

AIRWORTHINESS DIRECTIVE

On the commencement date specified below, and for the reasons set out in the background section, the CASA delegate whose signature appears below repeals Airworthiness Directive (AD) AD/AL 250/91 Amdt 1 and issues the following AD under subregulation 39.001 (1) of CASR and subsection 33 (3) of the *Acts Interpretation Act 1901*. The AD requires that the action set out in the requirement section (being action that the delegate considers necessary to correct an 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 (Allison) Turbine Engines - 250 Series

**AD/AL 250/91
Amdt 2**

**Engine Compressor Module - Removal
from Service**

10/2020

Applicability: All Rolls-Royce Allison 250 series engines.

- Requirement:
1. Review engine logbooks and determine if a compressor module with a serial number listed in Table 1 and 2 is installed in the engine.
 2. Remove affected Rolls-Royce Allison C20B series and C20R series compressor modules with a serial number listed in Table 1 from service.
 3. Remove affected Rolls-Royce Allison C18 series, C28 series, C30 series and C47 series compressor modules with a serial number listed in Table 2 from service.
 4. All affected Rolls-Royce Allison C20B series and C20R series compressor modules must be sent to an approved maintenance organisation to be assessed in accordance with Original Equipment Manufacturer (OEM) specifications.

Compressor rotor wheels in the position numbers listed in Table 1 for a module with a serial number listed in Table 1 must be replaced before returning the compressor module to service, the subject removed rotor wheels must be quarantined or scrapped so they cannot be installed as a serviceable part.

5. All affected Rolls-Royce Allison C18 series, C28 series, C30 series and C47 series compressor modules must be sent to an approved maintenance organisation to be assessed in accordance with OEM specifications.

Compressor impellers must be replaced, or may only be returned to service through an approved OEM repair scheme before returning the compressor module to service. Impellers deemed as not recoverable must be quarantined or scrapped so they cannot be installed as a serviceable part.

Table 1: Affected C20B and C20R compressor modules.

Affected Compressor Module Serial Numbers (S/N):			
C20B series		C20R series	
Module S/N:	Compressor Rotor Wheel Position Number:	Module S/N:	Compressor Rotor Wheel Position Number:
CAC23900	1, 2, 3 & 4	CAC15280	1

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Table 1 (Continued)

Module S/N:	Compressor Rotor Wheel Position Number:	Module S/N:	Compressor Rotor Wheel Position Number:
CAC30243	1	CAC15850	1 & 4
CAC30972	1	CAC15973	1 & 4
CAC31261F	1	CAC28209	3 & 4
CAC31394	To be advised (TBA).		
CAC32128	2, 3 & 4		
CAC33247	1 & 6		
CAC33931	1 & 2		
CAC34205	TBA.		
CAC35463	4		
CAC36132	2, 3, 4, & 6		
CAC37795	1		
CAC37814	1, 2, 3, 4 & 5		
CAC37978	1		
CAC38521	TBA.		
CAC39053	TBA.		
CAC40090	1		
CAC40093	1		
CAC40446	TBA.		
CAC40483	TBA.		
CAC40560	1 & 5		
CAC41262	1		
CAC41846	TBA.		
CAC41917	1		
CAC42465	1 & 4		
CAC43498	1 & 5		

Table 2: Affected C18, C28, C30 and C47 compressor modules.

Affected Compressor Module Serial Numbers (S/N):			
C18 series	C28 series	C30 series	C47 series
CAC21705B	CAC28017 CAC28022 CAC28048 CAC28119 CAC70026 CAC70243 CAC70779	CAC28046 CAC90011 CAC90052 CAC90069 CAC90507 CAC90719 CAC91119 CAC91305 CAC91311 CAC91507	CAC44094 CAC44293 CAC44294 CAC45072 CAC45750

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Table 2 (Continued)

C18 series	C28 series	C30 series	C47 series
		CAC91607 CAC91623 CAC91635 CAC91820 CAC98516 CAC98537	

- Compliance:
1. Before further flight.
 2. For C20B and C20R series compressor modules: Before further flight.
 3. For C18, C28, C30 and C47 series compressor modules: the earlier of the following:
 - (i) within 50 hours' time in service;
 - (ii) 12 April 2020;
 - (iii) next engine shop visit.
 - (iv) for C47 compressor module Serial Number CAC44094, within 50 hours' time in service or 4 June 2020.
 4. Before returning to service.
 5. Before returning to service.

For aircraft located away from a maintenance facility, a special flight permit may be issued for one non-revenue ferry flight to return the aircraft to the nearest maintenance facility to carry out the requirements of this AD.

CASA is to be notified of any engines found to have an affected module fitted via the Defect Reporting Service.

Note 1: Civil Aviation Authority of New Zealand (CAA NZ) Airworthiness Directive DCA/AL250/60A has been referenced as a source document for Tables 1 and 2.

Note 2: The primary safety concern with C18, C28, C30 and C47 series compressor modules relates to unauthorised drilling of compressor impellers for balancing.

Note 3: The primary safety concern with C20B and C20R series compressor modules relates to blending repairs on compressor rotor wheels with the lack of shot peening.

This AD commences on 8 May 2020.

- Background:
- A recent audit of a New Zealand maintenance organisation by CAA NZ has determined that compressor module inspections and repairs of these modules may not have been carried out in accordance with approved Rolls-Royce procedures.

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AD/AL 150/91 Amdt 2 (continued)

Amendment 1 adds the C18 series compressor module, introduces additional serial numbers to each module series and makes minor editorial changes throughout the text.

Amendment 2 adds C47 series compressor module serial number CAC44094, with compliance action time of 50 hours' time in Service or 4 June 2020.

A handwritten signature in black ink, appearing to read 'van Dijk', with a large, sweeping flourish extending from the bottom left.

Pieter van Dijk
Delegate of the Civil Aviation Safety Authority
4 May 2020