Australian Government

MEA396A Assemble aircraft piston engine quick engine change unit

Release 1

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

MEA396A Assemble aircraft piston engine quick engine change unit

Modification History

Release 1 - New unit of competency. Covers components of MEA388A - Not equivalent

Unit Descriptor

This unit of competency is part of the Mechanical Certificate IV (Component Workshop Maintenance Stream) training pathway. It covers the competencies required to assemble aircraft piston engine quick engine change (QEC) units following engine repair and/or overhaul. 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).

Application of the Unit

This unit requires application of hand skills, theory knowledge and maintenance publication procedures to assemble aircraft piston engines QEC units.
Applications include fixed and rotary wing aircraft piston engines and components.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

MEA101B Interpret occupational health and safety practices in aviation maintenance

MEA103B Plan and organise aviation maintenance work activity

MEA105C Apply quality standards applicable to aviation maintenance processes

MEA107B Interpret and use aviation maintenance industry manuals and specifications

MEA108B Complete aviation maintenance industry documentation

MEA109B Perform basic hand skills, standard trade practices and fundamentals in aviation maintenance

Employability Skills Information

This unit contains employability skills

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1	Prepare to assemble piston engine QEC unit	1.1	QEC build requirements are correctly interpreted and matched by part and serial numbers
		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
		1.3	Required hardware and plumbing is obtained and confirmed as approved items
2	Assemble piston engine QEC unit	2.1	Piston engine is prepared for QEC assembly in accordance with maintenance manual and/or enterprise procedures
		2.2	QEC components are assembled to the engine and adjusted in accordance with the maintenance manual and/or enterprise procedures
		2.3	QEC unit is assembled and components and linkages are adjusted in accordance with maintenance data requirements
		2.4	Where required, QEC unit is prepared for testing

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- applying relevant work health and safety (WHS) procedures, including the use of material safety data sheets (MSDS) and personal protective equipment (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

Required knowledge

Required knowledge includes:

- 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

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	A person who demonstrates competency in this unit must be able to apply hand skills and component theory knowledge and use maintenance publications to assemble piston engine QEC units while applying all relevant safety precautions.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	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. The work plan should take account of applicable safety and quality requirements in accordance with the industry and regulatory standards. A person cannot be assessed as competent until it can be demonstrated to the satisfaction of the workplace assessor that the relevant elements of the unit of competency are being achieved under routine supervision on a representative range 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.
Context of and specific resources for assessment	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.
Method of assessment	
Guidance information for assessment	

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Piston engine QEC unit components	The build requirements for individual QEC units may include components from the following list: • 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
Application	Application of this unit may relate to: • scheduled or unscheduled maintenance • individual or team-related activities • complex testing and adjusting of components, and where this is undertaken, may be carried out under supervision at the appropriate level
Procedures and requirements	Procedures and requirements refer to industry standard procedures specified by manufacturers, regulatory authorities or the enterprise

Unit Sector(s)

Aviation maintenance

Custom Content Section

Not applicable.