
Overview

This standard is about fitting electrical features and components to enhance the original vehicle features and specification to meet customer and business requirements.

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Performance**criteria**

- You must be able to:
- P1 select and use appropriate personal and vehicle protective equipment at all times
 - P2 support your enhancement activities by reviewing:
 - P2.1 fitting procedures
 - P2.2 technical data
 - P2.3 legal requirements
 - P3 prepare and test all the tools and equipment required, following manufacturers' instructions, prior to use
 - P4 fit components that are compatible with the vehicle specification and customer requirements
 - P5 carry out all enhancement activities following:
 - P5.1 manufacturers' procedures
 - P5.2 your workplace procedures
 - P5.3 health, safety and environmental requirements
 - P6 work in a way which minimises the risk of:
 - P6.1 damage to other vehicle systems, units and components
 - P6.2 contact with leakage, hazardous substances and high voltage systems
 - P6.3 damage to your working environment
 - P6.4 injury to yourself and others
 - P7 adjust the enhancements fitted and vehicle systems to ensure that they comply with all relevant specification for effective operation
 - P8 ensure all enhancements function to specification prior to handover to the customer
 - P9 complete all enhancement activities within the agreed timescale
 - P10 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 current health and safety legislation and workplace procedures relevant to workshop practices and personal and vehicle protection when fitting vehicle electrical enhancements
- K2 the legal implications of the mechanical and electrical enhancement of vehicles
- K3 your workplace procedures for:
 - K3.1 recording enhancement activities
 - K3.2 recording functionality of enhancements
 - K3.3 the referral of problems
 - K3.4 reporting delays to the completion of work
- K4 the importance of working to agreed timescales and keeping others informed of progress
- K5 the relationship between time and costs
- K6 the importance of promptly reporting anticipated delays to the relevant person(s)

You need to know and understand:

Tools and Equipment

- K7 how to prepare, check and use general workshop, special tools and appropriate testing equipment

You need to know and understand:

Electrical and electronic principles

- K8 vehicle earthing principles and methods
- K9 basic electrical and electronic principles, including Ohms Law, voltage, power, current (AC/DC) resistance, magnetism, electromagnetism, electromagnetic induction and EMF
- K10 circuit protection devices
- K11 electrical safety procedures
- K12 electric symbols, units and terms
- K13 how vehicle networking systems operate

You need to know and understand:

Fitting electrical enhancements

- K14 the hazards associated with working on or near high voltage components

- K15 the function and purpose of any enhancements and how they operate
- K16 how to interpret and follow technical instructions and customer requirements
- K17 how enhancement opportunities may be limited by the existing vehicle systems and fitments
- K18 the advantages and disadvantages of electrical customisation including possible impact on warranty and customers' vehicle insurance
- K19 manufacturers' requirements relating to the components to be fitted
- K20 how to fit enhancements
- K21 how to check that the components to be fitted are compatible with the vehicle specification and customer requirements
- K22 how to check that newly fitted enhancements are functioning correctly and the importance of doing so before handover to the customer
- K23 how to make adjustments to components and any surrounding systems to ensure correct operation
- K24 how to work safely avoiding injury to yourself, others and damage to vehicles

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Scope/range

- 1. Enhancements include::**
 - 1.1. audio systems
 - 1.2. visual systems
 - 1.3. communication systems
 - 1.4. safety systems
 - 1.5. lamps
 - 1.6. tow bar electrical systems
 - 1.7. navigation systems
 - 1.8. security systems
 - 1.9. auxiliary power supplies
 - 1.10. telematics / vehicle location systems

- 2. Tools and equipment include:**
 - 2.1. hand tools
 - 2.2. specialist fitting tools
 - 2.3. general workshop equipment
 - 2.4. electrical and electronic testing and measuring equipment

Additional information

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

Glossary**Agreed timescales**

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

Vehicles

These can be any of the following – light vehicles, heavy goods and passenger service vehicles, motorcycles, mopeds and scooters

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