



**Australian Government**

# **MEA339 Inspect, repair and maintain aircraft structures**

**Release: 1**

# MEA339 Inspect, repair and maintain aircraft structures

## Modification History

Release 1 - New unit of competency

## Application

This unit of competency requires application of procedures and techniques associated with the inspection and maintenance of aircraft structures, and with the performance of a limited range of metal and composite repairs during scheduled or unscheduled maintenance, including special inspections required after events, such as heavy landings, overstress or flight through heavy turbulence. Applications include the individual or team-related performance of structural maintenance activities on fixed or rotary wing aircraft on the flight line or in the hangar.

The unit is part of the Mechanical Certificate IV (Aircraft Maintenance Stream) training pathway.

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).

Where a CASA licensing outcome is sought this unit forms part of the CASA requirement for the granting of the chosen maintenance certification licence under Civil Aviation Safety Regulation (CASR) Part 66, in accordance with the licensing provisions in the Companion Volume Implementation Guide.

## Pre-requisite Unit

MEA304            Remove and install non-pressurised aircraft structural and non-structural components

**OR**

MEA317            Remove and install pressurised aircraft structural and non-structural components

## 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. | Inspect aircraft structure             | 1.1 | Relevant maintenance documentation is used to identify specific inspection requirements   |
|    |  | 1.2 | Appropriate preparation and access to the aircraft structure is undertaken to allow for proper inspection in accordance with maintenance documentation  |
|    |  | 1.3 | Aircraft structure is visually or physically checked for signs of deformation defects or damage in accordance with maintenance documentation and approved procedures while observing all relevant work health and safety (WHS) requirements, including the use of material safety data sheets (MSDS) and items of personal protective equipment (PPE) |
|    |  | 1.4 | Damage or defects are assessed against damage or wear limits specified by structural repair manual or other approved data to determine if repair or replacement is required   |
|    |  | 1.5 | Maintenance documentation is completed and processed in accordance with standard enterprise procedures  |
| 2. | Prepare to undertake repair            | 2.1 | Extent of damage is correctly assessed to assist in determining repair procedure  |
|    |  | 2.2 | Appropriate repair scheme is identified in accordance with structural repair manual and/or approved data  |
|    |  | 2.3 | Specialist advice is obtained in establishing an approved repair scheme where a standard repair scheme cannot be identified or damage is out of limits  |
|    |  | 2.4 | All materials and equipment required are organised  |
| 3. | Repair and maintain aircraft structure | 3.1 | Structural repairs are performed in accordance with approved repair scheme ensuring that aircraft standard practices are used and process requirements are carried out while observing all relevant WHS requirements, including the use of MSDS and items of PPE  |
|    |  | 3.2 | Preventative maintenance techniques are employed to   |

- preserve the integrity of aircraft structure
- 3.3 Work area is cleaned of all waste material or contaminants
- 3.4 Required maintenance documentation is 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.

### Inspection of aircraft structure includes:

- Non-ferrous and ferrous alloys and composite (FRP) materials used in aircraft construction
- Structural fastening and attachment hardware and/or devices
- Seals and sealants
- Glass and moulded plastics
- Application of non-destructive testing (NDT) techniques
- Doors, hinges and locking mechanisms for damage/misalignment
- Inspections applicable to each of safe life, damage tolerant and fail safe structure relevant to enterprise
- Ageing aircraft inspection programs

### Damage or defects include:

- Impact damage
- Fatigue cracking
- Corrosion
- Delamination of composites and bonded structures

### Structural repairs include:

- Remove corrosion by chemical and mechanical methods
- Restore protective coatings
- Apply sealants and jointing compounds
- Freehand precision hole generation
- Remove and install structural hardware and fastening devices

- Remove and replace bushes, bearings and bearing surfaces
  - Metal scab patch, flush, splice, lap and formed section repair
  - Composite external patch, scarf, stepped and bolted repairs
- Specialist advice is obtained from:**
- Supervisors
  - Specialist structures personnel
- Relevant maintenance documentation includes:**
- Servicing schedules
  - Maintenance manuals
  - Applicable Defence regulations and instructions
- Procedures and requirements include:**
- Industry standard procedures specified by manufacturers, regulatory authorities or the enterprise

## Unit Mapping Information

Release 1 – equivalent to MEA339C Inspect, repair and maintain aircraft structures

## Links

Companion Volume implementation guides are found in VETNet -

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