



Australian Government

MEAAVI0018 Inspect, test and troubleshoot aircraft secondary radar systems and components

Release: 1

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Modification History

Release 1. Application changed. Elements and Performance Criteria changed. Foundation Skills made explicit. Range of Conditions removed, and relevant information moved to Assessment Requirements. Assessment Requirements clarified. Supersedes and is equivalent to MEA221 Inspect, test and troubleshoot aircraft secondary radar systems and components.

Application

This unit describes the skills and knowledge required to apply hand skills and use system and component knowledge, maintenance publications and test equipment to inspect, test and troubleshoot secondary radar 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 used in workplaces that operate under the airworthiness regulatory systems of the Civil Aviation Safety Authority (CASA) and the Defence Aviation Safety Authority (DASA).

Any other relevant legislation, industry standards and codes of practice within Australia must be applied.

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

Elements and Performance Criteria

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.

1. Inspect secondary radar systems and components	1.1 Identify specific inspection requirements using maintenance documentation and modification status, including system defect reports 1.2 Check isolation tags and configure aircraft for safe system inspection and operation in accordance with maintenance manual 1.3 Visually or physically check secondary radar system components for external signs of defects in accordance with maintenance manual while observing all relevant work health and safety (WHS) requirements 1.4 Identify and report defects in accordance with standard enterprise procedures
2. Test or adjust secondary radar systems and components	2.1 Prepare aircraft and system for application of power or system operation in accordance with maintenance manual 2.2 Perform functional testing of secondary radar system for evidence of serviceability or malfunction in accordance with maintenance manual while observing WHS requirements relating to ground testing 2.3 Perform required calibration or adjustments to system in accordance with maintenance manual
3. Troubleshoot secondary radar systems	3.1 Use available information from maintenance documentation, inspection and test results to assist in fault determination 3.2 Troubleshoot to line replacement level using maintenance manual fault diagnosis guides and logic processes 3.3 Obtain required specialist or supervisory advice to assist with the troubleshooting process 3.4 Locate secondary radar system faults and identify and report causes of faults in required maintenance documentation 3.5 Determine requirements for rectification of faults

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

- Reading skills to interpret maintenance manuals, inspection procedures and specifications (allowable limits).
- Writing skills to record and report on defects and faults and their causes.

- Numeracy skills to interpret and communicate technical information and take and interpret system measurements.

Other foundation skills essential to performance are explicit in the performance criteria of this unit.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEA221 Inspect, test and troubleshoot aircraft secondary radar 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 MEAAVI0018 Inspect, test and troubleshoot aircraft secondary radar systems and components

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Performance Evidence

There must be evidence the candidate has completed all the tasks outlined in the elements and performance criteria of this unit and demonstrated the ability to:

- perform inspection, testing and troubleshooting on aircraft secondary radar systems and components during scheduled or unscheduled maintenance for at least one of the following secondary radar systems and its major system components/line replaceable units (LRU):
 - air traffic control (ATC) transponder
 - radio altimeter
 - distance measuring equipment (DME)
 - doppler navigation system
 - airborne collision avoidance system (ACAS)
 - automatic dependent surveillance-broadcast (ADS-B)
- recognise system and component defects, external damage, correct/incorrect installation, connection of plugs, terminations, attachment hardware (including cabling/harnesses/transmission lines) and security in one of:
 - DME components and interface
 - radio altimeters
 - ATC transponders
 - doppler navigation system
 - ACAS
 - ADS-B
- perform functional testing by applying logic processes and taking and interpreting system measurements to accurately and effectively isolate system malfunctions within the system, and assess post-maintenance serviceability
- apply testing procedures, cleanliness requirements and safety precautions at all times, and as relevant to the system/s being maintained.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- component attachment methods

- the basic layout (block diagram level), function and operation of:
 - DME, including components and interface
 - radio altimeters
 - ATC transponders
 - doppler navigation system
 - ACAS
 - ADS-B
- basic principles/functions relating to the listed systems and associated with:
 - basic alternating current (AC) and direct current (DC) circuit theory
 - digital fundamentals
 - analogue fundamentals
 - radar fundamentals
 - transmission lines, waveguide and antenna characteristics
- pulse system maintenance requirements and troubleshooting procedures
- work health safety (WHS) practices for aircraft secondary radar systems and components
- maintenance manuals for aircraft secondary radar systems and components
- relevant regulatory requirements and standard procedures.

Assessment Conditions

The following conditions of assessment represent the requirements of the regulators (DASA and CASA) and maintenance stakeholders and must be rigorously observed.

Skills must have been demonstrated under routine supervision in the workplace or in a simulated environment that reflects workplace conditions and contingencies encountered in inspecting, testing and troubleshooting aircraft secondary radar systems and components. The following conditions must be met for this unit:

- use of suitable facilities, equipment and resources, including:
 - workplace procedures, manufacturing specifications, codes, standards, manuals, and reference materials relevant to inspecting, testing and troubleshooting aircraft secondary radar systems and components
 - tools and equipment specified in the maintenance manuals
 - general and special-purpose tools and items of ground support and test equipment required for inspecting, testing and troubleshooting aircraft secondary radar systems and components.

Evidence of tasks demonstrating competency must be recorded in a log of industrial experience and achievement.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

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