



Australian Government

MEAAVI0047 Maintain twin-engine 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 MEA277 Maintain twin engine aircraft electrical systems and components.

Application

This unit describes skills and knowledge that extend those developed in MEAAVI0002 Remove and install basic aircraft electrical system components and MEAAVI0008 Inspect, test and troubleshoot basic aircraft electrical systems and components to include the maintenance of additional electrical systems found in twin piston engine fixed wing aircraft 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

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

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 twin engine aircraft electrical systems and components	1.1 Identify specific inspection requirements using maintenance documentation and modification status, including relevant system defect reports 1.2 Check isolation tags and configure aircraft for safe system inspection and operation in accordance with maintenance manual while observing

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	all relevant work health and safety (WHS) requirements 1.3 Visually or physically check direct current (DC) electrical systems for external signs of defects in accordance with maintenance manual 1.4 Identify and report defects in accordance with standard enterprise procedures
2. Test or adjust twin engine 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 on 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 twin engine 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 to line replacement level using maintenance manual fault diagnosis guides and logic processes 3.3 Obtain required specialist or supervisory advice to assist with the troubleshooting process 3.4 Locate electrical system faults and identify and record causes of faults in required maintenance documentation 3.5 Determine requirements for rectification of faults
4. Remove and install twin engine aircraft electrical system components	4.1 Render system safe and prepare it in accordance with maintenance manual, fitting required isolation tags, to ensure personnel safety 4.2 Remove electrical components in accordance with maintenance manual while observing all relevant WHS requirements 4.3 Complete and process required maintenance documentation relating to removal in accordance with standard enterprise procedures 4.4 Tag and pack removed components in accordance with specified procedures 4.5 Confirm correct part numbers, modification status, serviceability and shelf life of electrical components to be installed against maintenance manual 4.6 Perform physical installation including connections of electrical components in accordance with the applicable maintenance manual, and ensure appropriate adjustment or alignment with mechanical interface is

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	carried out 4.7 Reinstall system to operational condition in preparation for testing, as necessary, and in accordance with maintenance manual 4.8 Complete and process required maintenance documentation relating to installation in accordance with standard enterprise procedures

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 system 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 MEA277 Maintain twin engine 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 MEAAVI0047 Maintain twin-engine 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:

- maintain twin-engine aircraft electrical systems and components on electrical looms, cables and connection hardware, for at least once on each of the following systems and on at least one major component or line replaceable unit (LRU) in each case:
 - direct current (DC) multi-generator and alternator/rectifier generator regulation and distribution systems and components
 - electrical propeller control systems, such as feathering systems (where applicable to the enterprise)
 - batteries in dual battery installations and associated mounting equipment, including related anti-vibration aids (competency may be demonstrated through the performance of a battery check)
 - fire warning and extinguishing systems, including handling of halogen fire extinguishers (where applicable to the enterprise)
 - combustion heating systems (where applicable to the enterprise)
 - equipment cooling and ventilation
 - fuel storage and distribution systems
 - master and central warning systems (where applicable to the enterprise).
- remove and install at least one component from each of the following groups:
 - components of multi-generator regulation and distribution systems
 - electrical propeller control system components (where applicable to the enterprise)
 - batteries in dual battery installations and associated mounting equipment, including related anti-vibration aids
 - fire warning and extinguishing system components (where applicable to the enterprise)
 - combustion heaters and associated components (where applicable to the enterprise)
 - equipment cooling and ventilation components
 - fuel storage and distribution system electrical components
 - master and central warning system components (where applicable to the enterprise)
- identify or located the following in relation to the systems being maintained:

- DC multi-generator power generation, regulation, distribution and control systems and components
- electrical propeller control systems and components, such as feathering and synchronising systems
- batteries in dual battery installations and associated mounting equipment, including related anti-vibration aids
- fire warning and extinguishing systems and components
- identification of halogen fire extinguishers
- combustion heating systems
- equipment cooling and ventilation
- fuel storage and distribution system electrical components
- master and central warning systems
- connect DC generators and alternator/rectifier generators in multi-generator systems and paralleling generator output for the systems being maintained
- recognise system and component defects, external damage, correct/incorrect installation, connection of plugs, terminations, attachment hardware (including cabling or harnesses) and security in the above systems and system components
- perform functional testing by applying logic processes, taking and interpreting electrical measurements, using test equipment and appropriate wiring diagrams and manuals to isolate malfunctions in the above systems and assess post-maintenance serviceability
- apply 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:

- system testing procedures and paralleling of generator output
- the basic layout (block diagram level), function and operation of the following:
 - DC multi-generator and alternator or rectifier generator regulation and distribution systems and components
 - electrical propeller control systems, such as feathering and synchronising systems and system components
 - dual battery systems and associated mounting equipment, including related anti-vibration aids
 - fire warning and extinguishing systems and system components, including regulatory requirements relating to halogen, e.g. bromochlorodifluoromethane (BCF)) fire extinguishers
 - combustion heating systems and system components
 - equipment cooling and ventilation systems and system components
 - fuel storage and distribution systems and system components
 - master and central warning systems and system components
- maintenance requirements and troubleshooting procedures for the above electrical systems
- work health and safety (WHS) practices for aircraft electrical systems and components

- maintenance manuals for 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 maintaining twin-engine 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 maintaining twin-engine aircraft electrical systems and components
 - tools and equipment specified in maintenance documentation
 - general-purpose tools and test equipment found in most routine.

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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