



Australian Government

Assessment Requirements for MEAAVI0051 Maintain light aircraft AC-powered instrument systems and components

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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 MEA281 Maintain light aircraft AC powered instrument systems and components.

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 light aircraft alternating current (AC) powered instrument systems and components during scheduled or unscheduled maintenance on a system and at least one major system component or line replaceable unit (LRU) from each of the following groups:
 - directional gyro (DG), artificial horizon (AH), altitude heading and reference system (AHRS) and components, servo and encoding altimeters, remote reading gyro compasses and components
 - piston engine and gas turbine engine indication system components
 - fuel quantity indication and flow indication systems and components
 - transmitter/indicator measuring instrument systems (pressure, temperature, vacuum) and components
 - inverters and transformer/rectifier units.
- locate and identify AC-powered instrument system components for the systems being maintained including:
 - AH, DG, AHRS, servo and encoding altimeters
 - engine system temperature, speed, oil pressure, torque and manifold pressure
 - auxiliary systems, including vacuum, fuel storage quantities and fuel flow
 - remote reading gyro compasses
- locate and identify AC instrument power supply system components for the systems being maintained, including:
 - inverters
 - transformer/rectifier units
 - voltage and frequency indication
- correctly handle and observe maintenance precautions for gyroscopes and gimbals
- recognise system and component defects, external damage, correct/incorrect installation, connection of plugs, terminations, attachment hardware (including cabling/harnesses) and security in AC-powered instruments and related power supply, including:
 - flight instruments

- remote reading gyro compasses
- piston engine and gas turbine engine indication systems (indicators and transmitters or sensors)
- fuel quantity and flow indication systems (indicators, probes and transmitters)
- transmitter/indicator measuring instrument systems (pressure, temperature and vacuum)
- AC power supply, including inverters and transformer or rectifier units
- perform functional testing by applying logic processes, taking and interpreting system 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, including correct handling and observing maintenance precautions for gyroscopes and gimbals.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- component attachment methods
- connection of hardware and plugs
- handling precautions for electrostatic sensitive devices
- work health and safety (WHS) practices for light aircraft AC powered instrument systems and components
- AC theory, including:
 - calculations and measurement in AC circuits
 - inductors and inductive reactance
 - transformer operation
 - capacitors and capacitive reactance
 - LCR circuits and resonance
 - passive filters
 - power relationship in reactive circuits
- the basic layout (block diagram level), function and operation of AC-powered:
 - flight instruments
 - remote reading gyro compasses
 - piston engine and gas turbine engine indication systems (indicators and transmitters or sensors)
 - fuel quantity and flow indication systems (indicators, probes and transmitters)
 - transmitter/indicator measuring instrument systems (pressure, temperature and vacuum)
 - AC power supply including AC generators, inverters and transformer/rectifier units
- the operating principles of the above systems and associated with:
 - atmospheric conditions – properties and effects on aircraft instruments and systems
 - pressure and temperature sensing elements and their use in aircraft instrument systems

- gyroscopes and their use in aircraft instrument systems
- electrical fundamentals
- relevant maintenance documentation and maintenance publications
- maintenance requirements and troubleshooting 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 light aircraft AC-powered instrument 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 light aircraft AC-powered instrument systems and components.
 - tools and equipment specified in maintenance documentation
 - general-purpose tools and test equipment found in most routine situations.

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.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=ce216c9c-04d5-4b3b-9bcf-4e81d0950371>