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PCM CODE P1638 and P0622 ON GM VEHICLES WITH PENNTEX CHARGING SYSTEMS

The OBD II diagnostic systems on all '96-up vehicles can be a valuable tool when diagnosing vehicle faults, but OBD II can also cause confusion. The system can set "hard" codes for problems where the "CHECK ENGINE" light will stay on any time the vehicle is running. It can also set "soft" or intermittent" codes that don't affect the way the vehicle runs. With a soft code, the "CHECK ENGINE" light goes out when the engine starts, even though that code may still be present.

Some "soft" or "intermittent" codes are set by non-factory components where the PCM (engine control computer) "thinks" something is wrong because it "sees" something out of the parameters set by the factory. There might not be anything wrong with any of the components. The PCM is just letting the technician know that something is out of original factory-set parameters.

The PCM codes P1638 and P0622 are an example of how knowledge of the vehicle, what after-market charging systems have been installed, and how those systems affect the PCM can save a lot of time. 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, 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" and not as a "problem".

A PennTex Industries Four-Step Charging System Test 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. The GM alternator's Ignition wire 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's 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, then do not use the PennTex Gray wire and simply tie it off. If you have a vehicle that does have the Gray Field Sense wire but the PennTex harness does not (pre-2001), then contact PennTex for information on where to purchase a harness to match your chassis year.

IT IS IMPORTANT TO NOTE THAT 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 codes P1638 or P0622 will still be stored but it has been our experience that with all of the GM replacement charging systems we sell that these codes do not cause any problem.

Special Note: On 2008 and up GM chassis, anytime the P0622 code is present, the Charging System Indicator light will also come on. The newer chassis have a different PCM programming regarding these codes, so please contact the PennTex Technical Department toll free at 877-590-7366 for charging system diagnostic help.

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