



**Airworthiness
Directive
2003-217**

Luffahrt-Bundesamt
Airworthiness Directive Section
Hermann-Blenk-Str. 26
38108 Braunschweig
G E R M A N Y

Rolls-Royce Deutschland

Effective Date: 07 August 2003

Affected:

Kind of aeronautical product: Engine
Manufacturer: Rolls-Royce plc, Derby, United Kingdom
Type: DART 528, 529, 530, 540, 550 and 552
Models affected: DART 528-7E, 528D-7E,
529-7E, 529-7H, 529-8E, 529-8H, 529-8X, 529-8Y, 529-8Z,
529D-7E, 529D-7H, 529D-8E, 529D-8H, 529D-8X, 529D-8Y, 529D-8Z,
531,
532-2L, 532-2S, 532-7, 532-7L, 532-7N, 532-7P, 532-7R,
533-2,
534-2,
535-2, 535-7, 535-7R,
536-2, 536-2T, 536-7, 536-7P, 536-7R,
542-10, 542-10J, 542-10K, 542-4, 542-4K,
543-10, 543-10K,
550-2,
552-2, 552-7, and 552-7R
Serial numbers affected: All
German Type Certificate No.: 7002, 7023, 7038, 7039, 7040 and 7041

Subject:

Uncontained turbine disk rim failures because of blade vibrations as a result of excessive gaps between blade shrouds and platforms.

Reason:

Since 1972 there have been a number of High Pressure (HP) turbine disk rim failures, some of which resulted in portions of the HP turbine disk being released. The failures have been attributed to high stress levels in the HP turbine disk bucket groove due to blade vibration. Damaging HP turbine blade vibration can occur as a result of excessive gaps between blade shrouds and platforms. The gap can increase if wear occurs between the blade shroud and platform abutment faces. Rolls-Royce DART Service Bulletin Da72-530 recommended a one time inspection of the HP turbine blades in accordance with repair scheme DRS611 to ensure that no engines have HP turbine blades with worn abutment faces. This service bulletin was instructed by the UK CAA with the Airworthiness Directive 002-05-98 for all affected DART engines with pre DRS611 standard turbine blades. Further to this Airworthiness Directive and the manufacturer recommendation it is now required by this Airworthiness Directive to introduce an obligatory initial inspection for all affected DART engines and a repeat inspection interval for the HP turbine blade shroud and platform abutment faces in order to prevent further uncontained disk rim failures.

Action:

This Airworthiness Directive requires the following actions:

1. Inspect the HP turbine blade platforms and shrouds in accordance with the applicable Rolls-Royce DART Overhaul Manual.
2. Repetition of this inspection in periodical intervals.
3. If excessive gaps between blade shrouds and platforms have been found, the engine may not be returned to service without being reworked in accordance with the Overhaul Manual.

All necessary actions must be performed on the basis of the referenced manufacturer Service Bulletin.

Enquiries regarding this Airworthiness Directive should be referred to Mr. Martin Borsum, Airworthiness Directive Section at the above address, fax-no. 0049 531/2355-725. Please note, that in case of any difficulty, reference should be made to the German issue!

Compliance:

The necessary actions must be carried out in the following compliance times:

Action 1:

- After no more than 7400 flight hours since the last inspection of the blades in accordance with the applicable Rolls-Royce DART Overhaul Manual
or
- After no more than 7400 flight hours since new blades were installed
or
- After no more than 1500 flight hours from the effective date of this Airworthiness Directive
whichever comes later.

Action 2:

At an interval not more than 7400 flight hours.

Action 3:

Before further flights.

Technical publication of the manufacturer:

Rolls-Royce DART Service Bulletin Da72-543 dated July 11, 2003 becomes herewith part of this AD and may be obtained from Messrs.:

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