[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2025-0918; Project Identifier AD-2024-00526-E]

RIN 2120-AA64

Airworthiness Directives; Pratt & Whitney Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The FAA proposes to adopt a new airworthiness directive (AD) for certain Pratt & Whitney (PW) Model F117-PW-100, PW2037, PW2037D, PW2037M, PW2040, PW2040D, PW2043, PW2143, and PW2643 engines. This proposed AD was prompted by an updated analysis of an event involving an International Aero Engines, LLC (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 engine shutdown and aborted takeoff. This proposed AD would require repetitive angled ultrasonic inspections (AUSIs) of certain high-pressure turbine (HPT) 1st-stage disks and turbine hubs for any crack indications, and if necessary, removal from service and replacement, and removal from service of certain HPT lenticular seal assemblies. The FAA is proposing this AD to address the unsafe condition on these products.

DATES: The FAA must receive comments on this proposed 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. 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 under Docket No. FAA-2025-0918; 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 NPRM, any comments received, and other information. The street address for Docket Operations is listed above.

Material Incorporated by Reference:

• For PW material identified in this proposed 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.

FOR FURTHER INFORMATION CONTACT: Molly Sturgis, Aviation Safety Engineer, FAA, 2200 South 216th Street, Des Moines, WA 98198; phone: (562) 627-5373; email: molly.a.sturgis@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under the ADDRESSES section. Include "Docket No. FAA-2025-0918; Project Identifier AD-2024-00526-E" at the beginning of your comments. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. The FAA will consider all comments received by the closing date and may revise this proposal 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 NPRM.

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 NPRM 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 NPRM, 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 NPRM. Submissions containing CBI should be sent to Molly Sturgis, Aviation Safety Engineer, FAA, 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 December 24, 2022, an Airbus Model A320neo airplane powered by IAE LLC Model PW1127GA-JM engines, experienced a failure of the HPC IBR-7 that resulted in an engine shutdown and aborted takeoff. 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 revealed that the failure of the HPC IBR-7 was caused by a nickel powdered metal anomaly, similar in nature to an anomaly previously observed. The analysis also concluded that there is an increased risk of failure for additional nickel powdered metal parts in certain nickel powdered metal production campaigns, and these parts are susceptible to failure much earlier than previously determined. As a result, the FAA is proposing additional AUSIs for certain affected nickel powdered metal parts and removal from service of certain affected nickel powdered metal parts. Certain PW Model F117-PW-100, PW2037, PW2037D, PW2037M, PW2040, PW2040D, PW2043, PW2143, and PW2643 engines are among the products affected by this condition. 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 possible loss of the airplane.

FAA's Determination

The FAA is issuing this NPRM after determining that the unsafe condition described previously is likely to exist or develop on other products of the same type design.

Material Incorporated by Reference under 1 CFR Part 51

The FAA reviewed PW Alert Service Bulletin (ASB) PW2000 A72-779, dated May 2, 2024, and PW ASB PWF117 A72-434, dated May 1, 2024, which specifies procedures for a repetitive AUSIs of the HPT 1st-stage disk for crack indications. This material is distinct since each applies to different engine models.

The FAA also reviewed PW ASB PW2000 A72-780, dated May 2, 2024, and PW ASB PWF117 A72-433, dated May 1, 2024, which specifies procedures for repetitive AUSIs of the turbine hub. This material is distinct since each applies to different engine models.

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.

Proposed AD Requirements in this NPRM

This proposed AD would require repetitive AUSIs of certain HPT 1st-stage disks and turbine hubs for any crack indications, and if necessary, removal from service and replacement, and removal from service of certain HPT lenticular seal assemblies.

Costs of Compliance

The FAA estimates that this AD, if adopted as proposed, would affect 484 engines installed on airplanes of U.S. registry. The FAA estimates that 13 engines will require replacement of the HPT lenticular seal assembly.

The FAA estimates the following costs to comply with this proposed AD:

Estimated costs

Action	Labor Cost	Parts Cost	Cost per product	Cost on U.S. operators
AUSI of HPT 1st-stage disk	5 work-hours x $85 per hour = $425	$0	$425	$205,700
AUSI of turbine hub	5 work-hours x $85 per hour = $425	$0	$425	$205,700
Replacement of HPT lenticular seal assembly (13 engines)	13 work-hours x $85 per hour = $1,105	$511,240	$512,345	$6,660,485

The FAA estimates the following costs to do any necessary replacements that would be required based on the results of the proposed inspections. 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 HPT 1st-stage disk	10 work-hours x $85 per hour = $850	$730,000	$730,850
Replacement of turbine hub	10 work-hours x $85 per hour = $850	$500,000	$500,850

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

The FAA determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would 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 this proposed regulation:

(1) Is not a "significant regulatory action" under Executive Order 12866,

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

(3) Would 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 Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 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:

Pratt & Whitney: Docket No. FAA-2025-0918; Project Identifier AD-2024-00526-E.

(a) Comments Due Date

The FAA must receive comments on this airworthiness directive (AD) by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

This AD applies to Pratt & Whitney (PW) Model F117-PW-100, PW2037, PW2037D, PW2037M, PW2040, PW2040D, PW2043, PW2143, and PW2643 engines.

(d) Subject

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

(e) Unsafe Condition

This AD was prompted by an updated analysis of an event involving an International Aero Engines, LLC Model PW1127GA-JM engine, which experienced a high-pressure compressor 7th-stage integrally bladed rotor separation that resulted in an engine shutdown and aborted takeoff. The FAA is issuing this AD to prevent failure of the high-pressure turbine (HPT) 1st-stage disk, and turbine hub. The unsafe condition, if not addressed, could result in uncontained disk 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 every piece-part exposure, do an angled ultrasonic inspection (AUSI) of the HPT 1st-stage disk for any crack indications in accordance with Paragraph 4. of the Accomplishment Instructions of PW Alert Service Bulletin (ASB) PW2000 A72-779, dated May 2, 2024, or Paragraph 4. of the Accomplishment Instructions of PW ASB PWF117 A72-434, dated May 1, 2024, as applicable to the engine model.

(2) At the next piece-part exposure after the effective date of this AD and thereafter at every piece-part exposure, do an AUSI of the turbine hub for any crack indications in accordance with Paragraph 4. of the Accomplishment Instructions of PW ASB PW2000 A72-780, dated May 2, 2024, or Paragraph 4. of the Accomplishment Instructions of PW ASB PWF117 A72-433, dated May 1, 2024, as applicable to the engine model.

(3) If, during any inspection required by paragraph (g)(1) or (2) of this AD, any crack indication is found, remove the affected part from service and replace with a part eligible for installation.

(4) For engines with an installed HPT lenticular seal assembly having a part number and serial number identified in figure 1 to paragraph (g)(4) of this AD: At the next piece-part exposure after the effective date of this AD, remove the HPT lenticular seal assembly from service and replace with a part eligible for installation.

Figure 1 to paragraph (g)(4) - Affected HPT Lenticular Seal Assemblies

Part Number (P/N)	Serial Number
1B8575	DKLBGY5919
1B8575	DKLBGY5922
1B8575	DKLBGY5945
1B8575	DKLBGY5936
1B8575	DKLBGY5944
1B8575	DKLBGY5946
1B8575	DKLBGY5948
1B8575	DKLBGY5949
1B8575	DKLBGY5952
1B8575	DKLBGY5953
1B8575	DKLBGY5959
1B8575	DKLBG48210
1B8575	DKLBG48244
1B8575	DKLBG48292

(h) Definitions

(1) For the purpose of this AD, a “piece-part exposure” is:

(i) For paragraph (g)(1) of this AD, when the HPT 1st-stage disk is removed from the engine and all the blades are removed from the HPT 1st-stage disk.

(ii) For paragraph (g)(2) of this AD, when the turbine hub is removed from the engine and all the blades are removed from the turbine hub.

(iii) For paragraph (g)(4) of this AD, when the HPT lenticular seal assembly is removed from either the HPT 1st-stage disk or the HPT 2nd-stage hub.

(2) For the purpose of this AD, a "part eligible for installation" is:

(i) An HPT 1st-stage disk having P/N 1B7801, 1B3601, or 1B3601-001 that has passed the AUSI required by paragraph (g)(1) of this AD.

(ii) An HPT 1st-stage disk having P/N 1B7801, 1B3601, or 1B3601-001, that has a certificate of conformance that shows compliance with Non-Destructive Inspection Procedure (NDIP) NDIP-1282.

(iii) A new zero-time HPT 1st-stage disk having P/N 1B7801, 1B3601, or 1B3601-001 that has passed an AUSI at new part production.

(iv) A turbine hub having P/N 1B4902, 1B6602, or 1B8002 that has passed the AUSI required by paragraph (g)(2) of this AD.

(v) A turbine hub having P/N 1B4902, 1B6602, or 1B8002 that has a certificate of conformance that shows compliance with NDIP-1283.

(vi) A new zero-time turbine hub having P/N 1B4902, 1B6602, or 1B8002 that has passed an AUSI at new part production

(vii) Any HPT lenticular seal assembly that does not have a part number and serial number identified in figure 1 to paragraph (g)(4) of this AD.

(i) Installation Prohibition

(1) As of the effective date of this AD, no person may install on any engine, an HPT 1st-stage disk having P/N 1B7801, 1B3601, or 1B3601-001, unless it is a part eligible for installation as defined in paragraph (h)(2) of this AD.

(2) As of the effective date of this AD, no person may install on any engine, a turbine hub having P/N 1B4902, 1B6602, or 1B8002, unless it is a part eligible for installation as defined in paragraph (h)(2) of this AD.

(3) As of the effective date of this AD, no person may install on any engine, an HPT lenticular seal assembly having a part number and serial number identified in figure 1 to paragraph (g)(4) of this AD.

(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 the 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 Molly Sturgis, Aviation Safety Engineer, FAA, 2200 South 216th Street, Des Moines, WA 98198; phone: (562) 627-5373; email: molly.a.sturgis@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) PW2000 A72-779, dated May 2, 2024.

(ii) PW ASB PW2000 A72-780, dated May 2, 2024.

(iii) PW ASB PWF117 A72-434, dated May 1, 2024.

(iv) PW ASB PWF117 A72-433, dated May 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 May 23, 2025.

Lona C. Saccomando,
Acting Deputy Director, Integrated Certificate Management Division,
Aircraft Certification Service.
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