



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2016-4225; Directorate Identifier 2015-NM-139-AD; Amendment 39-18817; AD 2017-05-07]**

**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 The Boeing Company Model 777-200 and -300 series airplanes equipped with Rolls-Royce Model Trent 800 engines. This AD was prompted by reports of damage to the upper bifurcation forward fire seal and seal deflector, and localized damage to the insulation blanket installed just aft of the fire seal. This AD requires installing serviceable thrust reverser (T/R) halves on the left and right engines. We are issuing this AD to address the unsafe condition on these products.

**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 this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** For service information identified in this final rule, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminister Blvd., MC 110-SK57, Seal Beach, CA 90740-5600; telephone: 562-797-1717; Internet: <https://www.myboeingfleet.com>. You may view this referenced

service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221. It is also available on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2016-4225.

### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2016-4225; 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:** Kevin Nguyen, Aerospace Engineer, Propulsion Branch, ANM-140S, FAA, Seattle Aircraft Certification Office (ACO), 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6501; fax: 425-917-6590; email: [kevin.nguyen@faa.gov](mailto:kevin.nguyen@faa.gov).

### **SUPPLEMENTARY INFORMATION:**

#### **Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to The Boeing Company Model 777-200 and -300 series airplanes equipped with Rolls-Royce Model Trent 800 engines. The NPRM published in the Federal Register on March 17, 2016 (81 FR 14402). The NPRM was prompted by reports of damage to the upper bifurcation forward fire seal and seal deflector, and localized damage to the insulation blanket installed just aft of the fire seal. The NPRM proposed to require installing serviceable left and right T/R halves on the left and right

engines. We are issuing this AD to prevent a breach in the engine firewall due to a failed upper bifurcation forward fire seal. A breach could delay or prevent the fire detection and suppression system from functioning properly, and could result in an increased risk of a fire, prolonged burning, and breach of the fire zone; and could allow fire to reach unprotected areas of the engine, the strut, and wing after engine shutdown. Also, fan air bypassing the fire seal could cause localized damage to the T/R insulation blanket installed just aft of the fire seal, which could allow limited thermal degradation of the T/R inner wall. This could aggravate existing damage and cause the T/R's inner wall to fail.

#### **Actions since the NPRM was Issued**

In the Other Relevant Rulemaking section of the NPRM we mentioned additional proposed rulemaking related to the T/Rs for Model 777-200 and -300 series airplanes equipped with Rolls-Royce Model RB211-Trent 800 engines. That action was subsequently issued as a supplemental NPRM (SNPRM), Docket Number FAA-2011-0027, Directorate Identifier 2010-NM-127-AD, which was published in the Federal Register on September 25, 2015 (80 FR 57744). The final rule for that SNPRM has been issued and was published in the Federal Register on June 17, 2016 (81 FR 39547), as AD 2016-11-16, Amendment 39-18543.

Since the NPRM was issued, the European Aviation Safety Agency (EASA) issued EASA AD 2016-0084, dated April 28, 2016, for Rolls-Royce RB211-Trent 800 engines; and the Engine Certification Office (ECO), Engine and Propeller Directorate, FAA, issued a corresponding NPRM, Docket No. FAA-2016-6692, Directorate Identifier 2016-NE-13-AD, which was published in the Federal Register on July 15, 2016 (81 FR 46000). In the EASA AD and FAA ECO NPRM, damage (cracking, missing materials, and hole/openings) to the engine upper bifurcation fairing panel creates a breach of the engine fire wall, which may decrease the effectiveness of the engine fire detection and suppression systems due to excess fan air entering the engine compartment

fire zone. The unsafe condition and resulting effects from EASA AD 2016-0084 and FAA ECO Directorate Identifier 2016-NE-13-AD are the same issues presented in this FAA final rule issued by the Transport Airplane Directorate (TAD). However EASA AD 2016-0084 and FAA ECO Directorate Identifier 2016-NE-13-AD are specific to the engine upper bifurcation fairing panel where the T/R upper bifurcation forward fire seal (the subject of this TAD final rule) mates and press against. Both sets of hardware create a complete firewall feature on the airplane type design. EASA AD 2016-0084 and FAA ECO Directorate Identifier 2016-NE-13-AD address the cracking and or missing material from the engine upper bifurcation fairing panel and this TAD final rule addresses the airplane side – the damage to the T/R upper bifurcation forward fire seal.

### **Comments**

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the NPRM and the FAA’s response to each comment.

### **Supportive Comments**

Connor Blevins, Michael Rambo, The Air Line Pilots Association, International (ALPA), and a commenter identified as “gg” supported the intent of the NPRM.

### **Request to Refer to Revised Service Information**

Boeing requested that the service information specified in paragraph (g) of the proposed AD be revised to refer to Boeing Special Attention Service Bulletin 777-78-0101, Revision 2, dated July 22, 2016 (“SASB 777-78-0101, R2”). Paragraph (g) of the proposed AD referred to Boeing Special Attention Service Bulletin 777-78-0101, Revision 1, dated October 30, 2015 (“SASB 777-78-0101, R1”). Boeing stated that SASB 777-78-0101, R1, contained errors in figures 2 and 5 regarding installation of the fire seal support and retainer. Boeing notified operators of these errors through Boeing Service Bulletin Information Notice 777-78-0101 IN 01, dated November 30, 2015 (“IN

777-78-0101 IN 01”), and released SASB 777-78-0101, R2, to incorporate the information from IN 777-78-0101 IN 01.

We agree with the commenter’s request to refer to SASB 777-78-0101, R2, as the appropriate source of service information for accomplishing the actions required by this AD. SASB 777-78-0101, R2, clarifies the installation instructions for the new seal support; and the adjustment of the shim below the lower curved retainer by extending it to the lower edge of the new seal support so that the gap under the seal retainer is filled. This clarification instruction is similar to the information in IN 777-78-0101 IN 01. We have revised paragraph (g) of this AD accordingly.

**Request to Provide Credit for Actions Done Using Earlier Revision of Service Information**

Boeing requested that a new paragraph be included in the proposed AD to provide credit for actions accomplished prior to the effective date of the proposed AD using the Accomplishment Instructions specified in SASB 777-78-0101, R1. Boeing stated that despite the errors in SASB 777-78-0101, R1, as discussed previously, completion of the actions specified in SASB 777-78-0101, R1, still corrects the unsafe condition addressed in paragraph (e) of the proposed AD.

We agree with the commenter’s request to provide credit for actions done using the Accomplishment Instructions of SASB 777-78-0101, R1. Although SASB 777-78-0101, R2, provides better clarification for the work instructions, SASB 777-78-0101, R1, still provides sufficient instructions to correct the unsafe condition. We have added new paragraph (h) to this AD to provide credit for actions done using the Accomplishment Instructions of SASB 777-78-0101, R1, and redesignated the subsequent paragraphs accordingly.

### **Request for Global Alternative Method of Compliance (AMOC)**

American Airlines (AAL) requested that the final rule require accomplishment of the actions specified in the Accomplishment Instructions of SASB 777-78-0101, R1, and include a global AMOC for operators that have incorporated the actions in both SASB 777-78-0101, R1, and IN 777-78-0101 IN 01.

We acknowledge the commenter's request; however this AD does not require accomplishment of the actions specified in the Accomplishment Instructions of SASB 777-78-0101, R1. This AD requires operators to use SASB 777-78-0101, R2, which includes clarification actions specified in IN 777-78-0101 IN 01. As stated previously, we have also given credit for actions done using the Accomplishment Instructions of SASB 777-78-0101, R1; therefore an AMOC approval is not necessary. We have not changed this AD regarding this issue.

### **Request to Reduce the Compliance Time**

ALPA recommended that the compliance time in the proposed rule be reduced from 60 months to 36 months. The commenter did not specifically provide justification for this request, but we infer that they are implying that a reduced compliance time is warranted due to the significance of the unsafe condition.

We do not agree with the commenter's request to reduce the compliance time. In developing an appropriate compliance time for this action, we considered not only the degree of urgency associated with addressing the subject unsafe condition, but the manufacturer's recommendation for an appropriate compliance time, the time required for the rulemaking process, the availability of required parts, and the practical aspects of installing the required modification within an interval of time that corresponds to the typical scheduled maintenance for the majority of affected operators. Most ADs, including this one, permit operators to accomplish the requirements at a time earlier than the specified compliance time; therefore, an operator may choose to do the installation of

serviceable T/R halves on each engine prior to 60 months after the effective date of this AD. If additional data are presented that would justify a shorter compliance time, we may consider further rulemaking on this issue. We have not changed this AD in this regard.

#### **Request to Impose Penalty for Non-compliance**

One commenter, Connor Blevins, suggested that a penalty be included in the NPRM in case an airline does not comply with the proposed regulations. The commenter also stated that the airlines should be given a reasonable amount of time to install the serviceable T/R halves prior to enforcing the penalty. We infer that the commenter is requesting the NPRM be revised to include a penalty for non-compliance.

We agree that there should be a penalty if an operator does not comply with the requirements of an AD. The FAA expects all affected operators to comply with ADs, which are issued to address unsafe conditions. Failure to comply with any FAA regulation, including an AD, might result in a civil penalty action against an operator. An AD is not the appropriate vehicle for addressing civil penalties for non-compliance with the requirements of an AD. Therefore, we have not changed this AD in this regard.

#### **Request to Allow Use of All Subsequent Revisions of Service Information**

AAL requested that the final language of the proposed AD allow all subsequent revisions to SASB 777-78-0101, R1, as acceptable methods of compliance. AAL stated that it was making this request due to the high regulatory load already in place for T/Rs on the Boeing 777 Rolls-Royce Trent 892-powered fleet. We infer that the “high regulatory load” refers to the high number of ADs that have been published in response to unsafe conditions identified on the T/R inner walls of Rolls-Royce Trent 892 engines installed on Boeing Model 777 airplanes.

We do not agree with the commenter’s request to allow the use of all subsequent revisions to SASB 777-78-0101, R1, as acceptable methods of compliance. We cannot allow use of “later FAA-approved revisions” in an AD when referring to a service

document. Doing so violates Office of the Federal Register (OFR) regulations for approval of materials “incorporated by reference,” as specified in 1 CFR 51.1(f). In general terms, we are required by these OFR regulations to either publish the service document contents as part of the actual AD language; or submit the service document to OFR for approval as “referenced” material, in which case we may only refer to such material in the text of an AD. The AD may refer to the service document only if OFR approved it for “incorporation by reference.” To allow operators to use later revisions of the referenced document (issued after publication of the AD), either we must revise the AD to reference specific later revisions, or operators must request approval to use later revisions as an AMOC under the provisions of paragraph (i) of this AD. We have not changed this AD regarding this issue.

#### **Request to Delay Issuance of Final Rule**

Cathay Pacific and Delta Air Lines (DAL) requested that issuance of the final rule be delayed. Cathay Pacific requested that the issuance of the final rule be delayed until the next revision to SASB 777-78-0101, R1, is published. DAL requested that either IN 777-78-0101 IN 01 be included in the final rule, or issuance of the final rule be delayed until the next revision to SASB 777-78-0101, R1, is considered.

Cathay Pacific pointed out that there is a technical issue when an operator attempts to complete the actions in steps 2 and 3 of Figure 5 in SASB 777-78-0101, R1. Cathay Pacific explained that the length of the new seal support is shorter than the retainer, which resulted in insufficient space to drill and ream the 12 fastener holes specified in SASB 777-78-0101, R1. Boeing was contacted and accepted alternative actions to those specified in the service bulletin. Also, we infer from the commenter that Boeing provided instructions to shim under the lower curved retainer and extend it up and under the flat retainer. We infer from the commenter that the above Boeing instructions are equivalent to the procedures in IN 777-78-0101 IN 01. Cathay Pacific is concerned

that every time an operator tries to follow the actions specified in SASB 777-78-0101, R1, it will have to contact Boeing for deviation approval, and an AMOC.

DAL noted that Boeing issued IN 777-78-0101 IN 01, to provide additional information needed to incorporate SASB 777-78-0101, R1. DAL also mentioned that the information notice indicated that a revision to SASB 777-78-0101, R1, was in work.

We agree with the commenters requests to delay issuing this final rule until Boeing published a revision to SASB 777-78-0101, R1. As discussed in the above comment, “Request to Refer to Revised Service Information,” we are now requiring SASB 777-78-0101, R2, as the appropriate source of service information for accomplishing the actions required by this AD since it contains the clarifications described by the commenters.

### **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 for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM.

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

### **Related Service Information under 1 CFR part 51**

We reviewed SASB 777-78-0101, R2. The service information describes procedures for installing serviceable left and right T/R halves on the left and right engines. This service information is reasonably available because the interested parties

have access to it through their normal course of business or by the means identified in the ADDRESSES section.

**Costs of Compliance**

We estimate that this AD affects 55 airplanes of U.S. registry.

We estimate the following costs to comply with this AD:

**Estimated costs**

<b>Action</b>	<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per product</b>	<b>Cost on U.S. operators</b>
Install serviceable T/R halves	Up to 91 work-hours X \$85 per hour = \$7,735	Up to \$7,338	Up to \$15,073 per airplane	Up to \$829,015

According to the manufacturer, some of the costs of this AD may be covered under warranty, thereby reducing the cost impact on affected individuals. We do not control warranty coverage for affected individuals. As a result, we have included all costs in our cost estimate.

**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):

**2017-05-07 The Boeing Company** Amendment 39-18817; Docket No. FAA-2016-4225; Directorate Identifier 2015-NM-139-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 777-200 and -300 series airplanes, certificated in any category, equipped with Rolls-Royce Model Trent 800 engines.

**(d) Subject**

Air Transport Association (ATA) of America Code 78, Engine Exhaust.

**(e) Unsafe Condition**

This AD was prompted by reports of damage to the upper bifurcation forward fire seal and seal deflector, and localized damage to the insulation blanket installed just aft of the fire seal. We are issuing this AD to prevent a breach in the engine firewall due to a failed upper bifurcation forward fire seal. A breach could delay or prevent the fire detection and suppression system from functioning properly, and could result in an increased risk of a fire, prolonged burning, and breach of the fire zone; and could allow fire to reach unprotected areas of the engine, the strut, and wing after engine shutdown. Also, fan air bypassing the fire seal could cause localized damage to the thrust reverser (T/R) insulation blanket installed just aft of the fire seal, which could allow limited thermal degradation of the T/R inner wall. This could aggravate existing damage and cause the T/R's inner wall to fail.

**(f) Compliance**

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

**(g) Installation of Serviceable T/R Halves on Each Engine**

Within 60 months after the effective date of this AD: Install serviceable left and right T/R halves on the left and right engines, in accordance with the Accomplishment Instructions of Boeing Special Attention Service Bulletin 777-78-0101, Revision 2, dated July 22, 2016 (“SASB 777-78-0101, R2”). A serviceable T/R half is defined in the Accomplishment Instructions of SASB 777-78-0101, R2.

**(h) Credit for Previous Action**

This paragraph provides credit for the action required by paragraph (g) of this AD if it was accomplished before the effective date of this AD using Boeing Special Attention Service Bulletin 777-78-0101, Revision 1, dated October 30, 2015.

**(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)(1) 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, to make those findings. To be approved, the

repair method, modification deviation, or alteration deviation must meet the certification basis of the airplane and the approval must specifically refer to this AD.

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

(i) The steps labeled as RC, including substeps under an RC step and any figures identified in an RC step, must be done to comply with the AD. If a step or sub-step is labeled “RC Exempt,” then the RC requirement is removed from that step or sub-step. An AMOC is required for any deviations to RC steps, including substeps and identified figures.

(ii) Steps not labeled as RC may be deviated from using accepted methods in accordance with the operator’s maintenance or inspection program without obtaining approval of an AMOC, provided the RC steps, including substeps and identified figures, can still be done as specified, and the airplane can be put back in an airworthy condition.

**(j) Related Information**

(1) For more information about this AD, contact Kevin Nguyen, Aerospace Engineer, Propulsion Branch, ANM-140S, FAA, Seattle ACO, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6501; fax: 425-917-6590; email: kevin.nguyen@faa.gov.

(2) Service information identified in this AD that is not incorporated by reference is available at the addresses specified in paragraphs (k)(3) and (k)(4) of this AD.

**(k) 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 777-78-0101, Revision 2, dated July 22, 2016.

(ii) Reserved.

(3) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminister Blvd., MC 110-SK57, Seal Beach, CA 90740-5600; telephone: 562-797-1717; Internet: <https://www.myboeingfleet.com>.

(4) You may view this service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. 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 February 17, 2017.

Michael Kaszycki,  
Acting Manager,  
Transport Airplane Directorate,  
Aircraft Certification Service.

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