



Australian Government

MEASTR0002 Modify and repair aircraft composite materials structures and components

Release: 1

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Modification History

Release 1. Unit code and title changed. 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 MEA405 Repair/modify aircraft composite material structure/components.

Application

This unit describes the skills and knowledge required to repair aircraft composite material structure and components during the performance of scheduled or unscheduled maintenance using hand skills, maintenance publications and applicable materials, tools and methods. Work 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 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

MEASTR0001 Inspect aircraft structures

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. Plan repair or modification	1.1 Assess extent of damage using visual and tap test methods to assist in determining repair procedure 1.2 Support structure and prepare it in accordance with maintenance manual to ensure personnel safety and avoidance of damage 1.3 Identify suitable modification or repair scheme in accordance with

	structural repair manual and relevant data 1.4 Obtain specialist or supervisory advice to establish an approved repair scheme where a standard repair scheme cannot be identified, or damage criteria are out of limits 1.5 Organise all required materials and equipment in readiness for repair or modification
2. Prepare components for hot bonding	2.1 Prepare components in accordance with process specification while observing all relevant work health and safety (WHS) requirements, including the use of material safety data sheets (MSDSs) and items of personal protective equipment (PPE) 2.2 Check bagging to ensure vacuum seal is correct 2.3 Place temperature probes to provide accurate measurement 2.4 Check equipment for serviceability to ensure safety in application 2.5 Lay heat blanket on component or structure to be repaired or modified, ensuring even temperature distribution
3. Repair or modify components using hot bond	3.1 Operate hot bonding equipment in accordance with equipment manufacturer's procedures to achieve the void-free lamination 3.2 Monitor vacuum and temperature recordings, including checking hot and cold spots on trailing and leading temperature probes, to ensure specifications are met 3.3 Monitor curing cycle and operating cycle data recording in accordance with specified procedures to ensure specifications are met 3.4 Seal, pot or fill blemishes as required and in accordance with process specification 3.5 Prepare component assemblies, including test pieces, that need further or special treatment for the required processes 3.6 Complete and process required maintenance documentation relating to hot bond repair or modification in accordance with standard enterprise procedures 3.7 Tag, seal and pack completed assemblies in accordance with specified procedures 3.8 Handle and store composite materials used in accordance with industry standards
4. Repair or modify components using cold cure	4.1 Check lay-up of materials to confirm that components meet specifications while observing all relevant WHS requirements, including the use of MSDSs and items of PPE 4.2 Regularly monitor curing cycle to ensure specifications are met 4.3 Check components for blemishes or delamination in accordance with

	quality procedures 4.4 Prepare component assemblies requiring further or special treatment for the required processes 4.5 Complete and process required maintenance documentation in accordance with standard enterprise procedures 4.6 Tag, seal or pack completed assemblies in accordance with specific procedures 4.7 Handle and store composite materials used in accordance with industry standards
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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.
- Writing skills to record and report on repair and modification operations.
- Numeracy skills to interpret and communicate technical information including drawings or sketches.

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 MEA405 Repair/modify aircraft composite material structure/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 MEASTR0002 Modify and repair aircraft composite materials structures 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:

- repair or modify aircraft composite material structures or components during scheduled or unscheduled maintenance using materials from each of:
 - prepreg 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)
- identify composite component applications in the aircraft structures being maintained
- identify various aircraft composite materials or resins and their basic properties by interpreting markings and other visual cues in the areas being maintained
- perform repairs or modifications of composite component cumulatively using the following methods:
 - external patch repair
 - scarf repair
 - stepped repair
 - wet lay-up repair
 - composite fastener hole repair
 - metal to metal and metal to composite bonding
- for the above repairs and modifications, correctly interpret or produce repair or modification scheme drawings or sketches to inform approach
- for the above repairs and modifications, select and use hand tools and machines to disassemble and assemble aircraft composite components, parts, sections and skin, including extraction and installation equipment, drilling and cutting equipment, and material fasteners.
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Knowledge Evidence

There must be evidence the candidate has knowledge of:

- how to obtain relevant material safety data sheets (MSDSs)
- the use of applicable items of personal protective equipment (PPE)
- work health and safety (WHS) procedures for repairing or modifying aircraft composite material structures or components
- maintenance documentation for repairing or modifying aircraft composite material structures or components
- aircraft construction principles
- composite terminology
- composite component construction methods, including structural assembly fastener identification.
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Assessment Conditions

The following conditions of assessment represent the requirements of the regulators Defence Aviation Safety Authority (DASA) and Civil Aviation Safety Authority (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 modifying aircraft composite material structures or components. The following conditions must be met for this unit:

- use of suitable facilities, equipment and resources, including:
 - required workplace procedures, manufacturing specifications, codes, standards, manuals, and reference materials relevant to repairing or modifying aircraft composite material structures or components
 - 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.

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