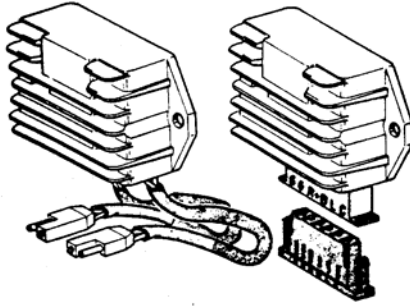




EnDuraLast 450 Voltage Regulator

ELECTRONIC VOLTAGE REGULATORS FOR D.C. SUPPLIED SYSTEMS



General Features

Application	Systems for motorcycles and stationary engines equipped with AC generators (alternators) and provided with service batteries.
Function	These devices rectify the voltage supplied by the generators and adjust the battery charging current automatically.
Construction	The electronic circuit is placed in a die-cast aluminum box, where it is impregnated with resin, providing a waterproof heatsink .

Voltage Regulation and Current Rectification

Basic Information

The voltage regulator controls the energy supply from the stator / rotor according to the system demand, monitoring the voltage.

The current Modern Common Practice for use in the transportation industry (with 2-phase stator and permanent magnet rotor) is to perform the function of regulation thru the use of a Silicone-Controlled Rectifier (SCR) or thyristor.

The **EnDuraLast 450** system utilizes this design.

The voltage of the battery ends is measured by an electronic control circuit (C1), causing the triggering of the thyristors when the battery is not sufficiently charged.

The thyristors are connected in the form of a full-wave bridge with two other diodes, thus making the parallel connection of the armature windings possible. This makes the flowing of the recharge current supplied by the generator possible, until the battery voltage reaches the threshold level of the regulator $V_i = 14.2$ volts. After this, the current decreases to maintenance values of the battery charge.

The thyristor is a variation of the transistor;

- ✔ It is a semiconductor switch commonly used in many electrical power-control applications.
- ✔ A thyristor is capable of efficiently producing large Direct Currents by rectification of Alternating Currents and can be automatically triggered “off” for specified periods of time.
- ✔ Thyristors are also very popular for use in variable-speed electric motors, power supplies for electrochemical processes, lighting and heating control, and controllers for electric utility power systems.

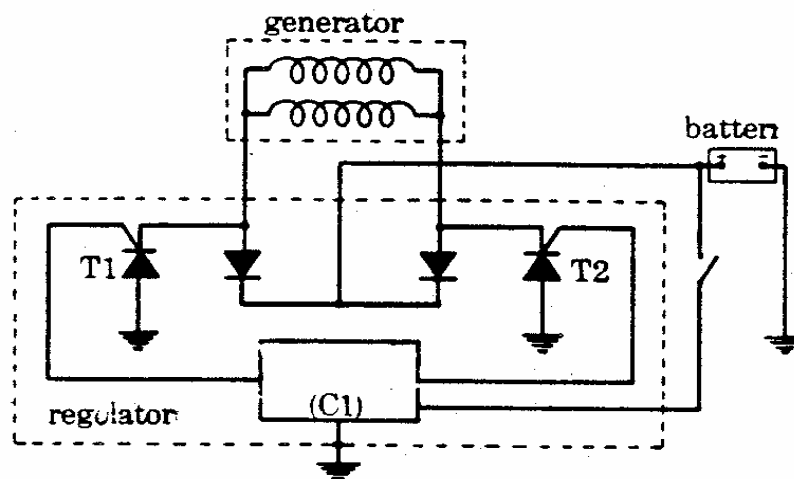
The regulator circuit generates a control signal that applied on the thyristor gate, controls the current through the device:

- If the voltage value in the system’s sensing terminal is lower than the reference voltage the thyristors switch ON, allowing the current flux from the alternator to the battery to CHARGE.
 - When the reference voltage is reached the thyristors switch OFF, blocking the current OFF (regulation).
- ✓ The indicator charge light function is retained with this system.

The benefits of this regulation design are

- efficient rectification with little “by-product” heat generated
- electronic reliability and stability
- remote mounting location

Basic Circuit Diagram with the regulator.



Technical Data

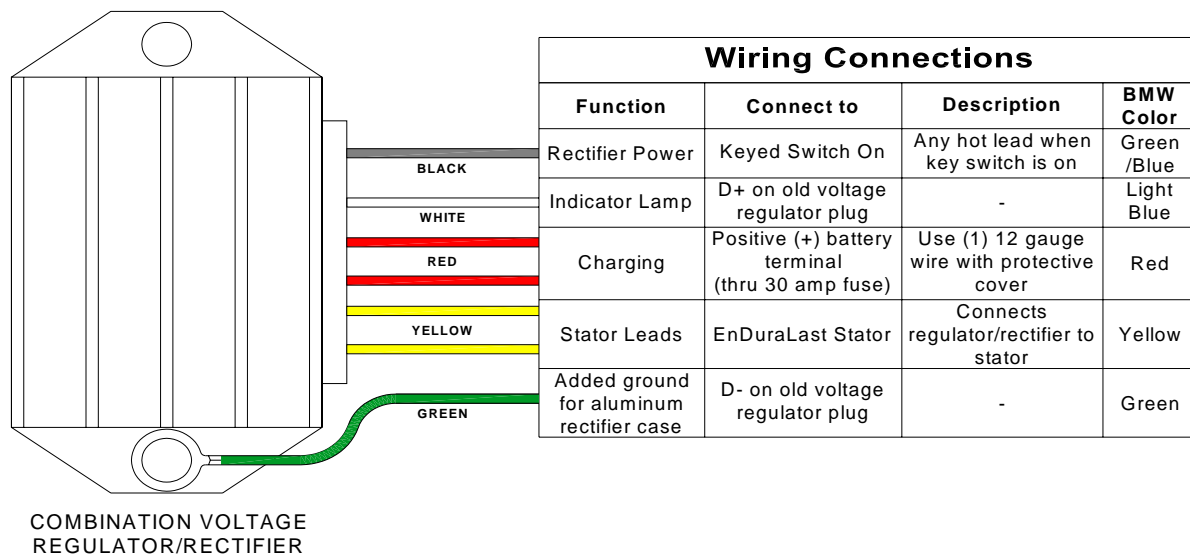
<u>System Voltage</u> (V / DC)	<u>Output Voltage</u> (V / DC)	<u>Maximum Current at 80 C</u> (A / DC)	<u>Charge Monitor Lamp</u> (12V / 3W)
12	14.0 to 14.5	32	Yes

Weight of the regulator: 12.3 ounces / 0.350 Kg

Notes and Cautions:

- 1- Keep the length of the power cables between the regulator and the battery as short as possible.
- 2- Do not fit loads, especially electronic loads, along the power cables. Heavy impulsive currents may cause damage to electronic devices. Always wire accessory loads through battery.
- 3- Be careful with the junction points, especially the ground connections. Loose or bad wiring connection are the main causes to troubles and failures of the electrical system. Tighten nuts and screws strongly and use lock-washers. Make sure that battery connections are good.
- 4- Never disconnect regulator cables while the engine is running.
- 5- Place the regulator in a well-ventilated place. Fasten it solidly to assist heat dissipation from the die-cast aluminum box through to the frame. Mount in location away from water and mud.
- 7- When using welding equipment disconnect the regulator.

EnDuraLast 450 Alternator Kit Wiring Diagram



Note : Specifications may be changed without notice.