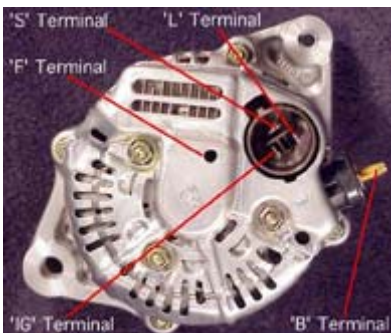
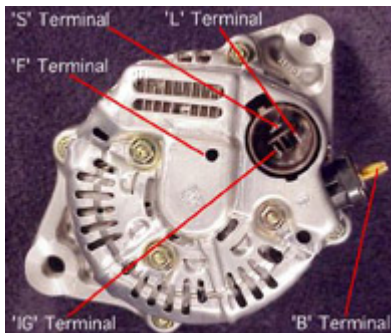


Four wires connect the alternator to the rest of the charging system.
'B' is the alternator output wire that supplies current to the battery.
'IG' is the ignition input that turns on the alternator/regulator assembly.
'S' is used by the regulator to monitor charging voltage at the battery.
'L' is the wire the regulator uses to ground the charge warning lamp.



Alternator Terminal ID's



'S' terminal

Senses battery voltage

'IG' terminal

Ignition switch signal turns regulator ON

'L' terminal

Grounds warning lamp

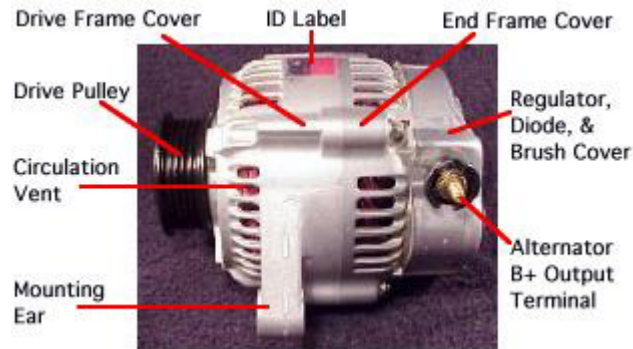
'B' terminal

Alternator output terminal

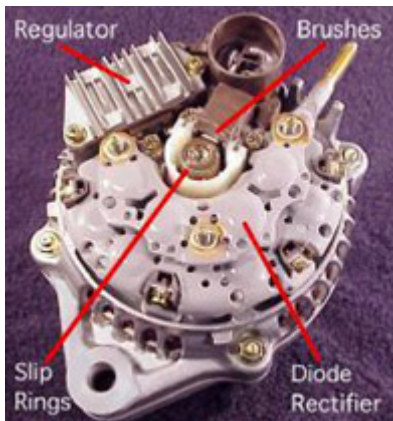
'F' terminal

Regulator Full-Field bypass

The Alternator Assembly



Inside the Alternator



Removal of the rear cover reveals:

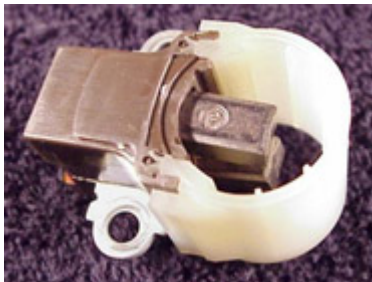
The Regulator controls the alternator output.

The Brushes conduct current to the rotor field winding.

The Rectifier Bridge converts AC voltage to DC voltage.

The Slip Rings (part of the rotor assembly) connected to each end of the field winding.

Brushes



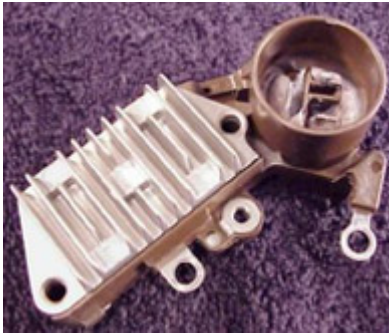
Two stationary carbon brushes ride on two rotating slip rings. Brushes are either soldered or bolted

Two slip rings are located on one end of the rotor assembly. Each end of the rotor field winding is attached to a slip ring. Thereby, allowing current to flow through the field winding.



The regulator is the brain of the charging system.

Electronic IC Regulator



It monitors both battery and stator voltages and depending on the measured voltages, the regulator will adjust the amount of rotor field current to control alternator output.

Regulators can be mounted both internal or external. Current technology uses an internal regulator.

Diode Rectifier



The Diode Rectifier Bridge is responsible for the conversion or rectification of AC voltage to DC voltage.

Six or eight diodes are used to rectify the AC stator voltage to DC voltage.

Half of these diodes are use on the positive side and the other half are on the negative side.

Further details about the rectifier bridge will be explained later.

Inside the Alternator

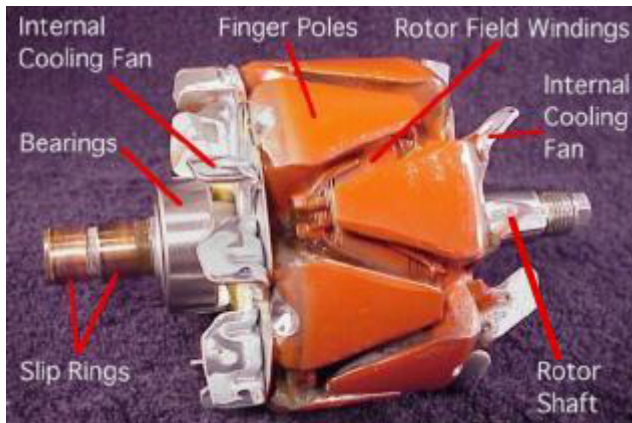


Separating the case reveals:

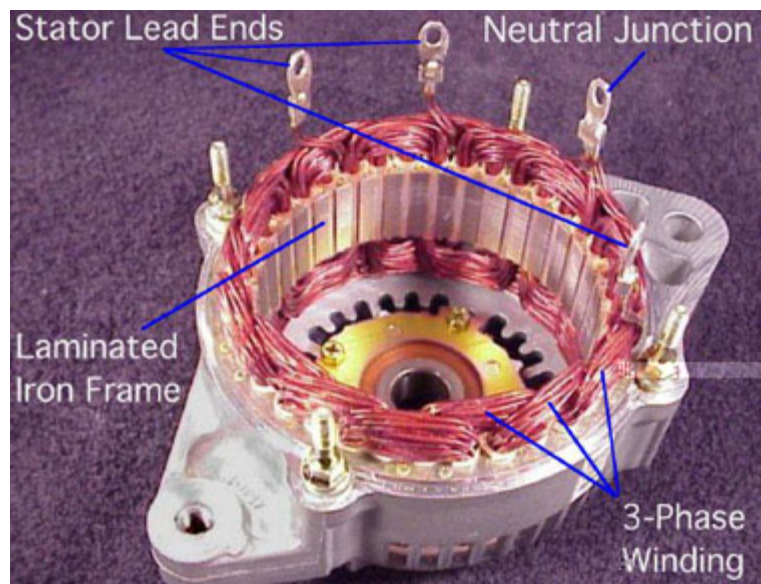
The rotor winding assembly rotates inside the stator winding. The rotor generates a magnetic field.

The stator winding develops voltage and current begins to flow from the induced magnetic field of the rotor.

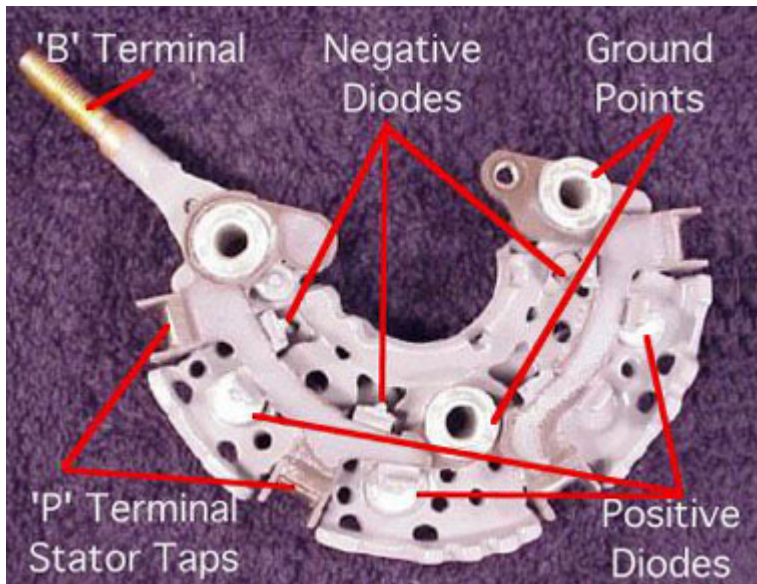
Rotor Assembly



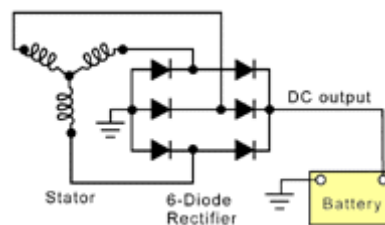
Stator Winding



Diode Rectifier Bridge Assembly



Rectifier Operation



The Diode Rectifier Bridge is responsible for for the conversion or rectification the AC voltage into DC voltage.

Two diodes are connected to each stator lead. One positive the other negative.

Because a single diode will only block half the the AC voltage.

Six or eight diodes are used to rectify the AC stator voltage to DC voltage.

Diodes used in this configuration will redirect both the positive and negative polarity signals of the AC voltage to produce DC voltage. This process is called 'Full - Wave Rectification'.

Electronic Regulator

