The range extender | HELLA

General information

The range extender (Figure 1) is used, in many applications, including in electric vehicles (e.g. Vauxhall Ampera, Chevrolet Volt, BMW i3).

It is an additional unit that extends the range of the electric vehicle.

Range extenders usually take the form of internal combustion engines, which drive an alternator in order to supply the electric motor and accumulators with current.

Figure 1

Function

In the serial hybrid system (Figure 2), the mechanical energy generated by the internal combustion engine is not used directly to drive the vehicle. Instead, it drives an alternator that supplies power to the electric motor and the accumulators.

By decoupling the range extender from the mechanical drive train, the unit can be operated in an efficient torque-speed range.

The maximum driving performance (top speed and acceleration) are achieved exclusively using the power supplied by the battery.

If the charge condition of the battery reaches a critical point, the range extender is activated automatically and thus supplies the energy required for the electric drive.

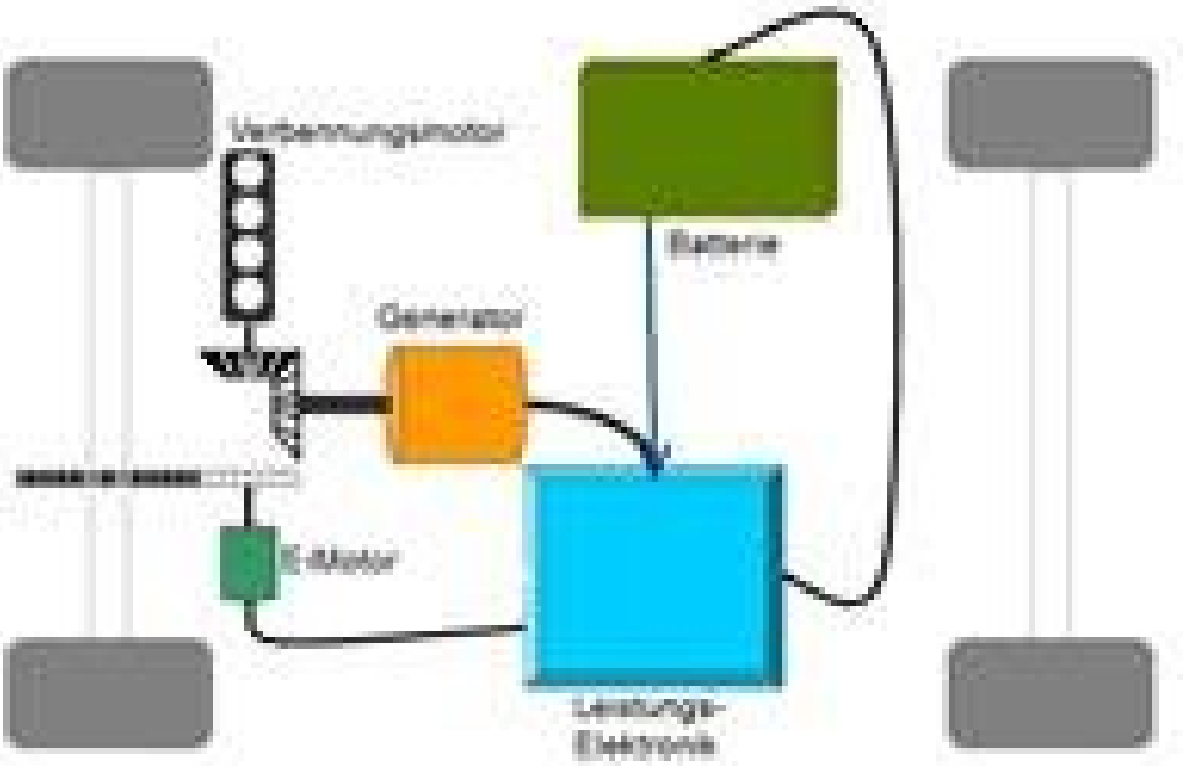

Figure 2

Causes of failure

As with any conventional internal combustion engine, the causes of failure may be as follows:

- Lack of fuel
- Mechanical damage
- Electronic damage

Important safety note

The following technical information and tips for practical use have been set up by HELLA in order to offer professional support to automotive workshops in their daily work. The information available here on this website is only to be used by appropriately trained specialist staff.

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