



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **MEA226D Inspect aircraft electronic systems and components**

**Release: 1**

## **MEA226D Inspect aircraft electronic systems and components**

### **Modification History**

Knowledge statements expanded - equivalent to previous unit.

### **Unit Descriptor**

This unit of competency is part of the Avionic Certificate IV (Aircraft Maintenance Stream) training pathways. It covers the competencies required to inspect electronic systems and components of fixed and rotary wing aircraft. The unit is used in workplaces that operate under the airworthiness regulatory systems of the ADF and CASA.

Where a CASA licensing outcome is sought this unit forms part of the CASA requirement for the granting of the B2 maintenance certification licence under CASR Part 66, in accordance with the licensing provisions in Section 3, Assessment Guidelines.

### **Application of the Unit**

This unit requires application of hand skills and the use of system/component knowledge and applicable maintenance publications to inspect aircraft electronic systems and components. Applications include fixed and rotary wing aircraft.

### **Licensing/Regulatory Information**

Refer to unit descriptor

### **Pre-Requisites**

MEA246C    Fabricate and/or repair aircraft electrical components or parts

### **Employability Skills Information**

This unit contains employability skills.

## Elements and Performance Criteria Pre-Content

|                                                                   |                                                                                                                                                                                                                                                                                                                  |
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| Elements describe the essential outcomes of a unit of competency. | Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide. |
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## Elements and Performance Criteria

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| 1 Inspect electronic systems and components | <p>1.1 Isolation tags are checked and aircraft configured for safe system inspection and operation in accordance with the applicable maintenance manual</p> <p>1.2 <b><i>Electronic system components</i></b> are visually or physically checked for external signs of defects in accordance with applicable maintenance manual</p> <p>1.3 Defects are correctly identified and recorded in accordance with standard enterprise procedures</p> |
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## Required Skills and Knowledge

Look for evidence that confirms 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
- relevant OHS practices
- maintenance requirements
- relevant maintenance manuals
- relevant regulatory requirements and standard procedures

Look for evidence that confirms skills in:

- applying relevant OHS 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
  - 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

## Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

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| <b>Overview of assessment</b>                                                                       | A person who demonstrates competency in this unit must be able to inspect aircraft electronic systems and components while observing all relevant safety precautions.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b> | <p>The underlying skills inherent in this unit should be transferable across a range of inspection applications (including the timely involvement of supervisors or other trades) associated with aircraft electronic systems and components. It is essential that cleanliness requirements and safety precautions applicable to the system being maintained are fully observed, understood and complied with. Ability to interpret inspection procedures and specifications (allowable limits) and apply them in practice is critical.</p> <p>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 Range Statement. The work plan should take account of applicable safety and quality requirements in accordance with the industry and regulatory standards.</p> <p>A person cannot be assessed as competent until it can be demonstrated to the satisfaction of the workplace assessor that the relevant elements of the unit of competency are being achieved under routine supervision on each type of system listed in Groups 1 to 7 in the Range Statement and at least one component for each listed system type (Groups 6 and 7 may be omitted where they are 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.</p> |
| <b>Context of and specific resources for assessment</b>                                             | Competency should be assessed in the workplace or simulated workplace using tools and equipment specified in the maintenance manuals. It is also expected that general and special purpose tools, test and ground support equipment would be used where appropriate.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Method of assessment</b>                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

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| <b>Guidance information for assessment</b> | <p>Individuals being assessed who have already attained any of MEA214C Inspect, test and troubleshoot aircraft basic communication and radio navigation systems and components, MEA215C Inspect, test and troubleshoot advanced aircraft communications systems and components, MEA216C Inspect, test and troubleshoot instrument landing systems and components, MEA220C Inspect, test and troubleshoot Inspect, test and troubleshoot aircraft primary radar systems and components, and MEA221C Inspect, test and troubleshoot aircraft secondary radar systems and components, MEA233C Inspect, test and troubleshoot aircraft inertial navigation and reference systems and components, and MEA234C 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 Statement variables applicable to the unit. Log of Industrial Experience and Achievement records relating to MEA214C Inspect, test and troubleshoot aircraft basic communication and radio navigation systems and components, MEA215C Inspect, test and troubleshoot advanced aircraft communications systems and components, MEA216C Inspect, test and troubleshoot instrument landing systems and components, MEA220C Inspect, test and troubleshoot Inspect, test and troubleshoot aircraft primary radar systems and components and MEA221C Inspect, test and troubleshoot aircraft secondary radar systems and components, MEA233C Inspect, test and troubleshoot aircraft inertial navigation and reference systems and components, MEA234C Inspect, test and troubleshoot aircraft global navigation systems and components, MEA276A Maintain basic aircraft communication and radio navigation systems and components, MEA278A Inspect, test and troubleshoot instrument display systems and components, and MEA289A Maintain basic light aircraft avionic systems and components, may be accepted as also meeting the evidence requirements for this unit in the applicable areas.</p> |
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## Range Statement

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| <p>The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Note</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Range statements listed below are numbered to facilitate specification of the assessment requirements included in the Evidence Guide                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Electronic systems and components</b>                                                                                                                                                                                                                                                                                                                                                                                                                                             | <p>Electronic systems and components include:</p> <ol style="list-style-type: none"> <li>1. Electronic instrument displays – EFIS, EICAS, FMS, ECAM and HUD (where applicable to enterprise)</li> <li>2. Instrument navigation systems – INS, IRS, compasses and AHRS</li> <li>3. Communication systems – HF, VHF, UHF, SATCOM, intercom, data and cabin network services, ELT and CVR</li> <li>4. Radio navigation systems – ADF, VOR, ILS and GNS</li> <li>5. Pulse operated systems – weather radar, navigation radar, ATC transponder, RADALT, DME, doppler and ACAS (where applicable to enterprise)</li> <li>6. Integrated modular avionics (where applicable to enterprise)</li> <li>7. Information systems – air traffic and information management, network servers (where applicable to enterprise)</li> </ol> |
| <b>Application</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <p>Application of this unit may relate to:</p> <ul style="list-style-type: none"> <li>• scheduled or unscheduled maintenance activities</li> <li>• individual or team-related activities</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Procedures and requirements</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Refer to industry standard procedures specified by manufacturers, regulatory authorities or the enterprise                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

## Unit Sector(s)

Aviation maintenance

## **Co-requisites**

MEA207C    Remove and install aircraft electronic system components