



**Australian Government**

# **MEAAVI0046 Maintain basic aircraft communication and radio navigation systems and components**

**Release: 1**

# MEAAVI0046 Maintain basic aircraft communication and radio navigation systems and components

## 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 MEA276 Maintain basic aircraft communication and radio navigation 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, functionally test and troubleshoot basic communication and radio navigation systems and to remove and install components during scheduled or unscheduled maintenance. Work may be performed individually or as part of a team.

Applications include communication and radio navigation systems of fixed wing aircraft with fixed undercarriage and basic rotary wing aircraft with skids or floats and no powered flight controls powered by either a normally aspirated piston engine or small gas turbine.

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

## 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 basic communication and radio navigation systems and | 1.1 Identify specific inspection requirements using maintenance documentation and modification status, including relevant system defect reports |

| Elements                                                                          | Performance Criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Elements describe the essential outcomes.                                         | Performance criteria describe the performance needed to demonstrate achievement of the element.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| components                                                                        | <p>1.2 Check isolation tags and configure aircraft for safe system inspection and operation in accordance with maintenance manual while observing all relevant work health and safety (WHS) requirements</p> <p>1.3 Visually or physically check communication and radio navigation systems and components for external signs of defects in accordance with maintenance manual</p> <p>1.4 Identify and report defects in accordance with standard enterprise procedures</p>                                                                                                                                                                                                          |
| 2. Test or adjust basic communication and radio navigation systems and components | <p>2.1 Prepare aircraft and system for application of power or system operation in accordance with maintenance manual</p> <p>2.2 Perform functional testing on communication and radio navigation systems for evidence of serviceability or malfunction in accordance with maintenance manual</p> <p>2.3 Identify and report on deficiencies in accordance with standard enterprise procedures</p>                                                                                                                                                                                                                                                                                   |
| 3. Troubleshoot basic communication and radio navigation systems                  | <p>3.1 Use available information from maintenance documentation, inspection and test results to assist in fault determination of identified issues</p> <p>3.2 Troubleshoot to line replacement level using maintenance manual fault diagnosis guides and logic processes</p> <p>3.3 Obtain required specialist or supervisory advice to assist with the troubleshooting process</p> <p>3.4 Locate communication and radio navigation system faults and identify and record causes of faults in required maintenance documentation in accordance with standard enterprise procedures</p>                                                                                              |
| 4. Remove and install basic radio communication and navigation system components  | <p>4.1 Render system safe and prepare it in accordance with maintenance manual, fitting required isolation tags, to ensure personnel safety</p> <p>4.2 Remove communication and navigation system components in accordance with maintenance manual while observing all relevant WHS requirements</p> <p>4.3 Complete and process required maintenance documentation relating to removal in accordance with standard enterprise procedures</p> <p>4.4 Tag and pack removed components in accordance with specified procedures</p> <p>4.5 Confirm correct part numbers, modification status, serviceability and shelf life of communication and navigation system components to be</p> |

| Elements                                  | Performance Criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Elements describe the essential outcomes. | Performance criteria describe the performance needed to demonstrate achievement of the element.                                                                                                                                                                                                                                                                                                                                                                                  |
|                                           | <p>installed against maintenance manual</p> <p>4.6 Perform physical installation of components in accordance with maintenance manual and regulatory requirements, ensuring required adjustment or alignment is carried out</p> <p>4.7 Reinstall system to correct operational condition in preparation for required testing</p> <p>4.8 Complete and process required maintenance documentation in relation to installation in accordance with standard enterprise procedures</p> |

## 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 MEA276 Maintain basic aircraft communication and radio navigation 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 MEAAVI0046 Maintain basic aircraft communication and radio navigation 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:

- maintain basic aircraft communication and radio navigation systems and components during scheduled or unscheduled maintenance on a system and at least one major system component or line replacement unit (LRU) from each of the following groups:
  - high frequency (HF) and very high frequency (VHF) communication LRUs, transmission lines and antennas
  - automatic direction finding (ADF), very high frequency omni-directional range (VOR) and global navigation system (GNS) LRUs, transmission lines and antennas
  - air traffic control (ATC) transponders, transmission lines and antennas
  - emergency locator transmitter (ELT)
  - automatic dependent surveillance-broadcast (ADS-B)
- locate and identified radio communication and navigation system components comprising:
  - HF and VHF communications
  - VOR, ADF and GNS
  - ATC transponders
  - ADS-B
  - ELT systems
- locate and identified applicable radio system antennas
- recognise system and component defects, external damage, correct/incorrect installation, attachment hardware (including cabling/harnesses/transmission lines) and security in the following:
  - HF and VHF communications systems
  - VOR, ADF and GNS
  - ATC transponders
  - ADS-B
  - ELT systems

- perform functional testing by applying logic processes and make visual inspections to isolate malfunctions within the above systems and to 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

The must be evidence the candidate has knowledge of:

- component attachment methods
- connection of hardware and plugs
- printed circuit boards
- semiconductors
- fibre optics
- handling precautions for electrostatic sensitive devices
- work health and safety (WHS) practices for basic aircraft communication and radio navigation systems and components
- approved maintenance documentation and aircraft publications relating to radio communication and navigation systems and components
- the general working principles of communication and navigation systems
- basic system layout (block diagram level), function and operation of the following:
  - HF and VHF communications systems
  - VOR, ADF and GNS navigation systems
  - ATC transponders
  - ELT systems
  - ADS-B systems
- radio frequency and communication system maintenance requirements and basic troubleshooting procedures
- maintenance manuals for basic aircraft communication and radio navigation systems and components
- relevant regulatory requirements and standard procedures.
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## 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 maintaining basic aircraft communication and radio navigation 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 maintaining basic aircraft communication and radio navigation systems and components
- tools and equipment specified in maintenance documentation
- general-purpose tools and test equipment found in most routine situations.

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.

## Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=ce216c9c-04d5-4b3b-9bcf-4e81d0950371>