Forklift Alternators

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

A current is produced in the conductor if the magnetic field surrounding the conductor changes. Usually the rotor, a rotating magnet, spins within a set of stationary conductors wound in coils. The coils are located on an iron core called the stator. If the field cuts across the conductors, an induced electromagnetic field also called EMF is generated as the mechanical input causes the rotor to turn. This rotating magnetic field produces an AC voltage in the stator windings. Typically, there are 3 sets of stator windings. These 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 can be caused by production of a permanent magnet or by a rotor winding energized with direct current through brushes and slip rings. Brushless AC generators are often located in bigger machines as opposed to 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. This is done by changing the current in the rotor field winding. Permanent magnet machines avoid the loss due to the magnetizing current within the rotor. These machines are limited in size because of the price of the magnet material. As the permanent magnet field is constant, the terminal voltage varies directly with the generator speed.