[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2022-1314; Project Identifier AD-2021-00811-E]

RIN 2120-AA64

Airworthiness Directives; General Electric Company Turboprop Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The FAA proposes to supersede Airworthiness Directive (AD) 2018-03-13, which applies to certain General Electric Company (GE) CT7-5A2, CT7-5A3, CT7-7A, CT7-7A1, CT7-9B, CT7-9B1, CT7-9B2, CT7-9C, and CT7-9C3 model turboprop engines. AD 2018-03-13 requires initial and repetitive visual inspections and fluorescent penetrant inspections (FPIs) of the main propeller shaft. Since the FAA issued AD 2018-03-13, the manufacturer detected two additional cracks on a main propeller shaft during its ongoing investigation and subsequently published service information that introduced reduced inspection thresholds for initial and repetitive visual inspections, FPIs, and added initial and repetitive ultrasonic inspections (USIs) of the main propeller shaft. Additionally, the manufacturer revised the airworthiness limitations section (ALS) of the maintenance manual (MM) to incorporate initial and repetitive USIs to inspect for cracks on the main propeller shaft. This proposed AD would require initial and repetitive visual inspections, FPIs, and USIs of the main propeller shaft. Depending on the results of these inspections, this proposed AD would require replacement of the main propeller shaft. As an optional terminating action to these inspections, this proposed AD would require revising the ALS of the existing MM and the operator's existing approved maintenance program or inspection program, as applicable, to incorporate the tasks and reduced inspection thresholds for the main propeller shaft. The FAA is proposing this AD to address the unsafe condition on these products.

DATES: The FAA must receive comments on this proposed 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 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.

AD Docket: You may examine the AD docket at regulations.gov by searching for and locating Docket No. FAA-2022-1314; 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 NPRM, any comments received, and other information. The street address for Docket Operations is listed above.

Material Incorporated by Reference:

• For GE service information identified in this NPRM, contact General Electric Company, 1 Neumann Way, Cincinnati, OH 45215; phone: (513) 552-3272; email: aviation.fleetsupport@ae.ge.com; website: 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.

FOR FURTHER INFORMATION CONTACT: Sungmo Cho, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7241; email: Sungmo.D.Cho@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under ADDRESSES. Include "Docket No. FAA-2022-1314; Project Identifier AD-2021-00811-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 the proposal 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 regulations.gov, including any personal information you provide. The agency will also post a report summarizing each substantive verbal contact received about this NPRM.

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 NPRM 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 NPRM, 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 NPRM. Submissions containing CBI should be sent to Sungmo Cho, 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.

Background

The FAA issued AD 2018-03-13, Amendment 39-19186 (83 FR 6125, February 13, 2018) (AD 2018-03-13), for certain GE CT7-5A2, CT7-5A3, CT7-7A, CT7-7A1, CT7-9B, CT7-9B1, CT7-9B2, CT7-9C, and CT7-9C3 model turboprop engines with main propeller shaft, part number 77581-11, installed. AD 2018-03-13 was prompted by an in-flight failure of a main propeller shaft on a GE CT7-9B model turboprop engine, resulting in the loss of the propeller. The manufacturer determined the failure of the main propeller shaft was caused by cracks initiating from undiscovered corrosion in the dowel

pin holes on the flange of the main propeller shaft. AD 2018-03-13 requires visually inspecting the main propeller shaft for wear, corrosion, and cracking and performing FPI for cracks. The agency issued AD 2018-03-13 to prevent failure of the main propeller shaft. The unsafe condition, if not addressed, could result in in-flight loss of the propeller, loss of engine thrust control, and damage to the airplane.

Actions Since AD 2018-03-13 Was Issued

Since the FAA issued AD 2018-03-13, the manufacturer detected two additional cracks on a main propeller shaft during its ongoing investigation and subsequently published service information that introduced reduced inspection thresholds for initial and repetitive visual inspections, FPIs, and added initial and repetitive USIs of the main propeller shaft. Additionally, the manufacturer revised the ALS of the MM to incorporate initial and repetitive USIs to inspect for cracks on the main propeller shaft.

FAA's Determination

The FAA is issuing this NPRM after determining that the unsafe condition described previously is likely to exist or develop on other products of the same type design.

Related Service Information under 1 CFR Part 51

The FAA reviewed GE Service Bulletin (SB) CT7-TP 72-0541 R01, dated November 18, 2021 (GE SB CT7-TP 72-0541). This service information specifies procedures for performing initial and repetitive visual inspections, FPIs, and USIs of the main propeller shaft.

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.

Proposed AD Requirements in this NPRM

This proposed AD would retain none of the requirements of AD 2018-03-13. This proposed AD would require initial and repetitive visual inspections, FPIs, and USIs of the main propeller shaft. Depending on the results of these inspections, this proposed AD would require replacement of the main propeller shaft. As an optional terminating action to these inspections, this proposed AD would require revising the ALS of the existing

MM and the operator's existing approved maintenance program or inspection program, as applicable, to incorporate incorporating the tasks and reduced inspection thresholds for the main propeller shaft. An owner/operator (pilot) holding at least at least a private pilot certificate may revise the ALS of the existing MM, and the owner/operator must enter compliance with the applicable paragraphs of the AD into the aircraft records in accordance with 14 CFR 43.9(a) and 14 CFR 91.417(a)(2)(v). The record must be maintained as required by 14 CFR 91.417, 14 CFR 121.380, or 14 CFR 135.439. This is an exception to the FAA's standard maintenance regulations.

Differences Between this Proposed AD and the Service Information

GE SB CT7-TP 72-0541 uses the term "UTI," while this proposed AD uses the term "USI."

Costs of Compliance

The FAA estimates that this AD, if adopted as proposed, would affect 176 engines installed on airplanes of U.S. registry.

The FAA estimates the following costs to comply with this proposed AD:

Estimated costs

Action	Labor Cost	Parts Cost	Cost per Product	Cost on U.S. Operators
Visually inspect, FPI, and USI the main propeller shaft	2 work-hours x $85 per hour = $170	$0	$170	$29,920

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

On-condition costs

Action	Labor Cost	Parts Cost	Cost per Product
Replace the main propeller shaft	8 work-hours x $85 per hour = $680	$48,360	$49,040
Revise the ALS of the MM	1 work-hour x $85 per hour = $85	$0	$85

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

The FAA determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would 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 the proposed regulation:

(1) Is not a "significant regulatory action" under Executive Order 12866,

(2) Would not affect intrastate aviation in Alaska, and

(3) Would 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 Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 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 2018-03-13, Amendment 39-19186 (83 FR 6125, February 13, 2018); and

b. Adding the following new airworthiness directive:

General Electric Company: Docket No. FAA-2022-1314; Project Identifier AD-2021-00811-E.

(a) Comments Due Date

The FAA must receive comments on this airworthiness directive (AD) action by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

This AD replaces AD 2018-03-13, Amendment 39-19186 (83 FR 6125, February 13, 2018).

(c) Applicability

This AD applies to General Electric Company (GE) CT7-5A2, CT7-5A3, CT7-7A, CT7-7A1, CT7-9B, CT7-9B1, CT7-9B2, CT7-9C, and CT7-9C3 model turboprop engines.

(d) Subject

Joint Aircraft System Component (JASC) Code 7210, Turbine Engine Reduction Gear.

(e) Unsafe Condition

This AD was prompted by an in-flight failure of a main propeller shaft on a GE CT7-9B model turboprop engine, resulting in the loss of the propeller. The FAA is issuing this AD to prevent failure of the main propeller shaft. The unsafe condition, if not addressed, could result in in-flight loss of the propeller, loss of engine thrust control, and damage to the airplane.

(f) Compliance

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

(g) Required Actions

(1) For affected CT7-5A2, CT7-5A3, CT7-7A, and CT7-7A1 model turboprop engines, using the compliance times specified in Figure 1 to paragraph (g)(1) of this AD, perform initial and repetitive visual inspections, fluorescent penetrant inspections (FPIs), and ultrasonic inspections (USIs) of the main propeller shaft.

Figure 1 to Paragraph (g)(1) – Compliance Times for CT7-5A2, CT7-5A3, CT7-7A, and CT7-7A1 Model Turboprop Engines

Inspection type	Initial inspection of the main propeller shaft	Repeat inspection interval of main propeller shaft
Cleaning and visual inspection	During first propeller removal after the effective date of this AD	During every propeller removal
FPI	Before exceeding 20,000 cycles since new (CSN) or within 2,100 flight hours (FHs) after the effective date of this AD, whichever occurs later	During every propeller removal or within 2,100 FHs from performance of the previous FPI, whichever occurs later
USI	Before exceeding 20,000 CSN or within 1,600 FHs after the effective date of this AD, whichever occurs later	Before exceeding 5,000 FHs from performance of the previous USI

(2) For affected CT7-9B, CT7-9B1, CT7-9B2, CT7-9C, and CT7-9C3 model turboprop engines, using the compliance times specified in Figure 2 to paragraph (g)(2) of this AD, perform initial and repetitive visual inspections, FPIs, and USIs of the main propeller shaft.

Figure 2 to Paragraph (g)(2) – Compliance Times CT7-9B, CT7-9B1, CT7-9B2, CT7-9C, and CT7-9C3 Model Turboprop Engines

Inspection type	Initial inspection of the main propeller shaft	Repeat inspection interval of main propeller shaft
Cleaning and visual inspection	During the first propeller removal after the effective date of this AD	During every propeller removal
FPI	Before exceeding 20,000 CSN or within 2,400 FHs after the effective date of this AD, whichever occurs later	During every propeller removal or within 2,400 FHs from performance of the previous FPI, whichever occurs later
USI	Before exceeding 20,000 CSN or within 1,600 FHs after the effective date of this AD, whichever occurs later	Before exceeding 4,800 FHs from performance of the previous USI

(3) Perform the visual inspections, FPIs, and USIs required by paragraphs (g)(1) and (2) of this AD as follows:

(i) Prior to performance of the inspections, clean the main propeller shaft flange using the Accomplishment Instructions, paragraph 3.B., of GE Service Bulletin (SB) CT7-TP 72-0541 R01, dated November 18, 2021 (GE SB CT7-TP 72-0541).

(ii) Visually inspect the main propeller shaft for wear, corrosion, and cracking using the Accomplishment Instructions, paragraph 3.C.(1), of GE SB CT7-TP 72-0541.

(iii) Spot-FPI the area on the main propeller shaft flange face using the Accomplishment Instructions, paragraph 3.C.(2)(a), of GE SB CT7-TP 72-0541.

(iv) USI the two dowel pin holes of the main propeller shaft using the Accomplishment Instructions, paragraph 3.C.(3)(a), of GE SB CT7-TP 72-0541.

(4) If a crack or rejectable indication is found during the initial and repetitive visual inspections, FPIs, or USIs required by paragraphs (g)(1) through (3) of this AD, before further flight, remove the main propeller shaft from service and replace it with a part eligible for installation.

(5) For all affected engines, if the main propeller shaft CSN is unknown, use the propeller gearbox (PGB) CSN. If the PGB CSN is unknown, assume the inspection threshold is exceeded.

(h) Optional Terminating Action

Accomplishing the actions in paragraphs (h)(1) through (4) of this AD, as applicable by engine model, constitutes terminating action for the inspections required by paragraphs (g)(1) through (3) of this AD.

(1) For affected CT7-5A2, CT7-5A3, CT7-7A, and CT7-7A1 model turboprop engines, revise the airworthiness limitations section (ALS) of the existing maintenance manual (MM) and the operator's existing approved maintenance program or inspection program, as applicable, by incorporating the information in Figure 3 to paragraph (h)(1) of this AD.

Figure 3 to Paragraph (h)(1) – CT7-5/-7 Inspection Threshold and Interval

Inspection / Maintenance	Initial Inspection Threshold (cycles since new (CSN))	Repetitive Inspection Interval	Inspection / Maintenance Requirements	Reference
***** FOR CT7-5**				
Visual inspection of the main propeller shaft	--	At every propeller removal	VI	72-10-00, INSPECTION – PROPELLER GEARBOX INSPECTION paragraph 5.A.
Fluorescent penetrant inspection (FPI) of the main propeller shaft	20000 CSN (*)	At every propeller removal or 2100 FH, whichever is greater	FPI	72-10-00. Special Procedure 005
Ultrasonic inspection (UTI) of the main propeller shaft	20000 CSN (*)	5000 FH	UTI	72-10-00. Special Procedure 005
***** FOR CT7-7**				
Visual inspection of the main propeller shaft	--	At every propeller removal	VI	72-10-00, INSPECTION – PROPELLER GEARBOX INSPECTION paragraph 5.A.
Fluorescent penetrant inspection (FPI) of the main propeller shaft	20000 CSN (*)	At every propeller removal or 2400 FH, whichever is greater	FPI	72-10-00. Special Procedure 005
Ultrasonic inspection (UTI) of the main propeller shaft	20000 CSN (*)	4800 FH	UTI	72-10-00. Special Procedure 005

NOTE: (*) If the main propeller shaft accumulated time/cycle is unknown, inspection must be done based on the propeller gearbox (PGB) accumulated time/cycle. If the PGB accumulated time/cycle is unknown, threshold must be assumed exceeded.

(2) For affected CT7-9B, CT7-9B1, CT7-9B2, CT7-9C, and CT7-9C3 model turboprop engines, revise the ALS of the existing MM and the operator's existing approved maintenance program or inspection program, as applicable, by incorporating the information in Figure 4 to paragraph (h)(2) of this AD.

Figure 4 to Paragraph (h)(2) – CT7-9 Inspection Threshold and Interval

Inspection / Maintenance	Initial Inspection Threshold (cycles since new (CSN))	Repetitive Inspection Interval	Inspection / Maintenance Requirements	Reference
***** FOR CT7-9B**				

Visual inspection of the main propeller shaft	--	At every propeller removal	VI	72-10-00, INSPECTION – PROPELLER GEARBOX INSPECTION paragraph 5.A.
Fluorescent penetrant inspection (FPI) of the main propeller shaft	20000 CSN (*)	At every propeller removal or 2100 FH, whichever is greater	FPI	72-10-00. Special Procedure 005
Ultrasonic inspection (UTI) of the main propeller shaft	20000 CSN (*)	5000 FH	UTI	72-10-00. Special Procedure 005
***** FOR CT7-9C/9C3**				
Visual inspection of the main propeller shaft	--	At every propeller removal	VI	72-10-00, INSPECTION – PROPELLER GEARBOX INSPECTION paragraph 5.A.
Fluorescent penetrant inspection (FPI) of the main propeller shaft	20000 CSN (*)	At every propeller removal or 2400 FH, whichever is greater	FPI	72-10-00. Special Procedure 005
Ultrasonic inspection (UTI) of the main propeller shaft	20000 CSN (*)	4800 FH	UTI	72-10-00. Special Procedure 005

NOTE: (*) If the main propeller shaft accumulated time/cycle is unknown, inspection must be done based on the propeller gearbox (PGB) accumulated time/cycle. If the PGB accumulated time/cycle is unknown, threshold must be assumed exceeded.

(3) Thereafter, except as provided in paragraph (k) of this AD, no alternative inspection times or intervals may be approved for this main propeller shaft.

(4) The optional terminating actions in paragraphs (h)(1) and (2) of this AD may be performed by the owner/operator (pilot) holding at least a private pilot certificate and must be entered into the aircraft records showing compliance with this AD in accordance with 14 CFR 43.9(a) and 14 CFR 91.417(a)(2)(v). The record must be maintained as required by 14 CFR 91.417, 14 CFR 121.380, or 14 CFR 135.439.

(i) Definition

For the purpose of this AD, a "part eligible for installation" is a main propeller shaft that has been inspected in accordance with paragraphs (g)(1) or (2) and (3) of this AD, and a crack or rejectable indication was not found.

(j) Credit for Previous Actions

You may take credit for the initial visual inspection, FPI, and USI required by paragraphs (g)(1) through (3) of this AD if you performed these initial inspections before

the effective date of this AD in accordance with GE SB CT7-TP 72-0541 R00, dated September 9, 2021.

(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 and email it 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 Sungmo Cho, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7241; email: Sungmo.D.Cho@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 Service Bulletin CT7-TP 72-0541 R01, dated November 18, 2021.

(ii) [Reserved]

(3) For GE service information identified in this AD, contact General Electric Company, 1 Neumann Way, Cincinnati, OH 45215; phone: (513) 552-3272; email: aviation.fleetsupport@ae.ge.com; website: 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 October 21, 2022.

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