P2102: THROTTLE ACTUATOR A CONTROL MOTOR CIRCUIT LOW

OVERVIEW

Severity	:	High
DIY Difficulty Level	:	Intermediate
Repair Cost	:	**$250-$700**
Can I Still Drive?	:	No

What Does The P2102 Code Mean?

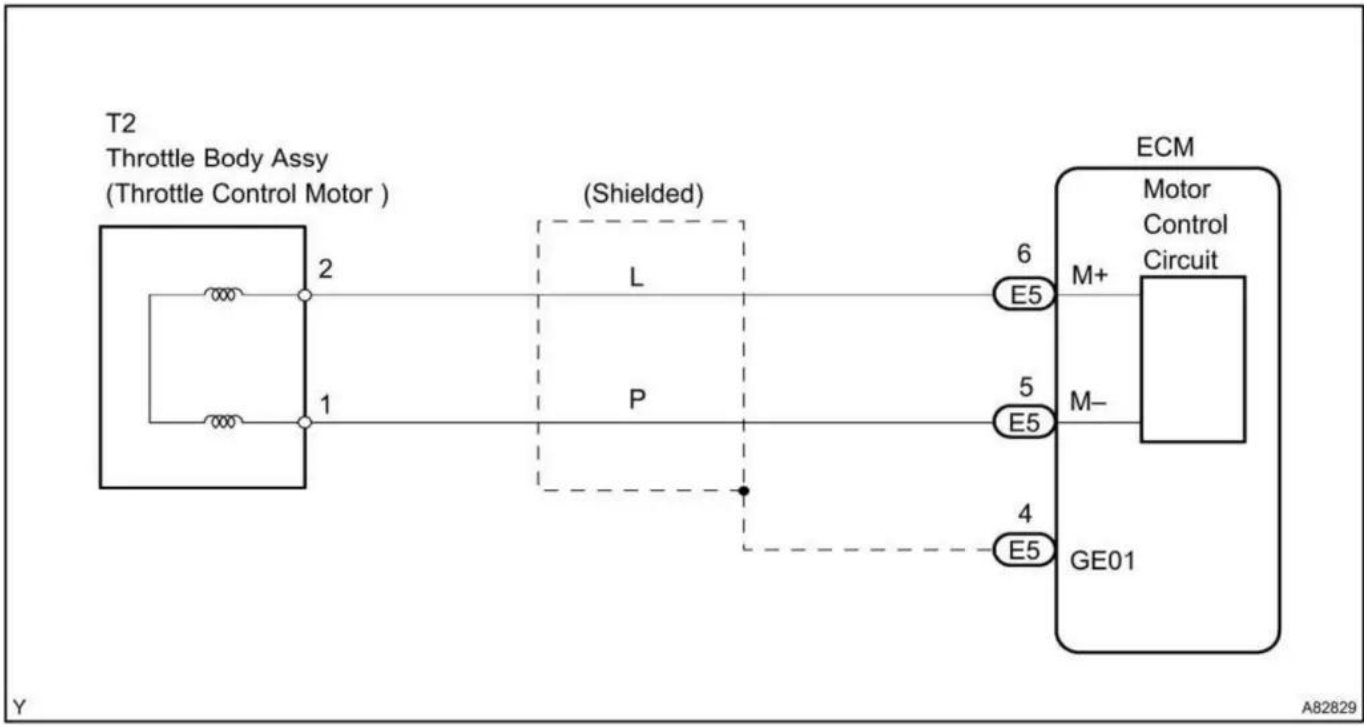
This generic powertrain/engine diagnostic trouble code typically applies to all OBDII equipped engines with electric Throttle Actuators, but shows up more often in certain Ford and Nissan vehicles.

The Throttle Actuator A (TA-A) is can usually be found mounted to the front of the engine, on top of the engine, inside the wheel wells or against the bulkhead. The TA-A is operated by an electrical signal from the Powertrain Control Module (PCM).

The PCM receives inputs to determine when and how long it needs to operate the TA-A. These inputs are voltage signals received from coolant temp, intake air temp, engine rpm and air conditioning system pressure sensors. Once the PCM has received these inputs it can modify the signal to the TA-A.

P2102 is typically set because of electrical (TA-A circuit) issues. These cannot be overlooked in the troubleshooting stage, especially when dealing with an intermittent problem.

Troubleshooting steps may vary depending upon manufacturer, type of TA-A and wire colors.



P2102 wiring diagram

Related throttle actuator A control motor circuit codes:

- P2100 – Throttle Actuator “A” Control Motor Circuit Open
- P2101 – Throttle Actuator “A” Control Motor Circuit Range/Performance
- P2103 – Throttle Actuator “A” Control Motor Circuit High

What Are The Symptoms Of The P2102 Code?

Symptoms of a P2102 engine code may include:

- Malfunction Indicator Light On
- Fixed idle speed
- Unable to accelerate engine

What Are The Potential Causes Of The P2102 Code?

Typically the causes for this code to set are:

- Open or short in the circuit to the Throttle Actuator – likely
- Failed Throttle Actuator – likely
- Failed PCM – unlikely

How Can You Fix The P2102 Code?

Step 1

A good starting point is always to check for technical service bulletins (TSB) for your particular vehicle. Your issue may be a known issue with a known fix put out by the manufacturer and can save you time and money during diagnosis.

Step 2

Next, locate the Throttle Actuator A (TA-A) on your particular vehicle. This actuator is usually found mounted to the front of the engine, on top of the engine, inside the wheel wells or against the bulkhead. Once located, visually inspect the connector and wiring.

Look for scraping, rubbing, bare wires, burn spots or melted plastic. Pull the connector apart and carefully inspect the terminals (the metal parts) inside the connector. See if they look burned or have a green tint indicating corrosion. Use electrical contact cleaner and a plastic bristle brush if cleaning of the terminals is needed. Let dry and apply electrical grease where the terminals contact.

Step 3

If you have a scan tool, clear the diagnostic trouble codes from memory, and see if P2102 code returns. If it does not, then the connections were most likely your problem.

For this code, this is the most common area of concern, as are the relays / connections to the relays, with an actuator failure a close second.

If the code does return, we will need to test the actuator and the associated circuits. Typically, there are 2 wires at each Throttle Actuator. First, disconnect the harness going to the Throttle Actuator. With a Digital Volt Ohm Meter (DVOM), connect one lead of the meter to one terminal of the actuator.

Connect the remaining meter lead to the other actuator terminal. It should not be open or shorted. Verify the resistance specifications for your particular vehicle. If the actuator motor is either open or shorted (infinite resistance or no resistance/0 ohms), replace the Throttle Actuator.

Step 4

If that test passes, with a DVOM, check to make sure you have 12V to the Throttle Actuator power supply circuit (Red lead to the actuator power supply circuit, black lead to a good ground). With a scan tool that can activate the Throttle Actuator, turn on the Throttle Actuator. If there is no 12 volts to the actuator, repair the wiring from the PCM or relay to the actuator, or possibly a bad PCM.

Step 5

If that's OK, check to make sure you have a good ground at the Throttle Actuator. Connect a test light to 12V battery positive (red terminal) and touch the other end of the test light to the ground circuit going to the Throttle Actuator circuit ground.

Using the scan tool to actuate the Throttle Actuator, see if the test light comes on each time the scan tool actuates the actuator. If the test light does not light up, this would indicate the problem circuit. If it does light up, wiggle the wiring harness going to the actuator to see if the test light flickers, indicating an intermittent connection.

Step 5

If all prior tests have passed and you continue to get a P2102, this would most likely indicate a failed Throttle Actuator, although a failed PCM could not be ruled out until the Throttle Actuator had been replaced. If unsure, seek assistance from a trained automotive diagnostician. PCMs must be programmed, or calibrated to the vehicle in order to be installed correctly.

Severity Description

Severity is usually severe due to its impact on the cooling system. Because this is usually an electrical failure, the PCM cannot fully compensate for it. Partial compensation usually means that the engine has a fixed idle speed (usually around 1000 – 1200 rpm).

Reference Sources

Diagnostic Trouble Code (DTC) Guide for P2102 - Ominitek Advanced Technologies, pages 162-163.