[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2025-1365; Project Identifier AD-2024-00684-E]

RIN 2120-AA64

Airworthiness Directives; Lycoming Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The FAA proposes to supersede Airworthiness Directive (AD) 2024-21-02, which applies to Lycoming Engines (Lycoming) model engines that have certain connecting rod assemblies installed. AD 2024-21-02 requires repetitive oil inspections for bronze metal particulates and, if found, additional inspections of the connecting rod bushings for damage, proper fit, movement, and wear, and replacement if necessary. As terminating action to the connecting rod bushing inspections, AD 2024-21-02 also requires replacement of the connecting rod bushings with parts eligible for installation. Since the FAA issued AD 2024-21-02, the ship date range for potentially affected parts that may be subject to connecting rod failure has been expanded, and additional parts that are eligible for installation have been identified. This proposed AD would require the actions in AD 2024-21-02 and would require expanding the applicability. 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 under Docket No. FAA-2025-1365; 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 Lycoming material identified in this proposed AD, contact Lycoming Engines, 652 Oliver Street, Williamsport, PA 17701; phone: (800) 258-3279; website: lycoming.com/contact/knowledge-base/publications.

• 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.

FOR FURTHER INFORMATION CONTACT: David Bergeron, Aviation Safety Engineer, FAA, 1701 Columbia Avenue, College Park, GA 30337; phone: (516) 228-7321; email: david.j.bergeron@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 the ADDRESSES section. Include “Docket No. FAA-2025-1365; Project Identifier AD-2024-00684-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 revise this 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 David Bergeron, Aviation Safety Engineer, FAA, 1701 Columbia Avenue, College Park, GA 30337. 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 2024-21-02, Amendment 39-22869 (89 FR 86721, October 31, 2024), (AD 2024-21-02), for Lycoming model engines that have certain connecting rod assemblies installed. AD 2024-21-02 was prompted by several reports of connecting rod failures, which resulted in uncontained engine failure and in-flight shutdowns. AD 2024-21-02 requires repetitive oil inspections for bronze metal particulates and, if found, additional inspections of the connecting rod bushings for damage (e.g. deterioration, missing metal), proper fit, movement, and wear, and replacement if necessary. As terminating action to the connecting rod bushing inspections, AD 2024-21-02 also required replacement of the connecting rod bushings with parts eligible for installation. The agency issued AD 2024-21-02 to prevent connecting rod failure.

Actions Since AD 2024-21-02 Was Issued

Since the FAA issued AD 2024-21-02, the FAA was notified that there are Parts Manufacturer Approval (PMA) connecting rod bushings and connecting rod assemblies eligible for installation that were not included in AD 2024-21-02. Also, the manufacturer notified the FAA that the shipping date range for affected parts should be extended to include parts that were shipped between January 30, 2009, and September 9, 2021. The manufacturer also requested that credit be given to operators for the actions required in AD 2024-21-02 provided that the operators already accomplished AD 2017-16-11 and re-inspected any replacement connecting rod bushings received from Lycoming in accordance with the required actions of AD 2017-16-11.

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.

Material Incorporated by Reference under 1 CFR Part 51

The FAA reviewed Lycoming Mandatory Service Bulletin No. 630B, dated June 11, 2025, which specifies procedures for inspection of the connecting rod bushings for damage, proper fit, movement, and wear.

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.

Proposed AD Requirements in this NPRM

This proposed AD would require all of the actions of AD 2024-21-02. This proposed AD would require repetitive oil inspections for bronze metal particulates and, if found, additional inspections of the connecting rod bushings for damage (e.g. deterioration, missing metal), proper fit, movement, and wear, and replacement if necessary. As terminating action to the connecting rod bushing inspections, this proposed AD would require replacement of the connecting rod bushings with parts eligible for installation. This proposed AD would also expand the applicability by extending the shipping date range for affected parts.

Costs of Compliance

The FAA estimates that this AD, if adopted as proposed, would affect 45,152 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
Inspect oil	2 work-hours x $85 per hour = $170	$65	$235	$10,610,720
Inspect connecting rod bushings	1 work-hour x $85 per hour = $85	$0	$85	$3,837,920
Replace connecting rod bushings (per bushing)	4.5 work-hours x $85 per hour = $382	$380	$762	$34,405,824

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 2024-21-02, Amendment 39-22869 (89 FR 86721, October 31, 2024); and

b. Adding the following new airworthiness directive:

Lycoming Engines: Docket No. FAA-2025-1365; Project Identifier AD-2024-00684-E.

(a) Comments Due Date

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

(b) Affected ADs

This AD replaces AD 2024-21-02, Amendment 39-22869 (89 FR 86721, October 31, 2024); (AD 2024-21-02).

(c) Applicability

This AD applies to Lycoming Engines (Lycoming) model engines that have an affected part and part number (P/N) installed and are assembled within the ship date range, as specified in Table 1 to paragraph (c) of this AD.

Table 1 to Paragraph (c) - Affected P/Ns

P/N	Affected Part	Ship Date Range
LW-13923	Connecting Rod Bushing	01/30/2009 - 09/09/2021
LW-11750	Connecting Rod Assembly	01/30/2009 - 09/09/2021
78030	Connecting Rod Assembly	01/30/2009 - 09/09/2021
LW-19332	Connecting Rod Assembly	01/30/2009 - 09/09/2021
LW-13865	Connecting Rod Assembly	01/30/2009 - 09/09/2021
77450	Connecting Rod Assembly	01/30/2009 - 09/09/2021
LW-13422	Connecting Rod Assembly	01/30/2009 - 09/09/2021
LW-13937	Connecting Rod Assembly	01/30/2009 - 09/09/2021
LW-15288	Connecting Rod Assembly	01/30/2009 - 09/09/2021

Note 1 to paragraph (c): The affected parts are known to be installed on Lycoming Model AEIO-320 series, AEIO-360 series, AEIO-390 series, AEIO-540 series, AEIO-580-B1A, AIO-320 series, AIO-360 series, HIO-360 series, HIO-390-A1A, HIO-540-A1A, HO-360 series, IO-320 series, IO-360 series, IO-390 series, IO-540 series, IVO-360-A1A, IVO-540-A1A, LHIO-360 series, LIO-320 series, LIO-360 series, LO-360 series, LTIO-540 series, LTO-360 series, O-233-A1, O-235 series, O-320 series, O-340 series, O-360 series, O-435 series, O-540 series, SO-580 series, TEO-540 series, TIGO-541 series, TIO-360 series, TIO-540 series, TIO-541 series, TIVO-540-A2A, TO-360 series, TVO-435 series, TVO-540-A1A, VO-360 series, VO-435 series, VO-540 series, and VSO-580-A1A engines.

(d) Subject

Joint Aircraft System Component (JASC) Code 8500, Engine (Reciprocating).

(e) Unsafe Condition

This AD was prompted by several reports of connecting rod failures resulting in uncontained engine failure and in-flight shutdowns (IFSDs). The FAA is issuing this AD to prevent connecting rod failure. The unsafe condition, if not addressed, could result in engine failure, an IFSD, and loss of control of the aircraft.

(f) Compliance

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

(g) Required Actions

(1) At the next oil change or within 4 months after the effective date of this AD, whichever occurs first, and thereafter at every oil change until the bushing replacement required by either paragraph (g)(3) or (4) of this AD is done, perform a visual inspection of the engine oil filter, oil pressure screen, and oil suction screen (depending on the engine configuration) for bronze metal particulates. The actions required by this paragraph 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 91.417(a)(2)(v). The record must be maintained as required by 14 CFR 91.417, 121.380, or 135.439.

Note 2 to paragraph (g)(1): Guidance for engine oil filter, oil pressure screen, and oil suction screen inspection instructions and identification of metallic solids may be found in Lycoming Mandatory Service Bulletin No. (MSB) 480F, dated May 25, 2017 (Lycoming MSB 480F).

(2) If, during any inspection required by paragraph (g)(1) of this AD, any bronze metal particulates are found and the source is identified as the connecting rod bushings, before further flight, inspect all affected connecting rod bushings for damage (e.g. deterioration, missing metal), proper fit, movement, and wear in accordance with "Connecting Rod Bushing Inspection," of Lycoming MSB 630B, dated June 11, 2025.

Note 3 to paragraph (g)(2): Guidance for identifying the source of metallic contamination may be found in Table 3 of Lycoming MSB 480F.

(3) If the connecting rod bushings fail any inspection required by paragraph (g)(2) of this AD, before further flight, replace the connecting rod bushings with parts eligible

for installation. This terminates the repetitive inspection required by paragraph (g)(1) of this AD.

(4) At the next engine overhaul, replace the connecting rod bushings with parts eligible for installation. This terminates the repetitive inspection required by paragraph (g)(1) of this AD.

(h) Definition

For the purpose of this AD, a "part eligible for installation" is any connecting rod bushing having P/N 01K28983 or AEL13923, and any connecting rod assembly having P/N AEL11750, AEL78030, SL78030, SL77450, SL13937, SL19332, SL11750, and SL13422.

(i) Credit for Previous Actions

(1) You may take credit for the actions required by paragraph (g)(1) of this AD if you performed those actions before the effective date of this AD using Lycoming MSB 480F.

(2) You may take credit for the actions required by paragraph (g)(2) of this AD if you performed those actions before the effective date of this AD using Lycoming MSB 630A, dated June 13, 2017.

(3) You may take credit for the actions required by paragraph (g) of this AD if you accomplished AD 2017-16-11, Amendment 39-18988 (82 FR 37296, August 10, 2017) before the effective date of this AD. Credit is not given if you received replacement bushings from Lycoming as a result of accomplishing AD 2017-16-11 and you did not perform the connecting rod bushing press-out verification procedure on the replacement bushings in accordance with Lycoming Engines Mandatory Service Bulletin No. 632B, dated August 4, 2017.

(4) You may take credit for the actions required by paragraph (g) of this AD if you accomplished AD 2024-21-02, Amendment 39-22869 (89 FR 86721, October 31, 2024) before the effective date of this AD.

(j) Alternative Methods of Compliance (AMOCs)

(1) The Manager, East Certification 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 East Certification Branch, send it to the attention of the person identified in paragraph (k)(1) 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.

(k) Additional Information

(1) For more information about this AD, contact David Bergeron, Aviation Safety Engineer, FAA, 1701 Columbia Avenue, College Park, GA 30337; phone: (516) 228-7321; email: david.j.bergeron@faa.gov.

(2) Material identified in this AD that is not incorporated by reference is available at the address specified in paragraph (l)(3) of this AD.

(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) Lycoming Mandatory Service Bulletin No. 630B, dated June 11, 2025.

(ii) [Reserved]

(3) For Lycoming material identified in this AD, contact Lycoming Engines, 652 Oliver Street, Williamsport, PA 17701; phone: (800) 258-3279; website: lycoming.com/contact/knowledge-base/publications.

(4) 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.

(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-locations or email

fr.inspection@nara.gov.

Issued on July 29, 2025.

Steven W. Thompson,
Acting Deputy Director, Compliance & Airworthiness Division,
Aircraft Certification Service.
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