

**ALTERNATOR SYSTEM /1970 ELECTRA GLIDE**

The 1970 Electra Glide alternator type generating system uses a flywheel alternator on the sprocket shaft side of the engine, and a combination rectifier-regulator unit at the front of the engine. The alternator consists of stationary coils mounted on the engine crankcase and a rotating magnet ring on the sprocket shaft which produces alternating current in the stator coils of which there are two sets. One set is wound in reverse direction and connected to the regulator. If battery voltage exceeds a predetermined setting, the regulator will produce a bucking voltage in the regulating windings and reduce the current output to the battery. A low battery voltage will reduce the bucking voltage and increase the current output to the battery.

The alternator is connected by a four wire cable to the rectifier-regulator module. The cable has a polarized disconnect plug provided in the crankcase. A heavy wire connects the module output to the battery positive post.

**CAUTION!** DO NOT DISCONNECT OR CONNECT ALTERNATOR PLUG AT CRANKCASE WHILE ENGINE IS RUNNING.

**CAUTION!** DO NOT CONNECT, DISCONNECT OR GROUND OUTPUT WIRE AT BATTERY POSITIVE POST WHILE ENGINE IS RUNNING.

The above precautions must be observed or damage to the regulator can result. Connections at the alternator plug and battery must be tight because any loose connections can also cause damage to internal parts of the module.

Operation of the charging system can be checked in two ways depending upon equipment available.

1. Checking Charging System with Sun Vat 26 Tester (See Wiring Diagram).

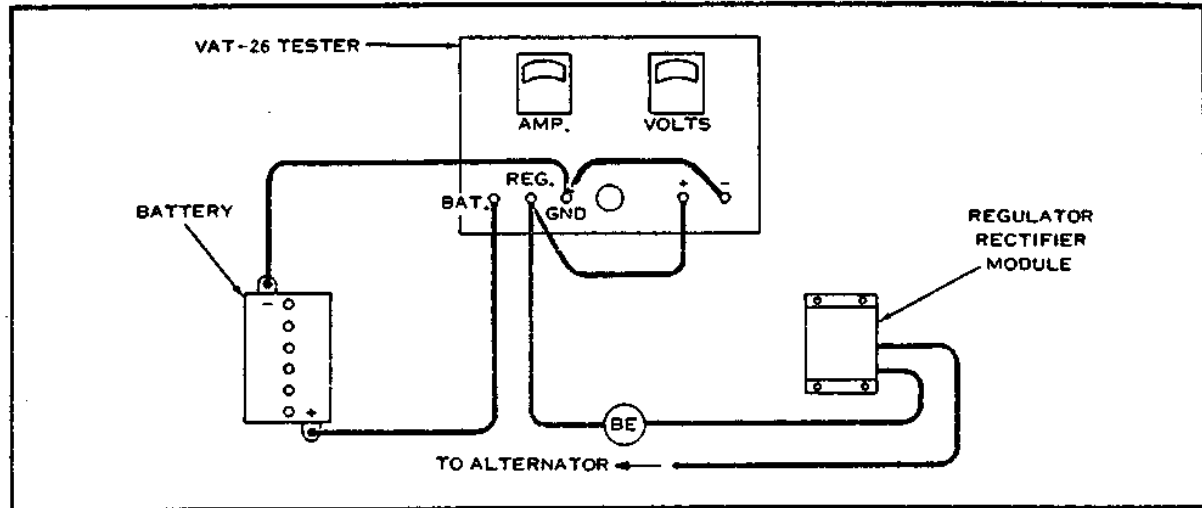
Check to see that battery gravity is up - above 1250 specific gravity - charge if necessary. With engine stopped, disconnect regulator module wire from battery positive post and connect to lead "REG" of tester. Connect lead "BAT" of tester to battery positive post. Connect lead "GRD" of tester to battery negative post or ground on motorcycle engine. Connect positive voltmeter lead to tester "REG" terminal. Connect negative voltmeter lead to tester "GRD" terminal.

Turn ground polarity selector to negative, load control knob to direct, ammeter selector to 100A position, and voltage selector to 16V. position.

**Regulating Voltage:** Run engine for several minutes at 2000 RPM with ignition only until battery voltage stabilizes. Increase speed to 3600 RPM and check voltage. Voltage should read between 13.8 and 15.0 volts at approximately 3.5 amperes output with air temperature near regulator at 75° F. (Use a fan to provide air flow across regulator.)

**Note:** With partially discharged battery it may not be possible to lower output to 3.5 amperes with load control knob completely off. In no case should voltage setting be checked at over 5 amperes output.

**Output:** Run engine at 2000 RPM. Adjust load control knob so that voltmeter reads 13.0 volts. Alternator output should be 10.5 amperes minimum.



TEST DIAGRAM USING SUN VAT-26 TESTER

## 2. Checking Regulating Voltage with Voltmeter only.

Check to see that battery gravity is up - above 1250 specific gravity - charge if necessary. Connect a 16 or 24 volt range voltmeter to battery positive and negative posts. Start engine and run at 2000 RPM with ignition only for approximately 2 minutes or until battery voltage stabilizes. Increase speed to 3600 RPM and check voltage. Voltage reading should be between 13.8 and 15.0 volts at 75° air temperature near regulator. Use a fan to provide air flow across regulator if possible.

**Note:** Regulating voltage will vary with air temperature, increasing as air temperature drops below 75° and decreasing as air temperature goes above 75°.

If system output or voltage is below specifications, either the alternator or module is defective. Substitute a new module and recheck output and/or regulating voltage. If a new module does not correct this condition, alternator or wiring is probably defective. Check alternator according to service manual procedure. If system voltage is above specifications, module is probably defective. Substitute a new module and recheck regulating voltage.

**NOTE:** Special shop tool, part No. 95960-52A is required to pull the alternator rotor from crankshaft. Existing shop tool, part No. 97225-55, is used to install rotor.

PRECAUTIONS to be exercised with alternator system.

DO NOT connect or disconnect alternator plug or battery wire while engine is running.

DO NOT reverse battery connections. This is for a negative ground system only.

Connect booster batteries properly—positive to positive and negative to negative.

DO NOT polarize the alternator.

DO NOT ground any wires from stator or modules which terminate at connectors.

DO NOT operate engine with battery or alternator disconnected.

Disconnect negative battery lead if a fast battery charger is used. Never use a fast battery charger to boost the battery output. No fuses, switches or breakers should be installed in alternator circuit. The rectifier and regulator module is grounded to the engine and therefore should not be removed and mounted at some remote location. This is a negative ground circuit. Be sure battery is grounded properly to frame.

Complete instructions on disassembly, assembly, trouble shooting, etc. are given in the 1970 Electra Glide Service Manual.

HARLEY-DAVIDSON MOTOR CO., INC.