



Australian Government

Department of Education, Employment and Workplace Relations

MEA404B Disassemble and reassemble aircraft structure for major repair or modification

Release: 1

MEA404B Disassemble and reassemble aircraft structure for major repair or modification

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 to disassemble and reassemble aircraft structure for the purpose of major repair or modification. No licensing requirements apply to this unit at the time of publication.
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Application of the Unit

Application of the unit	This unit requires application of hand skills and use of maintenance publications, drawings, and appropriate jigs, fixtures and tools to disassemble and reassemble aircraft structure for major repairs or modifications. Applications include fixed and rotary wing aircraft.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		
	MEA403B	Repair/modify aircraft structure

Employability Skills Information

Employability skills	This unit contains employability skills.
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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.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Interpret specifications and organise materials.	1.1. Specifications and drawings or repair scheme documentation are interpreted to determine component and material requirements. 1.2. Procedure for assembly/disassembly of structure is determined in order to plan equipment use. 1.3. Appropriate jigs, fixtures or bracing requirements are determined to ensure maintenance of contour/structural integrity during disassembly/assembly operations. 1.4. All components and equipment are organised.
2. Prepare aircraft or sub-assembly for structural disassembly.	2.1. Structure is supported and prepared with appropriate jigs, fixtures or bracing as required. 2.2. Structural component removal is undertaken to provide access as required.
3. Disassemble aircraft structure or sub-assembly.	3.1. Aircraft standard practices are applied to the removal of structural hardware and fasteners. 3.2. Disassembled components are tagged to facilitate correct reassembly as required.
4. Prepare components and tooling for assembly.	4.1. Jigs and fixtures are set up to ensure accuracy of component assembly. 4.2. Component alignment is checked for conformance to specifications prior to fastener hole generation. 4.3. Hole location/relocation is carried out in accordance with specification procedures and standard practices. 4.4. Standard practices are followed in hole generation sequencing to ensure that assembly stress defects are not built in. 4.5. Components are disassembled, cleaned, deburred and surface treatments are applied prior to final assembly.
5. Assemble aircraft structure or sub-assembly.	5.1. Sealants and/or adhesives are selected and applied in accordance with assembly specifications or appropriate documentation. 5.2. Components are positioned and secured with appropriate temporary fastening devices for accurate assembly. 5.3. Fasteners are selected and installed in accordance with assembly specifications or appropriate manuals.
6. Inspect completed assemblies.	6.1. Assembled components are inspected to confirm dimensional accuracy and specifications are met. 6.2. Checking or testing equipment is used where appropriate to ensure requirements are met.

ELEMENT	PERFORMANCE CRITERIA
	6.3. 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
- correctly interpreting repair scheme/modification drawings (including third angle projection, isometric, sectional formats) and procedural instructions/specifications
- correctly supporting the aircraft structure by jacking, trestling, bracing and/or jiggling methods
- identifying various aircraft metals/composite materials and their basic metallurgy properties by interpretation of markings, numbering systems or visual, chemical or mechanical means
- handling and storing aircraft metals and composite materials to industry standards
- identifying aircraft structural assembly fasteners (metal and composite) by interpretation of markings, numbering systems, size, shape and colour
- using appropriate hand tools and machines to remove and assemble aircraft structural components, parts, sections and skin including riveting equipment, drilling equipment, aligning tools, reamers and material fasteners (grip pins)
- applying correct removal and installation techniques for general and close tolerance fasteners (rivets, standard and oversize - hilocks) including hole preparation and location techniques
- performing aircraft alignment and mensuration checks
- restoring aircraft structure surface finishes

Required knowledge

Look for evidence that confirms knowledge of:

- aircraft construction principles
- describing the basic construction methods used to assemble:
 - fuselage (pressure and non-pressurised)
 - wings, vertical and horizontal stabilisers, rotary wing tail cones and pylons
 - engine nacelles/pylons
 - doors and windows, including seals, sealants and locking mechanisms

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 and use maintenance publications, drawings and specifications and appropriate jigs, fixtures and tools to disassemble and reassemble 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 elements from each of Groups 1 to 3 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 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.
Scope	The competency applies to: 1. Assembly of aircraft sub-assembly or end items from detailed parts using jigs and fixtures 2. Repair or modification of aircraft structure through specific repair schemes defined in structural repair manuals and other relevant documentation 3. Repair by replacement of major structural load carrying members, for example, skins, longerons, spars, frames, bulkheads.
Assembly procedures will include:	Assembly procedures will include: • drilling, reaming, counter-sinking • fitting of fasteners and rivets • application of adhesives and sealants • fitting of hardware • application of corrosion inhibitors and protective coatings Assembly stress defects can refer to: • oil canning, buckling, contour misalignment
Application	Application of this unit may relate to: • scheduled or unscheduled maintenance • individual or team related activities
Procedures and requirements	Refer to industry standard procedures specified by manufacturers, regulatory authorities or the enterprise

Unit Sector(s)

Unit sector	
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Competency field

Competency field	Aviation maintenance
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Co-requisite units

Co-requisite units		