(2) Do a detailed inspection of each terminal lug for loose lugs in power panels, and, before further flight, apply torque to each loose terminal lug.

(h) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Seattle ACO 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 responsible Flight Standards 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. Information may be emailed to: *9-ANM-Seattle-ACO-AMOC-Requests@faa.gov.*

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the responsible Flight Standards Office.

(3) An AMOC that provides an acceptable level of safety may be used for any repair, modification, or alteration required by this AD if it is approved by The Boeing Company Organization Designation Authorization (ODA) that has been authorized by the Manager, Seattle ACO Branch, FAA, to make those findings. To be approved, the repair method, modification deviation, or alteration deviation must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

(i) Related Information

For more information about this AD, contact Hien T. Nguyen, Aerospace Engineer, Systems and Equipment Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone: 405–954–5298; email: *Hien.T.Nguyen@faa.gov.*

(j) Material Incorporated by Reference

None.

Issued on March 9, 2023.

Christina Underwood,

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

[FR Doc. 2023–07037 Filed 4–4–23; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA–2022–1240; Project Identifier AD–2022–00683–E; Amendment 39–22386; AD 2023–05–17]

RIN 2120–AA64

Airworthiness Directives; General Electric Company Turbofan 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) GE90–76B, GE90–85B, GE90–90B, and GE90–94B model turbofan engines. This AD was prompted by a commanded in-flight shutdown (IFSD) due to cracking and rockback of the high-pressure turbine (HPT) stage 2 nozzles resulting in blade liberation, severe rotor imbalance, and liberation of the exhaust centerbody. This AD requires initial and repetitive borescope inspections (BSIs) of the forward platforms of the HPT stage 2 blades or the leading edges of the HPT stage 2 nozzles and, depending on the results of the inspections, removal and replacement of the HPT stage 2 nozzles with parts eligible for installation. As a mandatory terminating action to the repetitive BSIs of the forward platforms of the HPT stage 2 blades or the leading edges of the HPT stage 2 nozzles, this AD requires replacing the HPT stage 2 nozzles. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective May 10, 2023.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of May 10, 2023.

ADDRESSES:

AD Docket: You may examine the AD docket at *regulations.gov* by searching for and locating Docket No. FAA–2022–1240; 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 service information identified in this final rule, contact General Electric Company, GE Aerospace, Room 285, 1 Neumann Way, Cincinnati, OH 45215; phone: (513) 552–3272; email: *aviation.fleetsupport@ge.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–2022–1240.

FOR FURTHER INFORMATION CONTACT: Stephen Elwin, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238–7236; email: *Stephen.L.Elwin@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 GE90–76B, GE90–85B, GE90–90B, and GE90–94B model turbofan engines. The NPRM published in the **Federal Register** on November 14, 2022 (87 FR 68113). The NPRM was prompted by a report of a commanded IFSD of a GE90–85B model turbofan engine installed on a Boeing Model 777–200ER airplane that occurred on July 12, 2018. Subsequent investigation by the manufacturer found that cracking and rockback of the HPT stage 2 nozzles, due to thermal distress in the fillet radius of the leading edge, resulted in rotor-stator contact with the HPT stage 2 blade platform. This condition caused liberation of an HPT stage 2 blade and severe rotor imbalance, leading to liberation of the exhaust centerbody from the engine. In the NPRM, the FAA proposed to require initial and repetitive borescope inspections of the forward platforms of the HPT stage 2 blades or the leading edges of the HPT stage 2 nozzles and, depending on the results of the inspections, removal and replacement of the HPT stage 2 nozzles with parts eligible for installation. As a mandatory terminating action to the repetitive BSIs of the forward platforms of the HPT stage 2 blades or the leading edges of the HPT stage 2 nozzles, the FAA proposed to require replacement of the HPT stage 2 nozzles. 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 3 commenters. The commenters were Air France, The Boeing Company (Boeing), and United Airlines. Boeing supported the proposed AD without change. Air France requested changes to the proposed AD, and United Airlines requested confirmation on a calculation process. The following presents the comments received on the NPRM and the FAA's response to each comment.

Request To Revise Compliance Time

Air France noted that affected engines with HPT stage 2 nozzles must be inspected whether or not they have reached the 22,000 hour threshold. The commenter requested that paragraphs (g)(1)(i) and (ii) be revised to both

require compliance before accumulating 250 flight cycles (FC) for all affected engines.

The FAA disagrees with the request. Paragraph (g)(1)(ii) of this AD requires the operator to perform a borescope inspection before accumulating 22,000 flight hours (FH) since new or since last overhaul, or within 250 FCs after the effective date of this AD, whichever occurs later. This requirement provides the operator with an appropriate drawdown threshold for parts that are approaching 22,000 FHs since new or since last overhaul. The FAA did not change this AD as a result of this comment.

Request To Make Terminating Action Optional

Air France requested that the Mandatory Terminating Action in paragraph (h) of this AD be revised to allow for the option to choose to replace the HPT Stage 2 nozzles when the engine is not in a performance restoration workscope shop visit or instead continue with the inspections required by this AD.

The FAA disagrees with the request. The compliance time required by the mandatory terminating action is necessary to address the unsafe condition. The FAA did not change this AD as a result of this comment.

Request To Add GE Service Bulletin as a Difference Between This AD and the Service Information

Air France noted that GE GE90 SB 72–1216, Initial Issue, dated August 22, 2022 (GE90 SB 72–1216) could have been referenced in the ''Differences Between this Proposed AD and the Service Information'' paragraph of the NPRM because that service bulletin recommends to inspect affected engines when the HPT stage 2 nozzles have reached 22,000 hours since new or overhaul.

The FAA disagrees with the request. For affected engines with less than 22,000 FHs since new or overhaul, GE90 SB 72–1216 recommends performing the initial inspection before the engine accumulates 22,000 FHs, whereas this AD requires performing the initial inspection before the engine accumulates 22,000 FHs or 250 FCs, whichever occurs later, to minimize unnecessary grounding of airplanes. This compliance time is not considered a major difference, and therefore, is not included within the ''Differences Between this AD and the Service Information'' section of the NPRM. The FAA did not change this AD as a result of this comment.

Request To Clarify Accepted FH Calculation

United Airlines requested confirmation that calculation of FHs on HPT stage 2 nozzles based on shop records is acceptable for compliance with this AD. United Airlines noted that HPT stage 2 nozzles are not currently a tracked part and, therefore, the determination of accumulated FHs since new or since last overhaul would be based on shop records entered when the HPT stage 2 nozzles were either replaced or overhauled.

The FAA agrees to clarify. The method of calculation presented by United Airlines, including the use of shop records when determining FHs on HPT stage 2 nozzles since new or since last overhaul, is acceptable for compliance with this AD. The FAA did not change this AD as a result of this comment.

Revision of Estimated Costs

In this Final Rule, the FAA has moved the estimated costs associated with paragraphs (g)(3) and (h) from the on-condition costs section to the estimated costs section, since the replacement is required on-condition for a failed inspection and also as a mandatory terminating action. This revision does not increase the economic burden on operators.

Conclusion

The FAA reviewed the relevant data 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, this AD is adopted as proposed in the NPRM.

Related Service Information Under 1 CFR Part 51

The FAA reviewed GE GE90 Service Bulletin (SB) 72–1166, Revision 3, dated February 14, 2019. This service information specifies procedures for BSIs of the HPT stage 2 blade forward platforms for rub marks or evidence of contact (circumferential grooves on the HPT stage 2 blade platforms) with the HPT stage 2 nozzle angel wings. This service information also specifies procedures for performing a 360-degree BSI of the HPT stage 2 nozzles leading edges and specifies procedures for removal and replacement of HPT stage 2 nozzles. 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.

Other Related Service Information

The FAA reviewed GE GE90 SB 72–1071, Revision 1, dated January 16, 2015. This service information specifies procedures for removal and replacement of HPT stage 2 nozzles with HPT stage 2 nozzles that incorporate a design change.

The FAA also reviewed GE GE90 SB 72–1216, Initial Issue, dated August 22, 2022. This service information specifies inspection procedures for affected HPT stage 2 nozzles.

Costs of Compliance

The FAA estimates that this AD affects 8 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
BSI of HPT stage 2 nozzles or HPT stage 2 blade interface.	4 work-hours × $85 per hour = $340	$0	$340	$2,720
Replace full set of HPT stage 2 nozzles	8 work-hours × $85 per hour = $680	918,650	919,330	7,354,640

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:

2023–05–17 General Electric Company: Amendment 39–22386; Docket No. FAA–2022–1240; Project Identifier AD–2022–00683–E.

(a) Effective Date

This airworthiness directive (AD) is effective May 10, 2023.

(b) Affected ADs

None.

(c) Applicability

This AD applies to General Electric Company (GE) GE90–76B, GE90–85B, GE90–90B, and GE90–94B model turbofan engines, excluding those engines with an installed full set of high-pressure turbine (HPT) stage 2 nozzles with part numbers 1847M47G23 and 1847M47G24.

(d) Subject

Joint Aircraft System Component (JASC) Code 7250, Turbine Section.

(e) Unsafe Condition

This AD was prompted by a commanded in-flight shutdown (IFSD) due to cracking and rockback of the HPT stage 2 nozzles resulting in blade liberation, severe rotor imbalance, and liberation of the exhaust centerbody. The FAA is issuing this AD to prevent failure of the HPT stage 2 nozzles, HPT stage 2 blades, and exhaust centerbody. The unsafe condition, if not addressed, could result in IFSD, failure of the engine and exhaust centerbody, and loss of the airplane.

(f) Compliance

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

(g) Required Actions

(1) Within the compliance times specified in paragraphs (g)(1)(i) and (ii) of this AD, perform an initial borescope inspection (BSI) of the forward platforms of the HPT stage 2 blades, or perform a 360 degree BSI of the leading edges of the HPT stage 2 nozzles (optional procedure) in accordance with the Accomplishment Instructions, paragraph 3.A.(3)(a) of GE GE90 SB 72–1166, Revision 3, dated February 14, 2019 (the SB):

(i) For engines with HPT stage 2 nozzles that have accumulated 22,000 or more flight hours since new or since last overhaul as of the effective date of this AD, perform the initial BSI before accumulating 250 flight cycles (FCs) after the effective date of this AD.

(ii) For engines with HPT stage 2 nozzles that have accumulated less than 22,000 flight hours since new or since last overhaul as of the effective date of this AD, perform the initial BSI before accumulating 22,000 flight hours since new or since last overhaul, or within 250 FCs after the effective date of this AD, whichever occurs later.

(2) Thereafter, at intervals not to exceed 100 FCs from performance of the last BSI of the forward platforms of the HPT stage 2 blades, or at intervals not to exceed 500 FCs from the last BSI of the leading edges of the HPT stage 2 nozzles, as applicable, perform a repetitive BSI of the forward platforms of the HPT stage 2 blades or the leading edges of the HPT stage 2 nozzles in accordance with the Accomplishment Instructions, paragraph 3.A.(3)(a) of the SB.

(3) If, during any inspection required by paragraphs (g)(1) or (g)(2) of this AD, rub marks, evidence of contact on the HPT stage 2 blade forward platform on three or more HPT stage 2 blades, or an unserviceable HPT stage 2 nozzle is found, before further flight, remove and replace the HPT stage 2 nozzles with parts eligible for installation.

Note 1 to paragraph (g)(3): Serviceability criteria can be found in the GE90 Boeing 777 Aircraft Maintenance Manual, 72–00–00, INSPECTION/CHECK, Subtask 72–00–00–220–074–G00.

(h) Mandatory Terminating Action

As a mandatory terminating action to the repetitive inspections required by paragraph (g)(2) of this AD, at the next engine shop visit after reaching 22,000 flight hours since new or since last overhaul, replace the HPT stage 2 nozzles with parts eligible for installation.

(i) Definitions

(1) For the purpose of this AD, ''parts eligible for installation'' is a full set of HPT stage 2 nozzles with part numbers 1847M47G23 and 1847M47G24.

(2) For the purpose of this AD, an ''overhaul'' is the complete refurbishment of the HPT stage 2 nozzle segments.

(3) For the purpose of this AD, an ''engine shop visit'' is the induction of an engine into the shop for maintenance involving separation of pairs of major mating engine case flanges, except for the following situations, which do not constitute an engine shop visit:

(i) Separation of engine flanges solely for the purposes of transportation of the engine without subsequent maintenance; or

(ii) Separation of engine flanges solely for the purpose of replacing the fan or propulsor without subsequent maintenance.

(j) Credit for Previous Actions

You may take credit for the initial inspection required by paragraph (g)(1) of this AD if you performed the inspection before the effective date of this AD using GE GE90 SB 72–1166, Revision 2, dated October 13, 2017, or earlier revisions.

(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) of this AD. 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.

(l) 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; email: *Stephen.L.Elwin@faa.gov.*

(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) GE GE90 Service Bulletin (SB) 72–1166, Revision 3, dated February 14, 2019.

(ii) [Reserved]

(3) For GE service information identified in this AD, contact General Electric Company, GE Aerospace, Room 285, 1 Neumann Way, Cincinnati, OH 45215; phone: (513) 552–3272; email: *aviation.fleetsupport@ge.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 March 9, 2023.

Christina Underwood,

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

[FR Doc. 2023–07005 Filed 4–4–23; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA–2022–1063; Project Identifier AD–2021–01339–T; Amendment 39–22375; AD 2023–05–06]

RIN 2120–AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for certain The Boeing Company Model 737–8, 737–9, and 737–8200 airplanes. This AD was prompted by a determination that new airworthiness limitations are necessary to require periodic replacement; or testing, and replacement if necessary; of the oxygen sensor of the nitrogen generation system (NGS). This AD requires revising the existing maintenance or inspection program, as applicable, to incorporate the new airworthiness limitations. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective May 10, 2023.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of May 10, 2023.

ADDRESSES:

AD Docket: You may examine the AD docket at *regulations.gov* under Docket No. FAA–2022–1063; 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 service information identified in this final rule, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminster Blvd., MC 110–SK57, Seal Beach, CA 90740–5600; telephone 562–797–1717; website *myboeingfleet.com.*
- You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206–231–3195. It is also available at *regulations.gov* under Docket No. FAA–2022–1063.

FOR FURTHER INFORMATION CONTACT: Sam Dorsey, Aerospace Engineer, Propulsion Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone and fax: 206–231–3415; email: *samuel.j.dorsey@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 The Boeing Company Model 737–8, 737–9, and 737–8200 airplanes. The NPRM published in the **Federal Register** on November 28, 2022 (87 FR 72902). The NPRM was prompted by a determination that a new airworthiness limitation is necessary to require periodic replacement of the oxygen sensor of the NGS. In the NPRM, the FAA proposed to require revising the existing maintenance or inspection program, as applicable, to incorporate the new airworthiness limitation. The FAA is issuing this AD to prevent increasing the flammability exposure of the center fuel tank, which together with an ignition source in the fuel tank, could lead to a fuel tank explosion and consequent loss of the airplane.

Discussion of Final Airworthiness Directive

Comments

The FAA received comments from the Air Line Pilots Association, International (ALPA) and an individual who supported the NPRM without change.

The FAA received additional comments from four commenters, including Boeing, American Airlines, SIA Engineering Company, and United Airlines (United). The following presents the comments received on the NPRM and the FAA's response to each comment.

Request To Refer to Latest Service Information

Boeing and United requested that the proposed AD be revised to specify compliance with Boeing 737–7/8/8200/9/10 Special Compliance Items/Airworthiness Limitations, D626A011–9–04, dated May 2022, instead of Boeing 737–7/8/8200/9/10 Special Compliance Items/Airworthiness Limitations, D626A011–9–04, dated January 2019. Boeing noted that Boeing 737–7/8/8200/9/10 Special Compliance Items/Airworthiness Limitations, D626A011–9–04, dated May 2022 includes a revision to 47–AWL–09 and the addition of new airworthiness limitation 47–AWL–10 (which is a Critical Design Configuration Control Limitation (CDCCL) that specifies procedures for oxygen sensor repairs). Boeing added that the revision to 47–AWL–09 provides additional options for operators beyond replacing the oxygen sensor with a new oxygen sensor. Those options include testing the installed NGS oxygen sensor using a functional check described in the Airplane Maintenance Manual (AMM) (and replacing if necessary), and replacing the oxygen sensor with an NGS oxygen sensor repaired as specified in 47–AWL–10. United noted that these changes provide operators with benefits necessary for the efficient accomplishment of task 47–AWL–09.

The FAA partially agrees with the commenters' requests. Boeing 737–7/8/8200/9/10 Special Compliance Items/Airworthiness Limitations, D626A011–9–04, dated May 2022, provides options that are relieving, but also includes a new CDCCL requirement that was not included in the proposed AD. The FAA has therefore revised this AD to require incorporating the information specified in AWL No. 47–AWL–09, ''Nitrogen Generation System—Oxygen Sensor,'' of Boeing 737–7/8/8200/9/10 Special Compliance Items/Airworthiness Limitations, D626A011–9–04, dated