

Dirk Zedler

Germany's pedelec replacement parts guidelines — overkill or a necessity?

Bicycle retailers are used to swapping out bike parts to satisfy the wishes of a customer. If the customer wants a softer ride or a more upright seating position, for example, it's always been a simple matter to put on wider tires or replace the handlebars.



With pedelecs, however, things are not so simple. The EU laws and regulations governing pedelecs mean that replacing a set of handlebars or another component on a pedelec, if not done properly, could open a retailer up to a civil lawsuit — or even criminal prosecution.

The regulations that govern typical European pedelecs — electric bikes with 250-watt motors that provide electric assistance up to a speed of 25 km/h (15 mph) — come from Brussels and apply equally in all EU countries. They are contained in the machinery directive of EN 15194, the European standard for pedelecs.

Although pedelecs are considered to be bicycles under traffic laws, they are treated much differently than conventional bicycles under product safety laws and regulations. Unlike a conventional bicycle, a pedelec is subject to mandatory CE marking because of its electric motor. The CE mark is the manufacturer's certification that its product meets relevant European health and safety standards.

Higher standards. Pedelecs are covered by a product safety law that went into effect in 1997 and was revised in 2011. The law regulates minimum safety requirements for products sold throughout the European Union.

Before a bike manufacturer can sell a pedelec on the market, the manufacturer has to test it thoroughly — and not just the completed bike, but each component.

Manufacturers have to define the intended use for each pedelec model, list its components, and then perform a risk analysis of the pedelec and of each component.

For example, the EU standards imply

that a standard pedelec, which usually refers to city or trekking bikes, should be able to support a total weight of 100 kg, or 220 lbs.

But many pedelecs are designed for more rigorous uses, such as hauling heavier loads or trailers, or traveling at higher speeds, longer distances, or over rough terrain.

Manufacturers therefore have to put their bikes through tests designed to account for the higher risks of these uses. The Zedler Institute, for example, offers Advanced and Advanced Plus testing standards for such situations.

Only after the bike and its components have been tested, manufactured and documented can the manufacturer certify that it conforms to all standards and apply the CE mark.

As a side note, the law clearly says it is forbidden to sell pedelecs in the EU without a CE mark. Manufacturers are also prohibited from applying a CE mark on a product whose safety has not been substantiated.

Previously, it was only after an accident occurred that a conventional bicycle was tested to see if it complies with standards and safety regulations.

The new reality in the bicycle industry is that authorities can check whether a pedelec complies with standards and guidelines before it goes on the market.

For retailers, these regulations mean that even simple repairs to a pedelec may not be so simple after all. Modifying an electrical cable, for example, or replacing an original headlight with a different model

may violate EU regulations.

That is because pedelecs are tested to ensure that their electrical signals won't interfere with police and ambulance radios. Changing a cable or a light can change the bike's electromagnetic compatibility, which retailers aren't equipped to test.

Help for retailers. That puts many retailers in a bind. The bicycle industry moves quickly, and original replacement parts aren't always available. So what are retailers supposed to do? Refuse to work on pedelecs?

A group of German organizations have developed a more pragmatic solution: They have developed guidelines for replacement parts that spell out when retailers must use original parts, and when they can use similar parts.

The guidelines, published in 2015 and updated this year, are the result of a collaboration between Verbund Service Fahrrad e.V. (VSF), a German service and bicycle association; Zweiradindustrieverband (ZIV), the German two-wheeler industry association; and Bundesinnungsverband (BIV), the umbrella organization for German industry guilds.

(Use the QR code on this page to download the guidelines from the Zedler Institute's website.)

The replacement parts guidelines classify pedelec components in four categories, from most to least critical.

Category 1, for example, includes components that should never be modified and should be replaced only by original replacement parts. All electric components of the motor fall into Category 1.

Retailers have a little more flexibility for components that are classified as Category 3. These are parts that can be



Use this link to download the English language version of the German replacement parts guidelines for pedelecs.

replaced by similar components from the same manufacturer, as long as the dimensions are the same.

For example, a Shimano Deore 10-speed chain and sprocket can be replaced by XT-series components and vice versa, as long as the chain width and sprocket range are identical.

The newest version of the replacement parts guidelines explains the restrictions on replacing certain components.

Retailers still need access to a variety of original parts, which means bike manufacturers need to keep these parts in stock. Bike manufacturers, in turn, have to work with their suppliers, such as stem and handlebar makers, to ensure that their retailers have access to CE-compliant replacement parts even after a particular pedelec model is discontinued.

We recommend that retailers consider the availability of such replacement components when deciding which brands to carry in their stores. ■ DIRK ZEDLER

Zedler-Institut

Since early 1993, graduate engineer Dirk Zedler has worked as an expert analyst who investigates bicycle accidents and material failures on behalf of courts, companies, insurance companies and private individuals. Since 1994, he has been recognized as an officially appointed and sworn expert for bicycles, and, since 2014, for electric bicycles. His team currently prepares about 800 expert's reports per year.

Zedler – Institut für Fahrradtechnik und -Sicherheit GmbH benefits from this wealth of knowledge to manufacture testing systems that enhance research and development efforts, leading to safer and better bicycles. It also supplies equipment for leading European special-interest magazines. These test systems are available for purchase by manufacturers, and are available to customers at the Zedler-Institut's test lab.

The Zedler-Institut also draws upon its background to write user manuals that



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help bicycle buyers understand how to use their bicycles and pedelecs appropriately, while releasing manufacturers from liability. Manuals are published in more than 30 languages.

In short, Zedler GmbH has set the standards for the bicycle industry. For more information, visit www.zedler.de. ■