This is the translation of the original guidelines issued by ZIV, VSF and BIV (German umbrella organization for German cycle industry guilds) in cooperation with Zedler-Institut, updated in 2016. In the event of any misunderstandings, the original German version (Leitfaden für Bauteiletausch bei CE-gekennzeichneten E-Bikes / Pedelecs mit einer Tretunterstützung bis 25 km/h) shall be applicable.

Guidelines for the parts replacement of CE marked e-bikes / pedelecs / EPAC up to a pedal assist of 25 km/h (15 mph)

Category 1 Parts which must not be replaced without approval of the vehicle manufacturer / system provider	**Category 2** Parts which must not be replaced without approval of the vehicle manufacturer	**Category 3** Parts which may be replaced upon approval of the vehicle or component manufacturer	**Category 4** Components which do not require specific approval
> **Motor** > **Sensors** > **Electronic control system** > **Electric cables** > **Operating unit on the handlebar** > **Display** > **Battery pack** > **Charger**	> **Frame** > **Rear shock** > **Rigid and suspension fork** > **Wheel for hub motor** > **Brake system** > **Brake pads** (*rim brakes*) > **Luggage carrier** (Luggage carriers directly affect the load distribution on the bicycle. Both negative and positive modifications will result in a riding behaviour potentially different from that intended by the manufacturer)	> **Crank arm** (Provided that the distances – crank arm / frame centre (Q Factor) are observed) > **Wheel without hub motor** (Provided that the ETRTO is observed) > **Chain / Toothed belt** (Provided that the original width is observed) > **Rim tape** (Rim tapes and rims must be compatible. Modified combinations may result in rim tape shifting and thus in defective inner tubes) > **Tyres** (The stronger acceleration, the additional weight and more dynamic cornering require the use of tyres approved for e-bike use. In this respect, observance of the ETRTO is essential. > **Brake cables / Brake hoses** > **Brake pads** (Disc, roller, drum brakes) > **Handlebar-stem unit** (Provided that there is no need to change the lengths of cables and/or hoses. A modification of the seating position for the benefit of the consumer should be possible within the original cable lengths. A modification beyond results in a significantly changed load distribution on the bicycle and entails potentially critical steering properties) > **Saddle and seat post unit** (Provided that the offset to the rear does not exceed 20mm with regard to the series / original field of use. In this case, as well, a modified load distribution beyond the intended setting range may possibly lead to critical steering properties. The length of the saddle rails at the saddle structure as well as the saddle form are also important) > **Headlights** (Headlights are designed for a specific voltage which must be compatible with the rechargeable battery of the vehicles. In addition, the electromagnetic compatibility (EMC) must be ensured whereas the headlight may be responsible for a part of the potential disturbance)	> **Headset** > **Bottom bracket** > **Pedals** (Provided that the pedal is not wider than the series / original pedal) > **Front derailleur** > **Rear derailleur** (All gear change parts must be suitable for the number of gears and compatible with one another) > **Shift levers / Twist grip** > **Cables and housings** > **Chainwheels / Belt sprockets / Cassette sprocket** (Provided that the number of teeth and the diameter is identical to the series / original field of use) > **Chainguard** > **Mudguards** (Provided that the width is not smaller than the series / original parts and the clearance to the tyre is 10mm at least) > **Spokes** > **Inner tube with identical design and identical valve** > **Dynamo** > **Rear lamp** > **Reflector** > **Wheel reflector** > **Kickstand** > **Grips with screw clamps**

*** Note for category 3:** An approval can only be given by the component manufacturer, if the component was sufficiently tested according to its intended use and the respective standards and if a risk analysis was made in advance. Last update 2016-06-14.