



Australian Government

MEA425 Perform bolted composite skin repairs

Release: 1

MEA425 Perform bolted composite skin repairs

Modification History

Release 1 - New unit of competency

Application

This unit of competency requires application of hand skills and the use of maintenance publications, applicable materials, tools and methods to repair aircraft composite skin surfaces during scheduled or unscheduled maintenance using bolted repair techniques. Work may involve individual and team-related activities.

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

This unit of competency 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

OR

MEA339 Inspect, repair and maintain aircraft structures

OR

MEA369 Inspect and maintain structures and related components of
non-pressurised small aircraft

Competency Field

Aviation maintenance

Unit Sector

Elements and Performance Criteria

Elements describe the

Performance criteria describe the performance needed to

essential outcomes.	demonstrate achievement of the element.
1. Plan repair	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 bolted 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. Repair components using bolted patches	2.1. Damage is cleaned up ready for repair 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. Patch material is obtained and patches are fabricated in accordance with the applicable repair scheme 2.3. Repair plug material is obtained and cut to size 2.4. Patches are fitted and secured with fasteners in accordance with the repair scheme while observing all relevant WHS requirements, including the use of MSDS and items of PPE 2.5. Applicable sealant is applied in accordance with the repair scheme 2.6. Surface finish is restored as required 2.7. Required maintenance documentation is completed and processed in accordance with standard enterprise procedures 2.8. 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.

- | | |
|---|---|
| Bolted repairs include: | <ul style="list-style-type: none">• External• Internal• External/internal |
| Procedures and requirements include: | <ul style="list-style-type: none">• Industry standard procedures specified by manufacturers, regulatory authorities or the enterprise |

Unit Mapping Information

Release 1 – equivalent to MEA425A Perform bolted composite skin repairs

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 MEA425 Perform bolted composite skin repairs

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Performance Evidence

Evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria under the specified conditions of assessment, and must include:

- applying while observing all relevant WHS requirements, including the use of MSDS and items of PPE
- using approved maintenance documentation and aircraft publications relating to bolted repairs to composite aircraft skin
- identifying composite component applications in aircraft structures
- identifying various aircraft composite materials and their basic properties by interpretation of markings and visual means
- identifying the range of bolted repair patch and repair plug materials
- identifying applicable fasteners
- identifying applicable sealants
- assessing composite component damage using visual and tap test methods
- performing composite skin bolted repairs:
 - external patch repair
 - internal patch repair
 - external/internal patch repair
- correctly interpreting and/or producing repair scheme/modification drawings/sketches
- using appropriate hand tools and machines to perform bolted repairs, including drilling/cutting equipment and material fasteners.

The underlying skills inherent in this unit should be transferable across the range of composite skin materials and patch materials and fasteners. Correct checking and wearing of PPE is critical.

Knowledge Evidence

Evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- aircraft construction principles and the causes of structural damage, including metal fatigue and corrosion
- structural fatigue preventative measures
- composite terminology and materials used
- bolted repair methods

- types of patch material
- fastener types, specifications and identification
- plug materials
- use of scrim to prevent galvanic corrosion
- sealants used in bolted patch repairs and their application and handling
- paints and finishes for composite structure
- WHS precautions associated with repair of aircraft structure
- MSDS
- relevant PPE.

Assessment Conditions

- Competency should be assessed in the workplace or simulated workplace. It is also expected that general-purpose tools and test equipment found in most routine situations would be used where appropriate.
- Evidence of knowledge about bolted repair techniques and the use of the standard repair manual in a range of different repair situations will be necessary to supplement evidence of ability to plan and undertake repair.
- The following conditions of assessment represent the requirements of the Regulators (ADF and CASA) and maintenance stakeholders and must be rigorously observed.
- A person cannot be assessed as competent until it can be demonstrated to the satisfaction of the workplace assessor that the relevant elements and performance criteria of the unit of competency are being achieved under routine supervision on the application of repair patches in each of the following types of repair :
 - external
 - internal
 - external/internal
- This shall be established via the records in the Log of Industrial Experience and Achievement or, where appropriate, an equivalent Industry Evidence Guide (for details refer to the Companion Volume Assessment Guidelines).
- Assessors must satisfy the requirements of the National Vocational Education and Training Regulator (Australian Skills Quality Authority, or its successors).
- Where the unit is to be used for CASA licensing purposes the Assessor must also meet the criteria specified in the CASR Part 147 Manual of Standards.

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