



Australian Government

**Assessment Requirements for MEA213
Inspect, test and troubleshoot advanced
aircraft instrument systems and
components**

Release: 1

Assessment Requirements for MEA213 Inspect, test and troubleshoot advanced aircraft instrument systems and components

Modification History

Release 1 - New unit of competency

Performance Evidence

Evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria under the specified conditions of assessment, and must include:

- recognition of system and component defects/external damage, correct installation, connection of plugs, terminations, attaching hardware (including cabling/harnesses) and security in:
 - flight instruments
 - pitot/static systems
 - navigation systems – compasses and AHRS
 - GPWS (where applicable to the enterprise)
 - FDRs (where applicable to the enterprise)
 - position indicators, engine/auxiliary system indication systems and system components
- applying logic processes, taking and interpreting system measurements, and using test equipment and appropriate wiring diagrams and manuals to isolate instrument and display system malfunctions in the listed systems
- performing system functional tests and checks to isolate system faults and assess post-maintenance serviceability
- applying relevant WHS practices
- using approved maintenance documentation and aircraft publications relating to the instrument and display systems being maintained.

It is essential that system testing procedures, cleanliness requirements and safety precautions applicable to the instrument system being maintained are fully observed, understood and complied with. Ability to interpret inspection procedures and specifications (allowable limits) and apply them in practice across a range of inspection, testing and troubleshooting applications (including the timely involvement of supervisors or other trades) is critical. Evidence of transferability of skills and knowledge related to inspection, testing and troubleshooting is essential. This is to be demonstrated through application across a range of advanced aircraft instrument systems and components listed in the Assessment Conditions.

Knowledge Evidence

Evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- component attachment methods
- connection of hardware
- instrument system maintenance requirements and testing and troubleshooting procedures
- the basic layout (block diagram level), function and operation of:
 - flight instruments, including:
 - ASIs
 - VSIs
 - air data systems and components
 - machmeters

- altimeters including servo and encoding altimeters
- turn and slip indicators
- AHs
- DGs
- angle of attack and stall warning/avoidance systems
- pitot/static systems
- navigation systems:
 - direct reading compasses
 - gyro compasses
 - AHRS
- GPWS
- turbine engine instruments, including:
 - temperature and pressure, including thermocouples, sensors and transmitters
 - speed, including mechanical and electric tachometers
 - thrust, including fan, propeller and jet
 - torque
 - fuel flow
 - vibration
- auxiliary transmitter/indicator measuring systems, including:
 - hydraulic pressure and temperature
 - pneumatic pressure
 - transmission oil pressure and temperature
 - fuel remaining/used
 - fuel quantity indication
 - component position (e.g. doors, flaps, speed brakes and landing gear)
- FDR systems
- explaining the operating principles of the above-listed systems and associated with:
 - atmospheric conditions; properties and effects on aircraft instruments and systems
 - pressure and temperature sensing elements and their use in aircraft instruments
 - gyroscopes and their use in aircraft instrument and reference systems
- explaining the various methods of navigation, and describing how they are used by both aircraft conventional and electronic navigational instruments and systems
- relevant WHS practices
- relevant maintenance manuals
- relevant regulatory requirements and standard procedures.

Assessment Conditions

- Competency should be assessed in the workplace or simulated workplace using tools and equipment specified in the maintenance manuals. It is also expected that applicable general and special purpose tools, and test and ground support equipment would be used where appropriate.
- The application of testing procedures should clearly indicate knowledge of system operation, the relationship of individual components and the links with other systems (if applicable) within the limits of the aircraft/system fault finding guide before undertaking any action. The work plan should take account of applicable safety and quality requirements in accordance with the industry and regulatory standards.
- The following conditions of assessment represent the requirements of the Regulators (ADF and CASA) and maintenance stakeholders and must be rigorously observed.
- A person cannot be assessed as competent until it can be demonstrated to the satisfaction of the workplace assessor that the relevant elements and performance criteria of the unit of competency are being achieved under routine supervision on a system and at least (1) one major system component/line replacement unit (LRU) from each of:
 - pitot/static system components; ASIs; VSIs; air data systems and components; machmeters; altimeters, including servo and encoding altimeters; angle of attack and stall warning/avoidance systems
 - turn and slip indicators, DGs, AHs, AHRS and components, remote reading gyro compass systems and components, and direct reading compasses
 - turbine engine indication systems and components (tachometers, pressure, temperature, engine performance and engine vibration)
 - transmitter/indicator measuring instrument systems (pressure, temperature and position)
 - fuel quantity indication and flow systems and components
 - GPWS (may be omitted if not applicable to the enterprise)
 - FDRs (may be omitted if not applicable to the enterprise).
- This shall be established via the records in the Log of Industrial Experience and Achievement or, where appropriate, an equivalent Industry Evidence Guide (for details refer to the Companion Volume Assessment Guidelines).
- Assessors must satisfy the requirements of the National Vocational Education and Training Regulator (Australian Skills Quality Authority, or its successors).
- Where the unit is to be used for CASA licensing purposes the Assessor must also meet the criteria specified in the CASR Part 147 Manual of Standards.
- Individuals being assessed who have already attained MEA212 Inspect, test and troubleshoot basic aircraft instrument systems and components will have covered inspection, testing and troubleshooting of a range of flight instruments and direct reading compass and measuring systems. The Log of Industrial Experience and Achievement records relating to MEA212 Inspect, test and troubleshoot basic aircraft instrument systems and components may be accepted as also meeting the evidence requirements for this unit in the applicable areas.
- Advice provided in MEA212 Inspect, test and troubleshoot basic aircraft instrument systems and components regarding MEA275 Maintain basic light aircraft systems and components should also be considered where applicable.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=ce216c9c-04d5-4b3b-9bcf-4e81d0950371>