

FLYWHEEL ALTERNATOR



with solid state regulation

12 Volt - 10 amp and 25 amp Systems For
WISCONSIN Single, Two and Four Cylinder Engine Models

DESCRIPTION of Change

Beginning with engine serial No. 5188288, a new *two module* flywheel alternator system replaces the previously furnished three module system, that included an isolation diode module, and the two unit system without the isolation diode.

The *isolation diode* module was incorporated into the old system to eliminate battery discharge problems during shut down, cranking and idling.

INTERCHANGEABILITY

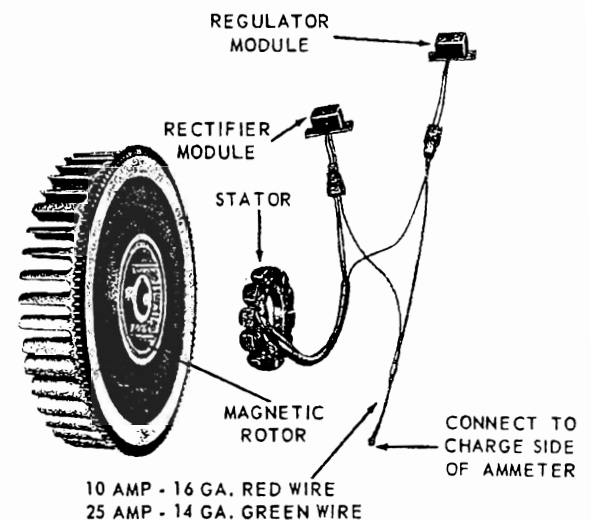
The *Regulator module* was not changed and is completely interchangeable between the new and old systems. The *Rectifier module* and *Stator assembly* have been modified to incorporate the advantages of an isolation diode without adding a third module. These new parts are *not* interchangeable with the old unless both rectifier and stator are replaced simultaneously. The new system has a *three prong* plug connector between the rectifier and stator - the old system has a two prong connector.

DESCRIPTION and OPERATION

This flywheel alternator is of the permanent magnet type and has *no brushes, commutator, belts or adjustments*. A series of coils (stator) is mounted to the engine gear cover, and the magnetic flux is provided by a permanent magnet in the flywheel which rotates around these stationary coils. Only four components make up this light weight space saving system; a *flywheel* with magnetic rotor, *stator*, *rectifier* module and *regulator* module.

The *center-tap* rectifier arrangement prevents damage to the alternator system when arc welding, because the winding acts as a choke and its inductance prevents the transient voltage from damaging the diodes.

Since the physical appearance of both 10 amp and 25 amp alternator systems are very similar, the *25 amp*



319423C-1

unit can be distinguished from the *10 amp unit* by the ammeter calibrations, and by a *14 gage green wire* in place of a *16 gage red wire*, from the ammeter to the stator-regulator connector.

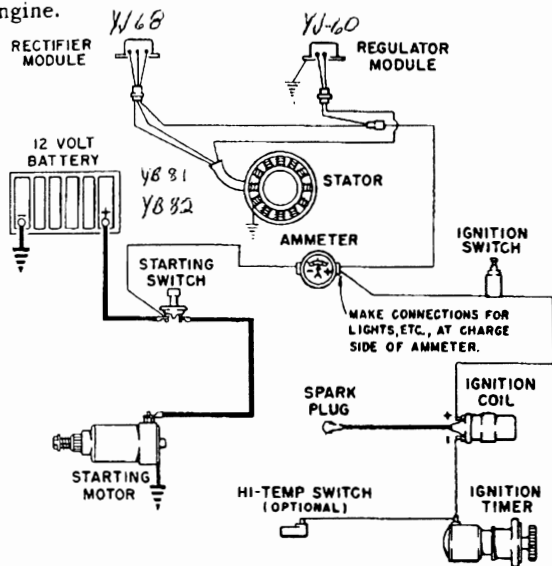
PRECAUTIONS to be exercised in the use of this flywheel alternator:

1. **Do Not** reverse battery connections. This is for a *negative ground* system only.
2. Connect booster batteries properly - positive to positive and negative to negative.
3. **Do Not** polarize the alternator.
4. **Do Not** ground any wires from stator or modules which terminate at connectors.
5. **Do Not** operate engine with battery disconnected from system.
6. Disconnect at least one battery lead if a battery charger is used.

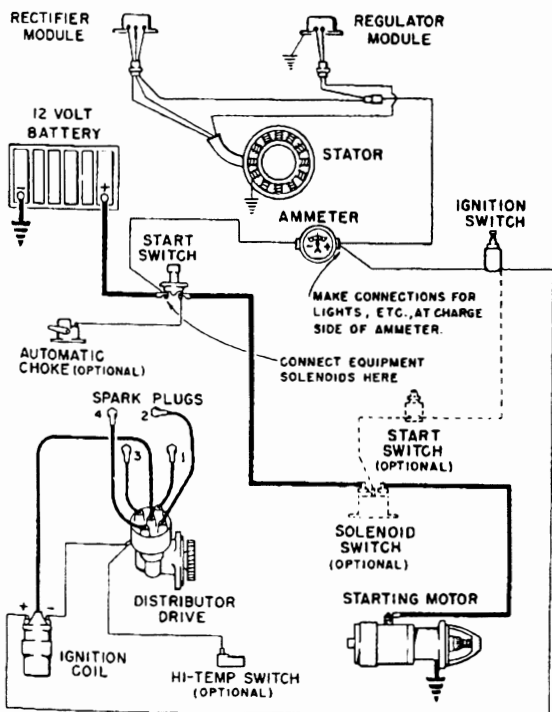
WIRING CIRCUIT

The fool-proof type connectors used prevent incorrect wiring from the stator to the rectifier and regulator modules. To disconnect plugs, squeeze outer ends of receptical and pull apart.

The rectifier is insulated from ground, but the stator and regulator module are grounded to the engine thru their mounting surface. The regulator module therefore should not be removed and mounted at some remote location. This is a *negative ground circuit*. Connect ground strap from negative post of battery to starting motor flange, or good clean grounding surface on engine.



WIRING DIAGRAM
For Single Cylinder Models



WIRING DIAGRAM
For Two and Four Cylinder Models

SERVICE PROCEDURE:

Prior to electrical testing, a thorough visual inspection should be made to eliminate conditions that may be interpreted as a defected alternator. Examine leads for broken or loose connections, and make sure modules are securely mounted. The *regulator module* must be mounted to a metal surface for grounding purposes, while the *rectifier module*, although insulated from ground, should be securely mounted for heat dissipation. The mounting surfaces must be clean and free of contaminants, oil, grease, etc. When assured that the problem is with the alternator, follow the tests outlined in 'Trouble Shooting'.

TROUBLE SHOOTING

10 and 25 amp Flywheel Alternator

Problem: Battery Overcharge	Possible Cause & Remedy
Test 1.0 With engine running at full RPM, check battery voltage w/ DC Voltmeter.	
1.1 If voltage is over 15.0	1.1 Regulator not functioning properly. Replace module.
1.2 If voltage is under 15	1.2 Alternator functioning properly. Check battery condition.

Problem: Low/No Charge	Possible Cause & Remedy
Test 1.0 With engine running at full RPM, check battery voltage w/ DC meter. If voltage is greater than 14 volts, place * load on battery to reduce voltage below 14 volts.	
1.1 If the charge rate increases -	1.1 Alternator functioning properly. Battery was fully charged.
1.2 If the charge rate does not increase -	1.2 Proceed with Test 2.0.

* Place as many 12 volt light bulbs across battery as required to reduce voltage below 14 volts. A carbon pile resistor may be used in place of bulbs.