



Australian Government

Department of Education, Employment and Workplace Relations

MEA202C Remove and install basic aircraft electrical system components

Revision Number: 2

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Modification History

Minor formatting and editorial changes made. Additional assessment advice provided in the Evidence Guide.

Unit Descriptor

This unit of competency is part of the Avionic Certificate IV AME training pathway. It covers the competencies required for the removal and installation of electrical system components in fixed and rotary wing aircraft types that have only DC electrical systems. The unit is used in workplaces that operate under the airworthiness regulatory systems of the ADF and CASA. 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 hand skills and the use of maintenance documentation/publications in the removal and installation of aircraft DC electrical system components.

Applications include fixed and rotary wing aircraft that have only DC electrical systems.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

MEA201B	Remove and install miscellaneous aircraft electrical hardware/components
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Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

<p>Elements describe the essential outcomes of a unit of competency.</p>	<p>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.</p>
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Elements and Performance Criteria

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| <p>1. Remove DC aircraft electrical system components</p> | <p>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</p> <p>1.2. <i>Electrical component</i> removal is carried out in accordance with the applicable maintenance manual</p> <p>1.3. Required maintenance documentation is completed and processed in accordance with standard enterprise procedures</p> <p>1.4. Removed components are tagged and packaged in accordance with specified procedures</p> |
| <p>2. Install DC aircraft electrical system components</p> | <p>2.1. Electrical components to be installed are checked to confirm correct part numbers, modification status, serviceability and shelf life</p> <p>2.2. Physical installation of electrical components is performed in accordance with the applicable maintenance manual, ensuring appropriate adjustment/alignment with mechanical interface is carried out</p> <p>2.3. System is reinstated to correct operational condition in preparation for testing, as necessary</p> <p>2.4. Required maintenance documentation is completed and processed in accordance with standard enterprise procedures</p> |

Required Skills and Knowledge

Required skills

Look for evidence that confirms skills in:

- identifying/locating:
 - DC power generation, regulation, distribution and control systems and components, i.e. regulators and bus bars
 - piston engine ignition systems and components, i.e. coils, magnetos, auxiliary starting devices (impulse couplings and inductors/vibrators)
 - gas turbine engine igniter and starting system components (where applicable to enterprise)
 - batteries (lead acid and nickel cadmium) and associated mounting equipment, including related anti-vibration aids
 - motors and actuators in basic DC electrical systems
 - specific components of DC electrical systems, such as flaps and landing gear
- correctly connecting DC generators and alternator/rectifier generators.
- applying relevant OHS practices

Required knowledge

Look for evidence that confirms knowledge of:

- component attachment methods
- connection of hardware and plugs
- relevant OHS practices
- the use of approved maintenance documentation and aircraft publications relating to DC electrical systems
- properties of permanent magnets
- precautions for the care and storage of permanent magnets
- general construction, operating characteristics and applications for:
 - aircraft DC generators
 - alternator/rectifier DC generators
 - DC starter/generators
 - DC motors, including starter motors
 - DC rotary and linear actuators
 - batteries
- how to locate and identify components of:
 - DC power regulation and distribution systems
 - piston engine ignition and starting systems
 - gas turbine engine igniter systems, including specific OHS precautions
 - gas turbine engine starting systems
 - DC electrical systems, such as flaps and landing gear retraction

- lighting systems
- relevant maintenance manuals
- relevant regulatory requirements and standard procedures

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 remove and install components of DC electrical systems 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 cleanliness requirements and safety precautions applicable to the system being maintained are fully observed, understood and complied with, as well as work practices associated with electrostatic sensitive devices.</p> <p>Evidence of transferability of skills and knowledge related to removal and installation is essential. This is to be demonstrated by application across a range of aircraft major electrical system components encompassing electrical with mechanical interface, installations which require alignment and/or adjustment, mechanical or electrical. An understanding of the attachment methods, connection of hardware, and the need for adjustment or rigging and system operation as they relate to the work must be demonstrated before undertaking any action.</p> <p>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 at least one component from each of groups 1 to 8 in the Range Statement (group 8 may be omitted when not applicable to 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.</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>

Method of assessment	
Guidance information for assessment	Individuals being assessed who have already attained MEA274A Maintain basic light aircraft electrical systems and components, will have satisfied the requirements of this unit with regard to common Range Statement variables. Log of Industrial Experience and Achievement records relating to MEA274A Maintain basic light aircraft electrical systems and components may be accepted as also meeting the evidence requirements for this unit in the applicable common areas.

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>Electrical systems and components</p>	<p>Electrical systems and components include:</p> <ol style="list-style-type: none"> 1. DC generators, and alternator/rectifier generators, and components of related single generator regulation and distribution systems 2. Motors 3. Actuators 4. Piston engine ignition and starting system components 5. Aircraft batteries 6. Specific components of DC electrical systems, such as flaps and landing gear 7. Aircraft lighting 8. Gas turbine engine igniter and starting systems
<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