



Australian Government

MEA353 Maintain basic light aircraft engines and propellers

Release: 1

MEA353 Maintain basic light aircraft engines and propellers

Modification History

Release 1 - New unit of competency

Application

This unit of competency requires application of hand skills, the use of maintenance publications, and knowledge of piston engine and system theory to inspect, test and troubleshoot, remove and install normally aspirated piston engines and engine system components during the performance of scheduled or unscheduled maintenance. Maintenance may be performed individually or as part of a team.

Applications include normally aspirated piston engines of basic light fixed wing aircraft and basic rotary wing aircraft, and fixed pitch propellers.

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

MEA101	Interpret work health and safety practices in aviation maintenance
MEA103	Plan and organise aviation maintenance work activities
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.

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| 1. | Inspect piston engine system and components | 1.1 | Isolation tags already attached to the system or related systems are checked and aircraft/engine configured for safe system inspection and operation in accordance with applicable maintenance manual |
| | | 1.2 | Piston engine and components/systems are visually or physically checked for external and internal signs of defects in accordance with 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) |
| 2. | Test piston engine | 2.1 | Aircraft and engine are correctly prepared in accordance with applicable maintenance manual |
| | | 2.2 | Assistance is provided with engine and/or system operation during prescribed test procedures to establish serviceability and correct function in accordance with applicable maintenance manual |
| 3. | Troubleshoot piston engine | 3.1 | Available information from maintenance documentation and inspection and test results is used, where necessary, to assist in fault determination |
| | | 3.2 | Maintenance manual fault diagnosis guide and logical processes are used to ensure efficient and accurate troubleshooting to line replacement level |
| | | 3.3 | Specialist advice is obtained, where required, to assist with the troubleshooting process |
| | | 3.4 | Piston engine faults are located and the causes of the faults are clearly identified and correctly recorded in maintenance documentation, where required |
| | | 3.5 | Fault rectification requirements are determined to assist |

- in planning the repair
4. Remove piston engine and engine system components
 - 4.1 Aircraft is prepared and supported and rendered safe in accordance with the applicable maintenance manual and isolation tags are fitted, where necessary, to ensure the safety of personnel and freedom from damage during engine removal
 - 4.2 Removal 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 Engine is tagged and prepared for transport or storage in accordance with the specified procedures
 - 4.4 Required maintenance documentation is completed and processed in accordance with standard enterprise procedures
 5. Install piston engine and engine system components
 - 5.1 Engine to be installed is checked to confirm correct part or model numbers, modification status and serviceability
 - 5.2 Installation is carried out in accordance with the applicable maintenance manual
 - 5.3 Support/safety equipment is removed at the appropriate time to ensure personnel safety and freedom from structural damage
 - 5.4 Required maintenance documentation is completed and processed in accordance with standard enterprise procedures
 6. Inspect and maintain fixed pitch propeller
 - 6.1 Engine is rendered safe for propeller inspection in accordance with maintenance manual or enterprise procedures
 - 6.2 Fixed pitch propeller is inspected for security, damage and deterioration in accordance with the applicable maintenance manual while observing all relevant WHS requirements, including the use of MSDS and items of PPE
 - 6.3 Metal propeller nicks and dents within damage limits are blended out in accordance with maintenance manual procedures

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| 7. Remove fixed pitch propeller | 7.1 | Engine is rendered safe and the aircraft is prepared for propeller removal in accordance with maintenance manual or enterprise procedures |
| | 7.2 | Propeller is removed in accordance with maintenance manual procedures while observing all relevant WHS requirements, including the use of MSDS and items of PPE |
| | 7.3 | Removed propeller is tagged and prepared for transport or storage in accordance with specified procedures |
| | 7.4 | Required maintenance documentation is completed and processed in accordance with standard enterprise procedures |
| 8. Install fixed pitch propeller | 8.1 | Engine is rendered safe and the aircraft is prepared for propeller installation in accordance with maintenance manual or enterprise procedures |
| | 8.2 | Propeller to be installed is checked to confirm correct part or number, modification status and serviceability |
| | 8.3 | Installation is carried out in accordance with the applicable maintenance manual |
| | 8.4 | 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.

Piston engines and components/systems include:

- Normally aspirated engine (all types), main components and accessories/drives
- Control system
- Starter system
- Fuel and air systems
- Exhaust system
- Oil system (if dry sump) (where applicable to the enterprise)

Engine and/or system operation includes:

- Testing of engines fitted to helicopters (where auxiliary drive is not available) shall be carried out through the applicant directing a pilot qualified on type

Fixed pitch propellers:

Fixed pitch propeller may include a spinner and the propeller will be made from:

- metal
- composite
- wood

Procedures and requirements include:

- Industry standard procedures specified by manufacturers, regulatory authorities or the enterprise

Unit Mapping Information

Release 1 – equivalent to MEA353A Maintain basic light aircraft engines and propellers

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=ce216c9c-04d5-4b3b-9bcf-4e81d0950371>