



Australian Government

Assessment Requirements for AURPTR003 Service and repair outdoor power equipment engine management systems

Release: 1

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Modification History

Release	Comment
Release 1	New unit of competency.

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- use diagnostic tools to perform checks on two different outdoor power equipment engine management systems (EMS), in which the work must involve validating error codes and downloading EMS software
- service and repair the above two outdoor power equipment EMS, in which the work must involve the following components:
 - fuel injection pump
 - fuel injector or carburettor
 - spark plug
 - ignition coil pack
 - generator or compensator
 - electronic control unit
 - sensors, including:
 - crankshaft angle
 - engine speed sensor
 - crankcase temperature and pressure sensor
 - emission control systems
- on two occasions carry out EMS diagnosis, calibration and adjustment using relevant manufacturer engine diagnosis device.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- work health and safety (WHS) and occupational health and safety (OHS) requirements relating to servicing and repairing engine management systems, including procedures for:
 - selecting and using personal protective equipment (PPE)
 - working with electrical systems
 - operating engines safely
- environmental requirements, including procedures for trapping, storing and disposing of fuel released from the EMS
- operating principles of outdoor power equipment EMS, including:
 - air fuel ratios and chemistry of combustion
 - composition of petrol fuel, including octane rating
 - open and closed loop injection
 - engine emissions
- application, purpose and operation of EMS components, including:
 - fuel system components:
 - fuel injection pump
 - fuel injector
 - tank, cap and lines
 - electronic control system components:
 - electronic control unit
 - throttle position sensor
 - generator
 - crankshaft angle and engine speed
 - crankcase air temperature and pressure sensor
 - manifold absolute pressure (MAP) sensor
 - oxygen sensor
 - ignition system, including:
 - spark plug
 - high tension lead
 - coil
 - engine emission control system, including:
 - emission standards
 - engine emission design technology
 - evaporative
 - exhaust
 - crankcase
- identification, selection and operation of EMS diagnostic tools relevant to the engine brand and system type
- procedures for system data retrieval in order to determine usage of product, fuel quality values, system parameters and service history
- service and repair procedures available from EMS manufacturer manuals, including removal, replacement, calibration and adjustment procedures for EMS, including:

- fuel system
- ignition system
- electronic control system
- emission control system
- post-repair testing procedures for EMS, including:
 - operating engine system through full operating range
 - verify manufacturer specifications
 - performance benchmarking product against specifications.

Assessment Conditions

Assessors must satisfy NVR/AQTF assessor requirements.

Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.

Assessment must include direct observation of tasks.

Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the EMS that they have serviced and repaired, e.g. repair orders.

Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.

The following resources must be made available:

- outdoor power equipment repair workplace or simulated workplace
- workplace instructions
- manufacturer specifications for EMS
- area and equipment, including PPE, required to safely test EMS
- two outdoor power equipment EMS requiring service and repair
- tools, equipment and materials appropriate for servicing and repairing EMS, including:
 - industry relevant engine diagnosis devices, including computer and system software, communications adaptor and connecting cables
 - multimeter.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=b4278d82-d487-4070-a8c4-78045ec695b1>

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