IMIEV01

Carry out non high voltage operations on, near or with an electric vehicle

Overview

This standard is for people who work on, near or with electric vehicles but do not work on the vehicle's high voltage system. Examples of relevant job roles include technicians, MOT testers, sales/reception staff, cleaners/valeters, delivery drivers or automotive managers. The standard covers safe working practices and essential knowledge of the hazards associated with electric vehicles and the precautions to follow to avoid these.

For the purposes of this standard, an electric vehicle is any vehicle that is in part or wholly electrically propelled. This would 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).

This standard does not deem someone competent to maintain, service or repair an electric vehicle's high voltage systems and their components.

Performance criteria

You must be able to:

P1 Identify the electric **vehicle** type and collect relevant information about the vehicle and any specific hazards
P2 Confirm with the relevant person in your workplace that the correct workplace procedure has been followed to make the **vehicle** safe prior to starting any work
P3 Operate in a way that:
P3.1 avoids contact with, or damage to, high voltage electrical systems and their components
P3.2 avoids damage to your working environment and injury to yourself and others
P4 Refer any concerns about the vehicle to the relevant person in your workplace
P5 Follow workplace procedures to report the operations you have carried out on, near or with the **vehicle**

Knowledge and understanding

You need to know and understand:

Use of technical information

K1 How to identify an electric **vehicle** and its type.

K2 How to find, interpret and use sources of information applicable to electric **vehicles** as appropriate to your job role

K3 How to identify high voltage electrical components in an electric **vehicle**

Legislative and organisational requirements and procedures

K4 The health and safety legislation, industry codes of practice or guidelines and workplace
procedures relevant to working on, near or with electric **vehicles**, including the safety of the working environment

K5 The hazards associated with high voltage electric **vehicle** components and how to work safely in their proximity

K6 Your workplace procedures for:

K6.1 confirming with the relevant person in your workplace that the **vehicle** has been made safe as appropriate to the work you are carrying out

K6.2 referring/reporting concerns when operating with/around electric vehicles

K6.3 recording and reporting work carried out on electric vehicles

K7 The implications and effects of electricity through the human body

K8 The implications of strong magnetic fields and the effects on medical devices

K9 The precautions necessary when using plug-in charging equipment

K10 Workplace procedures that must be followed in the event of electric shock and other emergencies, including fire and flood

K11 The hazards associated with electric **vehicles** when exposed to extreme temperatures, impact and other adverse conditions

K12 Why an electric **vehicle** might be cordoned off

Vehicle system operation

K13 The main differences between an electric and non-electric vehicle

K14 How to safely operate an electric **vehicle**

K15 How to safely charge an electric **vehicle**

K16 The implications of remote **vehicle** control

K17 When **vehicle** systems might self-operate

K18 How to identify different operational modes in an electric **vehicle**

Scope/range

1. **Vehicle** - any vehicle that is in part or wholly electrically propelled. This would include:

1.1. Hybrid (HEV) - to include mild/micro hybrid vehicles where the voltage is considered dangerous.

1.2. Plug-in Hybrid (PHEV)

1.3. Extended Range Electric Vehicle (ER-EV) or Range Extended Electric Vehicle (RE-EV)

1.4. Battery Electric Vehicle (BEV) or Pure Electric Vehicle (PEV)

1.5. Fuel Cell Electric Vehicle (FCEV)

Glossary

Additional Information

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

Hazards associated with high voltage electrical vehicle components - exist not only during work on high voltage systems, as specified above, but also on all other high-power electrical drive systems and high-pressure storage systems. Vehicle and equipment manufacturers' guidance should be followed at all times.

High voltage – Regulation No 100 of the Economic Commission for Europe of the United Nations (UNECE) — Uniform provisions concerning the approval of vehicles with regard to specific requirements for the electric power train, states that: 'High Voltage' means the classification of an electric component or circuit, if its working voltage is > 60 V and ≤ 1 500 V DC or > 30 V and ≤ 1 000 V AC root mean square (rms). Electricity at Work Regulations (1989), and associated HSE guidance should be followed at all times.
N.B. Some electric vehicles may operate at voltages below or above industry recognised standards.

Operations on, near or with an electric vehicle - Any activity which does not include working on the high voltage systems and components.

Sources of information applicable to electric vehicles - Examples include hard copy manuals, data on computer and data obtained from on- board diagnostic displays.

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Validity	Current
Status	Original
Originating Organisation	IMI
Original URN	IMIEV1
Relevant Occupations	Auto and Mobile Installation Technicians, Auto-electrical Technician (Automotive), Automotive Aftermarket Electrical Enhancement Technician (Automotive), Automotive Paint Supervisor, Automotive Paint Technician, Body Builder (Automotive), Body Builder Workshop Controller (Automotive), Body Repair and Alignment Technician (Automotive), Body Repair Technician (Automotive), Cosmetic Refinishing Technician (Automotive), Cosmetic Senior Refinishing Technician (Automotive), Hire and Rental Counter Operations, Hire and Rental Delivery and Collection Operations, Hire and Rental Operations, Insurance Engineer (Automotive), PDR Senior Technician (Automotive), PDR Technician (Automotive), Rental and Leasing Customer Service Advisor (Automotive), Rental and Leasing Maintenance Advisors (Automotive), Rental and Leasing Technical Service Advisor (Automotive), Sales Controller (Automotive), Sales Executive (Automotive), Specialist Tyre Fitting Operations (Automotive), Vehicle Damage Assessment Operators, Vehicle Damage Assessor (Automotive), Vehicle Fitters, Vehicle Fitting

	Operations (Automotive), Vehicle Valeter (Automotive), Land-based Engineering, Autoglazing Technician, Customer Service Advisor (Automotive), Vehicle Delivery Driver, Bus and Coach Mechanic (semi-skilled), Bus and Coach Mechanic, Bus and Coach Electrician, Bus and Coach Mechelec, Bus and Coach Master Technician, Bus and Coach Body Repairer, Coachbuilder
Suite	Automotive Glazing, Electric and Hybrid Vehicles, Land-based Engineering Operations
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