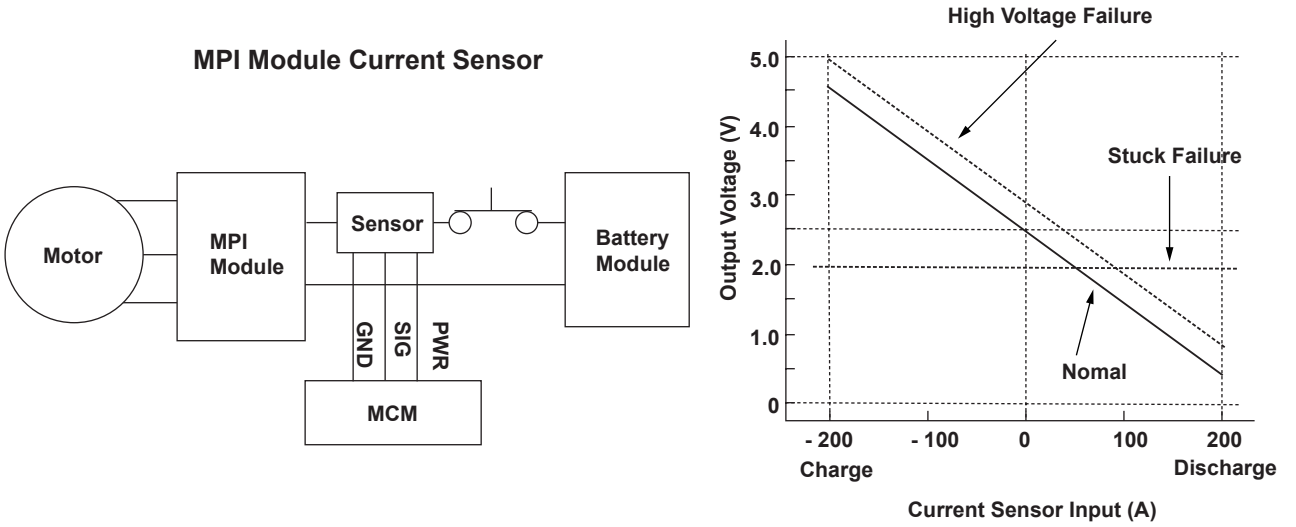
DTC P1581 (21): Motor Power Inverter (MPI) Module Current Signal Circuit Problem



P1581-0072

General Description

The motor output torque may not be properly controlled when the output voltage is drifting or freezing due to a faulty MPI (motor power inverter) module current sensor. The sensor is designed for the output voltage to be 2.5 V ± 50 mV when the input current is 0 A. The current flowing to the MPI module before precharge or while the motor is not turning is 0 A. Therefore, it is possible to detect drifting or freezing from the sensor output voltage at that time.
The MCM (Motor Control Module) samples the current sensor output voltage several times and computes offset voltage at 0 A. If the computed offset voltage is beyond a set value, a malfunction in the sensor is detected and a DTC is stored.

Monitor Execution, Sequence, Duration, DTC Type

Execution	Under the Enable Conditions
Sequence	None
Duration	0.08 second or more
DTC Type	One drive cycle, MIL ON, IMA system indicator ON

Enable Conditions

Condition	Minimum	Maximum
MCM power-supply voltage	10.5 V	—
Motor (engine) speed	At standstill	
Ignition switch	ON	
No active DTCs	MCM, MPI, BCM	

Malfunction Threshold

The MCM input voltage is less than 2.4 V or more than 2.6 V for at least 0.08 second.

Diagnosis Details

Conditions for illuminating the MIL
When a malfunction is detected, the MIL comes on and the DTC and the freeze frame data are stored in the ECM memory.

Conditions for clearing the MIL
The MIL will be cleared if the malfunction does not recur during three consecutive trips in which the diagnostic runs.
The MIL, the DTC, and the freeze frame data can be cleared by using the scan tool Clear command or by disconnecting the battery.