



Australian Government

MEAAVI0008 Inspect, test and troubleshoot basic aircraft electrical systems and components

Release: 1

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Modification History

Release 1. Application changed. Elements and Performance Criteria changed. Foundation Skills made explicit. Range of Conditions removed, and relevant information moved to Assessment Requirements. Assessment Requirements clarified. Supersedes and is equivalent to MEA210 Inspect, test and troubleshoot basic aircraft electrical systems and components.

Application

This unit describes the skills and knowledge required to apply hand skills and use system and component knowledge and applicable test equipment to inspect, test and troubleshoot direct current (DC) aircraft electrical systems and components of fixed and rotary wing aircraft that have only DC electrical systems using hand skills, system and component knowledge and test equipment, during scheduled or unscheduled maintenance. Work may be performed individually or as part of a team.

The unit is used in workplaces that operate under the airworthiness regulatory systems of the Civil Aviation Safety Authority (CASA) and the Defence Aviation Safety Authority (DASA).

Any other relevant legislation, industry standards and codes of practice within Australia must be applied.

Pre-requisite Unit

MEAAVI0002 Remove and install basic aircraft electrical system components

MEA246 Fabricate and/or repair aircraft electrical hardware or parts

Competency Field

Aviation maintenance

Elements and Performance Criteria

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Inspect DC aircraft electrical systems and components	1.1 Identify specific inspection requirements using maintenance documentation and modification status, including relevant system defect reports where relevant 1.2 Check isolation tags are checked and configure aircraft for safe system inspection and operation in accordance with

	maintenance manual 1.3 Visually or physically check DC electrical system for external signs of defects in accordance with maintenance manual while observing all relevant work health and safety (WHS) requirements 1.4 Correctly identify and report defects in accordance with standard enterprise procedures
2. Test or adjust DC aircraft electrical systems	2.1 Prepare aircraft and system for application of power or system operation in accordance with maintenance manual 2.2 Perform functional testing of electrical system for evidence of serviceability or malfunction in accordance with maintenance manual 2.3 Perform required calibration or adjustments to system in accordance with maintenance manual
3. Troubleshoot DC aircraft electrical systems	3.1 Use available information from maintenance documentation and inspection and test results to assist in fault determination of identified issues 3.2 Troubleshoot issues to line replacement level using maintenance manual fault diagnosis guides and logic processes 3.3 Obtain required specialist or supervisory advice to assist with troubleshooting 3.4 Locate system faults and identify and record causes of faults in required maintenance documentation in accordance with standard enterprise procedures 3.5 Determine requirements for rectification of faults

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

- Reading skills to interpret maintenance manuals, inspection procedures and specifications (allowable limits).
- Writing skills to record and report on defects and faults and their causes.
- Numeracy skills to interpret and communicate technical information and take and interpret electrical measurements.

Other foundation skills essential to performance are explicit in the performance criteria of this unit.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEA210 Inspect, test and troubleshoot basic aircraft electrical systems and 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 MEAAVI0008 Inspect, test and troubleshoot basic aircraft electrical systems and components

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Performance Evidence

There must be evidence the candidate has completed all the tasks outlined in the elements and performance criteria of this unit, and demonstrated the ability to:

- perform inspection, testing and troubleshooting on basic aircraft electrical systems and components on electrical looms, cables and connection hardware and on at least one major component/line replaceable unit (LRU) in each of the following:
 - direct current (DC) generators and alternator or rectifier generators, and components of related single generator regulation and distribution systems
 - piston engine ignition and starting system components
 - specific components of DC electrical systems, such as flaps and landing gear, including related motors and actuators
 - gas turbine engine igniter and starting systems and components (where applicable to the enterprise)
 - aircraft lighting
 - aircraft main batteries
- recognise system and component defects, external damage, correct/incorrect installation, connection of plugs, terminations, attachment hardware (including cabling/harnesses) and security in each of:
 - DC power generation systems, including regulation, distribution and control
 - battery installations
 - piston engine ignition and starting systems and components:
 - magnetos or coils
 - starter motors
 - ignition switches/start switches
 - ignition harnesses
 - low tension wiring
 - spark plugs
 - auxiliary starting devices
 - gas turbine engine ignition and starting systems (where relevant to the enterprise):
 - starter motors and starter/generators
 - high energy ignition units

- control units
- switches
- batteries and associated mounting equipment, including related anti-vibration aids
- motors and actuators in DC electrical systems
- internal/external lighting systems, including controls
- flap systems
- landing gear systems
- perform functional testing by applying logic processes, taking and interpreting electrical measurements, and using test equipment and appropriate wiring diagrams and manuals to isolate malfunctions in the above systems
- applied testing procedures, cleanliness requirements and safety precautions at all times, and as relevant to the system/s being maintained.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- DC circuit theory
- electrical system maintenance requirements and troubleshooting procedures
- the basic layout (block diagram level), function and operation of:
 - single generator DC power generation and distribution systems and components, including:
 - DC generators
 - alternator or rectifier generators
 - starter or generators
 - voltage regulators
 - circuit protection devices
 - bus bars
 - piston engine ignition and starting systems and components, including:
 - magnetos or coils
 - starter motors
 - ignition switches/start switches
 - ignition harnesses
 - low tension wiring
 - spark plugs
 - auxiliary starting devices
 - gas turbine igniter and starting systems and components, including specific WHS precautions:
 - starter motors and starter/generators
 - high energy ignition units
 - control units
 - switches

- landing gear and flap systems and components, including:
 - motors
 - actuators
 - selector switches
 - micro switches
- internal and external lighting systems and components
- batteries and associated mounting equipment, including related anti-vibration aids
- work health and safety (WHS) practices for the inspection, testing and troubleshooting of basic aircraft electrical systems and components, including those relating to gas turbine engine high-energy ignition units
- maintenance manuals for the inspection, testing and troubleshooting of basic aircraft electrical systems and components
- relevant regulatory requirements and standard procedures.

Assessment Conditions

The following conditions of assessment represent the requirements of the regulators (DASA and CASA) and maintenance stakeholders and must be rigorously observed.

Skills must have been demonstrated under routine supervision in the workplace or in a simulated environment that reflects workplace conditions and contingencies encountered in inspecting, testing and troubleshooting basic aircraft electrical systems and components. The following conditions must be met for this unit:

- use of suitable facilities, equipment and resources, including:
 - workplace procedures, manufacturing specifications, codes, standards, manuals, and reference materials relevant to inspecting, testing and troubleshooting basic aircraft electrical systems and components
 - tools and equipment specified in the maintenance manuals
 - general and special-purpose tools and items of ground support and test equipment required for inspecting, testing and troubleshooting basic aircraft electrical system components.

Evidence of tasks demonstrating competency must be recorded in a log of industrial experience and achievement.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

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