



**Australian Government**

# **AURETR018 Overhaul starting system motors**

**Release: 1**

# AURETR018 Overhaul starting system motors

## Modification History

| Release   | Comment                 |
|-----------|-------------------------|
| Release 1 | New unit of competency. |

## Application

This unit describes the performance outcomes required to return starting system motors to original manufacturer tolerances and clearances. It involves preparing for the task, dismantling and evaluating the transmission, carrying out the overhaul process, reassembling and testing the transmission, and completing workplace processes and documentation.

It applies to those working in an automotive service and repair industry. The starting system motors include those fitted to agricultural machinery, heavy commercial vehicles, light vehicles, marine vessels, mobile plant machinery, motorcycles or outdoor power equipment.

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

## Competency Field

Electrical

## Unit Sector

Technical - Electrical and Electronic

## 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 and italicised text is used, further information is detailed in the range of conditions section. |
| 1. Prepare to dismantle starter motor     | 1.1 Job requirements are determined from workplace instructions<br>1.2 Dismantling information is sourced and interpreted<br>1.3 Dismantling options are analysed and those most appropriate to             |

| Elements                                               | <b>Performance Criteria</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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|                                                        | <p>the circumstances are selected</p> <p>1.4 Hazards associated with the work are identified and risks are managed</p> <p>1.5 Dismantling tools and equipment are selected and checked for serviceability</p>                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 2. Dismantle and evaluate starter motor and components | <p>2.1 Starter motor is dismantled in a logical sequence according to manufacturer and workplace procedures, and <b><i>safety and environmental requirements</i></b>, and without causing unnecessary damage to components or systems</p> <p>2.2 Components are cleaned for evaluation according to workplace procedures and safety and environmental requirements</p> <p>2.3 Components are measured and compared with manufacturer specifications and serviceability is determined</p> <p>2.4 Component repair method is determined</p> <p>2.5 Unserviceable parts are identified and replacement parts sourced</p>                       |
| 3. Carry out overhaul                                  | <p>3.1 Overhaul information is sourced and interpreted</p> <p>3.2 Overhaul options are analysed and those most appropriate to the circumstances are selected</p> <p>3.3 Overhaul tools and equipment are selected and checked for serviceability</p> <p>3.4 Components are machined, repaired and replaced as required, and adjustments are carried out according to manufacturer specifications, workplace procedures, and safety and environmental requirements, and without causing damage to components or systems</p>                                                                                                                  |
| 4. Assemble starter motor and components               | <p>4.1 Starter motor is assembled according to manufacturer specifications, workplace procedures, and safety and environmental requirements</p> <p>4.2 Tolerances and clearances are measured against manufacturer specifications and necessary adjustments are made</p> <p>4.3 Assembly of starter motor is completed within workplace timeframes and without causing damage to other components or systems</p> <p>4.4 Post-assembly testing is carried out according to workplace procedures and safety and environmental requirements, and any problems detected as having been introduced during the assembly process are rectified</p> |

| Elements                                  | Performance Criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Elements describe the essential outcomes. | Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold and italicised text is used, further information is detailed in the range of conditions section.                                                                                                                                                                                                                                                                                                         |
| 5. Complete work processes                | <p>5.1 Final inspection is made to ensure work is to workplace expectations and starter motor is presented ready for use or storage</p> <p>5.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected</p> <p>5.3 Tools and equipment are checked and stored, and any faulty electrical equipment is identified, tagged and isolated according to workplace procedures</p> <p>5.4 Workplace documentation is processed according to workplace procedures</p> |

## 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:                | <ul style="list-style-type: none"> <li>locate sources of information relevant to starting system motor efficiently.</li> </ul>                                                                                                                 |
| Reading skills to:                 | <ul style="list-style-type: none"> <li>interpret and assess information from manufacturer and workshop literature when seeking starting system motor specifications and procedures.</li> </ul>                                                 |
| Writing skills to:                 | <ul style="list-style-type: none"> <li>legibly and accurately fill out workplace documentation when reporting diagnostic findings, making repair recommendations, and recording parts and material used.</li> </ul>                            |
| Oral communication skills to:      | <ul style="list-style-type: none"> <li>clarify instructions, report evaluation findings and make overhaul recommendations.</li> </ul>                                                                                                          |
| Numeracy skills to:                | <ul style="list-style-type: none"> <li>measure starting system motor components and use basic mathematical operations, including addition and subtraction, to calculate tolerances and deviations from manufacturer specifications.</li> </ul> |
| Planning and organising skills to: | <ul style="list-style-type: none"> <li>plan own work requirements and prioritise and sequence actions to achieve required outcomes and ensure tasks are completed within workplace timeframes.</li> </ul>                                      |
| Technology skills to:              | <ul style="list-style-type: none"> <li>use precision measuring equipment, such as vernier calipers and</li> </ul>                                                                                                                              |

| Skills | Description                                                                |
|--------|----------------------------------------------------------------------------|
|        | micrometers<br>• use specialised starting system motor overhaul equipment. |

## 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.

|                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b><i>Safety and environmental requirements</i></b> must include: | <ul style="list-style-type: none"> <li>work health and safety (WHS) and occupational health and safety (OHS) requirements, including procedures for:               <ul style="list-style-type: none"> <li>using specialised tools and equipment</li> <li>using appropriate personal protective equipment (PPE)</li> <li>identifying hazards and controlling risks associated with wearing jewellery while working around high current wiring systems</li> </ul> </li> <li>environmental requirements, including procedures:               <ul style="list-style-type: none"> <li>found in safety data sheets (SDS) relating to toxic and corrosive substances</li> <li>for disposing of replaced components.</li> </ul> </li> </ul> |
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## Unit Mapping Information

Equivalent to AURETR3018 Overhaul starting motors

## Links

Companion Volume implementation guides are found in VETNet -

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