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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2024-0755; Project Identifier AD-2023-00521-E; Amendment 39-22909; AD 2024-25-07]**

**RIN 2120-AA64**

### **Airworthiness Directives; General Electric Company Engines**

#### **AGENCY:**

Federal Aviation Administration (FAA), DOT.

#### **ACTION:**

Final rule.

#### **SUMMARY:**

The FAA is adopting a new airworthiness directive (AD) for certain General Electric Company (GE) Model GEnx-1B64, GEnx-1B64/P1, GEnx-1B64/P2, GEnx-1B67, GEnx-1B67/P1, GEnx-1B67/P2, GEnx-1B70, GEnx-1B70/75/P1, GEnx-1B70/75/P2, GEnx-1B70/P1, GEnx-1B70/P2, GEnx-1B70C/P1, GEnx-1B70C/P2, GEnx-1B74/75/P1, GEnx-1B74/75/P2, GEnx-1B76/P2, GEnx-1B76A/P2, GEnx-2B67, GEnx-2B67B, and GEnx-2B67/P engines. This AD was prompted by a manufacturer evaluation that determined a lower life limit may be necessary for certain stages 6-10 compressor rotor spools than allowed by the engine shop manual (ESM). This AD requires a one-time inspection of the stages 6-10 spools for previously accomplished blend repairs, a one-time inspection of the blend repairs on the stages 6-10 spools for compliance with the updated allowable limits, and replacement if necessary. The FAA is issuing this AD to address the unsafe condition on these products.

#### **DATES:**

This AD is effective February 12, 2025.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of February 12, 2025.

## ADDRESSES:

*AD Docket:* You may examine the AD docket at *regulations.gov* under Docket No. FAA-2024-0755; 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 GE material identified in this AD, contact GE, 1 Neumann Way, Cincinnati, OH 45215; phone: (513) 552-3272; email: [aviation.fleetsupport@ge.com](mailto:aviation.fleetsupport@ge.com); website: *ge.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-2024-0755.

## FOR FURTHER INFORMATION CONTACT:

Alexei Marqueen, Aviation Safety Engineer, FAA, 2200 South 216th Street, Des Moines, WA 98198; phone: (781) 238-7178; email: [alexei.t.marqueen@faa.gov](mailto:alexei.t.marqueen@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 GE Model GEnx-1B64/P1, GEnx-1B64/P2, GEnx-1B67, GEnx-1B67/P1, GEnx-1B67/P2, GEnx-1B70, GEnx-1B70/75/P1, GEnx-1B70/75/P2, GEnx-1B70/P1, GEnx-1B70/P2, GEnx-1B70C/P1, GEnx-1B70C/P2, GEnx-1B74/75/P1, GEnx-1B74/75/P2, GEnx-1B76/P2, GEnx-1B76A/P2, GEnx-2B67, GEnx-2B67B, and GEnx-2B67/P engines with certain stages 6-10 spool installed. The NPRM published in the **Federal Register** on March 25, 2024 ([89 FR 20553](#)). The NPRM was prompted by a manufacturer evaluation which determined that a lower life limit may be necessary for certain stages 6-10 spools than that allowed in the engine shop manual. In the NPRM, the FAA proposed to require accomplishing a one-time inspection of the stages 6-10 spools for previously accomplished blend repairs, a one-time inspection of the blend repairs on the stages 6-10 spools for compliance with the updated allowable limits, and replacement, if necessary, within compliance times specified in GE GEnx-1B Service Bulletin 72-0525, ROO, dated October 4, 2023 (GEnx-1B SB 72-0525, ROO), or GEnx-2B Service Bulletin 72-0460, ROO, dated October 4, 2023 (GEnx-2B SB 72-0460, ROO). Depending on the part numbers and serial numbers of the affected stages 6-10 spools, the NPRM proposed to require these actions to be accomplished at the next piece-part exposure after the effective date of the proposed AD, or before the affected stages 6-10 spool reaches the cyclic removal threshold of up to 11,894 cycles since new. 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 eight commenters. The commenters were American Airlines, Air Line Pilots Association, International (ALPA), Boeing Commercial Airplanes (Boeing), GE, Japan Airlines, Qatar Airways, United Airlines, and United Parcel Service (UPS). ALPA and Boeing supported the NPRM without change. The following presents the comments received on the NPRM and the FAA's response to each comment.

### **Request for Clarification of Compliance Time**

Qatar Airways requested clarification of the compliance threshold specified in the NPRM. The commenter pointed out that the compliance thresholds in the service information specify that “at the next piece-part exposure of the affected 6-10 spools, but before the affected 6-10 spools reach the cycle since new threshold for inspection listed in paragraph 4., Appendix—A, Table 1,” whereas the NPRM expressed the compliance time as “At the next piece-part exposure after the effective date of this AD or before the affected stages 6-10 spool reaches the cyclic removal threshold specified in paragraph 4., Appendix-A, Table 1 of GENx-1B 72-0525, ROO or GENx-2B SB 72-0460, ROO, as applicable.” The commentor stated that the compliance time as written, is unclear about when to take action and which takes priority (next piece part or cycle thresholds).

The FAA agrees that the compliance time is unclear. Paragraph (g) of this AD has been updated to state that the required action is to be performed at next piece part exposure or before the spool reaches the cycle removal thresholds, whichever occurs first.

### **Request To Update the Definition of “Part Eligible for Installation”**

American Airlines and UPS requested that the FAA reword paragraph (h)(2) of the proposed AD to allow installation of an affected part, provided that the part passes the required inspections. UPS pointed out that in both paragraph (g) of the proposed AD and the service information, replacement of an affected part is only required if a previously accomplished blend repair is found and is also not within the allowable limits. However, the proposed definition would prohibit installation of any affected part, regardless of the inspection results. In addition, UPS requested that paragraph (h)(2) of the proposed AD be reworded to redefine a “part eligible for installation” as a stages 6-10 spool that does not have a P/N and S/N defined in paragraph 4, Appendix A, Table 1 of GENx-1B 72-0525, ROO or GENx-2B 72-0460, ROO, or a stages 6-10 spool with a P/N and S/N that is listed in paragraph 4, Appendix A, Table 1 of GENx-1B 72-0525, ROO or GENx-2B 72-0460 that has been inspected and found to be within the allowable limits.

The FAA agrees that a stages 6-10 spool that passes inspection does not need to be removed from service. Therefore, paragraph (h)(2) of this AD has been updated to reflect this change.

### **Request To Revise the Summary**

GE requested that the FAA revise the **SUMMARY** of the NPRM to clarify that for certain stages 6-10 compressor rotor spools there is a potential life shortfall to that specified in the ESM, instead of an absolute or definite life shortfall. GE stated that the evaluation of the repair limits demonstrated that at the worst size and location a stages 6-10 spool would have an ultimate life lower than that published in the ESM. However, there is no evidence to show that any of the affected stages 6-10 spools have a repair at the worst size and location. GE pointed out that for this reason, an inspection is required to determine if there is a possibility of the ultimate life lower than that published in the ESM. GE

recommended adding the terms “may be” to the **SUMMARY** to clarify that not all stages 6-10 spools will have a lower life limit.

The FAA agrees that clarification is necessary and has updated the **SUMMARY** of this AD accordingly.

### **Request To Update the Required Service Information**

GE requested that the FAA update the NPRM to specify the latest revision of the service information. GE specified the intention to revise GE GENx-1B SB 72-0525, ROO and GENx-2B SB 72-0460, ROO, and added that the updated revisions will not change actions or accomplishment instructions but will add wording indicating hardware that meets current ESM limits will not have a lower limit than published in CH05.

The FAA agrees and has revised this AD to refer to GE GENx-1B Service Bulletin 72-0525, R01, dated June 10, 2024 (GENx-1B SB 72-0525, R01), and GENx-2B Service Bulletin 72-0460, R01, dated June 10, 2024 (GENx-2B SB 72-0460, R01), as the appropriate source of service information. Additionally, the FAA has updated this AD to include credit for the actions required by paragraph (g) of this AD, if those actions were done prior to the effective date of this AD using GE GENx-1B SB 72-0525, ROO and GENx-2B SB 72-0460, ROO.

### **Request To Clarify the Applicability of ESM Life Limits**

United Airlines requested that the FAA include additional verbiage in the service information and the proposed AD that, in the case of an affected part passing the inspection, that part retains the ultimate life limit specified in the ESM. United Airlines stated that paragraph (g) of the proposed AD was not specific about what actions to take if the affected part passed the inspection. However, the service information specifies that no further action is necessary. Also, paragraph 1.E.(3) of GENx-1B SB 72-0525, ROO and GENx-2B SB 72-0460, ROO states that “affected 6-10 spools were found to have life limit lower than ultimate life limit.”

The FAA disagrees with the request. The life limits listed in the ESM are mandatory and applicable regardless of the actions required by this AD. Should any affected part be found to have a blend repair that is not in compliance with the allowable limits specified in the applicable service information, then this AD requires removal from service and replacement of that specific part. However, this AD does not change the life limits of parts that pass the inspection. Therefore, the FAA has not changed this AD in this regard.

### **Request To Specify the Affected Engine Models in the Required Actions**

Japan Airlines requested that the FAA revise paragraph (g) of the proposed AD to specify the affected engine models at the beginning of each of the sentences, to provide better clarity. Japan Airlines referred to paragraph (g) of AD 2023-17-08 as an example.

The FAA disagrees with the request. AD 2023-17-08 specifies multiple affected parts on both the GENx-1B and GENx-2B Model engines, and therefore the FAA used multiple paragraphs for each

affected part and each engine model. In this AD, the only affected parts are stages 6-10 spools, making it unnecessary to specify engine models in paragraph (g) of this AD.

### Changes After the NPRM Was Published

After the NPRM was published, the FAA determined that Model GEnx-1B64 engines were inadvertently left out of the applicability. None of these engines with the affected stages 6-10 spools are installed on airplanes on the U.S. registry. This model has been added to the applicability of the final rule in case one of these engines with affected 6-10 spools are installed on an airplane registered for operation in United States. Adding this model to the applicability does not increase the burden to U.S. operators over the already proposed requirements, so issuing a supplemental notice of proposed rulemaking is unnecessary.

### 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 GE GEnx-1B SB 72-0525, R01, and GEnx-2B SB 72-0460, R01. This service information identifies the part numbers and serial numbers of affected stages 6-10 spools; and specifies instructions for a one-time inspection of the stages 6-10 spools for previously accomplished blend repairs, a one-time inspection of the blend repairs on the stages 6-10 spools for compliance with the updated allowable limits, and replacement if necessary. These documents are distinct since they apply to different engine models.

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** section.

### Costs of Compliance

The FAA estimates that this AD affects 6 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
Inspect stages 6-10 spools	8 work-hours × \$85 per hour = \$680	\$0	\$680	\$4,080

<b>Action</b>	<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per product</b>	<b>Cost on U.S. operators</b>
Inspect previous blend repairs	1 work-hours × \$85 per hour = \$85	0	85	510

The FAA estimates the following costs to do any necessary replacements that would be required based on the results of the inspections. The agency has no way of determining the number of engines that might need this replacement:

### **On-Condition Costs**

<b>Action</b>	<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per product</b>
Replace stages 6-10 spool	8 work-hours × \$85 per hour = \$680	\$1,307,600	\$1,308,280

### **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:

**2024-25-07 General Electric Company:** Amendment 39-22909; Docket No. FAA-2024-0755; Project Identifier AD-2023-00521-E.

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

This airworthiness directive (AD) is effective February 12, 2025.

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

None.

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

This AD applies to General Electric Company (GE) Model GENx-1B64, GENx-1B64/P1, GENx-1B64/P2, GENx-1B67, GENx-1B67/P1, GENx-1B67/P2, GENx-1B70, GENx-1B70/75/P1, GENx-1B70/75/P2, GENx-1B70/P1, GENx-1B70/P2, GENx-1B70C/P1, GENx-1B70C/P2, GENx-1B74/75/P1, GENx-1B74/75/P2, GENx-1B76/P2, GENx-1B76A/P2, GENx-2B67, GENx-2B67B, and GENx-2B67/P engines with an installed:

- (1) Stages 6-10 compressor rotor spool (stages 6-10 spool) having a part number (P/N) and serial number (S/N) listed in paragraph 4, Appendix—A, Table 1 of GE GENx-1B Service Bulletin 72-0525, R01, dated June 10, 2024 (GENx-1B SB 72-0525, R01); or
- (2) Stages 6-10 spool having a P/N and S/N listed in paragraph 4, Appendix—A, Table 1 of GE GENx-2B Service Bulletin 72-0460, R01, dated June 10, 2024 (GENx-2B SB 72-0460, R01).

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

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

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

This AD was prompted by a manufacturer evaluation which determined that a lower life limit may be necessary for certain stages 6-10 spools than that allowed in the engine shop manual. The FAA is issuing this AD to prevent fracture and potential uncontained failure of the stages 6-10 spools. The unsafe condition, if not addressed, could result in uncontained debris release, damage to the engine, and damage to the aircraft.

### **(f) Compliance**

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

### **(g) Required Actions**

At the next piece-part exposure after the effective date of this AD or before the affected stages 6-10 spool reaches the cyclic removal threshold specified in paragraph 4., Appendix—A, Table 1 of GENx-1B 72-0525, R01 or GENx-2B SB 72-0460, R01, as applicable, whichever occurs first, do the following actions:

(1) Inspect the stages 6-10 spool for previously accomplished blend repairs in accordance with the Accomplishment Instructions, paragraph 3.B.(1) of GENx-1B SB 72-0525, R01 or GENx-2B SB 72-0460, R01, as applicable.

(2) If during any inspection required by paragraph (g)(1) of this AD, any stages 6-10 spool is found to have a previously accomplished blend repair, before further flight, inspect the blend repair for compliance with the allowable limits in accordance with the Accomplishment Instructions, paragraph 3.B.(2) of GENx-1B SB 72-0525, R01 or GENx-2B SB 72-0460, R01, as applicable.

(3) If during any inspection required by paragraph (g)(2) of this AD, any stages 6-10 spool is found to have a previously accomplished blend repair that is not within the allowable limits, before further flight, remove the stages 6-10 spool from service and replace with a part eligible for installation in accordance with the Accomplishment Instructions, paragraph 3.B.(2)(a)1 or 3.B.(2)(b)1 of GENx-1B SB 72-0525, R01 or GENx-2B SB 72-0460, R01, as applicable.

### **(h) Definition**

For the purposes of this AD:

(1) A “piece-part exposure” is when the stages 6-10 spool is disassembled from the high-pressure compressor rotor assembly.

(2) A “part eligible for installation” is either a stages 6-10 spool that does not have a P/N and S/N identified in paragraph 4, Appendix—A, Table 1 of GENx-1B 72-0525, R01 or GENx-2B 72-0460, R01, or a stages 6-10 spool that does have a P/N and S/N identified in paragraph 4, Appendix—A, Table 1 of GENx-1B 72-0525, R01 or GENx-2B 72-0460, R01, provided that the affected part is not removed in accordance with paragraph (g)(3) of this AD.

### **(i) Credit for Previous Actions**



You may take credit for the actions required by paragraph (g) of this AD if you performed those actions before the effective date of this AD using GE GENx-1B Service Bulletin 72-0525, R00, dated October 4, 2023, or GENx-2B Service Bulletin 72-0460, R00, dated October 4, 2023.

#### **(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: [ANE-AD-AMOC@faa.gov](mailto: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 Alexei Marqueen, Aviation Safety Engineer, FAA, 2200 South 216th Street, Des Moines, WA 98198; phone: (781) 238-7178; email: [alexei.t.marqueen@faa.gov](mailto:alexei.t.marqueen@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) GE GENx-1B Service Bulletin 72-0525, R01, dated June 10, 2024.

(ii) GE GENx-2B Service Bulletin 72-0460, R01, dated June 10, 2024.

(3) For GE material identified in this AD, contact GE 1 Neumann Way, Cincinnati, OH 45215; phone: (513) 552-3272; email: [aviation.fleetsupport@ge.com](mailto:aviation.fleetsupport@ge.com); website: [ge.com](http://ge.com).

(4) You may view this material 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 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-locationsoremailfr.inspection@nara.gov](http://www.archives.gov/federal-register/cfr/ibr-locationsoremailfr.inspection@nara.gov).

Issued on December 6, 2024.

Peter A. White,

Deputy Director, Integrated Certificate Management Division, Aircraft Certification Service.

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