



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **MEA223C Inspect aircraft electrical systems and components**

**Revision Number: 1**

## MEA223C Inspect aircraft electrical systems and components

### Modification History

Not applicable.

### Unit Descriptor

<b>Unit descriptor</b>	This unit is part of the Avionic AME Certificate IV training pathways and is also part of the Mechanical Aircraft Maintenance Engineer licensing pathway. It covers the competencies required to inspect electrical systems and components of 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 B1 or the B2 Aircraft Maintenance Engineer Licence under CASR Part 66, in accordance with the licensing provisions in Section 3, Assessment Guidelines.
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### Application of the Unit

<b>Application of the unit</b>	This unit requires application of hand skills and the use of system/component knowledge and applicable maintenance publications to inspect aircraft electrical systems and components.  Applications include fixed and rotary wing aircraft.
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### Licensing/Regulatory Information

Not applicable.

### Pre-Requisites

<b>Prerequisite units</b>		
	MEA246C	Fabricate and/or repair aircraft electrical components or parts

<b>Prerequisite units</b>		

## Employability Skills Information

<b>Employability skills</b>	This unit contains employability skills.
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## 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

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b>
1. Inspect electrical systems and components	<p>1.1. Isolation tags are checked and aircraft configured for safe system inspection and operation in accordance with the applicable maintenance manual.</p> <p>1.2. <b><i>Electrical system components</i></b> and hardware are visually or physically checked for external signs of defects in accordance with applicable maintenance manual.</p> <p>1.3. Defects are correctly identified and recorded in accordance with standard enterprise procedures.</p>

## Required Skills and Knowledge

### REQUIRED SKILLS AND KNOWLEDGE

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

#### Required skills

Look for evidence that confirms skills in:

- Application of relevant OH&S practices
- The use of approved maintenance documentation and aircraft publications relating to the avionic system being maintained
- Recognition of system and electrical component defects/external damage, correct installation, connection of plugs, terminations, attaching hardware (including cabling/harnesses) and security in:
  - AC and DC power generation systems including regulation, distribution, control and cooling
  - battery installations and inverters
  - flight control and/or electro-hydraulic systems
  - engine ignition, starting, fuel distribution and control systems
  - internal/external lighting systems, including controls
  - doors
  - landing gear systems
  - anti-skid braking systems
  - master caution and warning systems
  - auxiliary systems (including ice/rain protection, fire detection, environmental control and pressurisation, waste and water, equipment and furnishings)

#### Required knowledge

Look for evidence that confirms knowledge of:

- Component attachment methods and connection of hardware
- Explaining the basic layout (block diagram level), and operation of:
  - AC and DC power generation systems including regulation, distribution, control and cooling
  - battery installations and inverters
  - flight control and/or electro-hydraulic systems
  - engine ignition, starting, fuel distribution and control systems
  - internal/external lighting systems, including controls
  - doors
  - landing gear systems
  - anti-skid braking systems
  - master caution and warning systems

**REQUIRED SKILLS AND KNOWLEDGE**

- auxiliary systems (including ice/rain protection, fire detection, environmental control and pressurisation, waste and water, equipment and furnishings)

## Evidence Guide

<b>EVIDENCE GUIDE</b>	
<p>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>	
<p><b>Overview of assessment</b></p>	<p>A person who demonstrates competency in this unit must be able to inspect aircraft electrical systems and components while observing all relevant safety precautions.</p>
<p><b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b></p>	<p>The underlying skills inherent in this unit should be transferable across a range of inspection applications (including the timely involvement of supervisors or other trades) associated with aircraft electrical systems and components. It is essential that cleanliness requirements and safety precautions applicable to the system being maintained are fully observed, understood and complied with. Ability to interpret inspection procedures and specifications (allowable limits) and apply them in practice is critical.</p> <p>Evidence of transferability of skills and knowledge related to inspection is essential. This is to be demonstrated through application across a range of aircraft electrical systems, components and hardware listed in the Range Statement. 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 a system and related components in each Group 1 to 13 inclusive (Groups 14 to 17 may be omitted where they are not applicable to the enterprise) 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><b>Context of and specific resources for assessment</b></p>	<p>Competency should be assessed in the workplace or simulated workplace using tools and equipment specified in the maintenance manuals. It is also expected that general and special purpose tools, test and ground support equipment would be used where appropriate.</p>

<b>EVIDENCE GUIDE</b>	
<b>Method of assessment</b>	
<b>Guidance information for assessment</b>	

## Range Statement

### 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. 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.

#### Note

Range statements listed below are numbered to facilitate specification of the assessment requirements included in the Evidence Guide.

#### Electrical systems and components

*Electrical systems and components may include:*

1. AC and/or DC power generation, regulation and distribution systems
2. Battery installations and bus ties/interlocks
3. Rotary and static inverters and TR units
4. Air cycle air conditioning and pressurisation systems
5. Flight, and engine control systems
6. Ignition and starting systems
7. Fire/smoke detection and extinguishing
8. Lighting
9. Master and caution warning systems
10. Equipment and furnishing
11. Equipment cooling and ventilation
12. Position indicating systems
13. Fuel storage and distribution
14. Propeller control systems
15. Landing gear indication and antiskid
16. Ice and rain protection
17. Waste water

#### Application

Application of this unit may relate to:

- Scheduled or unscheduled maintenance activities
- Individual or team related activities



<b>RANGE STATEMENT</b>	
<b>Procedures and requirements</b>	Refer to industry standard procedures specified by manufacturers, regulatory authorities or the enterprise

### Unit Sector(s)

<b>Unit sector</b>	
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### Competency field

<b>Competency field</b>	Aviation maintenance
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### Co-requisite units

<b>Co-requisite units</b>		
	ME A203C	Remove and install advanced aircraft electrical system components