

DIAGNOSIS AND TESTING > CHARGING SYSTEM - 3.7L DURATEC (227KW 301PS) > PINPOINT TESTS (3.7L) > PINPOINT TEST I : BATTERY CURRENT SENSOR FAULTS

Refer to Charging System for schematic and connector information.

Normal Operation and Fault Conditions

For information on the battery current sensor, REFER to: Charging System - System Operation and Component Description .

Diagnostic Trouble Code (DTC) Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
B130C:12	Load Shed Control Circuit Short To Battery	This DTC sets in the BCM when the BCM senses a short in the battery current sensor control circuit.
B130C:14	Load Shed Control Circuit Short To Ground or Open	This DTC sets in the BCM when the BCM senses an open or ground in the battery current sensor control circuit.
B1438:03	Battery Current Sensor, FM (Frequency Modulated) / PWM (Pulse Width Modulated) Failure	This DTC sets in the BCM when the BCM does not indicate current from the battery current sensor.

Possible Sources

- Battery current sensor
- Wiring, terminals or connectors

Visual Inspection and Diagnostic Pre-checks

- Inspect the battery current sensor
- Generator clutch (if equipped)
- Inspect the battery current sensor connector

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NOTE: Make sure battery voltage is greater than 12.2 volts prior to and during this pinpoint test.



NOTE: Do not have a battery charger attached during vehicle testing.

I1 RETRIEVE DIAGNOSTIC TROUBLE CODES (DTCS)

Ignition ON.

Using a diagnostic scan tool, perform the PCM self-test

Is DTC P0562 present?

Yes	GO to Pinpoint Test B
No	For DTC P0A5A, GO to I2 For DTC P0A5B, GO to I6 For DTC P0A5C, GO to I10

I2 CHECK THE BATTERY CURRENT SENSOR

Inspect the battery current sensor for the following:

physical damage

corrosion

disconnected electrical connector

battery ground cable routed through the battery current sensor

debris between the battery current sensor and the battery ground cable

Are any of these conditions found during inspection?

Yes	REPAIR as necessary. GO to I14
No	GO to I3

I3 CHECK THE BATTERY CURRENT SENSOR REFERENCE VOLTAGE CIRCUIT

Ignition OFF.

Disconnect Battery current sensor C1646 .

Ignition ON.

Measure:

Positive Lead	Measurement / Action	Negative Lead
C1646-1		Ground

Is the voltage between 4.8 and 5.2 volts?

Yes	GO to I7
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No	If the voltage is less than 4.8 volts, GO to I5 If the voltage is greater than 5.2 volts, GO to I4
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I4 CHECK THE BATTERY CURRENT SENSOR REFERENCE VOLTAGE CIRCUIT FOR A SHORT TO VOLTAGE

Ignition OFF.

Disconnect BCM C2280F .

Using the Terminal Release Kit, release and temporarily remove BCM C2280F-3 .

Connect BCM C2280F .

Ignition ON.

Measure:

Positive Lead	Measurement / Action	Negative Lead
C1646-1		Ground

Is any voltage present?

Yes	REPAIR the circuit.
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No	INSTALL C2280F-3 and GO to I15
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I5 CHECK THE BATTERY CURRENT SENSOR REFERENCE VOLTAGE CIRCUIT FOR A SHORT TO GROUND

Ignition OFF.

Disconnect BCM C2280F .

Measure:

Positive Lead	Measurement / Action	Negative Lead
C1646-1	Ω	Ground

Is the resistance greater than 10, 000 ohms?

Yes	GO to I6
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No	REPAIR the circuit.
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I6 CHECK THE BATTERY CURRENT SENSOR REFERENCE VOLTAGE CIRCUIT FOR AN OPEN

Measure:

Positive Lead	Measurement / Action	Negative Lead
C1646-1	Ω	C2280F-3

Is the resistance less than 3 ohms?

Yes	GO to I14
No	REPAIR the circuit.

I7 CHECK THE BATTERY CURRENT SENSOR SIGNAL RETURN CIRCUIT

Measure:

Positive Lead	Measurement / Action	Negative Lead
C1646-1		C1646-2

Is the voltage between 4.8 and 5.2 volts?

Yes	GO to I10
No	GO to I8

I8 CHECK THE BATTERY CURRENT SENSOR SIGNAL RETURN CIRCUIT FOR VOLTAGE

Measure:

Positive Lead	Measurement / Action	Negative Lead
C1646-2		Ground

Is any voltage present?

Yes	REPAIR the circuit.
No	GO to I9

I9 CHECK THE BATTERY CURRENT SENSOR SIGNAL RETURN CIRCUIT FOR AN OPEN

Ignition OFF.

Disconnect BCM C2280C .

Measure:

Positive Lead	Measurement / Action	Negative Lead
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C1646-2	Ω	C2280F-19
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Is the resistance less than 3 ohms?

Yes	GO to I14
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No	REPAIR the circuit.
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I10 CHECK THE BATTERY CURRENT SENSOR FEEDBACK CIRCUIT FOR A SHORT TO VOLTAGE

Ignition ON.

Measure:

Positive Lead	Measurement / Action	Negative Lead
C1646-3		Ground

Is any voltage present?

Yes	REPAIR the circuit.
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No	GO to I11
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I11 CHECK THE BATTERY CURRENT SENSOR FEEDBACK CIRCUIT FOR A SHORT TO GROUND

Ignition OFF.

Disconnect BCM C2280F .

Measure:

Positive Lead	Measurement / Action	Negative Lead
C1646-3	Ω	Ground

Is the resistance greater than 10, 000 ohms?

Yes	GO to I12
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No	REPAIR the circuit.
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I12 CHECK THE BATTERY CURRENT SENSOR FEEDBACK CIRCUIT FOR AN OPEN

Measure:

Positive Lead	Measurement / Action	Negative Lead
C1646-3	Ω	C2280F-8

Is the resistance less than 3 ohms?

Yes	GO to I13
No	REPAIR the circuit.

I13 CHECK THE BATTERY CURRENT SENSOR FEEDBACK CIRCUIT FOR A SHORT TO THE SIGNAL RETURN OR REFERENCE CIRCUIT

Measure:

Positive Lead	Measurement / Action	Negative Lead
C1646-3	Ω	C1646-1
C1646-3	Ω	C1646-2

Are the resistances greater than 10, 000 ohms?

Yes	GO to I14
No	REPAIR the affected circuit.

I14 CHECK THE BATTERY CURRENT SENSOR CONNECTION

Ignition OFF.

Disconnect Battery Current Sensor C1646 , if necessary.

Inspect the battery current sensor connector for:

corrosion (install new connector or terminals - clean module pins)

damaged or bent pins - install new terminals/pins

pushed-out pins - install new pins as necessary

Connect Battery Current Sensor C1646 .

Connect BCM C2280F .

Ignition ON.

Using a diagnostic scan tool, clear all Diagnostic Trouble Codes (DTCs) in all modules.

Using a diagnostic scan tool, perform the BCM self-test.

Did the DTC return?

Yes	REPAIR as necessary or INSTALL a new battery current sensor. REFER to: Battery Current Sensor . CLEAR the Diagnostic Trouble Codes (DTCs). REPEAT the self-test. If the DTC returns, GO to I15
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