

Domain	AUTOMOTIVE ELECTRICAL AND ELECTRONICS	Unit ID: 479
Title:	Carry out repairs to single electrical circuits	
Level: 2		Credits: 5

Purpose

This unit standard specifies the competencies required to carry out repairs to single electrical circuits. It includes procedures for testing and repairing single electrical circuits. This unit standard is intended for those who work as automotive electricians.

Special Notes

1. Entry information:
 - Prerequisite
 - Unit 65 - *Apply safety rules and regulations in an automotive mechanics workshop* or demonstrated equivalent knowledge and skills
2. To demonstrate competence, at a minimum, evidence is required of testing and repairing any two (2) single electrical circuits.
3. Assessment evidence may be collected from a real workplace or a simulated real workplace or an appropriate simulated realistic environment in which automotive electrical and electronic operations are carried out.
4. Glossary of terms:
 - *'single electrical circuits'* refers to circuit repair and replacement of bulbs, fuses and other circuit protection devices, electrical sensors and switches, terminals and electrical circuit components in cooling and fuel systems (petrol and diesel), wiring repairs i.e. open circuits, short circuits, earthing
5. Performance of all elements in this unit standard must comply with manufacturers' specifications, workplace specific requirements and reasonable flat rate time.
6. Regulations and legislation relevant to this unit standard include the following:
 - Labour Act, No. 6, 1992
 - Occupational Health and Safety Regulations No. 18, 1997
 - Road Traffic and Transport Regulations No. 266, 2000
 and all subsequent amendments.
7. This unit standard applies to passenger and commercial vehicles, heavy plant and earthmoving equipment.

Quality Assurance Requirements

This unit standard and others within this subfield may be awarded by institutions which meet the accreditation requirements set by the Namibia Qualifications Authority and the Namibia Training Authority and which comply with the national assessment and moderation requirements. Details of specific accreditation requirements and the national assessment arrangements are available from the Namibia Qualifications Authority and the Namibia Training Authority. All approved unit standards, qualifications and national assessment arrangements are available on the Namibia Training Authority website www.nta.com.na.

Elements and Performance Criteria

Element 1: Plan and prepare for work

Range

Planning and preparation may include but is not limited to workplace inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements.

Tools and equipment may include but are not limited to standard tool set, crimping pliers, soft soldering equipment, adjustment and testing equipment, including multimeter.

Materials may include but are not limited to sleeves, insulation material, cable ties, spare parts and cleaning material.

Performance Criteria

- 1.1 Installation and work instructions, including repair order forms, specifications and operational details are obtained, confirmed and applied.
- 1.2 Safety requirements are followed in accordance with safety plans and policies.
- 1.3 Tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults rectified or reported prior to commencement.
- 1.4 Material requirements are identified and obtained in accordance with repair order form and/or specifications.
- 1.5 Materials are safely handled and located ready for use in line with workplace procedures.
- 1.6 Technical and/or calibration requirements for tools and equipment are sourced and implemented in line with workplace procedures.
- 1.7 Environmental protection requirements are identified and applied in line with environmental plans and regulatory obligations.

Element 2: Test single electrical circuits

Range

Testing methods may include but are not limited to reading and interpreting wiring diagrams, measurements, visual, aural and functional assessment in line with manufacturers' specifications.

Performance Criteria

- 2.1 Procedures and information required for testing single electrical circuits are identified and sourced in line with workplace procedures.
- 2.2 Testing is implemented according to workplace procedures and manufacturers' specifications.
- 2.3 Testing results are reported to appropriate personnel in line with workplace procedures.

Element 3: Repair single electrical circuits

Range

Faults may include but are not limited to inoperative systems, open and short circuits and earthing, wear and faulty components.

Repair methods may include but are not limited to isolation of fault(s), dismantling, soldering and crimping, replacement of components and/or parts, assembly and completion of operational tests and documents.

Performance Criteria

- 3.1 Procedures and information required for repairing single electrical circuits are identified and sourced in line with workplace procedures.
- 3.2 Faults are located according to workplace procedures and manufacturers' specifications.
- 3.3 Repair work is completed according to workplace procedures and manufacturers' specifications.
- 3.4 Adjustments made during repair are undertaken in line with workplace procedures and manufacturers' specifications.

Element 4: Complete work and clean up

Range

Work completion details may include but are not limited to repair order form, sign-out form for equipment, service record book and service plan form.

Performance Criteria

- 4.1 Work is completed and appropriate personnel notified in accordance with workplace procedures.
- 4.2 Work area is cleared of waste, cleaned, restored and secured in accordance with workplace procedures.
- 4.3 Reusable material is collected and stored in accordance with workplace procedures.
- 4.4 Equipment used is cleaned, checked, maintained and stored in accordance with workplace procedures.
- 4.5 Work completion details are finalised in accordance with workplace procedures.

Registration Data

Subfield:	Automotive Engineering
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