

Overview

This **standard** is about rectifying vehicle faults at the roadside. This may involve repair and or recovery.

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Performance criteria

- You must be able to:
- P1 **identify and** wear suitable personal protective equipment throughout all rectification activities
 - P2 assess the dangers relating to the vehicle and its location prior to commencing any rectification activity
 - P3 secure the immediate safety of the driver and passengers effectively
 - P4 use suitable sources of technical information to support your repair activities
 - P5 assess and prepare all the equipment required prior to use, following manufacturer's instructions
 - P6 use the equipment required correctly and safely throughout all rectification activities
 - P7 carry out all rectification activities following:
 - P7.1 manufacturer's instructions
 - P7.2 your workplace procedures
 - P7.3 health and safety requirements
 - P7.4 environmental requirements
 - P7.5 the industry's current Code of Practice for Safe Roadside Working
 - P8 **work in a way which minimises the risk of:**
 - P8.1 **damage to other vehicle systems, units and components**
 - P8.2 **contact with leakage, hazardous materials/substances or high voltage components**
 - P8.3 **damage to your working environment**
 - P8.4 **injury to self and others**
 - P9 ensure your assessment of dismantled sub-assemblies, components and units identifies accurately their condition and suitability for repair or replacement
 - P10 promptly inform the relevant person(s) to arrange for recovery where repairs are uneconomic or unsatisfactory to perform at the roadside
 - P11 ensure all repaired and replaced components and units conform to the vehicle operating specification and any legal requirements
 - P12 adjust components and units correctly, when necessary, to ensure they operate to meet system requirements
 - P13 record details of any additional faults you notice during the course of your work accurately, and report them to the relevant person(s) promptly

- P14 use testing methods which are suitable for assessing the performance of the system repair completed
- P15 ensure the permanently repaired system performs to the vehicle operating specification and any legal requirements prior to return to the customer
- P16 ensure any temporary work is safe, meets legal requirements and is sufficient to allow completion of the current journey or to a place for permanent repair
- P17 ensure your repair records are accurate, complete and passed promptly to the relevant person(s) in the format required
- P18 promptly report any anticipated delays in completion to the relevant person(s)
- P19 dispose of any waste or used components in accordance with any environmental requirements

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Knowledge and understanding

You need to know and understand:

Legislative and organisational requirements and procedures

- K1 the legislation and workplace procedures relevant to:
 - K1.1 health and safety
 - K1.2 the environment including waste disposal
 - K1.3 the current industry Code of Practice for Safe Roadside Working
 - K1.4 appropriate personal and vehicle protective equipment for working at the roadside
- K2 legal and safe working requirements relating to the vehicle (including road safety and refrigerant handling requirements)
- K3 your workplace procedures for:
 - K3.1 recording rectification activities
 - K3.2 the referral of problems
 - K3.3 reporting delays to the completion of work
- K4 the importance of documenting rectification information
- K5 the importance of working to agreed timescales and keeping others informed of progress
- K6 the relationship between time, costs and profitability
- K7 the importance of promptly reporting anticipated delays to the relevant person(s)
- K8 the referral process for faults relating to **alternative fuel vehicles**
- K9 **the importance of adhering to a robust, documented handover procedure**

You need to know and understand:

Electrical and electronic principles

- K10 electrical and electronic principles associated with vehicle systems, including types of sensors and actuators, their application and operation; digital and fibre optics principles
- K11 how electrical and electronic vehicle systems operate, including electrical component function, electrical inputs, outputs, voltages and oscilloscope patterns
- K12 the interaction between electrical, electronic and mechanical components within vehicle systems
- K13 electrical symbols, units and terms

K14 electrical safety procedures

K15 the hazards associated with high energy electrical vehicle components

You need to know
and understand:

Use of diagnostic equipment

K16 how to prepare and test the accuracy and functioning of rectification equipment required

K17 how to use the appropriate rectification and testing equipment at the roadside

You need to know
and understand:

Vehicle system faults and their rectification

K18 how to find, interpret and use sources of information on repair procedures and statutory requirements

K19 the vehicle operating specifications for limits, fit and tolerances for the type and classification of vehicle worked upon

K20 how the mechanical, electrical and electronic systems within all vehicle areas operate (i.e. engine area, transmission area, chassis or frame area, electrical area) for the classification of vehicles repaired

K21 how mechanical, electrical and electronic vehicle systems are constructed, dismantled and reassembled for the classification of vehicles repaired

K22 the possible causes of faults in mechanical, electrical and electronic systems for the classification of vehicles repaired

K23 the cost-benefit relationship between the repair and replacement of components and units

K24 the safety considerations affecting the decision to repair on site or recover the vehicle to a place of safety

K25 the appropriate performance testing methods to be used

K26 how to interpret test results

K27 how to work safely avoiding damage to other vehicle systems, components and contact with leakage and hazardous substances

K28 how to identify the types and causes of faults and failures of systems, components and units

K29 how to assess the condition evidence within sub-assemblies, components and units

- K30 how to carry out roadside repair activities for all systems within the engine area, transmission area, chassis or frame area and electrical area for the classification of vehicle worked upon, including temporary work
- K31 how to make suitable adjustment to components and units
- K32 how to test and evaluate the performance of repaired or replaced components and units against operating requirements
- K33 what constitutes temporary work
- K34 the importance of informing the customer where temporary work has been carried out

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**Additional
Information****Glossary**

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

Alternative fuel

This is defined as any type of fuel that may be used to power an internal combustion engine (for example, LPG, bio ethanol etc. and hydrogen fuel cell systems), or electric vehicles, to include:

- Hybrid (HEV) - to include mild/micro hybrid vehicles where the voltage is considered dangerous.
- Plug-in Hybrid (PHEV)
- Extended Range Electric Vehicle (ER-EV) or Range Extended Electric Vehicle (RE-EV)
- Battery Electric Vehicle (BEV) or Pure Electric Vehicle (PEV)
- Fuel Cell Electric Vehicle (FCEV)

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Developed by	IMI
Version number	3
Date approved	31 March 2023
Indicative review date	31 March 2026
Validity	Current
Status	Original
Originating organisation	IMI Ltd
Original URN	RR02
Relevant occupations	Engineering; Vehicle Trades; Roadside Assistance Senior Technician
Suite	Roadside Assistance;
Key words	Roadside; rectification; motor; vehicles; repair;