



**Australian Government**

# **MEA396 Assemble aircraft piston engine quick engine change unit**

**Release: 2**

# MEA396 Assemble aircraft piston engine quick engine change unit

## Modification History

Release 2. Equivalent to MEA396 Assemble aircraft piston engine quick engine change unit with amended prerequisite codes.

## Application

This unit of competency requires application of hand skills, theory knowledge and maintenance publication procedures to assemble aircraft piston engine quick engine change (QEC) units following engine repair and/or overhaul.

Applications include fixed and rotary wing aircraft piston engines and components. Work can be performed individually or as a member of a team.

This unit of competency is part of the Mechanical Certificate IV (Component Workshop Maintenance Stream) training pathway. The unit is used in workplaces that operate under the airworthiness regulatory systems of the Australian Defence Force (ADF) and the Civil Aviation Safety Authority (CASA).

## 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

## Unit Sector

## Elements and Performance Criteria

| Elements describe the essential outcomes.     | Performance criteria describe the performance needed to demonstrate achievement of the element.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Prepare to assemble piston engine QEC unit | <p>1.1 QEC build requirements are correctly interpreted and matched by part and serial numbers</p> <p>1.2 Correct QEC components are gathered for assembly and their serviceability state and modification status is confirmed in accordance with the relevant maintenance documentation and quality procedures</p> <p>1.3 Required hardware and plumbing is obtained and confirmed as approved items</p>                                                                                                                                                                                                                   |
| 2. Assemble piston engine QEC unit            | <p>2.1 Piston engine is prepared for QEC assembly in accordance with maintenance manual and/or enterprise procedures</p> <p>2.2 QEC components are assembled to the engine and adjusted in accordance with the maintenance manual and/or enterprise procedures while observing relevant work health and safety (WHS) procedures, including the use of material safety data sheets (MSDS) and personal protective equipment (PPE)</p> <p>2.3 QEC unit is assembled and components and linkages are adjusted in accordance with maintenance data requirements</p> <p>2.4 Where required, QEC unit is prepared for testing</p> |

## Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

## Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional

contexts) are included.

**Piston engine QEC unit components include:**

Components from the following list, according to build requirements:

- Engine
- Engine mount frame
- External lubrication system components
- Baffles
- Heat shields
- fuel system plumbing
- pneumatic plumbing
- control linkages
- induction system
- exhaust system components
- turbocharger and waste gate
- tachometer generator and wiring
- vacuum pump
- air pump
- hydraulic pump
- fire warning system

**Testing and adjustment:**

- Complex testing and adjusting of components, where required, will be carried out under supervision at the appropriate level

**Procedures and requirements include:**

- Industry standard procedures specified by manufacturers, regulatory authorities or the enterprise

## Unit Mapping Information

Release 2. Equivalent to MEA396 Assemble aircraft piston engine quick engine change unit

## 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 MEA396 Assemble aircraft piston engine quick engine change unit

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## Performance Evidence

Evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria under the specified conditions of assessment, and must include:

- applying relevant WHS procedures, including the use of MSDS and PPE
- using relevant maintenance documentation, enterprise procedures, specifications and aircraft/component manuals to:
  - identify the required QEC build level and configuration
  - recognise state of serviceability of the QEC components, hardware and plumbing
  - assemble the QEC and adjust components and linkages.

Evidence of transferability of skills and knowledge related to repair and overhaul is essential. This may be demonstrated through application across a number of different piston engine QECs. Ability to assess component serviceability and interpret parts requirements will be necessary to supplement the required evidence. Capability to interpret inspection procedures and specifications (allowable limits) and apply them in practice is critical. The application of adjustment procedures should also clearly indicate knowledge of system operation.

## Knowledge Evidence

Evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- how to obtain relevant MSDS
- the use of applicable items of PPE
- WHS procedures
- fault diagnosis techniques
- system and component operation
- QEC assembly and component adjustment requirements.

## Assessment Conditions

- Competency should be assessed in the work environment, or simulated work environment, using tools and equipment specified in maintenance documentation. It is also expected that general-purpose tools and test equipment found in most routine situations would be used where appropriate.

- The work plan should take account of applicable safety and quality requirements in accordance with the industry and regulatory standards.
- The following conditions of assessment represent the requirements of the Regulators (ADF and CASA) and maintenance stakeholders and must be rigorously observed.
- A person cannot be assessed as competent until it can be demonstrated to the satisfaction of the workplace assessor that the relevant elements and performance criteria of the unit of competency are being achieved under routine supervision on at least one (1) of the engine types maintained by the enterprise.
- This shall be established via the records in the Log of Industrial Experience and Achievement or, where appropriate, an equivalent Industry Evidence Guide (for details refer to the Companion Volume Assessment Guidelines).
- Assessors must satisfy the requirements of the National Vocational Education and Training Regulator (Australian Skills Quality Authority, or its successors).

## Links

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