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2014 FORD Mustang Shelby GT500 Convertible OEM Service and Repair Workshop Manual

Go to manual page

Sample

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- Ignition OFF.
- Check the FEAD (front end accessory drive) belt and tensioner for damage and correct installation. REFER to: Accessory Drive(303-05A Accessory Drive - 2.7L EcoBoost (238kW/324PS), Diagnosis and Testing).

Is the accessory drive OK?

Yes	GO to F2

No	REPAIR as necessary.

F2 CHECK THE GENERATOR MOUNTING

- Check the generator mounting for loose bolts or misalignment.

Is the generator mounted correctly?

Yes	GO to F3

No	REPAIR as necessary.

F3 CHECK THE GENERATOR FOR NOISE

- Start the engine.
- With the engine running, use a stethoscope or equivalent listening device to probe the generator and the accessory drive area for unusual mechanical noise.

Is the generator the noise source?

Yes	GO to F4

No	Diagnose the source of the engine noise. REFER to: Engine - Flex Fuel – Ethanol/Full Hybrid Electric Vehicle (FHEV)/Gasoline (303-00 Engine System - General Information, Diagnosis and Testing).

Sample

PCM (powertrain control module) U042E:00	Invalid Data Received From Generator 'A' Control Module: No Sub Type Information	Sets when the PCM (powertrain control module) receives invalid data from the generator.

Possible Sources

- Battery monitoring sensor
- Generator
- PCM (powertrain control module)
- Active Grille Shutter (Upper Grille Shutter Actuator or Lower Grille Shutter Actuator)
- Front Active Air Dam (AAD) Actuator
- Wiring, terminals or connectors

Visual Inspection and Pre-checks

- Water intrusion for LIN (local interconnect network) circuit connectors.
- Inspect high current BJB (battery junction box) for loose, damaged or corroded connections.
- Inspect the BJB (battery junction box) fuse 201 (300A).
- Inspect the FEAD (front end accessory drive) belt.
- Inspect the battery monitoring sensor.

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.

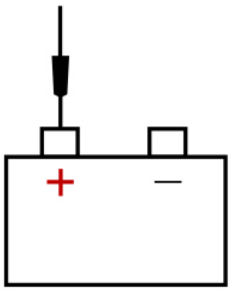
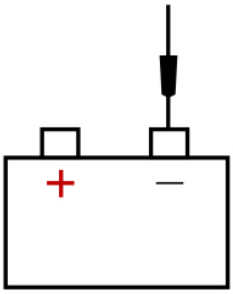
G1 CHECK VEHICLE FOR PRESENCE OF GRILLE SHUTTERS

- U012D:00 and U042E:00 are usually caused by wiring or water intrusion in inline connectors.
- Clear DTC (diagnostic trouble code) 's.
- Start engine.
- Run for 2 minutes.
- check for DTC (diagnostic trouble code) 's.

Did DTC (diagnostic trouble code) 's return?

Yes	GO to G2

Sample

- Measure: for (2.7L and 3.5L engines)

Positive Lead	Measurement / Action	Negative Lead
C102B-1		Ground

Is the voltage within 0.5 volt of the recorded battery voltage?

Yes	GO to G4

No	TIGHTEN or INSTALL a new generator B+ nut as needed. 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). VERIFY high current BJB (battery junction box) BCMC fuse F201 (300A) is OK. If OK, REPAIR the circuit. If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short.

G4 CHECK THE GENERATOR LIN (LOCAL INTERCONNECT NETWORK) CIRCUIT FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect Generator (2.7L and 3.5L engines) C102A .
- Disconnect PCM (powertrain control module) (2.7L engine) C1232B .
- Disconnect PCM (powertrain control module) (3.5L engine) C175B .
- Ignition ON.

Sample

Positive Lead	Measurement / Action	Negative Lead
C102A-1	Ω	PCM (powertrain control module) C1232B-49
C102A-1	Ω	Upper Active Grille shutter Actuator C1766-2
C102A-1	Ω	Lower Active Grille shutter Actuator C1767-2
C102A-1	Ω	Front Active Air Dam (AAD) Actuator RH (right-hand) C1968-2

- For 3.5L engine, Measure:

Positive Lead	Measurement / Action	Negative Lead
C102A-1	Ω	PCM (powertrain control module) C175B-49
C102A-1	Ω	Upper Active Grille shutter Actuator C1766-2
C102A-1	Ω	Lower Active Grille shutter Actuator C1767-2
C102A-1	Ω	Front Active Air Dam (AAD) Actuator RH (right-hand) C1968-2

Is the resistance less than 3 ohms?

Yes	INSTALL a new generator.

Sample

PINPOINT TEST H : LIN (LOCAL INTERCONNECT NETWORK) COMMUNICATION FAULT U012F AND U044D

Refer to Wiring Diagrams Cell 12-4for schematic and connector information.
Refer to Wiring Diagrams Cell 13-70for schematic and connector information.
Refer to Wiring Diagrams Cell 44-13for schematic and connector information.

Normal Operation and Fault Conditions The secondary alternator is a 24V alternator which provides current to the DC (direct current) / AC (alternating current) for the "power to the box" feature. The regulator receives 12V power from fuse F25. The PCM (powertrain control module) communicates via LIN (local interconnect network) to the DC (direct current) / AC (alternating current) . The DC (direct current) / AC (alternating current) uplifts the LIN (local interconnect network) voltage to 24V and relays the signal to the 24V alternator. **DTC Fault Trigger Conditions**

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
PCM (powertrain control module) U012F:00	Lost Communication With Generator 'B' Control Module: No Sub Type Information	Sets if the PCM (powertrain control module) does not detect communication through the LIN (local interconnect network) circuit. This can be a result of an open or short in the LIN (local interconnect network) circuit. This DTC (diagnostic trouble code) also sets if the generator B+ circuit is open or DC (direct current) / AC (alternating current) missing 12V power.
PCM (powertrain control module) U044D:00	Invalid Data Received From Generator 'B' Control Module: No Sub Type Information	Sets when the PCM (powertrain control module) receives invalid data from the generator.

Possible Sources

- Generator
- Wiring shorted to ground or voltage
- Alternator B+ wiring open
- Alternator regulator 12V line open
- DC (direct current) / AC (alternating current) inverter
- Wiring, terminals or connectors

Visual Inspection and Pre-checks

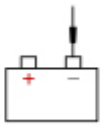
- Inspect the high current fuse F1 (125A) for loose or corroded connections
- Inspect the BJB (battery junction box) BCMC (body control module C) fuse F25 (10A) for loose or corroded connections

Sample

	(414-01 Battery, Mounting and Cables, Diagnosis and Testing).

H2 CHECK IGNITION LINE ON REGULATOR CONNECTOR

- Ignition ON.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C1251A-1	V	Battery Negative (-) post 

Is voltage equal to 12V battery?

Yes	GO to H3

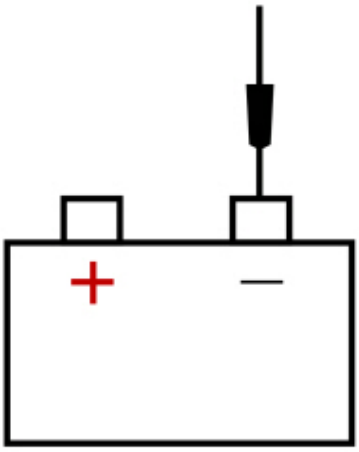
No	Check and replace the BJB (battery junction box) BCMC (body control module C) fuse F25 (10A) or REPAIR the wiring circuit.

H3 CHECK THE ALTERNATOR LIN CIRCUIT FOR A SHORT TO GROUND

- Ignition OFF.
- Measure and record:

Positive Lead	Measurement / Action	Negative Lead
C1251A-2	Ω	Battery Negative (-) post

Sample

Does voltage measured equal voltage from H1 times .77 +/-1V?

Yes	REPLACE the secondary generator (24V). 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).

No	GO to H5

H5 CHECK LIN (LOCAL INTERCONNECT NETWORK) CIRCUIT FOR CONTINUITY

- Ignition OFF.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C1251A-2	Ω	C3501C-6

Is resistance less than 3 ohms?

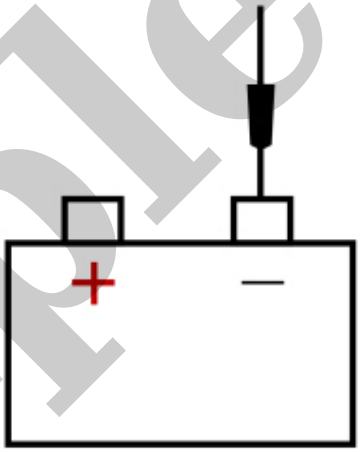
Yes	GO to H6

Sample

NOTE

The duty cycle on the LIN (local interconnect network) circuit should be 77%.

- Ignition ON.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C3501C-12	V	Battery Negative (-) post 

Does voltage measured equal voltage from H6 times .77 +/-1V?

Yes	GO to H8

No	Repair the DC (direct current) / AC (alternating current) LIN (local interconnect network) circuit.

H8 CHECK THE DC (DIRECT CURRENT) / AC (ALTERNATING CURRENT) LIN (LOCAL INTERCONNECT NETWORK) CIRCUIT FOR CONTINUITY

- For 2.7L EcoBoost engine Measure:

Positive Lead	Measurement / Action	Negative Lead

Sample

No	GO to H10

H10 CHECK FOR THE LIN (LOCAL INTERCONNECT NETWORK) LINE SHORT BETWEEN DC (DIRECT CURRENT) / AC (ALTERNATING CURRENT) INVERTER AND PCM (POWERTRAIN CONTROL MODULE)

- Ignition OFF.
- The LIN (local interconnect network) inline connector C265-32, the pin 32 should be electrically isolated to all other pins in the connector except for pin 32 for both male and female side.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
12A58 male harness connector C265-32 and 14B060 female harness connector C265-32	Ω	12A58 male harness connector C265-32 all other pins except pin 32 and 14B060 female harness connector C265-32 All other pins except pin 32.

Is the resistance less than 10,000 ohms to any other pin?

Yes	Repair connector/wiring harness.

No	If DTC (diagnostic trouble code) U044D is present the issue is most likely an intermittent wiring connection If DTC (diagnostic trouble code) U012F present without U044D. The cause could be defective Alternator, PCM (powertrain control module) or intermittent wiring issue.

H11 CHECK INLINE CONNECTORS LIN (LOCAL INTERCONNECT NETWORK) LINE

- Ignition OFF.
- The LIN (local interconnect network) inline C265-32, the pin 32 should be electrically isolated to all other pins in the connector except for pin 42 for both male and female side.
- Measure:

Positive Lead	Measurement / Action	Negative Lead

Sample