

Forklift Alternator

Forklift Alternator - An alternator is actually a device that converts mechanical energy into electrical energy. This is done in the form of an electrical current. Basically, an AC electric generator can be called an alternator. The word normally refers to a rotating, small device driven by automotive and different internal combustion engines. Alternators which are placed in power stations and are powered by steam turbines are actually referred to as turbo-alternators. Most of these devices make use of a rotating magnetic field but sometimes linear alternators are also utilized.

A current is produced in the conductor when the magnetic field all-around the conductor changes. Usually the rotor, a rotating magnet, spins within a set of stationary conductors wound in coils. The coils are situated on an iron core called the stator. If the field cuts across the conductors, an induced electromagnetic field or EMF is produced as the mechanical input causes the rotor to revolve. This rotating magnetic field produces an AC voltage in the stator windings. Typically, there are 3 sets of stator windings. These are physically offset so that the rotating magnetic field generates 3 phase currents, displaced by one-third of a period with respect to each other.

In a "brushless" alternator, the rotor magnetic field may be made by induction of a lasting magnet or by a rotor winding energized with direct current through brushes and slip rings. Brushless AC generators are normally located in larger devices than those used in automotive applications. A rotor magnetic field could be produced by a stationary field winding with moving poles in the rotor. Automotive alternators usually use a rotor winding which allows control of the voltage produced by the alternator. It does this by varying the current in the rotor field winding. Permanent magnet devices avoid the loss due to the magnetizing current inside the rotor. These machines are limited in size due to the cost of the magnet material. The terminal voltage varies with the speed of the generator as the permanent magnet field is constant.