



Australian Government

MEA226 Inspect aircraft electronic systems and components

Release: 2

MEA226 Inspect aircraft electronic systems and components

Modification History

Release 2. Equivalent to MEA226 Inspect aircraft electronic systems and components with amended prerequisite codes.

Application

This unit of competency requires application of hand skills and the use of system/component knowledge and applicable maintenance publications to inspect aircraft electronic systems and components of fixed and rotary wing aircraft during scheduled or unscheduled maintenance. Work may be performed individually or as part of a team.

The unit is part of the Avionic Certificate IV (Aircraft Maintenance Stream) training pathways.

The unit is used in workplaces that operate under the airworthiness regulatory systems of the Australian Defence Force (ADF) and the Civil Aviation safety Authority (CASA).

Where a 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

MEA246	Fabricate and/or repair aircraft electrical hardware or parts
MEA293	Remove and install aircraft electronic system 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.
1. Inspect electronic systems and components	1.1 Isolation tags are checked and aircraft configured for safe system inspection and operation in accordance with the applicable maintenance manual

- 1.2 Electronic system components are visually or physically checked for external signs of defects in accordance with applicable maintenance manual while observing all relevant work health and safety (WHS) requirements
- 1.3 Defects are correctly identified and recorded 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.

Electronic systems and components include:

- Electronic instrument displays – electronic flight instrument system (EFIS), engine indicating and crew alerting system (EICAS), flight management computer system (FMCS), electronic central aircraft monitor system (ECAM) and head-up display (HUD) (where applicable to the enterprise)
- Instrument navigation systems – inertial navigation system (INS), inertial reference system (IRS), compasses and attitude and heading reference system (AHRS)
- Communication systems – high frequency (HF), very high frequency (VHF), ultra-high frequency (UHF), satellite communications (SATCOM), intercom, data and cabin network services, emergency location transmitter (ELT) and cockpit voice recorder (CVR)
- Radio navigation systems – automatic direction finding (ADF), very high frequency omni-range (VOR), instrument landing system (ILS) and global navigation systems (GNS)
- Pulse operated systems – weather radar, navigation radar, air traffic control (ATC) transponder, automatic dependent surveillance-broadcast (ADS-B), radio altimeter (RADALT), distance measuring equipment (DME), doppler and airborne collision avoidance system (ACAS) (where applicable to the enterprise)
- Integrated modular avionics (where applicable to the

- Procedures and requirements include:**
- enterprise)
 - Information systems – air traffic and information management, network servers (where applicable to the enterprise)
 - Industry standard procedures specified by manufacturers, regulatory authorities or the enterprise

Unit Mapping Information

Release 2. Equivalent to MEA226 Inspect aircraft electronic 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 MEA226 Inspect aircraft electronic systems and components

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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:

- applying relevant WHS practices
- using approved maintenance documentation and aircraft publications relating to the avionic system being maintained
- recognition of system and component defects/external damage, correct installation, connection of plugs, terminations, and attaching hardware (including cabling/harnesses) and security in:
 - multi-function display systems (interface units, display generators and display units), i.e. HUD, EICAS, FMS, ACARS, EFIS and ECAM
 - integrated modular avionics (where applicable to the enterprise)
 - INS and IRS
 - external communications systems:
 - HF
 - UHF
 - VHF
 - SATCOM
 - ELT
 - internal communications systems:
 - intercommunication
 - cabin intercommunication data systems
 - cabin network services
 - CVR
 - information systems, such as air traffic and information management systems, and network server systems (where applicable to the enterprise)
 - RF navigation systems:
 - ILS
 - VOR
 - ADF
 - GNS
 - pulse systems that are applicable to the enterprise, including:

- primary radar (navigation/weather) components and interface
- ACAS components and interface
- radio altimeter components and interface
- DME components and interface
- ATC transponders
- ADS-B

It is essential that inspection procedures, cleanliness requirements and safety precautions applicable to the electrical system being maintained are fully observed, understood and complied with. Ability to interpret inspection procedures and specifications (allowable limits) and apply them in practice (including the timely involvement of supervisors or other trades) is critical.

Evidence of transferability of skills and knowledge related to inspection is essential. This is to be demonstrated through application across a range of electronic 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 and connection of hardware
- the basic layout (block diagram level) and operation of:
 - multi-function display systems (interface units, display generators and display units), i.e. HUD, ICAS, FMS, ACARS, EFIS and ECAM
 - integrated modular avionics
 - INS and IRS
 - external communications systems:
 - HF
 - UHF
 - VHF
 - SATCOM
 - ELT
 - internal communications systems:
 - intercommunication
 - cabin intercommunication data systems
 - cabin network services
 - CVR
 - information systems, such as air traffic and information management systems, and network server systems
 - RF navigation systems:
 - ILS
 - VOR

- ADF
- GNS
- primary radar (navigation/weather) components and interface
- ACAS components and interface
- radio altimeter components and interface
- DME components and interface
- ATC transponders
- ADS-B.
- relevant WHS practices
- maintenance requirements
- 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 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 each type of system listed in the following groups and on at least one (1) component for each listed system type:
 - electronic instrument displays – EFIS, EICAS, FMS, ECAM and HUD (where applicable to the enterprise)
 - instrument navigation systems – INS, IRS, compasses and AHRS
 - communication systems – HF, VHF, UHF, SATCOM, intercom, data and cabin network services, ELT and CVR
 - radio navigation systems – ADF, VOR, ILS and GNS
 - pulse operated systems – weather radar, navigation radar, ATC transponder, ADS-B, RADALT, DME, doppler and ACAS (where applicable to the enterprise)
 - integrated modular avionics (where applicable to the enterprise)
 - information systems – air traffic and information management, network servers (where 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 National Vocational Education and Training Regulator (NVR)/Australian Quality Training Framework (AQTF) assessor requirements.
- 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 any of MEA214 Inspect, test and troubleshoot aircraft basic communication and radio navigation systems and components, MEA215 Inspect, test and troubleshoot advanced aircraft communications systems and components, MEA216 Inspect, test and troubleshoot instrument landing systems and components, MEA220 Inspect, test and troubleshoot aircraft primary radar systems and components, and MEA221 Inspect, test and troubleshoot aircraft secondary radar systems and components, MEA233 Inspect, test and troubleshoot aircraft inertial navigation and reference systems and components, and MEA234 Inspect, test and troubleshoot aircraft global navigation systems and components, will have covered a significant proportion of the Performance Criteria for Element 1 and will have covered Range of Conditions variables applicable to the unit. The Log of Industrial Experience and Achievement records relating to MEA214 Inspect, test and troubleshoot aircraft basic communication and radio navigation systems and components, MEA215 Inspect, test and troubleshoot advanced aircraft communications systems and components, MEA216 Inspect, test and troubleshoot instrument landing systems and components, MEA220 Inspect, test and troubleshoot aircraft primary radar systems and components, MEA221 Inspect, test and troubleshoot aircraft secondary radar systems and components, MEA233C Inspect, test and troubleshoot aircraft inertial navigation and reference systems and components, MEA234 Inspect, test and troubleshoot aircraft global navigation systems and components,
- MEA276 Maintain basic aircraft communication and radio navigation systems and components, MEA278 Inspect, test and troubleshoot instrument display systems and components, and MEA297 Maintain basic avionic systems and components, may be accepted as also meeting the evidence requirements for this unit in the applicable areas.

Links

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