



Australian Government

Department of Education, Employment and Workplace Relations

MEA318C Inspect aircraft hydro-mechanical, mechanical, gaseous and landing systems and components

Release: 1

MEA318C Inspect aircraft hydro-mechanical, mechanical, gaseous and landing systems and components

Modification History

References to test and troubleshoot removed from skill and knowledge requirements - equivalent to previous version.

Unit Descriptor

This unit of competency is part of the Mechanical Certificate IV (Aircraft Maintenance Stream) training pathways. It covers the competencies required to inspect aircraft hydro-mechanical, gaseous and landing gear systems and components. 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, standard trade practices and systems knowledge in the inspection of aircraft hydro-mechanical, mechanical, gaseous and landing gear systems and components.

Applications include hydro-mechanical, mechanical, gaseous and landing gear systems and components fitted to fixed wing aircraft.

Licensing/Regulatory Information

Refer to unit descriptor

Pre-Requisites

- MEA302C Remove and install aircraft hydro-mechanical system and landing gear components
- MEA303D Remove and install aircraft pneumatic system components
- MEA305C Remove and install aircraft fixed wing flight control system components

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

<p>Elements describe the essential outcomes of a unit of competency.</p>	<p>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.</p>
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Elements and Performance Criteria

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| <p>1 Inspect hydro-mechanical systems and components</p> | <p>1.1 Isolation tags already attached to the system or related system on aircraft configured for safe system inspection and operation in accordance with specified procedures</p> <p>1.2 <i>Hydro-mechanical system and system components</i> are visually inspected for external signs of defects in accordance with specified procedures</p> |
| <p>2 Inspect landing gear systems and components</p> | <p>2.1 Isolation tags already attached to the system or related system on aircraft configured, including jacking, where necessary, for safe system inspection and operation in accordance with specified procedures</p> <p>2.2 <i>Landing gear system and system components</i> are visually inspected for external signs of defects in accordance with specified procedures</p> |
| <p>3 Inspect gaseous systems and components</p> | <p>3.1 Isolation tags already attached to the system or related system on aircraft configured for safe system inspection and operation in accordance with specified procedures</p> <p>3.2 <i>Gaseous system and system components</i> are visually or physically inspected for external signs of defects in accordance with specified procedures</p> |
| <p>4 Inspect mechanical systems and components</p> | <p>4.1 Isolation tags already attached to the system or related system on aircraft configured for safe system inspection and operation in accordance with specified procedures</p> <p>4.2 <i>Mechanical system and system components</i> are visually or physically inspected for external signs of defects in accordance with specified procedures</p> |

Required Skills and Knowledge

Look for evidence that confirms knowledge of:

- how to recognise external defects in hydraulic, fuel, gaseous, flight control, landing gear and mechanical systems
- how to configure the aircraft for inspection of hydraulic, fuel, gaseous, flight control, landing gear and mechanical systems and components
- inspection and testing requirements for gears, springs and bearings
- standard trade practices relating to tool usage and installation/securing of aircraft hardware
- maintenance requirements
- relevant OHS practices relating to hydraulic, fuel, gaseous, flight control, landing gear and mechanical systems including lifting and handling of heavy items
- how to obtain MSDS
- selection and use of PPE
- maintenance requirements
- relevant maintenance manuals
- relevant regulatory requirements and standard procedures

Look for evidence that confirms skills in:

- applying all relevant OHS practices, including the use of MSDS and PPE
- using maintenance manuals and documentation to prepare the aircraft and identify requirements for inspection of hydraulic, fuel, gaseous, flight control, landing gear and mechanical systems and components
- use of hand skills and tools in the inspection of hydraulic, fuel, flight control, gaseous and mechanical systems
- jacking of the aircraft, as required, for landing gear system inspection
- use of hand skills and tools in the inspection of landing gear components
- the recognition of external defects in hydraulic, fuel, gaseous, flight control, landing gear and mechanical systems and components

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 inspect a range of hydraulic, fuel, gaseous and mechanical system and landing gear components in accordance with relevant maintenance manual instructions while applying all relevant OHS procedures and standard processes.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

The underlying skills inherent in this unit should be transferable across a range of inspection applications (including the timely involvement of supervisors or other trades) associated with aircraft hydro-mechanical, gaseous, mechanical and landing gear systems and their components. It is essential that system/component inspection procedures take into account all safety precautions applicable to the system being maintained, especially where system operation/switching interrelates to other systems being maintained. Ability to interpret inspection procedures and specifications (allowable limits) and apply them in practice is critical.

Evidence of transferability of skills and knowledge related to inspection is essential. This may be demonstrated through application across a number of aircraft systems or aircraft types. The work plan should take account of applicable safety and quality requirements in accordance with the industry and regulatory standards.

A person cannot be assessed as competent until it can be demonstrated to the satisfaction of the workplace assessor that the relevant elements of this unit of competency are being achieved under routine supervision on each type of system and on at least one component of each group listed in the Range Statement, as follows:

- Hydraulic systems – a system and at least one component from each of hydro-mechanical system components 3 and 5
- Fuel systems – a system and at least one component from each of hydro-mechanical system components 4 and 5
- Landing gear systems – each listed system 6 to 8
- Landing gear components – one each of 9 to 11
- Gaseous systems – each listed system 12 to 15 and at

	<p>least one component from each of gaseous system components 16 to 19</p> <ul style="list-style-type: none"> • Mechanical systems – a system applicable to each of system types 20 and 21 and at least one component from each of mechanical system components 22 to 24. <p>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 work environment or simulated work environment, using procedures, tools and equipment specified in maintenance documentation. It is also expected that general purpose tools, test and ground support equipment found in most routine situations would be used where appropriate.</p>
<p>Method of assessment</p>	
<p>Guidance information for assessment</p>	<p>Individuals being assessed who have already attained the following related units will have met the Performance Criteria and Range Statement variables for Elements listed:</p> <ul style="list-style-type: none"> • MEA309C Inspect, test and troubleshoot aircraft hydro-mechanical and landing gear systems and components, for Element 1 • MEA309C Inspect, test and troubleshoot aircraft hydro-mechanical and landing gear systems and components, for Element 2, provided that the unit was attained on aircraft with retractable landing gear • MEA310C Inspect, test and troubleshoot aircraft pneumatic systems and components, for Element 3 • MEA312C Inspect, test and troubleshoot aircraft fixed wing flight control systems and components, for Element 4. <p>Log of Industrial Experience and Achievement records relating to the listed units may be accepted as also meeting the evidence requirements for this unit in the applicable Elements.</p> <p>Advice in MEA310C Inspect, test and troubleshoot aircraft pneumatic systems and components regarding MEA355A Maintain light aircraft air cycle air conditioning systems, and MEA356A Maintain light piston engine aircraft pressurisation systems, may also be taken into consideration where applicable.</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>	
<p>Note</p>	<p>Range statements listed below are numbered to facilitate specification of the assessment requirements included in the Evidence Guide</p>
<p>Hydro-mechanical systems and system components</p>	<p>Hydro-mechanical systems include:</p> <ol style="list-style-type: none"> 1. Hydraulic systems 2. Fuel systems <p>Components of hydro-mechanical systems include:</p> <ol style="list-style-type: none"> 3. Hydraulic accumulators, filters, reservoirs, valves, pumps, motors, actuators, regulators and direct reading gauges 4. Fuel system filters, valves, pumps, and rigid and flexible storage cells/tanks 5. Rigid and flexible pipelines, hoses and fittings
<p>Landing gear systems and system components (components of landing gear retraction, steering and braking systems are covered by hydro-mechanical and mechanical system components)</p>	<p>Landing gear systems include:</p> <ol style="list-style-type: none"> 6. Retraction systems 7. Steering systems 8. Brake systems, including anti-skid, where applicable <p>Landing gear components include:</p> <ol style="list-style-type: none"> 9. Wheel assemblies 10. Brake units 11. Struts/oleos
<p>Gaseous systems and system components</p>	<p>Gaseous systems include:</p> <ol style="list-style-type: none"> 12. Pneumatic 13. Air cycle air conditioning 14. Pressurisation 15. Fire-extinguishing <p>Gaseous system components include:</p> <ol style="list-style-type: none"> 16. Gauges (direct reading), temperature sensors, pressurisation controllers and temperature controllers 17. Heat exchangers, pressure vessels, condensers, compressors, expansion turbines, humidifiers, valves and actuators 18. Rigid and flexible pipelines and fittings 19. Ducting
<p>Mechanical systems and system components</p>	<p>Mechanical systems include:</p> <ol style="list-style-type: none"> 20. Mechanical operating and locking systems

components	<p>21. Mechanical flight control systems or the mechanical elements of power-assisted flight control systems</p> <p>Mechanical system components include:</p> <p>22. Cables, pulleys, guides, fairleads, tension regulators, chains and sprockets</p> <p>23. Control rods, torque tubes, bellcranks, screwjacks, clutches, springs, bearings and gears</p> <p>24. Control sticks, wheels, columns, trim wheels or handles, and rudder pedals</p>
Application	<p>Application of this unit may relate to:</p> <ul style="list-style-type: none">• scheduled or unscheduled maintenance activities• individual or team-related activities
Procedures and requirements	<p>Refer to industry standard procedures specified by manufacturers, regulatory authorities or the enterprise</p>

Unit Sector(s)

Aviation maintenance

Custom Content Section

Not applicable.