SYSTEM AIRWORTHINESS LIMITATION No. 4
ENGINE NACELLE MAINTENANCE ERRORS
All aircraft must incorporate solutions to address potential maintenance errors, e.g., the failure to completely latch the fan cowl or the can cowl integrated drive generator (IDG) door. All aircraft that have not incorporated changes to become fully compliance with §§ 25.901(c) and Appendix K25.1.1 to Part 25 cannot be operated past December 31, 2029.

(k) 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 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 (l)(1) of this AD. Information may be emailed to: *AMOC@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, AIR–520, Continued Operational Safety 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.

(l) Related Information

(1) For more information about this AD, contact Luis Cortez-Muniz, Aviation Safety Engineer, FAA, 2200 South 216th St., Des Moines, WA 98198; telephone 206–231–3958; email: *luis.a.cortez-muniz@faa.gov.*

(2) For Collins material identified in this AD that is not incorporated by reference, contact Collins Aerospace, 15701 West 95th Street, Lenexa, KS 66219; email *ISPublications@collins.com;* website *tpi.beaerospace.com/Authentication.*

(3) Boeing material identified in this AD that is not incorporated by reference is available at the address specified in paragraph (m)(3) this AD.

(m) 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) Boeing Special Attention Requirements Bulletin 737–71–1938 RB, Revision 1, dated June 27, 2024.

(ii) [Reserved]

(3) For Boeing material identified in this AD, 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.*

(4) You may view this material 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.

(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 February 25, 2025.

Suzanne Masterson,

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

[FR Doc. 2025–03401 Filed 3–3–25; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA–2023–2234; Project Identifier AD–2023–00963–T; Amendment 39–22960; AD 2025–04–02]

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 all The Boeing Company Model 737–600, –700, –700C, –800, –900, and –900ER series airplanes. This AD was prompted by two engine fan blade-out (FBO) events that resulted in the separation of engine inlet cowl and fan cowl parts from the airplane. In one event, fan cowl parts damaged the fuselage, which caused loss of pressurization and subsequent emergency descent. This AD requires replacing the fasteners on the fan cowl support beam hinge fittings for certain airplanes and, for all airplanes, requires modifying the radial restraint assembly and installing an external doubler at the starter vent, or as an option, installing a serviceable fan cowl. This AD also requires revising the existing maintenance or inspection program, as applicable, to incorporate new airworthiness limitations. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective April 8, 2025.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of April 8, 2025.

ADDRESSES:

AD Docket: You may examine the AD docket at *regulations.gov* under Docket No. FAA–2023–2234; 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 Boeing material identified in this AD, 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 material 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–2023–2234.

FOR FURTHER INFORMATION CONTACT: Luis Cortez-Muniz, Aviation Safety Engineer, FAA, 2200 South 216th St., Des Moines, WA 98198; telephone: 206–231–3958; email: *luis.a.cortez-muniz@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 all The Boeing Company Model 737–600, –700, –700C, –800, –900, and –900ER series airplanes. The NPRM published in the **Federal Register** on December 12, 2023 (88 FR 86069). The NPRM was prompted by two engine FBO events that resulted in the separation of engine inlet cowl and fan cowl parts from the airplane. In one event, fan cowl parts damaged the fuselage, which caused loss of pressurization and subsequent emergency descent. In the NPRM, the

FAA proposed to require replacing the fasteners on the fan cowl support beam hinge fittings for certain airplanes and, for all airplanes, proposed to require modifying the radial restraint assembly and installing an external doubler at the starter vent, or as an option, installing a serviceable fan cowl. In the NPRM, the FAA also proposed to require revising the existing maintenance or inspection program, as applicable, to incorporate new airworthiness limitations. The FAA is issuing this AD to address fan cowls that are not strengthened, which could, in the event of an FBO occurrence, depart the nacelle potentially damaging a stabilizer, or the fan cowl could strike the fuselage and window. The unsafe condition, if not addressed, could result in loss of control of the airplane, or in a rapid decompression and hazard to window-seated passengers aft of the wing.

Other Related Rulemaking

The FAA issued three NPRM ADs related to Exemption No. 19212A, dated September 7, 2023 (Docket No. FAA–2021–0681) (Exemption No. 19212A), which requires Boeing to develop modifications to the inlet cowl, fan cowl, and exhaust nozzle for operators to incorporate by July 31, 2028. Exemption No. 19212A further requires Boeing to provide solutions to address maintenance errors. Exemption No. 19212A also requires Boeing to develop airworthiness limitations for the modifications and solutions to address maintenance errors.

The NPRM for this AD, Docket No. FAA–2023–2234, refers to Boeing Special Attention Requirements Bulletin 737–71–1937, dated July 27, 2023, as the appropriate source of service information for accomplishing the proposed modifications to the fan cowl.

The NPRM for Docket No. FAA–2023–2236 (88 FR 86084, December 12, 2023) refers to Boeing Special Attention Requirements Bulletin 737–71–1938, dated July 27, 2023, as the appropriate source of service information for accomplishing the proposed modifications to the inlet cowl.

The NPRM for Docket No. FAA–2023–2235 (88 FR 86080, December 12, 2023) refers to Boeing Special Attention Requirements Bulletin 737–78–1106, dated September 1, 2023, as the appropriate source of service information for accomplishing the proposed modifications to the exhaust nozzle.

All three NPRMs also proposed to require revising the existing maintenance or inspection program, as applicable, to incorporate new airworthiness limitations (System Airworthiness Limitations No. 2, No. 3, and No. 4).

Discussion of Final Airworthiness Directive

Comments

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

The FAA received additional comments from 11 commenters, including AIRDO, All Nippon Airways, American Airlines, Aviation Partners Boeing, Boeing, Delta Air Lines, Qantas, Southwest Airlines, Sun Country Airlines, United Airlines, and Virgin Australia Airlines. The following presents the comments received on the NPRM and the FAA's response to each comment.

Request To Clarify Part Interchangeability

Sun Country Airlines stated there is a possibility of an aircraft becoming out of compliance due to replacement of a modified fan cowl with an unmodified fan cowl. Sun Country Airlines stated that other rulemaking that has affected components has had wording identifying or limiting pre- and post-modification installation/interchangeability. The FAA infers Sun Country Airlines is requesting that the FAA add a note to the proposed AD to specify a modified fan cowl cannot be replaced with an unmodified fan cowl.

The FAA agrees to clarify. 14 CFR 39.7 specifies that once an AD is issued, no person may operate a product to which the AD applies except in accordance with the requirements of that AD. Further, 14 CFR 39.9 imposes a continuing obligation to maintain compliance with an AD by establishing a separate violation for each time an aircraft is operated that fails to meet AD requirements. Thus, operators have an ongoing obligation to ensure that the AD-mandated configuration is maintained. Therefore, adding the part restriction note would not be necessary since all Boeing Model 737–600, –700, –700C, –800, –900, and –900ER series airplanes are required to accomplish Boeing Special Attention Requirements Bulletin 737–71–1937 RB. The FAA has not changed this AD in this regard.

Request To Refer to Later Revisions of the Service Information

Southwest Airlines and American Airlines requested that the FAA change paragraphs (g) and (h) of the proposed AD to reference Boeing Special Attention Requirements Bulletin 737–71–1937 RB, Revision 1, which is pending publication. Southwest Airlines asked that the FAA not publish the AD until the release of Revision 1 and allow credit for previous accomplishment of the original issue of the requirements bulletin.

American Airlines also requested that the FAA allow the use of later FAA-approved revisions of Boeing Special Attention Requirements Bulletin 737–71–1937 RB. American Airlines stated this is no different than when the FAA incorporates a European Union Aviation Safety Agency (EASA) AD into an FAA AD by reference, and the EASA AD ''Ref. Publications'' section states, ''The use of later approved revisions of the above-mentioned document is acceptable for compliance with the requirements of this AD.'' American Airlines concluded that this change will prevent the need for immediate, if not on-going requests for alternative methods of compliance (AMOCs) upon the release of the revised service bulletins.

The FAA has reviewed Boeing Special Attention Requirements Bulletin 737–71–1937 RB, Revision 1, dated June 27, 2024. This revision adds ''System Airworthiness Limitation No. 4—Engine Nacelle Maintenance Errors'' to the actions to incorporate airworthiness limitations. The AWLs are now incorporated into Revision 1 of Boeing Special Attention Requirements Bulletin 737–71–1937 RB so this information can now be required via Boeing Special Attention Requirements Bulletin 737–71–1937 RB, Revision 1, dated June 27, 2024, instead of as an exception to the service information. In addition to incorporating the AWL information that was specified in figure 1 to the introductory text of paragraph (h) of the proposed AD, the only other changes to the ''Compliance'' paragraph and Accomplishment Instructions of Boeing Special Attention Requirements Bulletin 737–71–1937 RB, Revision 1, dated June 27, 2024, were to reference the NPRM, clarify Note 1 that describes the ''Enhanced Required for Compliance'' document, add Note 8 to allow alternative fasteners and add an optional concurrent service bulletin. None of these changes substantively affect the required actions on operators but instead are clarifying. Therefore, the FAA has revised this AD to refer to Boeing Special Attention Requirements Bulletin 737–71–1937 RB, Revision 1, dated June 27, 2024, and added paragraph (j) of this AD to provide credit for previous work performed prior to the effective date of this AD.

Regarding the American Airlines request to include later approved revisions, the FAA cannot allow later approved revisions in the AD because

referring to documents that do not exist at the time the AD is published violates Office of the Federal Register (OFR) regulations regarding approval of materials ''incorporated by reference'' in rules. These OFR regulations require that either the service document be submitted for approval by the OFR as ''referenced'' material, in which case it may be simply called out in the text of an AD, or the service document contents be published as part of the actual AD language. An AD may reference only the specific service document that was submitted and approved by the OFR for ''incorporation by reference.'' In order for operators to use later revisions of the referenced document (issued after the publication of the AD), either the FAA must revise the AD to reference the specific later revisions, or operators must request the approval of their use as an AMOC (under the provisions of paragraph (k) of this AD).

Request for AWL Compliance Time Extension

AIRDO, All Nippon Airways, American Airlines, Delta Air Lines, Qantas, Sun Country Airlines, United Airlines, and Virgin Australia Airlines requested the compliance time for revising the existing maintenance or inspection program be extended from before further flight as specified in the proposed AD to a longer compliance time. Compliance time requests varied from 30 days to 12 months. Some commenters stated that the ''before further flight'' requirement should be removed altogether. Several commenters noted that voluntary incorporation of the modification is occurring but incorporating the AWLs before further flight after modification was not possible since the AWLs were not published at the same time as the modification bulletins. Several commenters expressed concern that this will result in non-compliance with the AD upon its effective date. Qantas requested that for airplanes on which the modification specified in Boeing Special Attention Requirements Bulletin 737–71–1937 RB has already been done, the FAA allow figure 1 to the introductory text of paragraph (h) of the proposed AD to be incorporated within 30 days after the effective date of the AD instead of before further flight after accomplishing actions specified in Boeing Special Attention Requirements Bulletin 737–71–1937 RB. Virgin Australian Airlines requested credit if modification of the inlet cowl was accomplished prior to the AD's effective date. Sun Country Airlines also expressed concern that the AWL revision and updated requirements have not been approved or released via normal distribution channels.

The FAA disagrees with changing the compliance time but acknowledges the concern regarding the compliance time for airplanes on which the modification was done prior to the adoption of this AD and the availability of the updated AWL. However, the requirement to incorporate the AWLs before further flight is in accordance with Exemption No. 19212A, Docket No. FAA–2021–0681 and is part of the change to type design. The FAA provided a time-limited exemption (TLE) to Boeing, Exemption No. 19212A. The TLE includes a limitation to require the AWLs to be incorporated as part of the type design for each of the modifications which include engine inlet, fan cowl and fan cowl support beam, and exhaust nozzle. As the modification plus the AWL is required to maintain a compliant design, this AD will maintain the ''before further flight'' requirement.

The FAA also notes that paragraph (f) of this AD states to accomplish the required actions within the compliance times specified, ''unless already done.'' Therefore, if operators have accomplished the modification and incorporation of the AWLs required for compliance with this AD before the effective date of this AD, no further action is necessary.

Request the Removal of AWL Incorporation

American Airlines, Delta Air Lines, Sun Country Airlines, Southwest Airlines, Qantas, and United Airlines requested removing some or all of the AWLs specified in the proposed AD (System AWLs No. 2, No. 3, and No. 4). The commenters pointed out that paragraph (h) of the proposed AD specifies incorporating certain AWLs included in Boeing 737–600/700/700C/800/900/900ER Airworthiness Limitations (AWLs) Document D626A001–9–01. The commenters noted that the current Boeing 737–600/700/700C/800/900/900ER Airworthiness Limitations (AWLs) Document D626A001–9–01 does not include the AWLs specified in figure 1 to the introductory text of paragraph (h) of the proposed AD, and added that the current AWLs are vague and do not provide a definitive action to address the unsafe condition identified in the proposed AD. Qantas stated that operators do not have instructions to modify the engine exhaust nozzles in Boeing Special Attention Requirements Bulletin 737–71–1937 RB, July 27, 2023, and suggested that System Airworthiness Limitation No. 3 be removed from the proposed AD and only be located in the NPRM for Docket No. FAA–2023–2235 where it is more suited.

Sun Country Airlines stated System Airworthiness Limitation No. 4 does not appear to be related to the events that prompted the NPRM and is not related to the intent of this rulemaking. Southwest stated that incorporating System Airworthiness Limitation No. 4 places responsibility on the operator, rather than the manufacturer, to be compliant and produce solutions. Southwest added that Boeing has a responsibility to define ''potential maintenance errors'' and to provide specific modification or inspection procedures to mitigate those errors. Some commenters also raised concerns that an immediate change to the maintenance program would not provide additional safety measures. American Airlines expressed further concern that the new proposed requirements may result in airplanes being out of revenue service while waiting on an operator's Certificate Management Office (CMO) to process the maintenance program change. Delta recommended that the FAA transfer the AWL requirements into a separate AD.

The FAA disagrees with removing some or all of the AWLs specified in this AD. The FAA requirement to incorporate the AWLs before further flight is in accordance with the modification required by Exemption No. 19212A to address the unsafe condition. Furthermore, the TLE includes a limitation to require that the AWLs be incorporated as part of the type design for modifications to the engine inlet, fan cowl and fan cowl support beam, and exhaust nozzle. Therefore, once one of the modification bulletins (Boeing Special Attention Requirements Bulletins 737–71–1937 RB, 737–71–1938 RB, and 737–78–1106 RB) is accomplished, all the AWLs specified in this AD need to be incorporated into the operators' maintenance program so as the operator can maintain a compliant design and address the unsafe condition. System Airworthiness Limitations No. 2, No. 3, and No. 4 were created to address the TLE requirements and the unsafe condition,

A new version of the AWLs has been released, Boeing 737–600/700/700C/800/900/900ER Airworthiness Limitations (AWLs) Document D626A001–9–01, dated January 2024, that includes the AWLs identified in figure 1 to the introductory text of paragraph (h) of the proposed AD. Boeing Special Attention Requirements Bulletin 737–71–1937 RB, Revision 1, dated June 27, 2024, includes

procedures to incorporate those new AWLs. Therefore, the FAA has determined that incorporating the new AWLs must be done as part of the requirements of this AD and not in a separate AD.

Request To Change AWL Compliance Time

Southwest Airlines suggested either a service data due date of December 31, 2024 to align with the time-limited exemption, Exemption No. 19212A be added to the proposed AD or that the FAA remove the AWL requirements from the proposed AD. Southwest Airlines stated System Airworthiness Limitations No. 2, No. 3, and No. 4 do not provide a defined date for Boeing to release all service data to operators. Therefore, without a defined date for Boeing to release all service data, there is concern that operators may not be given sufficient time to perform the required modifications prior to the AD's completion due date.

The FAA disagrees with the commenter's request. As previously mentioned, a new AWL revision has been released that includes the System Airworthiness Limitations No. 2 and No. 3, and No. 4. The service information for System Airworthiness Limitations. No. 2 and No. 3 has been released, *i.e.,* Boeing Special Attention Requirements Bulletin 737–71–1938, dated July 27, 2023, and Revision 1, dated June 27, 2024; Boeing Special Attention Requirements Bulletin 737–71–1937, dated July 27, 2023, and Revision 1, dated June 27, 2024; and Boeing Special Attention Requirements Bulletin 737–78–1106, dated September 1, 2023, and Revision 1, dated May 23, 2024. Although service information to address System Airworthiness Limitation No. 4 has not yet been released, the FAA has coordinated with Boeing to better understand the requirements of System Airworthiness Limitation No. 4, which requires the incorporation of solutions to address potential engine nacelle maintenance errors into operators' maintenance programs. The solutions are intended to prevent the unlatching of the fan cowl and fan cowl integrated drive generator (IDG) door in flight. The solutions will consist of a re-designed fan cowl latch and keeper and application of high visibility paint on the interior of the IDG door. The FAA has added an exception to paragraph (h)(3) of this AD to clarify solutions as required in AWL No.4. Operators have until December 31, 2029, to incorporate solutions to address potential maintenance errors as specified in AWL No.4. and clarified in this AD.

Request for Clarification Regarding AWL Requirement

Delta Air Lines, United Airlines, Qantas, and American Airlines asked for clarification on what would be required to meet System Airworthiness Limitations No. 2, No. 3, and No. 4. The commenters stated adequate instructions are not included in the AWLs. Therefore, additional details are needed to clarify these requirements and provide a clear path to comply with the AWLs specified in figure 1 to the introductory text of paragraph (h) of the proposed AD. Furthermore, certain operators do not believe this meets 14 CFR 43.16, and System Airworthiness Limitation No.4 is an unexpected demand.

The FAA agrees to clarify. Accomplishing the modification specified in Boeing Special Attention Requirements Bulletins 737–71–1938 RB, 737–71–1937 RB, and 737–78–1106 RB satisfies the requirements of System Airworthiness Limitations No. 2 and No. 3. This also satisfies the requirement of 14 CFR 43.16 to perform inspections or maintenance in accordance with the AWLs.

As denoted in paragraph 4., ''Approval'' of Boeing Special Attention Requirements Bulletin 737–71–1937, Revision 1, dated June 27, 2024, the accomplishment of that requirements bulletin meets the requirements of items (2) and (3) of Boeing 737–600/700/700C/800/900/900ER Airworthiness Limitations (AWLs) Document D626A001–9–01 ''SYSTEM AIRWORTHINESS LIMITATION NO. 2.''

As denoted in paragraph 4., ''Approval'' of Boeing Special Attention Requirements Bulletin 737–71–1938, Revision 1, dated June 27, 2024, the accomplishment of that requirements bulletin meets the requirements of item (1) of Boeing 737–600/700/700C/800/900/900ER Airworthiness Limitations (AWLs) Document D626A001–9–01 ''SYSTEM AIRWORTHINESS LIMITATION NO. 2.''

As denoted in paragraph 4., ''Approval'' of Boeing Special Attention Requirements Bulletin 737–78–1106, Revision 1, dated May 23, 2024, the accomplishment of that requirements bulletin meets the requirements of Boeing 737–600/700/700C/800/900/900ER Airworthiness Limitations (AWLs) Document D626A001–9–01 ''SYSTEM AIRWORTHINESS LIMITATION NO. 3—FAN BLADE OUT CONDITIONS.''

As previously stated, the FAA coordinated with Boeing to determine potential maintenance errors that require solutions in accordance with System Airworthiness Limitation No. 4. To comply with this AD and the System Airworthiness Limitation No. 4, solutions will consist of a re-designed fan cowl latch and keeper and application of high visibility paint on the interior of the IDG door. If any specific service information is provided or further solutions are incorporated to address potential maintenance errors, the FAA may consider further rulemaking.

Request for Change to Exception (System Airworthiness Limitation No. 4)

Boeing requested appending the following statement to the end of System Airworthiness Limitation No. 4.: ''Boeing will release all service data to enable full compliance for the CFM56–7B nacelle for addressing potential maintenance errors prior to that date.'' Boeing stated that the statement would correspond to the statements included in AWL No. 2 and 3.

The FAA agrees to clarify. As previously mentioned, the recently released new Boeing AWL document includes System AWL No. 4. The new AWL includes the text as requested by Boeing. Therefore, no change to this AD is necessary.

Request To Add Additional Service Information

Sun Country Airlines noted that the proposed AD only refers to Boeing Special Attention Requirements Bulletin 737–71–1937 RB, dated July 27, 2023, and requested that the FAA list additional service information as documentation to be used for compliance with the proposed rule. The commenter noted that other service information contains critical details of the fan cowl work.

The FAA partially agrees. The FAA agrees that several actions in the Collins Aerospace Service Bulletin 737NG–71–008 are required for compliance as specified by Boeing Special Attention Requirements Bulletin 737–71–1937 RB, Revision 1, dated June 27, 2024, which is required by paragraph (g) of this AD. The FAA also acknowledges that certain other service information might be related to the required actions. However, the FAA only identifies service information that is directly required for compliance by this AD. The FAA has not changed this AD in this regard.

Request To Add an Exception for Equivalent Consumables

United Airlines requested the FAA add an exception to allow equivalent

consumables substitutes for sealant, primer, etc., to be used during the accomplishment of the proposed AD. United Airlines noted that table 2.C in Collins Aerospace Service Bulletin 737NG–71–008 allows an equivalent substitute to certain consumables to be used but these substitutes are not allowable as part of the ''Required for Compliance'' (RC) steps. Instead, United Airlines stated Collins Aerospace Service Bulletin 737NG–71–008 calls out specific consumable products in the RC steps; this violates standard practice where typically a material specification is referenced instead of a specific manufacturer product.

The FAA agrees with the request. By allowing equivalent material substitutes this AD still adequately addresses the identified unsafe condition. Therefore, the FAA has added paragraph (h)(4) of this AD to allow equivalent material substitutes for the use of Bonderite M–CR 1200S Aero, 10P4–2NF primer, EC–117S converter, TR19 thinner, or T20 thinner.

Request To Use Alternative Documents for Primer Application

United Airlines requested that a primer application step in Collins Service Bulletin 737NG–71–008 (which is referenced in Boeing Special Attention Requirements Bulletin 737–71–1937 RB) be revised to reference commonly used manuals such as standard overhaul practices manual (SOPM) 20–41–02 or other equivalent documents. United Airlines stated that Collins Service Bulletin currently states to ''apply primer over the repair area per Boeing document D6–1816''. United Airlines noted that document D6–1816 document is used by Boeing during production and is not accessible to technicians.

The FAA agrees with the commenter's request. The SOPM maintains the intended configuration and is a manual readily accessible to technicians. The FAA has added paragraph (h)(5) of this AD to allow using the SOPM for primer application.

Request for Exception to Certain Work Step

United Airlines requested provisions be added in the final rule to allow installation of the external doubler and new radial restraint to be performed concurrently as they are independent installations and do not adversely affect the intent of the modification. The commenter stated that Boeing Special Attention Requirements Bulletin 737–71–1937 RB, dated July 27, 2023, requires the modification of the radial restraint assembly followed by the installation of the external doubler on the fan cowl assembly. United Airlines stated that completing the installation of the external doubler before installation of the new radial restraint assembly would provide better access to install the rivets common to the doubler.

The FAA agrees with the commenter's request for the reasons provided. The FAA coordinated with Boeing, and noted the most convenient order of modification for operators is to remove the previous radial restraint, perform the external doubler installation, and install the modified radial restraint. The FAA has added paragraph (h)(6) of this AD allowing these two actions to be accomplished concurrently.

Request To Revise Action Regarding Matching Topcoat

United Airlines noted that Collins Service Bulletin 737NG–71–008, Revision 4, dated July 28, 2023, states to: ''Topcoat over the repair area to agree with the initial production topcoat.'' United Airlines noted that the fan cowl panels are often part of the aircraft livery and may have switched products and colors several times. Therefore, the ''initial production topcoat'' may conflict with current paint system. United Airlines added that Table 2.2 of Collins Service Bulletin 737NG–71–008 Revision 4, dated July 28, 2023, also calls out BMS10–72 Type VIII topcoat which is not what every operator uses for their exterior paint system. United Airlines recommended that the step be revised to ''match the surrounding topcoat'' which is generic and allows operators to use their existing paint system and colors. Alternatively, United Airlines stated that this step can also be omitted from the RC step since it is not part of the safety concern being addressed.

The FAA agrees with the commenter for the reasons provided. The FAA has added paragraph (h)(7) of this AD to permit the topcoat to match the surrounding topcoat.

Request To Add an Allowance for Substitute to Fastener Length

United Airlines noted that the ability to determine the fastener grip length during installation for the fan cowl modification is missing from Boeing Requirements Bulletin 737–71–1937 RB and Collins Service Bulletin 737NG–71–008. United Airlines requested that the standard Boeing general note that states ''fasteners of the same specification, or an approved substitute, with a length that meets the installation standards given in SRM Chapter 51 may be used'' be added to the service information. United Airlines noted that installation may occasionally require a deviation of plus or minus one grip length adjustment from the fastener part number called out in the service information due to variations in the stack up (*i.e.,* assembly of parts).

The FAA agrees to clarify. As previously noted, this AD has been updated to refer to Boeing Special Attention Requirements Bulletin 737–71–1937 RB, Revision 1, dated June 27, 2024, which includes the language United Airlines requested in Note 8. of ''General Information'' of the Accomplishment Instructions. Therefore, no change to this AD is necessary.

Effect of Winglets on Accomplishment of the Proposed Actions

Aviation Partners Boeing stated that the installation of winglets per supplemental type certificate (STC) ST00830SE does not affect compliance with the mandated actions in the proposed AD.

The FAA agrees with the commenter that STC ST00830SE does not affect the ability to accomplish the actions required by this AD. The FAA has not changed this AD in this regard.

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 Boeing Special Attention Requirements Bulletin 737–71–1937 RB, Revision 1, dated June 27, 2024. This material specifies procedures for replacing, for certain airplanes, the fasteners on the fan cowl support beam hinge fittings on the left and right engine strut, and, for engine 1 and engine 2 for all airplanes, modifying the radial restraint assembly and installing an external doubler at the starter vent, or as an option, installing a serviceable fan cowl. This material also specifies procedures to incorporate Boeing 737–600/700/700C/800/900/900ER Airworthiness Limitations (AWLs) Document D626A001–9–01 ''System Airworthiness Limitation No. 2—Fan Blade Out Conditions,'' ''System Airworthiness Limitation No. 3—Fan Blade Out Conditions,'' and ''System

Airworthiness Limitation No. 4—Engine Nacelle Maintenance Errors'' into the operator's maintenance or inspection program.

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 **ADDRESSES**.

Costs of Compliance

The FAA estimates that this AD affects 1,979 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
Modification and Installation	140 work-hours × $85 per hour = $11,900	$1,400	$13,300	$26,320,700.
Fastener replacement	Up to 8 work-hours × $85 per hour = $680	Up to $2,300	Up to $2,980	Up to $5,897,420.

* The option to install a serviceable fan cowl would cost up to $16,280 per product.

The FAA has determined that revising the existing maintenance or inspection program takes an average of 90 work-hours per operator, although the agency recognizes that this number may vary from operator to operator. Since operators incorporate maintenance or inspection program changes for their affected fleet(s), the FAA has determined that a per-operator estimate is more accurate than a per-airplane estimate. Therefore, the agency estimates the average total cost per operator to be $7,650 (90 work-hours × $85 per work-hour).

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:

2025–04–02 The Boeing Company: Amendment 39–22960; Docket No. FAA–2023–2234; Project Identifier AD–2023–00963–T.

(a) Effective Date

This airworthiness directive (AD) is effective April 8, 2025.

(b) Affected ADs

None.

(c) Applicability

This AD applies to all The Boeing Company Model 737–600, –700, –700C, –800, –900, and –900ER series airplanes, certificated in any category.

(d) Subject

Air Transport Association (ATA) of America Code 71, Powerplant.

(e) Unsafe Condition

This AD was prompted by two engine fan blade-out (FBO) events that resulted in the separation of engine inlet cowl and fan cowl parts from the airplane. In one event, fan cowl parts damaged the fuselage, which caused loss of pressurization and subsequent emergency descent. The FAA is issuing this AD to address fan cowls that are not strengthened, which, in the event of an FBO occurrence, could depart the nacelle potentially damaging a stabilizer, or the fan cowl striking the fuselage and window. The unsafe condition, if not addressed, could result in loss of control of the airplane, or in a rapid decompression and hazard to window-seated passengers aft of the wing.

(f) Compliance

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

(g) Required Actions

Except as specified by paragraph (h) of this AD: At the applicable times specified in the ''Compliance'' paragraph of Boeing Special Attention Requirements Bulletin 737–71–1937 RB, Revision 1, dated June 27, 2024, do all applicable actions identified in, and in accordance with, the Accomplishment Instructions of Boeing Special Attention Requirements Bulletin 737–71–1937 RB, Revision 1, dated June 27, 2024.

Note 1 to paragraph (g): Guidance for accomplishing the actions required by this AD can be found in Boeing Special Attention Service Bulletin 737–71–1937, Revision 1, dated June 27, 2024, which is referred to in Boeing Special Attention Requirements Bulletin 737–71–1937 RB, Revision 1, dated June 27, 2024.

(h) Exceptions to Service Information Specifications

(1) Where the service information referenced in paragraph (g) of this AD specifies contacting Boeing or Collins Aerospace for repair instructions: This AD requires doing the repair before further flight using a method approved in accordance with the procedures specified in paragraph (k) of this AD.

(2) Where the Compliance Time columns of the tables in the ''Compliance'' paragraph of Boeing Special Attention Requirements Bulletin 737–71–1937 RB, Revision 1, dated June 27, 2024, refer to the original issue date of Requirements Bulletin 737–71–1937 RB,

this AD requires using the effective date of this AD.

(3) Where System Airworthiness Limitation No. 4, as identified in Boeing Special Attention Requirements Bulletin 737–71–1937 RB, Revision 1, dated June 27, 2024, requires incorporation of solutions to address potential engine nacelle maintenance errors, solutions consist of a re-designed fan cowl latch and keeper and application of high visibility paint on the interior of the integrated drive generator (IDG) door.

(4) Where Collins Aerospace Service Bulletin 737NG–71–008 referenced in Boeing Special Attention Requirements Bulletin 737–71–1937 RB, Revision 1, dated June 27, 2024, specifies use of Bonderite M–CR 1200S Aero, 10P4–2NF primer, EC–117S converter, TR19 thinner, or T20 thinner, this AD also allows for equivalent material substitutes as specified in paragraph 2.C., ''Material Necessary for Each Inlet Assembly,'' of Collins Aerospace Service Bulletin 737NG–71–007 referenced in Boeing Special Attention Requirements Bulletin 737–71–1938 RB, Revision 1, dated June 27, 2024.

(5) Where Collins Service Bulletin 737NG–71–008 referenced in Boeing Special Attention Requirements Bulletin 737–71–1938 RB, Revision 1, dated June 27, 2024, states to apply primer ''per Boeing document D6–1816,'' this AD requires replacing that text with ''per Boeing document D6–1816 or Boeing SOPM 20–41–02.''

(6) Where Boeing Special Attention Requirements Bulletin 737–71–1937 RB, Revision 1, dated June 27, 2024, requires (Option 1)(Action 3) to be accomplished after (Option 1)(Action 2), this AD allows these two actions to be accomplished concurrently.

(7) Where Collins Service Bulletin 737NG–71–008, dated July 28, 2023, referenced in Boeing Special Attention Requirements Bulletin 737–71–1938 RB, Revision 1, dated June 27, 2024, specifies to topcoat over the repair area to agree with the initial production topcoat, this AD also allows topcoat to match the surrounding topcoat.

(i) No Alternative Actions

After the existing maintenance or inspection program has been revised as required by paragraph (g) of this AD, no alternative actions may be used unless the actions are approved as an alternative method of compliance (AMOC) in accordance with the procedures specified in paragraph (k) of this AD.

(j) Credit for Previous Actions

This paragraph provides credit for the actions specified in paragraph (g) of this AD, if those actions were performed before the effective date of this AD using Boeing Special Attention Requirements Bulletin 737–71–1937 RB, dated July 27, 2023, provided where Tables 1 through 4 of Boeing Special Attention Requirements Bulletin 737–71–1937 RB, dated June 27, 2024, specify incorporating 737–600/700/700C/800/900/900ER Airworthiness Limitations (AWLs) Document D626A001–9–01 ''System Airworthiness Limitation No. 2—Fan Blade Out Conditions'' and ''System Airworthiness Limitation No. 3—Fan Blade Out Conditions'' into the operators' maintenance program, the information specified in figure 1 to paragraph (j) of this AD has been incorporated into the airworthiness limitations.

Figure 1 to Paragraph (j)—System Airworthiness Limitations

SYSTEM AIRWORTHINESS LIMITATION No. 2
FAN BLADE OUT CONDITIONS
All aircraft must install the following modifications: (1) engines inlets with new spacer design and increased fastener capability (2) fan cowls with new radial restraint fitting hooks, new radial restraint clips, and an external doubler at the starter vent (3) fan cowl support beam fastener changes (except for 737.900ER aircraft, because the fan cowl support beam fastener changes are already incorporated). All aircraft that have not incorporated these modifications cannot operate past July 31, 2028 unless upgraded to new hardware that is fully compliant to §§ 25.901(c) and Appendix K25.1.1 to Part 25. Boeing will release all service data to allow retrofit of hardware updates to the CFM56–7B nacelle prior to that date.

SYSTEM AIRWORTHINESS LIMITATION No. 3
FAN BLADE OUT CONDITIONS
All aircraft delivered without the Performance Improvement Package (PIP) must install engine exhaust nozzle structural stiffening elements. All aircraft that have not incorporated these modifications cannot operate past July 31, 2018 unless upgraded to new hardware that is fully compliant to §§ 25.901(c) and Appendix K25.1.1 to Part 25. Boeing will release all service data to allow retrofit of hardware updates to the CFM56–7B nacelle prior to that date.

SYSTEM AIRWORTHINESS LIMITATION No. 4
ENGINE NACELLE MAINTENANCE ERRORS
All aircraft must incorporate solutions to address potential maintenance errors, *e.g.,* the failure to completely latch the fan cowl or the can cowl integrated drive generator (IDG) door. All aircaft that have not incorporated changes to become fully compliance with §§ 25.901(c) and Appendix K25.1.1 to Part 25 cannot be operated past December 31, 2019.

(k) 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 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 (l)(1) of this AD. Information may be emailed to: *AMOC@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, AIR–520, Continued Operational Safety 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.

(l) Related Information

(1) For more information about this AD, contact Luis Cortez-Muniz, Aviation Safety Engineer, FAA, 2200 South 216th St., Des Moines, WA 98198; telephone: 206–231–3958; email: *luis.a.cortez-muniz@faa.gov.*

(2) For Collins material identified in this AD that is not incorporated by reference, contact Collins Aerospace, 15701 West 95th Street, Lenexa, KS 66219; email *ISPublications@collins.com;* website *tpi.beaerospace.com/Authentication.*

(3) Boeing material identified in this AD that is not incorporated by reference is available at the address specified in paragraph (m)(3) this AD.

(m) 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) Boeing Special Attention Requirements Bulletin 737–71–1937 RB, Revision 1, dated June 27, 2024.

(ii) [Reserved]

(3) For Boeing material identified in this AD, 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.*

(4) You may view this material 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.

(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 February 25, 2025.

Suzanne Masterson,

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

[FR Doc. 2025–03395 Filed 3–3–25; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA–2024–2424; Project Identifier AD–2024–00416–E; Amendment 39–22970; AD 2025–04–12]

RIN 2120–AA64

Airworthiness Directives; CFM International, S.A. Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for certain CFM International, S.A. (CFM) Model LEAP–1A, LEAP–1B, and LEAP–1C engines. This AD was prompted by a manufacturer investigation that revealed a quality escape for low-pressure turbine (LPT) disks made from forgings with nonconforming grain size. This AD requires removal and replacement of the LPT stage 4 and stage 5 disks. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective April 8, 2025.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of April 8, 2025.

ADDRESSES:

AD Docket: You may examine the AD docket at *regulations.gov* under Docket No. FAA–2024–2424; 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 CFM material identified in this AD, contact CFM, GE Aviation Fleet Support, 1 Neumann Way, M/D Room 285, Cincinnati, OH 45215; phone: (877) 432–3272; email: *aviation.fleetsupport@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–2024–2424.

FOR FURTHER INFORMATION CONTACT: Mehdi Lamnyi, Aviation Safety Engineer, FAA, 2200 South 216th Street, Des Moines, WA 98198; phone: (781) 238–7743; email: *mehdi.lamnyi@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 CFM Model LEAP–1A, LEAP–1B, and LEAP–1C engines. The NPRM published in the **Federal Register** on November 8, 2024 (89 FR 88681). The NPRM was prompted by a report of a quality escape on LPT disks made from forgings with nonconforming material grain size on certain CFM Model LEAP–1A and LEAP–1B engines. The supplier assessed the duplex microstructure using an arithmetic average grain size instead of considering the coarsest grain size. After a re-check of all forgings, the supplier has identified a number of parts with a coarse grain size that is below the drawing requirement. In the NPRM, the FAA proposed to require removal and replacement of the LPT stage 4 and stage 5 disks at the next piece-part exposure or before exceeding between 2,400 and 19,000 cycles since new, depending on the applicable threshold identified in CFM Service Bulletin (SB) LEAP–1A–72–00–0519–01A–930A–D, Issue 001–00, dated September 18, 2024 (CFM SB LEAP–1A–72–00–0519–01A–930A–D) or CFM SB LEAP–1B–72–00–0419–01A–930A–D Issue 001–00, dated September 18, 2024 (CFM SB LEAP–1B–72–00–0419–01A–930A–D). 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 two commenters. Commenters included Air Line Pilots Association, International and The Boeing Company. All commenters supported the NPRM without change.

Conclusion

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

Material Incorporated by Reference Under 1 CFR Part 51

The FAA reviewed CFM SB LEAP–1A–72–00–0519–01A–930A–D; CFM SB LEAP–1B–72–00–0419–01A–930A–D; and CFM SB LEAP–1C–72–00–0100–01A–930A–D, Issue 001–00, dated September 18, 2024. This material specifies the part numbers and serial numbers of affected LPT disks, and the cycles since new thresholds for the replacement of affected LPT disks. These documents are distinct because they apply to different engine models. 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 13 engines installed on airplanes of U.S. registry. The FAA estimates that 2 engines will need removal and replacement of the LEAP–1A LPT stage 5 disk; 8 engines will need removal and replacement of the LEAP–1B LPT stage 5 disk; and 3 engines will need removal and replacement of the LEAP–1B LPT stage 4 disk.

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