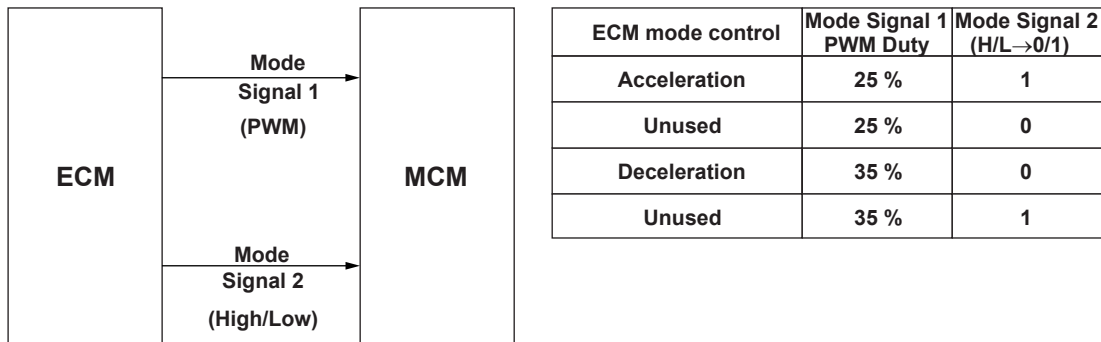


Advanced Diagnostics

DTC P1647 (07): Mode Signal Circuit 2 Problem



P1647-0074

General Description

The MCM (motor control module) determines the motor assist control mode according to the mode signals (Mode signal 1, Mode signal 2) from the engine control module (ECM). The motor assist control mode is determined by the combination of the Mode signal 1 (PWM duty) and Mode signal 2 (High/Low voltage level). When the Mode signal 2 is malfunctioning, it is contrary to the state in the table and stays High or Low. Therefore, the motor assist control mode is not determined if the Mode signal 2 is malfunctioning.

If the combination of the Mode signal 1 and Mode signal 2 differs from one specified for at least a set time period, a malfunction in the Mode signal 2 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	
Other	At the time of motor assist during acceleration or at the time of regenerative motor assist during deceleration	

Malfunction Threshold

Mode Signal 1 = 25% and Mode Signal 2 = Low (1 V or less) for at least 2 seconds.

Mode Signal 1 = 35% and Mode Signal 2 = High (4 V or more) for at least 2 seconds.

Driving Pattern

1. Start the engine, and let it idle.
2. Then, accelerate the vehicle with IMA assist for at least 10 seconds.
3. Decelerate by applying the brakes for at least 10 seconds.

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.