



Australian Government

MEAMEC0049 Maintain aircraft two stroke petrol engines

Release: 1

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Modification History

Release 1. Application changed. Elements and Performance Criteria changed. Foundation Skills made explicit. Range of Conditions removed, and relevant information moved to Assessment Requirements. Assessment Requirements clarified. Supersedes and is equivalent to MEA361 Maintain aircraft two stroke petrol engines.

Application

This unit describes the skills and knowledge required to apply hand skills and use maintenance publications and knowledge of two-stroke petrol engine and system theory to inspect, test and troubleshoot, remove and install aircraft two-stroke petrol engines and engine system components during scheduled or unscheduled maintenance. Work may be performed individually or as part of a team.

Applications include aircraft two-stroke petrol engines driving fixed pitch propellers. Where the engine is driving a constant speed propeller, MEA307 Remove and install propeller systems and components and MEA315 Inspect, test and troubleshoot propeller systems and components, will also be required.

The unit is used in workplaces that operate under the airworthiness regulatory systems of the Civil Aviation Safety Authority (CASA) and the Defence Aviation Safety Authority (DASA).

Any other relevant legislation, industry standards and codes of practice within Australia must be applied.

Pre-requisite Unit

MEAMEC0042 Maintain basic light aircraft engines and propellers

Competency Field

Aviation maintenance

Elements and Performance Criteria

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Inspect two-stroke petrol engine and engine system components	1.1 Check isolation tags already attached to the system or related systems and configure aircraft and engine for safe system inspection and operation in accordance with applicable maintenance manual 1.2 Visually or physically check two-stroke petrol engine and engine system components for external and internal signs of defects in

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	accordance with applicable maintenance manual while observing all relevant work health and safety (WHS) requirements, including the use of material safety data sheets (MSDSs) and items of personal protective equipment (PPE)
2. Test two-stroke petrol engines	2.1 Prepare aircraft and engine in accordance with applicable maintenance manual 2.2 Provide assistance with engine and system operation during prescribed test procedures to establish serviceability and correct function in accordance with applicable maintenance manual
3. Troubleshoot two-stroke petrol engines	3.1 Use available information from maintenance documentation and inspection and test results, when required, to assist in fault determination 3.2 Use maintenance manual fault diagnosis guide and logical processes to ensure efficient and accurate troubleshooting to line replacement level 3.3 Obtain specialist advice, when required, to assist with the troubleshooting process 3.4 Locate two-stroke petrol engine faults and identify and record the causes of the faults in maintenance documentation, when required 3.5 Determine fault rectification requirements to assist in planning the repair
4. Remove two-stroke petrol engine and engine system components	4.1 Prepare and support aircraft and render safe in accordance with the applicable maintenance manual and fit isolation tags, when required, to ensure the safety of personnel and freedom from damage during engine removal 4.2 Carry out removal in accordance with the applicable maintenance manual while observing all relevant WHS requirements, including the use of MSDSs and items of PPE 4.3 Tag and prepare engine for transport or storage in accordance with the specified procedures 4.4 Complete required maintenance documentation and process in accordance with standard enterprise procedures
5. Install two-stroke petrol engine and engine system components	5.1 Check engine to be installed to confirm correct part or model numbers, modification status and serviceability 5.2 Carry out installation in accordance with the applicable maintenance manual while observing all relevant WHS requirements, including the use of MSDSs and items of PPE

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	5.3 Remove support or safety equipment at the appropriate time to ensure personnel safety and freedom from structural damage 5.4 Complete required maintenance documentation and process in accordance with standard enterprise procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

- Reading skills to interpret maintenance documentation, specifications (allowable limits) and procedures.
- Writing skills to complete maintenance documentation.
- Numeracy skills to interpret and communicate technical information.

Other foundation skills essential to performance are explicit in the performance criteria of this unit.

Unit Mapping Information

Release 1. Equivalent to MEA361 Maintain aircraft two stroke petrol engines.

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 MEAMEC0049 Maintain aircraft two stroke petrol engines

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Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, and demonstrated the ability to:

- maintain at least one item from each of the following groups:
 - two-stroke petrol aircraft engines, main components, including reduction gearboxes and accessories/drives
 - ignition systems
 - control systems
 - starter systems
 - fuel and air systems
 - cooling systems (liquid or air as applicable to enterprise)
 - exhaust systems
- recognise external and internal signs of defects in two-stroke petrol aircraft engines, components and system components through visual or physical inspection
- assist with testing of two-stroke petrol engine and engine system operation, be able to operate systems, monitor indications, record parameters and recognise correct function
- compile engine condition monitoring records
- rig and adjust engine controls and systems
- apply system testing procedures and all safety precautions associated with two-stroke petrol engine system operation and with consideration to dual inspection requirements associated with work on engine controls.
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Knowledge Evidence

There must be evidence the candidate has knowledge of:

- work health and safety (WHS) procedures associated with engine maintenance, including lifting and handling of heavy objects and how to obtain personal protective equipment (PPE) and material safety data sheets (MSDSs)
- fault diagnosis techniques
- two-stroke petrol aircraft engine layout and operation:
 - principles of operation of two-stroke engines

- component function, construction and materials
- engine operation
- engine power, efficiency and performance
- two-stroke aircraft engine fuels, oils and fuel or oil mixing
- components, layout and operation of two-stroke petrol aircraft engine:
 - fuel systems
 - ignition systems:
 - magneto
 - coil
 - spark plugs
 - ignition harnesses
 - switches
 - starting systems
 - induction systems
 - cooling systems (liquid and air)
 - exhaust systems
 - electrical and instrument system interfaces:
 - battery charging system
 - tachometer
- removal and installation procedures for two-stroke petrol aircraft engines and engine components
- petrol two-stroke aircraft engine maintenance requirements and troubleshooting
- maintenance manuals associated with engine maintenance
- regulatory requirements and standard procedures associated with engine maintenance.
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Assessment Conditions

The following conditions of assessment represent the requirements of the regulators Defence Aviation Safety Authority (DASA) and Civil Aviation Safety Authority (CASA) and maintenance stakeholders and must be rigorously observed.

Skills must have been demonstrated under routine supervision in the workplace or in a simulated environment that reflects workplace conditions and contingencies encountered in maintaining aircraft two-stroke petrol engines. The following conditions must be met for this unit:

- use of suitable facilities, equipment and resources, including:
 - workplace procedures, manufacturing specifications, codes, standards, manuals, and reference materials relevant to maintaining aircraft two-stroke petrol engines
 - tools and equipment specified in maintenance documentation
 - general-purpose tools and test equipment found in most routine situations.
 - maintenance documentation and procedures.

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.

Evidence of tasks demonstrating competency must be recorded in a log of industrial experience and achievement.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

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