



Australian Government

MEA282 Repair or overhaul aircraft pulse system components

Release: 2

MEA282 Repair or overhaul aircraft pulse system components

Modification History

Release 2. Equivalent to MEA282 Repair or overhaul aircraft pulse system components with amended prerequisite codes.

Application

This unit of competency requires application of hand skills, test equipment and knowledge of pulse, analogue and digital theory to repair or overhaul components from fixed and rotary wing aircraft pulse systems 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.

1. Determine requirements

1.1 Pulse system component defect reports (removal tags) or customer order are correctly interpreted and matched by part and serial numbers

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| | 1.2 | Circuitry is correctly prepared and connected to the applicable test equipment and is functionally tested or cycled through the prescribed test procedures in accordance with the maintenance documentation for evidence of serviceability or malfunction |
| | 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. | Troubleshoot pulse system components | 2.1 Available information from maintenance records and inspection and test results is used, where necessary, to assist in fault determination |
| | 2.2 | Maintenance manual fault diagnosis guides and logic processes are used to ensure efficient and accurate troubleshooting |
| | 2.3 | Faults are located and the causes of the faults are clearly identified and correctly recorded in maintenance documentation, where required |
| | 2.4 | Fault rectification requirements are determined |
| 3. | Dismantle and inspect pulse system components | 3.1 Component parts are dismantled in accordance with maintenance manuals while observing all relevant work health and safety (WHS) requirements |
| | 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. | Repair and/or modify pulse system components | 4.1 Component parts are repaired or replaced in accordance with the relevant maintenance documentation |
| | 4.2 | Modification of components or parts is undertaken, where required, by relevant manufacturers' bulletins or procedures |

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| 5. Assemble, test and adjust pulse system components | 5.1 Assembly of component parts is carried out in accordance with specified tolerances and the applicable maintenance documents |
| | 5.2 Assembled components are tested and adjusted/aligned in accordance with the applicable maintenance documentation using the appropriate test equipment |
| | 5.3 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.

Pulse system components include:

- Weather radar, search radar and weapons system radar
- Distance measuring equipment (DME) and tactical aerial navigation (TACAN)
- Doppler navigation
- Air traffic transponder
- Radio altimeter
- Airborne collision avoidance system (ACAS)

Procedures and requirements include:

- Industry standard procedures specified by manufacturers, regulatory authorities or the enterprise

Unit Mapping Information

Release 2. Equivalent to MEA282 Repair or overhaul aircraft pulse 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 MEA282 Repair or overhaul aircraft pulse 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 manuals, procedures and processes relating to pulse system components
- recognising the serviceability state and repair or overhaul requirements for pulse system components
- applying logic processes, using test equipment and appropriate wiring diagrams and manuals to isolate component faults
- performing component testing to isolate/confirm component fault and assess post-repair/overhaul serviceability
- correctly aligning components listed above to operate within prescribed specifications.

It is essential that system testing and aligning procedures, cleanliness requirements and safety precautions applicable to the pulse 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, alignment and troubleshooting applications (including the timely involvement of supervisors or other trades) is critical.

Evidence of transferability of skills and knowledge related to testing, aligning and troubleshooting is essential. This may be demonstrated through application across a representative range of 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 components of pulse systems to enable testing for fault isolation/confirmation, to determine repair or overhaul requirements and serviceability status post-repair or overhaul
- basic principles/functions relating to pulse system components and associated with:
 - advanced analogue fundamentals
 - digital fundamentals

- AC and DC electrical systems
- electromagnetic radiation
- antenna and transmission line (including waveguide) characteristics
- pulsed radar system operation.

Assessment Conditions

- Competency should be assessed in the 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.
- The application of testing procedures should also clearly indicate knowledge of system operation before undertaking any action. Knowledge of system operation and the relationship of individual components will be necessary to supplement evidence of ability to troubleshoot component faults. The work plan should take account of applicable safety and quality requirements in accordance with the industry and regulatory standards. Use of high precision, high reliability soldering techniques and handling of components, including application of anti-static equipment, must be demonstrated.
- Assessment should be made across a sufficient number of components to establish the ability to apply attained skills and knowledge across the full range of pulse system components with the aid of applicable maintenance manuals and data.
- 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 components from two (2) or more of the following groups:
 - weather radar, search radar and weapons system radar
 - DME and TACAN
 - doppler navigation
 - air traffic transponder
 - radio altimeter
 - ACAS.
- 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).

Links

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