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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2018-0938; Product Identifier 2018-NE-36-AD; Amendment 39-19480; AD 2018-22-07]

RIN 2120-AA64

Airworthiness Directives; Engine Alliance Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule; request for comments.

SUMMARY: We are adopting a new airworthiness directive (AD) for all Engine Alliance (EA) GP7270, GP7272, and GP7277 model turbofan engines. This AD requires inspection of the stage 6 seal ring for correct installation and inspection of the high-pressure compressor (HPC) stages 2-5 spool for cracks. This AD also requires replacement of the HPC stages 2-5 spool if the stage 6 seal ring is incorrectly installed or if the HPC stages 2-5 spool is found cracked. This AD was prompted by a shop finding of axial cracks in the interstage 5-6 seal teeth of the HPC stages 2-5 spool spacer arm, due to an incorrectly installed stage 6 seal ring. We are issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective January 11, 2019.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of January 11, 2019.

We must receive comments on this AD by February 11, 2019.

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 <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.
- Hand Delivery: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this final rule, contact Engine Alliance, 411 Silver Lane, East Hartford, CT 06118; phone: 800-565-0140; email: help24@pw.utc.com; website: www.engineallianceportal.com. You may view this service information at the FAA, Engine and Propeller Standards Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call 781-238-7759. It is also available on the internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2018-0938.

Examining the AD Docket

You may examine the AD docket on the internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2018-0938; 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, the regulatory evaluation, any comments received, and other information. The street address for the Docket Operations (phone: 800-647-5527) is listed above. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: Matthew Smith, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: 781-238-7735; fax: 781-238-7199; email: Matthew.C.Smith@faa.gov.

SUPPLEMENTARY INFORMATION:

Discussion

We were informed about the discovery of axial cracks in the interstage 5-6 seal teeth of the HPC stages 2-5 spool spacer arm, due to an incorrectly installed stage 6 seal ring, in a GP7270 model turbofan engine. The incorrect installation of the stage 6 seal ring created a leakage path from the aft cavity to the forward cavity of the HPC stage 6 disk. This leakage elevated the temperature in the cavity and adversely affected the material properties of the HPC stages 2-5 spool. This condition, if not addressed, could result in failure of the HPC stages 2-5 spool, an uncontained HPC stages 2-5 spool release, damage to the engine, and damage to the airplane. We are issuing this AD to address the unsafe condition on these products.

Related Service Information Under 1 CFR Part 51

We reviewed EA Alert Service Bulletin (ASB) EAGP7-A72-395, Revision No. 2, dated August 2, 2018. The SB describes procedures for performing a borescope inspection of the installed HPC stages 2-5 spool for cracks, visual inspection of the stage 6 seal ring for correct installation, visual inspection of the interstage 5-6 seal teeth for damage, and removal and replacement of parts if damage or defects are found that are outside serviceable limits, within the identified cycles. 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 the ADDRESSES section.

FAA's Determination

We are issuing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

AD Requirements

This AD requires inspection of the stage 6 seal ring for correct installation and inspection of the HPC stages 2-5 spool for cracks. This AD also requires removal and replacement of the HPC stages 2-5 spool if the stage 6 seal ring is incorrectly installed or the interstage 5-6 seal teeth are found cracked.

FAA's Justification and Determination of the Effective Date

No domestic operators use this product. Therefore, we find good cause that notice and opportunity for prior public comment are unnecessary. In addition, for the reason stated above, we find that good cause exists for making this amendment effective in less than 30 days.

Comments Invited

This AD is a final rule that involves requirements affecting flight safety and was not preceded by notice and an opportunity for public comment. However, we invite you to send any written data, views, or arguments about this final rule. Send your comments to an address listed under the ADDRESSES section. Include the docket number FAA-2018-0938 and Product Identifier 2018-NE-36-AD at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this final rule. We will consider all comments received by the closing date and may amend this final rule because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this final rule.

Costs of Compliance

We estimate that this AD affects zero engines installed on airplanes of U.S. registry.

We estimate the following costs to comply with this AD:

Estimated Costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Borescope inspection of stage 6 seal ring and interstage 5-6 seal teeth forward and aft faces only	4 work-hours × \$85 per hour = \$340	\$0	\$340	\$0

We estimate the following costs to do any necessary replacements that would be required based on the results of the inspection. We have no way of determining the number of aircraft that might need these replacements:

On-Condition Costs

Action	Labor cost	Parts cost	Cost per product
Replacement of HPC stages 2 to 5 spool	8 work-hours × \$85 per hour = \$680	\$346,540	\$347,220

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.

We are 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.

This AD is issued in accordance with authority delegated by the Executive Director, Aircraft Certification Service, as authorized by FAA Order 8000.51C. In accordance with that order, issuance of ADs is normally a function of the Compliance and Airworthiness Division, but during this transition period, the Executive Director has delegated the authority to issue ADs applicable to engines, propellers, and associated appliances to the Manager, Engine and Propeller Standards Branch, Policy and Innovation Division.

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) Is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) 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.

Adoption of 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 (AD):



AD 2018-22-07 Engine Alliance: Amendment 39-19480; Docket No. FAA-2018-0938; Product Identifier 2018-NE-36-AD.

(a) Effective Date

This AD is effective January 11, 2019.

(b) Affected ADs

None.

(c) Applicability

This AD applies to all Engine Alliance (EA) GP7270, GP7272, and GP7277 model turbofan engines.

(d) Subject

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

(e) Unsafe Condition

This AD was prompted by a shop finding of axial cracks in the interstage 5-6 seal teeth of the high-pressure compressor (HPC) stages 2-5 spool spacer arm, due to an incorrectly installed stage 6 seal ring. We are issuing this AD to prevent failure of the HPC stage 5-6 seal teeth and uncontained HPC stages 2-5 spool release. The unsafe condition, if not addressed, could result in an uncontained failure of the HPC stages 2-5 spool, damage to the engine, and damage to the airplane.

(f) Compliance

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

(g) Required Actions

(1) Borescope inspect the stage 6 seal ring location in accordance with the Accomplishment Instructions, paragraph 1.F, in EA Alert Service Bulletin (ASB) EAGP7-A72-395, Revision No. 2, dated August 2, 2018, and within the compliance times specified in Table 1 to paragraph (g) of this AD. If the stage 6 seal ring is incorrectly installed, remove the HPC stages 2-5 spool from service within 50 cycles and replace with a part eligible for installation.

(2) Borescope inspect the interstage 5-6 seal tooth aft face and interstage 5-6 forward face for cracks and missing coating in accordance with the Accomplishment Instructions, paragraphs 2.C and 2.E, in EA ASB EAGP7-A72-395, Revision No. 2, dated August 2, 2018, and within the compliance times specified in Table 1 to paragraph (g) of this AD.

(i) If coating is missing on the interstage 5-6 seal tooth forward or aft faces, repeat the borescope inspection required by paragraph (g)(2) of this AD for cracks every 150 cycles.

(ii) If cracks are found in the interstage 5-6 seal tooth forward or aft faces, remove the HPC stages 2-5 spool from service and replace with a part eligible for installation before further flight.

Table 1 to Paragraph (g) of this AD – Compliance Times

Cycles Since New (CSN) on HPC Stages 2-5 Spool as of the effective date of this AD	Complete the Inspection
2499 or less	Within 900 cycles after the effective date of this AD, not to exceed 2,850 CSN
2500 to 3499	Within 350 cycles after the effective date of this AD, not to exceed 3,600 CSN
3500 or more	Within 100 cycles after the effective date of this AD

(h) 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 (i) of this AD. You may email your request 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.

(i) Related Information

For more information about this AD, contact Matthew Smith, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: 781-238-7735; fax: 781-238-7199; email: Matthew.C.Smith@faa.gov.

(j) 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) Engine Alliance (EA) Alert Service Bulletin EAGP7-A72-395, Revision No. 2, dated August 2, 2018.

(ii) [Reserved]

(3) For EA service information identified in this AD, contact Engine Alliance, 411 Silver Lane, East Hartford, CT 06118; phone: 800-565-0140; email: help24@pw.utc.com; website: www.engineallianceportal.com.

(4) You may view this service information at FAA, Engine and Propeller Standards Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call 781-238-7759.

(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, call 202-741-6030, or go to: <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Burlington, Massachusetts, on December 19, 2018.
Robert J. Ganley,
Manager, Engine and Propeller Standards Branch,
Aircraft Certification Service.