



**Australian Government**

# **AURPTR105 Diagnose and repair cordless electric tool skins**

**Release: 1**

# AURPTR105 Diagnose and repair cordless electric tool skins

## Modification History

| Release   | Comments                                                                                                |
|-----------|---------------------------------------------------------------------------------------------------------|
| Release 1 | This version first released with AUR Automotive Retail, Service and Repair Training Package Version 6.0 |

## Application

This unit describes the skills and knowledge required to diagnose and repair cordless electric tool skins. It involves preparing for the task, sourcing the diagnostic testing strategy, carrying out the diagnosis and the repair, performing post-repair testing, and completing workplace processes and documentation.

The unit applies to those working in the outdoor power equipment service and repair industry. This unit does not apply to light and heavy vehicle engines.

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

## Unit Sector

Outdoor Power Equipment Technical - Electrical

## Elements and Performance Criteria

| ELEMENTS                                                                                 | PERFORMANCE CRITERIA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Elements describe the essential outcomes.</i>                                         | <i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 1. Prepare to diagnose and repair an outdoor power equipment cordless electric tool skin | 1.1 Identify job requirements from workplace instructions<br>1.2 Identify required information for diagnosis activity<br>1.3 Analyse diagnostic options and source testing strategy to identify cause of fault using workplace and manufacturer procedures<br>1.4 Identify hazards, assess and manage potential risks associated with diagnose and repair activity in line with workplace policies and procedures<br>1.5 Identify tools and equipment required for testing strategy and establish serviceability according to workplace procedures |
| 2. Diagnose cordless                                                                     | 2.1 Implement diagnostic tests set out in testing strategy according                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

| ELEMENTS                              | PERFORMANCE CRITERIA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| electric tool skin                    | <p>to manufacturer and workplace procedures, and workplace health and safety requirements</p> <p>2.2 Identify cause of fault through analysis of diagnostic test results.</p> <p>2.3 Confirm and report cause of fault according to workplace procedures</p> <p>2.4 Develop and report recommendations for necessary repairs according to workplace procedures</p>                                                                                                                                                          |
| 3. Repair cordless electric tool skin | <p>3.1 Identify required information for repair activity</p> <p>3.2 Identify tools, equipment and materials required for repair activity and establish serviceability according to workplace procedures</p> <p>3.3 Carry out repairs according to workplace and manufacturer procedures, manufacturer specifications, workplace health and safety and environmental requirements</p> <p>3.4 Carry out post-repair testing according to workplace procedures, workplace health and safety and environmental requirements</p> |
| 4. Complete work processes            | <p>4.1 Conduct final inspection according to workplace procedures and present equipment ready for use</p> <p>4.2 Clean work area, dispose of or recycle materials, according to workplace procedures</p> <p>4.3 Complete workplace documentation according to workplace procedures</p>                                                                                                                                                                                                                                      |

## Foundation Skills

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

| SKILL    | DESCRIPTION                                                                                                                                                                                                                                                                                                                                  |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Learning | <ul style="list-style-type: none"> <li>Locates required sources of information efficiently</li> <li>Develops a sequenced plan for a specific task.</li> </ul>                                                                                                                                                                                |
| Numeracy | <ul style="list-style-type: none"> <li>Calculates voltage and current loadings using mathematical operations</li> <li>Interprets measuring equipment divisions</li> <li>Measures voltage, current and resistance and uses mathematical operations</li> <li>Calculates deviations and tolerances from manufacturer specifications.</li> </ul> |

| SKILL              | DESCRIPTION                                                                                                                                                                                                                    |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Oral communication | <ul style="list-style-type: none"><li>• Clarifies instructions</li><li>• Obtains information from customers and supervisors.</li></ul>                                                                                         |
| Reading            | <ul style="list-style-type: none"><li>• Interprets information from manufacturer and workshop literature when seeking cordless electric tool skin service specifications and procedures for outdoor power equipment.</li></ul> |
| Problem solving    | <ul style="list-style-type: none"><li>• Refers problems outside area of responsibility to required person.</li></ul>                                                                                                           |

## Unit Mapping Information

New unit.

## Links

Companion Volume Implementation Guide is found on VETNet -

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

# Assessment Requirements for AURPTR105 Diagnose and repair cordless electric tool skins

## Modification History

| Release   | Comments                                                                                                |
|-----------|---------------------------------------------------------------------------------------------------------|
| Release 1 | This version first released with AUR Automotive Retail, Service and Repair Training Package Version 6.0 |

## Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- diagnose and repair at least three of the following brushed or brushless cordless electric tool skin types:
  - line trimmer
  - chainsaw
  - lawn mower
  - edger
  - hedger
  - blower
  - pressure washer.

## Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- methods to locate and interpret information required to diagnose and repair cordless electric tool skins, including:
  - information provided by customer and supervisors
  - manufacturer specifications and procedures or equivalent documentation
- workplace procedures required to diagnose and repair cordless electric tool skins, including:
  - establishing serviceability of tools and equipment
  - documentation procedures
  - housekeeping procedures, including:
    - examination of tools and equipment
    - storage of equipment
    - identification, tagging and isolation of faulty equipment

- disposal of excess materials
  - recycling procedures
- work health and safety (WHS) requirements relating to inspecting and servicing outdoor power equipment engines, including procedures for working with:
  - high voltage DC systems
- environmental requirements, including procedures for trapping, storing and disposing of lubricant and fluids released from outdoor power equipment skins
- identification and function of cordless electric tool skin components, including:
  - cutting shears
  - cutting chains
  - cutting blades
  - reduction gearboxes
  - waste traps
  - low pressure fans
  - high pressure water pumps
  - electrical switches
  - brushes
  - brushless motors
  - wiring harnesses
- identification and function of cordless electric tool skin outdoor power equipment systems, including:
  - lubrication
  - battery systems
- basic operation of electric motors within cordless electric tool skin, including:
  - brush motors
  - brushless motors
- types and applications of:
  - electric motors
  - lubricating oils and filters
- diagnosis procedures for cordless electric tool skins, including:
  - operation switches
  - brush motors
  - brushless motors
  - fluid leaks
  - ancillary components, including:
    - mountings
    - chains and blades
- repair procedures for cordless electric tool skins, including:
  - replacement switches
  - replacement control units

- brush replacement
- post-service testing procedures for outdoor power equipment engines, including operating cordless electric tool skin through full operating range.

## Assessment Conditions

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 equipment or outdoor power cordless electric tool skins that they have worked on, 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 engine specifications
- three different outdoor power equipment cordless electric tool skins specified in the performance evidence and requiring servicing
- tools, equipment and materials appropriate for diagnosing and repairing outdoor power equipment cordless electric tool skins.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume Implementation Guide is found on VETNet -

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