[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2016-6898; Directorate Identifier 2016-NM-010-AD; Amendment 39-18752; AD 2016-25-26]

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 all The Boeing Company Model MD-90-30 airplanes. This AD was prompted by reports of stick shaker activation at airspeeds that were above the stall protection system's stick shaker schedule. This AD requires installing angle-of-attack (AOA) sensor external case heaters on the existing AOA sensors, installing additional wires, and doing a functional test and applicable corrective actions. We are issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: For service information identified in this final rule, 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; 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-2016-6898.

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-2016-6898; 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: Eric Igama, Aerospace Engineer, Systems and Equipment Branch, ANM-130L, FAA, Los Angeles Aircraft Certification Office (ACO), 3960 Paramount Boulevard, Lakewood, CA 90712-4137; phone: 562-627-5388; fax: 562-627-5210; email: roderick.igama@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 all The Boeing Company Model MD-90-30 airplanes. The NPRM published in the Federal Register on June 13, 2016 (81 FR 38113) ("the NPRM"). The NPRM was prompted by reports of stick shaker activation at airspeeds that were above the stall protection system's stick shaker schedule. The NPRM proposed to require installing AOA sensor external case heaters on the existing AOA sensors, installing additional wires, and doing a functional test and applicable corrective actions.

We are issuing this AD to prevent ice formation between the AOA sensor vane and face plate, which could cause both vanes to become immobilized. If both vanes become immobilized, the stall protection system could become unreliable or non-functional, which could result in 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 and the FAA's response to each comment.

Support of the NPRM

The Air Line Pilots Association, International provided comments that supported the intent of the NPRM.

Request to Change Boeing Address Identified in the NPRM

Boeing asked that we change its mailing address for obtaining copies of service information as specified in the NPRM to the following: Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminster Blvd., MC 110-SK57, Seal Beach, CA 90740-5600; telephone 562-797-1092; Internet https://www.myboeingfleet.com. Boeing stated that this address is valid for this and all future ADs affecting Boeing airplanes.

We agree with the commenter's request. We have updated the contact information accordingly. However, we have corrected the telephone number; it should be 562-797-1717. We have changed this AD to include this new mailing address for Boeing service information.

Request to Clarify Certain Language in the NPRM

Boeing asked that we clarify the language specifying what prompted the AD action, and the description of the unsafe condition, as specified in the SUMMARY section. Boeing stated that the reported incident occurred "on Model 717-200 airplanes"

and included further description of what prompted the AD action. Boeing also stated that including this description clarifies the airplane model on which the safety issue was identified. Boeing also asked that we revise the description of the unsafe condition, which stated that "the vane" could become immobilized. Boeing noted that the safety issue is a common cause failure (both vanes could become immobilized) due to an external threat (i.e., weather).

We agree to add "both vanes" to the Discussion section and paragraph (e) of this AD for clarification. Information concerning the origin of the safety issue on Model 717-200 airplanes was included in the Discussion section of the NPRM. Since the information in the Discussion section of the NPRM does not reappear in the final rule, we have not changed this AD in this regard. In addition, we do not agree that the requested changes are necessary in the SUMMARY section, which merely provides a high-level description of the relevant information. Details concerning the unsafe condition that appeared in the SUMMARY section of the NPRM have been removed from this final rule in response to new guidance from the Office of the Federal Register.

Boeing also asked that we clarify the AD requirements by specifying "installing additional wires" in lieu of "changing wires" and installing AOA sensor external case heaters "on the AOA sensors" in lieu of "and AOA sensors." Delta Air Lines (Delta) asked that we change "and AOA sensors" to "and existing AOA sensors" since they are not new sensors.

We agree to make the requested changes in the SUMMARY section, the Discussion and the Related Service Information under 1 CFR part 51 sections of this final rule, and in paragraph (g) of this AD for clarification.

Delta asked that we remove the references to "water intrusion" from the NPRM related to the description of the unsafe condition. Delta stated that the referenced service information does not address water intrusion. Delta added that the installation of the

external case heater only prevents the existing water from freezing and rendering the vane immobilized. UTC Aerospace Systems (UTC) also asked that we remove the reference to moisture (water) intrusion since the referenced service information does nothing to reduce or eliminate the problem; it simply keeps the water from freezing. UTC also asked that we add to the description of the unsafe condition that the AD is intended to reduce or eliminate ice formation between the AOA sensor vane and face plate.

We partially agree with the commenters' requests. Water intrusion is addressed in the referenced service information since it contributes to ice formation between the AOA sensor vane and face plate. However, water intrusion is not corrected by this AD. Therefore, we have revised the Discussion section and paragraph (e) of this AD to state "We are issuing this AD to prevent ice formation between the angle-of-attack (AOA) sensor vane and face plate."

Request to Clarify Corrective Actions

UTC asked that we re-identify the corrective actions in the SUMMARY and Discussion sections of the NPRM as removing and replacing the existing AOA unit having part number (P/N) 0861EW1 with a certified AOA, or installing a new AOA in accordance with the instructions specified in Boeing Alert Service Bulletin MD90-30A029, dated November 25, 2015. UTC stated that this would clarify the potential cause of the problem as related to the subject AOA and provide another choice for operators to comply with the proposed AD. UTC added that this would also define the AOA replacement as not including the existing AOA unit having P/N 0861EW1.

We agree that clarification is necessary; however, we do not agree that this clarification should be included in the SUMMARY section and the Discussion section of this final rule. The purpose of the language in the SUMMARY section is to provide a high-level description of the relevant information, and the information in the Discussion section of the NPRM does not reappear in the final rule. Therefore, we have revised the

description of the required actions in the Related Service Information under 1 CFR part 51 section of this final rule, as specified by the commenter, to provide clarification to operators. We have also included the correct part number for the existing AOA unit in paragraph (g) of this AD.

Request to Update Referenced Service Information to Include the Correct Part Number

UTC asked that Boeing Alert Service Bulletin MD90-30A029, dated November 25, 2015, be updated to correct the part number for the AOA sensor identified therein. UTC stated that the service information identifies replacing any AOA sensor having P/N "081EW1," but the correct part number is "0861EW1."

We acknowledge the commenter's concern; however, Boeing Alert Service Bulletin MD90-30A029, dated November 25, 2015, has not yet been revised by the airplane manufacturer. We have confirmed that this part number does not exist, and have clarified the correct part number for the existing AOA sensor in paragraph (g) of this AD.

Request to Change the Costs of Compliance Section

Boeing asked that we change the Costs of Compliance section of the NPRM to include the parts cost for the external case heaters, as provided by the supplier. Boeing stated that the supplier of these heaters has received FAA parts manufacturer approval (PMA), which allows operators to go directly to the supplier to procure the parts. Boeing noted that the parts cost for two heaters is $2,389 each, for a total of $4,778 (operators are required to purchase two external case heaters for installation).

We agree with the commenter's request for the reason provided. We have changed the Costs of Compliance section in this final rule accordingly.

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 for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM.

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 MD90-30A029, dated November 25, 2015. The service information describes procedures for installing AOA sensor external case heaters on the existing AOA sensors, installing additional wires, and doing a functional test and applicable corrective actions. The applicable corrective actions include removing and replacing the existing AOA unit (P/N 0861EW1) with a certified AOA, or installing a new AOA. 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.

Costs of Compliance

We estimate that this AD affects 95 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
Installation of AOA sensor external case heaters on the AOA sensors, installation of additional wires, and a functional test	Up to 44 work-hours (depending on the group number) X $85 per hour = $3,740	Up to $5,998 (depending on the group number)	Up to $9,738 (depending on the group number)	Up to $925,110 (depending on the group number)

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):

2016-25-26 The Boeing Company: Amendment 39-18752; Docket No. FAA-2016-6898; Directorate Identifier 2016-NM-010-AD.

(a) Effective Date

This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

This AD applies to all The Boeing Company Model MD-90-30 airplanes, certificated in any category.

(d) Subject

Air Transport Association (ATA) of America Code 34, Navigation.

(e) Unsafe Condition

This AD was prompted by reports of stick shaker activation at airspeeds that were above the stall protection system's stick shaker schedule. We are issuing this AD to prevent ice formation between the angle-of-attack (AOA) sensor vane and face plate, which could cause both vanes to become immobilized. If both vanes become immobilized, the stall protection system could become unreliable or non-functional, which could result in loss of control of the airplane.

(f) Compliance

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

(g) Installation of AOA Sensor External Case Heater

Within 6 years after the effective date of this AD, install AOA sensor external case heaters on the existing AOA sensors, install additional wires, and do a functional test and applicable corrective actions, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin MD90-30A029, dated November 25, 2015. All applicable corrective actions must be done before further flight. The correct part number for the existing AOA sensor is P/N 0861EW1.

(h) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Los Angeles 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-LAACO-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) An AMOC that provides an acceptable level of safety may be used for any repair required by this AD if it is approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) that has been authorized by the Manager, Los Angeles ACO, to make those findings. For a repair method to be approved, the repair must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

(4) For service information that contains steps that are labeled as Required for Compliance (RC), the provisions of paragraphs (h)(4)(i) and (h)(4)(ii) of this AD 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. If a step or substep is labeled "RC Exempt," then the RC requirement is removed from that step or substep. 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.

(i) Related Information

For more information about this AD, contact Eric Igama, Aerospace Engineer, Systems and Equipment Branch, ANM-130L, FAA, Los Angeles ACO, 3960 Paramount Boulevard, Lakewood, CA 90712-4137; phone: 562-627-5388; fax: 562-627-5210; email: roderick.igama@faa.gov.

(j) 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 MD90-30A029, dated November 25, 2015.

(ii) Reserved.

(3) For service information 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; 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 December 7, 2016.

Dionne Palermo,
Acting Manager,
Transport Airplane Directorate,
Aircraft Certification Service.

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