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Service Information Bulletin

SUBJECT	DATE
SPN 84 (MCM & CPC) (GHG17)	May 2016

Additions, Revisions, or Updates

Publication Number / Title	Platform	Section Title	Change
DDC-SVC-MAN-0191	DD Platform	SPN 84/FMI 13 - GHG17	New GHG17 HDEP diagnostic procedures (MCM).
		SPN 84/FMI 13 - GHG17	New GHG17 HDEP diagnostic procedures (CPC).
DDC-SVC-MAN-0193	GHG17 DD Medium Duty	SPN 84/FMI 13 - GHG17	New DD5 and DD8 diagnostic procedures (MCM).
		SPN 84/FMI 19 - GHG17	
		SPN 84/FMI 21 - GHG17	

DiagnosticLink users: Please update the troubleshooting guides in DiagnosticLink with this newest version. To update the tool troubleshooting guide, open DiagnosticLink and from the Help – Troubleshooting Guides menu, select the appropriate troubleshooting manual, then click Update.



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2 SPN 84/FMI 13 - GHG17

Vehicle Speed Over PTCAN SNA

Table 1.

SPN 84/FMI 13	
Description	Vehicle Speed Over PTCAN SNA
Monitored Parameter	Vehicle Speed Sensor
Typical Enabling Conditions	Key ON Engine ON
Monitor Sequence	None
Execution Frequency	Continuous When Enabling Conditions Met
Typical Duration	Three Seconds
Dash Lamps	MIL, CEL
Engine Reaction	None
Verification	rpm Greater Than 600

Check as follows:

1. Connect DiagnosticLink[®] and check for other fault codes. Are fault codes SPN 168/FMI 0 or 18 (battery voltage) fault codes present?
 - a. Yes; troubleshoot these fault codes first.
 - b. No; Go to step 2.
2. Is the Motor Control Module (MCM) SPN 625/FMI 9 present?
 - a. Yes; repair the Controller Area Network (CAN) line faults.
 - b. No; Go to step 3.
3. Has the Common Powertrain Controller (CPC) been recently reprogrammed?
 - a. Yes; check proper configuration of the CPC.
 - b. No; Go to step 4.



WARNING: ENGINE EXHAUST

To avoid injury from inhaling engine exhaust, always operate the engine in a well-ventilated area. Engine exhaust is toxic.

4. Reprogram MCM and verify repairs. Did the code return?
 - a. Yes; Go to step 5.
 - b. No; release the vehicle
5. Replace the MCM. Refer to section "Removal of the Motor Control Module". Verify repairs. Did the code return?
 - a. Yes; Go to step 6.
 - b. No; release the vehicle.
6. Check the other vehicle modules for Communication or VSS related faults. Follow the appropriate module troubleshooting procedures for the fault.

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J1939 Wheel Based Vehicle Speed Signal from Source #1, #2, or #3 is Missing or Not Available

Table 2.

SPN 84/FMI 13	
Description	Vehicle Speed Over PTCAN SNA
Monitored Parameter	Vehicle Speed Sensor (VSS)
Typical Enabling Conditions	Key ON Engine ON
Monitor Sequence	None
Execution Frequency	Continuous When Enabling Conditions Met
Typical Duration	Three Seconds
Dash Lamps	MIL, CEL
Engine Reaction	None
Verification	rpm Greater Than 600

Check as follows:

1. Connect DiagnosticLink[®] and check for other fault codes. Are fault codes SPN 168/FMI 0 or 18 (battery voltage) fault codes present?
 - a. Yes; troubleshoot these fault codes first.
 - b. No; Go to step 2.
2. Is the Motor Control Module (MCM) SPN 625/FMI 9 present?
 - a. Yes; repair the Controller Area Network (CAN) line faults.
 - b. No; Go to step 3.
3. Has the Common Powertrain Controller (CPC) been recently reprogrammed?
 - a. Yes; check proper configuration of the CPC.
 - b. No; Go to step 4.



WARNING: ENGINE EXHAUST

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4. Reprogram MCM and verify repairs. Did the code return?
 - a. Yes; Go to step 5.
 - b. No; release the vehicle.
5. Replace the MCM. Refer to section "Removal of the Motor Control Module". Verify repairs. Did the code return?
 - a. Yes; Go to step 6.
 - b. No; release the vehicle.
6. Check the other vehicle modules for Communication or VSS related faults. Follow the appropriate module troubleshooting procedures for the fault.

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Vehicle Speed Over PTCAN SNA

Table 3.

SPN 84/FMI 13	
Description	Vehicle Speed Signal Not Available
Monitored Parameter	Vehicle Speed Sensor (VSS)
Typical Enabling Conditions	Key ON Engine ON
Monitor Sequence	None
Execution Frequency	Continuous When Enabling Conditions Met
Typical Duration	Three Seconds
Dash Lamps	MIL, CEL
Engine Reaction	None
Verification	rpm Greater Than 600

Check as follows:

1. Connect DiagnosticLink[®] and check for other fault codes. Are fault codes SPN 168/FMI 0 or 18 (battery voltage) fault codes present?
 - a. Yes; troubleshoot these fault codes first.
 - b. No; Go to step 2.
2. Is the Motor Control Module (MCM) SPN 625/FMI 9 present?
 - a. Yes; repair the Controller Area Network (CAN) line faults.
 - b. No; Go to step 3.
3. Is Common Powertrain Controller (CPC) SPN 191 FMI any present?
 - a. Yes; refer to the Application and Installation manual for the correct parameter configuration.
 - b. No; Go to step 4.
4. Has the CPC been recently reprogrammed?
 - a. Yes; check proper configuration of the CPC.
 - b. No; Go to step 5.



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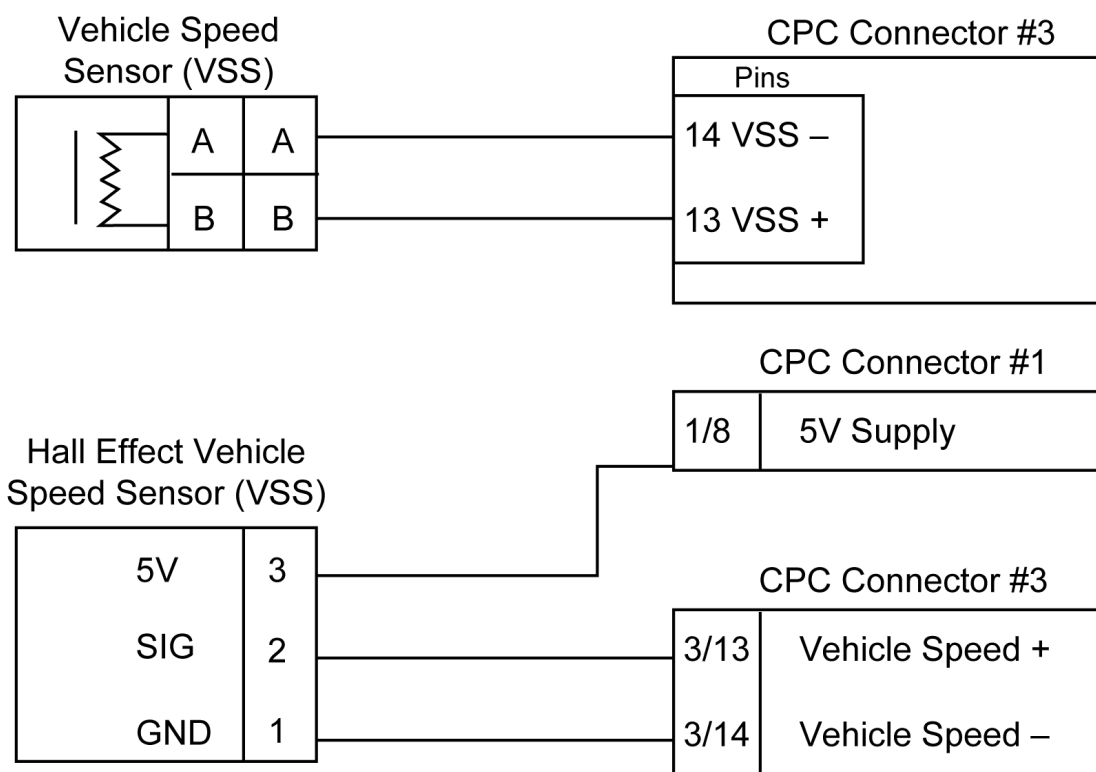
5. Reprogram MCM and verify repairs. Did the code return?
 - a. Yes; Go to step 6.
 - b. No; release the vehicle.
6. Replace the MCM. Refer to section "Removal of the Motor Control Module" .Verify repairs. Did the code return?
 - a. Yes; Go to step 7.
 - b. No; release the vehicle.
7. Check the other vehicle modules for Communication or VSS related faults. Follow the appropriate module troubleshooting procedures for the fault.

5 SPN 84/FMI 19 - GHG17

Vehicle Speed Value Is Outside the Allowable Range

Table 4.

SPN 84/FMI 19	
Description	Wheel-Based Vehicle Speed Signal Error
Monitored Parameter	Vehicle Speed Sensor (VSS)
Typical Enabling Conditions	rpm Greater Than 1500, Torque Demand On
Monitor Sequence	None
Execution Frequency	Continuous When Enabling Conditions Met
Typical Duration	10 Seconds
Dash Lamps	MIL
Engine Reaction	None
Verification	rpm Greater Than 1500, Torque Demand On



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Check as follows:



WARNING: ENGINE EXHAUST

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1. Are there any battery (SPN 168/FMI any) or Controller Area Network (CAN) (SPN 625/FMI any) faults present?

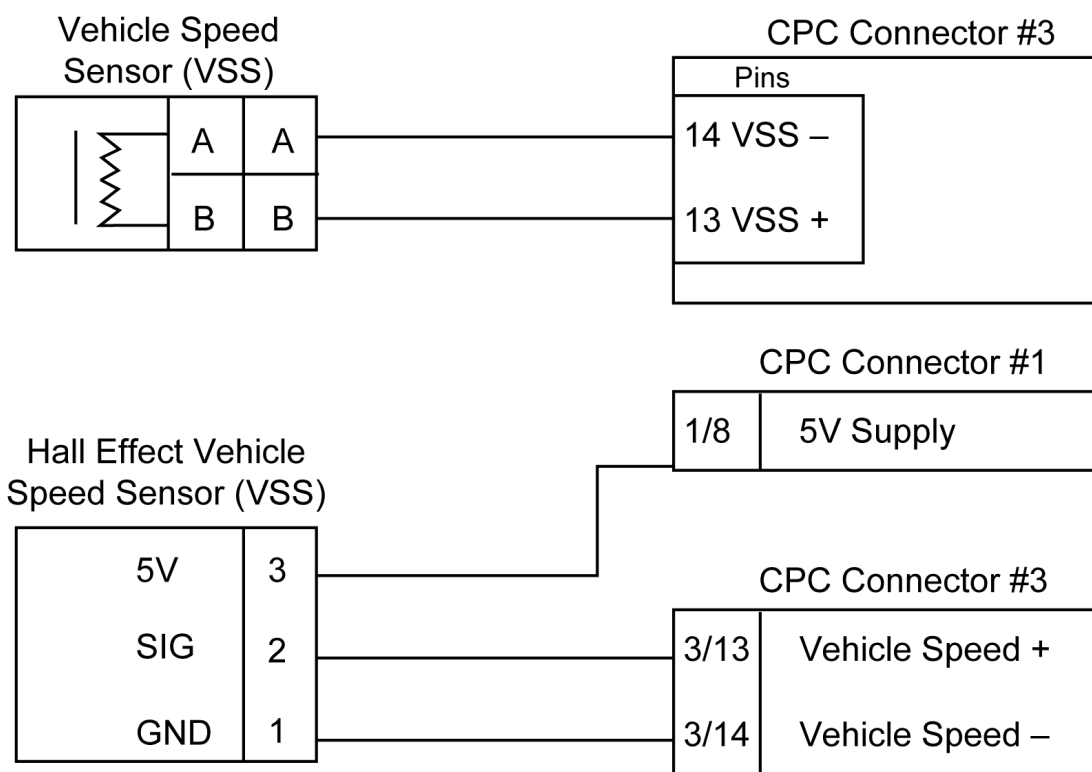
- a. Yes; repair those faults first.
 - b. No; Go to step 2.
2. Is CPC SPN 191/FMI any present?
 - a. Yes; determine which modules are configured for the vehicle and their communication status. Then follow the appropriate module communication troubleshooting procedures for the affected module.
 - b. No; Go to step 3.
3. Has the Common Powertrain Controller (CPC) been recently reprogrammed?
 - a. Yes; insure the VSS parameters are configured correctly for the vehicle application. If OK, Go to step 4.
 - b. No; Go to step 4.
4. Is the VSS hardwired?
 - a. Yes; Go to step 5.
 - b. No; refer to the Application and Installation manual for the correct parameter configuration. If configuration is correct, refer to the Original Equipment Manufacturer (OEM) material for J1939 troubleshooting.
5. Disconnect the VSS harness connector; refer to OEM literature for location.
6. Inspect the VSS harness connector for bent, spread, or corroded pins. Is damage found?
 - a. Yes; repair as necessary.
 - b. No; Go to step 7.
7. Disconnect CPC connector #3.
8. Measure the resistance between pins 13 and 14 of the CPC connector #3. Is resistance greater than 10K ohms?
 - a. Yes; Go to step 9.
 - b. No; repair short between pins 13 and 14 of the CPC #3 harness connector to the VSS harness connector. Verify repairs.
9. Measure the resistance between pin 13 of the CPC #3 harness connector and pin 2 (B) of the VSS harness connector. Is resistance less than five ohms?
 - a. Yes; Go to step 10.
 - b. No; repair wire between pin 13 of the CPC #3 connector and pin 2 (B) of the VSS harness connector. Verify repairs.
10. Measure the resistance between pin 14 of the CPC #3 harness connector and pin 1 (A) of the VSS harness connector. Is resistance less than five ohms?
 - a. Yes; refer to OEM literature for VSS sensor diagnostics.
 - b. No; repair wire between pin 14 of the CPC #3 harness connector and pin 1 (A) of the VSS harness connector. Verify repairs.

6 SPN 84/FMI 21 - GHG17

Vehicle Speed Sensor Erratic

Table 5.

SPN 84/FMI 21	
Description	Vehicle Speed Sensor Out of Range
Monitored Parameter	Vehicle Speed Sensor (VSS)
Typical Enabling Conditions	rpm Greater Than 1500, Torque Demand On
Monitor Sequence	None
Execution Frequency	Continuous When Enabling Conditions Met
Typical Duration	10 Seconds
Dash Lamps	MIL
Engine Reaction	None
Verification	rpm Greater Than 1500, Torque Demand On



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Check as follows:



WARNING: ENGINE EXHAUST

To avoid injury from inhaling engine exhaust, always operate the engine in a well-ventilated area. Engine exhaust is toxic.

1. Are there any battery (SPN 168/FMI any) or Controller Area Network (CAN) (SPN 625/FMI any) faults present?

- a. Yes; repair those faults first.
 - b. No; Go to step 2.
2. Has the Common Powertrain Controller (CPC) been recently reprogrammed?
 - a. Yes; insure the VSS parameters are configured correctly for the vehicle application. If OK, Go to step 3.
 - b. No; Go to step 3.
3. Is the VSS hardwired?
 - a. Yes; Go to step 4.
 - b. No; refer to the Application and Installation manual for the correct parameter configuration. If configuration is correct, refer to the Original Equipment Manufacturer (OEM) material for J1939 troubleshooting.
4. Disconnect the VSS harness connector; refer to OEM literature for location.
5. Inspect the VSS harness connector for bent, spread, or corroded pins. Is damage found?
 - a. Yes; repair as necessary.
 - b. No; Go to step 6.
6. Disconnect CPC connector #3.
7. Measure the resistance between pins 13 and 14 of the CPC connector #3. Is resistance greater than 10K ohms?
 - a. Yes; Go to step 8.
 - b. No; repair short between pins 13 and 14 of the CPC #3 harness connector to the VSS harness connector. Verify repairs.
8. Measure the resistance between pin 13 of the CPC #3 harness connector and pin 2 (B) of the VSS harness connector. Is resistance less than five ohms?
 - a. Yes; Go to step 9.
 - b. No; repair wire between pin 13 of the CPC #3 connector and pin 2 (B) of the VSS harness connector. Verify repairs.
9. Measure the resistance between pin 14 of the CPC #3 harness connector and pin 1 (A) of the VSS harness connector. Is resistance less than five ohms?
 - a. Yes; refer to OEM literature for VSS sensor diagnostics.
 - b. No; repair wire between pin 14 of the CPC #3 harness connector and pin 1 (A) of the VSS harness connector. Verify repairs.