



Australian Government

MEA359 Inspect and repair aircraft wooden structures

Release: 2

MEA359 Inspect and repair aircraft wooden structures

Modification History

Release 2. Equivalent to MEA359 Inspect and repair aircraft wooden structures with amended prerequisite codes.

Application

This unit of competency requires application of woodworking hand skills and knowledge and the use of maintenance publications to inspect and repair aircraft wooden structure and wooden components during the performance of scheduled or unscheduled maintenance. Maintenance may be performed individually or as part of a team.

The unit is part of the Mechanical Certificate IV (Aircraft Maintenance Stream) training pathway.

Where a Civil Aviation Safety Authority (CASA) licensing outcome is sought this unit forms part of the CASA requirement for the granting of the chosen maintenance certification licence under Civil Aviation Safety Regulation (CASR) Part 66, in accordance with the licensing provisions in the Companion Volume Implementation Guide.

Pre-requisite Unit

MEA107	Interpret and use aviation maintenance industry manuals and specifications
MEA154	Apply work health and safety practices in aviation maintenance
MEA155	Plan and organise aviation maintenance work activities
MEA156	Apply quality standards during aviation maintenance activities
MEA157	Complete aviation maintenance industry documentation
MEA158	Perform basic hand skills, standard trade practices and fundamentals in aviation maintenance

Competency Field

Aviation maintenance

Unit Sector

Elements and Performance Criteria

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
1.	Inspect aircraft wooden structure	1.1	Relevant maintenance documentation and modification status, including defect reports, where relevant, are used to identify specific inspection requirements
		1.2	Appropriate preparation and access to the aircraft structure is undertaken to allow for proper inspection and testing in accordance with maintenance documentation
		1.3	Aircraft wooden structure is visually or physically checked for signs of deterioration, deformation defects or damage in accordance with maintenance documentation and approved procedures while observing all relevant work health and safety (WHS) requirements, including the use of material safety data sheets (MSDS) and items of personal protective equipment (PPE)
		1.4	Damage or defects are assessed against damage or wear limits specified by structural repair manual or other approved data to determine if repair or replacement is required
2.	Repair aircraft wooden structure	2.1	Extent of deterioration or damage is correctly assessed to assist in determining repair procedure
		2.2	Structure is supported and prepared in accordance with the applicable maintenance manual to ensure personal safety and freedom from damage
		2.3	Appropriate repair scheme is identified in accordance with structural repair manual and/or approved data
		2.4	Specialist advice is obtained in establishing an approved repair scheme where a standard repair scheme cannot be identified or damage is beyond limits
		2.5	All materials and equipment required are organised
		2.6	Structural repairs are performed in accordance with approved repair scheme ensuring that aircraft standard practices are used and process requirements are carried

- out while observing all relevant WHS requirements, including the use of MSDS and items of PPE
- 2.7 Finishing scheme is restored while observing all relevant WHS requirements, including the use of MSDS and items of PPE
- 2.8 Work area is cleaned of all waste material or contaminants
- 2.9 Components are adjusted, where necessary, to operate within prescribed specifications
- 2.10 Required maintenance/repair documentation is completed and processed in accordance with standard enterprise procedures
- 2.11 Where required, repaired components or assemblies are tagged, sealed and packaged or cradled in accordance with specified procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Inspection and testing requirements include:

- Drainage and water and dirt collection points
- Fabric covered plywood surfaces
- Single and double plywood skin
- Structural timbers and bolt holes
- Glued joint strength
- Glue lines

Inspection techniques include:

- Visual inspection
- Physical checks
- Mensuration and alignment

Components to be repaired include:

- Load carrying structural timbers
- Plywood skin

- Spars and ribs.
 - Refinishing of structure after repair using approved finishing scheme
 - Industry standard procedures specified by manufacturers, regulatory authorities or the enterprise
- Finishing scheme includes:**
- Procedures and requirements include:**

Unit Mapping Information

Release 2. Equivalent to MEA359 Inspect and repair aircraft wooden structures

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 MEA359 Inspect and repair aircraft wooden structures

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Performance Evidence

Evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria under the specified conditions of assessment, and must include:

- applying relevant WHS procedures, including the correct selection and use of PPE and MSDS
- using approved maintenance documentation and aircraft publications relating to aircraft wooden structure
- identifying and using woodworking tools
- identifying aircraft structural timbers and their characteristics
- identifying potential causes of deterioration in wooden structural components
- identifying wooden structure defects and damage
- identifying the condition of glue lines
- fabricating and fitting repair members
- gluing of wooden structure
- restoring surface finish after repair.

The underlying skills inherent in this unit should be transferable across a range of inspection, testing and repair applications associated with maintenance of aircraft wooden structures. It is essential that the procedures take into account all aircraft and personal safety precautions relating to aircraft structure.

This shall be demonstrated through application across a range of aircraft wooden structures. Ability to interpret inspection and repair procedures and specifications (allowable limits) and apply them in practice is critical.

The application of the procedures should also clearly indicate knowledge of structural flight loads.

Knowledge Evidence

- Evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:
- WHS hazards relating to wooden structure repair materials and how to obtain relevant MSDS and PPE
- aircraft wooden construction principles and inspection techniques
- wooden structural component attachment methods

- the effects of environmental factors on aircraft wooden structures
- wooden structure glues and application methods
- wooden component assembly methods and testing of joints
- wooden structure finishing schemes for exterior and interior surfaces
- the application of flight loads to aircraft wooden structural components and joints, and related failure mechanisms
- wooden component fabrication and repair techniques.

Assessment Conditions

- Competency should be assessed in the work environment or simulated work environment using tools and equipment specified in maintenance documentation. It is also expected that general-purpose tools and test equipment found in most routine situations would be used where appropriate.
- The following conditions of assessment represent the requirements of the Regulators (ADF and CASA) and maintenance stakeholders and must be rigorously observed.
- A person cannot be assessed as competent until it can be demonstrated to the satisfaction of the workplace assessor that the relevant elements and performance criteria of the unit of competency are being achieved under routine supervision on all of the following:
 - inspection and/or testing of:
 - drainage and water and dirt collection points
 - fabric covered plywood surfaces
 - single and double plywood skin
 - structural timbers and bolt holes
 - glued joint strength
 - glue lines
 - inspection techniques must include visual inspection, physical checks, mensuration and alignment
 - repair of:
 - load carrying structural timbers
 - plywood skin
 - spars and ribs.
 - refinishing of structure after repair using approved finishing scheme.
- This shall be established via the records in the Log of Industrial Experience and Achievement or, where appropriate, an equivalent Industry Evidence Guide (for details refer to the Companion Volume Assessment Guidelines).
- Assessors must satisfy the requirements of the National Vocational Education and Training Regulator (Australian Skills Quality Authority, or its successors).
- Where the unit is to be used for CASA licensing purposes the Assessor must also meet the criteria specified in the CASR Part 147 Manual of Standards.

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