Forklift Alternators

Forklift Alternator - An alternator is a machine that transforms mechanical energy into electric energy. It does this in the form of an electrical current. In principal, an AC electric generator could also be referred to as an alternator. The word typically refers to a rotating, small device powered by automotive and other internal combustion engines. Alternators that are situated in power stations and are driven by steam turbines are actually called turbo-alternators. Nearly all of these machines use a rotating magnetic field but every now and then linear alternators are also used.

When the magnetic field around a conductor changes, a current is produced within the conductor and this is actually how alternators produce their electricity. Normally the rotor, which is a rotating magnet, turns within a stationary set of conductors wound in coils situated on an iron core which is actually called the stator. Whenever the field cuts across the conductors, an induced electromagnetic field or EMF is generated as the mechanical input makes the rotor to revolve. This rotating magnetic field produces an AC voltage in the stator windings. Usually, 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 may be caused by production of a lasting magnet or by a rotor winding energized with direct current through slip rings and brushes. Brushless AC generators are normally found in bigger devices as opposed to those utilized in automotive applications. A rotor magnetic field can be induced by a stationary field winding with moving poles in the rotor. Automotive alternators often utilize a rotor winding which allows control of the voltage induced by the alternator. It does this by changing the current in the rotor field winding. Permanent magnet machines avoid the loss because of the magnetizing current inside the rotor. These devices are limited in size because of the cost of the magnet material. As the permanent magnet field is constant, the terminal voltage varies directly with the generator speed.