[Federal Register: September 12, 2005 (Volume 70, Number 175)]
[Rules and Regulations]
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[DOCID:fr12se05-2]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 2001-NE-17-AD; Amendment 39-14265; AD 2005-01-15R1]

RIN 2120-AA64

Airworthiness Directives; Rolls-Royce plc RB211 Trent 875, 877, 884, 884B, 892, 892B, and 895 Series Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is revising an existing airworthiness directive (AD) for Rolls-Royce plc (RR) RB211 Trent 875, 877, 884, 884B, 892, 892B, and 895 series turbofan engines with certain part number (P/N) low pressure compressor (LPC) fan blades installed. That AD currently requires initial and repetitive ultrasonic inspections of the fan blade dovetail roots and defines a specific terminating action to the repetitive blade inspection requirements. This AD requires the same actions but clarifies the terminating action. We are issuing this AD to prevent multiple LPC fan blade failures due to cracks, which could result in uncontained engine failure and possible damage to the airplane.

DATES: This AD becomes effective October 17, 2005. The Director of the Federal Register previously approved the incorporation by reference of certain publications listed in the regulations as of January 28, 2005 (70 FR 2336, January 13, 2005).

ADDRESSES: Contact Rolls-Royce plc, P.O. Box 31, Derby DE24 6BJ, UK; telephone 44 (0) 1332 242424; fax 44 (0) 1332 249936, for the service information identified in this AD.

You may examine the AD docket at the FAA, New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA. You may examine the service information, 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 January 3, 2005, we issued AD 2005-01-15, Amendment 39-13940 (70 FR 2336, January 13, 2005). That AD superseded AD 2002-11-08, Amendment 39-12769 (67 FR 38852 June 6, 2002). AD 2005-01-15 requires initial and repetitive ultrasonic inspections of the fan blade dovetail roots, and defines a specific terminating action to the repetitive blade inspection requirements. That AD was the result of a report of a cracked fan blade found before the blade reached the initial inspection threshold of AD 2002-11-08. That AD also reduced the repetitive inspection compliance time due to potential breakdown of blade coating and lubrication on certain blades. Those conditions, if not corrected, could result in uncontained engine failure and possible damage to the airplane.

Actions Since We Issued AD 2005-01-15

Since we issued AD 2005-01-15, we received a comment from an operator requesting that we clarify the terminating action in that AD. As that AD is currently written, you must install LPC fan blades in complete sets to comply with the terminating action. Our intent is that all blades must be replaced with blades that meet the replacement criteria to qualify as terminating action, but not necessarily replaced as a complete set. In response to the comment, we published a proposed AD in the Federal Register on March 9, 2005 (70 FR 11585). That action proposed to require initial and repetitive ultrasonic inspections of the fan blade dovetail roots, and to clarify a specific terminating action to the repetitive blade inspection requirements.

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.

Comments

We provided the public the opportunity to participate in the development of this AD. We received no comments on the proposal or on the determination of the cost to the public.

Conclusion

We have carefully reviewed the available data and determined that air safety and the public interest require adopting the AD as proposed.

Costs of Compliance

There are about 350 RR RB211 Trent 875, 877, 884, 884B, 892, 892B, and 895 series turbofan engines of the affected design in the worldwide fleet. We estimate that 90 engines installed on airplanes of U.S. registry will be affected by this AD. We also estimate that it would take about 8 work hours per engine to perform the inspections, and about 260 work hours per engine to perform the terminating action. The average labor rate is $65 per work hour. Based on these figures, we estimate the total cost of the AD to U.S. operators to be $1,567,800.

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 this AD:

(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.

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. 2001-NE-17-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 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 39-13940 (70 FR 2336, January 13, 2005), and by adding the following new airworthiness directive, Amendment 39-14265:

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/aircraft/safety/alerts/

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).

2005-01-15R1 Rolls-Royce plc: Amendment 39-14265. Docket No. 2001-NE-17-AD.

Effective Date

(a) This airworthiness directive (AD) becomes effective October 17, 2005.

Affected ADs

(b) This AD revises AD 2005-01-15, Amendment 39-13940.

Applicability:

(c) This AD applies to Rolls-Royce plc (RR) RB211 Trent 875, 877, 884, 884B, 892, 892B, and 895 series turbofan engines with low pressure compressor (LPC) fan blades, part numbers (P/Ns) FK30838, FK30840, FK30842, FW12960, FW12961, FW12962, and FW13175, installed. These engines are installed on, but not limited to, Boeing Company 777 series airplanes.

Unsafe Condition

(d) This AD revision results from a request by an operator to clarify the terminating action in AD 2005-01-15. We are issuing this AD to prevent multiple LPC fan blade failures due to cracks, which could result in uncontained engine failure and possible damage to the airplane.

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.

(f) Ultrasonic-inspect and disposition the dovetail roots of LPC fan blades, P/Ns FK30838, FK30840, FK30842, FW12960, FW12961, FW12962, and FW13175, that are removed from the engine, using 3.A.(1) through 3.A.(5) or, for blades that are not removed from the engine, using 3.B.(1) through 3.B.(5) of the Accomplishment Instructions of RR Alert Service Bulletin (ASB) No. RB.211-72-AD344, Revision 7, dated March 12, 2004, as follows:

(1) For blades P/Ns FK30838, FK30840, and FK30842, that have not been relubricated during any interval exceeding 600 cycles-since-new (CSN) or 600 cycles-since-rework (CSR) using either RR ASB No. RB.211-72-AD344 or Service Bulletin (SB) No. RB.211-72-D347, inspect as specified in paragraph (f) of this AD and within the compliance times specified in the following Table 1:

TABLE 1.—COMPLIANCE TIMES FOR BLADES P/NS FK30838, FK30840, AND FK30842

Engine series	Boeing 777 series	Airplane maximum gross weight (times 1,000 pounds)	Initial inspection CSN	Repetitive inspection (cycles-since-last-inspection) (CSLI)
(i) –884B, –892	–300	(A) 660 and 632.5	600	80
		(B) 580	2,000	600
(ii) –884, 884, -892, –892B, and –895	–200	(A) 632.5 and 648	1,200	100
		(B) 656	600	80
		(C) 555	2,000	600
(iii) –875	–200	535	2,000	600
(iv) –877	–200	545	2,000	600

(2) For blades P/Ns FK30838, FK30840, and FK30842, that have been relubricated at intervals not exceeding 600 CSN or 600 CSR using either RR ASB No. RB.211-72-AD344 or SB No. RB.211-72-D347, inspect as specified in paragraph (f) of this AD and within the compliance times specified in the following Table 2:

TABLE 2.—COMPLIANCE TIMES FOR BLADES P/NS FK30838, FK30840, AND FK30842

Engine series	Boeing 777 series	Airplane maximum gross weight (times 1,000 pounds)	Initial inspection CSN	Repetitive inspection CSLI
(i) –884B, 892	–300	(A) 660 and 632.5	600	80
		(B) 580	2,400	600
(ii) –884, –892, -892B, and –895	–200	(A) 632.5 and 648	1,200	100
		(B) 656	600	80
		(C) 555	2,400	600
(iii) –875	–200	535	2,400	600
(iv) –877	–200	545	2,400	600

(3) For blades P/Ns FW12960, FW12961, FW12962, and FW13175, either new or reworked to that configuration at greater than 600 CSN or since previous rework, or that have not been relubricated during any interval exceeding 600 CSN or 600 CSR using either RR ASB No. RB.211-72-AD344 or SB No. RB.211-72-D347 requirements, inspect as specified in paragraph (f) of this AD and within the compliance times specified in the following

TABLE 3.—COMPLIANCE TIMES FOR BLADES P/NS FW12960, FW12961, FW12962, AND FW13175

Engine series	Boeing 777 series	Airplane maximum gross weight (times 1,000 pounds)	Initial inspection CSN	Repetitive inspection CSLI
(i) –884B, –892	–300	(A) 660 and 632.5	600	100
		(B) 580	2,000	600
(ii) –884B, –892, –892B, and –895	–200	(A) 632.5 and 648	1,200	125
		(B) 656	600	100
		(C) 555	2,000	600
(iii) –875	–200	535	2,000	600
(iii) –877	–200	545	2,000	600

(4) For blades P/Ns FW12960, FW12961, FW12962, and FW13175, either new or reworked to that configuration at fewer than 600 CSN or since previous rework, and that have been relubricated at intervals not exceeding 600 CSN using either RR ASB No. RB.211-72-AD344 or SB No. RB.211-72-D347, inspect as specified in paragraph (f) of this AD and within the compliance times specified in the following Table 4:

TABLE 4.—COMPLIANCE TIMES FOR BLADES P/NS FW12960, FW12961, FW12962, AND FW13175

Engine series	Boeing 777 series	Airplane maximum gross weight (times 1,000 pounds)	Initial inspection CSN	Repetitive inspection CSLI
(i) –884B,–892	–300	(A) 660 and 632.5	600	100
		(B) 580	2,400	1,200
(ii) –884,–892,–892B, and–895	–200	(A) 632.5 and 648	2,400	125
		(B) 656	600	100
		(C) 555	2,400	1,200
(iii) –875	–200	535	2,400	1,200
(iv) –877	–200	545	2,400	600

(g) When engines containing blades P/Ns FK30838, FK30840, FK30842, FW12960, FW12961, FW12962, and FW13175 are moved from one gross weight category to another, the inspection schedule that is applicable to the higher gross weight category must be used.

Terminating Action

(h) As terminating action to the repetitive inspection requirements of this AD, at the next shop visit when the LPC fan blades are removed for repair or overhaul, but no later than December 31, 2009:

(1) Replace LPC fan blades P/Ns FK30838, FK30840, FK30842, FW12960, FW12961, FW12962, or FW13175, with serviceable LPC fan blades.

(2) For the purposes of this AD, serviceable LPC fan blades are blades that feature additional blade root processing requirements found in RR SB No. RB.211-72-D672, dated February 1, 2002; or are LPC fan blades that feature a full form root profile. Information on full form root profile blades can be found in RR SB No. RB.211-72-D390, RR SB No. RB.211-72-E044, and RR SB No. RB.211-72-E382.

Previous Credit

(i) Previous credit is allowed for initial inspections of fan blades that were done using RR ASB No. RB.211-72-AD344, Revision 4, dated March 15, 2002, Revision 5, dated June 20, 2003, Revision 6, dated February 27, 2004, or Revision 7, dated March 12, 2004, before the effective date of this AD.

Alternative Methods of Compliance

(j) 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

(k) You must use the Rolls-Royce plc service information specified in Table 5 of this AD to perform the blade inspections and replacements required by this AD. The Director of the Federal Register approved the incorporation by reference of the documents listed in Table 5 of this AD as of January 28, 2005 (70 FR 2336, January 13, 2005). You can get a copy from Rolls-Royce plc, P.O. Box 31, Derby DE24 6BJ, UK; telephone 44 (0) 1332 242424; fax 44 (0) 1332 249936. You may review copies at the FAA, New England Region, Office of the Regional Counsel, Attention: Rules Docket No. 2001-NE-17-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*.

TABLE 5.—INCORPORATION BY REFERENCE

Service Bulletin No.	Page	Revision	Date
RB.211–72–AD344 Total Pages: 11	All	7	March 12, 2004.
RB.211–72–AD344, Appendices 1 through 5 Total Pages: 18	All	7	March 12, 2004.
RB.211–72–D672 Total Pages: 24	All	Original	February 1, 2002.

Related Information

(l) Civil Aviation Authority (CAA) airworthiness directive G-2004-0008, dated April 29, 2004, also addresses the subject of this AD.

Issued in Burlington, Massachusetts, on September 6, 2005.
Peter A. White,
Acting Manager, Engine and Propeller Directorate, Aircraft Certification Service.
[FR Doc. 05-17976 Filed 9-9-05; 8:45 am]
BILLING CODE 4910-13-P