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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. 2003-NE-28-AD; Amendment 39-13994; AD 2005-05-06]**

**RIN 2120-AA64**

### **Airworthiness Directives; Rolls-Royce plc Models RB211 Trent 768-60, Trent 772-60, and Trent 772B-60 Turbofan Engines**

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

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

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**SUMMARY:** The FAA is superseding an existing airworthiness directive (AD) for Rolls-Royce plc (RR) models RB211 Trent 768-60, Trent 772-60, and Trent 772-60 turbofan engines. That AD currently requires initial and repetitive surge margin testing of engines. This AD requires the same actions but at updated intervals. This AD also requires installation of updated software for the engine electronic controllers (EECs), and adds a terminating action for the surge margin testing requirement. This AD supersedure results from RR requiring EEC software to be revised, and extending the repetitive interval for surge margin testing for engines that have incorporated the software update for the EECs. This AD also results from RR introducing a stage 1 high pressure (HP) compressor casing and intermediate case outer location ring with wear-resistant coating, to reduce wear to prevent reduction in surge margin. We are issuing this AD to prevent a possible dual-engine in-flight surge, which could result in dual engine power loss.

**DATES:** Effective March 24, 2005. The Director of the Federal Register approved the incorporation by reference of certain publications listed in the regulations as of March 24, 2005.

We must receive any comments on this AD by May 9, 2005.

**ADDRESSES:** Use one of the following addresses to submit comments on this AD:

- By mail: Federal Aviation Administration (FAA), New England Region, Office of the Regional Counsel, Attention: Rules Docket No. 2003-NE-28-AD, 12 New England Executive Park, Burlington, MA 01803-5299.

- By fax: (781) 238-7055.

- By e-mail: 9-ane-adcomment@faa.gov.

You can get the service information referenced in this AD from Rolls-Royce plc, PO Box 31, Derby, England, DE248BJ; telephone: 011-44-1332-242424; fax: 011-44-1332-245-418.

You may examine the AD docket, by appointment, at the FAA, New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA.

**FOR FURTHER INFORMATION CONTACT:** Christopher Spinney, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803-5299; telephone (781) 238-7175; fax (781) 238-7199.

**SUPPLEMENTARY INFORMATION:** On July 24, 2003, the FAA issued AD 2003-15-09, Amendment 39-13252 (68 FR 46444, August 6, 2003). That AD requires initial and repetitive surge margin testing of RR models RB211 Trent 768-60, Trent 772-60, and Trent 772B-60 turbofan engines. That AD resulted from several reports of low power surges. That condition, if not corrected, could result in a possible dual-engine in-flight surge, which could result in loss of control of the airplane.

### **Actions Since AD 2003-15-09 Was Issued**

Since that AD was issued, the Civil Aviation Authority (CAA), which is the airworthiness authority for the United Kingdom (U.K.), recently notified us of related actions taken by the manufacturer to improve the engine surge margin. RR has extended the repetitive interval for surge margin testing for engines that have incorporated a certain software revision for the EECs. RR has also introduced a stage 1 HP compressor casing and intermediate case outer location ring with wear-resistant coating. This coating will prevent axial movement of components during operation, preventing wear resulting in increased rotor tip clearance and reduced surge margin. This AD requires initial and repetitive surge margin testing of engines. This AD also requires revised software for the EEC to increase the in-flight N3 low idle schedule, and to maximize HP compressor surge margin. This AD also requires installing a stage 1 HP compressor casing and intermediate case outer location ring with wear-resistant coating. Incorporating these modifications is a terminating action to the repetitive surge margin testing. The actions specified in this AD are intended to prevent a possible dual-engine in-flight surge, which could result in dual engine power loss.

### **Relevant Service Information**

We have reviewed and approved the technical contents of RR Alert Service Bulletin (ASB) No. RB.211-71-AD509, Revision 3, dated October 17, 2003, which describes procedures for initial and repetitive surge margin testing of engines. We have also reviewed and approved the technical contents of RR Service Bulletin (SB) No. RB.211-72-D574, Revision 1, dated January 12, 2004. That SB describes procedures for installing a stage 1 HP compressor casing and intermediate case outer location ring with wear-resistant coating. The CAA classified these service bulletins as mandatory and issued AD G-2004-010, dated April 8, 2004, in order to ensure the airworthiness of these RR models RB211 Trent 768-60, Trent 772-60, and Trent 772B-60 turbofan engines in the U.K.

### **Differences Between This AD and the Service Information**

Although RR ASB No. RB.211-71-AD509, Revision 3, dated October 17, 2003, allows surge margin testing of engines during revenue service, this AD only allows surge margin testing during dedicated maintenance checks.

### **Bilateral Airworthiness Agreement**

This engine model is manufactured in the United Kingdom (U.K), and is type certificated for operation in the United States under Sec. 21.29 of the Federal Aviation Regulations (14 CFR 21.29) and the applicable bilateral airworthiness agreement. In keeping with this bilateral airworthiness

agreement, the CAA has kept us informed of the situation described above. We have examined the findings of the CAA, reviewed all available information, and determined that we need to issue an AD for products of this type design that are certificated for operation in the United States.

### **FAA's Determination and Requirements of This AD**

Although no airplanes that are registered in the United States use these engines, the possibility exists that they could be used on airplanes that are registered in the United States in the future. The unsafe condition identified previously is likely to exist or develop on other RR models RB211 Trent 768-60, Trent 772-60, and Trent 772B-60 turbofan engines of the same type design. We are issuing this AD to prevent a possible dual-engine in-flight surge, which could result in loss of control of the airplane. This AD requires initial and repetitive surge margin testing of engines, and incorporating revised software for the EECs. This AD also requires installing a stage 1 HP compressor casing and intermediate case outer location ring with wear-resistant coating, to reduce wear to prevent reduction in surge margin. These installations are considered terminating action to the repetitive surge margin testing. You must use the service information described previously to perform the actions required by this AD.

### **FAA's Determination of the Effective Date**

Since there are currently no domestic operators of this engine model, notice and opportunity for public comment before issuing this AD are unnecessary. Therefore, a situation exists that allows the immediate adoption of this regulation.

### **Comments Invited**

This AD is a final rule that involves requirements affecting flight safety and was not preceded by notice and an opportunity for public comment; however, we invite you to submit any written relevant data, views, or arguments regarding this AD. Send your comments to an address listed under ADDRESSES. Include "AD Docket No. 2003-NE-28-AD" in the subject line of your comments. If you want us to acknowledge receipt of your mailed comments, send us a self-addressed, stamped postcard with the docket number written on it; we will date-stamp your postcard and mail it back to you. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of the rule that might suggest a need to modify it. If a person contacts us verbally, and that contact relates to a substantive part of this AD, we will summarize the contact and place the summary in the docket. We will consider all comments received by the closing date and may amend the AD in light of those comments.

### **Examining the AD Docket**

You may examine the AD Docket (including any comments and service information), by appointment, between 8 a.m. and 4:30 p.m., Monday through Friday, except Federal holidays. See ADDRESSES for the location.

### **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 the regulation:

1. Is not a "significant regulatory action" under Executive Order 12866;
2. Is not a "significant rule" under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); 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.

We prepared a summary of the costs to comply with this AD and placed it in the AD Docket. You may get a copy of this summary by sending a request to us at the address listed under ADDRESSES. Include "AD Docket No. 2003-NE-28-AD" in your request.

## **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 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. The FAA amends § 39.13 by removing Amendment 39-13252 68 FR 46444, August 6, 2003, and by adding a new airworthiness directive, Amendment 39-13994, to read as follows:

# AIRWORTHINESS DIRECTIVE



Aircraft Certification Service  
Washington, DC

U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

*We post ADs on the internet at "www.faa.gov"*

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The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Title 14 of the Code of Federal Regulations (14 CFR) part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference 14 CFR part 39, subpart 39.3).

**2005-05-06 Rolls-Royce plc:** Amendment 39-13994. Docket No. 2003-NE-28-AD.

## **Effective Date**

- (a) This airworthiness directive (AD) becomes effective March 24, 2005.

## **Affected ADs**

- (b) This AD supersedes AD 2003-15-09, Amendment 39-13252.

## **Applicability**

- (c) This AD applies to Rolls-Royce plc (RR) models RB211 Trent 768-60, Trent 772-60, and Trent 772B-60 turbofan engines. These engines are installed on, but not limited to, Airbus 330 series airplanes.

## **Unsafe Condition**

- (d) This AD results from RR requiring engine electronic controller (EEC) software to be revised, and extending the repetitive interval for surge margin testing for engines that have incorporated the software revision for the EECs. This AD also results from RR introducing a stage 1 high pressure (HP) compressor casing and intermediate case outer location ring with wear-resistant coating, to reduce wear to prevent reduction in surge margin. We are issuing this AD to prevent a possible dual-engine in-flight surge, which could result in dual engine power loss.

## **Compliance**

- (e) You are responsible for having the actions required by this AD performed within the compliance times specified unless the actions have already been done.

## **No Revenue Service Surge Margin Testing Allowed**

- (f) Although RR Alert Service Bulletin (ASB) No. RB.211-71-AD509, Revision 3, dated October 17, 2003, allows surge margin testing of engines during revenue service, this AD only allows surge margin testing during dedicated maintenance checks.

## **Initial Surge Margin Testing**

(g) Perform initial surge margin testing using paragraph 3 and Method A(1) of the Accomplishment Instructions of RR ASB No. RB.211-71-AD509, Revision 3, dated October 17, 2003, as follows:

(1) Before further flight, for engines that have accumulated more than 2,000 cycles-since-new (CSN) on the effective date of this AD; and for engines that have accumulated more than 1,000 cycles-since-overhaul (CSO) of the HP compressor casings and blades.

(2) Before accumulating 2,000 CSN for engines that have not had an overhaul of the HP compressor casing and blades.

(3) Before accumulating 1,000 CSO for engines that have had an overhaul of the HP compressor casings and blades.

## **EEC Software Update**

(h) Within 6 months from the effective date of this AD, install an EEC that features revised software to increase the in-flight N3 low idle schedule. Information on the revised software standard that features the increase in the in-flight N3 low idle schedule can be found in RR SB No. RB.211-73-AE224.

## **Repetitive Surge Margin Testing**

(i) For engines that do not have a revised EEC installed, as specified in paragraph (h) of this AD, perform repetitive surge margin testing at intervals not to exceed 130 cycles-since-last surge margin test. Use paragraph 3 and Method A(1) of the Accomplishment Instructions of RR ASB No. RB.211-71-AD509, Revision 3, dated October 17, 2003, for testing.

(j) For engines that do have a revised EEC installed, as specified in paragraph (h) of this AD, perform repetitive surge margin testing at intervals not to exceed 160 cycles-since-last surge margin test. Use paragraph 3 and Method A(1) of the Accomplishment Instructions of RR ASB No. RB.211-71-AD509, Revision 3, dated October 17, 2003, for testing.

## **Terminating Action**

(k) Within 4,500 cycles-in-service after the effective date of this AD, install a stage 1 HP compressor casing and intermediate case outer location ring with wear-resistant coating. Use paragraph 3.A. of the Accomplishment Instructions of RR Service Bulletin No. RB.211-72-D574, Revision 1, dated January 12, 2004, to do this. Performing these actions is considered terminating action for the repetitive surge margin testing required by this AD.

## **Alternative Methods of Compliance**

(l) The Manager, Engine Certification Office, has the authority to approve alternative methods of compliance for this AD if requested using the procedures found in 14 CFR 39.19.

## **Material Incorporated by Reference**

(m) You must use the Rolls-Royce plc service information specified in Table 1 of this AD to perform the testing and modifications required by this AD. The Director of the Federal Register approved the incorporation by reference of the documents listed in Table 1 of this AD in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. You can get a copy from Rolls-Royce plc, PO Box 31, Derby, England, DE248BJ; telephone: 011-44-1332-242424; fax; 011-44-1332-245-418. You may

review copies at the FAA, New England Region, Office of the Regional Counsel, Attention: Rules Docket No. 2003-NE-28-AD, 12 New England Executive Park, Burlington, MA; or 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/code\\_of\\_federal\\_regulations/ibr\\_locations.html](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html).

**TABLE 1.—INCORPORATION BY REFERENCE**

<b>Service bulletin No.</b>	<b>Page</b>	<b>Revision</b>	<b>Date</b>
RB.211-71-AD509 Total Pages: 6	All	3	October 17, 2003.
RB.211-72-D574 Total Pages: 12	All	1	January 12, 2004.
Supplement to RB.211-72-D574 Total Pages: 2	All	1	January 12, 2004.

**Related Information**

(n) CAA airworthiness directive G-2004-010, dated April 8, 2004, also addresses the subject of this AD.

Issued in Burlington, Massachusetts, on February 25, 2005.

Jay J. Pardee,  
Manager, Engine and Propeller Directorate, Aircraft Certification Service.  
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