

DTC B1516

Diagnostic Instructions

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

DTC Descriptors

DTC B1516 08: Battery Current Sensor Performance Signal Invalid

DTC B1516 66: Battery Current Sensor Performance Wrong Mounting Position

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
5 V Reference	B1516 08	B1516 08	—	—
Signal	B1516 08	B1516 08	B1516 08	B1516 08, B1516 66
Low Reference	—	B1516 08	—	—

Typical Scan Tool Data

Battery Current

Circuit	Short to Ground	Open	Short to Voltage
Operating Conditions: Ignition ON, engine OFF. Headlamps, HVAC, and all accessories OFF.			
Parameter Normal Range: -3amps to -25 amps			
5 V Reference	-59.9 amps	-59.9 amps	-6.2 amps
Signal	-59.9 amps	59.9 amps	59.9 amps
Low Reference	—	59.9 amps	—

Circuit/System Description

The battery current sensor is a 3-wire hall effect current sensor. The body control module (BCM) supplies 5 V and ground to the battery current sensor. The battery current sensor measures the amount of current flowing to or from the battery, and supplies a pulse width modulation (PWM) signal to the BCM. The signal has a normal range of 4–96 percent duty cycle. The BCM also monitors the current polarity, to detect if the sensor is installed backwards or on the wrong cable. The current should be negative when the engine is OFF, if the sensor is installed correctly.

Conditions for Running the DTC

B1516 08

The BCM is awake.

B1516 66

- a) The BCM is awake.
- b) The engine is OFF.

Conditions for Setting the DTC

B1516 08

The battery current signal is less than 4 percent or greater than 96 percent duty cycle for 2 minutes.

B1516 66

The battery current polarity is positive for 2 minutes.

Action Taken When the DTC Sets

The regulated voltage control (RVC) is disabled.

Conditions for Clearing the DTC

The DTC passes when the battery current returns to the normal range for 15 seconds.

Diagnostic Aids

The power windows may need to be relearned if the BCM 1 fuse and BCM 3 fuse are removed.

Circuit/System Verification

Ignition ON, headlamps, HVAC, and all accessories OFF, observe the scan tool Battery Current parameter. The reading should be between -3 amps and -25 amps, and change with the amount of current draw on the battery.

Circuit/System Testing

B1516 08

- 1) Ignition OFF, disconnect the harness connector at the battery current sensor.
- 2) Ignition OFF, remove the BCM 1 fuse and BCM 3 fuse, and wait 45 seconds. Test for less than 5Ω between the low reference circuit terminal Band ground.

If greater than the specified range, test the lowreference circuit for an open/high resistance.

- 3) Install the BCM 1 fuse and BCM 3 fuse.
- 4) Ignition ON, test for $4.8-5.2$ V between the 5 V reference circuit terminal A

and ground.

If less than the specified range, test the 5 V reference circuit terminal A for a short to ground or an open/high resistance. If the circuit tests normal, then replace the BCM.

If greater than the specified range, test the 5 V reference circuit for a short to voltage. If the circuit tests normal, then replace the BCM. 5. Verify the scan tool Battery Current parameter is greater than 55 amps.

If less than the specified range, test the signal circuit terminal C for a short to ground. If the circuit tests normal, replace the BCM.

5) Install a 3 A fused jumper wire between the signal circuit terminal C and the low reference circuit terminal B. Verify the scan tool Battery Current parameter is less than -55 amps.

If greater than the specified range, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the BCM.

If all circuits test normal, replace the batterycurrent sensor.

B1516 66

- 1) Verify that the battery current sensor is installed securely around the positive battery cable, with the tape tab pointing toward the positive terminal on the battery.
- 2) If the battery current sensor is not installed correctly, remove and reinstall the sensor.
- 3) If all circuits test normal, replace the battery current sensor.