Australian Government

Department of Education, Employment and Workplace Relations

MEA232C Test and troubleshoot aircraft pulse systems and components

Release: 1

MEA232C Test and troubleshoot aircraft pulse 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 troubleshoot pulse systems and components fitted to 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 and test equipment to test and troubleshoot pulse systems and components.
Applications include fixed and rotary wing aircraft.

Licensing/Regulatory Information

Refer to unit descriptor

Pre-Requisites

MEA226D Inspect aircraft electronic systems and components

MEA246C Fabricate and/or repair aircraft electrical components or parts

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

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.

Elements and Performance Criteria

1 Prepare for troubleshooting	1.1 Relevant maintenance documentation and modification status, including system defect reports, where relevant, are used to identify an unserviceability
2 Test/adjust pulse systems	2.1 Aircraft and system are prepared, in accordance with applicable maintenance manual, for the application of power/system operation
	2.2 ***Pulse system*** is functionally tested, in accordance with maintenance manual, for evidence of serviceability or malfunction
	2.3 System calibration or adjustments are performed in accordance with maintenance manual, as appropriate
3 Troubleshoot pulse systems	3.1 Available information from maintenance documentation and inspection and test results is used, where necessary, to assist in fault determination
	3.2 Maintenance manual fault diagnosis guides and logic processes are used to ensure efficient and accurate ***troubleshooting***
	3.3 Specialist advice is obtained, where required, to assist with the troubleshooting process
	3.4 Pulse system faults are located and the causes of the faults are clearly identified and correctly recorded in maintenance documentation, where required
	3.5 Rectification requirements are determined

Required Skills and Knowledge

Look for evidence that confirms knowledge of:

- component attachment methods
- explaining the basic layout (block diagram level), function and operation of:
  - radar (navigation/weather) components and interface
  - ACAS components and interface
  - radio altitude components and interface
  - distance measuring equipment components and interface
  - ATC transponders
  - doppler navigation system
- explaining basic principles/functions relating to the above systems and associated with:
  - basic AC and DC circuit theory
  - digital fundamentals
  - analogue fundamentals
  - radar fundamentals
  - transmission lines, waveguide and antenna characteristics
  - pulse system maintenance requirements and troubleshooting procedures
- relevant OHS practices, including those relating to ground functional testing of radar systems
- 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 pulse system being maintained
- recognition of system and component defects/external damage, correct installation, connection of plugs, terminations, and attaching hardware (including cabling/harnesses/ transmission lines) and security in:
  - radar (navigation/weather) components and interface
  - ACAS components and interface
  - radio altitude components and interface
  - distance measuring equipment components and interface
  - ATC transponders
  - doppler navigation system
- applying logic processes, taking and interpreting system measurements to accurately and effectively isolate malfunctions within the systems
- performing system testing to isolate system malfunctions and assess systems post-maintenance serviceability

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.	
Overview of assessment	A person who demonstrates competency in this unit must be able to test and troubleshoot aircraft pulse systems and components while observing all relevant safety precautions.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The underlying skills inherent in this unit should be transferable across a range of testing and troubleshooting applications (including the timely involvement of supervisors or other trades) associated with aircraft pulse systems and components. It is essential that system testing procedures, 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. Evidence of transferability of skills and knowledge related to testing and troubleshooting is essential. This is to be demonstrated through application across a range of aircraft pulse systems and components listed in the Range Statement. 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. 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 at least three of the systems in Groups 1 to 7 and at least one item from Group 8, as listed in the Range Statement. This shall be established via the records in the Log of Industrial Experience and Achievement or, where appropriate, an equivalent Industry Evidence Guide.
Context of and specific resources for assessment	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.
Method of assessment	
Guidance information for assessment	Individuals being assessed who have already attained either or both of MEA220C Inspect, test and troubleshoot aircraft primary radar systems and components, and MEA221C Inspect, test and troubleshoot aircraft secondary radar systems and components, will have covered Element 1 and will also have covered a significant proportion of the Performance Criteria for Elements 2 and 3 and will have covered Range Statement variables applicable to the unit. Log of Industrial Experience and Achievement records relating to MEA220C Inspect, test and troubleshoot aircraft primary radar systems and components, and MEA221C Inspect, test and troubleshoot aircraft secondary radar systems and components, may be accepted as also meeting the evidence requirements for this unit in the applicable areas.

Range Statement

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.	
Note	Range statements listed below are numbered to facilitate specification of the assessment requirements included in the Evidence Guide
Pulse systems and components	Pulse systems and components may include: 1. Navigation radar 2. Weather radar 3. RADALT 4. DME 5. ATC transponder 6. Doppler 7. ACAS 8. Displays, indicators, control boxes, antennae, waveguides, transmitters and receivers, and line replaceable units
Troubleshooting	Troubleshooting involves the use of fault-finding charts or similar, to line replacement level
Application	Application of this unit may relate to: • scheduled or unscheduled maintenance activities • individual or team-related activities
Procedures and requirements	Refer to industry standard procedures specified by manufacturers, regulatory authorities or the enterprise

Unit Sector(s)

Aviation maintenance

Custom Content Section

Not applicable.