



Australian Government

MEA284 Repair or overhaul aircraft instrument system components

Release: 2

MEA284 Repair or overhaul aircraft instrument system components

Modification History

Release 2. Equivalent to MEA284 Repair or overhaul aircraft instrument system components with amended prerequisite codes.

Application

This unit of competency requires application of hand skills and knowledge of component repair and overhaul procedures relating to fixed and rotary wing aircraft instrument system components that are repaired or overhauled in aviation maintenance workshops 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 (Component Workshop Maintenance Stream) training pathway.

Repair of circuit boards is covered by MEA262 Modify/repair aircraft component single layer printed circuit boards and MEA263 Modify/repair aircraft component multi-layer printed circuit boards.

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).

Pre-requisite Unit

MEA261 Use electronic test equipment

MEA296 Use electrical test equipment in aviation maintenance activities

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. Determine | 1.1 Component defect reports (removal tags) or customer order are correctly interpreted and matched by part and |
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requirements		serial numbers	
		1.2	System components are inspected and/or operated through prescribed test procedures to establish serviceability or confirm defects, as required
		1.3	Modification status is clearly established to assist in determining the overhaul requirements for the components
		1.4	Extent of overhaul or repair is correctly identified and documented
		2.1	Available information from maintenance records and test results is used, where necessary, to assist in fault determination
		2.2	Logical processes are used to ensure efficient and accurate troubleshooting
2.	Troubleshoot instrument system components	2.3	Specialist advice is obtained, where required, to assist with, or confirm, the fault and rectification requirement
		2.4	System component faults are located and the causes of the faults are clearly identified
		2.5	Fault rectification requirements are determined to assist in planning the repair
		3.1	System component parts are dismantled in accordance with maintenance manuals while observing all relevant work health and safety (WHS) requirements
3.	Dismantle and inspect instrument system components	3.2	Component parts are assessed for serviceability in accordance with the relevant maintenance documentation
		3.3	Parts requiring specialist repair are tagged and repair instructions are accurately specified
		3.4	Parts lists are compiled and processed in accordance with standard enterprise procedures
		4.1	System component parts are repaired or replaced in accordance with the relevant maintenance documentation
4.	Repair and/or modify instrument system components	4.2	Modification of components or parts is undertaken, where required, by relevant manufacturer's bulletins or procedures

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|---|---|
| 5. Assemble, test and adjust instrument system components | 5.1 Assembly of component parts is carried out within specified tolerances and in accordance with the appropriate maintenance documents |
| | 5.2 System components are adjusted or calibrated to operate within prescribed specifications |
| | 5.3 Finished components are tagged, sealed and packaged in accordance with specified procedures |
| | 5.4 Required maintenance documentation and modification records are 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.

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|---|---|
| System components include: | <ul style="list-style-type: none">• General instrument components, including mechanical instruments, electro-mechanical instruments and sensors |
| Procedures and requirements include: | <ul style="list-style-type: none">• Industry standard procedures specified by manufacturers, regulatory authorities or the enterprise |

Unit Mapping Information

Release 2. Equivalent to MEA284 Repair or overhaul aircraft instrument system 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 MEA284 Repair or overhaul aircraft instrument system 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 repair/overhaul procedures and processes relating to instrument system components
- recognising the serviceability state and repair or overhaul requirements for:
 - mechanical instruments
 - electro-mechanical instruments
 - instrument sensors
- applying logic processes, and using test equipment and appropriate wiring diagrams and manuals to isolate components faults
- performing component testing to isolate/confirm component fault and assess post-repair/overhaul serviceability
- correctly disassembling, inspecting component parts, repairing/ replacing/modifying component parts and assembling components listed above
- correctly interpreting instrument and display information, symbols and readings.

It is essential that system component testing procedures, cleanliness requirements and safety precautions applicable to the instrument system components 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 repair is essential. This may be demonstrated through application across a representative range from within the 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 and system operation

- the basic function and operation of the following components to enable testing for fault isolation/confirmation, to determine repair or overhaul requirements, and serviceability status post-repair or overhaul:
 - mechanical instruments
 - electro-mechanical instruments
 - instrument sensors
- basic principles/functions relating to the above components and associated with:
 - alternating current (AC) and direct current (DC) synchronous systems
 - servomechanisms
 - gyroscopes
 - vacuum and pressure-based indication methods (pitot/static and pressurisation)
 - advanced analogue fundamentals
- electro-mechanical sensor signal generation.

Assessment Conditions

- Competency should be assessed in the work environment, or simulated work environment, using tools and equipment specified in maintenance documentation. It is also expected that general and special-purpose tools and test equipment would be used where appropriate.
- Ability to assess component serviceability and interpret parts requirements will be necessary to supplement the required evidence. The application of testing procedures should also clearly indicate knowledge of system operation 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 representative range of general instrument components, including:
 - mechanical instruments, electro-mechanical instruments and sensors
- 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).

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