Australian Government

MEA403B Repair/modify aircraft structure

Revision Number: 1

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

MEA403B Repair/modify aircraft structure

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit is part of the Aeroskills Structures Maintenance Certificate IV training pathway. It covers the competencies required for the repair of fixed and rotary wing aircraft. No licensing requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit requires application of hand skills, the use of special tools and structural repair manuals and schemes to repair aircraft structure. Applications include the structure of fixed and rotary wing aircraft.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		
	MEA401B	Inspect aircraft structures
	MEA402B	Fabricate aircraft structural components

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to undertake 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 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 is out of limits. 1.5. All materials and equipment required are organised.
2. Repair/modify aircraft structure	2.1. Structural repairs are performed, in accordance with approved repair scheme, ensuring that aircraft standard practices are used and process requirements are carried out. 2.2. Work area is cleaned of all waste material or contaminants. 2.3. Components are adjusted, where necessary, to operate within prescribed specifications. 2.4. Repaired components or assemblies are tagged, sealed and packaged or cradled in accordance with specified procedures, where required. 2.5. Required documentation is completed and processed in accordance with standard enterprise procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Look for evidence that confirms skills in:

- application of relevant OH&S procedures
- the use of approved maintenance documentation and aircraft publications relating to aircraft structure
- identifying various aircraft metals and their basic metallurgy properties by interpretation of markings, numbering systems or visual, chemical or mechanical means
- identifying various aircraft composite materials and their basic properties by interpretation of markings and visual means
- handling and storing aircraft metals and composite materials including sealing agents, to industry standards
- identifying aircraft structural assembly fasteners (metal and composite) by interpretation of markings, numbering systems, size, shape and colour
- correctly interpret and /or produce repair scheme/modification drawings (including third angle projection, isometric, sectional formats and hand sketches)
- using 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)
- applying correct removal, installation and repair techniques for:
  - a range of rivets (blind and solid) using hand, squeeze and pneumatic situations
  - a range of close tolerance fasteners (standard and oversize - hilocks, taper locks) including hole preparation
  - threaded devices including internal and external thread cutting, helicoil inserts and damaged stud replacement
  - hardware assembled by close tolerance fits using heat, cooling and force methods, including bearings, bushes and inserts
- correct support of the aircraft structure by jacking, trestling and/or jigging methods
- performing a range of metal structure and composite material repair techniques including:
  - metal scab patch, flush, splice, lap and formed section repair
  - composite external patch repairs
  - metal to metal and metal to composite bonding
- applying structural corrosion removal/treatment techniques
- restoring aircraft structure sealing and surface finishes

Required knowledge

REQUIRED SKILLS AND KNOWLEDGE
Look for evidence that confirms knowledge of: aircraft construction principles.

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	A person who demonstrates competency in this unit must be able to apply hand skills, use special tools and structural repair manuals and schemes to repair aircraft structure while applying all relevant safety precautions.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The underlying skills inherent in this unit should be transferable into other areas that require similar techniques. It is essential that procedures take into account all safety precautions and quality requirements, standards and practices and processes associated with assembly. Evidence of knowledge about 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 structure and component repair. A person cannot be assessed as competent until it can be demonstrated to the satisfaction of the workplace assessor that the relevant elements of the Unit of Competency are being achieved under routine supervision on at least one item from each of Groups 1 to 7 listed in the Range Statement. This shall be established via the records in the Log of Industrial Experience and Achievement or, where appropriate, an equivalent Industry .
Context of and specific resources for assessment	Competency should be assessed in the work environment, using tools and equipment specified by aircraft maintenance manuals. It is also expected that general purpose tools, test and ground support equipment found in most routine situations would be used where appropriate.
Method of assessment	
Guidance information for assessment	

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Note	The Range Statements below are numbered to facilitate specification of the assessment requirements included in the Evidence Guide.
Repair procedures	*Repair procedures may include*: 1. Remove corrosion by chemical and mechanical methods 2. Restore protective coatings 3. Apply sealants and jointing compounds 4. Freehand precision hole generation 5. Remove and install structural hardware, fastening devices, bushes, bearings and bearing surfaces 6. Remove and repair damaged sections and reinstall 7. Minor repairs to non-metallic materials.
Procedures and requirements	Refer to industry standard specified by manufacturers, regulatory authorities or the enterprise.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Aviation maintenance

Co-requisite units

Co-requisite units		