



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2014-0127; Directorate Identifier 2013-NM-237-AD; Amendment 39-18265; AD 2015-19-02]**

**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 767 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 new airworthiness limitations. We are issuing this AD to detect and correct latent failures of the fuel shutoff valve to the engine and auxiliary power unit (APU), which could result in the inability to shut off fuel to the engine and APU and, in case of certain fires, an uncontrollable fire that could lead to structural failure.

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

**Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2014-0127; 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.

**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 767 airplanes. The NPRM published in the Federal Register on March 5, 2014 (79 FR 12420). 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 new airworthiness limitations. We are issuing this AD to detect and correct latent failures of the fuel shutoff valve to the engine and APU, which could result in the inability to shut off fuel to the engine and APU and, in case of certain fires, an uncontrollable fire that could lead to structural 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 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-2014-0127.

### **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 and figure 2 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 12420, March 5, 2014) and the FAA’s response to each comment.

### **Requests to Withdraw the NPRM (79 FR 12420, March 5, 2014)**

American Airlines (AA) stated that Boeing’s internal review found that the issue addressed by the NPRM (79 FR 12420, March 5, 2014) is not a safety concern, and 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 of the fuel shutoff valve.

All Nippon Airways (ANA) stated it agrees with a statement in “767-FTD-28-12003 issued by Boeing” indicating that the combination of the events (engine fire and spar valve failures) is extremely improbable. ANA requested clarification of the rationale for the proposed intervals. ANA stated that it has operated

more than 100 Model 767 airplanes for approximately 30 years and has never had such failure with the MOVs.

We infer that AA and ANA requested that the NPRM (79 FR 12420, March 5, 2014) be withdrawn.

We disagree with the commenters' request to withdraw the NPRM (79 FR 12420, March 5, 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 fire conditions were to occur, or if extreme engine or APU 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 or APU. 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 or APU fire events, and the risk due to severe engine or APU damage events to 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 or APU can be shut off in the event of an engine or APU 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. Airworthiness limitations containing required inspections are 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 final rule in this regard.

### **Request to Revise Applicability of Certain Requirements**

Delta Airlines (DAL) and United Airlines (UAL) requested that we revise the proposed AD (79 FR 12420, March 5, 2014) to limit the applicability specified in figure 1, figure 2, and figure 3 to paragraph (g) of the proposed AD to airplanes with fuel shutoff valve actuators on which the identified unsafe condition exists.

DAL stated that it would be feasible to implement configuration control to ensure that part number (P/N) MA30A1001 is removed, and does not get installed in the engine or APU fuel shutoff valve positions in the future. DAL stated it would replace any P/N MA30A1001 actuators that are currently in those locations with actuators of a different acceptable part number, which would, in turn, alleviate the unsafe condition given in the NPRM (79 FR 12420, March 5, 2014). DAL stated that if an operator does not have P/N MA30A1001 installed on any engine or APU fuel shutoff valve positions, then that operator would not be required to adhere to airworthiness limitations 28-AWL-ENG, 28-AWL-MOV, or 28-AWL-APU.

UAL stated that the proposed AD (79 FR 12420, March 5, 2014) does not specify which part number of the MOV actuator is applicable to the proposed AD. UAL stated that proposed ADs were issued for Model 737NG, 757, 767, and 777 airplanes to replace the MOV actuator with P/N MA30A1001. UAL also stated that there are issues with the

MOV actuator part number, and presumes that the proposed AD is for MOV actuator P/N MA30A1001.

We agree with the commenters' request. Only two fuel shutoff valve actuator designs are susceptible to the unsafe condition specified in this final rule, and it would be unnecessarily burdensome to require the inspections on airplanes that do not have any of the susceptible valves installed. We have changed the Applicability column in figure 1, figure 2, and figure 3 to paragraph (g) of this AD to clarify that the limitations apply to Model 767 airplanes having fuel shutoff valve actuator P/N MA20A2027 (S343T003-56) or P/N MA30A1001 (S343T003-66) installed at the engine or APU fuel shutoff valve position, as appropriate.

#### **Request to Change the Initial Compliance Time for the Operational Check**

AA requested that the compliance time for the initial accomplishment of the actions specified in figure 1, figure 2, and figure 3 to paragraph (g) of the proposed AD (79 FR 12420, March 5, 2014) be extended from 7 days to 60 days. AA stated that more time is needed for publishing the new criteria and for distribution of cards and manuals/checklists. AA stated that the 7-day compliance time is not justified by the failure rates for this safety concern.

We partially agree with the commenter's request. We have changed the initial compliance time to 10 days for accomplishing the actions specified in figure 1, figure 2, and figure 3 to paragraph (g) of this AD. The compliance time of 10 days is consistent with regulatory actions for other affected 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 operational checks. The operational check procedures and the access procedures are simple and already established. 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 and is 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 parts can be repositioned in time to support the initial inspections. However, under the provisions of paragraph (i)(1) 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.

### **Request to Change the Proposed Requirement for the MOV Actuator Inspection**

Boeing requested that the proposed requirement to “incorporate the MOV actuator inspection into the Airworthiness Limitations (AWL) Section of the Instructions for Continued Airworthiness of operator’s maintenance or inspection programs” be replaced with an AD requirement to perform the MOV inspection per the specific interval in paragraph (g) of the proposed AD (79 FR 12420, March 5, 2014). Boeing stated that the MOV inspection in paragraph (g) of the proposed AD is an interim mitigation until a redesigned MOV can be installed in the spar valve locations. Boeing stated that including the interval 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 maintenance planning data (MPD) document will cause confusion among operators.

We disagree with the commenter's request. During the development of the NPRM (79 FR 12420, March 5, 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 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 revision 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 Daily Inspection Requirement**

UAL asked whether there are any provisions established by the FAA to extend the daily inspection requirement if the reliability data are captured. UAL stated that there is no valid justification for this short time limit that creates a burden on airline operations.

We disagree with the commenter's request. Our unsafe condition determination is primarily driven by the potential for a common-cause failure of the valve and its position indication—and not by a lack of reliability. We are aware that this failure has happened in service, and we expect that tens of thousands of flights will occur with this valve failed in the open position without indicating the failure unless frequent inspections are made. Fortunately, the effort required to check the valve operation is small for most airplanes. For Model 767-200 and -300 series airplanes, we expect that most airlines will have the flightcrew monitor a light near the switch they are using to shut down the engine. The total time needed should be less than a few seconds. In addition, new fuel shutoff valve actuators are being developed that will allow removal of this requirement once they are installed. Therefore, we have no plans to extend the interval based on updated reliability data. We have not changed this AD in this regard.

## **Request for Inspection Relief**

UAL noted there is no provision in the proposed AD (79 FR 12420, March 5, 2014) to allow a waiver of the daily inspection requirements if an airplane is out of service for any reason or in a remote station where the daily inspection cannot be accomplished. Air Do asked if the daily check must be done once a day even if the airplane does not have a flight plan. We infer the commenters are requesting that we revise the proposed AD to allow exceptions to the daily check specified in figure 1 to paragraph (g) of the proposed AD.

AA requested that the proposed AD (79 FR 12420, March 5, 2014) be clarified to specify that daily checks only apply when the airplane is in operational revenue service. AA also stated to restart the interval of 10 days or 100 flight hours/50 cycles, whichever occurs later, once an APU is returned to service from the minimum equipment list.

We partially agree with the commenters' requests. We agree to limit inspections to days when the airplane is in revenue service or when the APU is in operational status because it would be unnecessarily burdensome to require the inspections on airplanes that are not in operation. In figure 1, figure 2, and figure 3 to paragraph (g) of this AD, we have added a note in the Interval column to clarify that the operational check is not required on days when the airplane is not used in revenue service. For figure 1 to paragraph (g) of this AD, we also specify that the check of the engine fuel shutoff valve must be done before further flight once the airplane is returned to revenue service. In figure 2 and figure 3 to paragraph (g) of this AD, we have specified that the check or inspection must be done before further flight if it has been 10 or more calendar days since last check or inspection.

We disagree with restarting the 10-day cycle once an APU is returned to service because the APU fuel shutoff valve check should not be extended because the APU was out of service for a time. For the APU, it is likely that this test will be done as a matter of course whenever it is returned to service.

### **Request to Extend the Repetitive Interval**

AA, ANA, DAL, and Japan Airlines (JAL) requested that the repetitive interval be extended for the actions specified in figure 1, figure 2, and figure 3 to paragraph (g) of the proposed AD (79 FR 12420, March 5, 2014).

AA requested that the repetitive inspection interval be extended to “10 days or 100 flight hours/50 flight cycles, whichever occurs later.” AA requested that we revise the proposed AD (79 FR 12420, March 5, 2014) to add the choice of monitoring the disagreement light to check the indication and physically check the closure of the valve at “100 flight hours/50 cycles whichever occurs later” as an alternative maintenance task. AA stated that operators of Model 767-400 series airplanes identified in the NPRM are allowed 10 days to inspect the spar valve actuator arm when it is fully closed and commanded closed. AA stated that the 10 days equates closely to “100 flight hours/50 cycles.” AA also stated that Model 767-200, -300, and -400 series airplanes have the same actuator valve and indication, except that Model 767-400 series airplanes do not have a disagreement light.

ANA stated it has reviewed the NPRM (79 FR 12420, March 5, 2014), and is disappointed with the intervals of the operational checks because the intervals are daily for engine fuel spar valves on Boeing Model 767-200, -300, and -300F series airplanes, and 10 days for APU fuel valves; the proposed intervals will definitely affect its operations. ANA stated that it does not have Model 767-400 airplanes, but that the operational effect is the same. ANA suggested a compliance time of “6,000 flight hours or 22 months whichever comes first” for both engine spar valves and APU fuel valves.

DAL stated that Model 767-300 and -400 series airplanes contain similar systems with respect to engine fuel shutoff. DAL stated that Model 767-300 and -400 series airplanes are also equipped with the same part number for the MOV actuator. DAL stated that, therefore, the failure modes between the two airplane models should be identical. DAL stated that since the FAA considers a 10-day interval sufficient for Model 767-400 series airplanes, and also for the APU fuel shutoff actuator for all Model 767 airplanes, it proposes to change the interval in figure 1 to paragraph (g) of this proposed AD to 10 days.

We disagree with the commenters' requests. Increasing the check interval from daily to every 10 days for the AWL task specified in figure 1 to paragraph (g) of this AD would result in 10 times as many flights at risk of an uncontrollable engine fire; the daily check has been deemed practical because in practice it will mean the flightcrew will need to watch a light just above the FUEL CONTROL switch as they start or shut down the engine. As AA stated, Model 767-400ER series airplanes do not have the disagreement light, so the inspection is more complex. As a result, regardless of how desirable a daily inspection would be, we determined it is not practical to require that inspection on a daily basis on Model 767-400ER series airplanes. We have not changed this AD in this regard.

As we discussed previously, the reason for this final rule is not simply a high valve failure rate in the open position, but rather a design error that allows a single failure within a fuel shutoff valve actuator to affect both the control of the valve and the indication of the valve's position. Currently these failures are only discovered during fuel filter changes, which occur every 6,000 flight hours. ANA's proposal is to check the system every 6,000 flight hours. A dedicated inspection every 6,000 flight hours would have little impact on the number of flights at risk. Indication and control of the fuel shutoff valve are not independent because of the design error in the affected valve actuators. For a failed fuel shutoff valve, the valve indication system erroneously reports

that the valve is opening and closing. If no action is taken, we anticipate a significant number of flights to occur with a failed open fuel shutoff valve. Without this AD, our risk assessment and the manufacturer's risk assessment predict that tens of thousands of such flights would occur in the fleet of Model 767 airplanes.

In addition to this fuel shutoff valve design error, the affected 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), valves failed closed (preventing engine start), and valves that spontaneously closed in flight (causing an engine shutdown). Boeing's long-term solution, a fuel shutoff valve actuator design change, is intended to address these issues in addition to restoring the independence of the actuator control and indication features. The APU, on the other hand, presents a much lower risk and is needed in flight on a small number of flights. In addition, normal APU starting procedures include this check on every start, so it is likely that this check is already being done on a more frequent basis. We have not changed this AD in this regard.

### **Request to Justify the Proposed Inspection Interval**

ANA requested that rationale be provided to justify the proposed inspection interval, including the interval differences between the engine and the APU, and the interval between Model 767 and Model 777 airplanes.

We agree to provide the requested rationale. While the potential for the problem is the same for Model 767 and Model 777 airplanes, the ability to check the system functionality is different. Both types of airplanes warrant a daily check, but we also consider the practicality of an inspection. On Model 767-200, -300, and -300F series airplanes, the flightcrew will need to watch the disagreement light located just above the FUEL CONTROL switch as they start or shut down the engine. Model 777 airplanes, like Model 767-400ER series airplanes, do not have a disagreement light so the inspection is

more time consuming. As a result, regardless of how desirable a daily inspection would be for Model 777 airplanes, we determined it is not practical to require that inspection on a daily basis.

In regard to the APU, it is not run on every flight, so a properly functioning fuel shutoff valve is not needed for every flight. We decided to require the check every 10 days rather than try to monitor APU usage. Also, it should be noted that this check is part of a normal APU start, so it will likely be done on every start; this AD requires that it be done at least every 10 days. We have not changed this AD in this regard.

#### **Request to Provide Instructions for Compliance with the Extended Operations (ETOPS) Requirement**

UAL requested instructions for compliance with the ETOPS requirement that would meet the operational check requirements. UAL requested that we revise the NPRM (79 FR 12420, March 5, 2014) to clarify whether standardized procedures will be established for inspectors to make approvals for all affected operators. UAL stated that since the affected airplanes have ETOPS approval, the NPRM should provide instructions for compliance with the ETOPS requirements. UAL asked that the FAA provide guidance to the principal operations inspector (POI) on required procedures that would meet the operational check requirements.

We agree that clarification is needed. We infer the commenter means that checks of the left and right engine fuel shutoff valves are done by different individuals due to ETOPS maintenance requirements. Since none of the required inspections include actions that could contribute to an engine shutdown, there is no common-cause engine shutdown potential and, therefore, no need for different individuals to perform the inspections on the left and right fuel shutoff valve actuators to meet ETOPS maintenance requirements. No additional guidance to the POIs is necessary.

### **Request to Expand Inspection to Confirm Functionality**

DAL requested we expand the inspection at the spar for confirmation of functionality on Model 767-300 series airplanes using the same method of inspection and the same auxiliary power unit position as those for the Boeing Model 767-400 series airplanes. DAL stated that a check of the actual valve position every 10 days would be a more effective inspection. DAL stated that “FTD Article 767-FTD-28-12003” (Boeing Fleet Team Digest) states that, “The indication showed the valve had closed when it had failed in the open position.” DAL stated that the flight deck indication may not accurately reflect functionality.

We partially agree with the commenter’s request. We agree to add an inspection option for Model 767-300 airplanes that is similar to the inspection for Model 767-400ER series airplanes. Therefore, for Model 767-200, -300, and -300F series airplanes, we have added item D. to figure 1 to paragraph (g) of this AD to specify a fourth option to perform a daily inspection to verify the fuel shutoff valve is closing. However, we disagree with extending the inspection interval to 10 days. As stated previously, increasing the inspection interval from every day to every 10 days for the AWL task specified in figure 1 to paragraph (g) of this AD would result in 10 times as many flights at risk of an uncontrollable engine fire.

### **Request to Add a Requirement to Provide Electrical Power before the Operational Check**

UAL requested that we revise the proposed AD (79 FR 12420, March 5, 2014) to add a requirement to provide electrical power before performing the operational check required by figure 3 to paragraph (g) of the proposed AD. UAL stated that electrical power is required to perform the check, and other maintenance may be done that could deactivate required circuits.

We agree with the commenter's request because electrical power is required. In figure 1 and figure 3 to paragraph (g) of this AD, we have added a requirement to supply electrical power to the airplane using standard practices when performing the operational check.

### **Request to Clarify the Operational Check Requirements**

Air Do stated that, if the flightcrew performed the operational check, the maintenance record is usually not created. The commenter questioned whether this is acceptable, or whether the flightcrew should record it in the flight log.

UAL requested clarification on whether the flightcrew will not have to record compliance for one of the checks and that documentation for each inspection on every airplane need not be made if relying on flightcrew compliance with the proposed AD.

JAL requested that the FAA coordinate with Boeing to include an appropriate check procedure in the Normal Procedure (NP) section of the flightcrew operating manual (FCOM).

We find that clarification is necessary. This AD requires including the information specified in figure 1, figure 2, and figure 3 of paragraph (g) of the AD in the maintenance or inspection program; however, the actions specified in the figures in this AD are accomplished, and remain enforceable, as part of the Airworthiness Limitations of the Instructions for Continued Airworthiness. Section 43.11(a) of the Federal Aviation Regulations (14 CFR 43.11(a)) requires maintenance record entries for maintenance actions such as this inspection. If an operator elects to have a flightcrew member do an inspection in accordance with the applicable airworthiness limitation, that same action would be considered an operational task—not maintenance—and therefore 14 CFR 43.11(a) would not apply. Regarding JAL's comment, an FCOM is a Boeing document that we neither approve nor control. We have not changed this AD with regard to these issues.

### **Request to Clarify the Requirements for Certain Disagreement Lights**

UAL requested that we clarify the requirements in figure 1 to paragraph (g) of the proposed AD (79 FR 12420, March 5, 2014). UAL stated that items C.6.a. and C.7.a. of figure 1 to paragraph (g) of the proposed AD instruct to move the L and R FUEL CONTROL switches, respectively, to the RUN position, but do not instruct to monitor the left and right SPAR VALVE disagreement lights, unlike item C.6.c. and item C.7.c. UAL stated that it presumes it is not required to verify the left and right SPAR VALVE disagreement lights when the L and R FUEL CONTROL switches are moved to the RUN position.

We agree to provide clarification. It is not required to verify the left and right SPAR VALVE disagreement lights when the L and R FUEL CONTROL switches are moved to the RUN position during that portion of the operational check. We have not changed this AD in this regard.

### **Request for Clarification on Applying a Minimum Equipment List (MEL) Maintenance Action**

First Air requested clarification of the proposed corrective action for an inoperative indication—specifically, whether operators could still apply an MEL maintenance action and meet the intent of the NPRM (79 FR 12420, March 5, 2014). First Air stated that the operational checks in figure 1 to paragraph (g) of the proposed AD for engine spar valves are predicated on the SPAR VALVE light being operative. First Air stated that MEL 28-40-02 provides relief should the indication be inoperative.

We agree that clarification is needed. We disagree with providing MEL relief for an inoperative fuel shutoff valve indication because MEL relief could potentially allow the valve to be inoperative for up to 10 days of revenue operation. However, we do agree to provide flexibility regarding verification that the fuel shutoff valve actuator is operational. We have added item D. to figure 1 to paragraph (g) of this AD to specify a

fourth option to perform a daily inspection to verify the fuel shutoff valve is closing, which can be used when the fuel shutoff valve indication does not function properly.

#### **Request for Clarification Regarding the FUEL CONTROL Switch**

UAL requested that a statement be included in the proposed AD (79 FR 12420, March 5, 2014) to clarify that it is not required to cycle the L and R FUEL CONTROL switches, as specified in Boeing Airplane Maintenance Manual (AMM) 28-22-00, for the ALI task specified in figure 2 to paragraph (g) of the proposed AD.

We agree with the commenter's request. We have added a note in figure 2 to paragraph (g) of this AD stating that it is not necessary to cycle the FUEL CONTROL switch to do the inspection.

#### **Request to Correct a Typographical Error**

UAL requested that a typographical error be corrected in the NPRM (79 FR 12420, March 5, 2014). UAL stated that figure 1 to paragraph (g) of the NPRM states, "Item C.4 instructs to make sure Land R ENG START selector switches on the overhead panel are in the OFF position." UAL stated that this is a typographical error and the selector switches should be L and R ENG START selector switches.

We agree and have corrected the typographical error in figure 1 to paragraph (g) of this AD accordingly. Paragraph C.4. of figure 1 to paragraph (g) of this AD, as it appeared in the NPRM (79 FR 12420, March 5, 2014), has been re-designated as paragraph C.5. of figure 1 to paragraph (g) of this AD.

#### **Additional Changes Made to this AD**

In the Description column of figure 2 to paragraph (g) of this AD, we have removed the phrase "refer to Boeing AMM 28-22-00" with regard to performing an inspection of the fuel spar valve MOV actuator position.

In paragraph C.7.a. in the Description column of figure 1 to paragraph (g) of this AD, and in paragraph A.5. in the Description column of figure 3 to paragraph (g) of this AD, we have added wording specifying to wait “approximately” 10 seconds once the FUEL CONTROL switch is in the RUN position or the APU selector switch on the overhead panel is in the ON position.

### **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 12420, March 5, 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 12420, March 5, 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 is currently developing a modification that will address the unsafe condition identified in this AD. Once this modification is developed, approved, and available, we may consider additional rulemaking.

### **Costs of Compliance**

We estimate that this AD affects 450 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 X \$85 per hour = \$85	\$0	\$85	\$38,250

**Authority for this Rulemaking**

Title 49 of the United States Code specifies the FAA’s authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency’s authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: “General requirements.” Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

**Regulatory Findings**

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a “significant regulatory action” under Executive Order 12866,

(2) Is not a “significant rule” under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),

(3) Will not affect intrastate aviation in Alaska, and

(4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

**List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

**Adoption of the Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

**PART 39 - AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

**§ 39.13 [Amended]**

2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

**2015-19-02 The Boeing Company:** Amendment 39-18265; Docket No. FAA-2014-0127; Directorate Identifier 2013-NM-237-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 767-200, -300, -300F, and -400ER series airplanes, certificated in any category.

**(d) Subject**

Joint Aircraft System Component (JASC) 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 and auxiliary power unit (APU), which could result in the inability to shut off fuel to the engine and APU and, in case of certain fires, an uncontrollable fire that could lead to structural 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 numbers 28-AWL-ENG, 28-AWL-MOV, and 28-AWL-APU, by incorporating the information specified in Figure 1, Figure 2, and Figure 3 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, Figure 2, and Figure 3 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: Engine Fuel Shutoff Valve (Fuel Spar Valve) Position Indication Operational Check**

AWL Number	Task	Interval	Applicability	Description
28-AWL-ENG	ALI	<p data-bbox="499 370 596 396">DAILY</p> <p data-bbox="499 418 695 672">INTERVAL NOTE: The operational check is not required on days when the airplane is not used in revenue service.</p> <p data-bbox="499 688 695 873">The check must be done before further flight once the airplane is returned to revenue service.</p>	<p data-bbox="730 370 940 428">767-200, -300, and -300F airplanes</p> <p data-bbox="730 444 940 802">APPLICABILITY NOTE: Applies to airplanes with an actuator installed at the engine fuel spar valve position having part number (P/N) MA20A2027 (S343T003-56) or P/N MA30A1001 (S343T003-66).</p>	<p data-bbox="968 370 1864 396">Engine Fuel Shutoff Valve (Fuel Spar Valve) Position Indication Operational Check</p> <p data-bbox="968 418 1927 542">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 could prevent fuel shutoff to an engine. In the event of certain engine fires, the potential exists for an engine fire to be uncontrollable.</p> <p data-bbox="968 558 1892 623">Perform one of the following checks/inspection of the fuel spar valve position (unless checked by the flightcrew in a manner approved by the principal operations inspector):</p> <p data-bbox="968 639 1465 672">A. Operational Check during engine shutdown</p> <p data-bbox="968 688 1703 721">1. Do an operational check of the left engine fuel spar valve actuator.</p> <p data-bbox="968 737 1864 834">a. As the L FUEL CONTROL switch on the quadrant control stand is moved to the CUTOFF position, verify the left SPAR VALVE disagreement light on the quadrant control stand illuminates and then goes off.</p> <p data-bbox="968 850 1902 915">b. If the test fails (light fails to illuminate), before further flight, repair faults as required (refer to Boeing airplane maintenance manual (AMM) 28-22-11).</p> <p data-bbox="968 932 1717 964">2. Do an operational check of the right engine fuel spar valve actuator.</p> <p data-bbox="968 980 1881 1078">a. As the R FUEL CONTROL switch on the quadrant control stand is moved to the CUTOFF position, verify the right SPAR VALVE disagreement light on the quadrant control stand illuminates and then goes off.</p> <p data-bbox="968 1094 1902 1159">b. If the test fails (light fails to illuminate), before further flight, repair faults as required (refer to Boeing AMM 28-22-11).</p> <p data-bbox="968 1175 1402 1208">B. Operational check during engine start</p> <p data-bbox="968 1224 1703 1256">1. Do an operational check of the left engine fuel spar valve actuator.</p> <p data-bbox="968 1273 1913 1354">a. As the L FUEL CONTROL switch on the quadrant control stand is moved to the RUN (or RICH) position, verify the left SPAR VALVE disagreement light on the quadrant control stand illuminates and then goes off.</p>

AWL Number	Task	Interval	Applicability	Description
				<p>b. If the test fails (light fails to illuminate), before further flight, repair faults as required (refer to Boeing AMM 28-22-11).</p> <p>2. Do an operational check of the right engine fuel spar valve actuator.</p> <p>a. As the R FUEL CONTROL switch on the quadrant control stand is moved to the RUN (or RICH) position, verify the right SPAR VALVE disagreement light on the quadrant control stand illuminates and then goes off.</p> <p>b. If the test fails (light fails to illuminate), before further flight, repair faults as required (refer to Boeing AMM 28-22-11).</p> <p>C. Operational check without engine operation</p> <p>1. Supply electrical power to the airplane using standard practices.</p> <p>2. Make sure all fuel pump switches on the Overhead Panel are in the OFF position.</p> <p>3. If the auxiliary power unit (APU) is running, open and collar the L FWD FUEL BOOST PUMP (C00372) circuit breaker on the Main Power Distribution Panel</p> <p>4. Make sure LEFT and RIGHT ENG FIRE switches on the Aft Aisle Stand are in the NORMAL (IN) position.</p> <p>5. Make sure L and R ENG START Selector Switches on the Overhead Panel, are in the OFF position.</p> <p>6. Do an operational check of the left engine fuel spar valve actuator.</p> <p>a. Move L FUEL CONTROL switch on the quadrant control stand to the RUN position and wait approximately 10 seconds.</p> <p>NOTE: It is normal under this test condition for the ENG VALVE disagreement light on the quadrant control stand to stay illuminated.</p> <p>b. Move L FUEL CONTROL switch on the quadrant control stand to the CUTOFF position.</p> <p>c. Verify the left SPAR VALVE disagreement light on the quadrant control stand illuminates and then goes off.</p> <p>d. If the test fails (light fails to illuminate), before further flight, repair faults as required (refer to Boeing AMM 28-22-11).</p>

AWL Number	Task	Interval	Applicability	Description
				<p>7. Do an operational check of the right engine fuel spar valve actuator.</p> <p>a. Move R FUEL CONTROL switch on the quadrant control stand to the RUN position and wait approximately 10 seconds once the FUEL CONTROL switch is in the RUN position or the APU selector switch on the overhead panel is in the ON position.</p> <p>NOTE: It is normal under this test condition for the ENG VALVE disagreement light on the quadrant control stand to stay illuminated.</p> <p>b. Move R FUEL CONTROL switch on the quadrant control stand to the CUTOFF position.</p> <p>c. Verify the right SPAR VALVE disagreement light on the quadrant control stand illuminates and then goes off.</p> <p>d. If the test fails (light fails to illuminate), before further flight, repair faults as required (refer to Boeing AMM 28-22-11).</p> <p>8. If the L FWD FUEL BOOST PUMP circuit breaker was collared in step 3, remove collar and close.</p> <p>D. Perform an inspection of the fuel spar valve actuator position</p> <p>NOTE: This inspection may be most useful whenever the SPAR VALVE light does not function properly.</p> <p>1. Make sure the L FUEL CONTROL switch on the quadrant control stand is in the CUTOFF position.</p> <p>NOTE: It is not necessary to cycle the FUEL CONTROL switch to do this inspection.</p> <p>2. Inspect the left engine fuel spar valve actuator located in the left rear spar.</p> <p>NOTE: The Fuel Spar Valve actuators are located behind main gear doors on the rear spar.</p> <p>a. Verify the manual override handle on the engine fuel spar valve actuator is in the CLOSED position.</p> <p>b. Repair or replace any fuel spar valve actuator that is not in the CLOSED position (refer to Boeing AMM 28-22-11).</p>

AWL Number	Task	Interval	Applicability	Description
				<p>3. Make sure the R FUEL CONTROL switch on the quadrant control stand is in the CUTOFF position.</p> <p>NOTE: It is not necessary to cycle the FUEL CONTROL switch to do this inspection.</p> <p>4. Inspect the right engine fuel spar valve actuator located in the right rear spar.</p> <p>NOTE: The Fuel Spar Valve actuators are located behind main gear doors on the rear spar.</p> <p>a. Verify the manual override handle on the engine fuel spar valve actuator is in the CLOSED position.</p> <p>b. Repair or replace any fuel spar valve actuator that is not in the CLOSED position (refer to Boeing AMM 28-22-11).</p>

**Figure 2 to Paragraph (g) of this AD: Engine Fuel Shutoff Valve (Fuel Spar Valve) Actuator Inspection**

<b>AWL Number</b>	<b>Task</b>	<b>Interval</b>	<b>Applicability</b>	<b>Description</b>
28-AWL-MOV	ALI	10 DAYS  INTERVAL NOTE: The inspection is not required on days when the airplane is not used in revenue service. The inspection must be done before further flight if it has been 10 or more calendar days since last inspection.	767-400ER series airplanes  APPLICABILITY NOTE: Applies to airplanes with an actuator installed at the engine fuel spar valve position having part number (P/N) MA20A2027 (S343T003-56) or P/N MA30A1001 (S343T003-66).	<p>Engine Fuel Shutoff Valve (Fuel Spar Valve) Actuator Inspection</p> <p>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.</p> <p>Perform an inspection of the fuel spar valve actuator position.</p> <p>NOTE: The fuel spar valve actuators are located behind main gear doors on the rear spar.</p> <p>1. Make sure the L FUEL CONTROL switch on the quadrant control stand is in the CUTOFF position.</p> <p>NOTE: It is not necessary to cycle the FUEL CONTROL switch to do this inspection.</p> <p>2. Inspect the left engine fuel spar valve actuator located in the left rear spar.</p> <p>a. Verify the manual override handle on the engine fuel spar valve actuator is in the CLOSED position.</p> <p>b. Repair or replace any fuel spar valve actuator that is not in the CLOSED position (refer to Boeing AMM 28-22-11).</p> <p>3. Make sure the R FUEL CONTROL switch on the quadrant control stand is in the CUTOFF position.</p> <p>NOTE: It is not necessary to cycle the FUEL CONTROL switch to do this inspection.</p> <p>4. Inspect the right engine fuel spar valve actuator located in the right rear spar.</p> <p>a. Verify the manual override handle on the engine fuel spar valve actuator is in the CLOSED position.</p> <p>b. Repair or replace any fuel spar valve actuator that is not in the CLOSED position (refer to Boeing AMM 28-22-11).</p>

**Figure 3 to Paragraph (g) of this AD: Auxiliary Power Unit (APU) Fuel Shutoff Valve Position Indication Operational Check**

AWL Number	Task	Interval	Applicability	Description
28-AWL-APU	ALI	10 DAYS	ALL	<p data-bbox="905 342 1587 371">APU Fuel Shutoff Valve Position Indication Operational Check</p> <p data-bbox="905 391 1898 513">Concern: The APU fuel shutoff valve actuator design can result in airplanes operating with a failed APU fuel shutoff valve actuator that is not reported. A latently failed APU fuel shutoff valve actuator could prevent fuel shutoff to the APU. In the event of certain APU fires, the potential exists for an APU fire to be uncontrollable.</p> <p data-bbox="905 532 1835 594">Perform the operational check of the APU fuel shutoff valve position indication (unless checked by the flightcrew in a manner approved by the principal operations inspector).</p> <p data-bbox="905 613 1730 643">A. Do an operational check of the APU fuel shutoff valve position indication.</p> <ol data-bbox="905 662 1898 1117" style="list-style-type: none"> <li data-bbox="905 662 1776 691">1. If the APU is running, unload and shut down the APU using standard practices.</li> <li data-bbox="905 711 1608 740">2. Supply electrical power to the airplane using standard practices.</li> <li data-bbox="905 760 1898 789">3. Make sure the APU FIRE switch on the Aft Aisle Stand is in the NORMAL (IN) position.</li> <li data-bbox="905 808 1745 837">4. Make sure there is at least 1,000 lbs (500 kgs) of fuel in the Left Main Tank.</li> <li data-bbox="905 857 1877 945">5. Move APU Selector switch on the Overhead Panel to the ON position and wait approximately 10 seconds once the FUEL CONTROL switch is in the RUN position or the APU selector switch on the overhead panel is in the ON position.</li> <li data-bbox="905 964 1730 993">6. Move the APU Selector switch on the Overhead Panel to the OFF position.</li> <li data-bbox="905 1013 1818 1042">7. Verify the APU FAULT light on the Overhead Panel illuminates and then goes off.</li> <li data-bbox="905 1062 1877 1117">8. If the test fails (light fails to illuminate), before further flight requiring APU availability, repair faults as required (refer to Boeing AMM 28-25-02).</li> </ol> <p data-bbox="905 1136 1860 1166">NOTE: Dispatch may be permitted per MMEL 28-25-02 if APU is not required for flight.</p>

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

After accomplishment of 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.

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