



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2011-1231; Directorate Identifier 2011-NM-088-AD; Amendment 39-17418; AD 2013-08-01]**

**RIN 2120-AA64**

**Airworthiness Directives; The Boeing Company Airplanes**

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

**ACTION:** Final rule.

**SUMMARY:** We are adopting a new airworthiness directive (AD) for certain The Boeing Company Model 737-600, -700, -700C, -800, -900, and -900ER series airplanes. This AD was prompted by reports of damaged fire seals on the forward edge of the thrust reverser. This AD requires inspecting to detect damage to the upper fire seals on the forward edge of the thrust reverser, where the fire seal contacts the 12-o'clock engine strut, and for correct stiffness and vent holes, and doing corrective actions if necessary; and installing a bracket for the fire seal. We are issuing this AD to detect and correct damage to the fire seals, which could allow airflow into the engine fire zone and could degrade the ability to extinguish an engine fire.

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

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

**ADDRESSES:** For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, Washington 98124-2207; telephone 206-544-5000, extension 1;

fax 206-766-5680; Internet <https://www.myboeingfleet.com>. You may review copies of the referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, Washington. For information on the availability of this material at the FAA, call 425-227-1221.

### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov>; 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 Document 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:** Sue Lucier, Aerospace Engineer, Propulsion Branch, ANM-140S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, Washington 98057-3356; phone: 425-917-6438; fax: 425-917-6590; email: [Suzanne.Lucier@faa.gov](mailto:Suzanne.Lucier@faa.gov).

### **SUPPLEMENTARY INFORMATION:**

#### **Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to include an AD that would apply to the specified products. That NPRM published in the Federal Register on November 18, 2011 (76 FR 71472). That NPRM proposed to require inspecting to detect damage to the upper fire seals on the forward edge of the thrust reverser, where the fire seal contacts the 12-o'clock engine strut, and for correct stiffness and vent holes, and doing corrective actions if necessary; and installing a bracket for the fire seal.

## **Revised Service Information**

Since we published the NPRM (76 FR 71472, November 18, 2011), Boeing has issued Special Attention Service Bulletin 737-78-1086, Revision 1, dated May 15, 2012. That revision removes one airplane from the effectivity, updates and corrects certain illustrations and procedures, and states that no more work is necessary on airplanes changed in accordance with the original issue (Boeing Special Attention Service Bulletin 737-78-1086, dated October 6, 2010), which was specified as the appropriate source of service information in the NPRM.

We have accordingly changed paragraphs (g), (g)(1), and (g)(2) of this final rule to specify Boeing Special Attention Service Bulletin 737-78-1086, Revision 1, dated May 15, 2012; added paragraph (i) of this AD to give credit for actions done before the effective date of this AD using Boeing Special Attention Service Bulletin 737-78-1086, dated October 6, 2010; and reidentified subsequent paragraphs.

However, the revised service bulletin, Boeing Special Attention Service Bulletin 737-78-1086, Revision 1, dated May 15, 2012, contains two errors, as follows:

- Figure 10, Sheet 3 of 3: Note row (a) of the table shown in Figure 10, incorrectly refers the reader to “(a)” instead of Note row (b).
- Figures 6, 7, 15, and 16, all Sheet 2 of 3, all View B: These illustrations show the top fastener to be removed in the center of three fasteners in order to remove the retainer. However, these three fasteners are adjustable sustained preload (ASP) fasteners that do not require removal for this action. View B also incorrectly shows the location of the top rivet hole, which is actually below the row of ASP fasteners. These errors in those figures affect the actions specified in paragraph (g)(2) of this AD. The other instructions in the figures are correct.

To clarify the correct actions for paragraph (g)(2) of this AD, we have added paragraph (h) to this AD to describe these differences, and Figures 1 through 4 of this AD to show the correct fastener and rivet hole information.

### **Comments**

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the proposal (76 FR 71472, November 18, 2011) and the FAA's response to each comment.

### **Request to Change the Unsafe Condition Statement**

Boeing requested that we rephrase the unsafe condition described in the Summary and paragraph (e) of the NPRM (76 FR 71472, November 18, 2011). The commenter stated that damage to the fire seals or low stiffness is the unsafe condition because either condition could allow increased airflow into the engine core compartment, which could reduce fire extinguishing concentrations. Boeing further stated that it has received no reports of damage to adjacent structure due to fire seal damage, but has received reports of damage to insulation blankets adjacent to the fire seal damage; it received no reports of damage with sealed blankets.

We agree to revise the unsafe condition statements for the reasons given, and have changed the Summary and paragraph (e) of this AD accordingly.

### **Request for Terminating Action Statement**

American Airlines (AAL) requested that the NPRM (76 FR 71472, November 18, 2011) include a statement indicating that performing the required actions terminates the AD's requirements. AAL stated that fire seal inspections have regular maintenance requirements scheduled under Maintenance Review Board (MRB) items 78-090 and -100, which adequately monitor ongoing serviceability.

We agree with AAL's request for the reason given. We have added the words "one-time," which accurately describes the general visual inspection required by

paragraph (g) of this AD. Because paragraphs (g)(1) and (g)(2) refer to the paragraph (g) inspection, those paragraphs need no change.

### **Request to Extend the Compliance Time**

AAL requested that the compliance time in paragraph (g) of the NPRM (76 FR 71472, November 18, 2011) be extended to 72 months from the date of the NPRM (76 FR 71472, November 18, 2011), rather than 36 months. AAL stated that the longer compliance time would eliminate an undue burden on operators by better coinciding with their heavy checks, and that the added time needed to replace or reseal the upper support flange on-wing affects their tighter C-check schedules. Further, the MRB seal inspections maintain an acceptable safety level.

We do not agree to extend the compliance time. The proposed compliance time of 36 months after the AD effective date, will be well after the manufacturer's recommended action time of 36 months after the original issue date of Boeing Special Attention Service Bulletin 737-78-1086, dated October 6, 2010.

In developing an appropriate compliance time for this action, we considered the urgency associated with the subject unsafe condition, the availability of required parts, and the practical aspect of accomplishing the required inspection within a period of time that corresponds to the normal scheduled maintenance for most affected operators. However, under the provisions of paragraph (j) of this final rule, we will consider requests for approval of an extension of the compliance time if sufficient data are submitted to substantiate that the new compliance time would provide an acceptable level of safety. We have not changed the AD in this regard.

### **Request to Change Cost Information**

AAL requested that we increase the labor time in the “Costs of Compliance” section of the NPRM (76 FR 71472, November 18, 2011) to reflect the additional two work shifts needed for installation and cure time, plus the material cost of the new flange insulation. AAL stated that it prototyped the actions specified in Boeing Special Attention Service Bulletin 737-78-1086, dated October 6, 2010, and found that it added significant time to the light C-check, mostly due to a minimum of five work shifts to install and cure the flange insulation, during which time no rigging or operating of flight controls could be done.

We agree to revise the cost information as follows, based on the new service information discussed in the “New Service Information” section above: “Labor cost” increased to 28 work-hours (14 hours per engine), and “Parts cost” to \$2,494 (\$1,247 per engine). The “on-condition costs” remain unchanged.

### **Request to Include Later FAA-Approved Service Bulletin Revisions**

AAL requested that we allow compliance by any later FAA-approved revisions to Boeing Special Attention Service Bulletin 737-78-1086, Revision 1, dated May 15, 2012.

We disagree to refer to later revisions to service information, because when referring to a specific service bulletin in an AD, we cannot use the phrase, “or later FAA-approved revisions,” due to Office of the Federal Register regulations for approving materials that are incorporated by reference. However, operators may request approval to use a later revision of the referenced service bulletin as an alternative method of compliance, under the provisions of paragraph (j) of the final rule. We have not changed the AD in this regard.

### **Request to Exclude Certain Parts of the Service Information**

AAL stated that Boeing Special Attention Service Bulletin 737-78-1086, dated October 6, 2010, specifies actions that duplicate procedures given in the aircraft

maintenance manual (AMM), or apply only to on-wing methods or not removing the thrust reverser, and requested that the NPRM (76 FR 71472, November 18, 2011) not mandate these actions for all airplanes and methods when they do not apply, or do not address the unsafe condition for that airplane. In one example, AAL described that if the thrust reverser is not removed, only the fire-seal compression check of AMM 78-31-12-4 or 87-31-01-5 (fire seal removal/installation, and thrust reverser adjustment/test, respectively) needs to be done, because the vee-blade depth and deflection limiter geometry do not change.

We do not agree to exclude certain actions specified in the Accomplishment Instructions of Boeing Special Attention Service Bulletin 737-78-1086, Revision 1, dated May 15, 2012, from the requirements of this AD. Those instructions do not address accomplishing the work off-wing, other than stating that it can be done. The thrust reverser adjustment is included in the steps regardless of how the seal flange is installed, because adding the additional material in the stack-up might affect part fit-up and ultimately require re-rigging prior to releasing the airplane into service. Further, the service bulletin only refers to the AMM procedures, which gives operators flexibility in doing the work due to particular maintenance procedures not being mandated. We have not changed the AD in this regard.

#### **Request to Correct Errors In, or Refer to, Revised Service Information**

AAL and Boeing submitted examples of errors in and corrections needed to Boeing Special Attention Service Bulletin 737-78-1086, dated October 6, 2010. AAL requested that the service information be corrected or revised, and Boeing requested that we incorporate Boeing Special Attention Service Bulletin 737-78-1086, Revision 1, dated May 15, 2012, which Boeing stated corrects the items it identified.

As discussed in the Revised Service Information section above, we agree to refer to the revised service information, including the two differences noted in that section.

### **Concern for Parts Availability**

AAL stated that there needs to be sufficient stock of seals available to support replacements resulting from inspections done within the proposed compliance time. AAL found that in December 2011, the Boeing parts page on the Internet showed no available stock of the required seals and did not show a standard lead time for them, but projected dates in February and March of 2012.

We infer that AAL requested that we delay issuing the AD until parts are available. We received information from Boeing that ample parts kits are now available to supply the fleet. We have not changed the AD in this regard.

### **Added Paragraph for Certain Alternative Methods of Compliance (AMOCs)**

We added new paragraph (j)(3) to this AD to allow AMOC requests approved by Boeing's Organization Designation Authorization (ODA).

### **Conclusion**

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting the 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/(76 FR 71472, November 18, 2011) for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM/(76 FR 71472, November 18, 2011).

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

## Costs of Compliance

We estimate that this AD affects 968 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
General visual inspection and bracket installation	28 work-hours X \$85 per hour = \$2,380	\$2,494	\$4,874	\$4,718,032

We estimate the following costs to do necessary repairs and replacements that would be required based on the results of the inspection. We have no way of determining the number of aircraft that might need these repairs.

### On-condition costs

Action	Labor cost	Parts cost	Cost per product
Drill vent holes (up to 8)	1 work-hour X \$85 per hour = \$85	\$0	\$85
Replace fire seal (up to 4)	8 work-hours X \$85 per hour = \$680	\$8,010	\$8,690

## 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):

**2013-08-01 The Boeing Company:** Amendment 39-17418; Docket No. FAA-2011-1231; Directorate Identifier 2011-NM-088-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 The Boeing Company Model 737-600, -700, -700C, -800, -900, and -900ER series airplanes; certificated in any category; line numbers 1 through 3028 inclusive.

**(d) Subject**

Joint Aircraft System Component (JASC)/Air Transport Association (ATA) of America Code 78, Engine exhaust.

**(e) Unsafe Condition**

This AD was prompted by reports of damaged upper fire seals on the forward edge of the thrust reversers. We are issuing this AD to detect and correct damage to the fire seals, which could allow airflow into the engine fire zone and could ultimately degrade the ability to extinguish an engine fire.

**(f) Compliance**

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

**(g) Inspections and Corrective Actions**

Within 36 months after the effective date of this AD: Do a one-time general visual inspection of the left and right thrust reverser halves of each engine for damage to the upper fire seal, for stiffness of the upper fire seal, and for missing vent holes as applicable, in accordance with paragraph 3.B. of the Accomplishment Instructions of

Boeing Special Attention Service Bulletin 737-78-1086, Revision 1, dated May 15, 2012, except as required by paragraph (h) of this AD.

(1) If, during the inspection required by paragraph (g) of this AD, no upper fire seal damage is found, and the fire seal has the correct stiffness: Before further flight, drill vent holes if they are missing, and install a new bracket behind the upper fire seal retainer, in accordance with paragraph 3.B. of the Accomplishment Instructions of Boeing Special Attention Service Bulletin 737-78-1086, Revision 1, dated May 15, 2012.

(2) If, during the inspection required by paragraph (g) of this AD, upper fire seal damage or insufficient fire seal stiffness is found: Before further flight, install a new upper fire seal, drill vent holes if they are missing, and install a new bracket behind the upper fire seal retainer, in accordance with paragraph 3.B. of the Accomplishment Instructions of Boeing Special Attention Service Bulletin 737-78-1086, Revision 1, dated May 15, 2012, except as required by paragraph (h) of this AD.

**(h) Exceptions to Required Service Information**

Where this AD refers to Boeing Special Attention Service Bulletin 737-78-1086, Revision 1, dated May 15, 2012, the following exceptions apply.

(1) In that service bulletin, where Note row (a) of the table shown in Figure 10 refers to “(a)”, it should instead refer to Note row (b).

(2) Figures 1 and 3 of this AD, titled “Fastener Removal of the Retainer Support on the Left (Right) Thrust Reverser Half,” have View B showing the top fastener in the center of three adjustable sustained preload (ASP) fasteners. That top fastener does not require removal in order to remove the retainer. The figures in this AD point to the correct information for those fasteners.

(3) Figures 2 and 4 of this AD, titled “Installation of the New Bracket behind the Retainer Support on the Left (Right) Thrust Reverser Half,” have View B showing the

top rivet hole. That rivet hole is actually below the row of three ASP fasteners. The figures in this AD point to the correct information for those rivet holes.

Figure 1, Fastener Removal of the Retainer Support on the Left Thrust Reverser Half

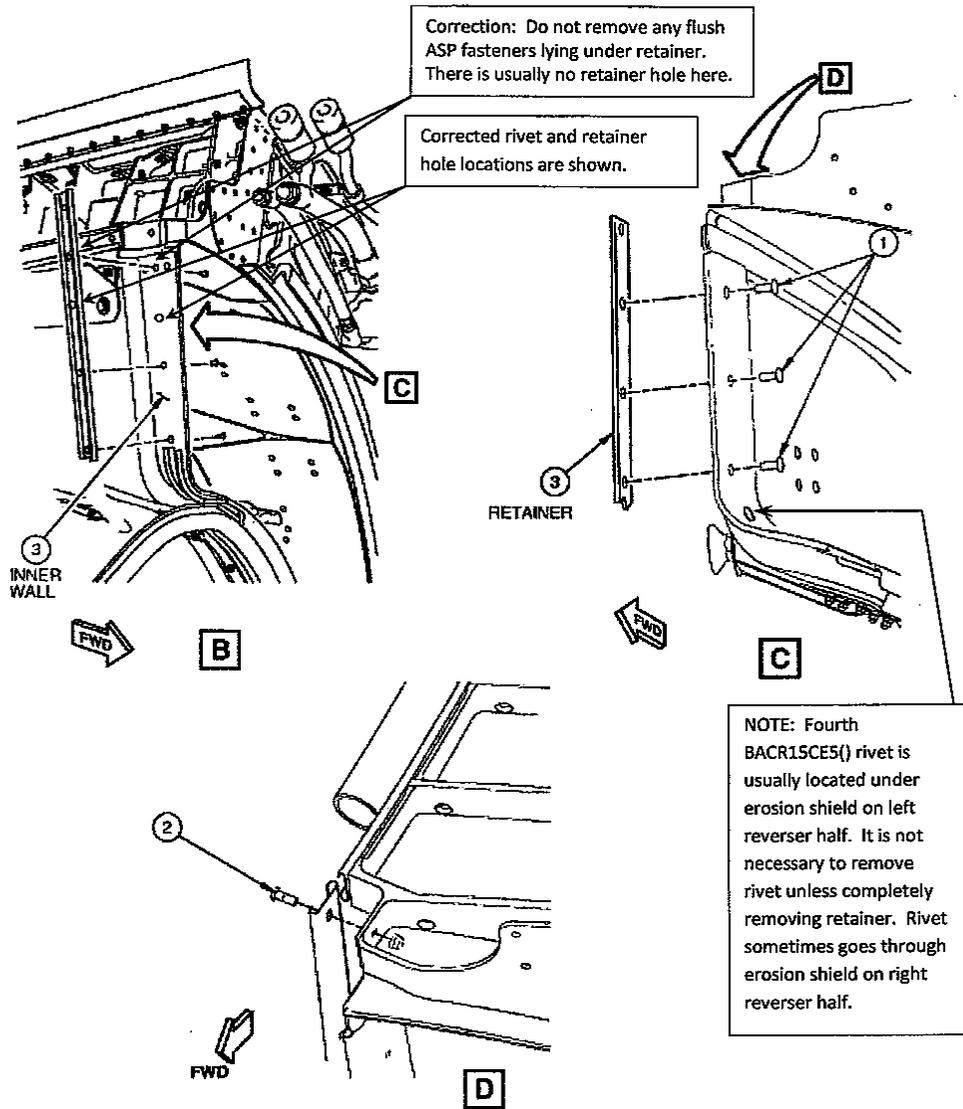


Figure 2, Installation of the New Bracket behind the Retainer Support on the Left Thrust Reverser Half

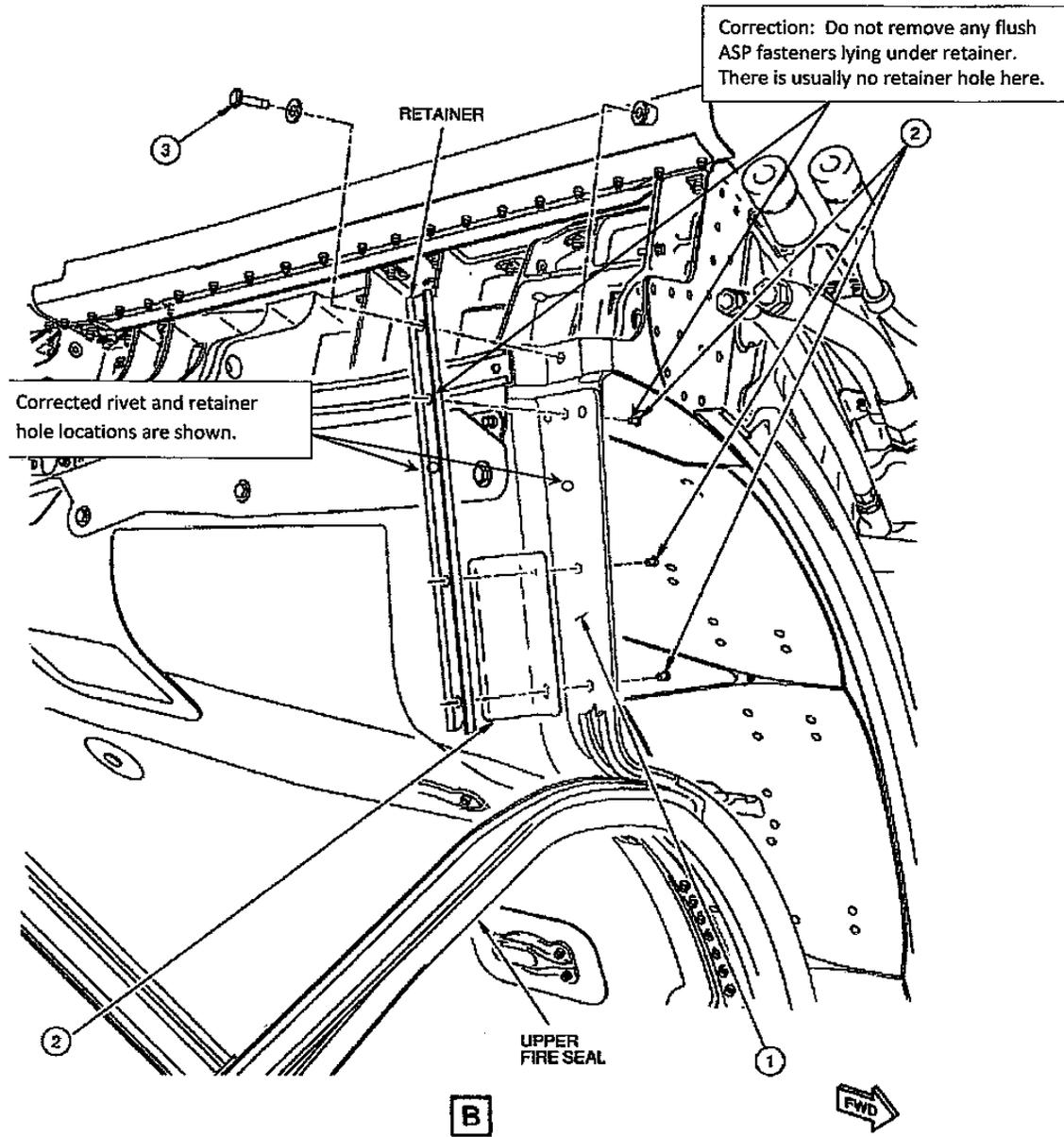


Figure 3, Fastener Removal of the Retainer Support on the Right Thrust Reverser Half

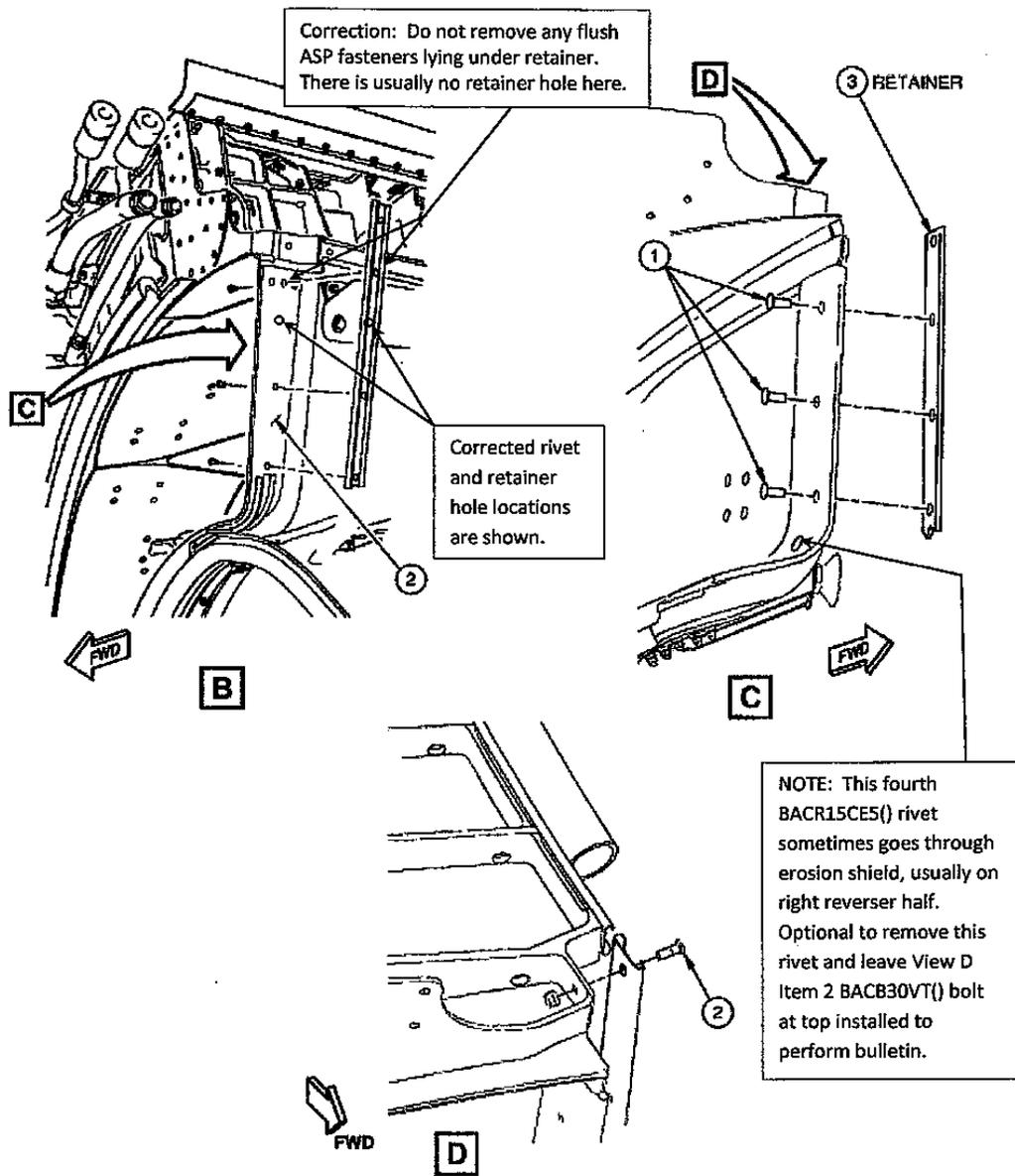
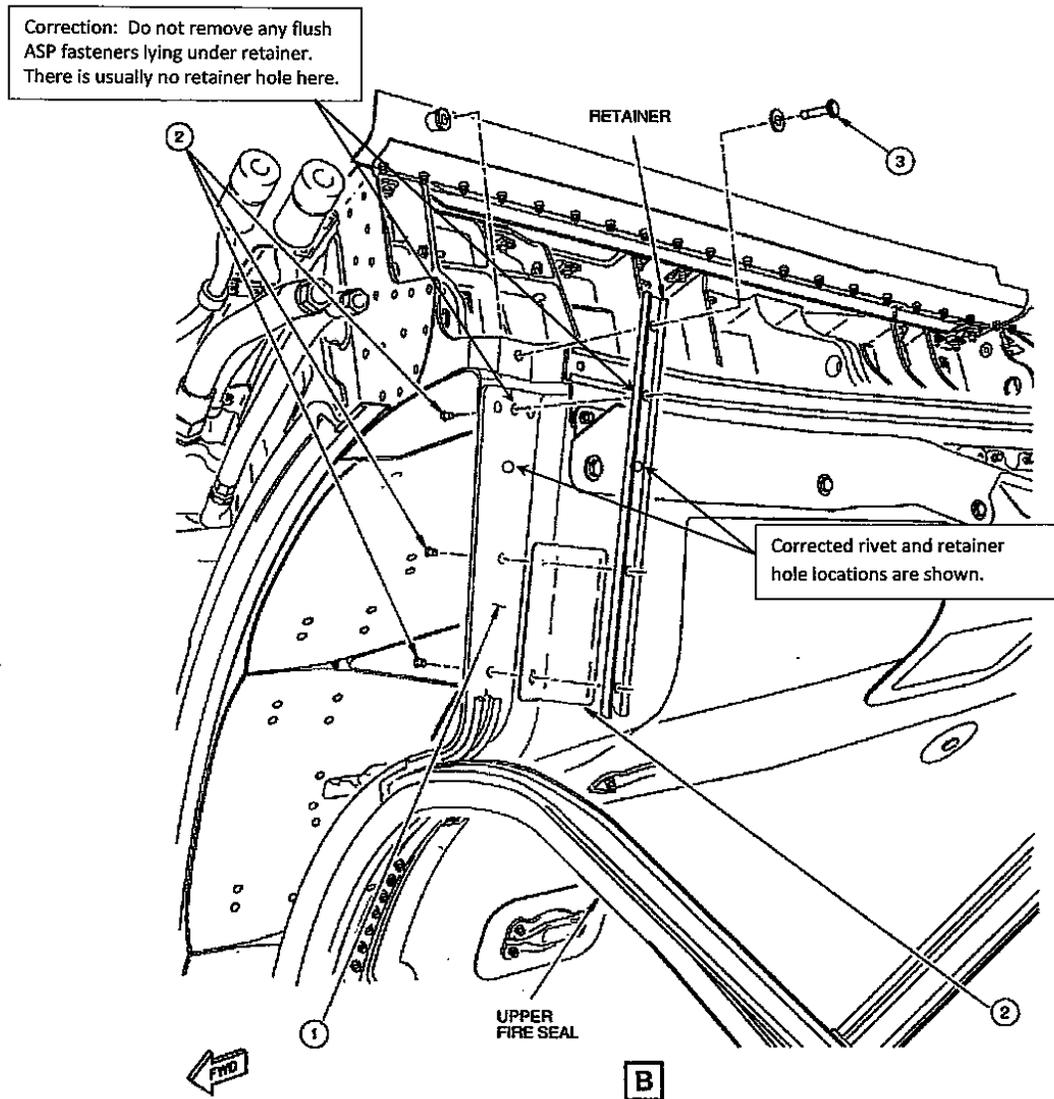


Figure 4, Installation of the New Bracket behind the Retainer Support on the Right Thrust Reverser Half



**(i) Credit for Previous Actions**

This paragraph provides credit for actions required by paragraphs (g), (g)(1), and (g)(2) of this AD, if those actions were performed before the effective date of this AD using Boeing Special Attention Service Bulletin 737-78-1086, dated October 6, 2010, which is not incorporated by reference in this AD.

**(j) 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 the Related Information section of this AD. Information may be emailed to:

[9-ANM-Seattle-ACO-AMOC-Requests@faa.gov](mailto: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 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, to make those findings. For a repair method to be approved, the repair must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

**(k) Related Information**

For more information about this AD, contact Sue Lucier, Aerospace Engineer, Propulsion Branch, ANM-140S, FAA, Seattle Aircraft Certification Office, 1601 Lind

Avenue SW., Renton, Washington 98057-3356; phone: 425-917-6438;  
fax: 425-917-6590; email: [Suzanne.Lucier@faa.gov](mailto:Suzanne.Lucier@faa.gov).

For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, Washington 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; Internet <https://www.myboeingfleet.com>.

**(I) Material Incorporated by Reference**

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) Boeing Special Attention Service Bulletin 737-78-1086, Revision 1, dated May 15, 2012.

(ii) Reserved.

(3) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, Washington 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; Internet <https://www.myboeingfleet.com>.

(4) You may view this service information at FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, Washington. For information on the availability of this material at the FAA, call 425-227-1221.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to:

<http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Renton, Washington, on April 3, 2013.

Ali Bahrami,  
Manager,  
Transport Airplane Directorate,  
Aircraft Certification Service.

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