



Australian Government

Department of Education, Employment and Workplace Relations

MEA401C Inspect aircraft structures

Release: 1

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Modification History

Knowledge requirements and Range Statement revised to include additional inspection coverage - equivalent to previous version.

Unit Descriptor

This unit of competency is part of the Aeroskills Structures Maintenance Certificate IV and of the Mechanical Certificate IV (Aircraft Maintenance Stream) training pathways. It covers the competencies required for the inspection of fixed and rotary wing aircraft structures. The unit is used in workplaces that operate under the airworthiness regulatory systems of the ADF and CASA.

Where a CASA licensing outcome is sought this unit forms part of the CASA requirement for the granting of the chosen B1 maintenance certification licence under CASR Part 66, in accordance with the licensing provisions in Section 3, Assessment Guidelines.

Application of the Unit

This unit requires application of hand skills and maintenance documentation and manuals to inspect aircraft structure and identify damage and deterioration. Applications include the structure of fixed and rotary wing aircraft.

Licensing/Regulatory Information

Refer to unit descriptor

Pre-Requisites

- MEA101B Interpret occupational health and safety practices in aviation maintenance
- MEA103B Plan and organise aviation maintenance work activity
- MEA105C Apply quality standards applicable to aviation maintenance processes
- MEA107B Interpret and use aviation maintenance industry manuals and specifications
- MEA108B Complete aviation maintenance industry documentation
- MEA109B Perform basic hand skills, standard trade practices and fundamentals in aviation maintenance

Employability Skills Information

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.
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Elements and Performance Criteria

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| 1 Inspect aircraft structure | <p>1.1 Relevant maintenance documentation and modification status, including defect reports, where relevant, are used to identify specific inspection requirements</p> <p>1.2 Appropriate <i>preparation and access to the aircraft structure</i> is undertaken to allow for proper inspection in accordance with maintenance documentation</p> <p>1.3 Aircraft structure is visually or physically checked for signs of deformation, defects or damage in accordance with maintenance documentation and approved procedures</p> <p>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</p> <p>1.5 Maintenance documentation is completed and processed in accordance with standard enterprise procedures</p> |
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Required Skills and Knowledge

Look for evidence that confirms knowledge of:

- aircraft construction principles
- structural component attachment methods
- describing the construction methods used in:
 - fuselage sections
 - wing sections
 - engine nacelles and mounts
 - windows and window frames
 - doors, locks and access panels in pressurised and unpressurised aircraft
- defining of structural terms, i.e. safe life, damage tolerant, failsafe, stress, strain, shear and cycles
- inspection requirements for metal and composite structure, including:
 - ageing aircraft inspection requirements
 - safe life structure
 - damage tolerant structure
 - fail safe structure
- describing NDT methods and application of the various techniques
- describing construction methods of, and assessing common defects in, aircraft plastic transparencies
- describing basic constructional features of, and assessing common defects in, glass windscreens
- defining the terms associated with composite materials
- OHS procedures
- relevant PPE
- how to obtain MSDS

Look for evidence that confirms skills in:

- applying all relevant OHS procedures, including the use of PPE and MSDS
- using approved maintenance documentation and aircraft publications relating to aircraft structure
- identifying various aircraft metals and their basic properties
- identifying potential causes of structural failure
- demonstrating appropriate cleaning procedures to enable structure inspection
- demonstrating correct inspection procedures, in particular pressurised aircraft, in accordance with aircraft and procedures manuals
- identifying damage to aircraft metallic (ferrous and non-ferrous) structures and/or components by way of:
 - impact
 - fatigue
 - corrosion

- identifying the various forms of structural corrosion, stating the causes and structural effects of corrosion on aircraft
- identifying composite materials used in aircraft construction, associated safety precautions and hazards
- inspecting damage and assessing composite components/structures for:
 - impact damage
 - fatigue

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.

<p>Overview of assessment</p>	<p>A person who demonstrates competency in this unit must be able to apply hand skills and use maintenance publications to prepare aircraft structure for inspection and identify structural damage and deterioration while applying all relevant safety precautions.</p>
<p>Critical aspects for assessment and evidence required to demonstrate competency in this unit</p>	<p>The underlying skills inherent in this unit should be transferable across a range of structural inspections associated with aircraft maintenance. It is essential that the procedures take into account all aircraft and personal safety precautions relating to aircraft structure.</p> <p>Evidence is required of the ability to interpret and apply aircraft structural inspection requirements. This may be demonstrated through application across a range of structural components and materials. Ability to interpret inspection 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.</p> <p>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 task from Group 1 and inspection of at least one item from each of Groups 2 to 9, as 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 Evidence Guide.</p>
<p>Context of and specific resources for assessment</p>	<p>Competency should be assessed in the workplace or simulated workplace 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.</p>
<p>Method of assessment</p>	
<p>Guidance information for assessment</p>	

Range Statement

<p>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.</p>	
Note	The Range Statements below are numbered to facilitate specification of the assessment requirements included in the Evidence Guide
Preparation and access to structure	<p>Preparation and access may include:</p> <ol style="list-style-type: none"> 1. Preparation for NDT (access to relevant structural zones and components)
Aircraft structure inspection	<p>Inspection of aircraft structure includes:</p> <ol style="list-style-type: none"> 2. Non-ferrous and ferrous alloys and composite (FRP) materials used in aircraft construction 3. Structural fastening and attachment hardware and/or devices 4. Seals and sealants 5. Glass and moulded plastics 6. Application of NDT techniques 7. Doors, hinges and locking mechanisms for damage/misalignment 8. Inspections applicable to each of safe life, damage tolerant and fail safe structure relevant to enterprise 9. Ageing aircraft inspection programs
Inspection techniques	<p>Inspection techniques may include:</p> <ul style="list-style-type: none"> • visual inspection, physical checks, mensuration and alignment
Application	<p>Application of this unit may relate to:</p> <ul style="list-style-type: none"> • scheduled or unscheduled maintenance • individual or team-related activities
Procedures and requirements	Refer to industry standards specified by manufacturers, regulatory authorities or the enterprise

Unit Sector(s)

Aviation maintenance

Custom Content Section

Not applicable.