



**United Kingdom  
Civil Aviation Authority**

**AIRWORTHINESS  
DIRECTIVE**

**AD No: G-2004-0015**

Issue Date: 30 June 2004

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 on 2004-6745 28 June 2004.

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:

**ROLLS-ROYCE PLC**

Type/Model Designation(s):

**RB211 TRENT 875-17, 877-17, 884-17,  
884B-17, 892-17, 892B-17, 895-17.**

Type Certificate Data Sheet No: 1051

Superseded/ Revised ADs: 001-05-2003

### **ATA 72 – ENGINE FAN BLADE – ROOT SHEAR KEY SLOT INSPECTION/REWORK**

Manufacturer(s): Rolls-Royce PLC

**Applicability:** Models RB211 Trent 875-17, 877-17, 884-17, 884B-17, 892-17, 892B-17, 895-17 engines fitted with fan blades to SB RB211-72-D390 (part number FK 18548) standard installed on Boeing 777 aeroplanes.

**Reason:** This Airworthiness Directive has been raised to ensure that the correct profile of shear key slot in the L.P. compressor (fan) blade root has been manufactured to the intended design specified dimensions. Service experience has shown that sharp edges in the area of the fan blade root have the potential to generate stress risers with a consequential reduction in fan blade life. A risk analysis has concluded that Mandatory action is necessary to avoid an unacceptable risk of multiple fan blade failure, which would be a potentially hazardous event.

Airworthiness Directive (AD) 001-05-2003 was raised to introduce a requirement to inspect and rework fan blade roots in compliance with Mandatory SB RB211-72-E055 (Original issue and Revision 1).

This Airworthiness Directive supersedes AD 001-05-2003 by reflecting a change in the Compliance Section of SB RB211-72-AE055 Revision 2, permitting the movement of fan blades between aircraft type /engine rating combinations.

**Effective Date:** 30<sup>th</sup> June 2004

**Compliance/Action:** Carry out rework to all SB 72-D390 standard L.P. compressor (fan) blades as defined in Rolls Royce S.B.RB211-72-AE055, Section 3 Accomplishment Instructions, on or before the rework life stated in the table below;

B777 AIRCRAFT TYPE	ENGINE RATING	REWORK LIFE (CYCLES)
-300	884 884B 892	2400 Cycles since new
-200	895	3200 Cycles since new
-200	884 892 892B	4100 Cycles since new
-200	875 877 884	4100 Cycles since new

**NOTE 1:** Where LP compressor blades have been moved between 'Aircraft Type/Engine Rating' combinations then the life remaining to rework may be calculated as follows:

Formula 1 (Conversion to a lower rework life)

$$\frac{\text{Higher rework life limit} - \text{Total flights in higher rework life} \times 100}{\text{Higher rework life limit}} = A\%$$

Lower rework life limit  $\times$  A% = Flight Cycles Remaining

Total flights at the higher rework life limit + Flight Cycles Remaining = Revised rework life limit for the fan blades

Formula 2 (Conversion to a higher rework life).

$$\frac{\text{Lower rework life limit} - \text{Total flights in Lower rework life} \times 100}{\text{Lower rework life limit}} = A\%$$

Lower rework life limit  $\times$  A% = Flight Cycles Remaining

Total flights at the lower rework life limit + Flight Cycles Remaining = Revised rework life limit for the fan blades

Rework carried out in accordance with AD 001-05-2003 is deemed as acceptable for the purposes of compliance with this Airworthiness Directive.

**Reference Publications:** Rolls-Royce Alert Service Bulletins RB211-72-AE055 Revision 2 and RB211-72-E055 Revision 1 may be obtained from Publication Services, Rolls-Royce plc. PO Box 31, Derby, DE24 8BJ, United Kingdom. Phone: +44 (0) 1332 242424 Fax: +44 (0) 1332 249936

**Remarks:** Later EASA approved Service Bulletin issues to those quoted within are also considered to be acceptable to meet the requirements of this Airworthiness Directive.

The fan blade part number associated with SB RB211-72-D390 addressed within is FW 18548, for full form root profile blades.