[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2017-1024; Product Identifier 2017-NM-065-AD]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: We propose to adopt a new airworthiness directive (AD) for all The Boeing Company Model 737-300, -400, -500, -600, -700, -700C, -800, -900, and -900ER series airplanes; Model 757 airplanes; Model 767 airplanes; Model 777 airplanes; and Model 787-8 and 787-9 airplanes. This proposed AD was prompted by reports of fuel crossfeed valves failing to open when activated during flight. This proposed AD would require, for certain airplanes, revising the airplane flight manual (AFM); and for certain other airplanes, revising the minimum equipment list (MEL) to do an operational check of the fuel crossfeed valve prior to each extended range operations (ETOPS) flight if one fuel crossfeed valve (or the fuel balancing system on Model 787 airplanes) is inoperative. We are proposing this AD to address the unsafe condition on these products.

DATES: We must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

• Federal eRulemaking Portal: Go to http://www.regulations.gov. Follow the instructions for submitting comments.

• Fax: 202-493-2251.

• Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

• Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

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-2017-1024; 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 NPRM, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: Jon Regimbal, Aerospace Engineer, Propulsion Section, FAA, Seattle ACO Branch, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6506; fax: 425-917-6590; email: Jon.Regimbal@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under the ADDRESSES section. Include "Docket No. FAA-2017-1024; Product Identifier 2017-NM-065-AD" at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this NPRM. We will consider all comments received by the closing date and may amend this NPRM because of those comments.

We will post all comments we receive, without change, to http://www.regulations.gov, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this NPRM.

Discussion

We have received reports of fuel crossfeed valves failing to open when activated during flight. The fuel crossfeed valve can fail closed due to electrical or mechanical faults. Such a failure would remain undiscovered until an attempt is made to open the fuel crossfeed valve. Depending on the operational use of the airplane, such a failure could remain latent for multiple flights. Some of the affected airplanes have only one fuel crossfeed valve. Other affected airplanes have two redundant fuel crossfeed valves, but are allowed to be dispatched under their MEL with one of the two fuel crossfeed valves inoperative and locked closed. Model 787 airplanes have a single crossfeed valve and a separate fuel balancing system, either of which allows use of all of the main tank fuel by either engine. The Model 787 MEL allows airplanes to be dispatched with the fuel balancing system inoperative.

If an engine failure occurs during certain portions of the cruise phase of an ETOPS flight and the fuel crossfeed valve cannot be opened, the fuel in the main tank associated with the failed engine cannot be used by the remaining operative engine, potentially resulting in a forced off-airport landing due to exhaustion of the remaining usable fuel and consequent loss of all engine thrust.

FAA's Determination

We are proposing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type designs.

Proposed AD Requirements

For airplanes equipped with a single fuel crossfeed valve, this proposed AD would require revising the limitation and normal procedures sections of the AFM by adding an operational check of the fuel crossfeed valve immediately prior to each ETOPS flight. For airplanes equipped with dual fuel crossfeed valves, this proposed AD would require revising the MEL by adding a requirement to do an operational check of the fuel crossfeed valve prior to each ETOPS flight if one fuel crossfeed valve (or the fuel balancing system on Model 787 airplanes) is inoperative.

This proposed AD would allow removal of the AFM limitation required by AD 88-21-03 R1, Amendment 39-6077 (53 FR 46605, November 18, 1988) ("88-21-03 R1"), after the applicable AFM limitations in this proposed AD are incorporated in the AFM.

Related AD

AD 88-21-03 R1 applies to, among other airplanes, certain Model 737-200, 737-300, 757-200, 767-200, and 767-300 series airplanes. AD 88-21-03 R1 requires revising the AFM to include an operational check of the fuel crossfeed valve during the last hour of cruise flight during each ETOPS flight and log book entry of any fuel crossfeed valve failure conditions, and repair if necessary.

Costs of Compliance

We estimate that this proposed AD affects 3,252 airplanes of U.S. registry. We estimate the following costs to comply with this proposed AD:

Estimated costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
AFM Revision (2,127 airplanes)	1 work-hour X $85 per hour = $85	$0	$85	$180,795
MEL Revision (1,125 airplanes)	1 work-hour X $85 per hour = $85	$0	$85	$95,625

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 to the Director of the System Oversight Division.

Regulatory Findings

We determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would 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 this proposed regulation:

(1) Is not a "significant regulatory action" under Executive Order 12866,

(2) Is not a "significant rule" under the 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.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 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):

The Boeing Company: Docket No. FAA-2017-1024; Product Identifier 2017-NM-065-AD.

(a) Comments Due Date

We must receive comments by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE Federal Register].

(b) Affected ADs

This AD affects AD 88-21-03 R1, Amendment 39-6077 (53 FR 46605, November 18, 1988).

(c) Applicability

This AD applies to all The Boeing Company airplanes, certificated in any category, identified in paragraphs (c)(1) through (c)(5) of this AD.

(1) Model 737-300, -400, -500, -600, -700, -700C, -800, -900, and -900ER series airplanes.

(2) Model 757-200, -200PF, -200CB, and -300 series airplanes.

(3) Model 767-200, -300, -300F, and -400ER series airplanes.

(4) Model 777-200, -200LR, -300, -300ER, and -777F series airplanes.

(5) Model 787-8 and 787-9 airplanes.

(d) Subject

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

(e) Unsafe Condition

This AD was prompted by reports of fuel crossfeed valves failing to open when activated during flight. We are issuing this AD to prevent an airplane from being dispatched on an extended range operations (ETOPS) flight with a single fuel crossfeed valve that cannot be opened. This condition could cause the fuel in the main tank associated with a failed engine to be unavailable to the remaining operative engine, potentially resulting in a forced off-airport landing due to exhaustion of the remaining usable fuel and consequent loss of all engine thrust.

(f) Compliance

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

(g) AFM Revisions for Model 737 Airplanes Equipped with a Single Fuel Crossfeed Valve

For airplanes identified in paragraph (c)(1) of this AD: Within 120 days after the effective date of this AD, do the actions in specified in paragraphs (g)(1) and (g)(2) of this AD.

(1) Revise "Extended Range Operations" subsection of the "Fuel System Limitations" section of the Section 1 Certificate Limitations of the airplane flight manual (AFM) by incorporating the information specified in figure 1 to paragraph (g)(1) of this AD. This may be done by inserting a copy of this AD into the AFM. When a statement identical to that in figure 1 to paragraph (g)(1) of this AD has been included in the "Extended Range Operations" subsection of the "Fuel System Limitations" section of the Section 1 Certificate Limitations of the general revisions of the AFM, the general revisions may be inserted into the AFM, and the copy of this AD may be removed from the AFM.

Figure 1 to Paragraph (g)(1) of this AD – *Model 737 AFM Section 1 Revision*

Fuel Crossfeed Valve Operational Check (Required by AD ****-**-**) Prior to extended operations (ETOPS) flight, an operational check of the fuel crossfeed valve must be performed. This check must be accomplished on the ground by maintenance personnel or by the flight crew as part of the preflight procedure for the specific extended range flight.

(2) Revise the "Extended Range Operations" section of the Section 3 Normal Procedures of the AFM by incorporating the information specified in figure 2 to paragraph (g)(2) of this AD. This may be done by inserting a copy of this AD into the AFM. When a statement identical to that in figure 2 to paragraph (g)(2) of this AD has been included in the "Extended Range Operations" section of Section 3 Normal

Procedures of the AFM, the general revisions may be inserted into the AFM, and the copy of this AD may be removed from the AFM.

Figure 2 to Paragraph (g)(2) of this AD – *Model 737 AFM Section 3 Revision*

Extended Range Operations

Fuel Crossfeed Valve Operational Check

Unless accomplished by maintenance personnel as part of preparing the airplane for the specific ETOPS flight, do the following steps on the ground prior to engine start.

Crossfeed selector……..Open
Verify that the VALVE OPEN light illuminates bright, then dim

Crossfeed selector……..Closed
Verify that the VALVE OPEN light illuminates bright, then extinguishes

(h) AFM Revisions for Model 757 Airplanes Equipped with a Single Fuel Crossfeed Valve

For airplanes identified in paragraph (c)(2) of this AD having line numbers 1 through 616 inclusive and 618 on which the actions specified in Boeing Service Bulletin 757-28-0029 (second fuel crossfeed valve installation) have not been done: Within 120 days after the effective date of this AD, do the actions specified in paragraphs (h)(1) and (h)(2) of this AD. For Model 757 airplanes identified in this paragraph, if the actions specified in Boeing Service Bulletin 757-28-0029 are done after the effective date of this AD, then the actions specified in this paragraph are no longer required for that airplane and the actions specified in paragraph (j) of this AD must be done before further flight after performing the actions specified in Boeing Service Bulletin 757-28-0029.

(1) Revise the "Extended Range Operations" section of the Section 1 Certificate Limitations of the AFM by incorporating the information specified in figure 3 to paragraph (h)(1). This may be done by inserting a copy of this AD into the AFM. When a statement identical to that in figure 3 to paragraph (h)(1) of this AD has been included in

the "Extended Range Operations" section of the Section 1 Certificate Limitations of the general revisions of the AFM, the general revisions may be inserted into the AFM, and the copy of this AD may be removed from the AFM.

Figure 3 to Paragraph (h)(1) of this AD – *Model 757 AFM Section 1 Revision*

Fuel Crossfeed Valve Operational Check (Required by AD ****-**-**) Prior to extended operations (ETOPS) flight, an operational check of the fuel crossfeed valve must be performed. This check must be accomplished on the ground by maintenance personnel or by the flight crew as part of the preflight procedure for the specific extended range flight.

(2) Revise the "Extended Range Operations" section of Section 3 Normal Procedures of the AFM by incorporating the information specified in figure 4 to paragraph (h)(2) of this AD. This may be done by inserting a copy of this AD into the AFM. When a statement identical to that in figure 4 to paragraph (h)(2) of this AD has been included in the Extended Range Operations section of Section 3 Normal Procedures of the AFM, the general revisions may be inserted into the AFM, and the copy of this AD may be removed from the AFM.

Figure 4 to Paragraph (h)(2) of this AD – ***Model 757 AFM Section 3 Revision***

Fuel Crossfeed Valve Operational Check Unless accomplished by maintenance personnel as part of preparing the airplane for the specific ETOPS flight, do the following steps on the ground prior to engine start. Crossfeed selector……..ON Verify that the VALVE light illuminates, then extinguishes Crossfeed selector……..OFF Verify that the VALVE light illuminates, then extinguishes

(i) AFM Revisions for Model 767 Airplanes Equipped with a Single Fuel Crossfeed Valve

For airplanes identified in paragraph (c)(3) of this AD having line numbers 1 through 430 inclusive on which the actions specified in Boeing Service Bulletin 767-28-0034 (second fuel crossfeed valve installation) have not been done as of the effective date of this AD: Within 120 days after the effective date of this AD, do the actions specified in paragraphs (i)(1) and (i)(2) of this AD. If the actions specified in Boeing Service Bulletin 767-28-0034 are done after the effective date of this AD, the actions specified in this paragraph are no longer required for that airplane and the actions specified in paragraph (k) of this AD must be done before further flight.

(1) Revise the "Extended Range Operations" section of the Section 1 Certificate Limitations of the AFM by incorporating the information specified in figure 5 to paragraph (i)(1) of this AD. This may be done by inserting a copy of this AD into the AFM. When a statement identical to that in figure 5 to paragraph (i)(1) of this AD has been included in the "Extended Range Operations" section of the Section 1 Certificate Limitations of the general revisions of the AFM, the general revisions may be inserted into the AFM, and the copy of this AD may be removed from the AFM.

Figure 5 to Paragraph (i)(1) of this AD – *Model 767 AFM Section 1 Revision*

Fuel Crossfeed Valve Operational Check (Required by AD ****-**-**) Prior to extended operations (ETOPS) flight, an operational check of the fuel crossfeed valve must be performed. This check must be accomplished on the ground by maintenance personnel or by the flight crew as part of the preflight procedure for the specific extended range flight.

(2) Revise the Section 3.1 Normal Procedures of the AFM by incorporating the information specified in figure 6 to paragraph (i)(2) of this AD. This may be done by inserting a copy of this AD into the AFM. When a statement identical to that in figure 6 to paragraph (i)(2) of this AD has been included in the Extended Range Operations

section of Section 3.1 Normal Procedures of the AFM, the general revisions may be inserted into the AFM, and the copy of this AD may be removed from the AFM.

Figure 6 to Paragraph (i)(2) of this AD – *Model 767 AFM Section 3.1 Revision*

Fuel Crossfeed Valve Operational Check

Unless accomplished by maintenance personnel as part of preparing the airplane for the specific ETOPS flight, do the following steps on the ground prior to engine start.

Crossfeed selector……..ON
Verify that the VALVE light illuminates, then extinguishes

Crossfeed selector……..OFF
Verify that the VALVE light illuminates, then extinguishes

(j) Minimum Equipment List (MEL) Revisions for Model 757 Equipped with Dual Fuel Crossfeed Valves

For airplanes identified in paragraph (c)(2) of this AD having line numbers 617, 619, and subsequent; and for airplanes identified in paragraph (c)(2) of this AD having line numbers 1 through 616 inclusive and 618, on which a second fuel crossfeed valve has been installed before the effective date of this AD, as specified in Boeing Service Bulletin 757-28-0029: Within 120 days after the effective date of this AD, revise the operator's FAA-approved MEL by incorporating the information specified in figure 7 to paragraph (j) of this AD as a required operations procedure when dispatching for ETOPS operation with an inoperative fuel crossfeed valve. Specific alternative MEL wording to accomplish the actions specified in figure 7 to paragraph (j) of this AD can be approved by the operator's principal operations inspector (POI).

Figure 7 to Paragraph (j) of this AD – *Model 757 MEL Revision*

Fuel Crossfeed Valve Operational Check

Unless accomplished by maintenance personnel as part of preparing the airplane for the specific ETOPS flight, do the following steps on the ground prior to engine start.

Crossfeed selector……..ON
Verify that the VALVE light illuminates, then extinguishes

Crossfeed selector……..OFF
Verify that the VALVE light illuminates, then extinguishes

(k) MEL Revisions for Model 767 Equipped with Dual Fuel Crossfeed Valves

For airplanes identified in paragraph (c)(3) of this AD having line numbers 431 and subsequent; and for airplanes identified in paragraph (c)(3) of this AD having line numbers 1 through 430 inclusive on which a second fuel crossfeed valve has been installed before the effective date of this AD, as specified in Boeing Service Bulletin 767-28-0034: Within 120 days after the effective date of this AD, revise the operator's FAA-approved MEL by incorporating the information specified in figure 8 to paragraph (k) of this AD as a required operations procedure when dispatching for ETOPS operation with an inoperative fuel crossfeed valve. Specific alternative MEL wording to accomplish the actions specified in figure 8 to paragraph (k) of this AD can be approved by the operator's POI.

Figure 8 to Paragraph (k) of this AD – *Model 767 MEL Revision*

Fuel Crossfeed Valve Operational Check

Unless accomplished by maintenance personnel as part of preparing the airplane for the specific ETOPS flight, do the following steps on the ground prior to engine start.

Crossfeed selector……..ON
Verify that the VALVE light illuminates, then extinguishes

Crossfeed selector……..OFF
Verify that the VALVE light illuminates, then extinguishes

(l) MEL Revisions for Model 777 Airplanes

For airplanes identified in paragraph (c)(4) of this AD: Within 120 days after the effective date of this AD, revise the operator's FAA-approved MEL by incorporating the information specified in figure 9 to paragraph (l) of this AD as a required operations procedure when dispatching for ETOPS operation with an inoperative fuel crossfeed valve. Specific alternative MEL wording to accomplish the actions specified in figure 9 to paragraph (l) of this AD can be approved by the operator's POI.

Figure 9 to Paragraph (l) of this AD – ***Model 777 MEL Revision***

Fuel Crossfeed Valve Operational Check

Before each departure, perform the following fuel crossfeed valve check:

1. Position operative crossfeed valve on and verify associated FUEL CROSSFEED AFT or FWD advisory message does not display.

2. Position operative crossfeed valve off and verify associated FUEL CROSSFEED AFT or FWD advisory message does not display.

(m) MEL Revisions for Model 787 Airplanes

For airplanes identified in paragraph (c)(5) of this AD: Within 120 days after the effective date of this AD, revise the operator's FAA-approved MEL by incorporating the

information specified in figure 10 to paragraph (m) of this AD into the MEL requirements for each of the inoperative items specified in paragraphs (m)(1) through (m)(4) of this AD. Specific alternative MEL wording to accomplish the actions specified in figure 10 to paragraph (m) of this AD can be approved by the operator's POI.

(1) 28-21-01-01 Pressure Refueling System, Main Tank Inboard Refuel Valve.

(2) 28-22-06 Fuel Balance Switch.

(3) 28-26-01 Defuel/Isolation Valves.

(4) 28-41-01-01 Main Tank Fuel Quantity Indication Systems.

Figure 10 to Paragraph (m) of this AD – *Model 787 MEL Revision*

Before the first ETOPS departure after the crossfeed valve is determined to be inoperative, perform the following maintenance procedure prior to flight. If the item remains inoperative, this maintenance procedure is not required on subsequent ETOPS departures if the crossfeed valve operated normally on the operations (o) pre-flight check.

MAINTENANCE (M)
Verify crossfeed valve operates normally.

1. Gain access to the crossfeed valve in the main gear wheel well.

2. Set Fuel Control Panel (P5) CROSSFEED switch to ON and visually confirm the valve drive moves from the closed (C) position to the open (O)
position.

3. Set Fuel Control Panel (P5) CROSSFEED switch to OFF and visually confirm the valve drive moves from the open (O) position to closed (C) position.

Before each ETOPS flight conducted with this item inoperative, perform the following operational check as part of the pre-flight check of the airplane. This check may be performed by either the flight crew or ground crew.

OPERATIONS (O)
1. Prior to each flight, verify crossfeed valve operates normally.

A. Set Fuel Control Panel (P5) CROSSFEED switch to ON and confirm FUEL CROSSFEED advisory message does not display.

B. Set Fuel Control Panel (P5) CROSSFEED switch to OFF and confirm FUEL CROSSFEED advisory message does not display.

2. For fuel balancing, do the FUEL BALANCE SYS Non-Normal Checklist.

(n) AD 88-21-03 R1, Amendment 39-6077 (53 FR 46605-01, November 18, 1988), AFM Limitation Removal

After the applicable AFM limitations specified in paragraphs (g)(1), (h)(1), and (i)(1) of this AD are incorporated into an airplane's AFM, operators may remove the AFM limitation required by AD 88-21-03 R1, Amendment 39-6077 (53 FR 46605-01, November 18, 1988), for that airplane.

(o) 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 (p) 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, 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.

(p) Related Information

For more information about this AD, contact Jon Regimbal, Aerospace Engineer, Propulsion Section, FAA, Seattle ACO Branch, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6506; fax: 425-917-6590; email: Jon.Regimbal@faa.gov.

Issued in Renton, Washington, on November 6, 2017.

Dionne Palermo,
Acting Director,
System Oversight Division,
Aircraft Certification Service.
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