



**Australian Government**

# **MEAMEC0073 Repair and overhaul aircraft piston engine crankcase assembly components**

**Release: 1**

# MEAMEC0073 Repair and overhaul aircraft piston engine crankcase assembly components

## Modification History

Release 1. Application changed. Performance Criteria changed. Foundation Skills made explicit. Assessment Requirements clarified. Supersedes and is equivalent to MEA394 Repair and/or overhaul aircraft piston engine crankcase assembly components.

## Application

This unit describes the skills and knowledge required to apply hand skills and use theory knowledge and maintenance publication procedures to repair and overhaul aircraft piston engine crankcase assembly components.

This unit applies to components from fixed and rotary wing aircraft piston engines. Work can be performed individually or as a member of a team.

The unit is used in workplaces that operate under the airworthiness regulatory systems of the Civil Aviation Safety Authority (CASA) and the Defence Aviation Safety Authority (DASA).

Any other relevant legislation, industry standards and codes of practice within Australia must be applied.

## Pre-requisite Unit

MEA107 Interpret and use aviation maintenance industry manuals and specifications

MEA154 Apply work health and safety practices in aviation maintenance

MEA155 Plan and organise aviation maintenance work activities

MEA156 Apply quality standards during aviation maintenance activities

MEA157 Complete aviation maintenance industry documentation

MEA158 Perform basic hand skills, standard trade practices and fundamentals in aviation maintenance

## Competency Field

Aviation maintenance

## Elements and Performance Criteria

| Elements                                  | Performance Criteria                                                                                         |
|-------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| Elements describe the essential outcomes. | Performance criteria describe the performance needed to demonstrate achievement of the element.              |
| 1. Determine requirements                 | 1.1 Interpret and match component defect reports (removal tags) or customer order by part and serial numbers |

| Elements                                                                                    | Performance Criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Elements describe the essential outcomes.                                                   | Performance criteria describe the performance needed to demonstrate achievement of the element.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                                                                             | <p>1.2 Inspected and/or operated crankcase assembly components through prescribed test procedures to establish serviceability and confirm defects, when required, while observing relevant work health and safety (WHS) procedures, including the use of material safety data sheets (MSDSs) and personal protective equipment (PPE)</p> <p>1.3 Establish modification status to assist in determining the overhaul requirements for the components</p> <p>1.4 Identify extent of overhaul or repair and document in accordance with standard enterprise procedures</p>                                                                                                                      |
| 2. Dismantle and inspect piston engine crankcase assembly components or parts               | <p>2.1 Dismantle crankcase assembly component parts in accordance with maintenance manual and/or enterprise procedures while observing relevant WHS procedures, including the use of MSDSs and PPE</p> <p>2.2 Assess component parts for serviceability in accordance with the relevant maintenance documentation</p> <p>2.3 Tag parts requiring specialist repair and specify repair instructions in accordance with standard enterprise procedures</p> <p>2.4 Prepare parts requiring non-destructive testing (NDT) for testing in accordance with the relevant maintenance documentation</p> <p>2.5 Compile and process parts lists in accordance with standard enterprise procedures</p> |
| 3. Repair, replace or modify piston engine crankcase assembly components or component parts | <p>3.1 Repair or replace components and component parts in accordance with the relevant maintenance documentation</p> <p>3.2 Modify components and components parts when required by reference to relevant manufacturer's bulletins or procedures, regulatory requirements and/or customer requirements while observing relevant WHS procedures, including the use of MSDS and PPE</p>                                                                                                                                                                                                                                                                                                       |
| 4. Assemble, test and adjust piston engine crankcase assembly components                    | <p>4.1 Assemble crankcase assembly component parts within specified tolerances and in accordance with the appropriate maintenance documents while observing relevant WHS procedures, including the use of MSDSs and PPE</p> <p>4.2 Test, adjust or calibrate components to operate within prescribed specifications, and seek required supervisory guidance for complex testing and adjustments</p> <p>4.3 Prepare crankcase assembly for engine reassembly</p> <p>4.4 Where components are not to be assembled into an engine, tag, seal and pack the finished components in accordance with standard</p>                                                                                   |

| Elements                                  | Performance Criteria                                                                                                                                            |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Elements describe the essential outcomes. | Performance criteria describe the performance needed to demonstrate achievement of the element.                                                                 |
|                                           | enterprise procedures<br>4.5 Complete required maintenance documentation and modification records and process in accordance with standard enterprise procedures |

## Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

- Reading skills to interpret maintenance documentation, procedures, specifications (allowable limits) and manufacturer's instructions.
- Writing skills to complete maintenance documentation.
- Numeracy skills to interpret and communicate data and technical information.

Other foundation skills essential to performance are explicit in the performance criteria of this unit.

## Unit Mapping Information

Release 1. Supersedes and is equivalent to MEA394 Repair and/or overhaul aircraft piston engine crankcase assembly components.

## Links

Companion Volume implementation guides are found in VETNet – -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=ce216c9c-04d5-4b3b-9bcf-4e81d0950371>

# **Assessment Requirements for MEAMEC0073 Repair and overhaul aircraft piston engine crankcase assembly components**

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## **Performance Evidence**

There must be evidence the candidate has completed all the tasks outlined in the elements and performance criteria of this unit, and demonstrated the ability to use relevant maintenance documentation, specifications and aircraft or component manuals to recognise state of serviceability and overhaul or repair requirements for the following piston engine crankcase assembly components:

- crankshaft, gears, con rods and counterweights
- camshaft, hydraulic tappets or cam followers and gears
- propeller shaft, reduction drive gear and quill shaft
- component gear drives or trains
- crankcase castings, bearings, component mounting pads and studs
- oil system components
- supercharger and turbocharger components (may be omitted where not applicable to the enterprise)
- propeller governor (may be omitted where not applicable to the enterprise).
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## **Knowledge Evidence**

There must be evidence the candidate has knowledge of:

- how to obtain relevant material safety data sheets (MSDSs)
- the use of applicable items of personal protective equipment (PPE) for repairing or overhauling aircraft piston engine crankcase assembly components
- aircraft piston engine crankcase assembly component inspection and wear measurement procedures
- non-destructive testing (NDT) methods and application
- aircraft piston engine crankcase assembly component repair and overhaul procedures and processes, including work health and safety (WHS).
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## Assessment Conditions

The following conditions of assessment represent the requirements of the regulators Defence Aviation Safety Authority (DASA) and Civil Aviation Safety Authority (CASA) and maintenance stakeholders and must be rigorously observed.

Skills must have been demonstrated under routine supervision in the workplace or in a simulated environment that reflects workplace conditions and contingencies encountered in repairing and overhauling aircraft piston engine crankcase assembly components. The following conditions must be met for this unit:

- use of suitable facilities, equipment and resources, including:
  - tools and equipment specified in maintenance documentation.
  - general-purpose tools and test equipment found in most routine situations.
  - maintenance documentation

Evidence of tasks demonstrating competency must be recorded in a log of industrial experience and achievement.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=ce216c9c-04d5-4b3b-9bcf-4e81d0950371>