



適航指令發布單
Airworthiness Directive Issuance Form

民航局 AD 編號 AD number	CAA-2022-10-002	發布日期 Date issued	2022/10/5
適用之航空產品 Applied to (models, serial numbers or part numbers, as applicable)	International Aero Engines, LLC PW1122G-JM, PW1124G1-JM, PW1124G-JM, PW1127G1-JM, PW1127GA-JM, PW1127G-JM, PW1129G-JM, PW1130G-JM, PW1133GA-JM, and PW1133G-JM model turbofan engines with an installed: (1) High-pressure turbine (HPT) 1st-stage disk, part numbers (P/Ns) 30G4201, 30G6201, or 30G7301; and (2) HPT 2nd-stage disk, P/Ns 30G3902, 30G5502, or 30G6602.		
主旨摘要 Subject	This AD requires performing an ultrasonic inspection 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.		
民航局 CAA <input type="checkbox"/> 本國產品 Native product <input type="checkbox"/> 其他個案 Other	<div style="text-align: center;">設計國民航主管機構 Original Authority</div> <div style="display: flex; justify-content: space-between;"><div><input checked="" type="checkbox"/> FAA <input type="checkbox"/> EASA <input type="checkbox"/> Brazil <input type="checkbox"/> Transport Canada Civil Aviation <input type="checkbox"/> DGAC</div><div><input type="checkbox"/> Germany LBA <input type="checkbox"/> CAA-NL <input type="checkbox"/> UK CAA <input type="checkbox"/> Japan CAB <input type="checkbox"/> CAA of Israel <input type="checkbox"/> Other _____</div></div>		
	設計國 AD 編號 Original AD number	2022-19-15	
	1. 直接採用原 AD 之內容?(Is the original AD directly adopted?) <input checked="" type="checkbox"/> 是(Yes) <input type="checkbox"/> 否(No) _ a. 生效日期另訂為(Re-specify the effective date as) : _____ b. 執行時限另訂為(Re-specify the compliance time or period as) : _____ 2. 使用人是否需要將 AD 執行結果向民航局提出報告?(Do Users need to report the status of compliance to the CAA?) <input type="checkbox"/> 是(Yes) <input checked="" type="checkbox"/> 否(No)		
備註 Note	ATA 72. Ref. Pratt & Whitney Service Bulletin PW1000G-C-72-00-0188-00A-930A-D, Issue No: 002, dated July 8, 2022.		
<div>註： 1. AD 內容後附。 2. 航空器產品使用人得向民航局提出豁免、替代符合方法、執行時限之展延之申請。 3. 如有任何問題，請聯絡交通部民用航空局初始適航科。Tel：(02)2349-6330 / 6332, Fax：(02)2545-8464, e-mail：adcaa@mail.caa.gov.tw</div> <div>Note： 1. The AD text is enclosed. 2. Exemption, an alternative method of compliance or adjustment of the compliance time may be proposed to the CAA for approval. 3. For further information, please contact Civil Aeronautics Administration on Tel：(02)2349-6330 / 6332, Fax：(02)2545-8464, e-mail：adcaa@mail.caa.gov.tw</div>			

[Federal Register, Volume 87 Number 190 (Monday, October 3, 2022)]
[Rules and Regulations]
[Pages 59660-59664]
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[FR Doc No: 2022-21308]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2022-0292; Project Identifier AD-2021-01297-E; Amendment 39-22184; AD 2022-19-15]

RIN 2120-AA64

Airworthiness Directives; International Aero Engines, LLC Turbofan Engines

AGENCY:

Federal Aviation Administration (FAA), DOT.

ACTION:

Final rule.

SUMMARY:

The FAA is adopting a new airworthiness directive (AD) for certain International Aero Engines, LLC (IAE LLC) PW1122G-JM, PW1124G1-JM, PW1124G-JM, PW1127G1-JM, PW1127GA-JM, PW1127G-JM, PW1129G-JM, PW1130G-JM, PW1133GA-JM, and PW1133G-JM model turbofan engines. This AD was prompted by an analysis of an event involving an International Aero Engines AG (IAE AG) 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 performing an ultrasonic inspection (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. The FAA is issuing this AD to address the unsafe condition on these products.

DATES:

This AD is effective November 7, 2022.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of November 7, 2022.

ADDRESSES:

AD Docket: You may examine the AD docket at *regulations.gov* by searching for and locating Docket No. FAA-2022-0292; 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 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* by searching for and locating Docket No. FAA-2022-0292.

FOR FURTHER INFORMATION CONTACT:

Mark Taylor, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7229; email: Mark.Taylor@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 IAE LLC PW1122G-JM, PW1124G1-JM, PW1124G-JM, PW1127G1-JM, PW1127GA-JM, PW1127G-JM, PW1129G-JM, PW1130G-JM, PW1133GA-JM, and PW1133G-JM model turbofan engines. The NPRM published in the **Federal Register** on March 24, 2022 ([87 FR 16659](#)). The NPRM was prompted by an analysis of an event on March 18, 2020, in which an Airbus Model A321-231 airplane, powered by IAE AG 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 AG V2522-A5, V2524-A5, V2525-D5, V2527-A5, V2527E-A5, V2527M-A5, V2528-D5, V2530-A5, and V2533-A5 model turbofan engines.

Based on the root cause analysis performed since that March 2020 event, Pratt & Whitney (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 on September 10, 2021 ([86 FR 50610](#)), which requires the removal from service of certain HPT 1st-stage disks and HPT 2nd-stage disks installed on IAE LLC PW1122G-JM, PW1124G1-JM, PW1124G-JM, PW1127G1-JM, PW1127GA-JM, PW1127G-JM, PW1129G-JM, PW1130G-JM, PW1133GA-JM, and PW1133G-JM model turbofan engines.

Since the FAA issued AD 2021-19-10, PW identified another subpopulation of HPT 1st-stage disks and HPT 2nd-stage disks that require inspection and possible removal from service. Included in this additional subpopulation of HPT 1st-stage disks and HPT 2nd-stage disks are those installed

on the model turbofan engines affected by this AD. In the NPRM, the FAA proposed to require the performance of 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. 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 four commenters. The commenters were Air Line Pilots Association, International (ALPA), All Nippon Airways Co., Ltd. (ANA), Delta Air Lines, Inc. (DAL), and Lufthansa Technik AG (Lufthansa). The following presents the comments received on the NPRM and the FAA's response to each comment.

Revision to the Service Information References

Since the FAA issued the NPRM, PW notified the FAA that a new revision to the service information was available. PW published PW Service Bulletin (SB) PW1000G-C-72-00-0188-00A-930A-D, Issue No: 002, dated July 8, 2022, which changes the applicability section of the SB from a range of engine serial numbers (ESNs) to a list of HPT 1st-stage disk and HPT 2nd-stage disk part numbers (P/Ns).

The FAA has updated this AD to reference PW SB PW1000G-C-72-00-0188-00A-930A-D, Issue No: 002, dated July 8, 2022. The FAA has also added paragraph (i), Credit for Previous Actions, to this AD to allow credit for performing the USI 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. This change places no additional burden on operators.

Request To Include Previously Issued and Future Revisions of Service Information Not Incorporated by Reference

ANA and Lufthansa requested that the FAA add “or earlier” to paragraph (g)(1) of this AD to allow for the use of previously issued revisions of PW SB PW1000G-C-72-00-0112-00A-930A-D, Issue No: 005, dated July 22, 2021 (PW SB PW1000G-C-72-00-0112-00A-930A-D). ANA reasoned that PW SB PW1000G-C-72-00-0112-00A-930A-D is not incorporated by reference, nor does the NPRM reference PW SB PW1000G-C-72-00-0112-00A-930A-D, Issue No: 002 through 004.

Lufthansa reasoned that narrowing the required modification to Issue No: 005 of PW SB PW1000G-C-72-00-0112-00A-930A-D assumes that engines modified using earlier versions of the SB do not satisfy the requirements of paragraph (g)(1) of this AD. Further, Lufthansa stated that there are engines that have been modified using earlier versions of PW SB PW1000G-C-72-00-0112-00A-930A-D. In addition, Lufthansa noted that other paragraphs in the required actions do not refer to Issue No: 005 of PW SB PW1000G-C-72-00-0112-00A-930A-D, which could confuse operators when interpreting the requirements of paragraph (g)(1) of this AD.

DAL requested that the FAA revise paragraph (g)(1) of this AD to add “or later” to PW SB PW1000G-C-72-00-0112-00A-930A-D. DAL reasoned that any subsequent revision of PW SB PW1000G-C-72-00-0112-00A-930A-D would apply to this AD.

The FAA agrees that clarification is necessary and has revised paragraph (g)(1) of this AD to remove the issue number and date for PW SB PW1000G-C-72-00-0112-00A-930A-D.

Request To Revise the Applicability

DAL requested that the FAA update paragraph (c) of this AD to remove reference to ESNs. DAL commented that the NPRM includes only a range of ESNs in the applicability, which is derived from PW SB PW1000G-C-72-00-0188-00A-930A-D, Issue No: 001, dated September 13, 2021. DAL reasoned that by limiting the applicability to the range of ESNs, this AD would not account for the possibility of installing an affected HPT 1st-stage disk or HPT 2nd-stage disk onto any engine outside the ESN range that had an earlier than planned shop visit.

In response to this comment, the FAA has revised paragraph (c) of this AD, to remove “with engine serial numbers P770101 through P772647” and added, “with an installed: (1) High-pressure turbine (HPT) 1st-stage disk, part numbers (P/Ns) 30G4201, 30G6201, or 30G7301; and (2) HPT 2nd-stage disk, P/Ns 30G3902, 30G5502, or 30G6602.”

Request To Allow Future Revisions of Required Service Information

DAL requested that the FAA revise paragraph (g) of this AD to add “or later” to PW SB PW1000G-C-72-00-0188-00A-930A-D, Issue No: 002, dated July 8, 2022, to allow for the use of future approved revisions of PW SB PW1000G-C-72-00-0188-00A-930A-D, Issue No: 002, dated July 8, 2022. DAL reasoned that any subsequent revision would still apply to this AD. In addition, DAL stated that this change would include additional serial-numbered disks added to Table 2 of PW SB PW1000G-C-72-00-0188-00A-930A-D, Issue No: 002, dated July 8, 2022, in the effectivity of this AD.

The FAA disagrees with the request to revise this AD to allow for the use of future approved revisions of PW SB PW1000G-C-72-00-0188-00A-930A-D, Issue No: 002, dated July 8, 2022. Future revisions of PW SB PW1000G-C-72-00-0188-00A-930A-D, Issue No: 002, dated July 8, 2022, have not yet been published by the manufacturer or reviewed by the FAA. Any operator may request an alternative method of compliance to the requirements of paragraph (g) of this AD if future revisions of PW SB PW1000G-C-72-00-0188-00A-930A-D, Issue No: 002, dated July 8, 2022, are published. Additionally, if future revisions of PW SB PW1000G-C-72-00-0188-00A-930A-D, Issue No: 002, dated July 8, 2022, are published by the manufacturer and approved by the FAA, the FAA may consider further rulemaking at that time. The FAA did not change this AD as a result of this comment.

Request To Clarify Inspections for Affected HPT 1st-Stage and HPT 2nd-Stage Disks Removed from Service

DAL requested that the FAA revise paragraph (g) of this AD to clarify that affected HPT 1st-stage disks and HPT 2nd-stage disks identified as scrap during the engine shop visit do not require the USI. DAL commented that the actions proposed would require the performance of a USI on affected disks even if those disks are scrapped during an engine shop visit.

The FAA disagrees that operators are required to perform a USI on an HPT 1st-stage disk or HPT 2nd-stage disk that has been removed from service. In accordance with [14 CFR 39.7](#), anyone who operates a product that does not meet the requirements of an applicable AD is in violation of this section. As such, the actions of this AD are only required if a part is returned to service. The FAA did not change this AD as a result of this comment.

Request Clarification of Certificate of Conformance from PW's Non-Destructive Test (NDT) Suppliers

DAL requested that the FAA revise this AD to allow credit for the accomplishment of PW SB PW1000G-C-72-00-0188-00A-930A-D, Issue No: 002, dated July 8, 2022, if accomplished by PW or PW-approved NDT suppliers (original equipment manufacturer (OEM) or aftermarket). DAL commented that PW and PW-approved NDT suppliers provide Certificates of Conformance referring to USI Codes 1 and 45S per OEM requirements rather than the Non-Destructive Inspection Procedures (NDIPs) (NDIP-1230, NDIP-1232, NDIP-1231, or NDIP-1233) referenced in the Accomplishment Instructions, paragraphs 9.A. through 9.D, of PW SB PW1000G-C-72-00-0188-00A-930A-D, Issue No: 002, dated July 8, 2022. DAL reasoned that PW or PW-approved NDT suppliers may provide an airworthiness tag instead of a Certificate of Conformance. Further, DAL noted that the new airworthiness tag and other documentation provided with the HPT 1st-stage disk or HPT 2nd-stage disk may not reference PW SB PW1000G-C-72-00-0188-00A-930A-D, Issue No: 002, dated July 8, 2022, and disks may not have the part markings required by PW SB PW1000G-C-72-00-0188-00A-930A-D, Issue No: 002, dated July 8, 2022. DAL stated that this limited documentation has and is currently being provided for the HPT 1st-stage disks and HPT 2nd-stage disks affected by PW SB PW1000G-C-72-00-0188-00A-930A-D, Issue No: 002, dated July 8, 2022. Some of these affected HPT 1st-stage disks and HPT 2nd-stage disks are currently installed on engines that are in service or being installed during engine shop visits.

The FAA agrees that clarification is necessary and has added paragraph (h)(1)(v) to this AD, which adds the following definition of a part eligible for installation: “Any HPT 1st-stage disk or HPT 2nd-stage disk with a certificate of conformance that shows “PW1000G-C-72-00-0188-00A-930A-D,” “1 CODE 45S,” or identified by part marking “21CC332” or “SB 72-0188.”

Request To Expand the Use of a Part Eligible for Installation

DAL requested that the FAA expand the use of a part eligible for installation by adding the following required action as paragraph (g)(5) of this AD: “Replacement of HPT 1st-stage and HPT 2nd-stage disks: For International Aero Engines, LLC PW1122G-JM, PW1124G1-JM, PW1124G-JM, PW1127G1-JM, PW1127GA-JM, PW1127G-JM, PW1129G-JM, PW1130G-JM, PW1133GA-JM, and PW1133G-JM model turbofan engines, after the effective date of this AD, if the HPT 1st-stage and/or the HPT 2nd-stage disks require replacement, replace with a part eligible for installation.” DAL reasoned that the NPRM requires the current definition to be used when the HPT 1st-stage and HPT 2nd-stage disks fail the USI required by paragraph (g)(4) of this AD and does not ensure future de-modification is avoided. Further, DAL stated that the part eligible for installation definition should also address any scenario when the HPT 1st-stage and HPT 2nd-stage disks are replaced for any other reason.

In response to this comment, the FAA has added paragraph (i), Installation Prohibition, to this final rule.

Request To Revise the Definition of a Part Eligible for Installation

DAL requested that the FAA revise the definition of a part eligible for installation. DAL pointed out that if an affected HPT 1st-stage disk or HPT 2nd-stage disk fails the USI, the NPRM, as proposed, would not allow installation of an HPT 1st-stage or HPT 2nd-stage disk that was upgraded using PW SB PW1000G-C-72-00-0112-00A-930A-D (HPT Block D upgrade), which does not require an inspection as specified in paragraphs (g)(2) or (3) of this AD. DAL also mentioned that the upgraded HPT 1st-stage disk or HPT 2nd-stage disk should still be allowed for installation. DAL requested that the FAA add the following additional definitions to paragraph (h)(1) of this AD:

“(iii) Any HPT 1st-stage disk that has incorporated PW SB PW1000G-C-72-00-0112-00A-930A-D and does not require an inspection per paragraph (g)(2) of this AD.

(iv) Any HPT 2nd-stage disk that has incorporated PW SB PW1000G-C-72-00-0112-00A-930A-D and does not require an inspection per paragraph (g)(3) of this AD.”

The FAA agrees with the request and has added paragraphs (h)(1)(iii) and (iv) to this AD.

Request To Correct the Definition of a Part Eligible for Installation

DAL requested that the FAA correct paragraphs (h)(1)(i) and (ii) of this AD by changing the language from: “the USI required by paragraphs (g)(1)(i) and (g)(2) of this AD” to “the USI required by paragraphs (g)(1)(i) or (g)(2) of this AD” and “the USI required by paragraphs (g)(1)(ii) and (g)(3) of this AD” to “the USI required by paragraphs (g)(1)(ii) or (g)(3) of this AD.” DAL reasoned the affected disks could not concurrently comply with both scenarios (SB incorporated and not incorporated).

The FAA agrees for the reasons provided and has revised paragraphs (h)(1)(i) and (ii) of this AD accordingly.

Support for the AD

ALPA expressed support for the AD.

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.

Related Service Information Under [1 CFR Part 51](#)

The FAA reviewed Pratt & Whitney SB PW1000G-C-72-00-0188-00A-930A-D, Issue No: 002, dated July 8, 2022. This service information specifies procedures for performing a USI of the HPT 1st-stage disk and the HPT 2nd-stage disk, identified by P/N and serial number, installed on IAE LLC PW1124G1-JM, PW1127G-JM, PW1127GA-JM, PW1129G-JM, PW1130G-JM, PW1133G-JM, and PW1133GA-JM model turbofan engines. 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**.

Other Related Service Information

The FAA reviewed PW SB PW1000G-C-72-00-0112-00A-930A-D, Issue No: 005, dated July 22, 2021. This service information describes procedures for replacing the HPT 1st-stage disk, HPT 2nd-stage disk, and rotating hardware. This service information also increases the life limit of the HPT hardware by introducing a new configuration of rotating hardware.

Costs of Compliance

The FAA estimates that this AD affects 189 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 disk and HPT 2nd-stage disk (also includes estimated costs for disassembly of the engine and removal of the HPT 1st-stage disk and HPT 2nd-stage disk)	204 work-hours × \$85 per hour = \$17,340	\$0	\$17,340	\$3,277,260

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 the HPT 1st-stage disk or HPT 2nd-stage disk	1 work-hour × \$85 per hour = \$85	\$171,430	\$171,515

The FAA has included all known costs in its cost estimate. According to the manufacturer, however, some of the costs of this AD may be covered under warranty, thereby reducing the cost impact on affected operators.

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:

2022-19-15 International Aero Engines, LLC: Amendment 39-22184; Docket No. FAA-2022-0292; Project Identifier AD-2021-01297-E.

(a) Effective Date

This airworthiness directive (AD) is effective November 7, 2022.

(b) Affected ADs

None.

(c) Applicability

This AD applies to International Aero Engines, LLC PW1122G-JM, PW1124G1-JM, PW1124G-JM, PW1127G1-JM, PW1127GA-JM, PW1127G-JM, PW1129G-JM, PW1130G-JM, PW1133GA-JM, and PW1133G-JM model turbofan engines with an installed:

- (1) High-pressure turbine (HPT) 1st-stage disk, part numbers (P/Ns) 30G4201, 30G6201, or 30G7301; and
- (2) HPT 2nd-stage disk, P/Ns 30G3902, 30G5502, or 30G6602.

(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 International Aero Engines AG V2533-A5 model turbofan engine, which experienced an uncontained failure of a HPT 1st-stage disk that resulted in high-energy debris penetrating the engine cowling. The FAA is issuing this AD to prevent failure of the HPT 1st-stage disk and HPT 2nd-stage disk. 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 that have not incorporated Pratt & Whitney (PW) Service Bulletin (SB) PW1000G-C-72-00-0112-00A-930A-D, at the next engine shop visit after the effective date of this AD, perform the following:

(i) Ultrasonic inspection (USI) of the HPT 1st-stage disk using the Accomplishment Instructions, paragraph 9.A. or B., as applicable, of PW SB PW1000G-C-72-00-0188-00A-930A-D, Issue No: 002, dated July 8, 2022 (PW SB PW1000G-C-72-00-0188-00A-930A-D); and

(ii) USI of the HPT 2nd-stage disk using the Accomplishment Instructions, paragraph 9.C. or D., as applicable, of PW SB PW1000G-C-72-00-0188-00A-930A-D.

(2) For affected engines that have incorporated PW SB PW1000G-C-72-00-0112-00A-930A-D, with an installed HPT 1st-stage disk having a serial number (S/N) identified in the Accomplishment Instructions, Table 2., of PW SB PW1000G-C-72-00-0188-00A-930A-D, at the next engine shop visit after the effective date of this AD, perform a USI of the HPT 1st-stage disk using the Accomplishment Instructions, paragraph 9.A. or B., as applicable, of PW SB PW1000G-C-72-00-0188-00A-930A-D.

(3) For affected engines that have incorporated PW SB PW1000G-C-72-00-0112-00A-930A-D, with an installed HPT 2nd-stage disk having an S/N identified in the Accomplishment Instructions, Table 3., of PW SB PW1000G-C-72-00-0188-00A-930A-D, at the next engine shop visit after the effective date of this AD, perform a USI of the HPT 2nd-stage disk using the Accomplishment Instructions, paragraph 9.C. or D., of PW SB PW1000G-C-72-00-0188-00A-930A-D.

(4) Based on the results of the USIs required by paragraphs (g)(1) through (3) of this AD, if any HPT 1st-stage disk or HPT 2nd-stage disk does not pass the USI, as specified in the Accomplishment Instructions, paragraphs 9.A. through D., of PW SB PW1000G-C-72-00-0188-00A-930A-D, as applicable, before further flight, remove the HPT 1st-stage disk or HPT 2nd-stage disk from service and replace with a part eligible for installation.

(5) For affected engines that have incorporated PW SB PW1000G-C-72-00-0112-00A-930A-D and do not require an inspection per paragraph (g)(2) or (3) of this AD, no further action is required.

(h) Definitions

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

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

(ii) Any HPT 2nd-stage disk that has passed the USI required by paragraphs (g)(1)(ii) or (g)(3) of this AD.

(iii) Any HPT 1st-stage disk that has incorporated PW SB PW1000G-C-72-00-0112-00A-930A-D and does not require an inspection per paragraph (g)(2) of this AD.

(iv) Any HPT 2nd-stage disk that has incorporated PW SB PW1000G-C-72-00-0112-00A-930A-D and does not require an inspection per paragraph (g)(3) of this AD.

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

(2) For the purpose of this AD, an “engine shop visit” is the induction of an engine into the shop for maintenance involving the separation of the “M” flange. Separation of the “M” flange solely for the purposes of transportation without subsequent engine maintenance does not constitute an engine shop visit.

(i) Credit for Previous Actions

You may take credit for the USIs required by paragraphs (g)(1) through (3) 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) Installation Prohibition

After the effective date of this AD, do not install onto any engine an HPT 1st-stage disk or HPT 2nd-stage disk that does not meet the definition of a part eligible for installation in paragraph (h)(1) of this AD.

(k) 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 (l)(1) 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) Related Information

(1) 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; email:

Mark.Taylor@faa.gov.

(2) Service information identified in this AD that is not incorporated by reference is available at the addresses specified in paragraphs (m)(3) and (4) 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.

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

(ii) [Reserved]

(3) 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.

(4) You may view this service information at 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 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 September 12, 2022.

Christina Underwood,

Acting Director, Compliance & Airworthiness Division, Aircraft Certification Service.

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