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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2010-0748; Directorate Identifier 2010-NE-13-AD; Amendment 39-16384; AD 2010-16-07]

RIN 2120-AA64

Airworthiness Directives; Rolls-Royce plc (RR) RB211-Trent 900 Series Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule; request for comments.

SUMMARY: We are adopting a new airworthiness directive (AD) for the products listed above. This AD results from mandatory continuing airworthiness information (MCAI) issued by an aviation authority of another country to identify and correct an unsafe condition on an aviation product. The MCAI describes the unsafe condition as:

Wear, beyond Engine Manual limits, has been identified on the abutment faces of the splines on the Trent 900 Intermediate Pressure (IP) shaft rigid coupling on several engines during strip. The shaft to coupling spline interface provides the means of controlling the turbine axial setting and wear through of the splines would permit the IP turbine to move rearwards.

Rearward movement of the IP turbine would enable contact with static turbine components and would result in loss of engine performance with potential for in-flight shut down, oil migration and oil fire below the LP turbine discs prior to sufficient indication resulting in loss of LP turbine disc integrity.

We are issuing this AD to detect rearward movement of the IP turbine, which could result in loss of disc integrity, an uncontained failure of the engine, and damage to the airplane.

DATES: This AD becomes effective September 17, 2010.

We must receive comments on this AD by September 13, 2010.

The Director of the Federal Register approved the incorporation by reference of Rolls-Royce Trent 900 Series Propulsion Systems Alert Non-Modification Service Bulletin (NMSB) RB.211-72-AG329, Revision 1, dated January 13, 2010, listed in the AD as of September 17, 2010.

ADDRESSES: You may send comments by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov> and follow the instructions for sending your comments electronically.
- Mail: U.S. Department of Transportation, 1200 New Jersey Avenue, SE., West Building Ground Floor, Room W12-140, Washington, DC 20590-0001.
- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.
- Fax: (202) 493-2251.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Operations office 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 street address for the Docket Operations office (telephone (800) 647-5527) is the same as the Mail address provided in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: Ian Dargin, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park; Burlington, MA 01803; e-mail: ian.dargin@faa.gov; telephone (781) 238-7178; fax (781) 238-7199.

SUPPLEMENTARY INFORMATION:

Discussion

The European Aviation Safety Agency (EASA), which is the Technical Agent for the Member States of the European Community, has issued EASA Airworthiness Directive 2010-0008, dated January 15, 2010 (referred to after this as "the MCAI"), to correct an unsafe condition for the specified products. The MCAI states:

Wear, beyond Engine Manual limits, has been identified on the abutment faces of the splines on the Trent 900 Intermediate Pressure (IP) shaft rigid coupling on several engines during strip. The shaft to coupling spline interface provides the means of controlling the turbine axial setting and wear through of the splines would permit the IP turbine to move rearwards.

Rearward movement of the IP turbine would enable contact with static turbine components and would result in loss of engine performance with potential for in-flight shut down, oil migration and oil fire below the LP turbine discs prior to sufficient indication resulting in loss of LP turbine disc integrity.

This AD requires inspection of the IP shaft coupling splines and, depending on the results, requires further repetitive inspections or corrective actions.

You may obtain further information by examining the MCAI in the AD docket.

Relevant Service Information

Rolls-Royce plc has issued RB211 Trent 900 Series Propulsion Systems Alert NMSB RB.211-72-AG329, Revision 1, dated January 13, 2010. The actions described in this service information are intended to correct the unsafe condition identified in the MCAI.

FAA's Determination and Requirements of This AD

This product has been approved by the aviation authority of the United Kingdom, and is approved for operation in the United States. Pursuant to our bilateral agreement with the United Kingdom, they have notified us of the unsafe condition described in the MCAI and service information referenced above. We are issuing this AD because we evaluated all information provided by the United Kingdom, and determined the unsafe condition exists and is likely to exist or develop on other products of the same type design.

FAA's Determination of the Effective Date

Since no domestic operators use this product, notice and opportunity for public comment before issuing this AD are unnecessary. Therefore, we are adopting this regulation immediately.

Comments Invited

This AD is a final rule that involves requirements affecting flight safety, and we did not precede it by notice and opportunity for public comment. We invite you to send any written relevant data, views, or arguments about this AD. Send your comments to an address listed under the ADDRESSES section. Include "Docket No. FAA-2010-0748; Directorate Identifier 2010-NE-13-AD" at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this AD. We will consider all comments received by the closing date and may amend this AD because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact with FAA personnel concerning this AD. Using the search function of the Web site, anyone can find and read the comments in any of our dockets, including, if provided, the name of the individual who sent the comment (or signed the comment on behalf of an association, business, labor union, etc.). You may review the DOT's complete Privacy Act Statement in the Federal Register published on April 11, 2000 (65 FR 19477-78).

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 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 this AD:

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 regulatory evaluation of the estimated costs to comply with this AD and placed it in the AD docket.

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 AD:



2010-16-07 Rolls-Royce plc (RR): Amendment 39-16384.; Docket No. FAA-2010-0748;
Directorate Identifier 2010-NE-13-AD.

Effective Date

- (a) This airworthiness directive (AD) becomes effective September 17, 2010.

Affected ADs

- (b) None.

Applicability

(c) This AD applies to RR model RB211-Trent 970-84, 970B-84, 972-84, 972B-84, 977-84, 977B-84, and 980-84 turbofan engines. These engines are installed on, but not limited to, Airbus A380 series airplanes.

Reason

(d) European Aviation Safety Agency (EASA) AD No. 2010-0008, dated January 15, 2010, states:

Wear, beyond Engine Manual limits, has been identified on the abutment faces of the splines on the Trent 900 Intermediate Pressure (IP) shaft rigid coupling on several engines during strip. The shaft to coupling spline interface provides the means of controlling the turbine axial setting and wear through of the splines would permit the IP turbine to move rearwards.

Rearward movement of the IP turbine would enable contact with static turbine components and would result in loss of engine performance with potential for in-flight shut down, oil migration and oil fire below the LP turbine discs prior to sufficient indication resulting in loss of LP turbine disc integrity.

We are issuing this AD to detect rearward movement of the IP turbine, which could result in loss of disc integrity, an uncontained failure of the engine, and damage to the airplane.

Actions and Compliance

- (e) Unless already done, do the following actions.

On-Wing Borescope Inspection

(1) Inspect the IP shaft coupling splines using section 3.A of RR RB211 Trent 900 Series Propulsion Systems Alert Non-Modification Service Bulletin (NMSB) RB.211-72-AG329, Revision

1, dated January 13, 2010, before accumulating 400 cycles-since-new or within 150 cycles-in-service (CIS) after the effective date of this AD, whichever occurs later.

(2) If the coupling, P/N FW33264, was replaced with a new coupling, P/N FW33264, during any shop visit, then you may use the life since that shop visit in place of engine time since new to establish the inspection threshold.

(3) Use the inspection results and actions compliance times or specified in Table 1 of this AD to disposition the engine or to determine the interval for the repetitive inspections.

Table 1. On-wing Borescope Inspection – Further Action and Repetitive Inspection Intervals

Condition Measured spline crest in accordance with section 3.A of Rolls-Royce NMSB RB.211-72-AG329, Revision 1, dated January 13, 2010, is:	Action	Compliance Time / Repetitive Interval (not to exceed) flight cycles since last inspection
(i) Less than 0.5 mm with no material remaining	Remove the engine	Before next flight
(ii) Less than 0.5 mm with some material remaining	Remove the engine	Within 10 flight cycles
(iii) Equal to or more than 0.5 mm but less than 1 mm	Repeat inspection	Within 50 flight cycles
(iv) Equal to or more than 1 mm but less than 1.5 mm	Repeat inspection	Within 100 flight cycles
(v) Equal to or more than 1.5 mm but less than 2 mm	Repeat inspection	Within 200 flight cycles
(vi) Equal to or more than 2 mm but less than 2.4 mm	Repeat inspection	Within 300 flight cycles
(vii) Equal to or more than 2.4 mm	Repeat inspection	Within 400 flight cycles

Note 1: The nominal unworn dimension of the spline crest is 2.65 mm.

In-Shop Replacement and Inspection

(4) At the next shop visit after the effective date of this AD perform the following:

(i) Replace any IP shaft coupling that was previously borescope inspected in accordance with paragraph (e)(1) of this AD and put on a reduced re-inspection interval in accordance with paragraphs (e)(3)(i) through (e)(3)(vii) of this AD.

(ii) Inspect all other IP shaft coupling splines using paragraphs 3.B.(2) or 3.B.(3) of RR RB211 Trent 900 Series Propulsion Systems Alert NMSB RB.211-72-AG329, Revision 1, dated January 13, 2010.

Definitions

(5) For the purposes of this AD, a shop visit is the induction of an engine into the shop for maintenance involving the separation of pairs of major mating engine flanges, except that the separation of engine flanges solely for the purposes of transportation without subsequent engine maintenance does not constitute an engine shop visit.

FAA AD Differences

(f) None.

Other FAA AD Provisions

(g) Alternative Methods of Compliance (AMOCs): The Manager, Engine Certification Office, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19.

Related Information

(h) Refer to MCAI EASA Airworthiness Directive 2010-0008, dated January 15, 2010, for related information.

(i) Contact Ian Dargin, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; e-mail: ian.dargin@faa.gov; telephone (781) 238-7178; fax (781) 238-7199, for more information about this AD.

Material Incorporated by Reference

(j) You must use Rolls-Royce RB211 Trent 900 Series Propulsion Systems Alert Non-Modification Service Bulletin RB.211-72-AG329 Revision 1, dated January 13, 2010 to do the actions required by this AD, unless the AD specifies otherwise.

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

(2) For service information identified in this AD, contact Rolls-Royce plc, P.O. Box 31, Derby, DE24 8BJ, United Kingdom; telephone 044 1332 242424; fax 044 1332 249936.

(3) You may review copies at the FAA, New England Region, 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/cfr/ibr-locations.html>.

Issued in Burlington, Massachusetts, on July 26, 2010.

Peter A. White,
Assistant Manager, Engine and Propeller Directorate,
Aircraft Certification Service.