



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2025-0480; Project Identifier AD-2024-00546-E; Amendment 39-23226; AD 2025-26-04]

RIN 2120-AA64

Airworthiness Directives; International Aero Engines LLC Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for all International Aero Engines, LLC (IAE LLC) Model PW1122G-JM, PW1124G-JM, PW1124G1-JM, PW1127G-JM, PW1127G1-JM, PW1127G1A-JM, PW1127G1B-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 multiple reports of fan blade fracture events, three of which resulted in an engine under cowl fire or pool fire. This AD requires removal of one loop cushion clamp from the hydraulic fuel pressure fuel oil cooler fuel tube assembly (CP09 tube assembly), replacement of the thermal management system (TMS) clevis mounts with redesigned TMS clevis mounts, and reinstallation of the loop cushion clamp, as applicable. 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-2025-0480; 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 Pratt & Whitney (PW) material identified in this AD, contact IAE LLC, 400 Main Street, East Hartford, CT 06118; phone: (860) 565-0140; email: help24@pw.utc.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-2025-0480.

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 all International Aero Engines, LLC (IAE LLC) Model PW1122G-JM, PW1124G-JM, PW1124G1-JM, PW1127G-JM, PW1127G1-JM, PW1127G1A-JM, PW1127G1B-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. The NPRM was published in the *Federal Register* on March 28, 2025 (90 FR 14057). The NPRM was prompted by multiple reports of fan blade fracture events due to bird strikes. Three of these events resulted in an engine under cowl fire or pool fire. In the NPRM, the FAA proposed to require removal of one loop cushion clamp from the CP09 tube assembly and replacement of the TMS clevis mounts with redesigned TMS clevis mounts.

The FAA is issuing this AD to prevent a fuel leak resulting from a fan blade fracture. The unsafe condition, if not addressed, could result in an uncontrolled engine fire and damage to the airplane.

Discussion of Final Airworthiness Directive

Comments

The FAA received comments from nine commenters. The commenters were the Airline Pilots Association, International (ALPA); All Nippon Airways (ANA); Delta Air Lines (Delta); Lufthansa Technik AG (Lufthansa); PW; ProTech Aero Services Limited (ProTech); United Airlines (United); and an individual. The following presents the comments received on the NPRM and the FAA's response to each comment.

Support for the NPRM

ALPA, United, and the individual expressed support for the NPRM.

Request to Define "Next Engine Shop Visit"

In the NPRM, the FAA proposed that paragraph (g) would require certain parts to be replaced "at the next engine shop visit." Lufthansa, Delta, and ANA requested that the FAA refine this term. Delta stated that there was no definition of "engine shop visit" in the NPRM. Lufthansa requested that the FAA specify the type of shop visit. Lufthansa stated that during quick-turn shop visits with nose-down procedure, it is not possible to perform the required modification. Lufthansa also noted that the modification requirement could have a significant effect on operations that are intended to minimize turnaround time, and requested that such types of visits be excluded from the rule. ANA indicated that the engine manufacturer's recommended maintenance program defines "shop visit" as "whenever an engine maintenance opportunity entails separating pairs of major mating gas path flanges." ANA requested clarification on whether this definition of "shop visit" from the engine maintenance program is applicable.

The FAA agrees to define "next engine shop visit," however, the FAA does not agree to exclude quick-turn shop visits. To clarify, for this AD quick-turn shop visits are defined as limited scope and meant to target specific engine issues. However, regardless of the reason for induction, the FAA considers those quick-turn shop visits to be "engine shop visits," as defined in paragraph (i) of this final rule. Operators may request an

alternative method of compliance (AMOC) in accordance with the procedures specified in paragraph (k) of this AD, provided sufficient data are submitted to substantiate that the AMOC would provide an acceptable level of safety. The FAA has revised this final rule by including paragraph (i), which includes the definition of “engine shop visit.”

Request to Alter Compliance Times

The individual requested that the FAA account for different compliance schedules in relation to this NPRM. The commenter stated that the compliance schedule of the required actions could affect operators with major operational interruptions and higher maintenance costs if additional down time is necessary to comply with this proposed AD. Additionally, the commenter encouraged the FAA to work with stakeholders to improve the AD, such as by exploring other alternative methods of risk reduction or conducting a cost-benefit analysis.

The FAA disagrees with the request to alter the compliance times of this AD. In developing an appropriate compliance time for this action, the FAA considered the recommendations from the manufacturer. These recommendations included the urgency associated with the unsafe condition, the availability of required parts, and the practical aspect of accomplishing the required modification within a period of time that corresponds to the normal scheduled maintenance for most affected operators. In consideration of these items, the FAA has determined that the specified compliance times will ensure an acceptable level of safety. The NPRM gives all stakeholders and the general public the opportunity to comment on the proposed required actions and compliance times.

As to the commenter’s other suggestion, the FAA worked with industry stakeholders, including the manufacturer, and affected operators through the public comment process, to develop this final rule. However, any operator may request an AMOC in accordance with the procedures specified in paragraph (k) of this AD, provided sufficient data are submitted to substantiate that the AMOC would provide an acceptable level of safety. The FAA has not changed this AD based on this comment.

Request for Different Compliance Times for Engines That are Not Installed

ProTech stated support for the compliance times for engines that are already installed on airplanes. However, ProTech requested that the FAA specify a compliance time of “Within 30 days after the effective date of this AD, or at the time of installation on an airplane, whichever comes later . . .” for engines which are not installed on an airplane.

The FAA agrees to clarify the compliance time and has revised paragraph (g)(1) of this AD to account for each subset of engines.

Request to Remove Certain Language

PW requested that the FAA remove “due to bird strike” from the Summary, Background, and the Unsafe Condition sections.

The FAA agrees with the request. Although three of the six fan blade fracture events were caused by bird strikes, other events can fracture a fan blade. The FAA has removed all instances of “due to bird strike” in this final rule, except for the description of the NPRM in the Background section.

Request to Use Updated Service Material

Delta and ANA requested that the FAA update the required actions to refer to an updated revision of the applicable service material. Delta stated that the later revision allows operators to reuse certain part-numbered bolts that are removed, if the bolts pass certain inspection requirements. Delta stated that this is based on parts availability. Delta also requested the FAA revise the credit for previous actions paragraph to include the updated service material.

ANA stated that the instructions in a certain engine manual do not specify the requirement to discard bolt part number MS9716-08 or to install new bolts. ANA also stated that if the bolts have passed certain inspections and procedures and the required torque was applied, these bolts are not required to be discarded. ANA requested that the FAA allow certain part-numbered bolts to be reused and not discarded if they have passed certain inspections and procedures.

The FAA agrees to allow certain part-numbered bolts to be reused if they have passed certain inspections and procedures. Additionally, since the NPRM was published,

the manufacturer has released multiple revisions to PW Alert Service Bulletin (ASB) PW1000G-C-72-00-0214-00A-930A-D. The FAA has revised this AD to reference PW ASB PW1000G-C-72-00-0214-00A-930A-D, Issue 006 as the appropriate source of material and has included credit for all previous revisions.

Request to Require Reinstallation of The Loop Cushion Clamp

Delta requested that the FAA revise the required actions to require reinstallation of the loop cushion clamp after replacement of the TMS clevis mounts. Delta stated that PW ASB PW1000G-C-72-00-0214-00A-930A-D contains a step for reinstalling the loop cushion clamp after the TMS clevis mounts have been replaced, which the FAA did not include in the NPRM. Delta expressed the expectation that since the required steps of the service material include removal of the loop cushion clamp, that the intention would also be to reinstall.

The FAA agrees. However, since the NPRM was published, PW ASB PW1000G-C-72-00-0214-00A-930A-D has been updated and the FAA has revised this AD to refer to the latest revision of the required material. Additionally, the steps contained in the updated material have changed, which in turn, caused the steps referenced in this AD to change. Accordingly, the FAA has revised paragraph (g)(2) of this AD to require the steps in the latest revision of PW ASB PW1000G-C-72-00-0214-00A-930A-D, which includes reinstalling the loop cushion clamp with the redesigned TMS clevis mounts after the TMS clevis mounts are replaced.

Request to Revise Terminating Action

PW requested that the FAA revise the terminating action paragraph of the NPRM to specify that the actions specified in paragraph (g)(2) of the NPRM constitute a terminating action for the entire NPRM. No further justification was provided.

The FAA disagrees with the request to revise the terminating action to apply to the entire AD. The FAA notes that the terminating action paragraph of this AD only applies to the removal of the loop cushion clamp because once the TMS clevis mounts are replaced, this action is no longer necessary. The FAA has not changed this AD based on this request.

Request to Change Interim Action to Final Action

PW requested that the FAA revise the wording of the NPRM to specify that the required actions are final and that the NPRM is not considered an interim action. PW stated that the TMS clevis mounts replacement and subsequent reinstallation of the loop cushion clamp addresses the unsafe condition.

The FAA agrees that the TMS clevis mounts replacement and subsequent reinstallation of the loop cushion clamp does address the unsafe condition. However, since the FAA has not included the interim action paragraph in this final rule, there is no need for the FAA to change this final rule based on the request.

Request for Clarification Regarding Removal of the Loop Cushion Clamp

ANA requested that the FAA revise paragraphs (c) or (g)(1) of the NPRM to include an exemption for engines that have already complied with ASB PW1000G-C-72-00-0214-00A-930A-D. ANA requested clarification whether engines that have replaced the TMS clevis mounts are also required to remove the loop cushion clamp. ANA stated that even though the terminating action removes the requirement to remove the loop cushion clamp, there is still possibility for confusion for the operator, which may accidentally do both actions.

The FAA agrees to clarify. The replacement of the TMS clevis mounts specified in paragraph (g)(2) of this AD terminates the loop clamp removal specified in paragraph (g)(1) of this AD. As discussed previously in this final rule, the FAA has also included reinstallation of the loop clamp as an additional requirement to paragraph (g)(2) of this AD and as such, there is no need to include the language suggested by the commenter. Furthermore, paragraph (f) of this AD states to accomplish the required actions within the compliance times specified, “unless already done.” Therefore, if operators have accomplished the actions required for compliance with this AD before the effective date of this AD, no further action is necessary. The FAA has not revised this AD in this regard.

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.

- PW ASB PW1000G-C-72-00-0214-00A-930A-D, Issue No. 006, dated August 19, 2025, which specifies procedures for replacement of the TMS clevis mounts with redesigned TMS clevis mounts and reinstallation of the loop cushion clamp.

- PW ASB PW1000G-C-73-00-0053-00A-930A-D, Issue No. 005, dated September 18, 2024, which specifies procedures for removing one loop cushion clamp from the CP09 tube assembly.

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.

Costs of Compliance

The FAA estimates that this AD affects 586 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
Remove one loop cushion clamp from the CP09 tube assembly	9 work-hours x \$85 per hour = \$765	\$0	\$765	\$448,290
Replace the TMS clevis mounts	107 work-hours x \$85 per hour = \$9,095	\$17,000	\$26,095	\$15,291,670
Install one loop cushion clamp on the CP09 tube assembly	9 work-hours x \$85 per hour = \$765	\$0	\$765	\$448,290

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(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new airworthiness directive:

2025-26-04 International Aero Engines LLC: Amendment 39-23226; Docket No. FAA-2025-0480; Project Identifier AD-2024-00546-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 International Aero Engines, LLC Model PW1122G-JM, PW1124G-JM, PW1124G1-JM, PW1127G-JM, PW1127G1-JM, PW1127G1A-JM, PW1127G1B-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.

(d) Subject

Joint Aircraft System Component (JASC) Code 1400, Miscellaneous Hardware.

(e) Unsafe Condition

This AD was prompted by multiple reports of fan blade fracture events, three of which resulted in an engine under cowl fire or pool fire. The FAA is issuing this AD to prevent a fuel leak resulting from a fan blade fracture. The unsafe condition, if not addressed, could result in an uncontrolled engine fire and damage to 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 or upon installation of an affected engine, whichever occurs later, remove one loop cushion clamp, part number ST1540-06, from the hydraulic fuel pressure fuel oil cooler fuel tube assembly (CP09 tube assembly) in accordance with the Accomplishment Instructions, For Engines Installed On Aircraft, paragraph C, or For Engines Not Installed On Aircraft, paragraph A, of Pratt & Whitney (PW) Alert Service Bulletin (ASB) PW1000G-C-73-00-0053-00A-930A-D, Issue No. 005, dated September 18, 2024.

(2) At the next engine shop visit after the effective date of this AD, replace the thermal management system (TMS) clevis mount with redesigned TMS clevis mounts in accordance with paragraphs AI, AJ, AL through AN, and AZ(6) of the Accomplishment Instructions of PW ASB PW1000G-C-72-00-0214-00A-930A-D, Issue No. 006, dated August 19, 2025.

(h) Terminating Action

The actions specified in paragraph (g)(2) of this AD constitute terminating action for the requirements of paragraph (g)(1) of this AD. This terminating action may be accomplished instead of the actions specified in paragraph (g)(1) of this AD.

(i) Definition

For the purpose of this AD, an “engine shop visit” is the induction of an engine into the shop for maintenance.

(j) Credit for Previous Actions

(1) This paragraph provides credit for the actions specified in paragraph (g)(1) of this AD, if done before the effective date of this AD using any of the material specified in paragraph (j)(1)(i) through (iv) of this AD inclusive.

(i) PW ASB PW1000G-C-73-00-0053-00A-930A-D, Issue No. 001, dated October 25, 2022.

(ii) PW ASB PW1000G-C-73-00-0053-00A-930A-D, Issue No. 002, dated November 07, 2022.

(iii) PW ASB PW1000G-C-73-00-0053-00A-930A-D, Issue No. 003, dated November 21, 2022.

(iv) PW ASB PW1000G-C-73-00-0053-00A-930A-D, Issue No. 004, dated March 15, 2024.

(2) This paragraph provides credit for the actions specified in paragraph (g)(2) of this AD, if done before the effective date of this AD using any of the material specified in paragraph (j)(2)(i) through (v) of this AD inclusive.

(i) PW ASB PW1000G-C-72-00-0214-00A-930A-D, Issue No. 001, dated July 19, 2023.

(ii) PW ASB PW1000G-C-72-00-0214-00A-930A-D, Issue No. 002, dated March 15, 2024.

(iii) PW ASB PW1000G-C-72-00-0214-00A-930A-D, Issue No. 003, dated May 16, 2024.

(iv) PW ASB PW1000G-C-72-00-0214-00A-930A-D, Issue No. 004, dated September 18, 2024.

(v) PW ASB PW1000G-C-72-00-0214-00A-930A-D, Issue No. 005, dated July 30, 2025.

(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 manager of AIR-520 Continued Operational Safety Branch, send it to the attention of the person identified in paragraph (l)(1) 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.

(l) Additional Information

(1) 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.

(2) Material identified in this AD that is not incorporated by reference is available at the address specified in paragraph (m)(3) of this AD.

(m) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference 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-C-72-00-0214-00A-930A-D, Issue No. 006, dated August 19, 2025.

(ii) PW ASB PW1000G-C-73-00-0053-00A-930A-D, Issue No. 005, dated September 18, 2024.

(3) For PW material identified in this AD, contact International Aero Engines, LLC, 400 Main Street, East Hartford, CT 06118; phone: (860) 565-0140; email: help24@pw.utc.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 December 23, 2025.

Peter A. White,

Deputy Director, Integrated Certificate Management Division,

Aircraft Certification Service.

[FR Doc. 2026-00330 Filed: 1/9/2026 8:45 am; Publication Date: 1/12/2026]