

Forklift Alternator

Forklift Alternator - An alternator is a machine that transforms mechanical energy into electric energy. This is done in the form of an electrical current. In principal, an AC electric generator could be labeled an alternator. The word normally refers to a small, rotating machine driven by automotive and various internal combustion engines. Alternators that are located in power stations and are driven by steam turbines are actually referred to as turbo-alternators. The majority of these devices use a rotating magnetic field but occasionally linear alternators are also used.

A current is generated within the conductor if the magnetic field around the conductor changes. Generally the rotor, a rotating magnet, spins within a set of stationary conductors wound in coils. The coils are located on an iron core known 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. Usually, 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 brushes and slip rings. Brushless AC generators are normally found in bigger devices as opposed to those utilized in automotive applications. A rotor magnetic field could be generated by a stationary field winding with moving poles in the rotor. Automotive alternators usually make use of a rotor winding that allows control of the voltage generated by the alternator. It does this by varying 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 cost of the magnet material. As the permanent magnet field is constant, the terminal voltage varies directly with the generator speed.