



**Australian Government**

# **MEAAVI0055 Repair and overhaul aircraft radio frequency**

**Release: 1**

# MEAAVI0055 Repair and overhaul aircraft radio frequency

## Modification History

Release 2. 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 MEA285 Repair or overhaul aircraft radio frequency communication and navigation system components.

## Application

This unit describes the skills and knowledge required to apply hand skills and use test equipment and knowledge of analogue and digital theory to repair or overhaul radio frequency (RF) components from aircraft communication and navigation systems.

Applications include RF communications and navigation system components from fixed and rotary wing aircraft 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.

Repair of circuit boards is covered by MEAAVI0039 Modify and repair aircraft component single-layer printed circuit boards and MEAAVI0040 Modify and repair aircraft component multi-layer printed circuit boards.

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

MEAAVI0038 Use electronic test equipment

MEA296 Use electrical test equipment in aviation maintenance activities

## 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. Determine                              | 1.1 Interpret communication and navigation system component defect                              |

| <b>Elements</b>                                                                | <b>Performance Criteria</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Elements describe the essential outcomes.                                      | Performance criteria describe the performance needed to demonstrate achievement of the element.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| requirements                                                                   | <p>reports (removal tags) or customer orders and match by part and serial numbers to identify requirements</p> <p>1.2 Prepare circuitry and connect to test equipment to perform functional testing or cycle through prescribed test procedures for evidence of serviceability or malfunction in accordance with the maintenance documentation</p> <p>1.3 Establish modification status to assist in determining the overhaul requirements for the components</p> <p>1.4 Identify and document extent of overhaul or repair in accordance with standard enterprise procedures</p> |
| 2. Troubleshoot RF communication and navigation system components              | <p>2.1 Use available information from maintenance records and inspection and test results to assist in fault determination</p> <p>2.2 Troubleshoot aircraft RF communication and navigation system components using maintenance manual fault diagnosis guides and logic processes</p> <p>2.3 Locate faults and identify and record causes of faults in required maintenance documentation</p> <p>2.4 Determine requirements for fault rectification in accordance with standard enterprise procedures</p>                                                                         |
| 3. Dismantle and inspect RF communication and navigation system components     | <p>3.1 Dismantle component parts in accordance with maintenance manuals while observing all relevant work health and safety (WHS) requirements</p> <p>3.2 Assess component parts for serviceability in accordance with the relevant maintenance documentation</p> <p>3.3 Tag parts requiring specialist repair and specify repair instructions</p> <p>3.4 Compile and process parts lists in accordance with standard enterprise procedures</p>                                                                                                                                   |
| 4. Repair or modify RF communication and navigation system components          | <p>4.1 Repair or replace component parts in accordance with maintenance documentation</p> <p>4.2 Make required modifications to components or parts in accordance with relevant manufacturers' bulletins or procedures</p>                                                                                                                                                                                                                                                                                                                                                        |
| 5. Assemble, test and adjust RF communication and navigation system components | <p>5.1 Assemble component parts in accordance with specified tolerances and maintenance documents</p> <p>5.2 Test assembled components and adjust or align in accordance with maintenance documentation and using appropriate test equipment</p>                                                                                                                                                                                                                                                                                                                                  |

| Elements                                  | Performance Criteria                                                                                                                   |
|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Elements describe the essential outcomes. | Performance criteria describe the performance needed to demonstrate achievement of the element.                                        |
|                                           | 5.3 Complete and process required maintenance documentation and modification records in accordance with standard enterprise procedures |

## 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 perform and interpret technical testing.

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 MEA285 Repair or overhaul aircraft radio frequency communication and navigation 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 MEAAVI0055 Repair and overhaul aircraft radio frequency

## Modification History

Release 2. 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 MEA285 Repair or overhaul aircraft radio frequency communication and navigation system components.

## 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:

- repair and overhaul aircraft radio frequency (RF) communication and navigations system components during scheduled or unscheduled maintenance on a representative range of components, applicable to the enterprise, from the following systems:
  - very high frequency (VHF) communications
  - high frequency (HF) communications
  - ultra-high frequency (UHF) communications
  - satellite communications
  - emergency location transmitters (ELT)
  - Aeronautical Radio Incorporated (ARINC) Communication Addressing and Reporting System
  - intercommunication and public address systems
  - automatic direction finding (ADF) navigation systems
  - very high frequency omni-directional range (VOR) navigation systems
  - instrument landing systems (ILS)
  - global positioning systems (GPS)
- recognise the serviceability state and repair or overhaul requirements for aircraft RF communication and navigation system components
- perform functional testing by applying logic processes and using test equipment and appropriate wiring diagrams and manuals to isolate component faults and assess post-repair/overhaul serviceability
- apply testing procedures, cleanliness requirements and safety precautions at all times and as relevant to the systems or components being maintained
- demonstrated high precision, high reliability soldering techniques and handling of components, including application of anti-static equipment, during repair or replacement of above system components.

## Knowledge Evidence

There must be evidence the candidate has knowledge of:

- component and system operation
- the basic function and operation of components of RF communication and navigation systems to enable testing for fault isolation and confirmation, to determine repair or overhaul requirements, and serviceability status post-repair or overhaul
- basic principles and functions relating to radio frequency communication and navigation system components and associated with:
  - advanced analogue fundamentals
  - digital fundamentals
  - alternating current (AC) and direct current (DC) electrical systems
  - electromagnetic radiation
  - antenna and transmission line (including waveguide) characteristics
  - radio transmission/signal propagation and frequency modulation
  - GPS
- satellite communications (industry specific)
- work health and safety (WHS) requirements for aircraft RF communication and navigation systems and components
- maintenance documentation for aircraft RF communication and navigation systems and components.

## 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 repairing or overhauling aircraft RF communication and navigation system 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 repairing or overhauling aircraft RF communication and navigation system components
  - tools and equipment specified in maintenance documentation
  - general and special-purpose tools and test equipment.

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 RF components with the aid of applicable maintenance manuals and data.

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

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