

Electrical Safety and Electric Vehicles

Workshop electrics, portable equipment and the high voltage systems now arriving daily

Scope and limitations — read before use

IMPORTANT — SCOPE AND LIMITATIONS. This document is a template and guidance product. It is a starting point, not a finished assessment. Every workplace is different, and only the employer knows their own site, vehicles, people and tasks. The legal duties under the Health and Safety at Work etc. Act 1974, the Provision and Use of Work Equipment Regulations 1998, the Workplace (Health, Safety and Welfare) Regulations 1992 and all other relevant law remain with the employer at all times and cannot be transferred to PHW Services or to any document. You must read, adapt and complete this material for your own site, satisfy yourself that it is suitable and sufficient, and seek competent advice where you are unsure. PHW Services does not warrant that using this pack will prevent an accident, prevent enforcement action, or achieve compliance in any particular case. Nothing in this pack is approved or endorsed by the Health and Safety Executive.

Contains public sector information published by the Health and Safety Executive and licensed under the Open Government Licence v3.0. This pack is not an HSE publication, is not approved or endorsed by HSE, and does not reproduce the HSE logo. Always refer to the current HSE guidance and legislation at hse.gov.uk, which may have changed since this pack was written.

1. Workshop electrical safety

- The fixed installation should be inspected and tested periodically by a competent person, with the report kept. In a workshop environment the interval is typically shorter than in an office — take competent advice.
- Portable equipment needs user checks before use and formal inspection at intervals set by risk. Workshop tools take a hammering and should be checked more often than office equipment.
- RCD protection on socket outlets used for portable equipment.
- No damaged cables, taped repairs or defeated earths.
- Keep leads out of water, oil and traffic routes.
- Inspection lamps should be low voltage or suitably protected, not a domestic bulb on a trailing lead.

2. Electric and hybrid vehicles — a genuinely new hazard

Traction batteries in electric and hybrid vehicles operate at voltages that will kill. This is not the same as a 12 volt system and normal automotive experience does not transfer. Every garage now sees these vehicles, and many are working on them with no specific training at all.

Hazard	What it means	Control
High voltage DC	Hundreds of volts, capable of causing fatal electrocution. DC does not let go the way AC does.	Only technicians with recognised EV training work on high voltage systems. Others must not disturb orange cabling or covers.
Stored energy after isolation	The system can remain live after shutdown while capacitors discharge.	Follow the manufacturer's isolation and wait procedure exactly. Prove dead with the correct instrument.
Silent operation	A vehicle can be 'on' and ready to move with no engine noise.	Key or fob removed and kept away from the vehicle. Wheels chocked.
Battery damage and thermal runaway	A damaged pack can ignite hours or days later and burns extremely hot, reigniting after apparent extinction.	Quarantine damaged EVs outside, away from buildings and other vehicles. Agree an arrangement with the fire service.
Insulated tools and PPE	Ordinary spanners are not adequate.	Correct insulated tools, class 0 gloves inspected and in date, and the discipline to use them.

Rescue	A casualty in contact with a live HV system cannot simply be pulled clear.	Trained personnel, isolation point known, emergency procedure briefed.
--------	--	--

If you are not trained and equipped for EV high voltage work, do not do it. Diagnose and refer. This is one of the areas where a small garage is most exposed, because the work is coming through the door whether or not anybody is ready for it.

3. EV competence record

Name	EV training level	Provider	Date	Authorised for HV work? Y/N	Refresher due

4. Electrical inspection records

Item / circuit	Type	Last inspected	Next due	Result	Actions

Assessed by	Signature	Date	Review date
-------------	-----------	------	-------------

--	--	--	--