

**DEPARTMENT OF TRANSPORTATION****Federal Aviation Administration****14 CFR Part 39**

[Docket No. 2001-NE-36-AD; Amendment 39-12735; AD 2002-09-02]

RIN 2120-AA64

**Airworthiness Directives; Rolls-Royce plc. Tay Model 650-15 and 651-54 Turbofan Engines**

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

**ACTION:** Final rule.

**SUMMARY:** This amendment adopts a new airworthiness directive (AD), that is applicable to Rolls-Royce plc. (RR) Tay model 650-15 and 651-54 turbofan engines. This amendment requires revisions to the Airworthiness Limitations Section (ALS) of the Instructions for Continued Airworthiness (ICA) in the Time Limits Section of the Engine Manual for Rolls-Royce plc. Tay model 650-15 and 651-54 series turbofan engines to include required enhanced inspection of selected critical life-limited parts at each piece-part exposure. The actions specified by this AD are intended to prevent critical life-limited rotating engine part failure, which could result in an uncontained engine failure and damage to the airplane.

**DATES:** Effective date June 6, 2002.

**ADDRESSES:** The information referenced in this AD may be examined, by appointment, at the Federal Aviation Administration (FAA), New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA; or at the Office of the Federal Register, 800 North Capitol Street, NW, suite 700, Washington, DC.

**FOR FURTHER INFORMATION CONTACT:**

Keith Mead, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803-5299; telephone (781) 238-7744, fax (781) 238-7199.

**SUPPLEMENTARY INFORMATION:** A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) to include an AD that is applicable to Rolls-Royce plc. (RR) Tay model 650-15 and 651-54 turbofan engines was published in the **Federal Register** on December 4, 2001 (66 FR 63009). That action proposed to require revisions to the Airworthiness Limitations Section (ALS) of the Instructions for Continued Airworthiness (ICA) in the Time Limits Section of the Engine Manual for RR Tay model 650-15 and 651-54 series

turbofan engines to include required enhanced inspection of selected critical life-limited parts at each piece-part exposure.

**Comments**

Interested persons have been afforded an opportunity to participate in the making of this amendment. Due consideration has been given to the comments received.

**Inconsistencies Between Proposal Paragraph (a) and RR Time Limits Section**

One commenter states there are inconsistencies between the proposed changes to the Time Limits Section (TLS) and the Engine Manual (EM) for RR Tay model 650-15 and 651-54 series turbofan engines, as follows:

The GROUP A PARTS MANDATORY INSPECTION TASK number is called out as 05-20-01-800-001, and in the RR EM the same task number is called out as 05-20-01-200-001. Also, in paragraph (2), the reference to "time limits manual T-211(524)-7RR (reference engine manual M-211(524) 7RR)" should read "time limits manual T-TAY-3RR and T-TAY-5RR (reference engine manual E-TAY-3RR and E-TAY-5RR)."

The FAA agrees that these inconsistencies need to be corrected and has made these corrections to the final rule.

**Inconsistencies Between Proposal Group A Parts Table and RR TLS**

One commenter states there are inconsistencies between the proposal Group A Parts Table and the tabulated components of the RR TLS. One inconsistency is that the H.P. Compressor Stage 10 to 11 Rotor Disc Spacer nomenclature is not specifically referenced in the Table of the proposal, however, its task number appears to have been combined in the Table with the H.P. Compressor Stages 8, 9, 10, and 11 Rotor Discs. Another inconsistency is that the reference to H.P. Compressor Stage 11 to 12 Rotor Disc Spacer appears to have been omitted from the proposal Table. Also, another inconsistency is that for the H.P. Turbine Stage 2 Rotor Disc, the overhaul manual task number in the proposal reads "72-41-33-200-001" and in the RR TLS the task number reads "72-41-33-200-000."

The FAA agrees that these inconsistencies need to be corrected and has made these corrections to the final rule.

After careful review of the available data, including the comments noted above, the FAA has determined that air safety and the public interest require the

adoption of the rule with the changes described previously. The FAA has determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

**Economic Analysis**

There are approximately 700 engines of the affected design in the worldwide fleet. The FAA estimates that 448 engines installed on aircraft of U.S. registry would be affected by this AD. The FAA also estimates that it would take approximately twenty work hours per engine to accomplish the inspections, and that the average labor rate is \$60 per work hour. Since this is an added inspection requirement, included as part of the normal maintenance cycle, no additional part costs are involved. Based on these figures, the total cost of the proposed AD on U.S. operators is estimated to be \$537,600.

**Regulatory Analysis**

This final rule does not have federalism implications, as defined in Executive Order 13132, because it would 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. Accordingly, the FAA has not consulted with state authorities prior to publication of this final rule.

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 the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) if promulgated, 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 by contacting the Rules Docket at the location provided under the caption **ADDRESSES**.

**List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, 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 adding a new airworthiness directive to read as follows:

**2002-09-02 Rolls-Royce, plc.:** Amendment 39-12735. Docket No. 2001-NE-36-AD.

#### Applicability

This airworthiness directive (AD) is applicable to Rolls-Royce plc. Tay Model 650-15 and 651-54 turbofan engines. These engines are installed on, but not limited to Boeing 727 and Fokker 100 airplanes.

**Note 1:** This airworthiness directive (AD) applies to each engine 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 engines 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 (c) 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

Compliance with this AD is required as indicated, unless already done. To prevent critical life-limited rotating engine part failure, which could result in an uncontained engine failure and damage to the airplane, accomplish the following:

(a) Within the next 30 days after the effective date of this AD, revise the Airworthiness Limitations Section (ALS) and Maintenance Scheduling Section (MSS) of the Instructions for Continued Airworthiness (ICA) in the Time Limits Manuals publication number (P/N) T-TAY-3RR, and

T-TAY-5RR of the Engine Manuals, P/N E-TAY-3RR, and E-TAY-5RR as applicable, and for air carrier operations revise the approved continuous airworthiness maintenance program, by adding the following: "GROUP A PARTS MANDATORY INSPECTION TASK 05-20-01-200-001

(1) General: A full inspection of Group A Parts must be effected whenever the following conditions are satisfied.

(i) When the component has been completely disassembled to piece-part level in accordance with the appropriate disassembly procedures contained in the Engine Manual. and

(ii) The part has accumulated in excess of 100 flight cycles in service or since the last piece-part inspection. or

(iii) The component removal was for damage or a cause directly related to its removal.

(2) Mandatory inspections for individual Group A Parts are specified below: For time limits manual T-TAY-3RR and T-TAY-5RR (reference engine manual E-TAY-3RR and E-TAY-5RR) only, insert the following Table:

Part nomenclature	Part No.	Inspected per overhaul manual task
Low Pressure Compressor Rotor Disc .....	All .....	72-31-11-200-000
I. P. Compressor Rotor—Stage 1 Disc .....	All .....	72-33-31-200-000
I. P. Compressor Rotor—Stage 2 Disc .....	All .....	72-33-32-200-000
I. P. Compressor Rotor—Stage 3 Disc .....	All .....	72-33-33-200-000
L. P. and I. P. Compressor Drive Shaft .....	All .....	72-33-40-200-000
H. P. Compressor Rear Drive Shaft .....	All .....	72-37-31-200-000
L. P. Compressor Rotor Drive Shaft .....	All .....	72-37-32-200-002
H. P. Compressor Stage 1 Rotor Disc .....	All .....	72-37-33-200-001
H. P. Compressor Stages 2 and 3 Rotor Discs .....	All .....	72-37-33-200-002
H. P. Compressor Stages 4, 5, 6, and 7 Rotor Discs .....	All .....	72-37-34-200-000
H. P. Compressor Stages 8, 9, 10, and 11 Rotor Discs .....	All .....	72-37-35-200-000
H.P. Compressor Stage 10 to 11 Rotor Disc Spacer .....	All .....	72-37-35-200-001
H. P. Compressor Stage 12 Rotor Disc .....	All .....	72-37-36-200-001
H.P. Compressor Stage 11 to 12 Rotor Disc Spacer .....	All .....	72-37-36-200-003
H. P. Turbine Shaft .....	All .....	72-41-31-200-000
H. P. Stage 1 Rotor Disc .....	All .....	72-41-32-200-000
H. P. Turbine Stage 2 Rotor Disc .....	All .....	72-41-33-200-000
L. P. Turbine Shaft .....	All .....	72-52-21-200-003
L. P. Turbine Stage 1 Rotor Disc .....	All .....	72-52-22-200-000
L. P. Turbine Stage 2 Rotor Disc .....	All .....	72-52-23-200-000
L. P. Turbine Stage 3 Rotor Disc .....	All .....	72-52-24-200-000

(b) Except as provided in paragraph (c) of this AD, and notwithstanding contrary provisions in section 43.16 of the Federal Aviation Regulations (14 CFR 43.16), these mandatory inspections must be performed only in accordance with the TLM and applicable Engine Manual.

#### Alternative Method of Compliance

(c) 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 Engine Certification Office. Operators must submit their requests through an appropriate FAA Principal Maintenance Inspector (PMI), who may add comments and then send it to the Engine Certification Office.

**Note 2:** Information concerning the existence of approved alternative methods of

compliance with this airworthiness directive, if any, may be obtained from the Engine Certification Office.

(d) Special flight permits may be issued in accordance with §§ 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 done.

(e) The records of the mandatory inspections required as a result of revising the TLM and the applicable Engine Manual and the air carrier's continuous airworthiness maintenance program as provided by paragraph (a) of this AD must be maintained by FAA-certificated air carriers which have an approved continuous airworthiness maintenance program in accordance with the record keeping system currently specified in their manual required by sections 121.369 of

the Federal Aviation Regulations (14 CFR 121.369); or, in lieu of the record showing the current status of each mandatory inspection required by sections 121.380(a)(2)(vi) of the Federal Aviation Regulations (14 CFR 121.380(a)(2)(vi)), certificated air carriers may establish an approved alternate system of record retention that provides a method for preservation and retrieval of the maintenance records that include the inspections resulting from this AD, and include the policy and procedures for implementing this alternate method in the air carrier's maintenance manual required by sections 121.369 (c) of the Federal Aviation Regulations (14 CFR 121.369 (c)); however, the alternate system must be accepted by the appropriate PMI and require the maintenance records be maintained either indefinitely or until the work is repeated.

**Note 3:** These record keeping requirements apply only to the records used to document the mandatory inspections required as a result of revising the ALS and the MSS of the Instructions for Continued Airworthiness in the Time Limits Manual (Chapter 05-10-00) of the Engine Manuals as provided in paragraph (a) of this AD, and do not alter or amend the record keeping requirements for any other AD or regulatory requirement.

**Effective Date**

(f) This amendment becomes effective on June 6, 2002.

Issued in Burlington, Massachusetts, on April 23, 2002.

**Marc J. Bouthillier,**

*Acting Manager, Engine and Propeller Directorate, Aircraft Certification Service.*

[FR Doc. 02-10549 Filed 5-1-02; 8:45 am]

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**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

[Docket No. 2002-NM-110-AD; Amendment 39-12729; AD 2002-08-17]

**RIN 2120-AA64**

**Airworthiness Directives; McDonnell Douglas Model DC-10-10, DC-10-10F, DC-10-15, DC-10-30, DC-10-30F, and DC-10-30F (KC10A and KDC-10) Airplanes**

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

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

**SUMMARY:** This amendment adopts a new airworthiness directive (AD) that is applicable to certain McDonnell Douglas Model DC-10-10, DC-10-10F, DC-10-15, DC-10-30, DC-10-30F, and DC-10-30F (KC10A and KDC-10) airplanes. This action requires revising the airplane flight manual to advise the flightcrew of necessary procedures if certain thrust reverser indicator lights illuminate or are inoperative, and locking out any affected thrust reverser under certain conditions. This action also provides for returning a thrust reverser to service after it has been locked out. This action is necessary to prevent an uncommanded in-flight deployment of a thrust reverser, which could result in reduced controllability of the airplane. This action is intended to address the identified unsafe condition.

**DATES:** Effective May 17, 2002.

The incorporation by reference of certain publications listed in the regulations is approved by the Director

of the Federal Register as of May 17, 2002.

Comments for inclusion in the Rules Docket must be received on or before July 1, 2002.

**ADDRESSES:** Submit comments in triplicate to the Federal Aviation Administration (FAA), Transport Airplane Directorate, ANM-114, Attention: Rules Docket No. 2002-NM-110-AD, 1601 Lind Avenue, SW., Renton, Washington 98055-4056. Comments may be inspected at this location between 9:00 a.m. and 3:00 p.m., Monday through Friday, except Federal holidays. Comments may be submitted via fax to (425) 227-1232. Comments may also be sent via the Internet using the following address: [9-anm-iarccomment@faa.gov](mailto:9-anm-iarccomment@faa.gov). Comments sent via fax or the Internet must contain "Docket No. 2002-NM-110-AD" in the subject line and need not be submitted in triplicate. Comments sent via the Internet as attached electronic files must be formatted in Microsoft Word 97 for Windows or ASCII text.

The service information referenced in this AD may be obtained from Boeing Commercial Aircraft Group, Long Beach Division, 3855 Lakewood Boulevard, Long Beach, California 90846, Attention: Data and Service Management, Dept. C1-L5A (D800-0024). Information related to this AD may be examined at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; at the FAA, Los Angeles Aircraft Certification Office, 3960 Paramount Boulevard, Lakewood, California; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

**FOR FURTHER INFORMATION CONTACT:**

*Technical Information:* Philip C. Kush, Aerospace Engineer, Propulsion Branch, ANM-140L, FAA, Los Angeles Aircraft Certification Office, 3960 Paramount Boulevard, Lakewood, California 90712-4137; telephone (562) 627-5263; fax (562) 627-5210.

*Other Information:* Judy Golder, Airworthiness Directive Technical Editor/Writer; telephone (425) 227-1119, fax (425) 227-1232. Questions or comments may also be sent via the Internet using the following address: [judy.golder@faa.gov](mailto:judy.golder@faa.gov). Questions or comments sent via the Internet as attached electronic files must be formatted in Microsoft Word 97 for Windows or ASCII text.

**SUPPLEMENTARY INFORMATION:** The FAA has received a report that, on February 16, 2002, an uncommanded deployment of a thrust reverser occurred on the number 1 engine of a McDonnell

Douglas Model DC-10-30 airplane equipped with General Electric CF6-50 engines. The uncommanded deployment occurred following climb and level-out at 17,000 feet. The flightcrew reported severe buffeting of the airplane with yaw to the left and pitch-down of about five degrees. The "REV UNLOCK" light illuminated prior to onset of the buffeting. The flightcrew shut down the engine, dumped fuel, turned back to the departure airport, and landed the airplane. No injuries were reported among passengers or crew.

Uncommanded deployment of a thrust reverser with a dual translating cowl requires a minimum of two failures: (1) the over pressure shut-off valve (OPSOV) must let pressure enter into the thrust reverser actuation system; and (2) the directional pilot valve (DPV) must command this pressure in the deploy direction. The cause of the presence of pressure in the thrust reverser system has not been determined.

Results of a subsequent investigation by the engine manufacturer revealed that the DPV was misassembled during overhaul by the DPV manufacturer in 1997. The DPV was installed on the incident airplane in 1999. The misassembly involved incorrect installation of a washer and bushing in the DPV piston/poppet subassembly. Results of vibration-table testing showed that a DPV misassembled in this way could change positions from "stow command" to "deploy command" on its own. When a DPV is in the "deploy command" position, a single failure of the OPSOV could result in an uncommanded deployment of the thrust reverser during flight. This condition, if not corrected, could result in reduced controllability of the airplane.

McDonnell Douglas Model DC-10-10, DC-10-10F, DC-10-15, DC-10-30F, and DC-10-30F (KC10A and KDC-10) airplanes are equipped with the same or similar engines and thrust reverser systems as the Model DC-10-30 airplane involved in the incident described previously. Therefore, these models may be subject to the same unsafe condition.

**Explanation of Relevant Service Information**

The FAA has reviewed and approved Boeing DC-10 Minimum Equipment List Procedures Manual, Item 78-1, Revision 11, dated January 1999. Item 78-1 describes maintenance procedures for deactivating and locking a fan thrust reverser, as well as an optional method for deactivating and locking a fan thrust reverser.