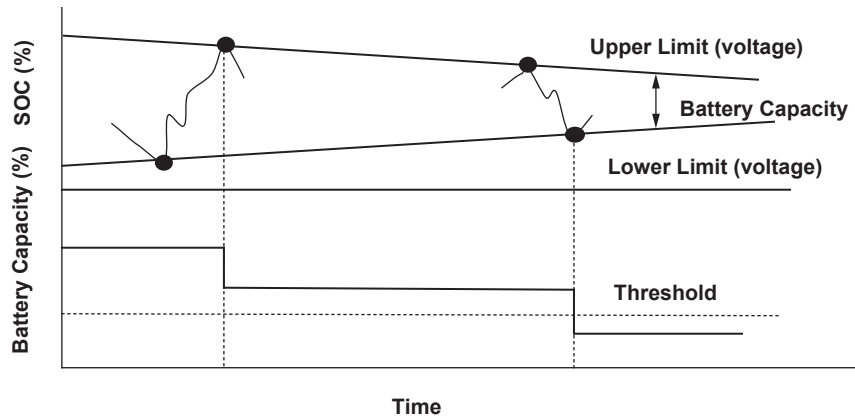


# Advanced Diagnostics

## DTC P1449 (78): Battery Module Deterioration



P1447-0071

### General Description

The high-voltage battery in the IMA (integrated motor assist) system is designed to operate within the upper and lower limits of the SOC (state of charge) voltage and the battery capacity limits. When the battery deteriorates, the voltage is subject to an increase or a decrease, so the limits of the battery capacity is narrowed. Therefore, if the upper and lower limits of the SOC are detected when driving, the BCM (battery condition monitor) calculates the sum of the current and calculates the battery capacity. If the power is less than a set value, a malfunction is detected and a DTC is stored.

### Monitor Execution, Sequence, Duration, DTC Type

Execution	Continuous
Sequence	None
Duration	Depending on the driving pattern
DTC Type	One drive cycle, MIL ON, IMA system indicator ON

### Enable Conditions

Condition	Minimum	Maximum
ECU power-supply voltage	7.5 V	—
Battery temperature	50°F (10°C)	—
No active DTCs	Battery current circuit, BM, BCM	
Other	The upper and lower limits are detected while the ignition switch is ON	

### Malfunction Threshold

The battery capacity is 10% of 6.5 A or less.

## **Driving Pattern**

1. Keep the battery temperature under 86°F (30°C) for at least 12 hours.
2. Start the engine.
3. Raise the engine speed to 3,500 - 4,000 rpm in neutral until the IMA battery charge gauge indicates 19 segments.
4. Then, drive the vehicle with the accessories on (the blower MAX, the headlights ON, etc.) Without turning the ignition switch off, accelerate and decelerate repeatedly under conditions in which the assist continues until the IMA battery charge gauge indicates one segment.

## **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.