



Tech Articles

By: Ryan Gick
www.gmtuners.com

ECM Trouble Codes - Part 1

Recently, Paul Vargyas came up with the new NIFE Code Reader Kit that is being sold thru NIFE on our website that includes a Torx bit, code key (to flash codes thru the check engine light), and a code description card (see this issue's Paul's Product Review for ordering instructions and more details). In this article, I would like to explain what actions the ECM performs when certain codes set and whether or not it is still "safe" to drive the car. These descriptions apply to the stock 2.5L 4-cylinder and 2.8L V6, but may also apply to other OBD-1 applications.

Code 12 - No distributor reference pulse. This is the first code you will see flash thru the check engine light when checking for diagnostic codes. It is just an indicator that the engine is not running and you have put the ECM into diagnostic mode (checking for codes).

Code 13 - O2 Sensor circuit open. This code sets if the ECM doesn't detect any activity on the O2 sensor circuit after a predetermined amount of time (that the engine is running) and other qualifiers are met (the predetermined coolant temperature has been reached, etc). Code 13 is most likely caused by a bad O2 sensor or open wiring circuit.

ACTION TAKEN BY ECM WHEN CODE 13 SETS: The ECM will not go into closed loop fuel control mode (meaning fuel trims will be frozen).

OK TO DRIVE: MAYBE (as long as the engine seems to be running ok and isn't running overly rich or overly lean).

Code 14 - Coolant Temp Sensor (High Temp Indicated). This code sets if the ECM detects an abnormally high coolant temperature sensor signal (possibly due to a short to ground in circuit or a bad sensor).

ACTION TAKEN BY ECM WHEN CODE 14 SETS: The ECM may disable closed loop and TCC operation during certain operating conditions and go into a limp-mode assuming a certain engine coolant temperature based on how long the engine has been running.

OK TO DRIVE: MAYBE (as long as the engine seems to be running ok and isn't running overly rich or overly lean). Be aware that engine idle speed may be affected. Fieros with the 2.5L 4-cylinder engine and ECM controlled cooling fan may have the radiator coolant fan come on and stay on while the engine is running.

Code 15 - Coolant Temp Sensor (Low Temp Indicated). This code sets if the ECM detects an abnormally low coolant temp sensor signal (possibly due to an open circuit, bad connection, or a bad sensor).

ACTION TAKEN BY ECM WHEN CODE 15 SETS: The ECM may disable closed loop and TCC operation during certain operating conditions and go into a limp-mode assuming a certain engine coolant temperature based on how long the engine has been running.

OK TO DRIVE: MAYBE (as long as the engine seems to be running ok and isn't running overly rich or overly lean). Be aware that engine idle speed may be affected. Fieros with the 2.5L 4-cylinder engine and ECM controlled cooling fan may have the radiator coolant fan come on and stay on while the engine is running.

Code 21 - Throttle Position Sensor (Signal Voltage High). This code sets if the ECM detects an abnormally high throttle position sensor signal (possibly due to a bad sensor, wiring problem, or

stuck throttle).

ACTION TAKEN BY ECM WHEN CODE 21 SETS: The ECM may disable TCC operation and go into a limp-mode, which could result in erratic idle.

SAFE TO DRIVE: NO, because idle speed may be erratic or the engine could unpredictably stall, which could result in an unsafe driving condition.

Code 22 – Throttle Position Sensor (Signal Voltage Low). This code sets if the ECM detects an abnormally low throttle position sensor signal (possible bad sensor, wiring problem, or sensor not adjusted correctly).

ACTION TAKEN BY ECM WHEN CODE 22 SETS: The ECM may disable TCC operation and go into a limp-mode, which could result in erratic idle.

SAFE TO DRIVE: NO, because idle speed may be erratic or the engine could unpredictably stall, which could result in an unsafe driving condition.

Code 23 – Intake Air Temp Sensor (Low Temp Indicated). This code sets if the ECM detects an abnormally low intake air temperature signal (possibly due to a bad sensor, open circuit, or a bad connection).

ACTION TAKEN BY ECM WHEN CODE 23 SETS: The ECM may assume a certain intake air temperature based on how long the engine has been running and the engine coolant temperature.

SAFE TO DRIVE: YES.

Code 24 – Vehicle Speed Sensor Circuit (complete signal loss or erratic signal indicated). This code sets if the ECM detects a problem with the Vehicle Speed Sensor circuit (possibly from a bad sensor, open or shorted circuit, wiring problem, bad connection, or a problem with the speedometer).

ACTION TAKEN BY ECM WHEN CODE 24 SETS: TCC operation will be disabled. Idle speed may also be affected and the engine could stall.

SAFE TO DRIVE: MAYBE, depending on how bad the stalling is; if it occurs at all.

Code 25 – Intake Air Temp Sensor (High Temp Indicated). This code sets if the ECM detects an abnormally high intake air temperature signal (possibly from a bad sensor or short circuit to ground in the wiring).

ACTION TAKEN BY ECM WHEN CODE 25 SETS: The ECM may assume a certain intake air temperature based on how long the engine has been running and the engine coolant temperature.

SAFE TO DRIVE: YES.

Code 32 – EGR System Problem. This code sets if the ECM detects a problem with the Exhaust Gas Recirculation system (possibly from a wiring problem, bad EGR solenoid, bad EGR diagnostic switch, defective EGR valve, or a vacuum line leak).

ACTION TAKEN BY ECM WHEN CODE 32 SETS: The ECM may assume the EGR system is not functioning (no EGR flow occurring) and it will not adjust fuel or spark advance as it normally would if the EGR system was performing properly. EGR valve operation may be disabled.

SAFE TO DRIVE: YES.

In the next issue of Fiero Focus, we will discuss the remaining trouble codes for Fiero ECMs.

Ryan Gick, NIFE Member

www.gmtuners.com