

The dim Red Light District

by Joe Leoni

It is a late spring evening car lights are on, a little music coming out of the ol' Blauplunk, streets a bit wet from the early rain. The humidity is adding a little zip to that four banger. All the while the building walls echo the engine's tune (Bursch muffler) in competition with the radio. All is right with your world. A quick glance at the instruments and then **aaaahhhh!**

There is a dim red lamp on the Combination Instrument staring back at you. Your mind snaps back to reality, first thought is oil, no that's green, red ? oh yeah that is the **Generator Warning Light**. What is wrong? Has the generator failed, or that new battery at \$100 plus bucks gone belly up? Being the frugal kind of guy that you are, you are thinking out loud that it could be the regulator, well why not put your mind at ease temporarily with idea that the only thing wrong is the brushes in the generator. They would cost less then a regulator, but then again what if the generator is shot?

"I'll have to make do and nurse this baby home." Turn the radio off. That did not help much. Waiting at the traffic light, wait the red light is out, (idle is 900 rpm) okay it solved the problem itself. Gosh these little cars are amazing. They cure themselves! Could be, or was it the light rain a while ago, sure that is it, the generator got wet. But you have to admit these 356s are amazing.

Radio is now back on, even turned up a little louder. Traffic light turns green and you stand on it. Looks like 5000 rpm, boy this baby really goes. A glance at the Combination Instrument and (you readers that have come this far have guessed) **aaaahhhh!!!!**

The red light is brighter. So now you experiment, low rpm dim light, higher rpm the red light becomes brighter. Radio off, a turn is coming up, turn signal operated, can't loose my cool, still have to signal **aaaahhhh!!!!** the Generator Warning Light is keeping time to the turn signals.

Could it be the instrument lights bleeding through to the Generator Warning Light? No, it seems to be a function of the engine/generator speed. The instrument lights are not changing, just that little *&%#@ red Generator Warning Light.

Been there and done that? Sure most have, so what is the problem? Is the generator failing, or the regulator? Surely it isn't that new battery. Oh, you could just live with this phenomenon. Let's try and figure out what is wrong.

Heck I will tell you what is wrong. The source of this problem is the regulator CO contacts and the battery charging current.

The Generator Warning Light is a very simple circuit. Tie one end of the red light to the battery through the Ignition Switch and the other end to the Regulator's **blue sense wire**. With the Ignition Switch on, but the engine not turning, the red lamp wire at the generator is practically at ground, and so the light comes on (there is 6 volts across the lamp). Spin the engine up, and with the Generator putting out some 6+ volts to the battery, there is now the same voltage on each side of the red bulb. Therefore the red light is out.

Why the dim red Generator Warning Light? There is some resistance in the two relays in the Regulator (Current and Cut-

Out Relay). The Cut-Out relay's contact (CO) is a major contributing factor to the dim red lamp.

The higher the generator's current output, the greater will be the voltage drop in the regulator. Or, the Generator Warning Light reacts to the difference in voltage at the generator and the voltage at the battery. The higher the charging current, the higher the voltage drop, and the brighter the red light. It only takes a ½ volt to turn on the light.

Were the battery kept at an initial higher charge then there is less charging current from the generator. The generator would only have to supply the lights/radio/engine load, and not have to charge the battery at a higher rate. The Regulator should be set for 7.3 volts. Any driving during the day at 7 volts plus will charge the battery and when night falls there is less charging current required which reduces the dreaded **dim red light** phenomenon.

Some of the gel type batteries would prefer to have a charge rate a bit lower then Factory Specifications. The battery engineers suggest a maximum charge value of 7.25 volts. Even with a completely charged battery, were the voltage at the generator to be 7.3 volts, the resulting voltage, at the battery, with normal car loads will be very close to 7.25 volts. That is why we suggest the 7.3 volts at the generator. This is allowing for the some CO drop and the other drops from the fuse block into the Generator's Warning Light which are minimum.

Want to prove this **dim light phenomenon** to your self? When dark, spin up the engine to about 2000 rpm, turn on lights, turn down Instrument lights. (That is a joke son.) Is the Generator Warning Light on dimly? Yes, then connect a piece of wire from **D+** to **B+** on the Regulator. The Generator Warning Light will become less bright. The CO contact and the current coils have just been jumped out. The demonstration is more dramatic with a low battery.

Lastly, to improve the situation, **clean the CO contacts in the Regulator**. It is the right -most device on the Regulator. **Use a burnishing tool**. Well get one, and keep your battery on a Battery Tender.

Be sure to remove the battery power when cleaning this contact. Good luck.

