



Australian Government

MEA201B Remove and install miscellaneous aircraft electrical hardware/components

Revision Number: 2

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Modification History

Minor formatting and editorial changes made. Prerequisite version code updated.

Unit Descriptor

This unit of competency is part of all Avionic Certificate IV training pathways and is also part of the Mechanical Aircraft Maintenance Engineer licensing pathway. It covers the competencies required for the removal and installation of miscellaneous electrical hardware and components found in various systems of both fixed and rotary wing aircraft. Where a CASA licensing outcome is sought this unit forms part of the CASA requirement for the granting of the chosen Aircraft Maintenance Engineer Licence under CASR Part 66, in accordance with the licensing provisions in Section 3, Assessment Guidelines.

Application of the Unit

This unit requires application of skills in basic soldering and in crimping associated with the removal and installation of electrical hardware.

Applications include miscellaneous electrical hardware fitted to fixed or rotary wing aircraft.

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. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

1. Remove aircraft electrical hardware
 - 1.1. System is rendered safe and prepared in accordance with the applicable maintenance manual and isolation tags are fitted where necessary to ensure personnel safety
 - 1.2. **Removal of electrical hardware** is carried out in accordance with the applicable maintenance manual
 - 1.3. Required maintenance documentation is completed and processed in accordance with standard enterprise procedures
 - 1.4. Removed components are tagged, packaged or discarded in accordance with specified procedures
2. Install aircraft electrical hardware
 - 2.1. Electrical hardware components to be installed are checked to confirm correct part numbers, modification status, serviceability and shelf life
 - 2.2. Physical installation of electrical hardware is carried out in accordance with the applicable maintenance manual
 - 2.3. System is reinstated to correct physical condition in preparation for testing, as necessary
 - 2.4. Required maintenance documentation is completed and processed in accordance with standard enterprise procedures

Required Skills and Knowledge

Required skills

Look for evidence that confirms skills in:

- the preparation and termination of electrical cables to aircraft industry standards, using crimping techniques, soldering techniques and solder sleeves joints
- the correct interpretation of aircraft wire markings, terminal block identification and plug/socket pin numbering systems
- inspection of electrical looms and harness pre and post removal and installation to ensure minimum bends are maintained, cable is not in tension, plugs are correctly aligned, security of route ensures no chaffing of insulation, adequate clipping and cable ties have been utilised and construction complies with aircraft industry standards
- positive identification of miscellaneous electrical hardware and/or components in all aircraft systems

Required knowledge

Look for evidence that confirms knowledge of:

- component attachment methods
- connection of hardware and plugs
- application of relevant OHS practices
- the use of approved maintenance documentation and aircraft publications relating to miscellaneous aircraft electrical hardware and components
- electrical wiring used in aircraft and wire marking
- plug/socket pin numbering and terminal block identification
- cable and loom installation requirements
- crimping tools and crimp terminals
- soldering techniques and the use of solder sleeve joints
- electrical fundamentals and related mathematical and physics principles

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.

<p>Overview of assessment</p>	<p>A person who demonstrates competency in this unit must be able to apply hand skills, use specialist tools and use maintenance publications to remove and install miscellaneous items of aircraft electrical hardware/components while observing all relevant safety precautions.</p>
<p>Critical aspects for assessment and evidence required to demonstrate competency in this unit</p>	<p>It is essential that applicable cleanliness requirements and OHS safety precautions are fully observed, including awareness of electrostatic discharge procedures.</p> <p>Evidence of transferability of skills and knowledge related to removal and installation is essential. An understanding of the attachment methods, connection of hardware and system operation as they relate to the work must be demonstrated before undertaking any action. The work plan should take account of applicable safety and quality requirements in accordance with the industry and regulatory standards.</p> <p>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 each of the connection methods 1, 2 and 3 listed in the Range Statement. This shall be established via the records in the Log of Industrial Experience and Achievement or, where appropriate, an equivalent Industry.</p>
<p>Context of and specific resources for assessment</p>	<p>Competency should be assessed in the workplace or simulated workplace using tools and equipment specified in maintenance manuals. It is also expected that general-purpose tools, test and ground support equipment found in most routine situations would be used where appropriate.</p>
<p>Method of assessment</p>	
<p>Guidance information for assessment</p>	

Range Statement

<p>The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. 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.</p>	
<p>Note</p>	<p>Range statements listed below are numbered to facilitate specification of the assessment requirements included in the Evidence Guide</p>
<p>Hardware connection methods</p>	<p>Removal and installation of electrical hardware involves one or more of the following connection methods:</p> <ol style="list-style-type: none"> 1. Bolted 2. Soldered 3. Plug connectors
<p>Types of electrical hardware</p>	<p>Electrical hardware includes:</p> <ul style="list-style-type: none"> • switches, relays, lamps, terminal blocks, current limiters, circuit breakers, fuses, sockets, potentiometers, capacitors, inductors, magnetic amplifiers, transformers, rheostats, resistors and diodes, miscellaneous sensors and minor components hard mounted throughout the aircraft, busbars, lugs, ferrules, splices, connectors and electrical, electronic cables and looms
<p>Basic soldering and crimping</p>	<p>The work will include the application of basic soldering and crimping skills associated with removal and installation of electrical hardware</p>
<p>Application</p>	<p>Application of this unit may relate to:</p> <ul style="list-style-type: none"> • scheduled or unscheduled maintenance activities • individual or team-related activities
<p>Procedures and requirements</p>	<p>Refer to industry standard procedures specified by manufacturers, regulatory authorities or the enterprise</p>

Unit Sector(s)

Aviation maintenance

Competency field

Co-requisite units

Not applicable