



Australian Government

MEA277 Maintain twin engine aircraft electrical systems and components

Release: 1

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Modification History

Release 1 - New unit of competency

Application

This unit of competency extends the competencies developed in units MEA202 Remove and install basic aircraft electrical system components and MEA210 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 part of the small aircraft maintenance Certificate IV Mechatronics training pathway.

Where a Civil Aviation Safety Authority (CASA) licensing outcome is sought this unit forms part of the CASA requirement for the granting of the chosen maintenance certification licence under Civil Aviation Safety Regulation (CASR) Part 66, in accordance with the licensing provisions in the Companion Volume Implementation Guide.

Pre-requisite Unit

MEA210 Inspect, test and troubleshoot basic aircraft electrical systems and components

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. Inspect twin engine aircraft electrical systems and components | 1.1 Relevant maintenance documentation and modification status, including system defect reports, where relevant, are used to identify specific inspection requirements |
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- 1.2 Isolation tags are checked and aircraft configured for safe system inspection and operation in accordance with the applicable maintenance manual while observing all relevant work health and safety (WHS) requirements
 - 1.3 Direct current (DC) electrical system is visually or physically checked for external signs of defects in accordance with applicable maintenance manual
 - 1.4 Defects are correctly identified and reported
 2. Test/adjust twin engine aircraft electrical systems
 - 2.1 Aircraft and system are prepared in accordance with applicable maintenance manual for the application of power/system operation
 - 2.2 Electrical system is functionally tested in accordance with maintenance manual for evidence of serviceability or malfunction
 - 2.3 System calibration or adjustments are performed in accordance with maintenance manual, as appropriate
 3. Troubleshoot twin engine aircraft electrical systems
 - 3.1 Available information from maintenance documentation and inspection and test results is used, where necessary, to assist in fault determination
 - 3.2 Maintenance manual fault diagnosis guides and logic processes are used to ensure efficient and accurate troubleshooting to line replacement level
 - 3.3 Specialist advice is obtained, where required, to assist with the troubleshooting process
 - 3.4 System faults are located and the causes of the faults are clearly identified and correctly recorded in maintenance documentation, where required, and in accordance with standard enterprise procedures
 - 3.5 Rectification requirements are determined
 4. Remove and install twin engine aircraft electrical system components
 - 4.1 System is rendered safe and prepared in accordance with the applicable maintenance manual and isolation tags are fitted, where necessary, to ensure personnel safety
 - 4.2 Electrical component removal is carried out in accordance with the applicable maintenance manual while observing all relevant WHS requirements

- 4.3 Required maintenance documentation is completed and processed in accordance with standard enterprise procedures
- 4.4 Removed components are tagged and packaged in accordance with specified procedures
- 4.5 Electrical components to be installed are checked to confirm correct part numbers, modification status, serviceability and shelf life
- 4.6 Physical installation of electrical components is performed in accordance with the applicable maintenance manual, ensuring appropriate adjustment/alignment with mechanical interface is carried out
- 4.7 System is reinstated to correct operational condition in preparation for testing, as necessary
- 4.8 Required maintenance documentation is 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.

DC electrical systems include:

- 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
- Fire warning and extinguishing systems, including handling of halogen fire extinguishers (where applicable)

Electrical components include:

- 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)
- 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)
- Industry standard procedures specified by manufacturers, regulatory authorities or the enterprise

Procedures and requirements include:

Unit Mapping Information

Release 1 – equivalent to MEA277A 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>