[Federal Register, Volume 90 Number 72 (Wednesday, April 16, 2025)]
[Rules and Regulations]
[Pages 15926-15929]
From the Federal Register Online via the Government Publishing Office [www.gpo.gov]
[FR Doc No: 2025-06420]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2024-2417; Project Identifier AD-2024-00336-E; Amendment 39-23012; AD 2025-07-10]

RIN 2120-AA64

Airworthiness Directives; General Electric Company Engines

AGENCY:

Federal Aviation Administration (FAA), DOT.

ACTION:

Final rule.

SUMMARY:

The FAA is superseding Airworthiness Directive (AD) 2020-20-17 and AD 2021-15-05 for all General Electric Company (GE) Model GE90-110B1 and GE90-115B engines. AD 2020-20-17 prohibits dispatch of an airplane if certain status messages are displayed on the engine indicating and crew alerting system (EICAS) and if certain conditions are present; and as terminating action, requires revision of the existing FAA-approved minimum equipment list (MEL) by incorporating the dispatch restrictions into the MEL. AD 2021-15-05 requires initial and repetitive replacement of the full authority digital engine control (FADEC) integrated circuit (MN4) microprocessor. Since the FAA issued AD 2020-20-17 and AD 2021-15-05, the manufacturer has developed a software revision for the electronic engine control (EEC) FADEC that further mitigates the unsafe condition. This AD retains all the actions of AD 2020-20-17 and AD 2021-15-05, and also requires upgrading the EEC FADEC software to an EEC FADEC software version eligible for installation as a terminating action. The FAA is issuing this AD to address the unsafe condition on these products.

DATES:

This AD is effective May 21, 2025.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of May 21, 2025.

The Director of the Federal Register approved the incorporation by reference of certain other publications listed in this AD as of October 23, 2020 (85 FR 63443, October 8, 2020); and September 13, 2021 (86 FR 43409, August 9, 2021).

ADDRESSES:

AD Docket: You may examine the AD docket at *regulations.gov* under Docket No. FAA-2024-2417; 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;* 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-2024-2417.

FOR FURTHER INFORMATION CONTACT:

Alexander Thickstun, Aviation Safety Engineer, FAA, 2200 South 216th Street, Des Moines, WA 98198; phone: (202) 267-8292; email: *alexander.m.thickstun@faa.gov*.

SUPPLEMENTARY INFORMATION:

Background

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to supersede AD 2020-20-17, Amendment 39-21273 (85 FR 63443, October 8, 2020) (AD 2020-20-17) and AD 2021-15-05, Amendment 39-21652 (86 FR 43409, August 9, 2021) (AD 2021-15-05). AD 2020-20-17 and AD 2021-15-05 applied to all GE Model GE90-110B1 and GE90-115B engines. The NPRM published in the **Federal Register** on November 1, 2024 (89 FR 87317). The NPRM was prompted by an in-service occurrence of loss of engine thrust control resulting in uncommanded high thrust. Degradation of the MN4 integrated circuit microprocessor solder balls in the FADEC can result in the engine not following throttle commands. In the NPRM, the FAA proposed to continue to prohibit dispatch of an airplane if certain status messages are displayed on the EICAS and if certain conditions are present; and as terminating action, require revision of the existing FAA-approved MEL by incorporating the dispatch restrictions into the MEL. The FAA also proposed to continue to require initial and repetitive replacement of the FADEC MN4 microprocessor. In the NPRM, the FAA also proposed to require upgrading the EEC FADEC software to an EEC FADEC software version eligible for installation as a terminating action for the actions retained from AD 2020-20-17 and AD 2021-15-05.

Discussion of Final Airworthiness Directive

Comments

The FAA received comments from five commenters. The commenters were the Air Line Pilots Association, International (ALPA), The Boeing Company (Boeing), FedEx Express (FedEx), GE Aerospace (GE), and United Airlines (UAL). The following presents the comments received on the NPRM and the FAA's response to each comment.

Support for the NPRM

ALPA expressed support for the proposed AD. FedEx concurred with the intent and scope of the proposed AD and stated that the FedEx fleet has already upgraded the EEC FADEC software version to A.0.8.6. UAL indicated that it had no objections to the proposed AD.

Request for Updated Definition

GE requested that the FAA update the Material Incorporated by Reference under 1 CFR part 51 paragraph and revise the definition specified in paragraph (i)(1)(ii) of the NPRM to include a later revision of the acceptable service information. GE mentioned that the FAA has approved a global alternative method of compliance (AMOC) to the corresponding paragraph in AD 2021-15-05, which allowed the use of the later service information. GE pointed out that including the later service information would prevent similar requests for AMOCs to the NPRM.

The FAA agrees with the request. The FAA has revised the Material Incorporated by Reference under 1 CFR part 51 paragraph and paragraph (i)(1)(ii) of this AD to include reference to GE GE90-100 Service Bulletin 73- 0118 R02, dated November 15, 2024 (GE GE90-100 Service Bulletin 73-0118 R02). Additionally, the FAA has added paragraph (n)(3) of this AD to allow AMOCs approved previously for AD 2021-15-05 as AMOCs for the corresponding provisions of this AD.

Request for Added Clarification of FADEC Software Version A.0.8.6

GE requested that the FAA include a service bulletin reference (GE GE90-100 Service Bulletin 73-0122) in the required actions specified in paragraph (j) of the NPRM. GE pointed out that field configuration management is tracked with service bulletins that are used to release part numbers to the field, and that including reference to GE GE90-100 Service Bulletin 73-0122 provides clarification.

The FAA agrees and has updated the new required actions specified in paragraphs (j) and (l) of this AD to refer to GE GE90-100 Service Bulletin 73-0122.

Request for Credit

GE requested that the FAA include credit for previous versions of GE GE90-100 Service Bulletin 73-0122. GE pointed out that including credit would help avoid confusion about compliance with the required action.

The FAA disagrees with the request. The FAA has updated the new required actions specified in paragraphs (j) and (l) of this AD to include reference to GE GE90-100 Service Bulletin 73-0122. Since the reference is clarifying and does not require any action in accordance with the service information

reference, there is no need for any credit related to the action. The FAA did not change this AD as a result of this comment.

Request for Clarification of the Unsafe Condition

Boeing requested that the FAA revise the unsafe condition specified in paragraph (e) of the NPRM. Boeing requested that the unsafe condition be reworded to focus on describing the unsafe condition or to include the new mitigations provided in the NPRM. Boeing also included proposed language to revise paragraph (e) of the NPRM. Boeing noted that paragraph (e) of the NPRM does not describe the potentially unsafe condition in detail and does not discuss the new mitigations that were added in the NPRM.

The FAA agrees to clarify. However, the FAA has determined that the unsafe condition described in paragraph (e) of this AD correctly describes the unsafe condition and is consistent with the verbiage used in the previous (superseded) ADs. Instead, the FAA has determined to include an additional clarifying sentence in the Background of this AD, which states: "Degradation of the MN4 integrated circuit microprocessor solder balls in the FADEC can result in the engine not following throttle commands."

Conclusion

The FAA reviewed the relevant data, considered any comments received, and determined that air safety requires adopting the 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 GE90-100 Service Bulletin 73-0118 R02, which specifies procedures for replacing the FADEC MN4 microprocessor, which describes procedures for checking for an inbound FADEC EICAS "ENG EEC C1" status message and corresponding conditions.

The FAA also reviewed GE GE90-100 Service Bulletin 73-0117 R01, dated August 5, 2020, which the Director of the Federal Register approved for incorporation by reference as of October 23, 2020 (85 FR 63443, October 8, 2020).

The FAA also reviewed GE GE90-100 Service Bulletin 73-0118, Revision 01, dated April 27, 2021, which the Director of the Federal Register approved for incorporation by reference as of September 13, 2021 (86 FR 43409, August 9, 2021).

This material 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.

Costs of Compliance

The FAA estimates that this AD affects 330 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
Revise the existing MEL (Retained action from AD 2020-20-17)	1 work-hour × $85 per hour = $85	$0	$85	$28,050
Remove and replace the FADEC (Retained action from AD 2021-15-05)	1 work-hour × 85 per hour = 85	25,200	25,285	8,344,050
Upgrade the EEC FADEC software (New Action)	1 work-hour × 85 per hour = 85	0	85	28,050

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:

a. Removing Airworthiness Directive 2020-20-17, Amendment 39-21273 (85 FR 63443, October 8, 2020); and Airworthiness Directive 2021-15-05, Amendment 39-21652 (86 FR 43409, August 9, 2021); and

b. Adding the following new airworthiness directive:

2025-07-10 General Electric Company: Amendment 39-23012; Docket No. FAA-2024-2417; Project Identifier AD-2024-00336-E.

(a) Effective Date

This airworthiness directive (AD) is effectiveMay 21, 2025.

(b) Affected ADs

(1) This AD replaces AD 2020-20-17, Amendment 39-21273 (85 FR 63443, October 8, 2020) (AD 2020-20-17).

(2) This AD replaces AD 2021-15-05, Amendment 39-21652 (86 FR 43409, August 9, 2021) (AD 2021-15-05).

(c) Applicability

This AD applies to General Electric Company (GE) Model GE90-110B1 and GE90-115B engines.

(d) Subject

Joint Aircraft System Component (JASC) Code 7320, Fuel Controlling System.

(e) Unsafe Condition

This AD was prompted by an in-service occurrence of loss of engine thrust control resulting in uncommanded high thrust. The FAA is issuing this AD to prohibit dispatch of the airplane when certain faults caused by degradation of the MN4 integrated circuit in the full authority digital engine control (FADEC) are displayed and certain FADEC conditions are present, and to prevent failure of the electronic engine control (EEC) FADEC integrated circuit (MN4) microprocessor solder ball. The unsafe condition, if not addressed, could result in loss of engine thrust control and reduced control of the airplane.

(f) Compliance

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

(g) Retained Actions From AD 2020-20-17, With No Changes

(1) After October 23, 2020 (the effective date of AD 2020-20-17), notwithstanding the provisions of the operator's minimum equipment list (MEL), dispatch of an airplane is prohibited if the engine indicating and crew alerting system (EICAS) displays the status message “ENG EEC C1 L” or “ENG EEC C1 R” and any condition is present that is listed in the Accomplishment Instructions, paragraphs 3.A.(2)(f), 3.A.3(a), or 3.A.(4) of GE GE90-100 Service Bulletin 73-0117 R01, dated August 5, 2020.

(2) As terminating action for the requirements of paragraph (g)(1) of this AD, within 120 days of October 23, 2020 (the effective date of AD 2020-20-17), revise the existing FAA-approved MEL by incorporating into the MEL the dispatch restrictions listed in paragraph (g)(1) of this AD as a required operation or maintenance procedure. Specific alternative MEL wording to accomplish the actions specified in paragraph (g)(1) of this AD can be approved by the operator's principal operations or maintenance inspector.

(h) Retained Actions From AD 2021-15-05, With No Changes

(1) Within the following compliance times after September 13, 2021 (the effective date of AD 2021-15-05), replace the FADEC MN4 microprocessor using an approved overhaul procedure:

(i) For a FADEC MN4 microprocessor with 10,500 or more cycles since new (CSN), replace the FADEC MN4 microprocessor before accumulating 500 additional cycles on the FADEC MN4 microprocessor.

(ii) For a FADEC MN4 microprocessor with 5,000 CSN or more, but fewer than 10,500 CSN, replace the FADEC MN4 microprocessor at the next FADEC component shop visit or before accumulating 11,000 CSN on the FADEC MN4 microprocessor, whichever occurs first.

(2) Thereafter, repeat the replacement of the FADEC MN4 microprocessor at the first FADEC component shop visit after accumulating 5,000 cycles since the last replacement but before accumulating 11,000 cycles since the last replacement.

(i) Retained Definitions From AD 2021-15-05, With an Updated Definition

This paragraph restates the definitions of paragraph (h) of AD 2021-15-05, with new service information included for the definition of paragraph (h)(1)(ii). For the purpose of this AD:

(1) An “approved overhaul procedure” is one of the following:

(i) Replacement of the FADEC MN4 microprocessor using FADEC International-approved maintenance procedures; or

(ii) Replacement of the FADEC MN4 microprocessor using the Accomplishment Instructions, paragraph 3.A., of GE GE90-100 Service Bulletin 73-0118, Revision 01, dated April 27, 2021, or of GE GE90-100 Service Bulletin 73-0118, Revision 02, dated November 15, 2024.

(2) A “FADEC component shop visit” is the induction of the FADEC into a repair facility to perform internal maintenance on the FADEC.

(j) New Required Actions

Within 180 days after the effective date of this AD, replace any EEC FADEC software version that is earlier than A.0.8.6 (prior to GE GE90-100 Service Bulletin 73-0122) with an EEC FADEC software version that is eligible for installation.

(k) Terminating Action

The actions specified in paragraph (j) of this AD constitute terminating action for all the requirements of paragraphs (g) and (h) of this AD.

(l) Installation Prohibition

As of the effective date of this AD, no person may install on any engine, an EEC FADEC software version that is earlier than A.0.8.6 (prior to GE GE90-100 Service Bulletin 73-0122).

(m) Definition

For the purpose of this AD, an “EEC FADEC software version that is eligible for installation” is any software version that is A.0.8.6 or later.

(n) 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 (o) of this AD and email to: *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.

(3) AMOCs approved previously for AD 2021-15-05 are approved as AMOCs for the corresponding provisions of this AD.

(o) Additional Information

For more information about this AD, contact Alexander Thickstun, Aviation Safety Engineer, FAA, 2200 South 216th Street, Des Moines, WA 98198; phone: (202) 267-8292; email: *alexander.m.thickstun@faa.gov*.

(p) 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.

(3) The following material was approved for IBR on May 21, 2025.

(i) General Electric Company (GE) GE90-100 Service Bulletin 73-0118, Revision 02, dated November 15, 2024.

(ii) [Reserved]

(4) The following material was approved for IBR on October 23, 2020 (85 FR 63443, October 8, 2020).

(i) GE GE90-100 Service Bulletin 73-0117 R01, dated August 5, 2020.

(ii) [Reserved]

(5) The following material was approved for IBR on September 13, 2021 (86 FR 43409, August 9, 2021).

(i) GE GE90-100 Service Bulletin 73-0118, Revision 01, dated April 27, 2021.

(ii) [Reserved]

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

(7) 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.

(8) 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-locations* or email *fr.inspection@nara.gov*.

Issued on April 2, 2025.

Peter A. White,

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

[FR Doc. 2025-06420 Filed 4-15-25; 8:45 am]

BILLING CODE 4910-13-P