



**Australian Government**

# **MEA405 Repair/modify aircraft composite material structure/components**

**Release: 1**

# MEA405 Repair/modify aircraft composite material structure/components

## Modification History

Release 1 - New unit of competency

## Application

This unit of competency requires application of hand skills and the use maintenance publications, applicable materials, tools and methods to repair aircraft composite material structure and components during the performance of scheduled or unscheduled maintenance. Maintenance may be performed individually or as part of a team.

Applications include composite material structure and components from fixed and rotary wing aircraft either on-aircraft or in the workshop.

The unit is part of the Aeroskills Structures Maintenance Certificate IV training pathway, and of the Mechanical Certificate IV (Aircraft Maintenance Stream) training pathways.

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).

## Pre-requisite Unit

MEA401            Inspect aircraft structures

## 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.

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|-----------------------------|-----|---|
| 1. Plan repair/modification | 1.1 | Extent of damage is correctly assessed to assist in determining repair procedure  |
|                             | 1.2 | Structure is supported and prepared in accordance with the applicable maintenance manual to ensure personnel safety and freedom from damage |

- 1.3 Appropriate modification or repair scheme is identified in accordance with structural repair manual and/or approved data
- 1.4 Specialist advice is obtained in establishing an approved repair scheme where a standard repair scheme cannot be identified or damage criteria are out of limits
- 1.5 All materials and equipment required are organised
2. Prepare components for hot bonding
  - 2.1 Components are prepared in accordance with applicable process specification 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)
  - 2.2 Bagging is checked to ensure vacuum seal is correct
  - 2.3 Temperature probes are placed appropriately to provide accurate measurement
  - 2.4 Equipment is checked for serviceability to ensure safety in application
  - 2.5 Heat blanket is laid on component or repair in a manner that ensures even temperature distribution
3. Repair/modify components using hot bond
  - 3.1 Hot bonding equipment is operated in accordance with equipment manufacturer's procedures
  - 3.2 Vacuum and temperature recordings are monitored, including checking of hot and cold spots on trailing and leading temperature probes, to ensure specifications are met
  - 3.3 Curing cycle and recording of operating cycle data are monitored as required by approved procedures to ensure specifications are met
  - 3.4 Blemishes are sealed, potted or filled, where necessary, in accordance with applicable process specification
  - 3.5 Component assemblies, including test pieces, requiring further or special treatment are made ready for the appropriate processes

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|----|--|--|
|    | 3.6                                      | Required maintenance documentation is accurately completed and correctly processed   |
|    | 3.7                                      | Completed assemblies are tagged, sealed or packaged as required  |
| 4. | Repair/modify components using cold cure |  |
|    | 4.1                                      | Lay up of materials is checked to confirm that components meet required specifications while observing all relevant WHS requirements, including the use of MSDS and items of PPE |
|    | 4.2                                      | Curing cycle is regularly monitored to ensure required specifications are met  |
|    | 4.3                                      | Components are checked for blemishes or delamination in accordance with quality procedures   |
|    | 4.4                                      | Component assemblies requiring further or special treatment are made ready for the appropriate processes   |
|    | 4.5                                      | Required maintenance documentation is completed and processed in accordance with standard enterprise procedures  |
|    | 4.6                                      | Completed assemblies are tagged, sealed or packaged as required  |

## 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.

### Applicable materials and methods include:

- Pre-preg materials hot cure (performed on one of carbon graphite, kevlar, fibreglass or aluminium)
- Cold cure or wet lay-up (using either fibreglass or carbon graphite)
- Core materials (using one of aluminium, nomex or foam)

**Procedures and requirements include:**

- Industry standard procedures specified by manufacturers, regulatory authorities or the enterprise

**Unit Mapping Information**

Release 1 – equivalent to MEA405B Repair/modify aircraft composite material structure/components

**Links**

Companion Volume implementation guides are found in VETNet -

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