



Australian Government

MEAMEC0058 Perform major modifications and repairs to small aircraft metal structure

Release: 1

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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 MEA371 Perform major repairs and modifications to small aircraft metal structure.

Application

This unit describes the skills and knowledge required to apply hand skills and use applicable tools, maintenance publications and repair drawings to perform major repairs and modifications to small aircraft structure, including the replacement of primary structure components of both fixed and rotary wing aircraft. This may occur during scheduled or unscheduled maintenance activities and may involve individual or team-related activities.

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

MEAMEC0056 Inspect and maintain structures and related components of non-pressurised small aircraft

MEAMEC0057 Repair the structure of non-pressurised small aircraft

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. Prepare to undertake repair or modification	1.1 Identify modification or repair scheme in accordance with structural repair manual or approved data 1.2 Obtain specialist advice in establishing an approved modification or repair scheme where a standard scheme cannot be identified or where damage is beyond specified limits

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	1.3 Organise all materials and equipment required 1.4 Support and prepare structure in accordance with the applicable maintenance manual to ensure personnel safety and freedom from damage 1.5 Use jigs, fixtures or bracing, when required, to maintain shape or alignment
2. Repair or modify aircraft structure	2.1 Perform structural repairs or modifications, in accordance with approved repair scheme or modification drawings and instructions, ensuring that aircraft standard practices are used and process requirements are carried out 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 Clean work area of all waste material or contaminants 2.3 Complete required mensuration or alignment checks and adjust components, when required, to operate within prescribed specifications 2.4 Tag, seal and pack or cradle repaired components or assemblies in accordance with specified procedures, when required 2.5 Complete required maintenance documentation and process in accordance with standard enterprise procedures

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 sketches/drawings.

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 MEA371 Perform major repairs and modifications to small aircraft metal structure.

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 MEAMEC0058 Perform major modifications and repairs to small aircraft metal structure

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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:

- perform major modifications and repairs to small aircraft metal structure on at least one of the following tasks:
 - removing and installing structural hardware and fastening devices
 - repairing by replacing major load-carrying structural members (any of skins, longerons, spars, frames and bulkheads)
- identify assembly stress defects during alignment or testing, including at least one of:
 - oil canning
 - buckling
 - contour misalignment
- identify aircraft structural assembly fasteners by interpretation of markings, numbering systems, size, shape and colour to inform selection of modification or repair scheme
- interpret and/or produce repair scheme or modification drawings, including third angle projection, isometric, sectional formats and hand sketches
- use appropriate hand tools and machines to remove and assemble aircraft structural components, parts, sections and skin, including riveting equipment, drilling equipment, aligning tools and material fasteners (grip pins)
- apply correct removal, installation and repair techniques for:
 - at least five rivets blind and solid, standard and oversize, including three different diameters
 - at least five close tolerance fasteners (standard and oversize – hillocks or taper locks), including hole preparation
 - at least two threaded devices, including internal and external thread cutting, and including Helicoil inserts and damaged stud replacement
 - hardware assembled by close tolerance fits using heat, cooling and force methods, including bearings, bushes and inserts on at least two occasions.
- support the aircraft structure by jacking, trestling and jiggling methods
- perform mensuration checks after structure reassembly.
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Knowledge Evidence

There must be evidence the candidate has knowledge of:

- aircraft construction principles and structural component attachment methods for primary structure:
 - fuselage
 - wings and attachment fittings
 - horizontal and vertical stabilisers and attachment fittings
 - pylons and attachment fittings
 - flight control surfaces
 - engine mounts and nacelles and attachment fittings
 - undercarriage attachments
- procedures for replacement of primary structure components, including:
 - fuselage frames and longerons
 - wing spars or spar caps
 - wing-to-fuselage attachment fittings
 - tailplane attachment fittings
 - undercarriage attachment fittings
- aircraft mensuration checks and methodology – when required
- repair of integral fuel tanks and sealing of faying surfaces, including specific work health and safety (WHS) and personal protective equipment (PPE) requirements
- surface finishes and methods of restoration
- how to obtain material safety data sheets (MSDSs)
- structural flight loads and aerodynamic requirements
- relevant maintenance and structural repair manuals and modification data
- relevant regulatory requirements and standard procedures.

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 performing major modifications and repairs to small aircraft metal structure. The following conditions must be met for this unit:

- use of suitable facilities, equipment and resources, including:
 - maintenance documentation relevant to performing major modifications and repairs to small aircraft metal structure
 - tools and equipment specified in maintenance documentation
 - 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.

Links

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