IMIBCxx Safely carry out operations on, near or with light electric vehicles

Overview

This standard is for people who work on, near or with light electric vehicles but do not work on the vehicle's electric transmission system. The standard covers safe working practices and essential knowledge of the hazards associated with light electric vehicles and the precautions to follow to avoid these.

For the purposes of this standard, an electric light vehicle is any small vehicle with 1, 2, 3 or more wheels, for example electric bikes, electric scooters, quadrimobiles, etc.

This standard does not deem someone competent to maintain, service or repair a light electric vehicle's e-systems and their components.

Performance criteria

You must be able to:

- P1 Identify the light electric vehicle type and collect relevant information about the vehicle and any specific hazards
- P2 wear personal protective equipment (PPE) and use vehicle protection equipment (VPE) appropriate to the operations you are carrying out
- P3 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
- P4 work in a way that:
  - P4.1 minimises contact with, or damage to, light electric vehicle e-system components
  - P4.2 avoids damage to your working environment and injury to yourself and others
- P5 refer any problems with the vehicle to the relevant person in your workplace
- P6 follow workplace procedures to report the operations you have carried out on, near or with the vehicle
- P7 safely charge the vehicle, as necessary.

Knowledge and understanding

You need to know and understand:

Use of technical information

K1 how to identify a light electric vehicle and its type.

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

K3 how to identify e-system components in a light 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 light electric vehicles

K5 the classifications of light electric vehicles in the United Kingdom as appropriate to your job role

K6 the hazards associated with e-system components and how to work safely in their proximity

K7 your workplace procedures for:

- K7.1 confirming with the relevant person in your workplace that the vehicle has been made safe as appropriate to the work you are carrying out
- K7.2 referring/reporting problems when working with light electric vehicles
- K7.3 recording and reporting work carried out on light electric vehicles

K8 the implications of electrical conductivity through the human body

K9 the implications of strong magnetic fields and the effects on medical devices

K10 the precautions necessary when using plug-in charging equipment

K11 workplace procedures that must be followed in the event of electric shock and other emergencies, including fire and flood

K12 the hazards associated with electric vehicles when exposed to extreme temperatures, impact and other adverse conditions

Vehicle system operation

K13 the difference between pedal-assist and power-on demand systems

K14 the different types of batteries used on light electric vehicles and how to handle them

K15 the advantages and disadvantages of the batteries used on light electric vehicles

K16 the storage and disposal methods for each of the battery types used on light electric vehicles

K17 the different motor locations used on an light electric vehicles

K18 what is meant by the terms brushed and brushless motors

K19 the advantages and disadvantages of a brushed and brushless motor when used on a light electric vehicle

K20 the different voltages used on light electric vehicles

K21 how the light electric vehicle can be safely charged using an external source

K22 the hazards associated with charging the batteries on a light electric vehicle

K23 how to safely operate a light electric vehicle

K24 the charging systems associated with light electric vehicles and how to use them safely

Scope/range

1. Batteries are:

1.1 Sealed lead-acid (SLA)

1.2 Nickel-cadium (NiCad)

1.3 Nickel-metal hydride (NiMH)

1.4 Lithium-ion polymer (Li-ion)

1.5 Lithium-iron phosphate (LifeP04)

1.6 Lithium Manganese Cobalt (LiMnCo)

2. Voltages are**:**

2.1 12V

2.2 24V

2.3 36V

2.4 48v

3. E-system components include:

3.1 battery

3.2 controls

3.3 rider information

3.4 wiring loom

3.5 motor

Additional information

Glossary

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

Hazards associated with light electric vehicle transmission battery voltage

These exist not only during work on light electric vehicle e-systems. Vehicle and equipment manufacturers' guidance should be followed at all times.

Light electric vehicle transmission battery voltage

Voltages less than 60v DC.

Operations on, near or with a light electric vehicle

Any activity which does not include working on the e-system and components.

Sources of information applicable to light electric vehicles

Examples include hard copy manuals, data on computer and data obtained from on- board diagnostic displays.

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