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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2014-0649; Directorate Identifier 2014-NM-132-AD; Amendment 39-18314; AD 2015-22-09]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: We are adopting a new airworthiness directive (AD) for certain The Boeing Company Model 787-8 airplanes. This AD was prompted by reports of missing plugs found prior to airplane delivery, during manufacturing inspections, at various locations in certain stringers of the lower lobe cargo compartments. This AD requires drilling a hole and installing and bonding plugs in certain stringers of the lower lobe cargo compartments. We are issuing this AD to detect and correct missing or misaligned plugs which, in the event of a fire, could cause an increased rate of loss of Halon in the lower cargo compartments, and result in the inability to extinguish a fire and consequent loss of control of the airplane.

DATES: This AD is effective December 10, 2015.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of December 10, 2015.

ADDRESSES: For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P.O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; Internet <https://www.myboeingfleet.com>. You may view this referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221. It is also available on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2014-0649.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2014-0649; or in person at the Docket Management Facility between 9

a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The address for the Docket Office (phone: 800-647-5527) is Docket Management Facility, U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

FOR FURTHER INFORMATION CONTACT: Francis Smith, Aerospace Engineer, Cabin Safety and Environmental Systems Branch, ANM-150S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6596; fax: 425-917-6590; email: francis.smith@faa.gov.

SUPPLEMENTARY INFORMATION:

Discussion

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain The Boeing Company Model 787-8 airplanes. The NPRM published in the Federal Register on September 23, 2014 (79 FR 56682). The NPRM was prompted by reports of missing plugs found prior to airplane delivery, during manufacturing inspections, at various locations in certain stringers of the lower lobe cargo compartments. The NPRM proposed to require drilling a hole and installing and bonding plugs in certain stringers of the lower lobe cargo compartments. We are issuing this AD to detect and correct missing or misaligned plugs which, in the event of a fire, could cause an increased rate of loss of Halon in the lower cargo compartments, and result in the inability to extinguish a fire and consequent loss of control of the airplane.

Comments

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the NPRM (79 FR 56682, September 23, 2014) and the FAA's response to each comment.

Supportive Comment

United Airlines stated that it concurs with the NPRM (79 FR 56682, September 23, 2014), and agrees that the detection and correction of the missing or misaligned plugs will maintain a higher level of safety.

Request To Delay Issuance of the NPRM (79 FR 56682, September 23, 2014)

All Nippon Airways (ANA) asked that we delay issuance of the NPRM (79 FR 56682, September 23, 2014) until Boeing Alert Service Bulletin B787-81205-SB530024-00, Issue 001, dated May 15, 2014 (referred to as the appropriate source of service information for accomplishing the specified actions), can be revised. ANA noted that the service information specifies using a stringer plug removal/installation tool, having tool number (T/N) MIT140Z4372-3; however, this tool does not work well for doing the actions. ANA provided the following reasons to substantiate its request:

- For the instructions specified in Task 1 of this service information, the connecting tube on the tool (T/N 140Z4372-8/-15) interferes with the fasteners at the section 41/43 joint; therefore, the tool cannot be inserted into the stringers. The connecting tube needs to be shortened in length and trimmed to taper.
- For the instructions specified in Task 3 of the service information, the tool (T/N 140Z4372-3) cannot be inserted at stringers 30R through 35R, adjacent to the cargo door, because it won't bend at the location adjacent to the stringer end and frame.

- For the instructions specified in Task 3 of the service information, the tool (T/N 140Z4372-3) is inserted into the stringer from station (STA) 1593 to STA 1209, and the stringer length is 384 inches. This tool has five extension rods that are 300 inches, and six extension rods that are 350 inches, respectively; therefore, additional rods are necessary.
- The tool (T/N 140Z4372-3) has a head piece (T/N 140Z4372-4/-5) and a push rod (T/N 140Z4372-6/-14) with a retaining pin hole. However, the retaining pin is not centered on the push rod and head piece, so the head piece detaches from the push rod during the plug removal/installation, and it takes an extraordinary amount of time to remove the head piece from the stringer. The retaining pin should be centered on the push rod and head piece in order to alleviate these issues.

Boeing has issued Alert Service Bulletin B787-81205-SB530024-00, Issue 002, dated June 5, 2015. This service information provides clarification to the instructions, which addresses the commenter's concerns. In addition, the stringer plug removal/installation tool, having T/N MIT140Z4372-3, has been redesigned and retains the same part number. We have revised paragraphs (c) and (g) of this AD to refer to Boeing Alert Service Bulletin B787-81205-SB530024-00, Issue 002, dated June 5, 2015. We have also added new paragraph (h) to this AD to give credit for actions performed before the effective date of this AD using Boeing Alert Service Bulletin B787-81205-SB530024-00, Issue 001, dated May 15, 2014.

Request To Add Use of Fabricated Tool in Service Information Instructions

ANA asked that we allow using an alternate stringer plug removal/installation tool, fabricated by ANA, and include the tool in the Accomplishment Instructions of Boeing Alert Service Bulletin B787-81205-SB530024-00, Issue 001, dated May 15, 2014, when the service information is revised. ANA added that, due to the issues previously identified, it has been using this alternate stringer plug removal/installation tool to remove existing plugs and install new plugs, with concurrence from Boeing.

We acknowledge the commenter's request to allow its fabricated tool to be included in the service information instructions. However, as noted previously, Boeing Alert Service Bulletin B787-81205-SB530024-00, Issue 002, dated June 5, 2015, has been issued; and the stringer plug removal/installation tool, having T/N MIT140Z4372-3, has been redesigned and retains the same part number. We have not changed this AD in this regard.

Request To Add Instructions to Service Information for Clarification

ANA asked that we add certain instructions to the Accomplishment Instructions of Boeing Alert Service Bulletin B787-81205-SB530024-00, Issue 001, dated May 15, 2014. ANA provided the following reasons to substantiate its request:

- For the instructions specified in Task 1, steps 2 and 3, of the service information, it specifies drilling a hole on stringers S-34L and S-35L. Removal of the environmental control system (ECS) cargo air insulated riser duct is necessary to ensure workspace for drilling at S-34L and S-35L. ANA asked that these removal and installation instructions be added when the service information is revised.
- For the instructions specified in Task 2, step 3, of the service information, it specifies bonding new plugs in the stringers; however, the stringer and duct installed at the aft face of STA 825 frame web are adjacent to the stringer, so it is not possible to apply a resin through the moisture vent hole. Additionally, the tie-up for supporting the duct should be cut and removed. ANA asked that instructions be added to cut the tie-up and move the duct if the access conditions identified in the service information are insufficient.

Boeing has issued Alert Service Bulletin B787-81205-SB530024-00, Issue 002, dated June 5, 2015. This service information provides clarification to the instructions identified, which addresses the commenter's concerns. We have not changed this AD in this regard.

ANA also stated that each task in the service information necessitates confirmation that using a Sharpie marker, or similar, to mark the centerline of the top surface of the new plug to help locate the plug at the position of a stringer vent hole is permitted. However, ANA found that the plug had rotated to 90 degrees; but the centerline of the top surface of the new plug was at the position of a stringer vent hole. ANA asked that instructions be added to the service information specifying that after plug installation operators should verify the new plug location is correct with a mirror or borescope.

We acknowledge the commenter's concerns. Boeing has incorporated instructions into Boeing Alert Service Bulletin B787-81205-SB530024-00, Issue 002, dated June 5, 2015, which allow the use of a mirror or borescope to check the proper positioning of a plug before applying the bond. We have not changed this AD in this regard.

ANA also stated that the instructions specified in Task 1, Note 9, of the service information, specify using a 3-step drill process. The first step is to drill a new pilot hole of 1/8 inch; the second step is to drill a new pilot hole of 3/16 inch; and the third step is to ream to a final diameter of 0.235 to 0.265 inch. Step 2.3 is required for compliance (RC), so no deviation of the procedure is permitted. ANA added that to maintain the 3-step drill process, a special reamer is needed. ANA noted that the primary objective should be preparing the final diameter hole, not the number of drilling steps, and asked that the 3-step drill process be removed, and more steps to the drill process be allowed.

We agree that alternative methods may be allowed for drilling the hole specified in Task 1, Note 9, because the intent of the 3-step drill process is to effectively ream each hole to its final diameter. Boeing has incorporated instructions allowing additional drill steps outside of the 3-step drill process in Boeing Alert Service Bulletin B787-81205-SB530024-00, Issue 002, dated June 5, 2015. We have not changed this AD in this regard.

Request To Clarify Certain Language in the SUMMARY and Discussion Sections of the NPRM (79 FR 56682, September 23, 2014) and Paragraph (e) of the Proposed AD

Boeing asked that we clarify the reason for the unsafe condition identified in the SUMMARY and Discussion sections of the NPRM (79 FR 56682, September 23, 2014), and paragraph (e) of the proposed AD. Boeing stated that the language "reports of missing bonded plugs" should be "reports of missing plugs." Boeing noted that bonding the plugs into the stringers is the solution, not the issue. Boeing also stated that the language "certain stringers of the forward electrical equipment (EE) bay of the lower lobe cargo compartments" should be "certain stringers of the lower lobe cargo compartments." Boeing noted that the issue occurred in both the forward and aft cargo bilge areas, not just the forward compartment, and added that referencing the forward EE bay is not relevant to the issue.

Boeing also asked that we clarify the description of the unsafe condition identified in the SUMMARY and Discussion sections of the NPRM (79 FR 56682, September 23, 2014), and paragraph (e) of the proposed AD. Boeing stated that the language "reports of misaligned bonded plugs" should be "misaligned plugs." Boeing noted that bonding the plugs into the stringers is the solution, not the issue.

In addition, Boeing asked that we delete "the cause was determined to be miscalculated pressure exposures during design" and "could result in missing or misaligned bonded plugs which" from the Discussion section of the NPRM (79 FR 56682, September 23, 2014). Boeing stated that there is no data showing the cause of the plugs to disengage was miscalculated pressure exposures.

We acknowledge the commenter's concerns and provide the following. We agree that the word "bonded" should be removed from the language in the SUMMARY section of this final rule, and in paragraph (e) of this AD, for clarification; we also agree that the language "the forward EE bay"

should be removed throughout this AD, for the reasons provided by the commenter; we have changed all applicable sections accordingly.

In addition, we acknowledge the commenter's request that the cause of disengagement of the plugs is incorrect and should be removed from the Discussion section of the NPRM (79 FR 56682, September 23, 2014). We agree that there is no data showing the cause of the plugs to disengage was miscalculated pressure exposures; this issue stems from high pressure exposures associated with flight testing pressure profiles through pressurization checks during production. However, the Discussion section of the of the NPRM is not restated in this final rule; therefore, we have not changed this final rule in regard to the language in that section.

Request To Include Detailed Rework Instructions

Boeing asked that we include detailed rework instructions in the actions required by paragraph (g) of the proposed AD (79 FR 56682, September 23, 2014). Boeing noted that the following language should be added before the first sentence: "Ensure all 80 stringer plugs are installed, and apply adhesive to them to ensure they cannot become dislodged or misaligned. At 2 locations, this will require rework beyond a nominal application of adhesive to the stringer plug. The rework at the unique locations will involve the following. . . ."

We acknowledge the commenter's concern; however, the rework instructions are described in detail in the Accomplishment Instructions of Boeing Alert Service Bulletin B787-81205-SB530024-00, Issue 002, dated June 5, 2015. Since this AD requires accomplishing the actions in accordance with this service information, there is no need to describe those instructions in detail in paragraph (g) of this AD. We have not changed this AD in this regard.

Request To Extend the Compliance Time

Boeing asked that we extend the compliance time for the bonded plug installation from 12 to 24 months. Boeing stated that a conservative recalculation of the Boeing risk analysis due to the condition being resolved in production, and based on a static fleet size of 88 airplanes, resulted in a control program time of 66 months. Boeing added that a service bulletin compliance time of 24 months will allow sufficient time for operator planning, scheduling, and accomplishment of the retrofit within the risk-based control program time.

We do not agree to extend the compliance time to 24 months. In developing an appropriate compliance time for this action, we considered not only the degree of urgency associated with addressing the subject unsafe condition, but the availability of required parts, and the practical aspect of doing the bonded plug installation within an interval of time that corresponds to the typical scheduled maintenance for the majority of affected operators. Under the provisions of paragraph (i) of this AD, we may approve requests for adjustments to the compliance time if data are submitted to substantiate that such an adjustment would provide an acceptable level of safety. We have not changed this AD in this regard.

Conclusion

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this AD with the changes described previously—and minor editorial changes. We have determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM (79 FR 56682, September 23, 2014) for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM (79 FR 56682, September 23, 2014).

We also determined that these changes will not increase the economic burden on any operator or increase the scope of this AD.

Related Service Information Under 1 CFR Part 51

We reviewed Boeing Alert Service Bulletin B787-81205-SB530024-00, Issue 002, dated June 5, 2015. The service information describes procedures for drilling a hole and installing and bonding plugs in certain stringers of the lower lobe cargo compartments. This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section of this AD.

Costs of Compliance

We estimate that this AD affects 3 airplanes of U.S. registry.
We estimate the following costs to comply with this AD:

Estimated Costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Bonded plug installations	100 work-hours × \$85 per hour = \$8,500	\$3,466	\$11,966	Up to \$35,898

According to the manufacturer, all of the costs of this AD may be covered under warranty, thereby reducing the cost impact on affected individuals. We do not control warranty coverage for affected individuals. As a result, we have included all costs in our cost estimate.

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.

We are 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) Is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) 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.

Adoption of 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 (AD):



2015-22-09 The Boeing Company: Amendment 39-18314; Docket No. FAA-2014-0649; Directorate Identifier 2014-NM-132-AD.

(a) Effective Date

This AD is effective December 10, 2015.

(b) Affected ADs

None.

(c) Applicability

This AD applies to The Boeing Company Model 787-8 airplanes, certificated in any category, as identified in Boeing Alert Service Bulletin B787-81205-SB530024-00, Issue 002, dated June 5, 2015.

(d) Subject

Air Transport Association (ATA) of America Code 53, Fuselage.

(e) Unsafe Condition

This AD was prompted by reports of missing plugs found prior to airplane delivery, during manufacturing inspections, at various locations in certain stringers of the lower lobe cargo compartments. We are issuing this AD to detect and correct missing or misaligned plugs which, in the event of a fire, could cause an increased rate of loss of Halon in the lower cargo compartments, and result in the inability to extinguish a fire and consequent loss of control of the airplane.

(f) Compliance

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

(g) Bonded Plug Installation

Within 12 months after the effective date of this AD: Drill a hole in stringers S-34L and S-35L, remove the plugs, and install and bond new plugs in the lower lobe cargo compartments, as applicable, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin B787-81205-SB530024-00, Issue 002, dated June 5, 2015.

(h) Credit for Previous Actions

This paragraph provides credit for actions required by paragraph (g) of this AD, if those actions were performed before the effective date of this AD using Boeing Alert Service Bulletin B787-81205-SB530024-00, Issue 001, dated May 15, 2014, which is not incorporated by reference in this AD.

(i) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Seattle Aircraft Certification Office (ACO), 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 ACO, send it to the attention of the person identified in paragraph (i) of this AD. Information may be emailed to: 9-ANM-Seattle-ACO-AMOC-Requests@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(3) For service information that contains steps that are labeled as Required for Compliance (RC), the provisions of paragraphs (i)(3)(i) and (i)(3)(ii) apply.

(i) The steps labeled as RC, including substeps under an RC step and any figures identified in an RC step, must be done to comply with the AD. An AMOC is required for any deviations to RC steps, including substeps and identified figures.

(ii) Steps not labeled as RC may be deviated from using accepted methods in accordance with the operator's maintenance or inspection program without obtaining approval of an AMOC, provided the RC steps, including substeps and identified figures, can still be done as specified, and the airplane can be put back in an airworthy condition.

(j) Related Information

For more information about this AD, contact Francis Smith, Aerospace Engineer, Cabin Safety and Environmental Systems Branch, ANM-150S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6596; fax: 425-917-6590; email: francis.smith@faa.gov.

(k) 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) Boeing Alert Service Bulletin B787-81205-SB530024-00, Issue 002, dated June 5, 2015.

(ii) Reserved.

(3) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P.O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; Internet <https://www.myboeingfleet.com>.

(4) You may view this service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221.

(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, call 202-741-6030, or go to: <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Renton, Washington, on October 22, 2015.

Jeffrey E. Duven,
Manager, Transport Airplane Directorate,
Aircraft Certification Service.