off could lead to premature fracture and uncontained failure, which indicates an immediate safety of flight problem. The manufacturer also recently conducted a records review of production and field-returned parts, and re-evaluated their engineering analysis methodology and identified HPT 1st-stage hubs and HPT 2nd-stage hubs that require USI much earlier than previously required. The manufacturer issued service

information on August 4, 2023 instructing operators to remove these engines from service by September 15, 2023 due to the urgency of the safety of flight issue. The longer these parts remain in service, without the inspections required by this AD, the higher the probability of failure. Therefore, the compliance time for these required inspections is shorter than the time necessary for the public to comment and for publication of the final rule. 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 forgo notice and comment.

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 20 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
USI the HPT 1st-stage hub	100 work-hours x \$85 per hour = \$8,500	\$0	\$8,500	\$170,000
USI the HPT 2nd-stage hub	100 work-hours x \$85 per hour = \$8,500	\$0	\$8,500	\$170,000

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

On-condition costs

Action	Labor Cost	Parts Cost	Cost per product
Replace HPT 1st-stage hub or HPT 2nd-stage hub	1 work-hours x \$85 per hour = \$85	\$171,000	\$171,085

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:

2023-16-07 International Aero Engines, LLC: Amendment 39-22526; Docket No. FAA-2023-1714; Project Identifier AD-2023-00902-E.

(a) Effective Date

This airworthiness directive (AD) is effective [INSERT DATE 5 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

AD 2022-19-15, Amendment 39-22184 (87 FR 59660, October 3, 2022; corrected 87 FR 64156, October 24, 2022) (AD 2022-19-15) is related to this AD.

(c) Applicability

This AD applies to International Aero Engines, LLC (IAE LLC) Model PW1122G-JM, PW1124G1-JM, PW1124G-JM, PW1127G-JM, PW1127G1-JM, PW1127GA-JM, PW1129G-JM, PW1130G-JM, PW1133G-JM, PW1133GA-JM, PW1428G-JM, PW1428GA-JM, PW1428GH-JM, PW1431G-JM, PW1431GA-JM, and PW1431GH-JM engines with an installed:

(1) High-pressure turbine (HPT) 1st-stage hub, part number (P/N) 30G6201 or 30G7301, with a serial number (S/N) listed in Tables 1, 2, 3, or 4 of Pratt & Whitney (PW) Special Instruction No. 149F-23, dated August 4, 2023; or

(2) HPT 2nd-stage hub, P/N 30G5502 or 30G6602, with an S/N listed in Tables 1, 2, 3, or 4 of PW Special Instruction No. 149F-23, dated August 4, 2023.

(d) Subject

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

(e) Unsafe Condition

This AD was prompted by an analysis of an event involving an IAE LLC Model PW1127GA-JM engine, which experienced a failure of a high-pressure compressor 7th-stage integrally bladed rotor that resulted in an aborted takeoff. The FAA is issuing this

AD to prevent failure of the HPT 1st-stage hub and HPT 2nd-stage hub. The unsafe condition, if not addressed, could result in uncontained hub 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) Within 30 days after the effective date of this AD, perform an ultrasonic inspection (USI) of the HPT 1st-stage hubs for cracks in accordance with the Accomplishment Instructions, paragraph 9.A. or 9.B., as applicable, of PW Service Bulletin (SB) PW1000G-C-72-00-0188-00A-930A-D, Issue No: 002, dated July 8, 2022 (PW1000G-C-72-00-0188-00A-930A-D, Issue 002).

(2) Within 30 days after the effective date of this AD, perform a USI of the HPT 2nd-stage hubs for cracks in accordance with the Accomplishment Instructions, paragraph 9.C. or 9.D., as applicable, of PW SB PW1000G-C-72-00-0188-00A-930A-D, Issue 002.

(3) If a rejectable indication is found during the inspections required by paragraph (g)(1) or (2) of this AD, before further flight, replace the HPT 1st-stage hub or HPT 2nd-stage hub with a part eligible for installation.

(h) Definition

For the purpose of this AD, a “part eligible for installation” is:

(1) Any HPT 1st-stage hub or HPT 2nd-stage hub that has passed the USI required by paragraphs (g)(1) or (2) of this AD.

(2) Any HPT 1st-stage hub or HPT 2nd-stage hub with a certificate of conformance indicating “PW1000G-C-72-00-0188-00A-930A-D,” “1 CODE 45S,” or identified by part marking “21CC332” or “SB 72-0188.”

(i) Credit for Previous Actions

You may take credit for the USIs required by paragraphs (g)(1) and (2) of this AD if you performed the USIs before the effective date of this AD using PW SB PW1000G-C-72-00-0188-00A-930A-D, Issue No: 001, dated September 13, 2021.

(j) Terminating Action to AD 2022-19-15

Compliance with this AD satisfies the requirements of AD 2022-19-15.

(k) 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 branch manager, send it to the attention of the person identified in paragraph (l) of this AD and email 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.

(l) Additional Information

(1) For more information about this AD, contact Carol Nguyen, Aviation Safety Engineer, 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 (m)(5) and (6) of this AD.

(m) 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.

(3) The following service information was approved for IBR on [INSERT DATE 5 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(i) Pratt & Whitney Special Instruction No. 149F-23, dated August 4, 2023.

(ii) [Reserved]

(4) The following service information was approved for IBR on November 7, 2022 (87 FR 59660, October 3, 2022; corrected 87 FR 64156, October 24, 2022).

(i) Pratt & Whitney Service Bulletin PW1000G-C-72-00-0188-00A-930A-D,
Issue No: 002, dated July 8, 2022.

(ii) [Reserved]

(5) For Pratt & Whitney service information identified in this AD, contact International Aero Engines, LLC, 400 Main Street, East Hartford, CT 06118; phone: (860) 690-9667; email: help24@pw.utc.com; website: connect.prattwhitney.com.

(6) 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.

(7) 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 August 11, 2023.

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

[FR Doc. 2023-18114 Filed: 8/18/2023 11:15 am; Publication Date: 8/22/2023]