



Australian Government

AURTTC004 Remove and replace radiators

Release: 1

AURTTTC004 Remove and replace radiators

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to remove and replace the radiator of a vehicle. It requires the learner to plan and prepare the task; remove the radiator and inspect it and its associated components; replace the radiator; top up the cooling system and check for leaks; and maintain the work area, tools and equipment.

It applies to those undertaking a Vocational Education and Training in Schools (VETiS) or pre-vocational qualification as preparation to entering the automotive service and repair or automotive manufacturing industry.

The unit is designed for use in a highly supervised context and is not suitable for use in a vocational qualification.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Competency Field

Mechanical Miscellaneous

Unit Sector

Technical - Cooling Systems

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Prepare to remove and replace radiator	1.1 <i>Safety and environmental requirements</i> are sourced and interpreted 1.2 Task instruction is interpreted and vehicle radiator to be worked on is identified

ELEMENTS	PERFORMANCE CRITERIA
	1.3 Manufacturer specifications and workplace procedures for radiator removal and replacement are sourced and interpreted 1.4 Potential hazards and risks associated with task are identified and reported to workplace supervisor 1.5 Tools and equipment required for removing and replacing radiator are identified according to manufacturer specifications
2. Remove radiator	2.1 Tools, equipment and materials are selected and checked prior to use according to manufacturer specifications and safety requirements 2.2 Vehicle is prepared for radiator removal according to workplace procedures and safety and environmental requirements 2.3 Vehicle radiator is removed according to workplace procedures and manufacturer specifications, and without causing damage to components, tools or equipment 2.4 Radiator and associated components are inspected according to manufacturer specifications 2.5 Results of inspection of radiator and its associated components are recorded
3. Replace radiator	3.1 Radiator is prepared for replacement 3.2 Radiator is replaced according to workplace procedures, manufacturer specifications, and safety and environmental requirements, and without causing damage to components, tools or equipment 3.3 Cooling system is tested according to manufacturer specifications 3.4 Cooling system test results are recorded
4. Complete work processes	4.1 Final inspection is made to ensure work meets task instruction and workplace standards, and vehicle is presented ready for use or storage according to workplace procedures 4.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected and stored according to environmental requirements and workplace procedures 4.3 Tools and equipment are checked and stored according to workplace procedures, or tagged and reported where necessary 4.4 Workplace documentation is processed according to workplace procedures

Foundation Skills

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

Skills	Description
Learning skills to:	locate appropriate sources of information on vehicle cooling system and radiator removal and refitting procedures.
Reading skills to:	- select and interpret key information from manufacturer specifications, safety requirements and workplace procedures to safely remove and replace radiators - select and interpret key information from environmental requirements and workplace procedures to ensure a clean and safe work site.
Writing skills to:	legibly and accurately fill out workplace documentation using correct industry terminology and conventions.
Oral communication skills to:	participate effectively in verbal exchanges using questioning and active listening to request, clarify and clearly convey information.
Numeracy skills to:	- read and interpret numerical information in cooling system information - use specialist tools and measuring equipment correctly, including pressure testers, and report and record the results correctly using relevant mathematical symbols and conventions (e.g. kPa for kilopascals) - use basic mathematical operations, including addition, subtraction, multiplication and division, to calculate ratios of coolant.
Planning and organising skills to:	plan own work requirements and prioritise actions to achieve required outcomes.
Self-management skills to:	recognise own limitations when selecting and using tools and equipment and seek timely advice.
Problem-solving skills to:	- identify potential or actual hazards and take action to minimise risk - refer problems that cannot be readily resolved and seek assistance from workplace supervisor.
Technology skills to:	set up and operate equipment and tools required to remove and replace radiators.

Range of Conditions

This section specifies 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. Bold italicised wording, if used in the performance criteria, is detailed below.

<i>Safety and environmental requirements</i> must include:	• information about key aspects of work health and safety (WHS), occupational health and safety (OHS) and environmental requirements, including: • use of personal protective equipment, including safety glasses, ear protection and safety footwear • use of automotive hand tools • application of procedures for handling and disposing of used coolant.
<i>Vehicle radiator</i> must include:	• radiator for an engine with a liquid cooling system.
<i>Cooling system is tested</i> must include:	• pressure-testing the cooling system.

Unit Mapping Information

No equivalent unit.

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b4278d82-d487-4070-a8c4-78045ec695b1>

Assessment Requirements for AURTTC004 Remove and replace radiators

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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:

- correctly and safely remove and replace the radiators of at least two different vehicles or engine assemblies.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- key aspects of work health and safety (WHS), occupational health and safety (OHS) and environmental requirements, including:
 - use of personal protective equipment, including safety glasses, ear protection and safety footwear
 - use of automotive hand tools and lifting equipment
 - safety data sheets (SDS) and procedures for handling and disposing of used coolant
- types, application and basic operation of radiators, including:
 - vertical flow radiators
 - cross flow radiators
 - cooling system coolants and additives
 - radiator hoses and clamps
- radiator removal procedures, including procedures for catching and storing engine coolant
- radiator and associated component inspection procedures
- radiator replacement procedures, including:
 - calculating coolant system filling and additive concentration
 - coolant system bleeding
- work area clean-up and maintenance requirements.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.

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

Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the vehicles where they have removed and replaced radiators, 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:

- automotive workplace or simulated workplace
- personal protective equipment appropriate to the workplace
- two motor vehicles or engine assemblies with engines with a liquid cooling system
- automotive hand tools and special equipment, including cooling system pressure tester.

Links

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