

Forklift Alternator

Forklift Alternator - An alternator is actually a device that converts mechanical energy into electric energy. It does this in the form of an electrical current. Basically, an AC electrical generator could be labeled an alternator. The word normally refers to a small, rotating device powered by automotive and various internal combustion engines. Alternators which are located in power stations and are driven by steam turbines are called turbo-alternators. Most of these devices use a rotating magnetic field but every so often linear alternators are utilized.

A current is induced in the conductor if the magnetic field around the conductor changes. Normally the rotor, a rotating magnet, spins within a set of stationary conductors wound in coils. The coils are located on an iron core known as the stator. When the field cuts across the conductors, an induced electromagnetic field also called EMF is produced as the mechanical input causes the rotor to revolve. This rotating magnetic field produces an AC voltage in the stator windings. Normally, 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 could be made by production of a lasting magnet or by a rotor winding energized with direct current through slip rings and brushes. Brushless AC generators are often located in larger machines as opposed to those used in automotive applications. A rotor magnetic field can be produced by a stationary field winding with moving poles in the rotor. Automotive alternators normally use a rotor winding that allows control of the voltage generated by the alternator. It does this by varying the current in the rotor field winding. Permanent magnet machines avoid the loss because of the magnetizing current within the rotor. These devices are restricted 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.