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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2016-4219; Product Identifier 2015-NM-169-AD; Amendment 39-19535; AD 2018-26-05]

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 777 airplanes. This AD was prompted by reports of latently failed engine fuel shutoff spar valves discovered during fuel filter replacement. This AD requires inspecting to determine the part numbers (P/Ns) of the motor-operated valve (MOV) actuators at the engine fuel shutoff spar valve positions, installing MOV actuators having a certain acceptable part number or software if necessary, and revising the maintenance or inspection program to add a new airworthiness limitation. We are issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective February 1, 2019.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of February 1, 2019.

ADDRESSES: For service information identified in this final rule, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminister Blvd., MC 110-SK57, Seal Beach, CA 90740-5600; telephone 562-797-1717; internet <https://www.myboeingfleet.com>. You may view this service information at the FAA, Transport Standards 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 on the internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2016-4219.

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-2016-4219; 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, the

regulatory evaluation, any comments received, and other information. The address for Docket Operations (phone: 800-647-5527) 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.

FOR FURTHER INFORMATION CONTACT: Kevin Nguyen, Aerospace Engineer, Propulsion Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone and fax: 206-231-3555; email: Kevin.Nguyen@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 777 airplanes. The NPRM published in the Federal Register on March 8, 2016 (81 FR 12039). The NPRM was prompted by reports of latently failed engine fuel shutoff spar valves discovered during fuel filter replacement. The NPRM proposed to require replacing certain MOV actuators with MOV actuators having a certain acceptable part number on both airline information management system (AIMS) Version 1- and 2-equipped airplanes, or installing a newer software version on AIMS Version 2-equipped airplanes.

We issued a SNPRM to amend 14 CFR part 39 by adding an AD that would apply to certain The Boeing Company Model 777 airplanes. The SNPRM published in the Federal Register on August 21, 2017 (82 FR 39545). We issued the SNPRM to add a part number inspection, add an AWL, and specify new AIMS software.

We are issuing this AD to address latent failure of the fuel shutoff spar valve to the engine, which could result in the inability to terminate fuel flow to the engine and, in the case of an engine fire, could lead to wing failure.

Comments

We gave the public the opportunity to participate in developing this final rule. The following presents the comments received on the SNPRM and the FAA's response to each comment.

Request To Omit Inspection Requirement

American Airlines (American) requested that we revise paragraph (g) of the proposed AD (in the SNPRM) to omit the requirement to inspect for the MOV actuator part numbers, and to reflect only the essential compliance requirements as stated in paragraphs (g)(1) and (g)(2) of the proposed AD (in the SNPRM) (the conditional requirements that depend on the part number found). The commenter stated that the inspection is not necessary to accomplish any of the compliance options and adds no value to the process.

We disagree with the request. The MOV actuator is a rotatable part. Several previously approved and existing interchangeable MOV actuator part numbers may be installed at the engine fuel shutoff spar valve positions. The MOV actuator installed at the engine fuel shutoff spar valve positions at the time of airplane manufacture may have been later replaced by an MOV actuator of a different part number. Because an unsafe condition exists with certain part numbers, we have determined that it is necessary to control the method by which an operator may determine what part number is installed. In the absence of such a control, an operator might simply assume that the part number delivered with the airplane is still in place. The most positive method to verify the installed part number is to inspect the part. Alternatively, as stated in paragraph (g) of this AD, the FAA will accept verification through a maintenance records check if the records positively show the installed part number. We have not changed the AD regarding this issue.

Request To Incorporate AWL After MOV Actuator Installation

American requested that we revise paragraph (g)(1) of the proposed AD (in the SNPRM) to include incorporation of new airworthiness limitation (AWL) 28-AWL-MOVA, which is specified in paragraph (h) of the proposed AD (in the SNPRM).

We disagree with the request. The commenter did not provide rationale for the requested change, but we infer their request was to have all required actions within paragraph (g) of this AD. We have determined that it is better to structure the AD by separating required actions that are discretely different into separate paragraphs. As such, all required actions associated with inspecting and replacing the affected MOV actuators are in paragraph (g) of this AD and all required actions associated with the AWL revisions are in paragraph (h) of this AD. Therefore, we find it unnecessary to change this AD regarding this issue.

Request To Clarify Airplanes Subject to Inspection

Cathay Pacific noted a discrepancy in Boeing Service Bulletin 777-28A0034, Revision 3, dated September 25, 2015. Some airplanes that subsequently installed AIMS-2 Block Point (BP) Version 17A software may no longer match the conditions for the service bulletin groups, and do not fit the criteria of either paragraph (g)(1) or (g)(2) of the proposed AD (in the SNPRM). Cathay Pacific therefore requested that we revise paragraph (g) of the proposed AD (in the SNPRM) to clarify that the inspection is required only on airplanes without AIMS-2 BP Version 17A software. The commenter reported that Boeing confirmed that the service bulletin will be revised to address this discrepancy.

We agree with the request. We had intended to exclude the inspection requirement for airplanes with AIMS-2 BP Version 17A software installed. We have therefore revised paragraph (g) of this AD to also state that no further action is required by paragraph (g) of this AD if AIMS-2 BP Version 17 or later software is installed, which also include AIMS-2 BP Versions 17.1 and 17A.

Request To Allow Alternative Service Information

Delta Air Lines (Delta) requested that we revise paragraph (g)(2)(ii) of the proposed AD (in the SNPRM) to allow Boeing Service Bulletin 777-31-0275, dated June 8, 2017, as another method to use to install AIMS-2 BP Version 17A software or later-approved version. Delta explained that this service bulletin describes procedures for modifying the hardware and software related to converting from AIMS-1 to AIMS-2 software, including AIMS-2 BP Version 17A software. Delta added that Boeing Service Bulletin 777-31-0275 specifies installation of the same software as that specified in Boeing Service Bulletin 777-31-0218, and provides an equivalent level of safety to that of the SNPRM.

We partially agree with the request. We agree that installation of AIMS-2 BP Version 17A and later-approved software is an acceptable alternative to replacing the MOV actuator, because that software allows failure of any of the previously approved MOV actuator part numbers to be detected and annunciated by the airplane display system. However, we find it unnecessary to revise paragraph (g)(2)(ii) of this AD to add another acceptable method of compliance (Boeing Service Bulletin 777-31-0275) for the installation of AIMS-2 BP Version 17A software during conversion of an airplane from AIMS-1 to AIMS-2 software. Instead, we have revised paragraph (g) of this AD to clarify that no further action is required by paragraph (g) of this AD if AIMS-2 BP Version 17 or later software is installed.

Request To Provide Credit for AIMS-2 BP Version 17A Software

American and Delta requested that we revise paragraph (j) of the proposed AD (in the SNPRM) to provide credit for installation of AIMS-2 BP Version 17A software. Delta noted a conflict between

the “Actions Since the NPRM was Issued” section of the SNPRM (which specified the proposed AD would require installing AIMS-2 BP Version 17A software) and paragraph (j) of the proposed AD (in the SNPRM) (which specified credit for paragraph (g)(2)(ii) when AIMS-2 BP Version 17 or 17.1 software was installed before the effective date of this AD).

We agree to clarify that we have achieved similar results to the commenters request since we have clarified the multiple references to AIMS-2 BP Version 17 software in this AD, and that we have revised this AD to exclude airplanes with AIMS-2 BP Version 17 or later software installed from the requirements of paragraph (g) of this AD. Therefore, we have not changed paragraph (j) and have determined that no further change to the AD is necessary regarding this issue.

Request To Remove AWL Requirement

Boeing requested that we revise paragraph (h) of the proposed AD (in the SNPRM) to remove the requirement to incorporate the new AWL. Boeing noted that paragraphs (g)(1) and (g)(2)(i) of the proposed AD (in the SNPRM) would require inspection of all affected airplanes and replacement of all MOV actuators at the engine fuel shutoff spar valve positions with MOV actuators having P/N MA30A1017 (Boeing P/N S343T003-76). Boeing asserted that those proposed requirements would therefore be redundant with the proposed requirement of paragraph (h) of the proposed AD (in the SNPRM), since the AWL prohibits installation of MA20A2027 (Boeing P/N S343T003-56) and P/N MA30A1001 (Boeing P/N S343T003-66) MOV actuators at the engine fuel shutoff spar valve positions.

We disagree with the request. As previously explained in the SNPRM, the new AWL is necessary to prevent an airplane from being modified to a pre-AD condition. Although the AWL would prohibit installation of the MOV actuators at the engine fuel shutoff spar valve positions, these two MOV actuator part numbers may still be installed at other locations (as their failure in the other locations is of economic impact only), and could be inadvertently re-installed at the engine fuel shutoff spar valve positions. To address this concern, we added paragraph (h) to the proposed AD (in the SNPRM) to specify the incorporation of the new AWL. We have not changed this AD regarding this issue.

Request To Add Instructions for Maintenance Program Revision

Delta recommended that we add details on how to conduct the maintenance or inspection program, such as inspection methods and repetitive intervals, in order to clarify the proposed requirements of paragraph (h) of the proposed AD (in the SNPRM). That proposed requirement would require revising the maintenance program to incorporate a new airworthiness limitation prohibiting the installation of certain MOV actuators, and to maintain this limitation in the operator's fleet maintenance program. Delta inferred that the purpose of the proposed requirement is to ensure that P/Ns MA30A1001 and MA20A2027 are not installed in the two engine fuel shutoff spar valve positions once the requirements of paragraph (g) of the AD have been complied with.

Delta stated that the requirement to incorporate a statement indicating that a part is prohibited is not a maintenance program. Delta stated that an aircraft maintenance program is not the appropriate way to do this, adding that a “parts prohibition” statement (including locations—left and right engine fuel shutoff spar valve positions, in this case) would be more appropriate to ensure that a specific part number is not installed in the future. Delta stated that similar parts prohibition statements are included in AD 2016-04-20, Amendment 39-18414 (81 FR 10460, March 1, 2016), and AD 2013-05-03, Amendment 39-17375 (78 FR 17290, March 21, 2013), such that operators could then add notes to the airplane illustrated parts catalog (IPC), aircraft maintenance manual (AMM), etc., to ensure that those parts are not installed at the specified location in the future.

We disagree with the request. An AWL containing a parts prohibition statement for a maintenance or inspection program has been required by other ADs, and is appropriate in this case. Paragraph (h) of this AD requires only the incorporation of the AWL item into the operator's fleet,

not specific ways to accomplish the AWL task or comply with the restriction. Each operator is responsible for accomplishing the AWL task and maintaining the AWL restriction. Although a parts prohibition statement could be included in the AD, we chose to mandate this requirement via incorporation of an AWL to be consistent with the requirements of AD 2015-19-01, Amendment 39-18264 (80 FR 55521, September 16, 2015) (“AD 2015-19-01”). AD 2015-19-01 required revising the existing maintenance or inspection program to include a new AWL that required certain actions for The Boeing Company Model 777 airplanes with MOV actuators having P/N MA20A2027 or P/N MA30A1001 installed at the engine fuel shutoff spar valve positions. The prohibited MOV actuator part numbers at the engine fuel shutoff spar valve positions are still physically interchangeable with the acceptable part numbers and may be used in other valve locations, and they are expected to remain in operators' parts stores for a long period of time. We have not changed this AD regarding this issue.

Request To Revise Compliance Time to Incorporate AWL

Delta requested that we clarify the compliance time for incorporating the new AWL into the maintenance program, as specified in paragraph (h) of the proposed AD (in the SNPRM): 24 months after the effective date of the AD, and after accomplishing the actions required by (g). Delta recommended that the compliance time be changed to within 24 months after the effective date of the AD or after accomplishment of the actions required by paragraph (g)(1) or (g)(2)(i) of the AD, whichever occurs first. Delta also asked that we remove the condition “after accomplishing the actions required by paragraph (g) of this AD on all airplanes in an operator's fleet.” Delta stated that the current wording is unclear and appears to indicate operators must wait until the actions of paragraph (g) of the AD are complete on their Model 777 fleets before they can insert 28-AWL-MOVA into the maintenance program. Delta believes the FAA's intent is to put in place a part prohibition for MOV actuators at the engine fuel shutoff spar valve positions on applicable airplanes without AIMS-2 BP Version 17 software or later version, and that when the requirements of paragraph (g)(2)(ii) of the AD are completed, this AWL would no longer be applicable.

We agree with the request. We have revised the compliance time in paragraph (h) of this AD to “within 24 months after the effective date of the AD.” This allows operators to incorporate the new AWL into their maintenance program at any time within that 24-month period, without waiting until all required actions on all affected airplanes in the fleet are completed. This would also allow continued operation of an airplane if another airplane having the pre-AD configuration is introduced into an operator's fleet before the end of the compliance time, even if this were to occur after the accomplishment of the required actions on all other airplanes in the fleet.

Request To Exclude Model 777F Series Airplanes

FedEx requested that we exclude Model 777F series airplanes from the proposed requirements of paragraphs (g), (h), and (i) of the proposed AD (in the SNPRM). The service information, Boeing Service Bulletin 777-28A0034, Revision 3, dated September 25, 2015, specifies that no work is necessary for airplanes in Group 7, which includes Model 777F series airplanes.

We disagree with the request. Even though the commenter is correct in that Boeing Service Bulletin 777-28A0034, Revision 3, dated September 25, 2015, specifies that no work is necessary for airplanes in Group 7, which includes Model 777F series airplanes, the intent of this AD is to ensure that all airplanes identified in paragraph (c) of this AD, which includes Model 777F series airplanes and other Group 7 airplanes, address the unsafe condition through compliance with the requirements of the AD. Compliance with the requirements of paragraph (g) of this AD may be accomplished by installing a certain MOV actuator in accordance with Boeing Service Bulletin 777-28A0034, Revision 3, dated September 25, 2015, or installing certain AIMS-2 BP Version 17 or later software in accordance with Boeing Service Bulletin 777-31-0218, dated September 8, 2016 (depending on configuration).

We have clarified the options available for some of the affected airplanes, i.e., Group 7 airplanes with AIMS-2 BP Version 16 or earlier software. Specifically, if the actions specified in paragraph (g)(2)(i) of this AD are done, Figures 35 and 37 of Boeing Service Bulletin 777-28A0034, Revision 3, dated September 25, 2015, can be used for compliance regarding installation of the MOV actuator. Operators may also install AIMS-2 BP Version 17A software in accordance with paragraph (g)(2)(ii) of this AD. It is also necessary for operators of affected Boeing Model 777F airplanes to incorporate the AWL requirements specified in paragraph (h) of this AD.

Additional Changes to AD

The effectivity of Boeing Service Bulletin 777-28A0034, Revision 3, dated September 25, 2015, incorrectly categorizes airplanes in Group 4 as only those with AIMS-1 software installed. We have confirmed with Boeing that Group 4 airplanes includes airplanes with AIMS-1 software or AIMS-2 BP Version 16 or earlier software; or AIMS-2 BP Version 17 or later software. The airplane variable number listing in the service information does include the AIMS-2 equipped airplanes. We have therefore clarified for the purposes of the requirements in paragraph (g)(2) of this AD to state that Group 4, as identified in Boeing Service Bulletin 777-28A0034, Revision 3, dated September 25, 2015, includes airplanes with AIMS-1 software or AIMS-2 BP Version 16 or earlier software installed.

We have revised paragraph (i) in this AD to clarify that the requirements of AD 2015-19-01 may be terminated only when the requirements of paragraph (g) and (h) of this AD have been done on “all affected airplanes in an operator's fleet.”

Conclusion

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this final rule 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 SNPRM for addressing the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the SNPRM.

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

Related Service Information Under 1 CFR Part 51

We reviewed Boeing Service Bulletin 777-28A0034, Revision 3, dated September 25, 2015. This service information describes procedures for, among other things, inspection and replacement of the MOV actuators at the engine fuel shutoff spar valve positions.

We also reviewed Boeing Service Bulletin 777-31-0218, dated September 8, 2016. This service information describes procedures for installing the AIMS-2 BP Version 17A software upgrade.

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 154 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 |
|---|---|------------|------------------|------------------------|
| Inspection | 1 work-hour × \$85 per hour = \$85 | \$0 | \$85 | \$13,090. |
| Replacement of two MOV actuators without fuel tank access | 5 work-hours × \$85 per hour = \$425 | 12,000 | 12,425 | Up to \$422,450. |
| Installation of AIMS-2 BP Version 17A software | 7 work-hours × \$85 per hour = \$595 | 0 | 595 | Up to 71,400. |

We have determined that revising the maintenance or inspection program takes an average of 90 work-hours per operator, although we recognize that this number may vary from operator to operator. In the past, we have estimated that this action takes 1 work-hour per airplane. Since operators incorporate maintenance or inspection program changes for their affected fleets, we have determined that a per-operator estimate is more accurate than a per-airplane estimate. Therefore, we estimate the total cost per operator to be \$7,650 (90 work-hours x \$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.

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.

This AD is issued in accordance with authority delegated by the Executive Director, Aircraft Certification Service, as authorized by FAA Order 8000.51C. In accordance with that order, issuance of ADs is normally a function of the Compliance and Airworthiness Division, but during this transition period, the Executive Director has delegated the authority to issue ADs applicable to transport category airplanes and associated appliances to the Director of the System Oversight Division.

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):



FAA
Aviation Safety

AIRWORTHINESS DIRECTIVE

www.faa.gov/aircraft/safety/alerts/
www.gpoaccess.gov/fr/advanced.html

2018-26-05 The Boeing Company: Amendment 39-19535; Docket No. FAA-2016-4219; Product Identifier 2015-NM-169-AD.

(a) Effective Date

This AD is effective February 1, 2019.

(b) Affected ADs

This AD affects AD 2015-19-01, Amendment 39-18264 (80 FR 55521, September 16, 2015) (“AD 2015-19-01”).

(c) Applicability

This AD applies to The Boeing Company Model 777-200, 777-200LR, 777-300, 777-300ER, and 777F series airplanes, certificated in any category, excluding line numbers 1165 and subsequent.

(d) Subject

Air Transport Association (ATA) of America Code 28, Fuel.

(e) Unsafe Condition

This AD was prompted by reports of latently failed engine fuel shutoff spar valves discovered during fuel filter replacement. We are issuing this AD to address latent failure of the fuel shutoff spar valve to the engine, which could result in the inability to terminate fuel flow to the engine and, in the case of an engine fire, could lead to wing failure.

(f) Compliance

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

(g) Inspection and Replacement

Within 24 months after the effective date of this AD: Do an inspection to determine the part numbers (P/Ns) of the motor-operated valve (MOV) actuators at the fuel shutoff spar valve positions for the left and right engines, in accordance with the Accomplishment Instructions of Boeing Service Bulletin 777-28A0034, Revision 3, dated September 25, 2015. A review of airplane maintenance records is acceptable in lieu of this inspection if the part numbers can be conclusively determined from that review. If it can be definitively determined, by visual inspection or airplane maintenance records review, that P/N MA30A1017 (Boeing P/N S343T003-76) is installed, or that airplane information management system (AIMS) 2 Block Point (BP) Version 17 or later software is installed, no further action is required by paragraph (g) of this AD.

(1) For any MOV actuator with a P/N other than P/N MA30A1017 (Boeing P/N S343T003-76) on an airplane having AIMS-1 installed: Within 24 months after the effective date of this AD, install MOV actuators having part number (P/N) MA30A1017 at the engine fuel shutoff spar positions, in accordance with the Accomplishment Instructions of Boeing Service Bulletin 777-28A0034, Revision 3, dated September 25, 2015.

(2) For any MOV actuator with a P/N other than P/N MA30A1017 (Boeing P/N S343T003-76) on an airplane having AIMS-2 BP Version 16 software or earlier version, installed: Within 24 months after the effective date of this AD, do the actions specified in paragraph (g)(2)(i) or (g)(2)(ii) of this AD. For purposes of this AD, airplanes identified as Group 4 in Boeing Service Bulletin 777-28A0034, Revision 3, dated September 25, 2015, also include airplanes with AIMS-2 BP Version 16 or earlier software installed.

(i) Install MOV actuators having P/N MA30A1017 at the engine fuel shutoff spar valve positions, in accordance with the Accomplishment Instructions of Boeing Service Bulletin 777-28A0034, Revision 3, dated September 25, 2015. For airplanes identified as Group 7 in Boeing Service Bulletin 777-28A0034, Revision 3, dated September 25, 2015, with AIMS-2 BP Version 16 or earlier software, the instructions for installing P/N MA30A1017 (Boeing P/N S343T003-76) are in Figures 35 and 37 of Boeing Service Bulletin 777-28A0034, Revision 3, dated September 25, 2015.

(ii) Install AIMS-2 BP Version 17A software or later-approved version, in accordance with the Accomplishment Instructions of Boeing Service Bulletin 777-31-0218, dated September 8, 2016. Later-approved versions of the software are only those Boeing software versions that are approved as a replacement for AIMS-2 BP Version 17A software, and approved as part of the type design by the FAA after issuance of Boeing Service Bulletin 777-31-0218, dated September 8, 2016.

(h) Revision of Maintenance or Inspection Program

Within 24 months after the effective date of this AD, revise the maintenance or inspection program, as applicable, to add Airworthiness Limitation (AWL) 28-AWL-MOVA by incorporating the information specified in figure 1 to paragraph (h) of this AD into the Airworthiness Limitations Section of the Instructions for Continued Airworthiness.

Figure 1 to paragraph (h) of this AD –
AWL for installation prohibition of certain MOV actuators at the engine fuel shutoff spar valve positions

| AWL No. | Applicability | Description |
|----------------|--|--|
| 28-AWL-MOVA | 1) Airplanes with AIMS-1 system, or 2) Airplanes with AIMS-2 Block Point (BP) Version 16 and earlier software. | Motor-Operated Valve (MOV) Actuator – Prohibition of Installation of Specific Part Numbers (P/Ns) Installation of MOV actuator P/N MA30A1001 (Boeing P/N S343T003-66) and P/N MA20A2027 (Boeing P/N S343T003-56) is prohibited at the following positions: 1. Left engine fuel shutoff spar valve position 2. Right engine fuel shutoff spar valve position |

(i) Terminating Action for AD 2015-19-01

Accomplishment of the actions required by paragraphs (g) and (h) of this AD on all affected airplanes in an operator's fleet terminates all requirements of AD 2015-19-01.

(j) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Seattle ACO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (k) 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) 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 Commercial Airplanes Organization Designation Authorization (ODA) that has been authorized by the Manager, Seattle ACO 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.

(4) For service information that contains steps that are labeled as Required for Compliance (RC), the provisions of paragraphs (j)(4)(i) and (j)(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. 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.

(k) Related Information

For more information about this AD, contact Kevin Nguyen, Aerospace Engineer, Propulsion Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone and fax: 206-231-3555; email: Kevin.Nguyen@faa.gov.

(l) 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 Service Bulletin 777-28A0034, Revision 3, dated September 25, 2015.

(ii) Boeing Service Bulletin 777-31-0218, dated September 8, 2016.

(3) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminister 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 Standards 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 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 Des Moines, Washington, on December 18, 2018.
Michael Kaszycki,
Acting Director, System Oversight Division,
Aircraft Certification Service.