



Australian Government

MEA302 Remove and install aircraft hydro-mechanical and landing gear system components

Release: 1

MEA302 Remove and install aircraft hydro-mechanical and landing gear system components

Modification History

Release 1 - New unit of competency

Application

This unit of competency is part of the Mechanical Certificate IV (Aircraft Maintenance Stream) training pathway and may also be part of a Structures Certificate IV training pathway. It requires application of hand skills and standard trade practices in the removal and installation of aircraft hydro-mechanical system and landing gear components fitted to both fixed and rotary wing aircraft during the performance of scheduled or unscheduled maintenance. Maintenance may be performed individually or as part of a team.

The unit is used in workplaces that operate under the airworthiness regulatory systems of the Australian Defence Force (ADF) and the Civil Aviation safety Authority (CASA).

Where a 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

MEA101	Interpret work health and safety practices in aviation maintenance
MEA103	Plan and organise aviation maintenance work activity
MEA105	Apply quality standards applicable to aviation maintenance processes
MEA107	Interpret and use aviation maintenance industry manuals and specifications
MEA108	Complete aviation maintenance industry documentation
MEA109	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. Remove hydro-mechanical system components	1.1 Hydro-mechanical system is rendered safe and prepared in accordance with the applicable maintenance manual, including fitment of isolation tags, where necessary, to ensure personal safety 1.2 Removal of hydro-mechanical components is carried out in accordance with the applicable maintenance manual 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) 1.3 Required maintenance documentation is accurately completed and correctly processed 1.4 Removed components are tagged, sealed and packaged in accordance with specified procedures
2. Remove landing gear components	2.1 The aircraft is jacked as specified in the maintenance manual for landing gear component removal 2.2 Removal of components is carried out in accordance with the applicable maintenance manual while observing all relevant WHS requirements, including the use of MSDS and items of PPE 2.3 Required maintenance documentation is accurately completed and correctly processed 2.4 Removed components are tagged, sealed and packaged in accordance with specified procedures
3. Install hydro-mechanical system components	3.1 Components to be installed are checked to confirm correct part numbers, serviceability and modification status 3.2 Component installation is carried out in accordance with the applicable maintenance manual while observing all relevant WHS requirements, including the use of MSDS and items of PPE 3.3 Required maintenance documentation is completed and

			processed in accordance with standard enterprise procedures
4.	Install landing gear components	4.1	Components to be installed are checked to confirm correct part numbers, serviceability and modification status
		4.2	Component installation is carried out in accordance with the applicable maintenance manual while observing all relevant WHS requirements, including the use of MSDS and items of PPE
		4.3	Required maintenance documentation is completed and processed in accordance with standard enterprise 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.

Hydro-mechanical systems include:	- Hydraulic systems - Fuel systems
Components of hydro-mechanical systems include:	- Hydraulic accumulators, filters, reservoirs, valves, pumps, motors, actuators, regulators and direct reading gauges - Fuel system filters, valves, pumps, rigid and flexible storage cells/tanks - Rigid and flexible pipelines, hoses and fittings
Landing gear components include:	- Wheel assemblies or skids - Brake units (not applicable to rotary wing aircraft with skids or floats) - Struts/oleos (not applicable to rotary wing aircraft with skids or floats)
Electrical interface includes:	Associated electrical loom terminations and/or plugs where components are electrically actuated or controlled
Procedures and	Industry standard procedures specified by manufacturers, regulatory authorities or the enterprise

requirements include:

Unit Mapping Information

Release 1 – equivalent to MEA302C Remove and install aircraft hydro-mechanical and landing gear system components

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 MEA302 Remove and install aircraft hydro-mechanical and landing gear system components

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Release 1 - New unit of competency

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:

- using hand skills and tools to remove and install hydraulic and fuel system components
- jacking of the aircraft as required for landing gear component removal and installation
- correctly installing and securing of aircraft hardware
- using hand skills and tools to remove and install landing gear components and the correct handling of heavy components
- using maintenance manuals to prepare the aircraft for component removal and installation and correct interpretation of removal and installation instructions
- applying standard procedures
- observing all relevant WHS procedures including the use of MSDS and relevant items of PPE.

It is essential that system cleanliness requirements and safety precautions applicable to the system being maintained are fully observed, understood and complied with.

Evidence of transferability of skills and knowledge related to removal and installation is essential. This may be demonstrated through application across a number of aircraft systems or aircraft types, but must cover a sufficient range of tasks to demonstrate familiarity with attachment methods, connection hardware and couplings peculiar to each type of system, and of safe handling of heavy components.

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:

- standard trade practices relating to tool usage and installation/securing of aircraft hardware
- hydraulic fluids (mineral and synthetic) and handling precautions
- hydraulic seal types and applications
- how to locate and correctly remove and install components of hydraulic systems
- aircraft fuels and handling precautions
- fuel seal types and applications
- how to locate and correctly remove and install fuel system components
- electrical circuit isolation and plug removal and installation

- how to jack the aircraft for landing gear component removal and installation
- how to locate and correctly remove and install landing gear components, including the handling of heavy components
- WHS procedures relating to hydraulic systems, fuel systems and landing gear components
- how to obtain MSDS
- the selection and use of items of PPE
- relevant maintenance manuals
- relevant regulatory requirements and standard procedures.

Assessment Conditions

- 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 applicable general-purpose tools, test and ground support equipment found in most routine situations would be used where appropriate.
- An understanding of system operation as it relates to the work must be demonstrated before undertaking any action. The work plan should take account of applicable safety and quality requirements in accordance with the industry and regulatory standards.
- 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 this unit of competency are being achieved under routine supervision on each type of system and on at least one (1) component of each group listed in the Range of Conditions, as follows:
 - hydraulic systems – preparation of a system for safe component removal and replacement of at least one (1) component from each of the following groups of components:
 - hydraulic accumulators, filters, reservoirs, valves, pumps, motors, actuators, regulators and direct reading gauges
 - rigid and flexible pipelines, hoses and fittings
 - fuel systems – preparation of a system for safe component removal and replacement of at least one (1) component from each of the following groups of components:
 - fuel system filters, valves, pumps, rigid and flexible storage cells/tanks
 - rigid and flexible pipelines, hoses and fittings
 - landing gear components – one (1) each of:
 - wheel assemblies or skids
 - brake units
 - struts/oleos.
- Coverage of brakes and struts/oleos are not required where the aircraft is rotary wing and is fitted with skids or floats.
- 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.

Links

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