



Civil Aviation Authority

MANDATORY PERMIT DIRECTIVE



Number: 2018-002

[Correction: 26 March 2018]

Issue date: 1 March 2018

In accordance with Article 41(1) of The Air Navigation Order 2016, as amended, the following action required by this Mandatory Permit Directive (MPD) is mandatory for applicable aircraft registered in the United Kingdom operating on a UK CAA Permit to Fly.

Type Approval Holder's Name: Rolls-Royce	Type/Model Designation(s): Avon Mk 1, 100 and 200 series Engines
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Supersedure:	This MPD supersedes MPD 2001-001 dated 18 May 2001.
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Title:	Engine Calendar Life Limits
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Manufacturer:	Rolls-Royce
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Applicability:	Avon Mk 1, Avon Mk 100 series, Avon Mk 200 Series
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Reason:	<p>This correction is issued to revise the phraseology of the last paragraph of this section.</p> <p>Following an investigation into a fatal accident to a Hawker Hunter on 5 June 1998, the Air Accidents Investigation Branch recommended that consideration be given to imposing calendar life limits on fuel and air systems fitted to Avon engines, since these systems may be subject to ageing effects.</p> <p>It is recognised that ageing effects may not be confined solely to fuel and air systems. Corrosion of discs and blading, for example, may also be time dependent. The CAA has experience of accelerated corrosion occurring on engines fitted to aeroplanes of low usage, and the possibility of an age-related failure to either the engine control units or core engine cannot be discounted.</p> <p>The CAA has reviewed calendar life limits imposed in military service for the Avon series. In later years of operation, UK Ministry of Defence imposed calendar limits which varied between 10 and 20 years, depending on the mark number. Operation of these aeroplanes in civil operation however, may not be representative of military use, due to the comparatively low utilisation of the type on the civil register and the application of a limit as high as 20 years is not considered appropriate.</p> <p>Since the safety record for a substantial proportion of the Avon fleet in military service was achieved with calendar limits imposed, it is considered that limits are appropriate for engines fitted to aircraft issued with a CAA Permit to Fly.</p> <p>MPD 2001-001, which is now superseded, introduced calendar life limits which were in addition to Group A part cycle life limitations and overhaul limits already specified for these engines, and was intended to prevent potential calendar time related engine deterioration developing to a point where engine integrity was compromised.</p>
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	<p>Since MPD 2001-001 was issued the CAA has issued CAP 562 “Civil Aircraft Airworthiness Information and Procedures”, Leaflet 70-80, “Guidance Material for Ageing Engine Continuing Airworthiness”, and a further two MPDs relating to ageing engine issues, 2016-001 and 2016-002. As a result, a review of MPD 2001-001 has been carried out.</p> <p>This MPD retains the requirements of MPD 2001-001, which is superseded, and clarifies and enhances the compliance requirements including the option of obtaining an approved Alternative Method of Compliance (AMOC).</p> <p><i>The CAA requires this review following our acceptance of AAIB Safety Recommendation 2015-046</i></p>
Effective Date:	01 March 2018
Compliance/ Action:	<ol style="list-style-type: none"> 1) Within 1 month from the effective date of this MPD, determine from engine/aircraft records: <ol style="list-style-type: none"> a) the date of the last Engine Overhaul; b) the uninstalled history of the engine since last Engine Overhaul; c) the installed history of the aircraft since last Engine Overhaul; <p>Note: Engine Overhaul here means overhaul in accordance with the Manufacturers Requirements (Ref. 1).</p> 2) If the records show that the engine was overhauled less than 15 years ago and; <ol style="list-style-type: none"> a) the uninstalled history since overhaul shows that the engine was stored immediately after overhaul in accordance with the manufacturers long-term storage requirements before recommissioning and; b) the installed history of the engine since last Engine Overhaul shows that the engine has been maintained in accordance with the Manufacturers Requirements (Ref 2.) <p>the requirements of this MPD have been met and paragraphs 4 to 7 of the MPD are not applicable until the engine reaches 15 years since overhaul.</p> 3) If the records show that the engine was overhauled more than 15 years ago and; <ol style="list-style-type: none"> a) the uninstalled history since overhaul shows that the engine was stored immediately after overhaul in accordance with the manufacturers long-term storage requirements before recommissioning and; b) the installed history of the engine since last Engine Overhaul shows that the engine has been maintained in accordance with the Manufacturers Requirements (Ref 2.) and; c) the calendar time in 3.b) has not reached 15 years since recommissioning;

	<p>the requirements of this MPD have been met and paragraphs 4 to 7 of the MPD are not applicable until the engine reaches 15 years since recommissioning.</p> <p>Note: Recommissioning here means removing the engine from a controlled storage/maintenance regime and installing in an airframe from which time the maintenance requirements are in accordance with the manufacturers Maintenance Manual (Ref. 2). If the engine is subsequently uninstalled, stored and reinstalled; all time periods shall be included when calculating the time since overhaul.</p> <p>4) Engines that cannot be shown to comply with 2 or 3 must be removed from service.</p> <p>5) From the effective date of this MPD do not install any engine that cannot be shown to comply with 2 or 3.</p> <p>6) Engines that cannot be shown to comply with 2 or 3, that reach or have reached 15 years since recommissioning can be considered for return to service following the development of a documented inspection/test/sampling programme in the form of an Alternative Method of Compliance (AMOC). The AMOC must be supported by an approved BCAR A8-25 organisation, or the engine manufacturer, and must address all ageing related deterioration which could occur within the engine and associated systems. The programme/AMOC requires CAA acceptance.</p> <p>Note: Existing AMOCs to MPD2001-001 are no longer valid, an AMOC, if required, in accordance with this MPD must be developed, supported and submitted for CAA acceptance.</p>
ENSURE COMPLIANCE WITH THIS MPD IS RECORDED IN THE AIRCRAFT LOGBOOK	
Reference Publications:	<ol style="list-style-type: none"> 1) Rolls-Royce Avon Engine Overhaul Manual Ref: O-Av100 Revision 66, 23 May 2002. 2) Avon 20 and 100 Series Maintenance Manual Ref TSD 317 AL26, August 1964 or approved alternative referenced in the Maintenance Programme (e.g. Military A.P.). 3) CAP562 Leaflet 70-10 Engines, Storage Procedures – General Guidance 4) CAP562 Leaflet 70-80 Guidance Material for Ageing Engine Continuing Airworthiness.
Remarks:	<ol style="list-style-type: none"> 1) This MPD was posted on 12 January 2018 as PMPD18-01 and closed for consultation on 09 February 2018. 2) Enquiries regarding this Mandatory Permit Directive should be referred to: GA Unit, Safety Airspace Regulation Group, Civil Aviation Authority, Aviation House, Gatwick Airport South, West Sussex RH6 0YR. Tel: +44 (0)1293 573988 E-mail: ga@caa.co.uk