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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2013-1071; Directorate Identifier 2013-NM-204-AD; Amendment 39-18264; AD 2015-19-01]**

**RIN 2120-AA64**

#### **Airworthiness Directives; The Boeing Company Airplanes**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

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**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 fuel shutoff valves discovered during fuel filter replacement. This AD requires revising the maintenance or inspection program to include a new airworthiness limitation. We are issuing this AD to detect and correct latent failures of the fuel shutoff valve to the engine, which could result in the inability to shut off fuel to the engine and, in case of certain engine fires, an uncontrollable fire that could lead to wing failure.

**DATES:** This AD is effective October 21, 2015.

#### **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-2013-1071; 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:** Rebel Nichols, Aerospace Engineer, Propulsion Branch, ANM-140S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6509; fax: 425-917-6590; email: [rebel.nichols@faa.gov](mailto:rebel.nichols@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 777 airplanes. The NPRM published in the Federal Register on January 10, 2014 (79 FR 1772). The NPRM was prompted by reports of latently failed fuel shutoff valves discovered during fuel filter replacement. The NPRM proposed to require revising the maintenance or inspection program to include a new airworthiness limitation. We are issuing this AD to detect and correct latent failures of the fuel shutoff valve to the engine, which could result in the inability to shut off fuel to the engine and, in case of certain engine fires, an uncontrollable fire that could lead to wing failure.

### **Record of Ex Parte Communication**

In preparation of AD actions such as NPRMs and immediately adopted rules, it is the practice of the FAA to obtain technical information and information on operational and economic impacts from design approval holders and aircraft operators. We discussed certain comments addressed in this final rule in a teleconference with Airlines for America (A4A) and other members of the aviation industry. All of the comments discussed during this teleconference that are relevant to this final rule are addressed in this final rule in response to comments submitted by other commenters. A discussion of this contact can be found in the rulemaking docket at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2013-1071.

### **Clarification of Certain Terminology**

Throughout the preamble of this final rule, commenters may have used the terms "fuel shutoff valve" and "fuel spar valve" interchangeably. Both terms refer to the same part. In our responses to comments, we have used the term "fuel shutoff valve." The term "fuel spar valve" is more commonly used in airplane maintenance documentation and, therefore, we have used that term in figure 1 to paragraph (g) of this AD.

### **Comments**

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the NPRM (79 FR 1772, January 10, 2014) and the FAA's response to each comment.

### **Request To Withdraw the NPRM (79 FR 1772, January 10, 2014)**

American Airlines (AA) stated that Boeing's internal review found that the issue addressed by the NPRM (79 FR 1772, January 10, 2014) is not a safety concern, and that Boeing has not recommended any interim action on this issue. In addition, AA stated that Boeing is addressing the issue in the long term with a design change to the motor-operated valve (MOV) actuator. We infer AA is requesting that the NPRM be withdrawn.

We disagree with the commenter's request to withdraw the NPRM (79 FR 1772, January 10, 2014). We have determined that an unsafe condition exists that warrants an interim action until the manufacturer finishes developing a modification that will address the identified unsafe condition. Boeing did not formally comment on whether it considers this issue to be an unsafe condition. We have determined that, without the required interim actions, a significant number of flights with a fuel shutoff valve actuator that is failed latently in the open valve position will occur during the affected fleet life. With a failed fuel shutoff valve, if certain engine fire conditions were to occur, or if extreme

engine damage were to occur, or if an engine separation event were to occur during flight, the crew procedures for such an event would not stop the fuel flow to the engine strut and nacelle. The continued flow of fuel could cause an uncontrolled fire or lead to a fuel exhaustion event.

The FAA regulations require all transport airplanes to be fail safe with respect to engine fire events, and the risk due to severe engine damage events be minimized. Therefore, we require, for each flight, sufficiently operative fire safety systems so that fires can be detected and contained, and fuel to the engine strut and nacelle can be shut off in the event of an engine fire or severe damage.

The FAA airworthiness standards require remotely controlled powerplant valves to provide indications that the valves are in the commanded position. These indications allow the prompt detection and correction of valve failures. We do not allow dispatch with a known inoperative fuel shutoff valve. Therefore, we are proceeding with the final rule—not because of the higher-than-typical failure rate of the particular valve actuator involved, but instead because the fuel shutoff valve actuator can fail in a manner that also defeats the required valve position indication feature. That failure can lead to a large number of flights occurring on an airplane with a fuel shutoff valve actuator failed in the open position without the operator being aware of the failure. An airworthiness limitation containing required inspections is intended to limit the number of flights following latent failure of the fuel shutoff valve. Issuance of an AD is the appropriate method to correct the unsafe condition. We have not changed this AD in this regard.

#### **Request To Provide Further Clarification of the Purpose of the NPRM (79 FR 1772, January 10, 2014)**

The European Aviation Safety Agency (EASA), which is the Technical Agent for the Member States of the European Union, requested that we revise the NPRM (79 FR 1772, January 10, 2014) to add more details on the frequency of valve failure findings, and the associated root cause driving the proposed weekly inspection interval versus the existing maintenance planning data (MPD) document check interval of 18,000 flight hours.

We agree with EASA's request to provide further clarification. As we mentioned in a previous comment response, the reason for this final rule is not simply a high fuel shutoff valve failure rate, but is rather a design error that allows a single failure within a fuel shutoff valve to affect both the control of the valve and the indication of the valve's position.

The 18,000-hour check in the MPD document was recommended based on the assumption that the indication of the fuel shutoff valve position would not be affected by failures that affect the control of the valve. With the intended design, there was not a potential for a significant number of flights to occur with a fuel shutoff valve failed open (even if the valve was never checked), because the indication system was to provide real-time indication of the valve's response to commands.

With the design error that exists in the affected fuel shutoff valve actuators, indication and control of the valve are not independent, and if no action is taken, we anticipate a significant number of flights to occur with a fuel shutoff valve failed open. Without the issuance of this final rule, our risk assessment and the manufacturer's risk assessment predict that thousands of flights of Model 777 airplanes would be conducted with latent fuel shutoff valve failures.

In addition to the design error described previously, the affected fuel shutoff valves have a higher-than-typical rate of failure in several failure modes. We have received several reports of valves failed open (discovered only when fuel filters were changed), of valves failed closed (preventing engine start), and of valves that spontaneously closed in flight (causing an engine shutdown). Boeing's long-term solution to provide a redesigned MOV actuator is intended to address these issues in addition to restoring the independence of the actuator control and indication features. We have not changed this final rule in this regard.

## **Request To Postpone the NPRM (79 FR 1772, January 10, 2014)**

Singapore Airlines (SIA) requested that the FAA consider delaying the release of the final rule until after the Boeing service information is issued and sufficient model kits are made available. SIA also requested that Boeing provide warranty coverage for the post-modified part replacement and warranty coverage for the man-hours incurred.

We disagree with the commenter's request to postpone releasing the final rule. Because this unsafe condition could exist or develop on Model 777 airplanes, an airworthiness limitation containing repetitive inspections as an interim action is necessary to ensure the safety of the fleet. Issuance of an AD is the appropriate method to correct the unsafe condition.

In addition, the manufacturer does not expect a large number of latently failed valve actuators to be discovered. Existing parts stores are expected to be sufficient, and parts can be repositioned in time to support the initial inspections. A functioning fuel shutoff valve is required at dispatch. This position is consistent with the original determination in developing the master minimum equipment list (MMEL) that dispatch relief is not allowed for fire-safety-related flammable fluid shutoff valves (other than in a locked, closed position for non-required equipment). However, under the provisions of paragraph (i)(1) of this AD, we might consider requests for an adjustment to the compliance time if data are submitted to substantiate that such an adjustment would provide an acceptable level of safety. In regard to providing warranty coverage, we cannot comment on Boeing's behalf on this issue. We have not changed the final rule in this regard.

## **Request for Clarification of Other Affected Airplane Models**

EASA requested clarification on whether similar designs on other airplanes could exist. EASA stated that this would be the basis for a design review of parts of similar design.

We agree to provide clarification for the commenter. This AD is applicable to certain Model 777 series airplanes only. Similar AD action is planned for Model 737NG, 757, 767, and 787 series airplanes. At this time, our understanding is that no other manufacturer's airplanes are affected by this specific design problem. We have not changed the final rule in this regard.

## **Request To Add Estimated Costs for the Proposed Repetitive Inspections**

AA requested that we revise the NPRM (79 FR 1772, January 10, 2014) to include the estimated costs for the repetitive inspections of the MOV actuator of the fuel shutoff valve. AA stated that the cost included in the NPRM does not account for the cost of the ongoing inspections. AA stated that the NPRM reflects only the first inspection. AA also stated that the annual cost of compliance will be 52 times greater, or \$839,800, if the inspection is accomplished weekly. AA stated that these costs should be included for operator planning purposes.

We acknowledge the commenter's concern. In this AD, the required action is to revise the maintenance or inspection program, as applicable, to include a new airworthiness limitation. The added airworthiness limitation requires an inspection of the position of the MOV actuator of the fuel shutoff valve every 10 days. However, these repetitive inspections, which are expected to take less than an hour to complete, are required by section 91.403(c) of the Federal Aviation Regulations (14 CFR 91.403(c)) once incorporated into the maintenance or inspection program.

The cost analysis in AD rulemaking actions typically includes only the costs associated with complying with an AD. In this AD, the required action is the maintenance or inspection program revision, as applicable, to include the new airworthiness limitation, and accomplishing repetitive actions that are specified in the airworthiness limitation are not directly required by this AD. The FAA, as a matter of practice, does not include a cost estimate for these repetitive actions in an AD because these actions are required as part of the operating rules. Therefore, we have made no change to this final rule in this regard.

## **Requests To Limit the Applicability**

Air France, AA, Boeing, and KLM Royal Dutch Airlines (KLM) requested that the proposed applicability be changed to include only Model 777 airplanes having line numbers 1 through 1164 inclusive.

Air France and KLM stated that Boeing Fleet Team Digest 777-FTD-28-12002, dated January 10, 2014, indicated that airplanes delivered December 2013 or later incorporate AIMS-2 BlockPoint (BP) v 17, which has a new function that avoids latently failed fuel shutoff valves.

Boeing stated that, beginning with line number 1165, all new production airplanes will be delivered with AIMS-2 BP v 17 or later software. Boeing also stated that starting with AIMS-2 BP v 17, all AIMS-2 software versions will include changes to ensure that the correct fuel shutoff valve position is displayed in the flight deck, and that the software will monitor both the valve transition and the end state to ensure the correct position indication.

Boeing also requested that the proposed applicability be limited to Model 777 airplanes with part number (P/N) MA20A2027 (S343T003-56) or P/N MA30A1001 (S343T003-66) actuators installed at the "engine fuel spar valve locations." Boeing stated that the failure mode exists only in actuators having these part numbers. Boeing stated that actuators having P/N MA20A1001-1 (S343T003-39) might be installed in the "fuel spar valve location," and that actuators having P/N MA20A1001-1 (S343T003-39) are not susceptible to the latent failure addressed by the NPRM (79 FR 1772, January 10, 2014), and would not benefit from an interval inspection.

We agree that the applicability of this AD should be limited. We have changed paragraph (c) of this AD to include only Model 777 airplanes having line numbers 1 through 1164 inclusive. In addition, in figure 1 to paragraph (g) of this AD, we have changed the Applicability column for Airworthiness Limitation (AWL) 28-AWL-MOV to clarify that the limitation applies to airplanes with the AIMS-1 system having an actuator with P/N MA20A2027 (S343T003-56) or P/N MA30A1001 (S343T003-66) installed at the engine fuel spar valve position; and airplanes with AIMS-2 BP v 16 and earlier software having an actuator with P/N MA20A2027 (S343T003-56) or P/N MA30A1001 (S343T003-66) installed at the engine fuel spar valve position.

## **Request for Clarification of the Proposed Terminating Action**

AA requested clarification of the proposed terminating action. AA stated the NPRM (79 FR 1772, January 10, 2014) is an interim action, and no information is provided regarding the terminating action. AA stated that, if issued, the final rule should contain sufficient documentation to clearly establish the effectivity of Model 777 airplanes subject to the rule, and to terminate the inspection program on the subject airplanes. AA stated that Boeing Fleet Team Digest 777-FTD-28-12002, dated January 10, 2014, among others, addresses the corrective action plan that is in progress.

We agree to provide clarification regarding the modification referenced in the NPRM (79 FR 1772, January 10, 2014). Since the issuance of the NPRM, the manufacturer has developed a modification that addresses the unsafe condition identified in this final rule. However, the service information is not available at this time. Since we have limited the applicability of this AD to exclude all new production airplanes that are delivered with AIMS-2 BP v 17 or later software, as explained previously, we find that no further change to this AD is necessary in this regard.

For the affected airplanes, there will likely be two possible terminating options—one to replace the fuel shutoff valve actuator, and another to upgrade airplanes with AIMS-2 systems to BP v 17 to address the unsafe condition. Because service information for these modifications is still being developed, we have not changed this final rule in this regard.

## **Request To Replace the AWL Revision Requirement With MOV Actuator Inspections Requirement**

Boeing requested that the proposed requirement to incorporate the MOV actuator inspection into the AWL Section of the Instructions for Continued Airworthiness of the operator's maintenance or inspection program be replaced with an AD requirement to "perform the MOV inspection every 10 days." Boeing stated that the MOV inspection is an interim mitigation and is required only until a redesigned MOV can be installed in the spar valve locations. Boeing stated that including the 10-day test requirement as the required AD action would allow installation of the redesigned MOV to be approved as an alternative method of compliance (AMOC) to the AD, and as a terminating action for the repetitive inspections, while avoiding the need for regulatory approval to remove the AWL from each operator's maintenance or inspection program. In addition, Boeing stated the AWLs are permanent actions that affect operators' planning and scheduling, and that incorporating a temporary AWL into the operators' maintenance documents or a Boeing MPD document will cause confusion among operators.

We disagree with the commenter's request. During the development of the NPRM (79 FR 1772, January 10, 2014), we discussed the impact of an AWL revision versus a repetitive inspection requirement with Boeing, who, in turn, discussed it with a sample of operators. At that time, both Boeing and the operators indicated that the addition of an AWL revision was the preferred solution because it would reduce the record keeping required to document AD compliance. Affected operators who wish to use a repetitive inspection requirement in place of an AWL may apply for approval of an AMOC in accordance with the provisions specified in paragraph (i)(1) of this AD, by submitting data substantiating that the request would provide an acceptable level of safety. We have not changed this AD in this regard.

## **Request To Extend the Proposed Compliance Time Grace Period**

AA requested that we extend the grace period for performing the initial inspection required by the new AWLs. AA stated that it is a complicated logistical matter to establish a new line maintenance task at stations throughout the world, and that there is a "learning curve to acclimate the line maintenance organizations to the new task." In addition, AA stated that the existing inventory of actuators at maintenance stations may be insufficient to replace any failed valves discovered through the inspections, resulting in grounded airplanes, and that ordering new valves from the vendor generally takes at least 30 days.

We partially agree with the commenter's request. We retained the 30-day compliance time for revising the maintenance or inspection program, as applicable, to include the new AWL. In addition, we have changed the initial compliance time for accomplishing the actions specified in figure 1 to paragraph (g) of this AD to 10 days. The compliance time of 10 days is consistent with other regulatory actions on other affected airplane models.

We have determined that the initial compliance time for the inspection represents an appropriate time in which the required actions can be performed in a timely manner within the affected fleet, while still maintaining an adequate level of safety. In developing an appropriate compliance time, we considered the safety implications, parts availability, and normal maintenance schedules for timely accomplishment of the checks.

The check itself involves a visual inspection of an existing prominent design feature that is intended to indicate the position of the fuel shutoff valve actuator. This check is also described in existing maintenance documentation. The manufacturer does not expect a large number of latently failed valve actuators to be discovered. Existing parts stores are expected to be sufficient, and we expect that parts can be repositioned in time to support the initial inspections. However, under the provisions of paragraph (i) of this AD, we might consider requests for adjustments to the compliance time if data are submitted to substantiate that such an adjustment would provide an acceptable level of safety.

## Requests To Extend the Interval for the MOV Actuator Inspection

Aerologic GmbH, Air France, All Nippon Airways (ANA), AA, Boeing, FedEx, Japan Airlines Company Ltd. (JAL), KLM Royal Dutch Airlines (KLM), Lufthansa Technik AG (LTK), and Lufthansa Cargo AG (LUB) requested that we change the interval for the MOV actuator inspection of the engine fuel shutoff valve.

Aerologic GmbH, Air France, Lufthansa LTK, Lufthansa LUB, and KLM stated that the interval should be 25 flight cycles based on a typical utilization in flight cycles that corresponds to a one-week interval. The operators stated that the actuator failure mode is associated with the cycling of the valve, and the interval should, therefore, be based on flight cycles.

AA stated that the "weekly" interval is not defined sufficiently, and that it is not clear whether this means once every seven days, one time each calendar week, or some other interpretation. AA stated that, for its airline and for many other international carriers, this presents a problem when the airplane continually crosses the International Date Line. AA also stated that the interval does not address occurrences where the airplane is out of service for an extended period of time, such as a week or longer. AA stated that it has strong concerns that the proposed interval may impede the airline's ability to function on its current published schedule. AA stated that many established flight routings occur on a four-day cycle, and not all stations can be set up to perform the inspection for logistical, personnel, and contractual reasons; therefore, the weekly interval makes it very difficult to achieve the inspection at available stations. AA stated that the inspection, if mandated, should be on a flight-cycle interval rather than a calendar schedule, and suggested a 25-flight-cycle interval to alleviate the "weekly" term interpretation issue, and to address the adverse impact to airline operations.

JAL and ANA requested that the inspection interval be "25 flight cycles or more, or weekly or more, whichever occurs later." JAL stated that the FAA-proposed inspection interval of "weekly" is without detailed information such as the number of latently failed fuel shutoff valves, failure rates, and so forth. JAL stated that it understands that it is preferable to control inspection intervals in flight cycles for international flights. JAL and ANA also stated that an average flight cycle for a Model 777 airplane might be 2.5 flight cycles per day, but that their domestic Model 777 flight cycle average is 6 flight cycles per day; therefore, it is a burden to inspect the MOV actuators at per-flight-cycle-related intervals. ANA stated that it prefers a compliance time of 18,000 flight cycles, which is stated in the MPD document. ANA stated that they currently perform the proposed inspection at 2,000-flight-hour intervals, and while it has experienced several fuel valve actuator failures, it has not detected any latently failed open fuel valve actuators.

SIA requested that the proposed inspection interval be extended to 2,000 flight hours. SIA stated that the inspections are disruptive, laborious, and costly to operations, and would require SIA to inspect at least three to four airplanes daily. SIA also stated that frequent opening and closing of panels to inspect the MOV actuator may inadvertently disrupt other airplane systems and result in unintended defects. SIA stated that, if operators are unable to inspect the airplane within the mandated intervals, or if the inspection findings require extensive rectification, Boeing or the FAA should consider granting operators a "no technical objection" or an AMOC to allow the airplane to be released to service for a restricted period of time. SIA also stated that it understands Boeing is working on a modified MOV actuator part number that would resolve the reliability issue associated with it.

Boeing requested that the interval be changed to 10 days. Boeing stated that it understood the term "weekly" to mean 10 days.

We partially agree with the commenters' request. We agree with extending the inspection interval to 10 days. Some operators' route structures and maintenance intervals do not align with a 7-day interval. Also, several of the operators routinely cross the International Date Line, potentially creating confusion over the application of an interval when expressed as "weekly." The 10-day interval will provide more operational flexibility and will not significantly increase the number of at-risk flights. We have changed paragraph (g) of this AD and figure 1 to paragraph (g) of this AD accordingly.

We also added a note to the Interval column of figure 1 to paragraph (g) of this AD to specify that the inspection is not required on days when the airplane is not used in revenue service, and that the inspection must be done before further flight if it has been 10 or more calendar days since the last inspection.

However, we disagree with changing the interval basis to flight cycles. While the failure of the fuel shutoff valve is likely associated with the cycling of the valve, the purpose of the inspections is to minimize the exposure to flights that are initiated with a valve actuator that is latently failed in the open position.

To determine the appropriate actions and intervals to minimize this exposure, we considered the actions necessary to detect the latent failure on each affected airplane model, and then, based on those identified actions, determined a minimum practical interval for performing the actions.

On other Boeing airplane models with designs that allow a check to be performed using available indications, we determined that a daily check is appropriate. That interval is similar to the check interval required for fire detection systems. For the affected Model 777 airplanes identified in this final rule, the fuel shutoff valve position cannot be checked using available indications, and a physical inspection of the valve actuator itself is necessary to detect the latent failure. Because of the work necessary to perform this inspection, we determined that a daily interval would be overly burdensome and that the 10-day interval would be a more appropriate balance of the risk and the burden of performing the inspection. However, affected operators may apply for approval of an AMOC in accordance with the procedures specified in paragraph (i)(1) of this AD by submitting data substantiating that the request would provide an acceptable level of safety.

We also disagree that the performance of these inspections is likely to cause defects in other systems. While additional defects due to unrelated causes might be discovered during the visual inspection, the opening of the access door and visual inspection of the fuel shutoff valve position is not expected to cause other system failures.

### **Request To Allow Use of Parts From Less Critical Locations**

FedEx requested that a provision be added to the proposed AD (79 FR 1772, January 10, 2014) to allow the removal of a working MOV actuator from a less critical fuel system valve location and installation in the engine fuel shutoff valve. FedEx stated that this will reduce the immediate impact of any actuator failures discovered by the required inspection.

We disagree with the request. This situation is not unique to the MOV actuator of the fuel shutoff valve. It is not our intent in this AD to change operational practices used in performing maintenance and alterations, or to change relief provided by the minimum equipment list (MEL). The removal of a fully functional part from a less critical location and its replacement with a non-functioning part is considered an alteration and, as such, must meet the airworthiness regulations, which is not possible in this case. However, if a failure occurs at a less critical location, operation in the same exact configuration may be allowed for a limited time under the MEL. The decision to allow this type of maintenance action remains with the local Flight Standards organization. Also, it should be noted that the installation of certain MOV actuators is prohibited by FAA AD 2013-05-03, Amendment 39-17375 (78 FR 17290, March 21, 2013). We have not changed this AD in this regard.

### **Additional Change Made to This AD**

In the "Description" column of figure 1 to paragraph (g) of this AD, we have removed the phrase "refer to Boeing AMM 28-22-00" for performing an inspection of the MOV actuator of the fuel spar valve (i.e., the fuel shutoff valve).



## 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 1772, January 10, 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 1772, January 10, 2014).

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

## Interim Action

We consider this AD interim action. The manufacturer has developed a modification that addresses the unsafe condition for some of the airplanes identified in this AD. Once the service information for the modification is developed, approved, and available, we might consider additional rulemaking.

## Costs of Compliance

We estimate that this AD affects 190 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
Incorporating Airworthiness Limitation	1 work-hour × \$85 per hour = \$85	\$0	\$85	\$16,150

## 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):



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**2015-19-01 The Boeing Company:** Amendment 39-18264; Docket No. FAA-2013-1071; Directorate Identifier 2013-NM-204-AD.

**(a) Effective Date**

This AD is effective October 21, 2015.

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to The Boeing Company Model 777-200, -200LR, -300, -300ER, and 777F series airplanes, certificated in any category, line numbers 1 through 1164 inclusive.

**(d) Subject**

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

**(e) Unsafe Condition**

This AD was prompted by reports of latently failed fuel shutoff valves discovered during fuel filter replacement. We are issuing this AD to detect and correct latent failures of the fuel shutoff valve to the engine, which could result in the inability to shut off fuel to the engine and, in case of certain engine fires, an uncontrollable fire that could lead to wing failure.

**(f) Compliance**

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

**(g) Revision of Maintenance or Inspection Program**

Within 30 days after the effective date of this AD, revise the maintenance or inspection program, as applicable, to add Airworthiness Limitation (AWL) 28-AWL-MOV by incorporating the information specified in figure 1 to paragraph (g) of this AD into the Airworthiness Limitations Section of the Instructions for Continued Airworthiness. The initial compliance time for accomplishing the actions specified in figure 1 to paragraph (g) of this AD is within 10 days after accomplishing the maintenance or inspection program revision required by this paragraph.

**Figure 1 to Paragraph (g) of This AD–AWL for Engine Fuel Shutoff Valve (Fuel Spar Valve) Actuator Inspection**

<b>AWL No.</b>	<b>Task</b>	<b>Interval</b>	<b>Applicability</b>	<b>Description</b>
28-AWL-MOV	ALI	10 days INTERVAL NOTE: Not required on days when the airplane is not used in revenue service. Must be done before further flight if it has been 10 or more calendar days since last inspection.	Airplanes with AIMS-1 system Airplanes with AIMS-2 BlockPoint (BP) v 16 and earlier software. APPLICABILITY NOTE: Only applies to airplanes with a fuel spar valve actuator having part number MA20A2027 (S343T003-56) or MA30A1001 (S343T003-66) installed at the engine fuel spar valve position.	Engine Fuel Shutoff Valve (Fuel Spar Valve) MOV Actuator Inspection. Concern: The fuel spar valve actuator design can result in airplanes operating with a failed fuel spar valve actuator that is not reported. A latently failed fuel spar valve actuator would prevent fuel shutoff to an engine. In the event of certain engine fires, the potential exists for an engine fire to be uncontrollable. Perform an inspection of the fuel spar valve actuator. NOTE: The fuel spar valve actuator is located behind latch panel 551 DB (left engine) and latch panel 651 DB (right engine). 1. Make sure both Engine Control Switches are in the CUTOFF position. NOTE: It is not necessary to cycle the FUEL CONTROL switch to do this inspection. 2. Inspect the left engine fuel spar valve actuator located in the left rear spar. a. Verify the manual override handle on the left engine fuel spar valve actuator is in the CLOSED position. b. Repair or replace any fuel spar valve actuator that is not in the CLOSED position (refer to Boeing Airplane Maintenance Manual, 28-22-02, for guidance). 3. Inspect the right engine fuel spar valve actuator located in the right rear spar. a. Verify the manual override handle on the right engine fuel spar valve actuator is in the CLOSED position. b. Repair or replace any fuel spar valve actuator that is not in the CLOSED position (refer to Boeing Airplane Maintenance Manual, 28-22-02, for guidance)

**(h) No Alternative Actions or Intervals**

After accomplishing the maintenance or inspection program revision required by paragraph (g) of this AD, no alternative actions (e.g., inspections) or intervals may be used unless the actions or intervals are approved as an alternative method of compliance (AMOC) in accordance with the procedures specified in paragraph (i)(1) of 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 (j) 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.

**(j) Related Information**

For more information about this AD, contact Rebel Nichols, Aerospace Engineer, Propulsion Branch, ANM-140S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6509; fax: 425-917-6590; email: rebel.nichols@faa.gov.

**(k) Material Incorporated by Reference**

None.

Issued in Renton, Washington, on September 7, 2015.  
Jeffrey E. Duven,  
Manager, Transport Airplane Directorate,  
Aircraft Certification Service.