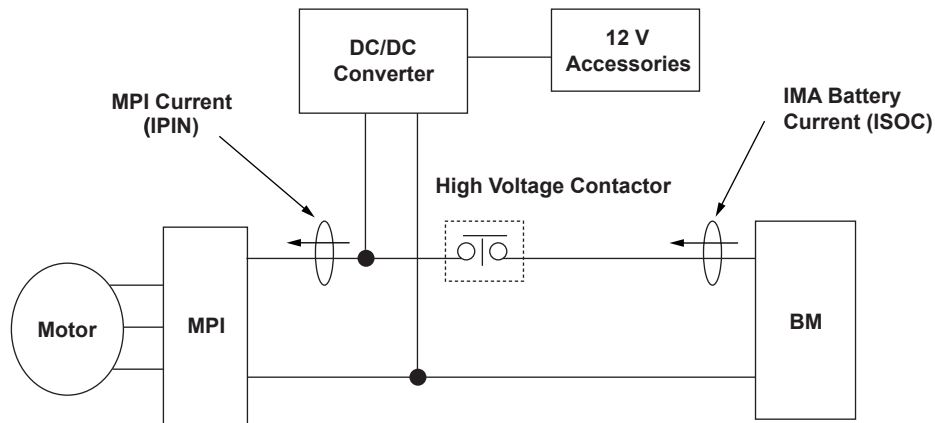# Advanced Diagnostics

DTC P1586 (23): Motor Power Inverter (MPI) Module Current Signal/Battery Current Signal Circuit Problem

P1586-0071

General Description

The MPI (motor power inverter) current (IPIN) and the battery module (BM) current (ISOC) are used for energy management or motor control in the IMA (integrated motor assist) system, and if the correct current cannot be detected, the exhaust emission, the fuel economy or drivability may be adversely affected.

With the high-voltage contactor is ON, the IPIN and the ISOC are used to monitor current flowing on the same line through the DC-DC converter which supplies power to the accessories. Comparing the IPIN and the ISOC in relation to the DC-DC converter power consumption enables to detect a faulty IPIN or ISOC.

If the difference between the IPIN and the ISOC is a set value or more for at least a specified time period, a malfunction is detected and a DTC is stored.

Monitor Execution, Sequence, Duration, DTC Type

Execution	Continuous
Sequence	None
Duration	2 seconds 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	—
No active DTCs	MDM, MPI, U/V/W phase signal circuit, MCM, IMA system, BCM, BM	

Malfunction Threshold

The MPI current (IPIN) minus the IMA battery current (ISOC) equals -9 A or less, or 23 A or more, for at least 2 seconds.

Driving Pattern

1. Connect the scan tool and start the engine, then turn all accessories (the headlights, the defroster, the blower, the A/C, and the ceiling light) off to minimize the engine load.
2. Let the engine idle for at least 5 seconds.
3. Accelerate the vehicle with wide open throttle for at least 5 seconds.
4. Then, apply the brakes, and decelerate the vehicle for at least 5 seconds, then turn all accessories on to maximize the engine load (the high beam headlights on, the defroster on, the blower on high speed, the A/C on, and the ceiling light on).
5. Repeat the driving cycle from step 2 through 4 again.

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.