

Wheels: John of Fairborn has been having problems with his 1990 Mercury Sable with the 3.8L, V-6 engine that has traveled over 165,000 miles. The engine will start and then stall. It cranks over OK. If he allows the car to cool for about 10 minutes, it starts and runs OK. John can keep it from stalling by depressing the accelerator but it will stall if he doesn't keep his foot on the gas. Previous repairs include replacing the ignition module and EGR valve. There are no stored diagnostic trouble codes. Any help would be greatly appreciated.

Halderman: Because you are able to keep the engine running by depressing the accelerator pedal, I think that the idle air control (IAC) unit on the throttle position (TP) sensor has failed. All wiring increases in resistance at higher temperatures. A wiring or a connection problem seems the most likely cause. Neither of these units will set a diagnostic trouble code (DTC) unless they fail electrically shorted or open. 1996 or newer vehicles have a more complex computer system called on-board diagnostic - second generation, abbreviated OBD II. The computer on a vehicle equipped with OBD II is capable of rationality checks. This means that the computer can set a DTC if certain events occur that do not seem to be correct! For example, if John's vehicle was new enough, the computer can sense that the engine is at idle speed and the IAC should be controlling the idle. I think that a fault in the TP sensor could be signaling the computer that the throttle is not closed and therefore, the IAC does not have to control the idle.

Wheels: Is there anything that John could do or should he consult a professional service technician?

Halderman: John could perform a thorough visual inspection under the hood. Look for damaged wiring or evidence of any coolant leaks that could contribute to a corrosion problem with the electrical components and sensors. Checking the condition and operation of the idle air control and throttle position sensor should be left to the professional because test equipment is needed to perform the diagnostic procedures. Typical test equipment needed includes a scan tool (\$1000 to \$5000 or more), digital multimeter (\$50 to \$500), and a breakout box (\$300 to \$1000).

Story Time: I worked on a Ford Escort that would not idle correctly. A previous service technician had replaced the idle air control unit. I tested the throttle position sensor using a digital voltmeter and it seemed to operate correctly except that it read a little on the high side of specification. I replaced the TP sensor and the idle returned to normal. The computer apparently "thought" that the engine was not at idle and therefore did not command the idle air control to start controlling idle speed. As a result, the idle would be high or low or fluctuating. I solved another idle problem with a Ford by simply disconnecting and reconnecting the negative battery cable. Apparently the computer "lost" the correct idle position and by disconnecting the battery, the idle program was lost and the computer had to relearn the correct idle. After reconnecting the battery and allowing the engine to run for several minutes, the idle returned to normal.

