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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2007-0037; Directorate Identifier 2007-NE-41-AD; Amendment 39-16404; AD 2010-17-12]**

**RIN 2120-AA64**

### **Airworthiness Directives; Rolls-Royce Deutschland Ltd. & Co. KG. (RRD) Models Tay 650-15 and Tay 651-54 Turbofan Engines**

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

**ACTION:** Final rule.

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**SUMMARY:** The FAA is superseding an existing 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:

Strip results from some of the engines listed in the applicability section of this AD revealed excessively corroded low-pressure turbine disks stage 2 and stage 3. The corrosion is considered to be caused by the environment in which these engines are operated. Following a life assessment based on the strip findings it is concluded that inspections for corrosion attack are required. The action specified by this European Aviation Safety Agency (EASA) AD 2008-0122 was intended to avoid a failure of a low-pressure turbine disk stage 2 or stage 3 due to potential corrosion problems which could result in uncontained engine failure and damage to the airplane. It has been later realized that the same unsafe condition could potentially occur on more serial numbers for the Tay 650-15 engines and on the Tay 651-54 engines. This AD, superseding EASA AD 2008-0122, retaining its requirements, is therefore issued to expand the Applicability in adding further engine serial numbers for the Tay 650-15 engines and in adding the Tay 651-54 engines.

We are issuing this AD to detect corrosion that could cause the stage 2 or stage 3 disk of the LP turbine to fail and result in an uncontained failure of the engine.

**DATES:** This AD becomes effective September 27, 2010. The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of September 27, 2010.

**ADDRESSES:** The Docket Operations office is located at Docket Management Facility, U.S. Department of Transportation, 1200 New Jersey Avenue, SE., West Building Ground Floor, Room W12-140, Washington, DC 20590-0001.

**FOR FURTHER INFORMATION CONTACT:** Mark Riley, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; e-mail: mark.riley@faa.gov; phone: (781) 238-7758; fax: (781) 238-7199.

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

The FAA proposed to amend 14 CFR part 39 by superseding AD 2009-22-01, Amendment 39-16052 (74 FR 55121, October 27, 2009), with a proposed AD. The proposed AD applies to RRD Models Tay 650-15 and Tay 651-54 turboprop engines. We published the proposed AD in the Federal Register on May 6, 2010 (75 FR 24825). That action proposed to correct an unsafe condition for the specified products. The MCAI states:

Strip results from some of the engines listed in the applicability section of this AD revealed excessively corroded low-pressure turbine disks stage 2 and stage 3. The corrosion is considered to be caused by the environment in which these engines are operated. Following a life assessment based on the strip findings it is concluded that inspections for corrosion attack are required. The action specified by this European Aviation Safety Agency (EASA) AD 2008-0122 was intended to avoid a failure of a low-pressure turbine disk stage 2 or stage 3 due to potential corrosion problems which could result in uncontained engine failure and damage to the airplane. It has been later realized that the same unsafe condition could potentially occur on more serial numbers for the Tay 650-15 engines and on the Tay 651-54 engines. This AD, superseding EASA AD 2008-0122, retaining its requirements, is therefore issued to expand the Applicability in adding further engine serial numbers for the Tay 650-15 engines and in adding the Tay 651-54 engines.

### **Comments**

We gave the public the opportunity to participate in developing this AD. We considered the comments received.

### **Request to Reference the Current EASA Type Certificate Approval**

One commenter, RRD, requests that we revise the AD to reference the current EASA type certificate approval rather than the original United Kingdom type certificate approval.

We agree that the current type certificate approval is from EASA, but since we do not repeat the preamble section of the proposed AD that references this information, we did not change the AD. We will reference the correct information in future AD actions.

## **Request To Correct a Typographical Error**

RRD requests that we correct a typographical error under FAA's Determination and Requirements of this Proposed AD. Specifically, change "HP" to "LP".

We agree that "HP" should be "LP". However, that paragraph is not repeated in the Final Rule. We did not change the AD.

## **Request To Remove Gulfstream G-IV Airplane From the Applicability**

RRD requests that we delete the Gulfstream G-IV airplane from the applicability, as the Tay 650-15 and Tay 651-54 turbofan engines are not installed on that airplane.

We agree and removed that airplane from the applicability.

## **Conclusion**

We reviewed the available data, including the comments received, and determined that air safety and the public interest require adopting the AD with the changes described previously. We determined that these changes will not increase the economic burden on any operator or increase the scope of the AD.

## **Costs of Compliance**

Based on the service information, we estimate that this AD will affect about three Tay 651-54 engines installed on airplanes of U.S. registry. We also estimate that it will take about three work-hours per engine to comply with this AD. The average labor rate is \$85 per work-hour. Required parts will cost about \$40,000 per engine. Based on these figures, we estimate the cost of the AD on U.S. operators to be \$120,765.

## **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.

### **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 (phone (800) 647-5527) is provided in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

### **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 Amendment 39-16052 (74 FR 55121, October 27, 2009), and by adding a new airworthiness directive, Amendment 39-16404, to read as follows:



**2010-17-12 Rolls-Royce Deutschland Ltd & Co KG (RRD) (formerly Rolls-Royce plc, Derby, England):** Amendment 39-16404. Docket No. FAA-2007-0037; Directorate Identifier 2007-NE-41-AD.

**Effective Date**

(a) This airworthiness directive (AD) becomes effective September 27, 2010.

**Affected ADs**

(b) This AD supersedes AD 2009-22-01, Amendment 39-16052.

**Applicability**

(c) This AD applies to:

(1) RRD model Tay 650-15 turbofan engines that have a serial number listed in Table 1, Table 2, or Table 3 of this AD;

(2) All model Tay 651-54 turbofan engines; and

(3) Engines with a low-pressure (LP) turbine module M05300AA installed. These engines are installed on, but not limited to, Fokker F.28 Mark 0070 and 0100 airplanes, and Boeing 727 airplanes modified in accordance with Supplemental Type Certificate No. SA8472SW.

**Table 1 – Affected Tay 650-15 Engines by Serial Number (Carried Forward From AD 2008-10-14 and AD 2009-22-01)**

<b>Engine Serial Number</b>
17251
17255
17256
17273
17275
17280
17281
17282
17300
17301
17327
17332
17365

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17393
17437
17443
17470
17520
17521
17523
17539
17542
17556
17561
17562
17563
17580
17581
17612
17618
17635
17637
17645
17661
17686
17699
17701
17702
17736
17737
17738
17739
17741
17742
17808

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**Table 2 – Affected Tay 650-15 Engines by Serial Number (Carried Forward From AD 2009-22-01)**

<b>Engine Serial Number</b>
17249
17303
17358
17370
17425
17426
17433
17438
17445
17446
17460
17474
17478
17490
17491
17517
17518
17522
17534
17535
17536
17538
17540
17541
17552
17553
17585
17613
17723
17724
17740
17759

17760
17807

**Table 3 – Affected Tay 650-15 Engines by Serial Number (Added New in This AD)**

<b>Engine Serial Number</b>
17344
17360
17376
17413
17537
17694
17698
17707
17716
17718
17719
17731
17756
17757

**Reason**

(d) Strip results from some of the engines listed in the applicability section of this AD revealed excessively corroded low-pressure turbine disks stage 2 and stage 3. The corrosion is considered to be caused by the environment in which these engines are operated. Following a life assessment based on the strip findings it is concluded that inspections for corrosion attack are required. The action specified by this European Aviation Safety Agency (EASA) AD 2008-0122 was intended to avoid a failure of a low-pressure turbine disk stage 2 or stage 3 due to potential corrosion problems which could result in uncontained engine failure and damage to the airplane. It has been later realized that the same unsafe condition could potentially occur on more serial numbers for the Tay 650-15 engines and on the Tay 651-54 engines. This AD, superseding EASA AD 2008-0122, retaining its requirements, is therefore issued to expand the Applicability in adding further engine serial numbers for the Tay 650-15 engines and in adding the Tay 651-54 engines.

We are issuing this AD to detect corrosion that could cause the stage 2 or stage 3 disk of the LP turbine to fail and result in an uncontained failure of the engine.

**Actions and Compliance**

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

(1) Prior to accumulating 11,700 flight cycles (FC) since new of disk life, and thereafter at intervals not exceeding 11,700 FC of disk life, inspect the LP turbine disks stage 2 and stage 3 for corrosion using RRD Alert Service Bulletin (ASB) No. TAY-72-A1524, Revision 3, dated March 24, 2010.

(2) For engines with disk life that already exceed 11,700 FC on the effective date of this AD, perform the inspection within 90 days after the effective date of this AD.

(3) When, during any of the inspections as required by paragraphs (e)(1) and (e)(2) of this AD, corrosion is found, replace the affected parts. RRD TAY 650 Engine Manual–E-TAY-3RR, Tasks 72-52-23-200-000 and 72-52-24-200-000, and RRD TAY 651 Engine Manual–E-TAY-5RR, Tasks 72-52-23-200-000 and 72-52-24-200-000, contain guidance on performing the inspection for corrosion and rejection criteria.

### **Previous Credit**

(f) Initial inspections done before the effective date of this AD on LP turbine disks stage 2 and stage 3 listed in Table 1 and Table 2 of this AD using RRD ASB No. TAY-72-A1524, Revision 1, dated September 1, 2006, or Revision 2, dated June 13, 2008, comply with the initial inspection requirements specified in this AD.

### **Alternative Methods of Compliance (AMOCs)**

(g) 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 EASA AD 2010-060R1, dated April 14, 2010, for related information. Contact Rolls-Royce Deutschland Ltd & Co KG, Eschenweg 11, Dahlwitz, 15827 Blankenfelde-Mahlow, Germany; phone: 011 49 (0) 33-7086-1883; fax: 011 49 (0) 33-7086-3276, for a copy of the service information referenced in this AD.

(i) Contact Mark Riley, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; e-mail: mark.riley@faa.gov; phone: (781) 238-7758; fax (781) 238-7199, for more information about this AD.

### **Material Incorporated by Reference**

(j) You must use RRD Alert Service Bulletin No. TAY-72-A1524, Revision 3, dated March 24, 2010, to do the inspections required by this AD.

(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 Deutschland Ltd & Co KG, Eschenweg 11, Dahlwitz, 15827 Blankenfelde-Mahlow, Germany; phone: 011 49 (0) 33-7086-1883; fax: 011 49 (0) 33-7086-3276.

(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 August 6, 2010.  
Peter A. White,  
Assistant Manager, Engine and Propeller Directorate,  
Aircraft Certification Service.