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## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. 99-NM-77-AD; Amendment 39-11269; AD 99-18-03]

RIN 2120-AA64

#### Airworthiness Directives; Boeing Model 747 Series Airplanes

**AGENCY:** Federal Aviation Administration, DOT.

**ACTION:** Final rule; request for comments.

**SUMMARY:** This amendment adopts a new airworthiness directive (AD), applicable to certain Boeing Model 747 series airplanes. This action requires repetitive inspections and tests of the thrust reverser control and indication system on each engine, and corrective actions, if necessary; installation of a terminating modification; and repetitive operational checks of that installation, and repair, if necessary. This amendment is prompted by the results of a safety review, which revealed that in-flight deployment of a thrust reverser could result in significant reduction in airplane controllability. The actions specified in this AD are intended to ensure the integrity of the fail-safe features of the thrust reverser system by preventing possible failure modes, which could result in inadvertent deployment of a thrust reverser during flight, and consequent reduced controllability of the airplane.

**DATES:** Effective September 15, 1999.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the **Federal Register** as of September 15, 1999.

Comments for inclusion in the Rules Docket must be received on or before November 1, 1999.

**ADDRESSES:** Submit comments in triplicate to the Federal Aviation Administration (FAA), Transport Airplane Directorate, ANM-114, Attention: Rules Docket No. 99-NM-77-AD, 1601 Lind Avenue, SW., Renton, Washington 98055-4056.

The service information referenced in this AD may be obtained from Boeing

Commercial Airplane Group, P.O. Box 3707, Seattle, Washington 98124-2207. This information may be examined at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the Office of the **Federal Register**, 800 North Capitol Street, NW., suite 700, Washington, DC.

**FOR FURTHER INFORMATION CONTACT:** Ed Hormel, Aerospace Engineer, Propulsion Branch, ANM-140S, FAA, Transport Airplane Directorate, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98055-4056; telephone (206) 227-2681; fax (206) 227-1181.

**SUPPLEMENTARY INFORMATION:** On May 26, 1991, a Boeing Model 767-300ER series airplane was involved in an accident as a result of an uncommanded in-flight deployment of a thrust reverser. Following that accident, a study was conducted to evaluate the potential effects of an uncommanded thrust reverser deployment throughout the flight regime of the Boeing Model 747 series airplane. The study included a re-evaluation of the thrust reverser control system fault analysis and airplane controllability. The results of the evaluation indicated that, in the event of thrust reverser deployment during high-speed climb using high engine power, these airplanes also could experience control problems. This condition, if not corrected, could result in possible failure modes in the thrust reverser control system, inadvertent deployment of a thrust reverser during flight, and consequent reduced controllability of the airplane.

#### Explanation of Relevant Service Information

The FAA has reviewed and approved Boeing Alert Service Bulletin 747-78A2148, dated June 1, 1995, and Boeing Service Bulletin 747-78A2148, Revision 1, dated July 20, 1995, which describe procedures for certain repetitive inspections and tests of the thrust reverser system, and corrective actions, if necessary. The inspections and tests include inspection of the thrust reverser control microswitch; a test of the thrust reverser indication system; an integrity check of the number three gear box lock and air motor brake; an inspection of the thrust reverser wire bundle; and an operational test of the thrust reverser. The corrective actions include, among other things:

- Adjustment, or replacement and adjustment, of any microswitch which fails to perform its intended function during movement of the respective forward or reverse thrust lever.

- Replacement of the number 3 gearbox lock or deactivation of the thrust reverser on any engine if the thrust reverser translating cowl moves when the number 3 gearbox lock should be engaged.

- Replacement of the air motor on any engine if the thrust reverser translating cowl moves when the air motor brake should be engaged.

- Replacement of worn or damaged wire clamps and wiring if chafing or other damage is detected.

The FAA also has reviewed and approved Boeing Service Bulletin 747-78-2136, dated May 11, 1995, which describes procedures for installation of provisional wiring:

- Between the P8 panel aisle stand and relay panels P252 and P253;
- Between the P6 overhead panel and relay panels P252 and P253;
- Between relay panels P252 and P253;
- Between relay panels P252 and P253 and wing/body disconnect area;
- Between left wing/body disconnect area and strut No. 1 and 2; and
- Between right wing/body disconnect area and strut No. 3 and 4.

This service bulletin references the Boeing Standard Wiring Practices Manual, which describes wire installation procedures, and the Boeing 747 Airplane Maintenance Manual (AMM) as additional sources of service information for accomplishment of this modification.

In addition, the FAA has reviewed and approved Boeing Service Bulletin 747-78-2156, dated October 31, 1996, which describes procedures for installation of the following:

- Four additional microswitches and associated wiring in the aisle stand P8 panel;
- Four circuit breakers and associated wiring changes in the P6 panel;
- New relay panels P252 and P253; and

- Left and right wing/body disconnect panel and associated wiring.

Boeing Service Bulletin 747-78-2156 references Boeing Service Bulletin 747-78-2136; and the following Rolls-Royce Service Bulletins:

- RB.211-71-B545, Revision 2, dated August 8, 1997, and RB.211-71-B551, Revision 1, dated March 20, 1998, which describe procedures for the installation of provisions on the engines to accommodate the installation of an additional thrust reverser locking gearbox; and
- RB.211-78-B552, dated June 21, 1996, which describes procedures for installation of an additional thrust reverser locking gearbox.

Accomplishment of Boeing Service Bulletin 747-78-2156 requires prior or

concurrent accomplishment of Boeing Service Bulletin 747-78-2136; and Rolls-Royce Service Bulletins RB.211-71-B545, Revision 2; RB.211-71-B551, Revision 1; and RB.211-78-B552, and eliminates the need for the repetitive inspections and tests specified in Boeing Alert Service Bulletin 747-78A2148, and Boeing Service Bulletin 747-78A2148, Revision 1.

#### **Explanation of Requirements of the Rule**

Since an unsafe condition has been identified that is likely to exist or develop on other airplanes of the same type design, this AD is being issued to prevent possible failure modes that can result in inadvertent deployment of a thrust reverser during flight and consequent reduced controllability of the airplane. This AD requires repetitive inspections and tests of the thrust reverser system, and corrective actions, if necessary; installation of a terminating modification; and repetitive operational checks of the gearbox locks and the air motor brake following accomplishment of the installation, and repair, if necessary. The actions are required to be accomplished in accordance with the service bulletins described previously, except as discussed below.

This AD also includes a provision for deactivation of one thrust reverser in accordance with Section 78-1 of Boeing Document D6-33391, "Boeing 747-100/-200/-300/SP Dispatch Deviations Procedures Guide," Revision 22, dated January 30, 1998. No more than one reverser on any airplane may be deactivated under the provisions of this document.

This AD also requires repetitive operational checks of the gearbox locks and the air motor brake following accomplishment of Boeing Service Bulletin 747-78-2156. Those checks are required to be performed in accordance with the procedures described in Chapter 78-30-00, Section 5, of the FAA-approved Boeing 747 Airplane Maintenance Manual (AMM).

#### **Differences Between Service Bulletins and This AD**

Operators should note that, although Boeing Alert Service Bulletin 747-78A2148 and Boeing Service Bulletin 747-78A2148, Revision 1, recommend accomplishing the initial inspection at the next convenient maintenance period, the FAA has determined that such a compliance time would not address the identified unsafe condition in a timely manner. In developing an appropriate compliance time for this AD, the FAA considered not only the

manufacturer's recommendation, but the degree of urgency associated with addressing the subject unsafe condition, the average utilization of the affected fleet, and the time necessary to perform the inspections (6 hours per engine). In light of all of these factors, the FAA finds a 90-day compliance time for the initial inspection to be warranted, in that it represents an appropriate interval of time allowable for affected airplanes to continue to operate without compromising safety.

Operators also should note that, although Boeing Service Bulletin 747-78-2156 does not specify any compliance time for accomplishment of the modification, the FAA has determined that this does not address the identified unsafe condition in a timely manner, as described above. The FAA finds a 36-month compliance time for accomplishment of the modification is warranted, in that it represents an appropriate interval of time allowable for affected airplanes to continue to operate without compromising safety.

#### **Cost Impact**

None of the Model 747 series airplanes affected by this action are on the U.S. Register. All airplanes included in the applicability of this rule currently are operated by non-U.S. operators under foreign registry; therefore, they are not directly affected by this AD action. However, the FAA considers that this rule is necessary to ensure that the unsafe condition is addressed in the event that any of these subject airplanes are imported and placed on the U.S. Register in the future.

Should an affected airplane be imported and placed on the U.S. Register in the future:

It would require approximately 24 work hours (6 work hours per engine) to accomplish the required inspections and tests, at an average labor rate of \$60 per work hour. Based on these figures, the cost impact of the inspections and tests required by this AD would be approximately \$1,440 per airplane, per inspection/test cycle.

It would require approximately 392 work hours to accomplish the required installation of provisional wiring, at an average labor rate of \$60 per work hour. Required parts would cost approximately \$22,298 per airplane. Based on these figures, the cost impact of this modification required by this AD would be approximately \$45,818 per airplane.

It would require approximately 306 work hours to accomplish the required installation of the locking gearbox, at an average labor rate of \$60 per work hour. Required parts would be provided by

the manufacturer at no cost to the operators. Based on these figures, the cost impact of the installation required by this AD would be approximately \$18,360 per airplane.

It would require approximately 2 work hours to accomplish the required operational check, at an average labor rate of \$60 per work hour. Based on these figures, the cost impact of the operational check required by this AD would be approximately \$120 per airplane, per check.

#### **Determination of Rule's Effective Date**

Since this AD action does not affect any airplane that is currently on the U.S. register, it has no adverse economic impact and imposes no additional burden on any person. Therefore, prior notice and public procedures hereon are unnecessary and the amendment may be made effective in less than 30 days after publication in the **Federal Register**.

#### **Comments Invited**

Although this action is in the form of a final rule and was not preceded by notice and opportunity for public comment, comments are invited on this rule. Interested persons are invited to comment on this rule by submitting such written data, views, or arguments as they may desire. Communications shall identify the Rules Docket number and be submitted in triplicate to the address specified under the caption **ADDRESSES**. All communications received on or before the closing date for comments will be considered, and this rule may be amended in light of the comments received. Factual information that supports the commenter's ideas and suggestions is extremely helpful in evaluating the effectiveness of the AD action and determining whether additional rulemaking action would be needed.

Comments are specifically invited on the overall regulatory, economic, environmental, and energy aspects of the rule that might suggest a need to modify the rule. All comments submitted will be available, both before and after the closing date for comments, in the Rules Docket for examination by interested persons. A report that summarizes each FAA-public contact concerned with the substance of this AD will be filed in the Rules Docket.

Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this rule must submit a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket Number 99-NM-77-AD." The postcard will be date stamped and returned to the commenter.

## Regulatory Impact

The regulations adopted herein will not have substantial direct effects 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. Therefore, in accordance with Executive Order 12612, it is determined that this final rule does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

For the reasons discussed above, I certify that this action (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); and (3) 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. A final evaluation has been prepared for this action and it is contained in the Rules Docket. A copy of it may be obtained from the Rules Docket at the location provided under the caption ADDRESSES.

## List of Subjects in 14 CFR Part 39

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

## Adoption of the Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (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. Section 39.13 is amended by adding the following new airworthiness directive:

**99-18-03 Boeing:** Amendment 39-11269.  
Docket 99-NM-77-AD.

**Applicability:** Model 747-100B, -200, -300, and SP series airplanes, equipped with Rolls Royce RB211-524B2, C2, and D4 engines; certificated in any category, as listed in the following service bulletins:

- Boeing Alert Service Bulletin 747-78A2148, dated June 1, 1995;
- Boeing Service Bulletin 747-78A2148, Revision 1, dated July 20, 1995;
- Boeing Service Bulletin 747-78-2136, dated May 11, 1995; and
- Boeing Service Bulletin 747-78-2156, dated October 31, 1996.

**Note 1:** This AD applies to each airplane identified in the preceding applicability provision, regardless of whether it has been modified, altered, or repaired in the area subject to the requirements of this AD. For airplanes that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (f) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and, if the unsafe condition has not been eliminated, the request should include specific proposed actions to address it.

**Compliance:** Required as indicated, unless accomplished previously.

To prevent inadvertent deployment of a thrust reverser during flight and consequent reduced controllability of the airplane, accomplish the following:

### Repetitive Inspections and Tests

(a) Within 90 days after the effective date of this AD: Perform the applicable inspections and tests of the thrust reverser control and indication system on each engine, in accordance with Part III.A. through III.G. of the Accomplishment Instructions of Boeing Alert Service Bulletin 747-78A2148, dated June 1, 1995, or Boeing Service Bulletin 747-78A2148, Revision 1, dated July 20, 1995. Repeat the applicable inspections and tests thereafter at intervals not to exceed 18 months, until accomplishment of paragraph (c) of this AD.

### Corrective Actions

(b) If any inspection or test required by paragraph (a) of this AD cannot be successfully performed as specified in the service bulletin, or if any discrepancy is detected during any inspection or test, accomplish paragraphs (b)(1) and (b)(2) of this AD.

(1) Prior to further flight, deactivate the associated thrust reverser in accordance with Section 78-1 of Boeing Document D6-33391, "Boeing 747-100/-200/-300/SP Dispatch Deviations Procedures Guide," Revision 22, dated January 30, 1998. No more than one reverser on any airplane may be deactivated under the provisions of this paragraph.

**Note 2:** The airplane may be operated in accordance with the provisions and limitations specified in the operator's FAA-approved Master Minimum Equipment List (MMEL), provided that no more than one thrust reverser on the airplane is inoperative.

(2) Within 10 days after deactivation of any thrust reverser in accordance with this paragraph, the thrust reverser must be repaired in accordance with Boeing Alert Service Bulletin 747-78A2148, dated June 1, 1995, or Boeing Service Bulletin 747-78A2148, Revision 1, dated July 20, 1995. Additionally, the inspections and tests required by paragraph (a) of this AD must be successfully accomplished as specified in the service bulletin; once this is accomplished, the thrust reverser must then be reactivated.

### Modification

(c) Within 36 months after the effective date of this AD, install an additional locking

system on the thrust reversers in accordance with the Accomplishment Instructions of Boeing Service Bulletin 747-78-2156, dated October 31, 1996. Prior to or concurrent with accomplishment of Boeing Service Bulletin 747-78-2156, dated October 31, 1996: Accomplish Boeing Service Bulletin 747-78-2136, dated May 11, 1995; and Rolls-Royce Service Bulletins RB.211-71-B545, Revision 2, dated August 8, 1997, RB.211-71-B551, Revision 1, dated March 20, 1998, and RB.211-78-B552, dated June 21, 1996. Accomplishment of these actions constitutes terminating action for the repetitive inspections and tests required by paragraph (a) of this AD.

### Operational Checks

(d) Within 3,000 flight hours after accomplishing the modification required by paragraph (c) of this AD, or within 1,000 flight hours after the effective date of this AD, whichever occurs later: Perform operational checks of the number 2 and number 3 gearbox locks and of the air motor brake, in accordance with the procedures described in Chapter 78-30-00, Section 5, of the FAA-approved Boeing 747 Airplane Maintenance Manual (AMM).

### Corrective Actions

(e) If any operational check required by paragraph (d) of this AD cannot be successfully performed as specified in the procedures described in Chapter 78-30-00, Section 5, of the AMM, or if any discrepancy is detected during any operational check, accomplish paragraphs (e)(1) and (e)(2) of this AD. Repeat the operational checks thereafter at intervals not to exceed 3,000 flight hours.

(1) Prior to further flight, deactivate the associated thrust reverser in accordance with Section 78-1 of Boeing Document D6-33391, "Boeing 747-100/-200/-300/SP Dispatch Deviations Procedures Guide," Revision 22, dated January 30, 1998. No more than one reverser on any airplane may be deactivated under the provisions of this paragraph.

**Note 3:** The airplane may be operated in accordance with the provisions and limitations specified in the operator's FAA-approved MMEL, provided that no more than one thrust reverser on the airplane is inoperative.

(2) Within 10 days after deactivation of any thrust reverser in accordance with this paragraph, the thrust reverser must be repaired in accordance with the AMM. Additionally, the operational checks required by paragraph (d) of this AD must be successfully accomplished as specified in the AMM; once this is accomplished, the thrust reverser must then be reactivated.

### Alternative Methods of Compliance

(f) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Seattle Aircraft Certification Office (ACO), FAA, Transport Airplane Directorate. Operators shall submit their requests through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, Seattle ACO.

**Note 4:** Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Seattle ACO.

#### Special Flight Permits

(g) Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the airplane to a location where the requirements of this AD can be accomplished.

#### Incorporation by Reference

(h) Except as provided by paragraphs (b)(1), (d), (e), (e)(1), and (e)(2) of this AD, the actions shall be done in accordance with the applicable service bulletins, which contain the specified list of effective pages:

Service bulletin referenced and date	Page No. shown on page	Revision level shown on page	Date shown on page
Boeing 747-78-2136, May 11, 1995 .....	1-161 .....	Original .....	May 11, 1995.
Boeing 747-78A2148, June 1, 1995 .....	1-50 .....	Original .....	June 1, 1995.
Boeing 747-78A2148, Revision 1, July 20, 1995 .....	1-50 .....	1 .....	July 20, 1995.
Boeing 747-78-2156, October 31, 1996 .....	1-283 .....	Original .....	October 31, 1996.
Rolls-Royce, RB.211-78-B552 June 21, 1996 .....	1-33 .....	Original .....	June 21, 1996.
<b>Supplement</b>			
Rolls-Royce, RB.211-71-B545, Revision 2, August 8, 1997 .....	1, 2 .....	Original .....	June 21, 1996.
	1, 4 .....	2 .....	August 8, 1997.
	2, 3, 5-45 .....	Original .....	December 22, 1995.
<b>Supplement</b>			
Rolls-Royce, RB.211-71-B551, Revision 1, March 20, 1998 .....	1, 2 .....	2 .....	August 8, 1997.
	1, 5, 85 .....	1 .....	March 20, 1998.
	2-4, 6-84, 86-106 ..	Original .....	June 21, 1996.
<b>Supplement</b>			
	1-5 .....	1 .....	March 20, 1998.

This incorporation by reference was approved by the Director of the **Federal Register** in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from Boeing Commercial Airplane Group, P.O. Box 3707, Seattle, Washington 98124-2207. Copies may be inspected at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the Office of the **Federal Register**, 800 North Capitol Street, NW., suite 700, Washington, DC.

(i) This amendment becomes effective on September 15, 1999.

Issued in Renton, Washington, on August 19, 1999.

**Vi L. Lipski,**

*Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.*

[FR Doc. 99-22193 Filed 8-30-99; 8:45 am]

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## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. 98-NM-369-AD; Amendment 39-11276; AD 99-18-10]

RIN 2120-AA64

#### Airworthiness Directives; Short Brothers Model SD3-SHERPA, SD3-60 SHERPA, SD3-30, and SD3-60 Series Airplanes

**AGENCY:** Federal Aviation Administration, DOT.

**ACTION:** Final rule.

**SUMMARY:** This amendment adopts a new airworthiness directive (AD), applicable to all Short Brothers Model SD3-SHERPA, SD3-60 SHERPA, SD3-30, and SD3-60 series airplanes, that requires a one-time detailed visual inspection of the emergency brake accumulator mounting structure for evidence of cracking; and corrective action, if necessary. This amendment is prompted by issuance of mandatory continuing airworthiness information by a foreign civil airworthiness authority. The actions specified by this AD are intended to prevent failure of the mounting angle that supports the emergency brake system due to cracking, which could result in loss of the emergency brake system.

**DATES:** Effective October 5, 1999.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of October 5, 1999.

**ADDRESSES:** The service information referenced in this AD may be obtained from Short Brothers, Airworthiness & Engineering Quality, P.O. Box 241, Airport Road, Belfast BT3 9DZ, Northern Ireland. This information may be examined at the Federal Aviation Administration (FAA), Transport Airplane Directorate, Rules Docket, 1601 Lind Avenue, SW., Renton, Washington; or at the Office of the

Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

#### FOR FURTHER INFORMATION CONTACT:

Norman B. Martenson, Manager, International Branch, ANM-116, FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington 98055-4056; telephone (425) 227-2110; fax (425) 227-1149.

**SUPPLEMENTARY INFORMATION:** A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) to include an airworthiness directive (AD) that is applicable to all Short Brothers Model SD3-SHERPA, SD3-60 SHERPA, SD3-30, and SD3-60 series airplanes was published in the **Federal Register** on June 28, 1999 (64 FR 34575). That action proposed to require a one-time visual inspection of the emergency brake accumulator mounting structure for evidence of cracking; and corrective action, if necessary.

#### Comments

Interested persons have been afforded an opportunity to participate in the making of this amendment. No comments were submitted in response to the proposal or the FAA's determination of the cost to the public.

#### Explanation of Change Made to Proposal

The FAA has added a note to the final rule to clarify the definition of a detailed visual inspection.