

EASA	AIRWORTHINESS DIRECTIVE
	AD No.: 2009-0051 Date: 05 March 2009 Note: This Airworthiness Directive (AD) is issued by EASA, acting in accordance with Regulation (EC) No 216/2008 on behalf of the European Community, its Member States and of the European third countries that participate in the activities of EASA under Article 66 of that Regulation.
This AD is issued in accordance with EC 1702/2003, Part 21A.3B. In accordance with EC 2042/2003 Annex I, Part M.A.301, the continuing airworthiness of an aircraft shall be ensured by accomplishing any applicable ADs. Consequently, no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of that Airworthiness Directive unless otherwise specified by the Agency [EC 2042/2003 Annex I, Part M.A.303] or agreed with the Authority of the State of Registry [EC 216/2008, Article 14(4) exemption].	
Type Approval Holder's Name : ROLLS-ROYCE PLC	Type/Model designation(s) : RB211 Trent 900 series engines
TCDS Number : EASA.E.012	
Foreign AD : Not applicable	
Supersedure : This AD supersedes EASA AD 2008-0202, dated 17 November 2008.	
ATA 72	Engine – HP Turbine Nozzle Guide Vane (NGV) Convex Surface - Inspection
Manufacturer(s):	Rolls-Royce plc
Applicability:	RB211 Trent 900 series engines, all marks, which do not incorporate modification SB 72-G025. These engines are known to be installed on, but not limited to, Airbus A380 series aeroplanes.
Reason:	Evidence from development testing and flight test Trent 900 engines has identified cracking on some HP Turbine Nozzle Guide Vane (NGV) Convex Surfaces. Analysis of test data and review of the manufacturing process has revealed compounding effects that may contribute to a shortfall in component life and an increased likelihood of premature cracking in this region. Excessive cracking on the Convex Surface may lead to the release of NGV material or the blockage of Turbine gas flow. This results in a risk of fracture to the HP Turbine Blade. Not all NGV assemblies are affected. It is believed that the problem, if it exists, will manifest itself below 1000 cycles. Single release of HP Turbine Blade on more than one engine could result in multiple engine loss of power or In-Flight Shut Down (IFSD). This event presents a potential unsafe condition to the aeroplane. EASA AD 2008-0202 was published to require inspection of the HPT NGV Convex Surfaces and, depending on the results, subsequent corrective actions. Since issuance of EASA AD 2008-0202 Rolls-Royce plc has inspected several sets of HPT NGV's returning from service, and determined that tighter limits are needed on some dimensions for some types of damage. It has also been

	determined that relaxed inspection intervals can be allowed for some type of damage and when no damage is found. These new limits are defined in updated Table 1 and Table 2 in section 3.B of Rolls-Royce RB211-Trent 900 Alert Non Modification Service Bulletin (NMSB) 72-AF995 Revision 2. Since issuance of EASA AD 2008-0202, Rolls-Royce plc has also introduced a new standard of HPT NGV's with modification SB 72-G025 that increases the cooling flow of the aerofoils by increasing the cooling hole diameters. This modification will significantly reduce the risk of aerofoil cracking and material release therefore deleting the need for inspection beyond normal maintenance procedures. This AD supersedes EASA AD 2008-0202 by retaining the same requirements as in AD 2008-0202 except that: - Revised inspection limits provided in Rolls-Royce RB211-Trent 900 Alert NMSB 72-AF995 Revision 2 must be used. - Applicability is limited to Trent 900 engines which do not incorporate modification SB 72-G025.
Effective Date:	19 March 2009
Required Action(s) and Compliance Time(s):	Required as indicated, unless accomplished previously: Before accumulating 400 total cycles, inspect the HPT NGV Convex Surfaces, in accordance with the accomplishment instructions in section 3.A of Rolls-Royce RB211-Trent 900 Alert Non Modification Service Bulletin (NMSB) 72-AF995 Revision 2. <u>If no damage is identified at first inspection:</u> - repeat inspections must be carried out at intervals less than 250 Cycles apart. - if repeat inspections reveal no damage at 1000 cycles revert to normal inspection maintenance as detailed in the Rolls-Royce RB211-Trent 900 Maintenance Planning Document (MPD). <u>If any damage is identified:</u> - refer to the Table 1 and Table 2 in section 3.B. of Rolls-Royce RB211-Trent 900 Alert NMSB 72-AF995 Revision 2 for re-inspection intervals and rejection criteria.
Ref. Publications:	Rolls-Royce RB211-Trent 900 NMSB 72-AF995 Revision 2, dated 09 February 2009. The use of later approved revisions of these documents is acceptable for compliance with the requirements of this AD.
Remarks :	1. If requested and appropriately substantiated, EASA can approve Alternative Methods of Compliance for this AD. 2. The required actions and the risk allowance have granted the issuance of a Final AD with Request for Comments, postponing the public consultation process after publication. 3. Enquiries regarding this AD should be referred to the Airworthiness Directives, Safety Management & Research Section, Certification Directorate, EASA. E-mail ADs@easa.europa.eu 4. For any question concerning the technical content of the requirements in this AD, please contact: Rolls-Royce plc., P.O. Box 31, Derby, DE24 8BJ, United Kingdom; Telephone: +44 (0) 1332 242424, Fax: +44 (0) 1332 249936; Email: tech.help@rolls-royce.com or download the publication from https://www.aeromanager.com