[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2024-2026; Project Identifier AD-2024-00163-E; Amendment 39-22971; AD 2025-04-13]

RIN 2120-AA64

Airworthiness Directives; Pratt & Whitney Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for certain Pratt & Whitney (PW) Model PW1519G, PW1521G, PW1521GA, PW1521G-3, PW1524G, PW1524G-3, PW1525G, PW1525G-3, PW1919G, PW1921G, PW1922G, PW1923G, and PW1923G-A engines with a certain high-pressure compressor (HPC) 7th-stage axial rotor installed. This AD was prompted by an analysis of an event involving an International Aero Engines, LLC (IAE LLC) Model PW1127GA-JM engine, which experienced an HPC 7th-stage integrally bladed rotor (IBR-7) separation that resulted in an aborted takeoff. This AD requires performing initial and repetitive angled ultrasonic inspections (AUSI) of certain HPC 7th-stage axial rotors for cracks and replacing the HPC 7th-stage axial rotors if necessary. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective [INSERT DATE 35 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 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES:

AD Docket: You may examine the AD docket at regulations.gov under Docket No. FAA-2024-2026; 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 address for Docket Operations is U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

Material Incorporated by Reference:

• For PW material identified in this AD, contact PW, 400 Main Street, East Hartford, CT 06118; phone: (860) 565-0140; email: help24@prattwhitney.com; website: connect.prattwhitney.com.

• You may view this material 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 under Docket No. FAA-2024-2026.

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

SUPPLEMENTARY INFORMATION:

Background

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain PW Model PW1519G, PW1521G, PW1521GA, PW1521G-3, PW1524G, PW1524G-3, PW1525G, PW1525G-3, PW1919G, PW1921G, PW1922G, PW1923G, and PW1923G-A engines. The NPRM published in the *Federal Register* on August 19, 2024 (89 FR 67009). The NPRM was prompted by an analysis of an event involving an IAE LLC Model PW1127GA-JM engine, which experienced an HPC IBR-7 separation that resulted in an aborted takeoff, and a manufacturer records review where it was determined that the failure of the HPC IBR-7 was caused by a nickel powdered metal anomaly. The manufacturer also determined that the nickel powdered metal anomaly is similar in nature to an anomaly previously observed, and these parts are susceptible to failure much earlier than previously determined. As a result, the FAA issued multiple ADs requiring AUSIs for certain affected parts, however the overall mitigation plan included several actions that

were not available when those ADs were published. Since that time, PW has developed the AUSI for the HPC 7th-stage axial rotors.

In the NPRM, the FAA proposed to require performing initial and repetitive AUSIs of certain HPC 7th-stage axial rotors for cracks and replacement if necessary. The FAA is issuing this AD to address the unsafe condition on these products.

Discussion of Final Airworthiness Directive

Comments

The FAA received comments from three commenters. The commenters were the Air Line Pilots Association, International (ALPA), PW, and Delta Air Lines, Inc (DAL). ALPA supported the NPRM without change. The following presents the comments received on the NPRM and the FAA's response to each comment.

Request to Clarify Required Actions for Performing AUSIs

PW and DAL requested that the FAA revise paragraphs (g)(1) and (2) of the proposed AD by replacing "in accordance with paragraphs (g)(1)(i) and (g)(1)(ii)" to "in accordance with paragraph (g)(1)(i) or (g)(1)(ii)." PW noted that the intent is to perform one step or the other, as applicable. DAL stated that the current language would drive the requirement to perform an AUSI in accordance with the ASBs listed in both paragraphs.

The FAA agrees to update the language in paragraphs (g)(1) and (2) of this AD as requested.

Request to Correct Reference to Service Material

DAL and PW requested that the FAA revise the reference to service material in the proposed AD from "PW1000G-A-72-00-0157-00A-930A-D, Issue No: 002, dated May 22, 2024" to "PW1000G-A-72-00-0157-00B-930A-D, Issue No: 002, dated May 22, 2024." DAL noted that PW1000G-A-72-00-0157-00A-930A-D is an incorrect reference

and may cause confusion because it is used for an unrelated issue on PW1500G Model engines.

The FAA agrees that the reference to the service material is incorrect. This AD has been updated as requested.

Request to Add Special Instruction to Paragraph (i) of the Proposed AD

PW requested that the FAA add PW Special Instruction (SI) No. 100F-24 Revision TBD, dated TBD to paragraph (i) Credit for Previous Actions of the proposed AD. PW stated that they plan to provide the latest SI No. 100F-24 with the Revision Letter and date of issuance to the FAA prior to final rule issuance. PW also noted that the affected parts included in PW SI No. 100F-24 receive an AUSI scan in production.

The FAA disagrees with the commenter's request to add PW SI No. 100F-24 to paragraph (i) of the AD. The FAA notes that there is no need to provide previous credit to an action that is required at the next piece-part exposure. In addition, the FAA cannot reference a document that has not been issued.

Request to Revise Definition of Part Eligible for Installation

DAL and PW requested that the FAA revise paragraph (h)(3) of the proposed AD to include new hardware that has not been service run in the definition for "part eligible for installation." DAL also requested that the FAA add the following language to paragraph (h)(3) of the proposed AD; "(iv) A new zero-time HPC 7th-stage axial rotor, P/N 30G5307, that has passed AUSI per original manufacturing records." PW also requested that the FAA revise paragraph (h)(3) of the proposed AD to read as follows; "(iv) A new zero-time HPC 7th-stage axial rotor, PN 30G5307, that per Pratt & Whitney Special Instruction No. 100F-24 Revision TBD, dated TBD (SI No. 100F-24) received an angle scan at new part production." DAL noted that the global AMOC to AD 2024-06-04 allows for the use of PW SI No. 100F-24 to aid in determining hardware installation eligibility, and a similar approach within the subject AD is required to provide a method of ensuring new zero-time hardware has a record of AUSI accomplishment. PW noted that the parts listed in SI No. 100F-24 receive an AUSI scan in production and should be included in the definition for part eligible for installation.

The FAA agrees that the definition for a "part eligible for installation" should include new parts that have not been service run and that have already undergone an AUSI during production. The FAA has added the following paragraph to this AD: "(h)(3)(iv): A new zero-time HPC 7th-stage axial rotor, P/N 30G5307, that has passed an AUSI at new part production." The FAA has also added the following note to this AD: "Note 1 to paragraph (h)(3)(iv): Parts that have been inspected at new part production are identified in the original manufacturing record for the part and may be obtained using PW's Vital Statistics Logbook look up tool." Instructions on how to use PW's Vital Statistics Logbook look up tool can be found in PW Special Instruction No. 100F-24, Revision E or later revisions. The FAA disagrees with the request to include reference to PW SI No. 100F-24 in the definition for a "part eligible for installation" because the latest revision of the service material has not been issued yet and was not available for review while processing this AD.

Request to Clarify Installation Eligibility for Rotors on Different Engine Models

DAL requested that the FAA clarify whether the following steps provide installation eligibility for the 7th-stage axial rotor, P/N 30G5307, regardless of which engine model the part originated from:

(1) Step 7 of PW ASB PW1000G-A-72-00-0210-00A-930A-D, Issue No: 002, dated May 22, 2024

(2) Step 5.B of PW ASB PW1000G-A-72-00-0211-00A-930A-D, Issue No: 002, dated August 1, 2024

(3) Step 7 of PW ASB PW1000G-A-72-00-0157-00B-930A-D, Issue No: 002, dated May 22, 2024

(4) Step 5.B of PW ASB PW1000G-A-72-00-0158-00B-930A-D, Issue No: 002, dated August 1, 2024.

DAL noted that the HPC 7th-stage axial rotor having P/N 30G5307 is used in both PW Model PW1500G and PW1900G engines.

To clarify, the service material listed in paragraphs (g)(1) and (2) of this AD and identified by the commenter may be used to indicate accomplishment of the AUSI. The FAA did not change this AD as a result of this comment.

Request to Change Language from "Crack" to "Crack Indication"

DAL requested that the FAA change the word "crack" to "crack indication" in paragraphs (g)(1), (2), and (3) of the proposed AD. DAL noted that the AUSI procedure can only show if the part being inspected has a "crack indication," not a "crack," so the current language in paragraphs (g)(1), (2), and (3) of the proposed AD will not drive replacement of affected hardware.

The FAA partially agrees. The FAA does not agree with the wording proposed by the commenter in paragraphs (g)(1) and (2) because those paragraphs require inspecting for cracks. The title of NDIP 1281 is, "PW1500 24K Rotor 7 High Pressure Compressor Disks Off-Wing Immersion Ultrasonic Inspection for Crack Detection." The FAA also disagrees with the commenter's note that the current language in paragraphs (g)(1), (2), and (3) of the proposed AD will not drive hardware replacement because parts that fail the required AUSI will be removed, regardless of the nomenclature used. Verification that a crack indication is not an actual crack can only be done through destructive evaluation of the part. The FAA agrees to meet the commenter's intent in paragraph (g)(3) of this AD by changing the wording from "if any crack is found," to "if any crack indication is found."

Conclusion

The FAA reviewed the relevant data, considered any comments received, and determined that air safety requires adopting this AD as proposed. Accordingly, the FAA is issuing this AD to address the unsafe condition on these products. Except for minor editorial changes, and any other changes described previously, this AD is adopted as proposed in the NPRM. None of the changes will increase the economic burden on any operator.

Material Incorporated by Reference under 1 CFR Part 51

The FAA reviewed the following material:

(1) PW Alert Service Bulletin (ASB) PW1000G-A-72-00-0157-00B-930A-D, Issue No: 002, dated May 22, 2024; and PW ASB PW1000G-A-72-00-0210-00A-930A-D, Issue No: 002, dated May 22, 2024; which specify procedures for performing initial AUSIs on affected HPC 7th-stage axial rotors. This material also includes the serial

numbers of affected HPC 7th-stage axial rotors. This material is distinct because it applies to different engine models in different configurations.

(2) PW ASB PW1000G-A-72-00-0158-00B-930A-D, Issue No: 002, dated August 1, 2024; and PW ASB PW1000G-A-72-00-0211-00A-930A-D, Issue No: 002, dated August 1, 2024; which specify procedures for performing repetitive AUSIs on affected HPC 7th-stage axial rotors. This material is distinct because it applies to different engine models in different configurations.

This material 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.

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.

Costs of Compliance

The FAA estimates that this AD affects 121 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
AUSI of HPC 7th-stage axial rotor	20 work-hours x $85 per hour = $1,700	$0	$1,700	$205,700

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

On-condition costs

Action	Labor Cost	Parts Cost	Cost per product
Replacement of HPC 7th-stage axial rotor	1 work-hours x $85 per hour = $85	$84,640	$84,725

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,

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

(3) 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 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(f), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new airworthiness directive: **2025-04-13 Pratt & Whitney**: Amendment 39-22971; Docket No. FAA-2024-2026; Project Identifier AD-2024-00163-E.

(a) Effective Date

This airworthiness directive (AD) is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

This AD applies to Pratt & Whitney (PW) Model PW1519G, PW1521G, PW1521GA, PW1521G-3, PW1524G, PW1524G-3, PW1525G, PW1525G-3, PW1919G, PW1921G, PW1922G, PW1923G, and PW1923G-A engines with an installed high-pressure compressor (HPC) 7th-stage axial rotor having part number (P/N) 30G5307.

(d) Subject

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

(e) Unsafe Condition

This AD was prompted by an analysis of an event involving an International Aero Engines, LLC Model PW1127GA-JM engine, which experienced an HPC 7th-stage integrally bladed rotor separation that resulted in an aborted takeoff. The FAA is issuing this AD to prevent failure of the HPC 7th-stage axial rotor. The unsafe condition, if not addressed, could result in uncontained HPC 7th-stage axial rotor failure, release of high-energy debris, damage to the engine, damage to the airplane, and possible loss of the airplane.

(f) Compliance

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

(g) Required Actions

(1) At the next piece-part exposure after the effective date of this AD and thereafter at each piece-part exposure, except as required by paragraph (g)(2) and (4) of this AD, perform an angled ultrasonic inspection (AUSI) of the affected HPC 7th-stage axial rotor for cracks in accordance with paragraphs (g)(1)(i) or (ii) of this AD, as applicable.

(i) For Model PW1500G engines: Step 7 of the Accomplishment Instructions of PW Alert Service Bulletin (ASB) PW1000G-A-72-00-0210-00A-930A-D, Issue No: 002, dated May 22, 2024 (PW1000G-A-72-00-0210-00A-930A-D, Issue No: 002), or step 5.B of the Accomplishment Instructions of PW ASB PW1000G-A-72-00-0211-00A-930A-D, Issue No: 002, dated August 1, 2024.

(ii) For Model PW1900G engines: Step 7 of the Accomplishment Instructions of PW ASB PW1000G-A-72-00-0157-00B-930A-D, Issue No: 002, dated May 22, 2024 (PW1000G-A-72-00-0157-00B-930A-D, Issue No: 002), or step 5.B of the Accomplishment Instructions of PW ASB PW1000G-A-72-00-0158-00B-930A-D, Issue No: 002, dated August 1, 2024.

(2) For engines with an installed HPC 7th-stage axial rotor with a serial number listed in Table 1 of PW1000G-A-72-00-0210-00A-930A-D, Issue No: 002, or Table 1 of PW1000G-A-72-00-0157-00B-930A-D, Issue No: 002, that have not had an AUSI performed prior to the effective date of this AD, at the next HPC engine shop visit after the effective date of this AD, not to exceed 10,000 part cycles since new, or within 100 flight cycles (FCs) after the effective date of this AD, whichever occurs later, and thereafter at each piece-part exposure: perform an AUSI of the HPC 7th-stage axial rotor for cracks in accordance with paragraphs (g)(1)(i) or (ii) of this AD, as applicable.

(3) If any crack indication is found during any inspection required by paragraphs (g)(1) or (2) of this AD, before further flight, remove the HPC 7th-stage axial rotor from service and replace with a part eligible for installation.

(4) If an HPC 7th-stage axial rotor has accumulated 100 FCs or less since the last AUSI, reinspection is not required until the next shop visit provided that the part was not damaged during removal from the engine.

(h) Definitions

For the purpose of this AD:

(1) “Model PW1500G” engines are PW Model PW1519G, PW1521G, PW1521GA, PW1521G-3, PW1524G, PW1524G-3, PW1525G, and PW1525G-3 engines.

(2) “Model PW1900G” engines are PW Model PW1919G, PW1921G, PW1922G, PW1923G, and PW1923G-A engines.

(3) A “part eligible for installation” is any of the following:

(i) An HPC 7th-stage axial rotor, P/N 30G5307, that has passed the AUSI required by paragraphs (g)(1) or (2) of this AD.

(ii) An HPC 7th-stage axial rotor, P/N 30G5307, that has a Certificate of Conformance that shows compliance with NDIP-1281.

(iii) An HPC 7th-stage axial rotor that has a later approved P/N.

(iv) A new zero-time HPC 7th-stage axial rotor, P/N 30G5307, that has passed an AUSI at new part production.

Note 1 to paragraph (h)(3)(iv): Parts that have been inspected at new part production are identified in the original manufacturing record for the part and may be obtained using PW’s Vital Statistics Logbook look up tool.

(4) A “piece-part exposure” is when the HPC 7th-stage axial rotor is disassembled from the rotor assembly.

(5) An “HPC engine shop visit” is when the HPC rotor assembly is removed from the HPC module.

(i) Credit for Previous Actions

This paragraph provides credit for the initial AUSI required by paragraphs (g)(2) of this AD, if those actions were done before the effective date of this AD using any of the following:

(1) PW ASB PW1000G-A-72-00-0157-00B-930A-D, Issue No: 001, dated February 15, 2024.

(2) PW ASB PW1000G-A-72-00-0158-00B-930A-D, Issue No: 001, dated February 19, 2024.

(3) PW ASB PW1000G-A-72-00-0210-00A-930A-D, Issue No: 001, dated February 15, 2024.

(4) PW ASB PW1000G-A-72-00-0211-00A-930A-D, Issue No: 001, dated February 19, 2024.

(j) 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 manager of AIR-520 Continued Operational Safety Branch, send it to the attention of the person identified in paragraph (k) of this AD and email to: 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) Additional Information

For more information about this AD, contact Carol Nguyen, Aviation Safety Engineer, FAA, 2200 South 216th Street, Des Moines, WA 98198; phone: (781) 238-7655; email: carol.nguyen@faa.gov.

(l) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the material listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this material as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) Pratt & Whitney (PW) Alert Service Bulletin (ASB) PW1000G-A-72-00-0157-00B-930A-D, Issue No: 002, dated May 22, 2024.

(ii) PW ASB PW1000G-A-72-00-0158-00B-930A-D, Issue No: 002, dated August 1, 2024.

(iii) PW ASB PW1000G-A-72-00-0210-00A-930A-D, Issue No: 002, dated May 22, 2024.

(iv) PW ASB PW1000G-A-72-00-0211-00A-930A-D, Issue No: 002, dated August 1, 2024.

(3) For PW material identified in this AD, contact PW, 400 Main Street, East Hartford, CT 06118; phone: (860) 565-0140; email: help24@prattwhitney.com; website: connect.prattwhitney.com.

(4) You may view this material 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.

(5) You may view this material at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, visit www.archives.gov/federal-register/cfr/ibr-locations or email fr.inspection@nara.gov.

Issued on February 21, 2025.

Peter A. White,
Deputy Director, Integrated Certificate Management Division,
Aircraft Certification Service.

[FR Doc. 2025-03441 Filed: 3/3/2025 8:45 am; Publication Date: 3/4/2025]