

---

**AIRWORTHINESS DIRECTIVE**

---

For the reasons set out in the background section, the CASA delegate whose signature appears below issues the following Airworthiness Directive (AD) under subregulation 39.001(1) of CASR 1998. The AD requires that the action set out in the requirement section (being action that the delegate considers necessary to correct the unsafe condition) be taken in relation to the aircraft or aeronautical product mentioned in the applicability section: (a) in the circumstances mentioned in the requirement section; and (b) in accordance with the instructions set out in the requirement section; and (c) at the time mentioned in the compliance section.

---

**Rolls Royce Turbine Engines - Dart Series****AD/DART/31****Intermediate Pressure Turbine Disc****8/2005**

Applicability: Rolls-Royce Dart Turboprop Engine models:

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,

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;

that have the Initial Issue or Revision 1, but not Revision 2 or later Revisions of Rolls Royce Service Bulletin (SB) Da72-533 incorporated and which have not been subject to a dimensional inspection of the Intermediate Pressure Turbine (IPT) disc in accordance with the Engine Overhaul Manual, Chapter 72-61-1.

Requirement: 1. Carry out dimensional inspection of the IPT disc in accordance with SB Da72-538 dated 10 June 2005 or later approved revisions;

**OR**

2. Carry out ultrasonic inspection of High Pressure Turbine (HPT) / IPT disc seal arm in accordance with Rolls Royce SB Da72-536. If the ultrasonic inspections shows wear outside allowable limits, carry out dimensional inspection of the IPT disc per Requirement 1 of this AD.

## Rolls Royce Turbine Engines - Dart Series

AD/DART/31 (continued)

3. Rework or replace the IPT disc, if wear outside allowable limits has been established as a result of inspection per Requirement 1 of this Directive.

*Note: German LBA Airworthiness Directive (AD) D-2005-197, as approved by EASA under approval number 2005-5848 dated 10 June 2005 refers.*

- Compliance:
1. After effective date of the AD, but not later than 31 January 2006.
  2. After effective date of the AD, but not later than 31 January 2006.
  3. Before installation of the IPT disc in the engine, after effective date of the AD.

This Airworthiness Directive becomes effective on 4 August 2005.

Background: Since 1972 there have been a number of High Pressure Turbine (HPT) disc diaphragm failures on in service engines, three resulted in the HPT disc being released. The failures have been attributed to excitations of the HPT assembly as a result of fretting between the HPT disc and Intermediate Pressure Turbine (IPT) disc seal arms. In extreme cases this can result in high cycle fatigue failure initiating in the seal arm radius.

The actions specified by this Airworthiness Directive are intended to prevent HPT disc failure, which can result in an uncontained engine failure and damage to the aircraft.



James Coyne  
Delegate of the Civil Aviation Safety Authority

24 June 2005