Alternator

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Function

The alternator is relied upon to supply power to the vehicle electrical network regardless of operating conditions.

This power supply is needed not only by the engine but also by numerous safety and convenience systems. The alternator must also supply enough current to reliably charge the battery.

The alternator is driven by the engine via a V-belt drive or a V-ribbed belt drive and operates according to the principle of electro-magnetic induction. Accordingly: When an electrical conductor moves through a magnetic field, an electrical voltage is induced in the conductor. It does not matter whether the magnetic field or the conductor is moving.

Components

The main components of an alternator are

- the stator winding,
- the rotor, the regulator and
- the rectifier.

The rotor must generate the magnetic field. The intensity of the magnetic field is determined by the current flowing through the rotor. This is controlled by the regulator. As soon as the rotor turns, it generates an alternating voltage in the stator windings. Before it reaches the vehicle electrical system, this voltage is converted into a direct voltage by the rectifier diodes.

Depreciation

Alternators are maintenance-free units. In order for them to perform their intended function throughout the service life of the vehicle, the condition and the tension of the drive belt must be checked regularly. Such inspections are carried out as part of the regular service checks prescribed by vehicle manufacturers.

Torn and worn drive belts must be replaced immediately. The alternator freewheel in the belt pulley (if present) should be replaced at the same time.

Environmental protection

Some manufacturers also offer repaired alternators as factory replacements. For repairs with fair value in mind in particular, this is an ideal alternative to a new part. Replacement devices are repaired using the very latest methods. All units are dismantled completely. The components are cleaned and repaired and all critical components are replaced. By means of the certified industrial reconditioning process, used parts are restored to as-new condition.

By reusing parts and saving energy, replacement initiatives of this type make a significant contribution to conserving resources and protecting the environment. When parts are recycled, there is a reduction of almost 90% in terms of raw materials and 50% where energy is concerned compared with the production of new parts. As a result, CO2 emissions in production also fall.

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