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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2013-0540; Directorate Identifier 2012-NM-185-AD; Amendment 39-17721; AD 2013-26-12]**

**RIN 2120-AA64**

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

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

**ACTION:** Final rule.

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**SUMMARY:** We are superseding Airworthiness Directive (AD) 2009-14-02 for certain The Boeing Company Model 747-100, 747-100B, 747-100B SUD, 747-200B, 747-200C, 747-200F, 747-300, 747-400, 747-400D, 747-400F, 747SR, and 747SP series airplanes. AD 2009-14-02 required repetitive inspections for wear damage and cracks of the fuselage skin in the interface area of the vertical stabilizer seal and fuselage skin, a detailed inspection for wear damage and cracks of the surface of any skin repair doubler in the area, and corrective actions if necessary. For airplanes on which the fuselage skin has been blended to remove wear damage, AD 2009-14-02 also required repetitive external detailed inspections or high frequency eddy current inspections for cracks of the blended area of the fuselage skin, and corrective actions if necessary. This new AD reduces the repetitive inspection interval, changes certain corrective actions, and expands the applicability. This AD was prompted by a report of wear through the fuselage skin that occurred sooner than the previous repetitive inspection interval. We are issuing this AD to detect and correct wear damage and cracks of the fuselage skin in the interface area of the vertical stabilizer seal and fuselage skin in sections 46 and 48, which could cause in-flight depressurization of the airplane.

**DATES:** This AD is effective February 10, 2014.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of February 10, 2014.

**ADDRESSES:** For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; 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.

## **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2013-0540; 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:** Bill Ashforth, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office (ACO), 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6432; fax: 425-917-6590; email: [Bill.Ashforth@faa.gov](mailto:Bill.Ashforth@faa.gov).

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to supersede AD 2009-14-02, Amendment 39-15951 (74 FR 30919, June 29, 2009). AD 2009-14-02 applied to the specified products. The NPRM published in the Federal Register on July 3, 2013 (78 FR 40050). The NPRM proposed to continue to require repetitive inspections for wear damage and cracks of the fuselage skin in the interface area of the vertical stabilizer seal and fuselage skin, a detailed inspection for wear damage and cracks of the surface of any skin repair doubler in the area, and corrective actions if necessary. For airplanes on which the fuselage skin has been blended to remove wear damage, AD 2009-14-02 also required repetitive external detailed inspections or high frequency eddy current inspections for cracks of the blended area of the fuselage skin, and corrective actions if necessary. That NPRM also proposed to reduce the repetitive inspection interval, change certain corrective actions, and expand the applicability.

### **Comments**

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the proposal (78 FR 40050, July 3, 2013) and the FAA's response to each comment.

### **Request To Modify Paragraph Title**

Boeing requested we revise the terminating action title of paragraph (i) of the NPRM (78 FR 40050, July 3, 2013) by removing the word "Optional." Boeing stated that Boeing Alert Service Bulletin 747-53A2478, Revision 3, dated October 17, 2011, specifies that if any crack is found or if wear damage is greater than the limit allowed, rub strips must be installed in accordance with Boeing Service Bulletin 747-53-2721, Revision 2, dated March 17, 2011. Boeing commented that in this case, the terminating action is not optional.

We do not agree with the commenter's request. We agree that in cases where any damage is found outside the limits allowed by Boeing Alert Service Bulletin 747-53A2478, Revision 3, dated October 17, 2011, rub strips are required to be installed as described in that service bulletin.

We disagree with removing the word "optional" in the title of paragraph (i) of this final rule, because the current wording in paragraphs (g) and (h) of this final rule requires the operators to do all applicable corrective actions in accordance with, and at the compliance times specified in, Boeing Alert Service Bulletin 747-53A2478, Revision 3, dated October 17, 2011. This wording in paragraphs (g) and (h) of this final rule requires installing rub strips as described in Boeing Service Bulletin 747-

53-2721, Revision 2, dated March 17, 2011, before further flight if the damage is found to be outside the limits permitted as described in the service repair manual (SRM). Paragraph (i) of this final rule is provided to give the operators the option to install the rub strips as described in Boeing Service Bulletin 747-53-2721, Revision 2, dated March 17, 2011, at any time. Doing the installation of the rub strips in accordance with Boeing Service Bulletin 747-53-2721, Revision 2, dated March 17, 2011, is a terminating action for the work given in Boeing Alert Service Bulletin 747-53A2478, Revision 3, dated October 17, 2011, at the locations of the rub strip installation only. We have not changed this final rule in this regard.

### **Requests To Reference Revised Service Information and Add Credit for Previous Actions**

Boeing and All Nippon Airways (ANA) requested we revise paragraphs (i) and (j)(3) of the NPRM (78 FR 40050, July 3, 2013) to reference the latest revision level of the referenced service information, which is Boeing Service Bulletin 747-53-2721, Revision 3, dated June 25, 2013.

Boeing requested we revise paragraph (k)(2) of the NPRM (78 FR 40050, July 3, 2013) to give credit for actions done prior to the effective date of this AD using Boeing Service Bulletin 747-53-2721, Revision 2, dated March 17, 2011.

We agree with the commenters' requests. Boeing Service Bulletin 747-53-2721, Revision 3, dated June 25, 2013, clarifies the post-modification and post-repair inspection requirements and transfers post-repair inspection instructions from the SRM and repair assessment guidelines to this service bulletin for airplanes that have the zone 1 full length repair installed. We have changed paragraphs (i) and (j)(3) of this final rule to reference Boeing Service Bulletin 747-53-2721, Revision 3, dated June 25, 2013.

We also have added Boeing Service Bulletin 747-53-2721, Revision 2, dated March 17, 2011, to paragraph (k) of this final rule to provide credit for the actions specified in paragraph (i) of this final rule, if the corresponding actions were performed before the effective date of this final rule using this service bulletin. We revised paragraph (k) by adding subparagraphs (k)(2)(i) through (iii).

### **Request To Withdraw the NPRM (78 FR 40050, July 3, 2013)**

Qantas Airways Limited (QAN) requested that we allow it to continue with the inspection program mandated in AD 2009-14-02, Amendment 39-15951 (74 FR 30919, June 29, 2009), as an alternative method of compliance (AMOC) to the actions specified in the NPRM (78 FR 40050, July 3, 2013). The FAA interprets this as a request to withdraw the NPRM and not supersede AD 2009-14-02. QAN commented that it understands the FAA's concern over the report of wear damage at earlier times than the AD 2009-14-02 inspection mandates. QAN stated that its fleet utilization and related extensive service experience with robust data collection on repetitive inspection results since the AD 2009-14-02 compliance period commenced support the adequacy of the repetitive inspection interval of 7,500 flight hours in AD 2009-14-02. QAN also stated that minor wear damage in its fleet remains under SRM-allowable rework limits.

We do not agree with the commenter's request. The service and analytical data from the airplane manufacturer do not support the request to keep the current mandated repetitive inspection thresholds required by AD 2009-14-02, Amendment 39-15951 (74 FR 30919, June 29, 2009). An operator has reported wear through the fuselage skin between body station (STA) 2598 and STA 2638, stringers S-2L to S-3L. The wear developed in less than 3,657 flight hours since the previous inspection, which was less than the repetitive inspection interval given in Boeing Alert Service Bulletin 747-53A2478, Revision 2, dated July 15, 2010. The wear occurred through both the Teflon-filled coating and the full thickness of the 0.050-inch-thick skin to create a hole approximately 16 inches in length.

In developing the compliance times for this final rule, we considered not only the safety implications of the identified unsafe condition, but the average utilization rate of the affected fleet and the practical aspects of an orderly inspection, repair, and modification of the fleet during regular maintenance periods. We have considered the commenter's request, and we have concluded that the

proposed repetitive compliance times remain appropriate. However, under the provisions of paragraph (l) of this AD, we may consider requests for approval of an AMOC if sufficient data are submitted to substantiate that an alternative inspection plan would provide an acceptable level of safety. We have not changed this final rule in this regard.

### **Request for Clarification of Compliance Time**

QAN requested clarification on the rate of wear damage and the compliance times specified in the NPRM (78 FR 40050, July 3, 2013). QAN noted that on the airplanes that have not started the inspections described in Boeing Alert Service Bulletin 747-53A2478, Revision 2, dated July 15, 2010, the compliance time for the initial inspection is 20,000 total flight hours. QAN also noted that, on the airplanes that have started the inspections described in Boeing Alert Service Bulletin 747-53A2478, Revision 2, dated July 15, 2010, the initial inspection compliance time is reduced to 2,000 or 3,000 flight hours, depending on the condition. QAN stated that, based on the inspection program in AD 2009-14-02, Amendment 39-15951 (74 FR 30919, June 29, 2009), it understands that the rate at which the wear damage develops is a primary concern to the FAA.

We agree to clarify. We agree with QAN that the AD 2009-14-02, Amendment 39-15951 (74 FR 30919, June 29, 2009), inspection program rate at which the wear damage developed is a primary concern because at least one operator has reported wear through the fuselage skin in less than 3,657 flight hours after a mandatory inspection, but before the specified repetitive inspection interval of 7,500 flight hours or 6,000 flight hours. However, we do not agree with the commenter that the 20,000-total-flight-hour threshold is reduced. Rather, the initial inspection threshold of 2,000 flight hours is not a reduced threshold as the commenter implied, but is instead a required time by which additional inspections must resume if any inspection has already been accomplished. With the service and analytical data from the airplane manufacturer, a new repetitive inspection program is required, as specified in Boeing Alert Service Bulletin 747-53A2478, Revision 3, dated October 17, 2011. The compliance time depends on when operators have previously inspected their airplanes and the condition of the fuselage skin.

We disagree with QAN that AD 2009-14-02, Amendment 39-15951 (74 FR 30919, June 29, 2009), has an adequate mandated repetitive interval because service history has shown defects reported before the AD 2009-14-02 mandatory repetitive inspection interval. We have not changed this final rule in this regard.

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

We have revised the Exceptions to Service Information, paragraph (j)(3) of this final rule, to include Boeing Alert Service Bulletin 747-53A2478, Revision 3, dated October 17, 2011.

### **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 (78 FR 40050, July 3, 2013) for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM (78 FR 40050, July 3, 2013).

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

## Costs of Compliance

We estimate that this AD affects 917 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
Inspection [actions retained from AD 2009-14-02, Amendment 39-15951 ( <a href="#">74 FR 30919</a> , June 29, 2009)]	12 work-hours × \$85 per hour = \$1,020	\$0	\$1,020	\$935,340.
Inspection and application of BMS 10-86 Teflon-filled coating [actions retained from AD 2009-14-02, Amendment 39-15951 ( <a href="#">74 FR 30919</a> , June 29, 2009)]	8 work-hours × \$85 per hour = \$680 per inspection cycle	\$0	\$680 per inspection cycle	\$623,560 per inspection cycles.

We have received no definitive data that would enable us to provide cost estimates for the on-condition actions specified in this AD.

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

We have determined that 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 removing Airworthiness Directive (AD) 2009-14-02, Amendment 39-15951 (74 FR 30919, June 29, 2009), and adding the following new AD:



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**2013-26-12 The Boeing Company:** Amendment 39-17721; Docket No. FAA-2013-0540; Directorate Identifier 2012-NM-185-AD.

**(a) Effective Date**

This AD is effective February 10, 2014.

**(b) Affected ADs**

This AD supersedes AD 2009-14-02, Amendment 39-15951 (74 FR 30919, June 29, 2009).

**(c) Applicability**

This AD applies to all The Boeing Company Model 747-100, 747-100B, 747-100B SUD, 747-200B, 747-200C, 747-200F, 747-300, 747-400, 747-400D, 747-400F, 747SR, and 747SP series airplanes, certificated in any category.

**(d) Subject**

Air Transport Association (ATA) of America Code 53, Fuselage.

**(e) Unsafe Condition**

This AD was prompted by a report of wear through the fuselage skin that occurred sooner than the previous repetitive inspection interval. We are issuing this AD to detect and correct wear damage and cracks of the fuselage skin in the interface area of the vertical stabilizer seal and fuselage skin in sections 46 and 48, which could cause in-flight depressurization of the airplane.

**(f) Compliance**

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

**(g) Repetitive Detailed Inspection**

At the applicable compliance time specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2478, Revision 3, dated October 17, 2011, except as specified in paragraph (j)(1) of this AD: Do a detailed inspection of the fuselage skin and any skin repair doubler surface for wear damage and cracking at the vertical stabilizer seal interface, apply Boeing Material Specifications (BMS) 10-86 Teflon-filled coating, and do all applicable corrective actions, except as specified in paragraph (j)(2) of this AD, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2478, Revision 3, dated October 17, 2011. Do all applicable corrective actions at the applicable compliance time specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2478, Revision 3, dated October 17, 2011. Repeat the detailed inspection thereafter at intervals not to exceed the applicable repetitive interval specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2478, Revision 3, dated October 17,

2011, except as specified in paragraph (j)(2) of this AD. The effective date of AD 2009-14-02, Amendment 39-15951 (74 FR 30919, June 29, 2009), is August 3, 2009. Doing the installation of the rub strips in accordance with Boeing Service Bulletin 747-53-2721, Revision 2, dated March 17, 2011, is a terminating action for the work given in Boeing Alert Service Bulletin 747-53A2478, Revision 3, dated October 17, 2011, at the locations of the rub strip installation only.

#### **(h) Repetitive High Frequency Eddy Current (HFEC) Inspections**

For airplanes on which the skin is blended forward of station 2360 without external reinforcement: At the applicable compliance time specified in Table 4 in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2478, Revision 3, dated October 17, 2011, do an external surface HFEC inspection of the blended area of the fuselage skin and the surface of any repair doubler for cracks, apply BMS 10-86 Teflon-filled coating, and do all applicable corrective actions, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2478, Revision 3, dated October 17, 2011. Do all applicable corrective actions at the applicable compliance time specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2478, Revision 3, dated October 17, 2011. Repeat the HFEC inspection thereafter at intervals not to exceed the compliance time specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 747-53A2478, Revision 3, dated October 17, 2011. The effective date of AD 2009-14-02, Amendment 39-15951 (74 FR 30919, June 29, 2009) is August 3, 2009. Doing the installation of the rub strips in accordance with Boeing Service Bulletin 747-53-2721, Revision 2, dated March 17, 2011, is a terminating action for the work given in Boeing Alert Service Bulletin 747-53A2478, Revision 3, dated October 17, 2011, at the locations of the rub strip installation only.

#### **(i) Optional Terminating Action**

Installation of corrosion resistant steel (CRES) rub strips in accordance with Boeing Service Bulletin 747-53-2721, Revision 3, dated June 25, 2013, except as specified in paragraph (j)(3) of this AD, is terminating action for the inspections specified in paragraphs (g) and (h) of this AD at the locations of the CRES rub strip installations only.

#### **(j) Exceptions to Service Information**

(1) Where Boeing Alert Service Bulletin 747-53A2478, Revision 3, dated October 17, 2011, specifies a compliance time after the "Revision 3 date of this service bulletin," this AD requires compliance within the specified compliance time after the effective date of this AD.

(2) Part 3 of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-53A2478, Revision 3, dated October 17, 2011, is not a requirement of this AD.

(3) Where Boeing Service Bulletin 747-53-2721, Revision 3, dated June 25, 2013, and Boeing Alert Service Bulletin 747-53A2478, Revision 3, dated October 17, 2011, specify to contact Boeing for a modification or for instructions: Before further flight, contact the FAA for instructions using a method approved in accordance with the procedures specified in paragraph (l) of this AD, and accomplish those instructions.

#### **(k) Credit for Previous Actions**

(1) This paragraph provides credit for the actions specified in paragraph (g) of this AD, if the corresponding actions were performed before the effective date of this AD using Boeing Alert Service Bulletin 747-53A2478, Revision 1, dated March 27, 2008; or Boeing Service Bulletin 747-53A2478, Revision 2, dated July 15, 2010. This service information is not incorporated by reference in this AD.

(2) This paragraph provides credit for the actions specified in paragraph (i) of this AD, if the corresponding actions were performed before the effective date of this AD using the service bulletins specified in paragraph (k)(2)(i), (k)(2)(ii), or (k)(2)(iii) of this AD.

(i) Boeing Service Bulletin 747-53-2721, dated May 28, 2009, which is not incorporated by reference in this AD.

(ii) Boeing Service Bulletin 747-53-2721, Revision 1, dated June 24, 2010, which is not incorporated by reference in this AD.

(iii) Boeing Service Bulletin 747-53-2721, Revision 2, dated March 17, 2011, which is not incorporated by reference in this AD.

#### **(l) 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 (m)(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 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.

(4) Installation of CRES rub strips approved as AMOCs for AD 2009-14-02, Amendment 39-15951 (74 FR 30919, June 29, 2009), are approved as AMOCs for this AD.

#### **(m) Related Information**

(1) For more information about this AD, contact Bill Ashforth, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office (ACO), 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6432; fax: 425-917-6590; email: Bill.Ashforth@faa.gov.

(2) Service information identified in this AD that is not incorporated by reference may be obtained at the addresses specified in paragraph (n)(3) and (n)(4) of this AD.

#### **(n) 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 Alert Service Bulletin 747-53A2478, Revision 3, dated October 17, 2011.

(ii) Boeing Service Bulletin 747-53-2721, Revision 3, dated June 25, 2013.

(3) For Boeing service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P.O. Box 3707, MC 2H-65, Seattle, WA 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, 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 December 20, 2013.  
Jeffrey E. Duven,  
Manager, Transport Airplane Directorate,  
Aircraft Certification Service.