Forklift Alternator

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

If the magnetic field around a conductor changes, a current is generated in the conductor and this is actually the way alternators produce their electrical energy. Normally the rotor, which is actually a rotating magnet, revolves within a stationary set of conductors wound in coils situated on an iron core which is actually referred to as the stator. Whenever the field cuts across the conductors, an induced electromagnetic field or 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 produces 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 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 devices than 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 make use of 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 devices avoid the loss because of the magnetizing current in the rotor. These machines are restricted 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.