



## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. FAA-2021-0445; Project Identifier AD-2021-00268-E; Amendment 39-21588; AD 2021-12-01]

RIN 2120-AA64

#### Airworthiness Directives; Engine Alliance Turbofan Engines

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule; request for comments.

**SUMMARY:** The FAA is superseding Airworthiness Directive (AD) 2019-25-13, which applied to all Engine Alliance (EA) GP7270 and GP7277 model turbofan engines with a certain low-pressure compressor (LPC) 1st-stage fan blade installed. AD 2019-25-13 required an ultrasonic inspection of the affected LPC 1st-stage fan blades and replacement of any affected LPC 1st-stage fan blade that fails the inspection. This AD lowers the initial inspection threshold and requires repetitive ultrasonic inspections on affected LPC 1st-stage fan blades. This AD was prompted by a report of an in-flight shutdown (IFSD) of an engine due to the fracture of multiple LPC 1st-stage fan blades. The FAA is issuing this AD to address the unsafe condition on these products.

**DATES:** This AD is effective [INSERT DATE 15 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of [INSERT DATE 15 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The FAA must receive any comments on this 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 <https://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: Deliver to Mail address above 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](mailto:help24@pw.utc.com); website: [www.engineallianceportal.com](http://www.engineallianceportal.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 (781) 238-7759. It is also available at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2021-0445.

### **Examining the AD Docket**

You may examine the AD docket at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2021-0445; 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 street address for Docket Operations is listed above.

**FOR FURTHER INFORMATION CONTACT:** Stephen Elwin, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7236; fax: (781) 238-7199; email: [Stephen.L.Elwin@faa.gov](mailto:Stephen.L.Elwin@faa.gov).

### **SUPPLEMENTARY INFORMATION:**

#### **Background**

The FAA issued AD 2019-25-13, Amendment 39-21011 (84 FR 71770, December 30, 2019), (AD 2019-25-13), for all EA GP7270 and GP7277 model turbofan engines with a certain LPC 1st-stage fan blade installed. AD 2019-25-13 required an ultrasonic inspection of the affected LPC 1st-stage fan blades and replacement of any affected fan blades that fail the inspection. AD 2019-25-13 resulted from a report of an IFSD of an engine due to the fracture of multiple LPC 1st-stage fan blades. After an

analysis of these fractures, the manufacturer determined the fan blades experienced cracks that originated on the internal surface of the convex airfoil and propagated to the point of failure. The cracks originated in a microtexture area that can result in a low-cycle fatigue debit that may allow a crack to initiate and propagate to failure. The FAA issued AD 2019-25-13 to prevent failure of the fan blade.

#### **Actions Since AD 2019-25-13 was Issued**

Since the FAA issued AD 2019-25-13, the manufacturer performed analysis of a fractured LPC 1st-stage fan blade and determined the fracture resulted from a fatigue crack. The manufacturer determined that repetitive ultrasonic inspection for cracks on the LPC 1st-stage fan blade convex airfoil is necessary to decrease the risk of fracture event. As a result of this analysis, the manufacturer published EA Alert Service Bulletin (SB) EAGP7-A72-444, dated November 18, 2020. This service information specifies lower initial inspection thresholds for performing ultrasonic inspections of affected LPC 1st-stage fan blades and contains procedures for performing repetitive ultrasonic inspections of affected LPC 1st-stage fan blades. The FAA is issuing this AD to address the unsafe condition on these products.

#### **FAA's Determination**

The FAA is issuing this AD because the agency determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

#### **Related Service Information under 1 CFR Part 51**

The FAA reviewed EA Alert SB EAGP7-A72-444, dated November 18, 2020. The Alert SB describes the inspection thresholds and procedures for performing an ultrasonic inspection of the LPC 1st-stage fan blades. 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.

#### **AD Requirements**

This AD requires initial and repetitive ultrasonic inspections of the affected LPC 1st-stage fan blades and replacement of any LPC 1st-stage fan blade that fails the

inspection.

### **Justification for Immediate Adoption and Determination of the Effective Date**

Section 553(b)(3)(B) of the Administrative Procedure Act (APA) (5 U.S.C. 551 *et seq.*) authorizes agencies to dispense with notice and comment procedures for rules when the agency, for “good cause,” finds that those procedures are “impracticable, unnecessary, or contrary to the public interest.” Under this section, an agency, upon finding good cause, may issue a final rule without providing notice and seeking comment prior to issuance. Further, section 553(d) of the APA authorizes agencies to make rules effective in less than thirty days, upon a finding of good cause.

The FAA has found the risk to the flying public justifies waiving notice and comment prior to adoption of this rule because no domestic operators use this product. It is unlikely that the FAA will receive any adverse comments or useful information about this AD from any U.S. operator. Accordingly, notice and opportunity for prior public comment are unnecessary, pursuant to 5 U.S.C. 553(b)(3)(B). In addition, for the foregoing reason, the FAA finds that good cause exists pursuant to 5 U.S.C. 553(d) for making this amendment effective in less than 30 days.

### **Comments Invited**

The FAA invites you to send any written data, views, or arguments about this final rule. Send your comments to an address listed under ADDRESSES. Include “Docket No. FAA-2021-0445 and Project Identifier AD-2021-00268-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 amend this final rule 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 <https://www.regulations.gov>, including any personal information you provide. The agency will also post a report summarizing each substantive verbal contact received about this final rule.

## 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 AD 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 AD, 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 AD. Submissions containing CBI should be sent to Stephen Elwin, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803. Any commentary that the FAA receives which is not specifically designated as CBI will be placed in the public docket for this rulemaking.

## Regulatory Flexibility Act

The requirements of the Regulatory Flexibility Act (RFA) do not apply when an agency finds good cause pursuant to 5 U.S.C. 553 to adopt a rule without prior notice and comment. Because FAA has determined that it has good cause to adopt this rule without prior notice and comment, RFA analysis is not required.

## Costs of Compliance

The FAA estimates that this AD affects 0 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
Perform ultrasonic inspection for one set of 1st – stage LPC blades	8 work-hours x \$85 per hour = \$680	\$0	\$680	\$0

The FAA estimates the following costs to do any necessary replacements 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 these replacements.

#### **On-condition costs**

<b>Action</b>	<b>Labor Cost</b>	<b>Parts Cost</b>	<b>Cost per product</b>
Replace 1st-stage LPC fan blade	4 work-hours x \$85 per hour = \$340	\$190,000	\$190,340

#### **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, and
- (2) Will not affect intrastate aviation in Alaska.

#### **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:

a. Removing Airworthiness Directive 2019-25-13, Amendment 39-21011 (84 FR 71770, December 30, 2019); and

b. Adding the following new airworthiness directive:

**2021-12-01 Engine Alliance:** Amendment 39-21588; Docket No. FAA-2021-0445; Project Identifier AD-2021-00268-E.

#### **(a) Effective Date**

This airworthiness directive (AD) is effective [INSERT DATE 15 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

#### **(b) Affected ADs**

This AD replaces AD 2019-25-13, Amendment 39-21011 (84 FR 71770, December 30, 2019).

#### **(c) Applicability**

This AD applies to Engine Alliance (EA) GP7270 and GP7277 model turbofan engines with low-pressure compressor (LPC) 1st-stage fan blades, part number (P/N) 5700531, 5702931, 5702931CL1, or 5702931CL2, installed.

#### **(d) Subject**

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

#### **(e) Unsafe Condition**

This AD was prompted by a report of an in-flight shutdown of an engine due to the fracture of multiple LPC 1st-stage fan blades. The FAA is issuing this AD to prevent failure of the LPC 1st-stage fan blades. The unsafe condition, if not addressed, could

result in uncontained fan blade release, 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) Within the compliance time specified in Table 1 to paragraph (g)(1) of this AD, perform an ultrasonic inspection of the LPC 1st-stage fan blades using the Accomplishment Instructions, “For Fan Blades Installed In An Engine,” paragraph 1, or “For Fan Blades Not Installed In An Engine,” paragraph 1, as applicable, of EA Alert Service Bulletin (SB) EAGP7-A72-444, dated November 18, 2020.

**Table 1 to Paragraph (g)(1)**

<b>Fan Blade Flight Cycles</b>	<b>Compliance Time</b>
Fewer than 2,250 flight cycles since new (CSN) on the effective date of this AD.	Before exceeding 2,500 flight CSN.
2,250 flight CSN or greater as of the effective date of this AD, but fewer than 3,250 CSN on January 14, 2020 (the effective date of AD 2019-25-13).	Before exceeding 250 flight cycles from the effective date of this AD.
3,250 flight CSN or greater on January 14, 2020.	Within 250 flight cycles since January 14, 2020 or before further flight, whichever occurs later.

(2) Thereafter, at intervals not to exceed 800 flight cycles since last inspection, perform an ultrasonic inspection of the LPC 1st-stage fan blades using the Accomplishment Instructions, “For Fan Blades Installed In An Engine,” paragraph 1, or “For Fan Blades Not Installed In An Engine,” paragraph 1, as applicable, of EA Alert SB EAGP7-A72-444, dated November 18, 2020.

(3) If an ultrasonic inspection of an LPC 1st-stage fan blade results in a rejectable ultrasonic indication, remove the LPC 1st-stage fan blade from service and replace with a part eligible for installation before further flight.

Note 1 to paragraph (g)(3): Guidance on determining a rejectable ultrasonic indication can be found in GP7000 1st Stage LPC Rotor (Fan) Blade Assembly Airfoil Ultrasonic Inspection for Cracks (Fan Blade Installed or Uninstalled), NDIP-1205,



Revision C, dated September 15, 2020.

**(h) Credit for Previous Actions**

You may take credit for the ultrasonic inspection required by paragraph (g)(1) of this AD if you performed the inspection before the effective date of this AD using GP7000 1st Stage LPC Rotor (Fan) Blade Assembly Airfoil Ultrasonic Inspection for Cracks (Fan Blade installed or uninstalled), NDIP-1205, Revision B, dated September 27, 2019, or an earlier version.

**(i) No Reporting Requirement**

The reporting requirements contained within NDIP-1205 are not required by this AD.

**(j) 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 Related Information. Information may be emailed 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.

**(k) Related Information**

For more information about this AD, contact Stephen Elwin, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7236; fax: (781) 238-7199; email: Stephen.L.Elwin@faa.gov.

**(l) 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-A72-444, dated November 18, 2020.

(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](mailto:help24@pw.utc.com); website: [www.engineallianceportal.com](http://www.engineallianceportal.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 (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, email: [fedreg.legal@nara.gov](mailto:fedreg.legal@nara.gov), or go to: <https://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued on May 25, 2021.

Lance T. Gant, Director,  
Compliance & Airworthiness Division,  
Aircraft Certification Service.

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