
Overview

This standard is about removing and replacing motorcycle electrical and electronic units and components previously identified as faulty or damaged or where the customer has requested replacements. It is also about evaluating the performance of replaced units and components. The units and components concerned are those not replaced as part of normal routine vehicle maintenance.

In this standard the term 'motorcycle' includes motorcycles, scooters, mopeds and motorcycle-derived vehicles with three or four wheels (such as quad bikes) on which the rider sits.

Performance criteria

You must be able to:

P1 use suitable personal protective equipment and motorcycle coverings (where applicable) throughout all removal and replacement activities

P2 ensure the motorcycle and the work area is safe prior to work commencing

P3 support your removal and replacement activities by reviewing:

- P3.1 motorcycle technical data

- P3.2 removal and replacement procedures

- P3.3 legal requirements

P4 prepare, check and use all the **equipment** required following manufacturer's instructions

P5 carry out all removal and replacement activities following:

- P5.1 manufacturer's instructions

- P5.2 industry recognised repair methods

- P5.3 your workplace procedures

- P5.4 health, safety and environmental requirements

P6 work in a way which minimises the risk of:

- P6.1 damage to other motorcycle systems, units and components

- P6.2 contact with leakage and hazardous substances

- P6.3 damage to your working environment

- P6.4 injury to self and others

P7 ensure replacement **electrical and electronic units and components** conform to the motorcycle operating specification and any legal requirements

P8 promptly record and report any additional faults you notice during the course of your work

P9 use suitable **testing methods** to accurately evaluate the performance of the reassembled system

P10 ensure the reassembled system performs to the motorcycle operating specification and meets any legal requirements prior to return to the customer

P11 ensure your records are accurate, complete and passed to the relevant person(s) within the agreed timescale and in the format required

P12 complete all removal and replacement activities within the agreed timescale

P13 promptly report any anticipated delays in completion to the relevant person(s)

Knowledge and understanding

You need to know and understand:

Legislative and organisational requirements and procedures

K1 the legal requirements relating to the motorcycle (including road safety requirements)

K2 the health and safety legislation, environmental requirements and workplace procedures relevant to motorcycle maintenance activities and personal and motorcycle protection

K3 your workplace procedures for:

K3.1 recording removal and replacement information

K3.2 the referral of problems

K3.3 reporting delays to the completion of work

K4 the importance of documenting removal and replacement information

K5 the importance of working to agreed timescales and keeping others informed of progress

K6 the relationship between time and costs

K7 the importance of promptly reporting anticipated delays to the relevant person(s)

Use of technical information

K8 how to find, interpret and use sources of information applicable to **electrical and electronic units and component** removal and replacement

K9 the importance of using the appropriate sources of technical information

K10 the purpose of and how to use identification codes

Electrical and electronic system operation and construction

K11 how **electrical and electronic units and components** are constructed and operate for the types of motorcycle on which you work

K12 how **electrical and electronic units and components** are removed and replaced for the types of motorcycle on which you work

Equipment

K13 how to prepare, check and use all the removal and replacement **equipment** required

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Electrical and electronic principles

K14 electrical and electronic principles associated with electrical systems, including types of sensors and actuators, their application and operation

K15 types of circuit protection and why these are necessary

K16 electrical safety procedures

K17 how electrical circuits work

K18 electric symbols, units and terms

K19 electrical/electronic control system principles

K20 the hazards associated with working on or near high voltage electrical vehicle components

Electrical and electronic units and component removal and replacement

K21 how to remove and replace *electrical and electronic units and components

for the types of motorcycle on which you work

K22 how to test and evaluate the performance of replacement **electrical and electronic units and components** and the reassembled system against the motorcycle operating specifications and any legal requirements

K23 the relationship between testing methods and the **electrical and electronic units and components** replaced – the use of appropriate test methods

K24 the manufacturer's specification for the type and quality of **electrical and electronic units and components** to be used

K25 how to work safely avoiding damage to other motorcycle systems, units and components, contact with leakage and hazardous substances and injury to self and others

Scope/range

1. **Equipment** is

- 1.1. hand tools
- 1.2. special workshop tools
- 1.3. general workshop equipment
- 1.4. electrical testing equipment

2. **Testing methods** are:

- 2.1. sensory
- 2.2. functional
- 2.3. measurement

3. **Electrical and electronic units and components** in the following systems:

- 3.1. lighting and signalling
- 3.2. wiring and loom
- 3.3. starting and charging
- 3.4. comfort and convenience
- 3.5. circuit protection
- 3.6. infotainment and communications
- 3.7. monitoring and instrumentation systems
- 3.8. security systems
- 3.9. rider safety systems
- 3.10. control systems

Glossary

This section contains examples and explanations of some of the terms used but does not form part of the standard.

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Agreed timescales:

Examples include manufacturer's recommended work times, job times set by your company or a job time agreed with a customer.

Comfort and convenience systems

Examples are heated seats, heated grips, electrically adjusted seats.

Infotainment systems

For example, sat nav, Bluetooth communications systems

Motorcycles

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*Sensory testing methods**

These may include looking, listening, smelling and touching for heat.

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