



CODE 42

ELECTRONIC SPARK TIMING (EST) CIRCUIT 2.5L "P" SERIES (TBI)

Circuit Description:

The ignition module sends a reference signal (CKT 430) to the ECM, when the engine is cranking. While the engine speed is under 400 rpm, the ignition module will control ignition timing. When the engine speed exceeds 400 rpm, the ECM applies 5 volts to the "bypass" line (CKT 424) to switch the timing to ECM control (EST CKT 423).

When the system is running on the ignition module, that is, no voltage on the bypass line, the ignition module grounds the EST signal. The ECM expects to see no voltage on the EST line during this condition. If it sees a voltage, it sets Code 42 and will not go into the EST mode.

When the rpm for EST is reached (about 400 rpm), voltage will be applied to the bypass line, the EST should no longer be grounded in the ignition module, so the EST voltage should be varying.

If the bypass line is open or grounded, the ignition module will not switch to EST mode so the EST voltage will be low and Code 42 will be set.

If the EST line is grounded, the ignition module will switch to EST but, because the line is grounded, there will be no EST signal. A Code 42 will be set.

Test Description: Numbers below refer to circled numbers on the diagnostic chart.

- Code 42 means the ECM has seen an open or short to ground in the EST or bypass circuits. This test confirms Code 42 and that the fault causing the code is present.
- Checks for a normal EST ground path through the ignition module. An EST CKT 423, shorted to ground, will also read less than 500 ohms, however, this will be checked later.
- As the test light voltage touches CKT 424, the module should switch, causing the ohmmeter to "overrange", if the meter is in the 1000-2000 ohms position. Selecting the 10 - 20,000 ohms position

will indicate above 5000 ohms. The important thing is that the module "switched".

- The module did not switch and this step checks for:
 - EST CKT 423 shorted to ground.
 - Bypass CKT 424 open.
 - Faulty ignition module connection or module.
- Confirms that Code 42 is a faulty ECM and not an intermittent in CKTs 423 or 424.

Diagnostic Aids:

The "Scan" tool does not have any ability to help diagnose a Code 42 problem.

If Code 42 is intermittent, refer to Section "B".

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