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Service Information Bulletin

SUBJECT	DATE
SPN 970/FMI 3, 4 (CPC) (GHG14)	August 2014

Additions, Revisions, or Updates

Publication Number / Title	Platform	Section Title	Change
DDC-SVC-MAN-0084	DD Platform	SPN 970/FMI 3, 4 -GHG14	These are new sections.



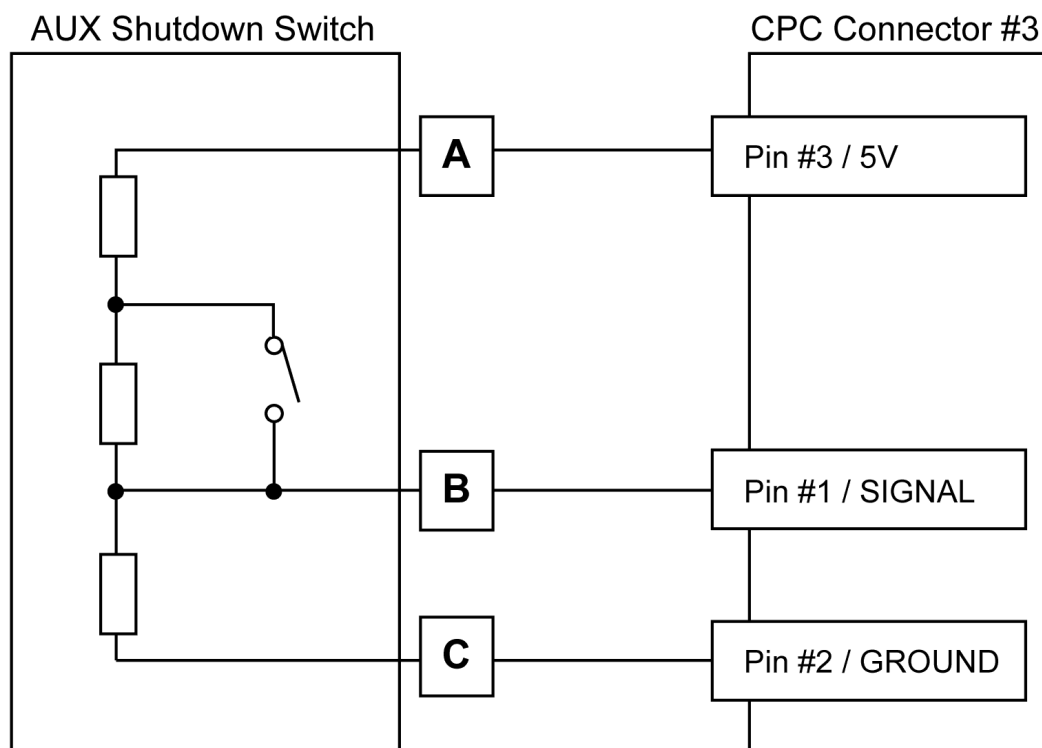
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2 SPN 970/FMI 3 - GHG14

Engine Aux. Shutdown Input Failed High

Table 1.

SPN 970 /FMI 3	
Description	This fault indicates a short to voltage on pin 1 of the Common Powertrain Controller (CPC) #3 connector.
Monitored Parameter	Pin 3/1 Status Bit
Typical Enabling Conditions	Always Enabled
Monitor Sequence	None
Execution Frequency	Continuous when enabling conditions met
Typical Duration	10 Seconds
Dash Lamps	CEL
Engine Reaction	None
Verification	Key Cycle

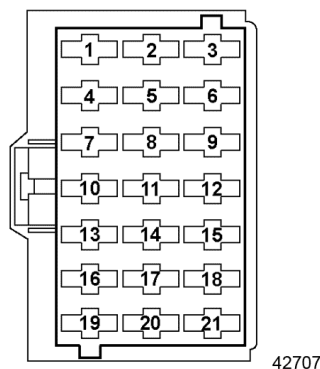


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Check as follows:

1. Turn the ignition OFF.
2. Disconnect the Aux Shutdown switch. For wiring schematic information, refer to Original Equipment Manufacturer (OEM) literature.
3. Inspect the Aux Shutdown switch harness connector for signs of damaged, bent, spread, corroded or unseated (pushed out) pins and signs of moisture in the connector or wire damage near the connector. Are any signs of damage present?
 - a. Yes; repair as necessary. Verify repairs.

- b. No; Go to step 4.



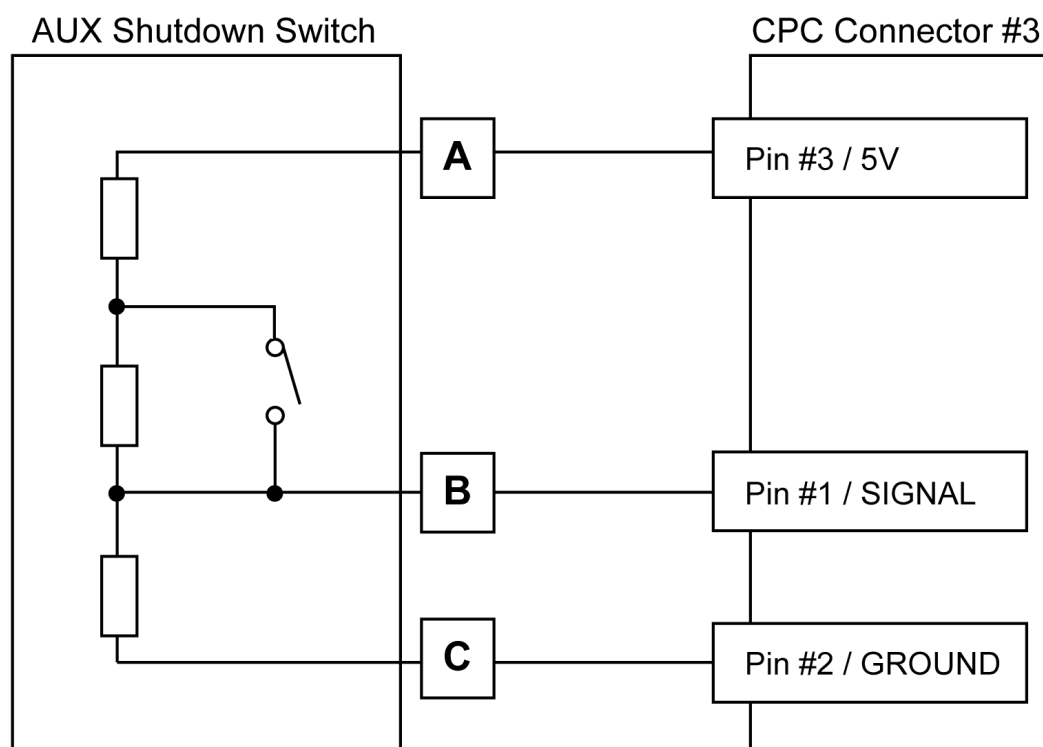
4. Disconnect the 21-pin CPC#3 connector.
5. Inspect the CPC harness connector for signs of damaged, bent, spread, corroded or unseated (pushed out) pins and signs of moisture in the connector or wire damage near the connector. Are any signs of damage present?
 - a. Yes; repair as necessary. Verify repairs.
 - b. No; Go to step 6.
6. Measure the resistance between pin C of the Aux Shutdown switch harness connector and pin 2 of the CPC #3 harness connector. For wiring schematic information, refer to Original Equipment Manufacturer (OEM) literature. Is the resistance less than 5 ohms?
 - a. Yes; Go to step 7.
 - b. No; repair the open in the wiring harness between pin C of the Aux Shutdown switch harness side connector and pin 2 of the CPC #3 connector. Verify repairs.
7. Turn the ignition ON (key ON, engine OFF).
8. Measure the voltage between pin 3 of the CPC #3 connector harness side and ground. For wiring schematic information refer, to Original Equipment Manufacturer (OEM) literature. Is the voltage less than 0.5 volts?
 - a. Yes; Go to step 9.
 - b. No; repair the short to voltage between pin A of the Aux Shutdown switch harness connector and pin 3 of the CPC # 3 connector. Verify repairs.
9. Measure the voltage between pin 1 of the CPC #3 connector harness side and ground. For wiring schematic information refer to Original Equipment Manufacturer (OEM) literature. Is the voltage less than 0.5 volts?
 - a. Yes; Go to step 10.
 - b. No; repair the short to voltage between pin B of the Aux Shutdown switch harness connector and pin 1 of the CPC # 3 connector. Verify repairs.
10. Measure the voltage between pin 1 of the CPC #3 connector component side and ground. Is the voltage between 4.5 and 5 volts?
 - a. Yes; replace the Aux Shutdown switch. Refer to Original Equipment Manufacturer (OEM) literature.
 - b. No; replace the CPC. Refer to Original Equipment Manufacturer (OEM) literature. Verify repairs.

3 SPN 970/FMI 4 - GHG14

Engine Aux. Shutdown Input Failed Low

Table 2.

SPN 970 /FMI 4	
Description	This fault indicates an open circuit or a short to ground on pin 1 of the Common Powertrain Controller (CPC) #3 connector.
Monitored Parameter	Pin 3/1 Status Bit
Typical Enabling Conditions	Always Enabled
Monitor Sequence	None
Execution Frequency	Continuous when enabling conditions met
Typical Duration	10 Seconds
Dash Lamps	CEL
Engine Reaction	None
Verification	Key Cycle

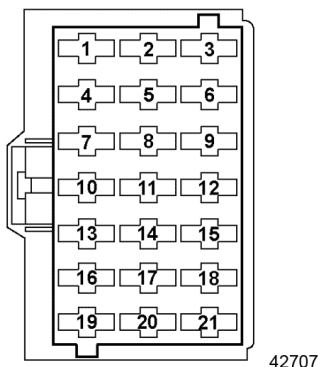


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Check as follows:

1. Connect DiagnosticLink[®].
2. Has the CPC been recently reprogrammed?
 - a. Yes; Check for proper configuration of the CPC against the server information. To verify repair, Go to step 3.
 - b. No; Go to step 4.
3. Clear fault codes. Turn ignition OFF and disconnect DiagnosticLink. Wait five minutes for all modules to power down. Verify repair.

4. Turn the ignition OFF.



5. Disconnect the 21- pin CPC #3 connector.
6. Inspect the CPC harness connector for signs of damaged, bent, spread, corroded or unseated (pushed out) pins and signs of moisture in the connector or wire damage near the connector. Are any signs of damage present?
 - a. Yes; repair as necessary. Verify repairs.
 - b. No; Go to step 7.
7. Disconnect the Aux Shutdown switch. Refer to Original Equipment Manufacturer (OEM) literature for wiring schematic information.
8. Inspect the Aux Shutdown switch harness connector for signs of damaged, bent, spread, corroded or unseated (pushed out) pins and signs of moisture in the connector or wire damage near the connector. Are any signs of damage present?
 - a. Yes; repair as necessary. Verify repairs.
 - b. No; Go to step 9.
9. Measure the resistance between pin B of the Aux Shutdown switch connector harness side and pin 1 of the CPC #3 connector harness side. For wiring schematic information, refer to Original Equipment Manufacturer (OEM) literature. Is the resistance less than 5 ohms?
 - a. Yes; Go to step 10.
 - b. No; repair the open in the wiring harness between pin B of the Aux Shutdown switch connector harness side and pin 1 of the CPC #3 connector harness side. Verify repairs.
10. Measure the resistance between pin 1 of the CPC #3 connector harness side and ground. For wiring schematic information, refer to Original Equipment Manufacturer (OEM) literature. Is the resistance greater than 10K ohms?
 - a. Yes; Go to step 11.
 - b. No; repair the short to ground between pin B of the Aux Shutdown switch connector harness side and pin 1 of the CPC #3 connector harness side. Verify repairs
11. Measure the resistance between pins 1 and 2 of the CPC #3 connector harness side. For wiring schematic information, refer to Original Equipment Manufacturer (OEM) literature. Is the resistance greater than 10K ohms?
 - a. Yes; Go to step 12.
 - b. No; repair the short in the wiring harness between pins 1 and 2 of the CPC #3 connector harness side. Verify repairs.
12. Measure the resistance between pins 2 and 3 of the CPC #3 connector harness side. For wiring schematic information, refer to Original Equipment Manufacturer (OEM) literature. Is the resistance greater than 10K ohms?
 - a. Yes; Go to step 13.
 - b. No; repair the short in the wiring harness between pins 2 and 3 of the CPC #3 connector harness side. Verify repairs.
13. Measure the resistance between pin A of the Aux Shutdown switch connector harness side and pin 3 of the CPC #3 connector harness side. For wiring schematic information, refer to Original Equipment Manufacturer (OEM) literature. Is the resistance less than 5 ohms?
 - a. Yes; Go to step 14.
 - b. No; repair the open in the wiring harness between pin A of the Aux Shutdown switch connector harness side and pin 3 of the CPC #3 connector harness side. Verify repairs.
14. Measure the resistance between pin 3 of the CPC #3 connector harness side and ground. For wiring schematic information, refer to Original Equipment Manufacturer (OEM) literature. Is the resistance greater than 10K ohms?

- a. Yes; Go to step 15.
 - b. No; repair the short in the wiring harness between the CPC #3 connector harness side and ground. Verify repairs.
15. Measure the resistance across the Aux Shutdown switch terminals while activating the switch. Do the switch values match the chart below?
- a. Yes; replace the CPC. Refer to Original Equipment Manufacturer (OEM) literature. Verify repairs.
 - b. No; replace the Aux Shutdown switch. Refer to Original Equipment Manufacturer (OEM) literature.

Table 3.

AUX Shutdown Switch Measurement	Resistance with switch in the ON position	Resistance with switch in the OFF position
Pin A to pin B	400-500 ohms	2500-2800 ohms
Pin B to pin C	1000-1500 ohms	1000-1500 ohms
Pin A to pin C	3700-4000 ohms	3700-4000 ohms