Forklift Alternators

Forklift Alternators - An alternator is a machine which transforms mechanical energy into electrical energy. It does this in the form of an electrical current. Basically, an AC electric generator could be referred to as an alternator. The word usually refers to a small, rotating machine powered by automotive and various internal combustion engines. Alternators which are located in power stations and are powered by steam turbines are referred to as turbo-alternators. Most of these devices make use of a rotating magnetic field but from time to time linear alternators are used.

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

"Brushless" alternators - these utilize brushes and slip rings with a rotor winding or a permanent magnet to induce a magnetic field of current. Brushlees AC generators are normally located in bigger machines like for example industrial sized lifting equipment. A rotor magnetic field can be induced by a stationary field winding with moving poles in the rotor. Automotive alternators often use a rotor winding which allows control of the voltage produced by the alternator. This is done by varying the current in the rotor field winding. Permanent magnet devices avoid the loss due to the magnetizing current within the rotor. These devices are limited in size due to the cost of the magnet material. As the permanent magnet field is constant, the terminal voltage varies directly with the generator speed.