

Electronic Voltage Regulator Upgrade Procedure

These instructions detail how to replace the original electromechanical regulator with a modern electronic regulator while maintaining the original appearance of the regulator. The 3 steps in this process are:

- Removal of the existing original regulator components.
 - Modification of the electrical connections to accept the new electronics.
 - Installation of the new electronics.
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Step 1 – Removal of the existing regulator components

1. Remove the regulator cover and set it, and its screws aside in a safe place. If the cover gasket stayed with the base, carefully remove it and keep it with the cover.
2. Turn the regulator base over and determine which rivets to remove (there are a total of 7). Refer to Figure 1 below.



Figure 1

Carefully remove the rivets using one of the following methods:

- a. Mill the rivet heads off with a 4 flute center cut 3/16" end mill, using a milling machine or a drill press.
- b. Grind the heads off using a small grinder such as a Dremel tool.

- c. Drill the rivets using a standard drill bit (may require grinding the rivet heads first to achieve a good center for drilling)

Remove the rivet heads, being careful to not remove too much material from the metal connection strips, as they will be used again. When the rivet heads have been removed, remove the rivets using a hammer and punch. The electromechanical parts will come off with the rivets, and it is likely that the top side insulator will crack and break. This is OK, as it will not be needed and can be removed.

3. Remove any wires that connect the electromechanical parts to the regulator base. Leave the 2 resistors attached to the connection strips in place. They will not be used, but are required for authenticity.

Step 2 – Modification of the electrical connections to accept the new electronics

1. The newly created holes in the connection strips must be enlarged to accept the new hardware. Figure 2 below shows 4 small holes which must be enlarged to $5/32''$, and 3 larger holes which must be enlarged to $13/64''$. Use the correct drill bit for each size hole and carefully drill them out to the proper size. Use caution while drilling, as the drill bit may grab as the bit breaks thru the hole.

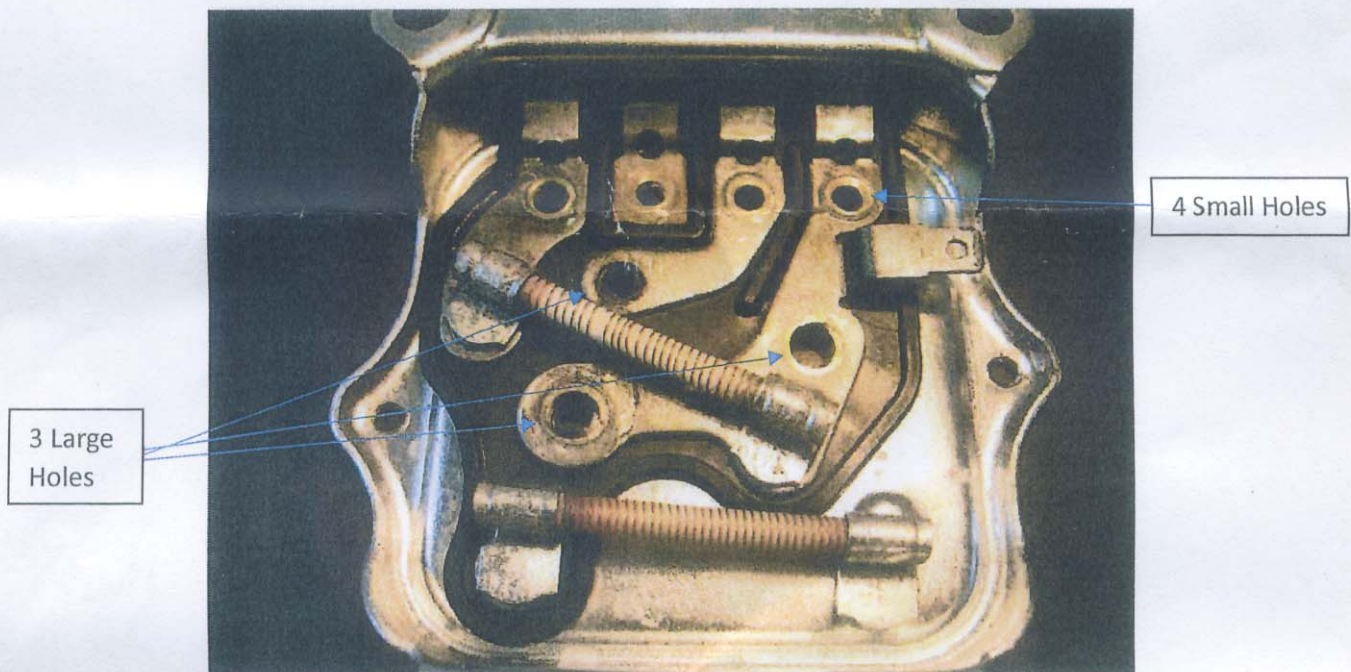


Figure 2

2. With the holes enlarged, place a black fiber shoulder washer onto three 6-32 x $3/8''$ machine screws and insert them thru the 3 larger holes from the bottom side of the base and attach a 6-32 Keps nut to each one on the top side. If a continuity checker or multimeter is available, check to ensure that there is no continuity between any of the connection strips and the base of the regulator.
3. The diagonally mounted wire wound resistor located near the center of the case must NOT have continuity for the new electronics to work properly. Use a small pair of wire cutters or a small triangular file to cut thru and separate the resistance wire on the resistor. If a continuity checker or multimeter is available, check to ensure that there is no continuity across the resistor.

Step 3 – Installation of the new electronics

1. Remove the nut from the screw mounted between the two resistors on the bottom side of the base, place the ring terminal of the free-hanging ground wire on the circuit board onto the screw and replace and tighten the nut (see Figure 3).

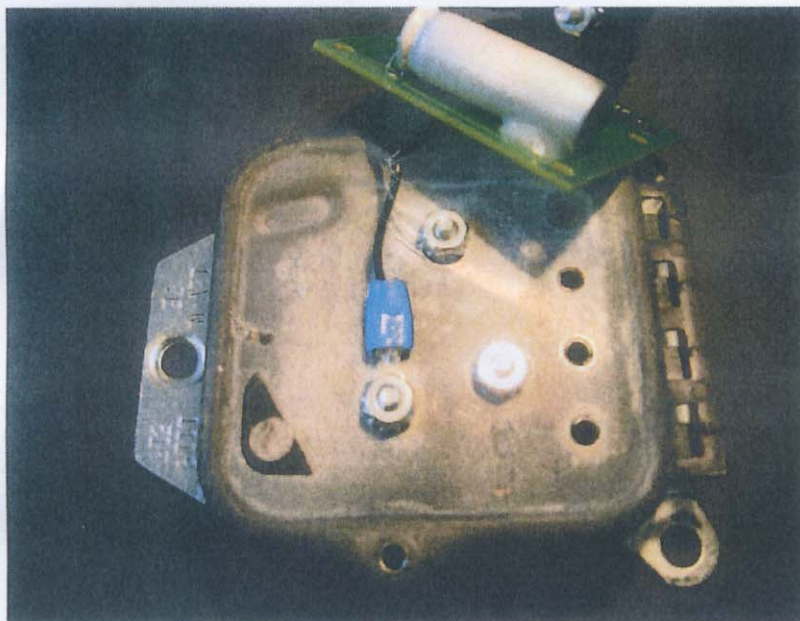


Figure 3

2. Install the four 6-32 x $\frac{3}{4}$ " screws in the remaining holes on the base. On the top side, place a white nylon spacer onto each screw, mount the circuit board onto the four screws, and install the remaining Keps nuts onto the screws. Tighten securely (see Figure 4).

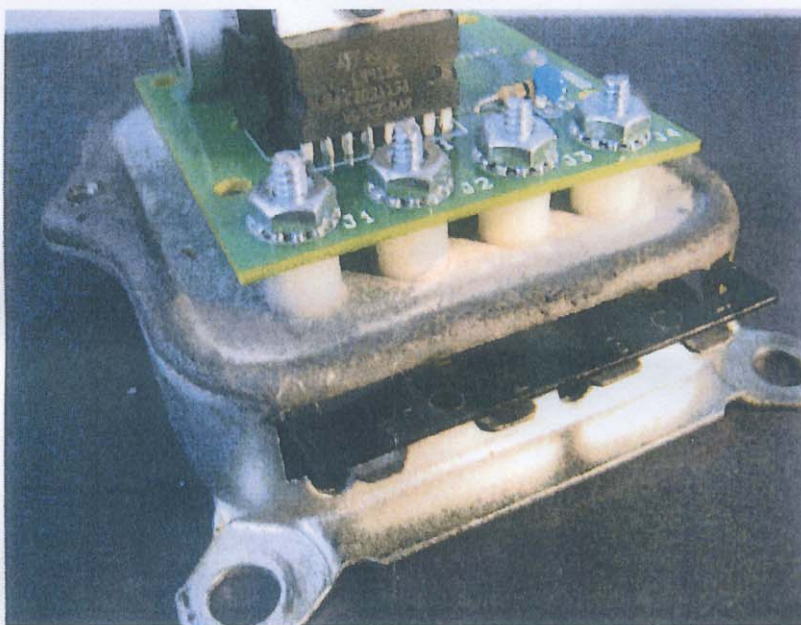


Figure 4

Replace the gasket and cover. When installing into the vehicle, make certain the regulator has a good ground connection to the vehicle frame.