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2013 FORD Mustang Shelby GT500 Convertible OEM Service and Repair Workshop Manual

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BCM (body control module) B1513:09	Vehicle Battery 'B': Component Failures	A continuous and on-demand DTC (diagnostic trouble code) that sets in the BCM (body control module) if the BCM (body control module) detects higher or Lower than expected battery voltage on the voltage supply input circuit.

Possible Sources

- FEAD (front end accessory drive) belt
- Loose bolts/brackets
- Generator/pulleys

Visual Inspection and Pre-checks

- Inspect the FEAD (front end accessory drive) belt.
- Inspect for loose bolts/brackets.
- Inspect the generator/pulley.

I1 INSPECT THE GENERATOR CLUTCH

- Remove the generator.
  REFER to: Generator - 2.7L EcoBoost (238kW/324PS)(414-02 Generator and Regulator, Removal and Installation).
  REFER to: Generator - 3.5L EcoBoost (BM)(414-02 Generator and Regulator, Removal and Installation).
- Inspect the generator clutch for heat damage.

Is there evidence of heat damage?

Yes	INSTALL a new generator clutch. REFER to: Generator Pulley (414-02 Generator and Regulator, Removal and Installation). INSPECT the FEAD (front end accessory drive) system. REFER to: Accessory Drive Belt - Vehicles With: Dual Generators (303-05A Accessory Drive - 2.7L EcoBoost (238kW/324PS), Removal and Installation). REFER to: Accessory Drive Belt (303-05C Accessory Drive - 3.5L EcoBoost (BM), Removal and Installation).

No	GO to I2

I2 CHECK THE GENERATOR CLUTCH FOR SMOOTH ROTATION

No	GO to I3

I3 CHECK FOR REVERSE ROTATION RESISTANCE

- While holding the clutch pulley firmly by hand, turn the clutch shaft counterclockwise.

Is there some resistance (a spring feel)?

Yes	GO to I4

No	INSTALL a new generator clutch (If equipped). REFER to: Generator Pulley (414-02 Generator and Regulator, Removal and Installation).

I4 CHECK FOR REVERSE ROTATION

- While holding the clutch pulley firmly by hand, turn the clutch shaft counterclockwise.

Does the clutch shaft rotate freely?

Yes	INSTALL a new generator clutch (If equipped). REFER to: Generator Pulley (414-02 Generator and Regulator, Removal and Installation).

No	INSTALL a new generator. REFER to: Generator - 2.7L EcoBoost (238kW/324PS) (414-02 Generator and Regulator, Removal and Installation). REFER to: Generator - 3.5L EcoBoost (BM) (414-02 Generator and Regulator, Removal and Installation).

PINPOINT TEST J : RADIO INTERFERENCE

NOTE

No	INSTALL a new generator. REFER to: Generator - 2.7L EcoBoost (238kW/324PS) (414-02 Generator and Regulator, Removal and Installation). REFER to: Generator - 3.5L EcoBoost (BM) (414-02 Generator and Regulator, Removal and Installation).

PINPOINT TEST K : BATTERY MONITORING SENSOR FAULTS

Refer to Wiring Diagrams Cell 12for schematic and connector information.

Normal Operation and Fault Conditions The BCM (body control module) monitors the battery state of charge using the battery monitoring sensor attached to the negative battery cable. Battery voltage is hardwired to the battery monitoring sensor and data is transferred from the battery monitoring sensor to the BCM (body control module) via a LIN (local interconnect network) circuit. **DTC Fault Trigger Conditions**

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
BCM (body control module) B11DB:02	Battery Monitoring Module 'A': General Signal Failure	This DTC (diagnostic trouble code) sets if the BCM (body control module) receives corrupted data from the battery monitoring sensor over the LIN (local interconnect network) .
BCM (body control module) B11DB:08	Battery Monitoring Module 'A': Bus Signal/Message Failures	This DTC (diagnostic trouble code) sets if the BCM (body control module) receives corrupted data from the battery monitoring sensor over the LIN (local interconnect network) .
BCM (body control module) B11DB:09	Battery Monitoring Module 'A': Component Failures	This DTC (diagnostic trouble code) sets if the BCM (body control module) detects a fault on the battery monitoring sensor LIN (local interconnect network) .
BCM (body control module) B11DB:11	Battery Monitoring Module 'A': Circuit Short To Ground	This DTC (diagnostic trouble code) sets if the BCM (body control module) detects low voltage on the battery monitoring sensor LIN (local interconnect network) .

No	REPAIR any corrosion in the battery cable connections. REPAIR any damaged, bent or pushed-out pins.

K2 RETRIEVE BCM (BODY CONTROL MODULE) DIAGNOSTIC TROUBLE CODES (DTCS)

- Ignition ON.
- Using a diagnostic scan tool, clear all Diagnostic Trouble Codes (DTCs) in all modules.
- Using a diagnostic scan tool, perform the BCM (body control module) self-test.

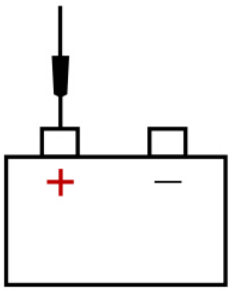
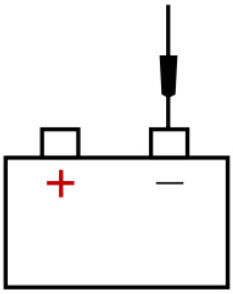
Did the DTC (diagnostic trouble code) return?

Yes	GO to K3

No	For any PCM (powertrain control module) or BCM (body control module) DTC (diagnostic trouble code) refer to DTC (diagnostic trouble code) charts in this section. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

K3 CHECK THE BATTERY MONITORING SENSOR SUPPLY VOLTAGE

- Ignition OFF.
- Disconnect battery monitoring sensor C1689 .
- Measure and record:

Positive Lead	Measurement / Action	Negative Lead
	V	

K5 CHECK THE BATTERY MONITORING SENSOR LIN (LOCAL INTERCONNECT NETWORK) CIRCUIT FOR A SHORT TO GROUND

- Ignition OFF.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C1689-1	Ω	Ground

Is the resistance greater than 10,000 ohms?

Yes	GO to K6

No	REPAIR the circuit.

K6 CHECK THE BATTERY MONITORING SENSOR LIN (LOCAL INTERCONNECT NETWORK) CIRCUIT FOR AN OPEN

- Measure:

Positive Lead	Measurement / Action	Negative Lead
C1689-1	Ω	C2280F-4

Is the resistance less than 3 ohms?

Yes	INSTALL a new battery monitoring sensor. REFER to: Battery Monitoring Sensor (414-01 Battery, Mounting and Cables, Removal and Installation). CLEAR all Diagnostic Trouble Codes and PERFORM self-test again. If BCM (body control module) DTC (diagnostic trouble code) U1007:00 returns, GO to K7

Possible Sources

- BCM (body control module)

L1 PERFORM INSPECTION AND VERIFICATION

- Ignition ON.
- Using a diagnostic scan tool, clear the Diagnostic Trouble Codes (DTCs).
- Wait 10 seconds.
- Using a diagnostic scan tool, perform the BCM (body control module) self-test.

Is DTC (diagnostic trouble code) B11DB:49 recorded?

Yes	CLEAR the DTC (diagnostic trouble code) . REPEAT the BCM (body control module) self-test. If DTC (diagnostic trouble code) B11DB:49 is retrieved, INSTALL new battery monitoring sensor. REFER to: Battery Monitoring Sensor (414-01 Battery, Mounting and Cables, Removal and Installation).
No	The system is operating correctly at this time.

PINPOINT TEST M : B11DB:55

Normal Operation and Fault Conditions

CHECK the vehicle service history for recent service actions related to this module.

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
BCM (body control module) B11DB:55	Battery Monitoring Module 'A': Not Configured	Sets due to incomplete or incorrect PMI (programmable module installation) procedures.

Possible Sources

- Incomplete or incorrect PMI (programmable module installation) procedures.

M1 RETRIEVE BCM (BODY CONTROL MODULE) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, perform the BCM (body control module) self-test.

Is DTC (diagnostic trouble code) B11DB:55 recorded?

BCM (body control module) B130C:14	Load Shed Control: Circuit Short To Ground Or Open	This DTC (diagnostic trouble code) sets in the BCM (body control module) when the BCM (body control module) senses an open or ground in the battery current sensor control circuit.
BCM (body control module) B1438:03	Battery Current Sensor: Frequency Modulated / Pulse Width Modulated Failures	This DTC (diagnostic trouble code) sets in the BCM (body control module) when the BCM (body control module) does not indicate current from the battery current sensor.

Possible Sources

- Battery current sensor
- Wiring, terminals or connectors

Visual Inspection and Pre-checks

- Inspect the battery current sensor
- Inspect the battery current sensor connector

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.

N1 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 or INSTALL a new battery current sensor. REFER to: Battery Current Sensor

C3888-1	V	Ground

Is any voltage present?

Yes	REPAIR the circuit.

No	INSTALL C2280F-3 and GO to N14

N4 CHECK THE BATTERY CURRENT SENSOR REFERENCE VOLTAGE CIRCUIT FOR A SHORT TO GROUND

- Ignition OFF.
- Disconnect BCM (body control module) C2280F .
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C3888-1	Ω	Ground

Is the resistance greater than 10,000 ohms?

Yes	GO to N5

No	REPAIR the circuit.

N5 CHECK THE BATTERY CURRENT SENSOR REFERENCE VOLTAGE CIRCUIT FOR AN OPEN

- Measure:

Positive Lead	Measurement / Action	Negative Lead

Is any voltage present?

Yes	REPAIR the circuit.

No	GO to N8

N8 CHECK THE BATTERY CURRENT SENSOR SIGNAL RETURN CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect BCM (body control module) C2280F .
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C3888-2	Ω	C2280F-19

Is the resistance less than 3 ohms?

Yes	GO to N13

No	REPAIR the circuit.

N9 CHECK THE BATTERY CURRENT SENSOR FEEDBACK CIRCUIT FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect BCM (body control module) C2280F .
- Ignition ON.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C3888-3	V⎓	Ground