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PCM CODE P1638 and P0621/622 ON GM VEHICLES WITH PENNTEX CHARGING SYSTEMS

Your **Pre-2008 GM vehicle** has a PCM Code P1638 or P0622 stored that won't go away. You have a PennTex charging system and the system is working fine. The code is there because of a Field Duty Cycle difference in the PennTex system and that code will always be present. If the Battery light and the Check Engine light go out once the vehicle starts, there's no problem.

IT IS IMPORTANT TO NOTE THAT ON PRE-2008 GM VEHICLES THESE CODES ALONE WILL NOT CAUSE THE "CHECK ENGINE" LIGHT TO COME ON. With the ignition key in the on position and the engine not running, both the Battery Indicator Light and the Check Engine light should be on. This is a normal "bulb test". When the engine is started, both lights will go out.

The GM PCM is set to see a charging system "Field Duty Cycle" of only 30% when the key is switched on but the engine has not been started. If it sees more, or does not see any at all, a code is set and stored. When the engine has been started and is running the PCM is set to see a charging system field duty cycle of "0 to 100%". A PennTex GM replacement charging system (prior to 2008) normally has about 11-12 volts on the blue field wire (100% field duty cycle) with the key on and the engine off. This is more than the "30%" duty cycle that the PCM expects to see, so a code will be set and stored. (*P1638 for earlier 5.7L gas and P0622 for the later 6.0L, 8.1L gas, and 6.6L diesel engines.*)

Many times this code is discovered when another trouble code is set, and the technician can't get the P1638 or P0622 codes to clear with the key on and the engine not running. The technician wants the code to clear, and it won't, because the PCM keeps seeing something it's not programmed to see. But, on pre-2008 vehicles, the fact that the codes are there is okay, as long as the charging system is operating properly and the battery indicator light is not on when the engine is running. The PCM has seen that the field duty cycle is out of normal range and it is making the technician aware of it. The code can be treated as "information".

A PennTex Industries Four-Step Charging System Test available at www.penntexusa.com/tests can confirm the charging system condition. Check to see if the original GM alternator's Ignition wire and the GM Gray Field Sense wire (2001 & up chassis) are connected properly to the PennTex harness. Generic wiring diagrams of PX-4G-5 and PX-4V-220 systems are available at www.penntexusa.com/InstallationSchematics. The original GM alternator Ignition wire that usually goes through the dash Battery indicator light should be connected to the PennTex Brown harness wire. The GM Gray Field Sense wire (2001 & up chassis) should be connected to the PennTex Gray harness wire. *It is important* that the GM alternator Ignition wire and the GM Gray Field Sense wires *are not both* connected to the PennTex Brown wire. If you have an older chassis that does not have a Gray Field Sense wire and the PennTex harness you're using does have a Gray wire, just insulate and tie off the PennTex Gray wire. Don't connect it to anything. If you have a vehicle that does have the Gray Field Sense wire but the PennTex harness you have does not, go to the Parts Distributors page at www.penntexusa.com for a list of locations to purchase a new PennTex harness that has the Gray Field sense wire in it. Use the PennTex Harness Information page to help determine which harness will work with your combination.

Note: on a **2008 and up GM chassis**, any time the P0622 code "Generator Field "F" Circuit Malfunction" is present, the Charging System Indicator Light will stay on. This may also occur with code P0621 "Generator Lamp "L" Circuit Malfunction". 2008-up chassis have a different PCM programming regarding these codes. For testing information to determine if the PennTex Charging system is malfunctioning, go to www.penntexusa.com/tests to download the PX-6000 testing paperwork.