



**United Kingdom
Civil Aviation Authority**

**AIRWORTHINESS
DIRECTIVE**

AD No: G-2005-0003

Issue Date: 24 January 2005

This AD is issued by the UK CAA acting for and on behalf of the European Aviation Safety Agency as the Primary Aviation Authority (ICAO Annex 8 Authority of State of Design) for the affected product(s).

Approved by the European Aviation Safety Agency under approval number 2005-530 on 13 January 2005.

In accordance with Article 9(7)(b) of the Air Navigation Order 2000 as amended the following action required by this Airworthiness Directive (AD) is mandatory for applicable aircraft registered in the United Kingdom.

No person may operate an aircraft to which an AD applies except in accordance with the requirements of that AD unless otherwise agreed with the Authority of the State of Registry.

Type Approval Holders Name:

Type/Model Designation(s):

ROLLS-ROYCE PLC

RB211- 22B

Type Certificate Data Sheet No: 1039

Superseded AD: 004-01-2000

ATA 72 - ENGINE – HP TURBINE DISC- INSPECTION

Manufacturer(s): Rolls-Royce plc

Applicability: Model RB211-22B series engines installed in Lockheed L1011 aeroplanes with the following HP turbine discs fitted to the engines.

Part Number LK80622 Serial Number LQDY6316 onwards

Part Number LK80623 Serial Number CQDY5945 onwards

Part Number UL28267 All disc Serial Numbers

Reason: A population of HP turbine discs that were manufactured between 1989-1999 and which were subject to possible machining anomalies, were believed to have an increased chance of suffering from cooling air hole cracking, compared to the general fleet population of HP turbine discs. As a result of this risk, Rolls-Royce issued Mandatory Non-Modification Service Bulletin (NMSB) 72-C877 (CAA Airworthiness Directive 004-01-2000) which required in service inspections of the subject discs.

Two recent findings of cracked RB211 HP turbine discs, one of which had propagated further than expected, based on the risk model used to establish the original inspection thresholds defined in the above NMSB, have led to the need to revise the original inspection thresholds.

An HP turbine disc fracture would be uncontained and create a potential unsafe condition.

Accordingly, this AD introduces revised inspection thresholds and compliance times to reflect the increased risk of HP turbine disc cracking and potential disc fracture.

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Compliance/Action: Carry out an Eddy Current Inspection (ECI), as defined in Section 3 Accomplish Instructions of Rolls -Royce NMSB 72-AE717 original issue or later EASA approved revision in accordance with the following schedule:

- 1) If HP turbine disc cycles since new was greater than 9000 cycles on the 1 January 2005, then inspect the disc within 500 cycles from 1 January 2005 or before 11,000 cycles since new, whichever occurs first.
- 2) If HP turbine disc cycles since new was less than 9000 cycles on the 1 January 2005, then inspect the disc by whichever occurs first of either (a) or (b) below:
 - (a) Prior to reaching 9,500 cycles since new.
 - (b) At next shop visit where the HP turbine rotor is removed from the combustor outer case at between 1,500 cycles since new and 9,500 cycles since new.

Note: If a HP turbine rotor meets the cyclic life criteria defined in 2(b) and is currently undergoing a shop visit and, at the effective date of this Airworthiness Directive, has not yet been reinstalled into the Combustion outer Case, then the HP turbine disc must be inspected in accordance with the requirements of this Airworthiness Directive.

- 3) If a disc has been previously inspected in accordance with Rolls-Royce NMSB 72-C877 or a focussed inspection carried out in accordance with Roll-Royce TSD594-J Overhaul Process Task 70-00-00-200-233 at greater than 1500 cycles since new, then either of these inspections meets the requirements of this Airworthiness Directive.

Reference Publications: Rolls-Royce RB211 NMSB 72-AE717 initial issue or later EASA approved revision. Copies may be obtained from Rolls-Royce plc, Technical Publications, PO Box 31, Derby, DE24 8BJ, United Kingdom. Phone: +44 (0)1332 242424 Fax: +44 (0)1332 249936.

Remarks: Enquiries regarding this Directive should be directed to the Civil Aviation Authority, Safety Regulation Group, Propulsion Department, Aviation House, Gatwick Airport South, West Sussex, RH6 0YR. Tel: 44 (0)1293 573201 Fax 44(0)1293 573979 E-mail tony.colling@srg.caa.co.uk