Electrically assisted pedal cycles

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This guidance is for England, Scotland & Wales

Electrically assisted pedal cycles (EAPCs) - which are also known as electrically power assisted cycles (EPACs) and e-bikes - have become increasingly popular in recent years as a means of transport. As they can be made available at affordable prices, concerns have been raised about their safety, particularly as they have been developed by enthusiasts, adapting ordinary pedal cycles and then supplying to consumers as a growing cottage industry.

When assessing the safety of a product a number of matters are taken into consideration and anyone in the supply chain, including retailers, can be held liable for the supply of unsafe products.

Product safety

The law requires that any product sold to consumers must be safe. Products should not present any unnecessary risk to anyone when used in a normal or reasonably foreseeable way. When assessing the safety of a product, the following must be taken into account:

- packaging, labelling and instructions
- effect of the product on other products with which it might be used
- special needs of particular types of people, such as elderly people or those with disabilities
Where there are national, European or international standards relating to the product, these standards will also need to be taken into account. Not all personal light electric vehicles are approved for use in the same way. EAPCs are a particular type of motorised or electric vehicle designed for carrying persons and goods; they have their own set of regulations and standards governing their safety.

EAPCs are vehicles that are essentially two- or three-wheeled cycles with the following definitions:

- cycle must be fitted with pedals that are capable of propelling it
- continuous rated power of the electric motor must not exceed 250 W
- electrical assistance must cut-off when the cycle reaches 15.5 m/h or 25 km/h

An EAPC that complies with the above is not considered to be a motor vehicle within the meaning of the Road Traffic Act 1988. As a result, it is not required to be registered and is not subject to vehicle excise duty (road tax), nor does it have to be insured as a motor vehicle. EAPCs must not be ridden by anyone under the age of 14.

There are essentially two other types of vehicle that are like EAPCs. One type is the 'twist and go' cycle that may have particular benefits for elderly and disabled users. These pedal cycles provide electrical assistance without the use of pedals and are defined in EU Regulation (EU) No 168/2013 on the approval and market surveillance of two- or three-wheel vehicles and quadricycles as L1e-A powered cycles. These cycles, provided that they do not exceed 1,000 W, but have a power assistance cut out of 15.5 m/h, do not need to be registered with DVLA, but still require type approval, which means that they have to pass certain safety standards. The other type are pedal assisted cycles that exceed the 25 km/h or 15.5 m/h, and are classed in EU Regulation (EU) No 168/2013 as L1e-B vehicles, commonly known as speed pedelecs or s-pedelecs. These are required to be registered with DVLA, taxed and insured to be legal for road use. Those with power assistance restricted to 45 km/h are in the same class as mopeds for the purposes of satisfying the requirements of DVLA and are not EAPCs.

The Department for Transport is aware that there are electric bikes limited to 15.5 m/h, but are fitted with off-road switches or modes that enable the bike’s motor to continue assisting at speeds beyond 15.5 m/h. These are also not EAPCs, and can only be used on roads if they are registered and comply with DVLA requirements.

Anyone in the supply chain, including retailers, can be held liable for the supply of unsafe products. In general, it is a criminal offence to supply unsafe products and you could also be liable to pay compensation for any injury or property-damage caused.

You should be prepared to carry out checks on the product and/or on your suppliers to ensure that they meet the appropriate product safety requirements. Doing nothing is not enough.

**Special safety requirements**

The Electrically Assisted Pedal Cycles Regulations 1983 and the Electrically Assisted Pedal Cycles (Amendment) Regulations 2015 apply to EAPCs designed for use on roads in the UK and the European Union. These Regulations are UK implementing Regulations that align the safety requirements with Regulation (EU) No 168/2013.

Manufacturers, their representatives, and importers have to ensure that, when their cycles, systems, components or separate technical components are placed on the market or are entering into service, they are manufactured and approved in accordance with the requirements set out in the Regulations.

Manufacturers are required to equip EAPCs with battery management systems / master control devices that prevent tampering or modification, so as not to prejudice safety by enabling the cycle’s performance to
increase torque, power or maximum speed limits.

Anyone in the supply chain that modifies an incomplete cycle in such a way that it then qualifies for a different category of vehicle or cycle, with the consequence that the legal requirements for the vehicle have changed, is also responsible for the type approval and conformity necessary for that category. This includes the instructions given to consumers concerning the legal and safe use of the vehicle, in particular the type of personal protective equipment that may be appropriate.

To be ridden legally on the road, EAPCs must also:

- have pedals that are capable of propelling it
- the battery must not leak so as to be a source of danger
- the power switch or control must default to 'off', requiring constant intervention from the rider in order to maintain power assistance
- the power output and road speed must not exceed the limits set out in the Regulations.

The Regulations include requirements for EAPCs on brake construction and performance. The Regulations require EAPCs to be marked with the:

- name of the manufacturer of the vehicle
- nominal voltage of the battery of the vehicle
- continuous rated output of the motor of the vehicle
- maximum speed at which the motor can propel the vehicle

**Particular safety concerns**

The current European standard for EAPCs is BS EN 15194: *Cycles. Electrically power assisted cycles. EPAC Bicycles*. This Standard was published for implementation from 28 February 2018 and is aligned to meet the regulatory requirements for construction and use as well as the Supply of Machinery (Safety) Regulations 2008

**Mechanical safety**

As well as strength tests, BS EN 15194 requires safety measures that relate to the general safety of EAPCs, including:

- sharp edges
- security and strength of safety-related fasteners
- protrusions
- brakes
- steering
- frames
- front fork
- wheels and wheel / tyre assembly
- rims, tyres and tubes
- front mudguard
- pedals and pedal / crank drive system
- drive-chain and drive belt
- chain-wheel and belt-drive protective device
- saddles and seat-posts
- spoke protector
- luggage carriers
- road-test of a fully-assembled EAPC
- lighting systems and reflectors
- warning device
- thermal hazards

**Electrical compliance**

- the EAPC and battery pack must be designed in order to avoid risk of fire and mechanical deterioration resulting from abnormal use
- during the test the EAPC and the batteries must not emit flames, molten metal or poisonous ignitable gas in hazardous amounts and any enclosure must show no damage that could impair compliance with BS EN 15194
- safety and compatibility of the battery / charger combination must be ensured, according to the manufacturer's specifications
- the battery terminals must be protected against creating an accidental short circuit
- appropriate care must be taken to ensure that the batteries are protected against overcharging
- an appropriate overheating and short circuit protection device must be fitted
- batteries and the charger unit must be labelled in order to be able to check their compatibility

**Labelling requirements, instructions & warnings**

Since the publication of BS EN 15194, EAPCs are required to be labelled with:

- contact and address of the manufacturer or authorized representative
- EAPC according to BS EN 15194
- appropriate marking required by legislation (CE)
- year of construction - that is, the year in which the manufacturing was completed (it is not possible to use a code)
- cut off speed expressed as XX km/h
- maximum continuous rated power XX kW
- maximum permissible total weight - for example, marked near the seat post or handlebar
- designation of series or type
- individual serial number if any
- mass if EAPCs mass is more than 25 kg
- mass of the EAPCs in the most usual configuration

The frame must be marked with:

- a successive frame number at a readily visible location - for example, near the pedal-crank, the seat-post or the handlebar
- the name of the manufacturer of the complete EAPCs or the manufacturer's representative and the reference to European Standard BS EN 15194
- the type number or identification number

There are additional markings that are required if the EAPC is equipped with a coupling device for a trailer. There are also recommendations for safety-critical components to be marked with traceable identification. You should seek the advice of your local trading standards service if you need more information.

All markings should be clear and permanent in accordance with specifications set out in the standard.

As well as labelling requirements EAPCs must be supplied with a set of instructions for use relevant to the
country in which the EAPC is destined to be supplied. The Standard states that it is obligatory to deliver these in paper form, along with more detailed information to enable access for vulnerable people. Instructions for use should be available additionally in electronic form on demand. The Standard also stipulates that the instructions for use cover all aspects of the safe use of the EAPC, including preparation and making adjustments for riding, maintenance, charging the batteries, and safe riding, as well as warnings related to wear-and-tear and impact damage.

**Technical documentation**

The Regulations also place an obligation for manufacturers and importers that place EAPCs on the market to:

- ensure that the technical documentation is compiled and made available in accordance with the requirements
- provide information as necessary to operate it safely, such as instructions for use, repair and maintenance
- follow appropriate conformity assessment procedures as prescribed by the Regulations
- ensure that there is an EC declaration of conformity undertaken by the manufacturer

The **CE mark** is placed on a product by the manufacturer as confirmation that it complies with all the relevant safety standards (see ‘Safety of products: due diligence’). All electrical products require CE marking in accordance with the Supply of Machinery (Safety) Regulations 2008, and (where relevant) the Electrical Equipment (Safety) Regulations 2016.

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**The position for retailers**

Retailers may not have the same degree of technical knowledge and expertise as a manufacturer or importer; however, they may be able to carry out certain checks on the safety of EAPCs.

Retailers should ensure that each vehicle is supplied with adequate written instructions. Reliance on verbal instructions only would make it very difficult to prove what you have said and may not reach the end user (if the EAPC is a gift, for example). Instructions for maintenance are particularly important to pass on in written format as they will be relied on for safe use for the entire expected life of the product. If there are parts of the instructions that have a particular relevance to safety, you may wish to highlight them.

You should also examine each vehicle before you supply it and carry out basic checks - for example:

- all fixings, nuts and bolts are correctly and securely fastened
- the frame is not damaged
- the condition and inflation of tyres
- brakes are working effectively
- no sharp edges and entrapment hazards
- ensure that the steering is aligned
- ensure that you can supply full instructions for use
You may wish to offer advice on the appropriate safety equipment that needs to be used with the EAPC - for example, a cycle helmet and suitable clothing - and to offer to supply this equipment. Any such advice should also be included in the written instructions. It is worth noting that the safety equipment approved for use for an EAPC, such as ordinary cycle helmets, will be insufficient for the more powerful or off-road electrical cycles.

Other electrical cycles as well as EAPCs are supplied with rechargeable batteries and chargers. Currently chargers must be compliant with the Electrical Equipment (Safety) Regulations 2016 as well as being compatible with the batteries. There are harmonised safety standards for both batteries and chargers that are currently applicable to all electrical cycles, as well as the 2017 Standard that will apply to EAPCs after 28 February 2018.

**Product quality**

Under the Consumer Rights Act 2015, the goods you sell must be of satisfactory quality, fit for their purpose and as described. A consumer may expect to have to carry out some maintenance and replace some parts over time. EAPCs would be expected to be sufficiently robust to use on UK roads for a reasonable service life. Electric cycles intended to be ridden off-road should be robust enough to provide a reasonable service life over rough terrain.

If an electric cycle or EAPC fails prematurely, the consumer may be entitled to claim their losses from the retailer. This could include a repair, replacement, full or partial refund and/or compensation.

If the manufacturer offers a guarantee, remember that this does not take away a consumer's rights. Your consumer may still have a claim against you even after the manufacturer's guarantee has expired.

See 'The sale & supply of goods' for more information.

**Legal & illegal use of EAPCs & other electrical cycles: information for your consumers**

The law only permits those electrical cycles that fall into the classification of EAPCs to be used on the public highway. Electrical cycles suitable only for off-road use cannot be used on the public highway. Furthermore, under the Road Traffic Act 1988 (and related legislation) they cannot be used anywhere off-road, except on private land with the landowner's permission.

Consumers may not be fully aware of the legal restrictions that apply to the use of off-road electrical cycles. They may well be disappointed if they buy an electrical cycle, expecting to be able to ride it on a local park or common, only to find out later that they cannot do so. It would therefore be advisable to check with your consumer, at least in general terms, what they wish to use the electrical cycle for, and only supply an electrical cycle or EAPC that is suitable for their intended use.

Under the Consumer Protection from Unfair Trading Regulations 2008 (CPRs), retailers are obliged to disclose information that might affect a consumer's decision to buy, even if the consumer does not ask for it. You should therefore make it clear to prospective customers that the electrical cycle or EAPC that they buy may have restrictions on its use or capability, and to advise them to only purchase one that meets their requirements.

For more information on the CPRs, please see 'Consumer protection from unfair trading'.
Counterfeit cycles

Trading standards services are aware of a number of cases where pedal cycles are being converted into either EAPCs or off-road electric cycles. Some of these have been badged with the registered name of a manufacturer or even the name of a famous motorcycle manufacturer, even though that manufacturer had no involvement in their production.

If you are offered the chance to supply such vehicles, you should check with the manufacturer's UK representatives to find out whether the vehicles are genuine, and whether you need their consent to keep the badge or remove it.

Anyone supplying counterfeit cycles should be reported to trading standards. The products might also be dangerous.

Outside the scope of this guide

If you are importing EAPCs or other electric cycles into the EU, to sell at retail or wholesale, you may need to take specialist advice from your local trading standards service, an accredited test house or a notified body that can test this type of product.

Penalties

Failure to comply with trading standards law can lead to enforcement action and to sanctions, which may include a fine and/or imprisonment. For more information please see 'Trading standards: powers, enforcement & penalties'.

Key legislation

Road Traffic Act 1988
Electrically Assisted Pedal Cycles Regulations 1983
Pedal Cycle (Construction and Use) Regulations 1983
Consumer Protection from Unfair Trading Regulations 2008
Supply of Machinery (Safety) Regulations 2008
EU Regulation (EU) No 168/2013 on the approval and market surveillance of two- or three-wheel vehicles and quadricycles
Consumer Rights Act 2015
Electrically Assisted Pedal Cycles (Amendment) Regulations 2015
Pedal Cycles (Construction and Use) (Amendment) Regulations 2015
Electrical Equipment (Safety) Regulations 2016

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Please note

This information is intended for guidance; only the courts can give an authoritative interpretation of the law.

The guide’s ‘Key legislation’ links may only show the original version of the legislation, although some amending legislation is linked to separately where it is directly related to the content of a guide. Information on amendments to UK legislation can be found on each link’s ‘More Resources’ tab; amendments to EU legislation are usually incorporated into the text.

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