



Civil Aviation Authority
**MANDATORY PERMIT
DIRECTIVE**

Number: 2020-003

Issue date: 21 July 2020



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): Rolls-Royce Derwent Engines (All marks)
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Supersedure:	none
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Title:	Engine Calendar Life Limits
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Manufacturer:	Rolls-Royce
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Applicability:	Rolls-Royce Derwent Engines (All marks)
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Reason:	<p>Following a review of accidents, incidents, published data and physical inspections of gas turbine engines installed in historic ex-military jets it has been established that aging effects identified in Rolls-Royce Avon engines are not limited to this type.</p> <p>Additionally, the original Design Approval Holders did not envisage extended low utilisation operation so previously defined calendar life limits may not be valid.</p> <p>This MPD requires operators of Derwent engines to review existing overhaul and inspection requirements and establish a basis for continued service.</p> <p>Note:</p> <p>The following applies to Derwent engines installed in Gloster Meteor.</p> <p>In military service the Derwent engine overhaul life was limited by RR at 900 hours subject to a 'Hot End Inspection' at 450 hours. No calendar life was stated.</p> <p>In subsequent civil service, Rolls-Royce published a 'Life Management Plan for Derwent engines [DNS 100032] and critical component inspection requirements and acceptance standards [E/Hist/50001]. The content of these documents was published as QinetiQ SI/1001. This established a requirement for critical parts inspection every 15 years or 225 hrs.</p> <p>The requirement for critical parts inspection every 225 hrs cannot be extended.</p>
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Effective Date:	04 August 2020
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<p>Compliance/ Action:</p>	<p>1) Within 1 month from the effective date of this MPD, determine from engine/aircraft records:</p> <ul 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> <p>2) If the records show that the engine was overhauled less than 15 years ago or inspected in accordance with QinetiQ SI/1001 and;</p> <ul 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 6 of the MPD are not applicable until the engine reaches 15 years since overhaul.</p> <p>3) If the records show that the engine was overhauled more than 15 years ago or inspected in accordance with QinetiQ SI/1001 and;</p> <ul 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 6 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>
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	<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>ENSURE COMPLIANCE WITH THIS MPD IS RECORDED IN THE AIRCRAFT LOGBOOK</p>	
<p>Reference Publications:</p>	<ol style="list-style-type: none"> 1) Rolls-Royce Derwent Engine Overhaul Manual Ref: TSD195 2) CAP562 Leaflet 70-10 Engines, Storage Procedures – General Guidance 3) CAP562 Leaflet 70-80 Guidance Material for Ageing Engine Continuing Airworthiness.
<p>Remarks:</p>	<ol style="list-style-type: none"> 1) This MPD was not posted for consultation because the MPD was compiled in consultation with the operators 2) If requested and appropriately substantiated, CAA can approve Alternative Methods of Compliance for this MPD. 3) Enquiries regarding this Mandatory Permit Directive should be referred to: GA Unit, Safety and Airspace Regulation Group, Civil Aviation Authority, Aviation House, Beehive Ring Road, West Sussex RH6 0YR. Tel: +44 (0) 330 138 3495 E-mail: ga@caa.co.uk