



Australian Government

MEAMEC0054 Modify and repair aircraft composite structure using cold bonding

Release: 1

MEAMEC0054 Modify and repair aircraft composite structure using cold bonding

Modification History

Release 1. Application changed. 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 MEA367 Repair/modify aircraft composite structure using cold bonding.

Application

This unit describes the skills and knowledge required to apply hand skills and use maintenance publications, applicable materials, tools and methods to repair aircraft composite material structure and components using cold cure repair techniques either on-aircraft or in the workshop during scheduled or unscheduled maintenance.

If this unit is selected, one of the following units should also be selected:

- MEASTR0001 Inspect aircraft structures
- MEA339 Inspect, repair and maintain aircraft structures
- MEAMEC0056 Inspect and maintain structures and related components of non-pressurised small aircraft

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

Nil

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 the extent of damage, including using visual and tap test methods, to assist in determining modification or repair procedure 1.2 Support and prepare structure in accordance with the applicable

Elements	Performance Criteria
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	maintenance manual to ensure personnel safety and freedom from damage, 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) 1.3 Identify appropriate modification or repair scheme in accordance with structural repair manual or approved data 1.4 Obtain specialist advice in establishing an approved modification or repair scheme where a standard modification or repair scheme cannot be identified, or damage criteria are out of limits 1.5 Organise required materials and equipment in accordance with maintenance manual
2. Repair or modify components using cold cure	2.1 Check lay-up of materials to confirm that components meet required specifications and bagging equipment is correctly installed and operated 2.2 Regularly monitor curing cycle to ensure required specifications are met 2.3 Check components for blemishes or delamination in accordance with quality procedures 2.4 Make ready component assemblies requiring further or special treatment for the appropriate processes 2.5 Complete required maintenance documentation and process in accordance with standard enterprise procedures 2.6 Tag, seal and pack completed assemblies as required

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 documentation and procedures.
- Writing skills to complete maintenance documentation.
- Numeracy skills to interpret and communicate technical information including drawings/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 MEA367 Repair/modify aircraft composite structure using cold bonding.

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 MEAMEC0054 Modify and repair aircraft composite structure using cold bonding

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Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, and demonstrated the ability to:

- modify and repair aircraft composite structure during scheduled or unscheduled maintenance, while performing composite component repairs using cold cure adhesives on each of the following repair types:
 - external patch repair
 - scarf repair
 - stepped repair
 - wet lay-up repair
 - composite fastener hole repair
- while conducting the above tasks:
 - use materials from each of:
 - 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 aircraft structures to inform selection of modification or repair scheme
 - identify various aircraft composite materials or resins and their basic properties by interpretation of markings and visual means to support damage assessment and inform selection of modification or repair scheme
 - handle and store composite materials to industry standards
 - correctly interpret and produce repair scheme or modification drawings or sketches
 - prior to and after repair, use appropriate 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.

Ability to apply different materials and curing cycles, including composite to composite and composite to metal components, will be necessary to indicate competency in preparing and curing composite materials.

Knowledge Evidence

There must be evidence the candidate has 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 in both hot and cold bonding
- composite component construction and repair methods, including structural assembly fastener types, specifications and identification
- hand tools and machines used to disassemble and assemble aircraft composite components, parts, sections and skin, including extraction and installation equipment, drilling and cutting equipment, and material fasteners.
- approved maintenance documentation and aircraft publications relating to aircraft structure
- repair scheme or modification drawings and sketches
- procedures for the design and approval of repair schemes and modifications
- composite material handling and storage requirements
- composite component visual and tap test methods
- relative advantages and disadvantages of hot and cold cure
- sealants used in aircraft structure and their application and handling
- paints and finishes for composite structure
- work health and safety (WHS) precautions associated with repair of aircraft structure
- how to obtain and apply material safety data sheets (MSDSs)
- selection and use of personal protective equipment (PPE) for repairing and modifying aircraft composite structure using cold bonding.

Candidates must be able to provide evidence of knowledge about repair techniques and the use of the standard repair manual in a range of different repair situations to supplement evidence of ability to plan and undertake component repair.

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 modifying and repairing aircraft composite structures using cold bonding. 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 modifying and repairing aircraft composite structures using cold bonding
 - tools and equipment specified in maintenance documentation
 - general-purpose tools and test equipment found in most routine situations.

It is essential that specific aspects of the laying up and curing process for aircraft composite materials are checked to ensure quality and safety standards are achieved in this area.

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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