



Australian Government

MEA246 Fabricate and/or repair aircraft electrical hardware or parts

Release: 2

MEA246 Fabricate and/or repair aircraft electrical hardware or parts

Modification History

Release 2. Equivalent to MEA246 Fabricate and/or repair aircraft electrical hardware or parts with amended prerequisite codes.

Application

This unit of competency requires application of hand skills and knowledge of wiring standards and specifications to fabricate aircraft electrical looms, harnesses and cables in aircraft maintenance hangars and workshops during scheduled or unscheduled maintenance. Work may be performed individually or as part of a team.

The unit is part of all Avionic Certificate IV training pathways. It is also part of the Mechanical Aircraft Maintenance Engineer licensing 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).

Where a CASA licensing outcome is sought this unit forms part of the CASA requirement for the granting of the chosen maintenance certification licence under Civil Aviation Safety Regulation (CASR) Part 66, in accordance with the licensing provisions in the Companion Volume Implementation Guide.

Pre-requisite Unit

MEA201	Remove and install miscellaneous aircraft electrical hardware/components
MEA296	Use electrical test equipment in aviation maintenance activities

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.

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| 1. Interpret specifications and organise materials | 1.1 | Specifications are interpreted to determine the dimensions and procedure for fabrication |
| | 1.2 | Appropriate materials, tools and equipment are selected and prepared for the particular specification requirements |
| 2. Fabricate/repair electrical components or parts | 2.1 | Assembly or fabrication jigs, where applicable, are aligned to ensure accurate fabrication of components |
| | 2.2 | Components or parts are fabricated in accordance with required specifications while observing all relevant work health and safety (WHS) requirements including the use of material safety data sheets (MSDS) and personal protective equipment (PPE) |
| 3. Test fabricated/repairs components or parts | 3.1 | Test equipment and/or rigs are used, where applicable, to confirm serviceability of finished components |
| | 3.2 | Fabricated components are tagged, sealed and packaged within specified procedures |

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.

Components or parts include:

- Electrical looms, harnesses and cables associated with:
 - power distribution
 - ignition
 - control circuits
 - signal circuits

Procedures and requirements include:

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

Unit Mapping Information

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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 MEA246 Fabricate and/or repair aircraft electrical hardware or parts

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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 practices, including the use of PPE and reference to MSDS
- using approved repair/fabrication procedures and processes relating to electrical cables, harnesses, antenna leads and aerial components
- recognising the integrity/security of electrical component crimps, wire wrapping, joints, and plug/connector pins
- constructing cables, harnesses and looms, including wire marking, to approved industry standards
- performing component testing to assess post-construction serviceability.

The underlying skills inherent in this unit should be transferable into other areas that require similar techniques. It is essential that the general aspects of material specification and selection, measurement and fabrication/manufacture are related to specific aircraft component applications.

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:

- component and system operation
- aircraft wiring specifications and standards
- standard repair methods for:
 - electrical cables
 - ignition harnesses
 - fire warning system harnesses
 - coaxial cables, such as antenna leads
 - aerial components
- electrical plugs and connectors
- soldering methods
- fabrication methods for the above wiring and cables
- wire marking methods
- assembly of electrical cables into wiring looms

- relevant WHS procedures
- how to obtain relevant MSDS
- relevant maintenance manuals
- relevant regulatory requirements and standard procedures.

Assessment Conditions

- Competency should be assessed in the work environment or simulated work environment using tools and equipment specified by aircraft in the maintenance manuals. It is also expected that applicable general-purpose tools and test equipment found in most routine situations would be used where appropriate.
- Evidence of knowledge about individual components and their links with systems will be necessary to supplement evidence of ability to interpret requirements and fabricate components before undertaking any action. 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 a representative range of tasks, including:
 - power distribution
 - ignition
 - control circuits
 - signal circuits.
- 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).
- Where the unit is to be used for CASA licensing purposes the Assessor must also meet the criteria specified in the CASR Part 147 Manual of Standards.
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