

Forklift Alternators

Forklift Alternators - An alternator is actually a machine which changes mechanical energy into electrical energy. This is done in the form of an electric current. In essence, an AC electric generator can also be labeled an alternator. The word usually refers to a rotating, small device powered by automotive and different internal combustion engines. Alternators that are situated in power stations and are powered by steam turbines are called turbo-alternators. Most of these machines utilize a rotating magnetic field but from time to time linear alternators are also utilized.

If the magnetic field around a conductor changes, a current is generated in the conductor and this is how alternators generate their electricity. Usually the rotor, which is a rotating magnet, revolves within a stationary set of conductors wound in coils located on an iron core which is 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 generates an AC voltage in the stator windings. Normally, there are 3 sets of stator windings. These physically offset so that the rotating magnetic field induces 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 induction of a permanent magnet or by a rotor winding energized with direct current through slip rings and brushes. Brushless AC generators are usually found in larger devices 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 normally make use of 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 in the rotor. These machines are restricted in size because of the price of the magnet material. The terminal voltage varies with the speed of the generator as the permanent magnet field is constant.