

# Airworthiness Directive Schedule

## Engines

### Merlin

27 May 2010

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- Notes**
1. This AD schedule is applicable to Merlin engines which are fitted on, but not limited to, Supermarine Spitfire, Hawker Hurricane and North American P51 Mustang series aircraft.
  2. The date above indicates the amendment date of this schedule.
  3. New or amended ADs are shown with an asterisk \*

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**\* DCA/MER/1      Rocker Arm – Inspection and Replacement**

**Applicability:**      Rolls-Royce Merlin series engines embodied with Modification 9/223/M2623.

These engines are fitted on, but not limited to, Supermarine Spitfire, Hawker Hurricane and North American P51 Mustang series aircraft.

**Note 1:**              Modification 9/223/M2623 introduces the installation of rocker arm carbide pads. This AD requires repetitive inspections for carbide pad detachment and indications of debonding of the pad from rocker arm. These inspections are an interim requirement as the bond failures are still under investigation.

**Requirement:**      To prevent failure of the rocker arm carbide pads due to possible separation of the pad from the rocker arm which could result in the pad dropping onto the block and migrating, which could result in engine damage and failure, accomplish the following:

Inspect all modified rocker arms for detachment of the carbide pad. Remove rocker arms which have a released pad along with the associated pad and replace with a serviceable rocker arm before further flight.

If any detached pad cannot be located on the cylinder block accomplish an in-depth inspection to locate the pad, and if necessary remove the engine to accomplish this inspection. Rectify any damage caused by the detached pad before further flight.

For all modified rocker arms with the aid of a X10 magnifying glass inspect the region of the brazed joint between the carbide pad and the rocker arm as shown in figure 1. A stylus of a maximum radius 0.005" may be used if preferred. Inspect for any evidence of movement of the pad on the rocker arm which can be detected by a line or a step on the arm.

If any movement is detected accomplish a comparison with a feeler gauge to measure the size of the step. Any arm which has a step estimated at 0.005" or less, or has a step in excess of 0.005" but less than 0.015" may remain in service subject to accomplishment of the repetitive inspections specified in the compliance of this AD.

Any arm which has a step of 0.015" or more must be replaced before further flight.

If any affected rocker arms are found defective accomplish all corrective actions per the manufacturer's instructions and report findings to the CAA by completing a CA005D defect report form.

**Note 2:** Defect report form CA005D is available on the CAA website at <http://www.caa.govt.nz/Forms/Forms.htm>

Figure 1:



(UK MPD 2010-004 refers)

**Compliance:** At the next maintenance inspection or by 27 June 2010 whichever occurs sooner, and thereafter:

For rocker arms which have a step in excess of 0.005" but less than 0.015":

Re-inspect these rocker arms per the requirements in this AD at intervals not to exceed 15 hours TIS or at every annual inspection whichever occurs sooner. Replace rocker arms which have a step of 0.015" or more before further flight, and

For rocker arms which have a step of 0.005" or less:

Re-inspect these rocker arms per the requirements in this AD at intervals not to exceed 25 hours TIS or at every annual inspection whichever occurs sooner. Replace rocker arms which have a step of 0.015" or more before further flight.

**Effective Date:** 27 May 2010