

P0634 Transmission Control Module (TCM) Overtemperature

Diagnostic Instructions

- Perform the Diagnostic System Check – Vehicle on page 6-60 prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis on page 6-57 for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions on page 6-58 provides an overview of each diagnostic category.

DTC Descriptor

DTC P0634: Transmission Control Module (TCM) Over temperature

Circuit/System Description

The control solenoid (w/body and TCM) valve assembly has a built-in TCM temperature sensor to detect possible overtemperature conditions of the TCM. This fault indicates the TCM is in an overtemperature condition and the TCM has shut down to protect from possible heat damage to the TCM. The TCM will remain off until the over temperature condition no longer exists.

Conditions for Running the DTC

- The engine is running.
- The TCM temperature is between 0–240°C (32– 464°F) for 0.25 second or greater.
- DTC P0634 has not failed this ignition cycle.
- The DTC runs continuously when the above conditions are met.

Conditions for Setting the DTC

The TCM detects an internal overtemperature condition greater than 146°C (295°F) for 5 seconds or greater.

Action Taken When the DTC Sets

- DTC P0634 is a Type A DTC.
- The TCM shifts to a default gear, shuts down, and turns OFF.

Conditions for Clearing the DTC

DTC P0634 is a Type A DTC.

Reference Information

Description and Operation

Electronic Component Description on page 17-279 for control solenoid (w/body and TCM) valve assembly

DTC Type Reference

Powertrain Diagnostic Trouble Code (DTC) Type Definitions on page 6-61

Scan Tool Reference

Control Module References on page 6-1 for scan tool information

Circuit/System Verification

- 1). Ignition ON, review the Failure Records when the DTC set. Verify the scan tool ECT Sensor parameter is less than 125°C (257°F).

If greater than the specified range, refer to Engine Overheating on page 9-12.

- 2). Perform the Transmission Fluid Check on page 17-102 to verify correct fluid level and condition. The transmission fluid level should be within the crosshatch band and the transmission fluid should be red or dark brown.

If the transmission fluid is low or discolored, refer to Transmission Fluid Replacement on page 17-151.

- 3). Perform the Transmission Fluid Cooler Flushing and Flow Test (Acadia, Enclave) on page 17-113 or Transmission Fluid Cooler Flushing and Flow Test (Outlook) on page 17-118 to verify proper transmission oil cooler flow.
- 4). Operate the vehicle within the conditions for running and setting the DTC. Verify the scan tool TCM Temperature parameter is less than 146°C (295°F).

If greater than the specified range, inspect the transmission cooling system for

the items list below and repair as necessary. If all the items test normal, replace the control solenoid (w/body and TCM) valve assembly:

- Obstructions in the airflow of the radiator or transmission cooler
- Kinked or damaged transmission fluid lines
- Damage to the transmission cooler

5). Operate the vehicle within the Conditions for Running the DTC to verify the DTC does not reset. You may also operate the vehicle within the conditions that you observed from the Freeze Frame/Failure Records data.

LAUNCH