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2016 FORD Mustang Convertible OEM Service and Repair Workshop Manual

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- Reconnect the PCM (powertrain control module) connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

Yes	CHECK OASIS (Online Automotive Service Information System) for any applicable service articles: TSB (Technical Service Bulletin) , GSB (General Service Bulletin) , SSM (special service message) or FSA (Field Service Action) . If a service article exists for this concern, DISCONTINUE this test and FOLLOW the service article instructions. If no service articles address this concern,  Guided Routine available in the on-line Workshop Manual.
No	The system is operating correctly at this time. The concern may have been caused by module connections. ADDRESS the root cause of any connector or pin issues.

PINPOINT TEST B : SYSTEM VOLTAGE LOW OR BATTERY IS DISCHARGED

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

Normal Operation and Fault Conditions With the engine running, the charging system supplies voltage to the battery and the vehicle electrical system through the high current BJB (battery junction box) and battery B+ cable. The PCM (powertrain control module) monitors this B+ voltage through PCM (powertrain control module) VPWR or FPPWR circuits. If the charging system voltage drops 1.5 volts or more below the generator voltage desired (GENVDSD), the DTC (diagnostic trouble code) sets and the charging system MIL illuminates after 30 seconds. **DTC Fault Trigger Conditions**

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
PCM (powertrain control module) P0562:00	System Voltage Low: No Sub Type Information	If voltage drops 1.5 volts or more below the generator voltage desired (calculated by the PCM (powertrain control module)), this DTC (diagnostic trouble code) sets after 30 seconds.
PCM (powertrain control module)	Generator 'A' Control Circuit Range/Performance: No Sub	This DTC (diagnostic trouble code) sets when the generator reports an internal regulator failure.

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.

B1 PERFORM INSPECTION AND VERIFICATION

- Perform Inspection and Verification procedure in this section.

Was an obvious cause for an observed or reported concern found?

Yes	CORRECT the cause as necessary.
No	GO to B2

B2 RETRIEVE DIAGNOSTIC TROUBLE CODES (DTCS)

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

Is DTC (diagnostic trouble code) P065B, P065C, U012D or U042E present?

Yes	P065B and P065C are present, GO to Pinpoint Test F If P065B is present without P065C, INSTALL a new generator. REFER to: Generator - 3.3L Duratec-V6 (414-02 Generator and Regulator, Removal and Installation). REFER to: Generator - 5.0L 32V Ti-VCT (414-02 Generator and Regulator, Removal and Installation). If P065C is present without P065B, GO to Pinpoint Test F If U012D or U042E is present, GO to Pinpoint Test H
No	GO to B3

B3 CHECK THE GENERATOR CONNECTIONS

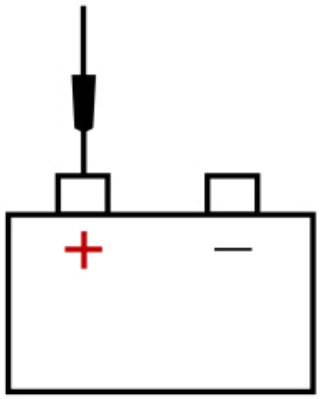
- Ignition OFF.

Yes	GO to B4

No	TIGHTEN or INSTALL a new generator B+ nut as needed. REFER to: Generator - 3.3L Duratec-V6 (414-02 Generator and Regulator, Removal and Installation). REFER to: Generator - 5.0L 32V Ti-VCT (414-02 Generator and Regulator, Removal and Installation). VERIFY high current BJB (battery junction box) fuse 201 (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.

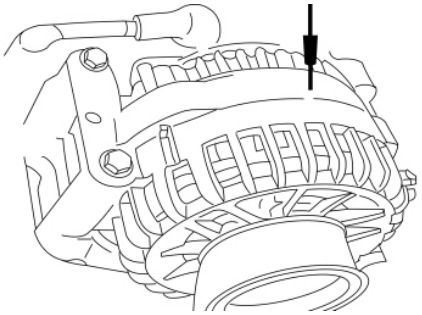
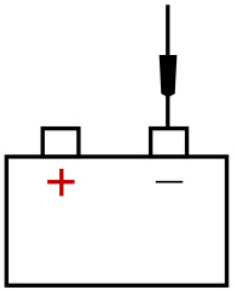
B4 CHECK THE VOLTAGE DROP IN THE GENERATOR B+ CIRCUIT

- Start the engine.
- For engine (3.3L) with the engine running at idle, headlamps on and blower on high, measure:

Positive Lead	Measurement / Action	Negative Lead
C102B-1 Generator (B+)	V	Battery positive (+) post 

- For engine (5.0L) With the engine running at idle, headlamps on and blower on high, measure:

Positive Lead	Measurement / Action	Negative Lead

 Generator case	V	Battery Negative (-) post side 

Is the voltage drop less than 0.5 volt?

Yes	GO to B6

No	INSPECT and REPAIR the engine ground, generator ground or the battery ground for corrosion.

B6 MONITOR THE GENERATOR VOLTAGE DESIRED (GENVDSD) PID (PARAMETER IDENTIFICATION) WHILE COMMANDED

- Using a diagnostic scan tool, view the PCM (powertrain control module) GENVDSD PID (parameter identification) .
- Using a diagnostic scan tool active command, set
  Access the PCM (powertrain control module) and monitor the GENVDSD (Generator Voltage Desired) (V) PID (parameter identification)
  to 14 volts.
- With the engine still running at idle, measure battery and record:

Positive Lead	Measurement / Action	Negative Lead

Yes	GO to B8

No	REPAIR high resistance or loose connections in the affected PCM (powertrain control module) power circuit(s).

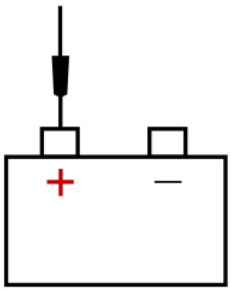
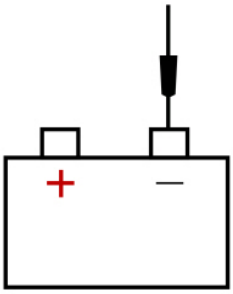
B8 CHECK PCM (POWERTRAIN CONTROL MODULE) VOLTAGE SUPPLY CIRCUITS

- Ignition OFF.
- Disconnect for 3.3L PCM (powertrain control module) C1551B .
- Disconnect for 5.0L PCM (powertrain control module) C1381B .
- Connect a fused jumper wire:

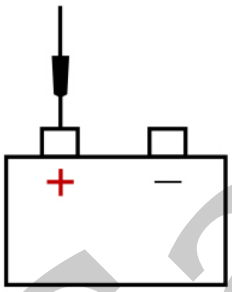
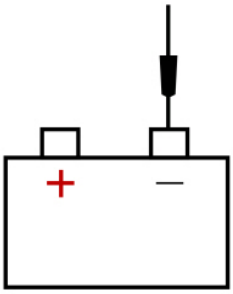
Positive Lead	Measurement / Action	Negative Lead
3.3L engine C1551B-74 PCMPR		Ground
5.0L engine C1381B-74 PCMPR		Ground

- Ignition ON, engine OFF.
- Measure and record: for 5.0L Engine

Positive Lead	Measurement / Action	Negative Lead
C1381B-17	V	Ground
C1381B-2	V	Ground
C1381B-16	V	Ground

- Access the PCM (powertrain control module) and monitor the VPWR (Module Supply Voltage) (V) PID (parameter identification)
  and record.
- With the engine still running at idle, turn headlamps ON and blower on HIGH.
- Measure and record:

Positive Lead	Measurement / Action	Negative Lead
		

- Using a diagnostic scan tool, view
  Access the PCM (powertrain control module) and monitor the VPWR (Module Supply Voltage) (V) PID (parameter identification)
  and record.

Does the PID (parameter identification) read within ±0.5 volt of battery voltage with accessory loads on and off?

Yes	GO to B10

No	GO to B12

B11 CHECK GENERATOR CLUTCH OPERATION

- Ignition OFF.
- Perform the generator clutch component test. GO to Pinpoint Test I

Is the generator clutch OK?

Yes	INSTALL a new generator. REFER to: Generator - 3.3L Duratec-V6 (414-02 Generator and Regulator, Removal and Installation). REFER to: Generator - 5.0L 32V Ti-VCT (414-02 Generator and Regulator, Removal and Installation).

No	INSTALL a new generator clutch. REFER to: Generator - 3.3L Duratec-V6 (414-02 Generator and Regulator, Removal and Installation). REFER to: Generator - 5.0L 32V Ti-VCT (414-02 Generator and Regulator, Removal and Installation).

B12 CHECK FOR CORRECT PCM (POWERTRAIN CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect all PCM (powertrain control module) connectors.
- Repair:
  - 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
- Reconnect the PCM (powertrain control module) connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

Yes	CHECK OASIS (Online Automotive Service Information System) for any applicable service articles: TSB (Technical Service Bulletin) , GSB (General Service Bulletin) , SSM (special service message) or FSA (Field Service Action) . If a service article exists for this concern, DISCONTINUE this test and FOLLOW the service article instructions. If no service articles address this concern,

	(414-02 Generator and Regulator, Removal and Installation).

No	The system is operating correctly at this time.

PINPOINT TEST D : P2D57

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

Normal Operation and Fault Conditions With the engine running, the charging system supplies voltage to the battery and the vehicle electrical system through the high current BJB (battery junction box) and battery B+ cable. The DC (direct current) / AC (alternating current) inverter module monitors this B+ voltage through PCM (powertrain control module) VPWR or FPPWR circuits. If the charging system voltage drops 1.5 volts or more below the generator voltage desired (GENVDSD), the DTC sets and the charging system MIL illuminates after 30 seconds. **DTC Fault Trigger Conditions**

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
PCM (powertrain control module) P2D57:00	Generator 'B' Control Circuit Range/Performance: No Sub Type Information	This DTC (diagnostic trouble code) sets when the generator reports an internal regulator failure.

Possible Sources

- Battery
- Fuses or fusible links
- Generator
- PCM (powertrain control module)
- Wiring, terminals or connectors

Visual Inspection and Pre-checks

- Inspect the FEAD (front end accessory drive) system. REFER to 303-05.
- Inspect for abnormal ignition-off current drain(s).
- Inspect the battery.
- Inspect the high current BJB (battery junction box) for loose, damaged or corroded connections.
- Verify the BJB (battery junction box) fuse 201 (300A).
- Verify the BJB (battery junction box) F25 (10A)

NOTE

Positive Lead	Measurement / Action	Negative Lead
C1251A-1	V	Ground

Is the "B" sense voltage equal to the recorded battery voltage?

Yes	GO to D3

No	VERIFY the BJB (battery junction box) fuse 25 (10A) 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.

D3 "B" SENSE CIRCUIT LOAD TEST

WARNING

The following step uses a test light to simulate normal circuit loads. Use only the test light recommended in the Special Tools table at the beginning of this section. To avoid connector terminal damage, use the Flex Probe Kit for the test light probe connection to the vehicle. Do not use the test light probe directly on any connector.

- Ignition ON.
- Measure:

Positive Lead	Measurement / Action	Negative Lead