



Australian Government

MEA286 Repair or overhaul aircraft electrical/electro-mechanical components

Release: 2

MEA286 Repair or overhaul aircraft electrical/electro-mechanical components

Modification History

Release 2. Equivalent to MEA286 Repair or overhaul aircraft electrical/electro-mechanical components with amended prerequisite codes.

Application

This unit of competency requires application of hand skills and knowledge of component repair and overhaul procedures relating to electrical and electro-mechanical components of fixed and rotary wing aircraft that are repaired or overhauled in aviation maintenance workshops during scheduled or unscheduled maintenance. Work may be performed individually or as part of a team.

The unit of competency is part of the Avionic 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

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. Determine requirements | 1.1 Component defect reports (removal tags) or customer order are correctly interpreted and matched by part and serial numbers |
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- 1.2 Components are inspected and/or operated through prescribed test procedures to establish serviceability or confirm defects, as required
 - 1.3 Modification status is clearly established to assist in determining the overhaul requirements for the components
 - 1.4 Extent of overhaul or repair is correctly identified and documented
2. Troubleshoot electrical/ electro-mechanical components
 - 2.1 Available information from maintenance records and test results is used, where necessary, to assist in fault determination
 - 2.2 Logical processes are used to ensure efficient and accurate troubleshooting
 - 2.3 Specialist advice is obtained, where required, to assist with, or confirm, the fault and rectification requirement
 - 2.4 Electrical/electro-mechanical component faults are located and the causes of the faults are clearly identified
 - 2.5 Fault rectification requirements are determined to assist in planning the repair
3. Dismantle and inspect electrical/ electro-mechanical components
 - 3.1 Component parts are dismantled in accordance with maintenance manuals while observing all relevant work health and safety (WHS) requirements
 - 3.2 Component parts are assessed for serviceability in accordance with the relevant maintenance documentation
 - 3.3 Parts requiring specialist repair are tagged and repair instructions are accurately specified
 - 3.4 Parts lists are compiled and processed in accordance with standard enterprise procedure
4. Repair and/or modify electrical/ electro-mechanical components
 - 4.1 Component parts are repaired or replaced in accordance with the relevant maintenance documentation
 - 4.2 Modification of components or parts is undertaken, where required, by relevant manufacturer's bulletins or procedures

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| 5. Assemble, test and adjust electrical/electro-mechanical components | 5.1 Assembly of component parts is carried out within specified tolerances and in accordance with the appropriate maintenance documents |
| | 5.2 Components are adjusted or calibrated to operate within prescribed specifications |
| | 5.3 Finished components are tagged, sealed and packaged in accordance with specified procedures |
| | 5.4 Required maintenance documentation and modification records are completed and processed in accordance with standard enterprise 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.

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| Electrical/electro-mechanical components include: | <ul style="list-style-type: none">• Motors, generators and alternators• Static inverters, transformer rectifier units (TRU) and regulators• Actuators, solenoids and shutoff valves• Bus bars, circuit breakers, connectors, electrical looms and fans |
| Procedures and requirements include: | <ul style="list-style-type: none">• Industry standard procedures specified by manufacturers, regulatory authorities or the enterprise |

Unit Mapping Information

Release 2. Equivalent to MEA286 Repair or overhaul aircraft electrical/electro-mechanical 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 MEA286 Repair or overhaul aircraft electrical/electro-mechanical components

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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
- using approved repair/overhaul procedures and processes relating to electrical and electro-mechanical components
- recognising the serviceability state and repair or overhaul requirements for:
 - alternating current (AC) and direct current (DC) motors, generators and alternators
 - static inverters
 - TRU
 - regulators/control units
 - actuators
 - solenoids and shutoff valves
 - engine ignition/starting components
- applying logic processes, and using test equipment and appropriate wiring diagrams and manuals to isolate component faults
- performing component testing to isolate/confirm component fault and assess post-repair/overhaul serviceability
- correctly disassembling, inspecting component parts, repairing/replacing/modifying component parts and assembling components listed above.

It is essential that component testing procedures, cleanliness requirements and safety precautions applicable to the system component being maintained are fully observed, understood and complied with. Ability to interpret inspection procedures and specifications (allowable limits) and apply them in practice across a range of inspection, testing and troubleshooting applications (including the timely involvement of supervisors or other trades) is critical.

Evidence of transferability of skills and knowledge related to repair is essential. This may be demonstrated through application across a range of aircraft electrical/electro-mechanical components as listed in the Assessment Conditions.

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
- the basic function and operation of components listed below to enable testing for fault isolation/confirmation, to determine repair or overhaul requirements, and serviceability status post repair or overhaul:
 - AC and DC motors, generators and alternators
 - static inverters
 - TRU
 - regulators/control units
 - actuators
 - solenoids and shutoff valves
 - engine ignition/starting components
- basic principles/functions, relating to components listed above and associated with:
 - AC and DC power generation
 - circuit theory
 - analogue fundamentals
- electro-mechanical interface.

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 applicable general and special-purpose tools and test equipment would be used where appropriate.
- Ability to assess component serviceability and interpret parts requirements will be necessary to supplement the required evidence. The application of testing procedures should also clearly indicate knowledge of system operation before undertaking any action. Knowledge of system operation and the relationship of individual components will be necessary to supplement evidence of ability to troubleshoot component faults. 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) component from each of the following groups:
 - motors, generators and alternators
 - static inverters, TRU and regulators
 - actuators, solenoids and shutoff valves
 - bus bars, circuit breakers, connectors, electrical looms and fans.

- 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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