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2003 CHEVROLET Astro OEM Service and Repair Workshop Manual

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Conditions for Setting the DTC

The ECM detects a short to voltage or ground on any of the 5V reference circuits for greater than 0.5 s.

Action Taken When the DTC Sets

DTCs P0641, P0651, P0697, and P06A3 are Type A DTCs.

Conditions for Clearing the DTC

DTCs P0641, P0651, P0697, and P06A3 are Type A DTCs.

Diagnostic Aids

The 5V reference 1 circuit provides 5 V to the sensors listed below:

- Air conditioning (A/C) refrigerant pressure sensor
- Camshaft position sensor
- Engine oil pressure sensor
- Fuel pressure sensor
- Fuel rail pressure sensor
- Fuel tank pressure sensor
- Supercharger inlet pressure sensor

The 5V reference 2 circuit provides 5 V to the sensors listed below:

- Brake pedal position sensor (automatic transmission)
- Center console multifunction switch
- Clutch pedal position sensor (manual transmission)
- Crankshaft position sensor
- Multifunction intake air sensor
- Transmission gear position sensor (manual transmission)

The 5V reference 3 circuit provides 5 V to the sensors listed below:

- Accelerator pedal position sensor 2

- **If Malfunction is displayed**

  Refer to Circuit/System Testing.

- **If Malfunction is not displayed**

3. Operate the vehicle within the Conditions for Running the DTC. You may also operate the vehicle within the conditions that you observed from the Freeze Frame/Failure Records data.
4. Verify the DTC does not set.
   - **If the DTC sets**

     Refer to Circuit/System Testing.

   - **If the DTC does not set**
5. All OK.

Circuit/System Testing

NOTE

Note

Additional DTCs will set when disconnecting the components.

1. Ignition OFF, disconnect the harness connector at all appropriate sensors for the applicable DTC. Refer to Diagnostic Aids.
2. Ignition ON.
3. Test for 4.8–5.2 V between one of the 5V reference circuits and ground.
   - **If less than 4.8 V**

     1. Ignition OFF, disconnect the harness connectors at the K20 Engine Control Module.
     2. Test for infinite resistance between the 5V reference circuit for each applicable component and ground.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance, replace the K20 Engine Control Module.

   - **If greater than 5.2 V**

     1. Ignition OFF, disconnect the harness connectors at the K20 Engine Control Module.
     2. Test for less than 1 V between the 5V reference circuit for each applicable component and ground.

- Mass Airflow Sensor with Intake Air Temperature Sensor Replacement for multifunction intake air sensor replacement.
- Throttle Body Assembly Replacement
- Control Module References for engine control module replacement, programming, and setup.

Circuit/System Description

The malfunction indicator lamp (MIL) illuminates to inform the driver that an emission system fault has occurred and the powertrain control system requires service. Ignition voltage is supplied directly to the MIL. The engine control module (ECM) turns the MIL ON by grounding the MIL control circuit when the emission system fault occurs. Under normal operating conditions, the MIL should be ON only when the ignition is ON and the engine is OFF.

Conditions for Running the DTC

- The ignition voltage is between 11–32 V.
- Remote vehicle start is not active
- The DTCs run continuously when the above conditions are met .

Conditions for Setting the DTC

DTC P0650 or DTC P263A

The ECM detects low voltage during the MIL control circuit driver OFF state. This indicates either a shorted to ground or an open MIL control circuit.

DTC P263B

The ECM detects high voltage on the MIL control circuit during the driver ON state. This indicates a shorted to voltage MIL control circuit.

Action Taken When the DTC Sets

DTC P0650, P263A, and P263B are Type B DTCs.

Conditions for Clearing the DTC

DTC P0650, P263A, and P263B are Type B DTCs.

Diagnostic Aids

- If the condition is intermittent, move the related harnesses and connectors while monitoring the scan tool MIL control circuit status parameters. Perform this test with the ignition ON and the engine OFF, and with the engine running. The MIL control circuit status parameters change from OK or Not Run to Malfunction if there is a condition with a circuit or a connection.