

1 03 01-16



Service Information Bulletin

SUBJECT	DATE
SPN 625 (CPC) (EPA07) and SPN 625 (CPC) (EPA10;GHG14)	March 2016

Additions, Revisions, or Updates

Publication Number / Title	Platform	Section Title	Change
DDC-SVC-MAN-0084	DD Platform	SPN 625/FMI 2, 4, 13 -EPA07	Updated diagnostic procedures. Correction to the pin call outs.
		SPN 625/FMI 2, 4, 8, 14 - EPA10-GHG14	

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.



13400 Outer Drive, West, Detroit, Michigan 48239-4001
 Telephone: 313-592-5000
www.demanddetroit.com

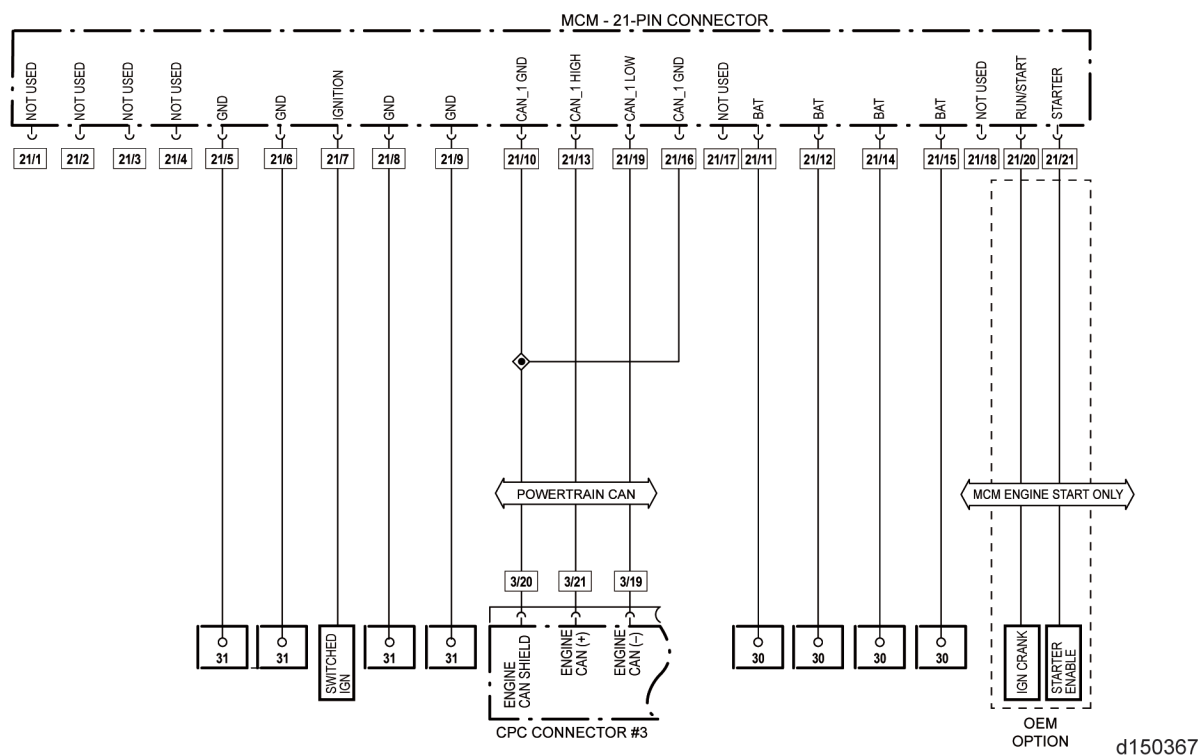
2 SPN 625/FMI 2 - EPA07

Erratic Data or the Controller Area Network Propriety Data Link has Failed Between the Motor Control Module and the Common Powertrain Controller

Table 1.

SPN 625/FMI 2	
Description	Invalid Data on Engine CAN Link
Monitored Parameter	CAN Communication
Typical Enabling Conditions	Always Enabled
Monitor Sequence	None
Execution Frequency	Always Enabled
Typical Duration	Two Seconds
Dash Lamps	MIL, CEL
Engine Reaction	None
Verification	Engine Idle (One minute)

NOTE: The following diagnostics pertain to faults received from the MCM and /or the CPC.



Check as follows:

1. Have the Motor Control Module (MCM) and/or the Common Powertrain Controller (CPC) recently been changed or reprogrammed?
 - a. Yes; verify that the correct MCM calibration and/or the correct CPC parameter list has been installed. If the correct calibration and correct parameter list have been installed, then Go to step 2.
 - b. No; Go to step 2.

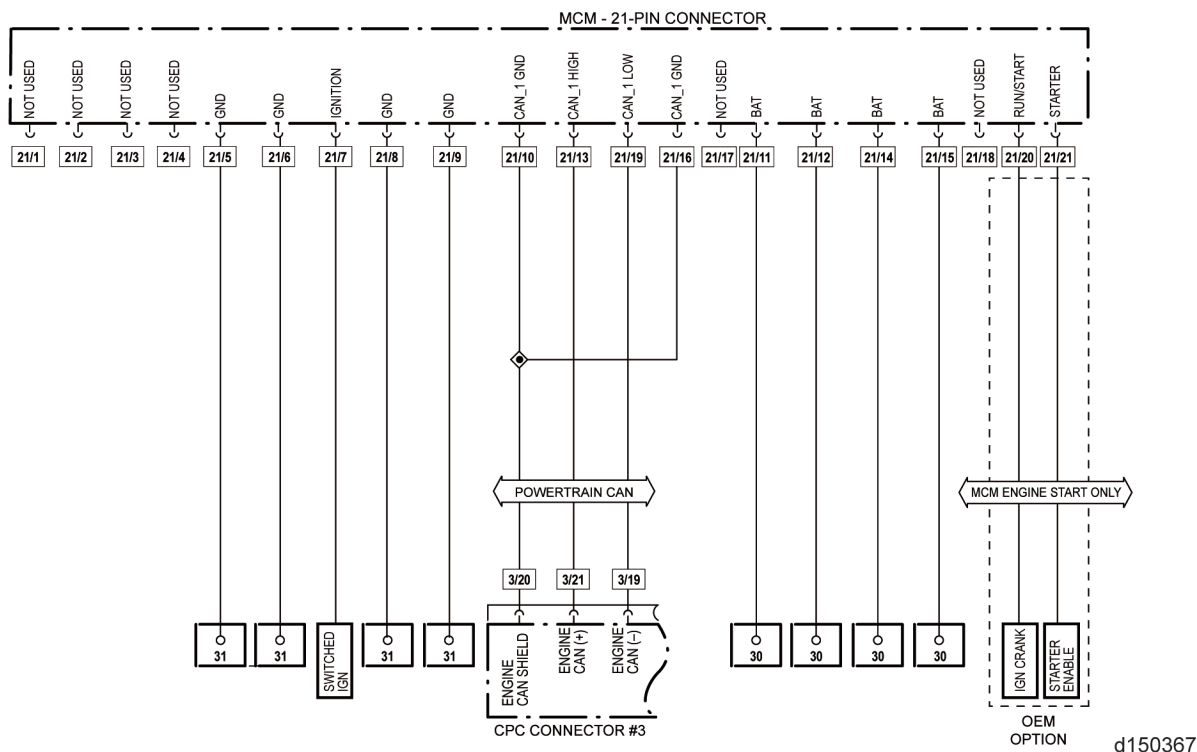
2. Disconnect the MCM 21-pin connector.
3. Turn the ignition ON (key ON, engine OFF).

NOTE: Poor battery grounds can be a possible cause of low battery voltage.

4. Measure the battery voltage at pin 7 on the MCM 21-pin connector. Is the battery voltage less than 10.5 volts?
 - a. Yes; restore the battery voltage at pins 7, 11, 12, 14, and 15 on the MCM 21-pin connector.
 - b. No; Go to step 5.
5. Turn ignition OFF. Leave the MCM 21-pin connector disconnected.
6. Disconnect the CPC #3 connector.
7. Measure the resistance between pins 21 and 19 of the CPC #3 connector. Is the resistance greater than five ohms?
 - a. Yes; Go to step 8.
 - b. No; repair the short circuit in the wires between pins 21 and 19 of the CPC #3 connector and pins 13 and 19 of the MCM 21-pin connector.
8. Measure the resistance between pin 21 of the CPC #3 connector and ground. Is the resistance greater than five ohms?
 - a. Yes; Go to step 9.
 - b. No; repair the short circuit to ground between pin 21 of the CPC #3 connector and ground.
9. Check the resistance between pin 19 of the CPC #3 connector and ground. Is the resistance greater than five ohms?
 - a. Yes; Go to step 10.
 - b. No; repair the short circuit to ground between pin 19 of the CPC #3 connector and ground.
10. Measure the resistance between pin 19 of the CPC #3 connector and pin 19 of the MCM 21-pin connector. Is the resistance greater than five ohms?
 - a. Yes; repair the open circuit between pin 19 of the CPC #3 connector and pin 19 of the MCM 21-pin connector.
 - b. No; Go to step 11.
11. Measure the resistance between pin 21 of the CPC #3 connector and pin 13 of the MCM 21-pin connector. Is the resistance greater than five ohms?
 - a. Yes; repair the open circuit between pin 21 of the CPC #3 connector and pin 13 of the MCM 21-pin connector.
 - b. No; replace the CPC. Refer to OEM procedures.

Table 2.

SPN 625/FMI 4	
Description	Erratic Data on Engine CAN Link
Monitored Parameter	CAN Communication
Typical Enabling Conditions	Always Enabled
Monitor Sequence	None
Execution Frequency	Always Enabled
Typical Duration	Two Seconds
Dash Lamps	MIL, CEL
Engine Reaction	
Verification	Engine Idle (One minute)



NOTE: This diagnostic is typically erratic data or the CAN propriety data link has failed between the MCM and the CPC.

- 6

2. Disconnect the MCM 21-pin connector.
3. Turn the ignition ON (key ON, engine OFF).

NOTE: Poor battery grounds can be a possible cause of low battery voltage.

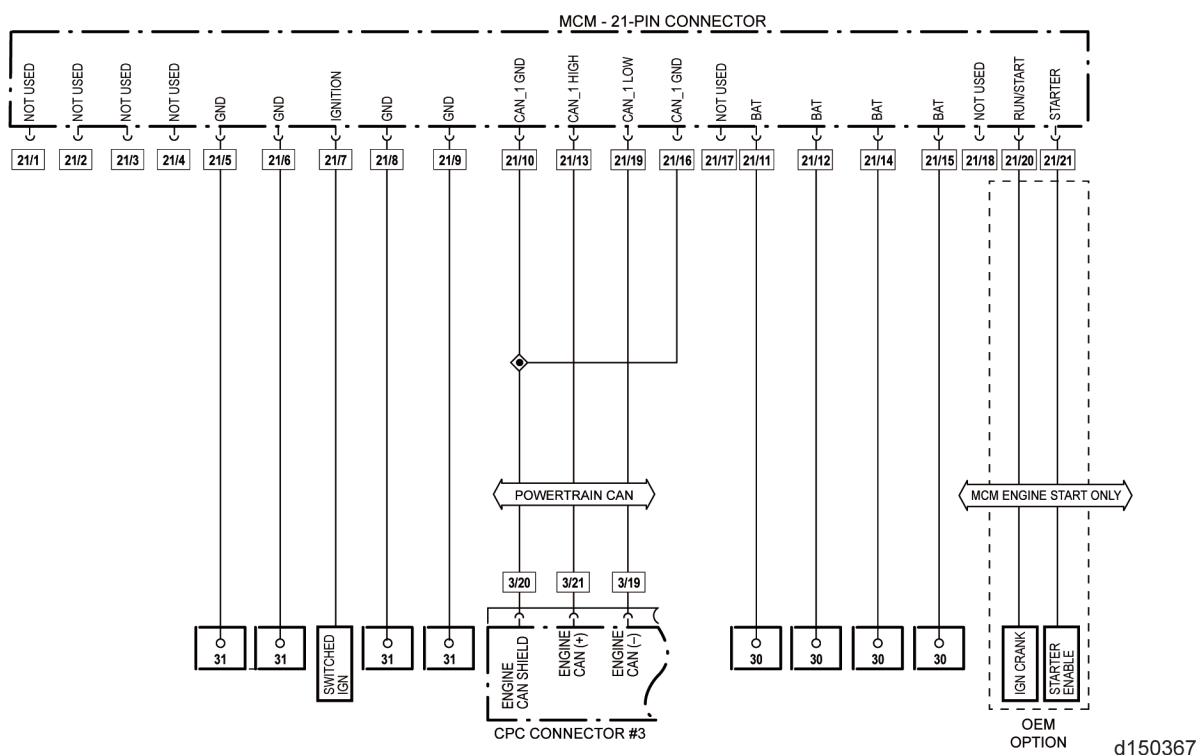
4. Measure the battery voltage at pin 7 on the MCM 21-pin connector. Is the battery voltage less than 10.5 volts?
 - a. Yes; restore the battery voltage at pins 7, 11, 12, 14, and 15 on the MCM 21-pin connector.
 - b. No; Go to step 5.
5. Turn ignition OFF, leave the MCM 21-pin connector disconnected.
6. Disconnect the CPC #3 connector.
7. Measure the resistance between pins 19 and 21 of the CPC #3 connector. Is the resistance greater than five ohms?
 - a. Yes; Go to step 8.
 - b. No; repair the short circuit in the wires between pins 19 and 21 of the CPC #3 connector and pins 13 and 19 of the MCM 21-pin connector.
8. Measure the resistance between pin 19 of the CPC #3 connector and ground. Is the resistance greater than five ohms?
 - a. Yes; Go to step 9.
 - b. No; repair the short circuit to ground between pin 19 of the CPC #3 connector and ground.
9. Check the resistance between pin 21 of the CPC #3 connector and ground. Is the resistance greater than five ohms?
 - a. Yes; Go to step 10.
 - b. No; repair the short circuit to ground between pin 21 of the CPC #3 connector and ground.
10. Measure the resistance between pin 19 of the CPC #3 connector and pin 19 of the MCM 21-pin connector. Is the resistance greater than five ohms?
 - a. Yes; repair the open circuit between pin 19 of the CPC #3 connector and pin 19 of the MCM 21-pin connector.
 - b. No; Go to step 11.
11. Measure the resistance between pin 21 of the CPC #3 connector and pin 13 of the MCM 21-pin connector. Is the resistance greater than five ohms?
 - a. Yes; repair the open circuit between pin 21 of the CPC #3 connector and pin 13 of the MCM 21-pin connector.
 - b. No; replace the CPC. Refer to OEM procedures.

4 SPN 625/FMI 13 - EPA07

ECAN ID_1629 Diagnostic Message Not Received this Ignition Cycle

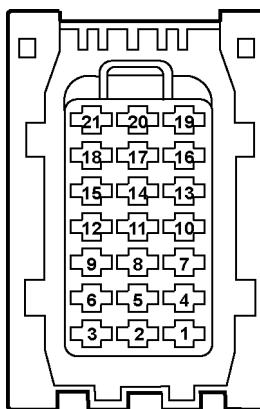
Table 3.

SPN 625/FMI 13	
Description	ECAN ID_1629 Message Not Received Or Has Stopped Arriving
Monitored Parameter	CAN Communication
Typical Enabling Conditions	Always Enabled
Monitor Sequence	None
Execution Frequency	Always Enabled
Typical Duration	Two Seconds
Dash Lamps	MIL, CEL
Engine Reaction	None



Check as follows:

- Are there any battery voltage faults (SPN 168/FMI any) also present?
 - Yes; repair battery voltage faults first.
 - No; Go to step 2.
- Disconnect the Motor Control Module (MCM) 21-pin connector.
- Turn the ignition ON (key ON, engine OFF).
- Measure the voltage between MCM 21-pin connector pins 7, 11, 12, 14, and 15 (ignition/battery voltage) and ground. Is the voltage less than 11.5 volts?



45801

- a. Yes; restore voltage to pins 7, 11, 12, 14, and 15 of the MCM 21-pin connector.
 - b. No; Go to step 5.
5. Turn the ignition OFF.
6. Measure the resistance between pins 5, 6, 8 and 9 of the MCM 21-pin connector and the negative battery post. Is the resistance greater than five ohms?
 - a. Yes; restore battery ground to pins 5, 6, 8 and 9 of the MCM 21-pin connector.
 - b. No; Go to step 7.
7. Disconnect MCM 120-pin connector and inspect connector for corrosion, oil, fuel, or water intrusion. Is contamination found?
 - a. Yes; repair as necessary.
 - b. No; Go to step 8.
8. Reconnect MCM 120-pin connector.
9. Install VIM (Vehicle Interface Module) J-48372.
10. Is the communication restored to the CPC/MCM?
 - a. Yes; repair vehicle side power/ground issue.
 - b. No; replace the MCM. Refer to section "Removal of the Motor Control Module".

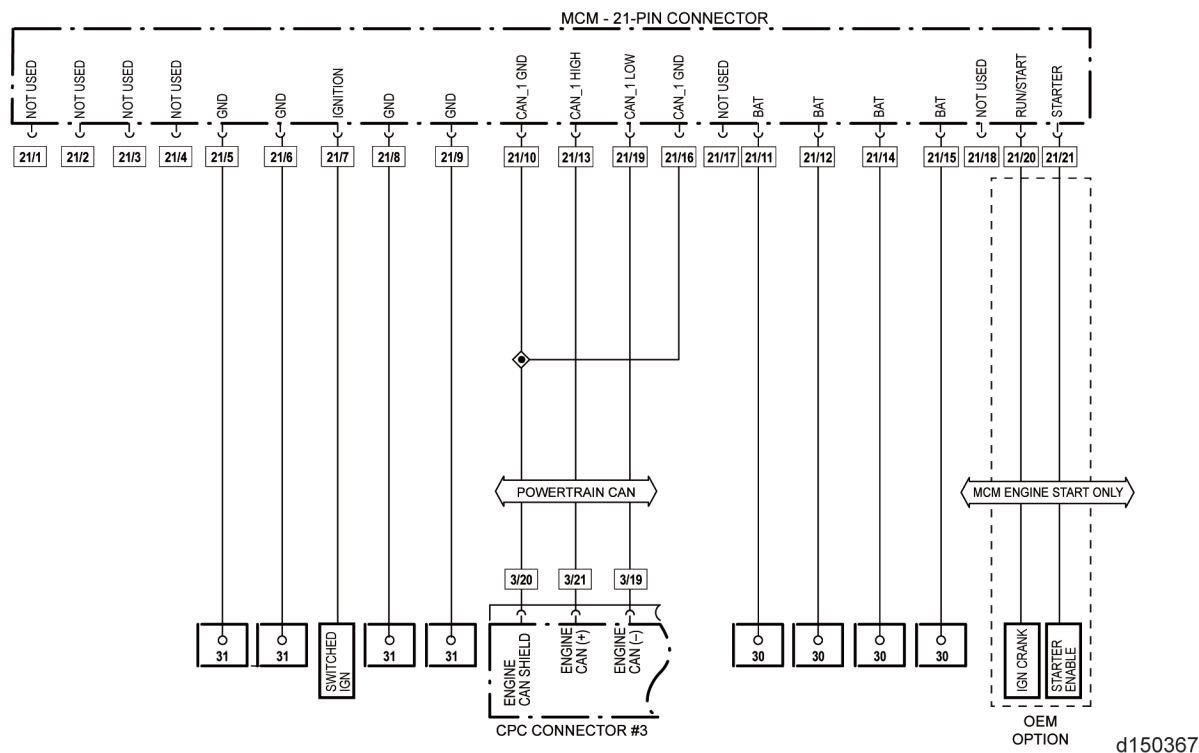
5 SPN 625/FMI 2 - EPA10 - GHG14

Erratic Data or the Controller Area Network Propriety Data Link has Failed Between the Motor Control Module and the Common Powertrain Controller

Table 4.

SPN 625/FMI 2	
Description	Invalid Data on Engine Controller Area Network (CAN) Link
Monitored Parameter	CAN Communication
Typical Enabling Conditions	Always Enabled
Monitor Sequence	None
Execution Frequency	Always Enabled
Typical Duration	Two Seconds
Dash Lamps	MIL, CEL
Engine Reaction	
Verification	Engine Idle (One minute)

NOTE: The following diagnostics pertain to faults received from the MCM and/or the CPC.



Check as follows:

1. Have the Motor Control Module (MCM) and/or the Common Powertrain Controller (CPC) recently been changed or reprogrammed?
 - a. Yes; verify that the correct MCM calibration and/or the correct CPC parameter list has been installed. If the correct calibration and correct parameter list have been installed, then Go to step 2.
 - b. No; Go to step 2.

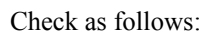
2. Disconnect the MCM 21-pin connector.
3. Turn the ignition ON (key ON, engine OFF).

NOTE: Poor battery grounds can be a possible cause of low battery voltage.

4. Measure the battery voltage at pin 7 on the MCM 21-pin connector. Is the voltage less than 10.5 volts?
 - a. Yes; restore the battery voltage at pins 7, 11, 12, 14, and 15 on the MCM 21-pin connector.
 - b. No; Go to step 5.
5. Turn ignition OFF. Leave the MCM 21-pin connector disconnected.
6. Disconnect the CPC #3 connector.
7. Measure the resistance between pins 21 and 19 of the CPC #3 connector. Is the resistance greater than five ohms?
 - a. Yes; Go to step 8.
 - b. No; repair the short circuit in the wires between pins 21 and 19 of the CPC #3 connector and pins 13 and 19 of the MCM 21-pin connector.
8. Measure the resistance between pin 21 of the CPC #3 connector and ground. Is the resistance greater than five ohms?
 - a. Yes; Go to step 9.
 - b. No; repair the short circuit to ground between pin 21 of the CPC #3 connector and ground.
9. Check the resistance between pin 19 of the CPC #3 connector and ground. Is the resistance greater than five ohms?
 - a. Yes; Go to step 10.
 - b. No; repair the short circuit to ground between pin 19 of the CPC #3 connector and ground.
10. Measure the resistance between pin 19 of the CPC #3 connector and pin 19 of the MCM 21-pin connector. Is the resistance greater than five ohms?
 - a. Yes; repair the open circuit between pin 19 of the CPC #3 connector and pin 19 of the MCM 21-pin connector.
 - b. No; Go to step 11.
11. Measure the resistance between pin 21 of the CPC #3 connector and pin 13 of the MCM 21-pin connector. Is the resistance greater than five ohms?
 - a. Yes; repair the open circuit between pin 21 of the CPC #3 connector and pin 13 of the MCM 21-pin connector.
 - b. No; replace the CPC. Refer to OEM procedures.

Table 5.

SPN 625/FMI 4	
Description	Erratic Data on Engine CAN Link
Monitored Parameter	CAN Communication
Typical Enabling Conditions	Always Enabled
Monitor Sequence	None
Execution Frequency	Always Enabled
Typical Duration	Two Seconds
Dash Lamps	MIL, CEL
Engine Reaction	
Verification	Engine Idle (One minute)



1. Have the Motor Control Module (MCM) and/or the Common Powertrain Controller (CPC) recently been changed or reprogrammed?
 - a. Yes; verify that the correct MCM calibration and/or the correct CPC parameter list has been installed. If the correct calibration and correct parameter list have been installed, then Go to step 2.
 - b. No; Go to step 2.

2. Disconnect the MCM 21-pin connector.
3. Turn the ignition ON (key ON, engine OFF).

NOTE: Poor battery grounds can be a possible cause of low battery voltage.

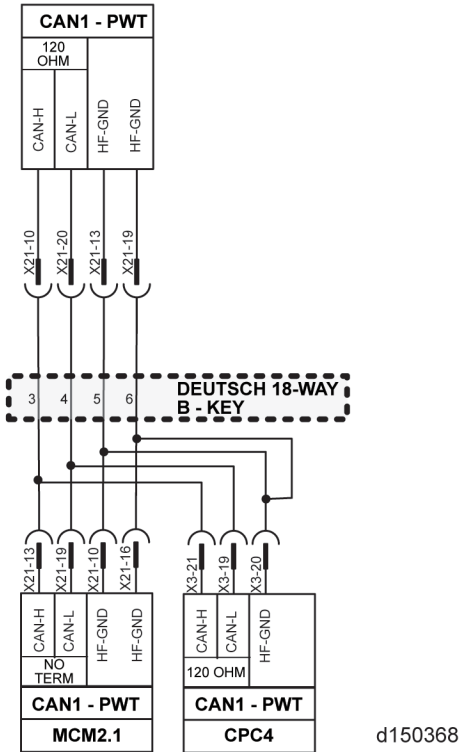
4. Measure the battery voltage at pin 7 on the MCM 21-pin connector. Is the battery voltage less than 10.5 volts?
 - a. Yes; restore the battery voltage at pins 7, 11, 12, 14, and 15 on the MCM 21-pin connector.
 - b. No; Go to step 5.
5. Turn ignition OFF; leave the MCM 21-pin connector disconnected.
6. Disconnect the CPC #3 connector.
7. Measure the resistance between pins 19 and 21 of the CPC #3 connector. Is the resistance greater than five ohms?
 - a. Yes; Go to step 8.
 - b. No; repair the short circuit in the wires between pins 19 and 21 of the CPC #3 connector and pins 13 and 19 of the MCM 21-pin connector.
8. Measure the resistance between pin 19 of the CPC #3 connector and ground. Is the resistance greater than five ohms?
 - a. Yes; Go to step 9.
 - b. No; repair the short circuit to ground between pin 19 of the CPC #3 connector and ground.
9. Check the resistance between pin 21 of the CPC #3 connector and ground. Is the resistance greater than five ohms?
 - a. Yes; Go to step 10.
 - b. No; repair the short circuit to ground between pin 21 of the CPC #3 connector and ground.
10. Measure the resistance between pin 19 of the CPC #3 connector and pin 19 of the MCM 21-pin connector. Is the resistance greater than five ohms?
 - a. Yes; repair the open circuit between pin 19 of the CPC #3 connector and pin 19 of the MCM 21-pin connector.
 - b. No; Go to step 11.
11. Measure the resistance between pin 21 of the CPC #3 connector and pin 13 of the MCM 21-pin connector. Is the resistance greater than five ohms?
 - a. Yes; repair the open circuit between pin 21 of the CPC #3 connector and pin 13 of the MCM 21-pin connector.
 - b. No; replace the CPC. Refer to OEM procedures.

7 SPN 625/FMI 8 - EPA10 - GHG14

Motor Control Module, Powertrain Controller Area Network DM1 Message Not Received or has Stopped Arriving

Table 6.

SPN 625/FMI 8	
Description	DM1 Message Not Received Or Has Stopped Arriving
Monitored Parameter	CAN Communication
Typical Enabling Conditions	Always Enabled
Monitor Sequence	None
Execution Frequency	Always Enabled
Typical Duration	Two Seconds
Dash Lamps	MIL, CEL
Engine Reaction	None



WARNING: PERSONAL INJURY

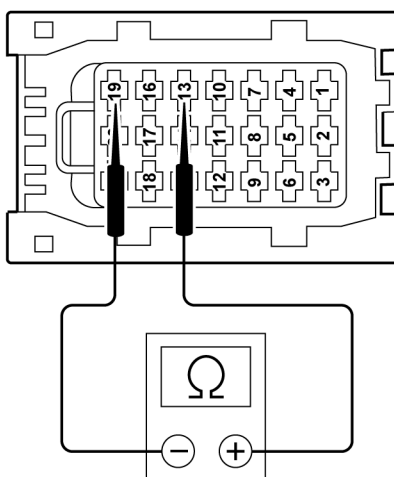
Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

- Always start and operate an engine in a well ventilated area.
- If operating an engine in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system or emission control system.

Check as follows:

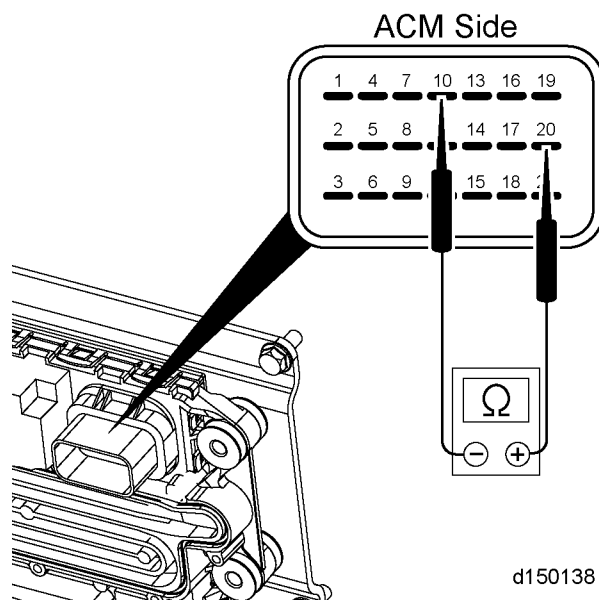
1. Are there any battery voltage faults present (SPN 168/FMI any)?

- a. Yes; troubleshoot battery voltage faults first.
 - b. No; Go to step 2.
2. Have the Aftertreatment Control Module (ACM), Motor Control Module (MCM) or Common Powertrain Controller (CPC) been recently programmed?
 - a. Yes; clear the fault codes. If faults do not become active, release the vehicle. If faults become active, Go to step 3.
 - b. No; clear the fault codes. If faults do not become active, release the vehicle. If faults become active, Go to step 3.
3. Turn ignition OFF and wait five minutes before proceeding. Main battery power must be left ON (The five-minute time frame allows the ACM to go completely offline).
4. Disconnect the MCM 21-pin connector.



d150139

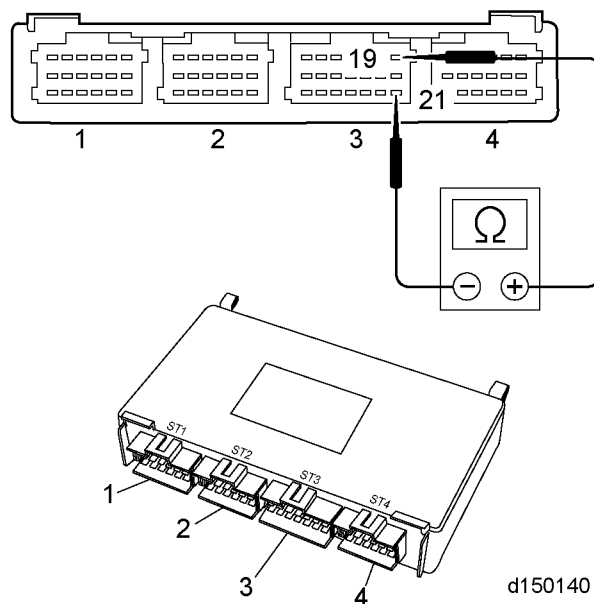
5. Measure and record the resistance across pins 13 and 19 of the MCM 21-pin connector. Is the resistance greater than 80 ohms?
 - a. Yes; Go to step 8.
 - b. No; Go to step 6.
6. Is the resistance reading from step 5 less than five ohms?
 - a. Yes; replace the PT-CAN harness.
 - b. No; Go to step 7.
7. Is the resistance reading from step 5 between 60 plus or minus 20 ohms?
 - a. Yes; Go to step 18.
 - b. No; Go to step 8.
8. Disconnect the ACM 21-pin connector.
9. Check ACM internal terminating resistor by measuring and recording the resistance across pins 10 and 20 of the ACM 21-pin connector. Is the resistance 120 plus or minus 10 ohms?



- a. Yes; Go to step 10.
- b. No; replace the ACM.

10. Disconnect the CPC connector #3.

11. Check the CPC internal terminating resistor by measuring and recording the resistance across pins 19 and 21 of the CPC connector cavity #3. Is the resistance 120 plus or minus 10 ohms?



- a. Yes; Go to step 12.
- b. No; replace the CPC.

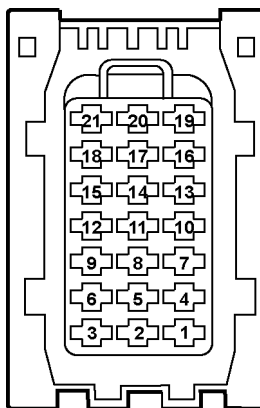
12. Measure and record the resistance between pin 19 of CPC connector #3, and pin 20 of the ACM 21-pin connector. Is resistance greater than five ohms?

- a. Yes; Go to step 13.
- b. No; repair the wire between pin 19 of the CPC connector #3, and the pin 20 of the ACM 21-pin connector.

13. Measure and record the resistance between pin 21 of the CPC connector #3, and pin 10 of the ACM 21-pin connector. Is resistance greater than five ohms?

- a. Yes; Go to step 14.
- b. No; repair the wire between pin 21 of the CPC connector #3, and pin 10 of the ACM 21-pin connector.

14. Measure and record the resistance between pin 19 of the CPC connector #3, and pin 19 of the MCM 21-pin connector. Is resistance greater than five ohms?
 - a. Yes; Go to step 15.
 - b. No; repair the wire between pin 19 of the CPC connector #3, and pin 19 of the MCM 21-pin connector.
15. Measure and record the resistance between pin 21 of the CPC connector #3, and pin 13 of the MCM 21-pin connector. Is resistance greater than five ohms?
 - a. Yes; Go to step 16.
 - b. No; repair the wire between pin 21 of the CPC connector #3, and pin 13 of the MCM 21-pin connector.
16. Measure and record the resistance between pin 19 of the MCM 21-pin connector and pin 20 of the ACM 21-pin connector. Is resistance greater than five ohms?
 - a. Yes; Go to step 17.
 - b. No; repair the wire between pin 19 of the MCM 21-pin connector and pin 20 of the ACM 21-pin connector.
17. Measure and record the resistance between the pin 13 of the MCM 21-pin connector and pin 10 of the ACM 21-pin connector. Is resistance greater than five ohms?
 - a. Yes; replace the MCM. Refer to section "Removal of the Motor Control Module".
 - b. No; repair the wire between pin 13 of the MCM 21-pin connector and pin 10 of the ACM 21-pin connector.
18. Turn the ignition ON (key ON, engine OFF).



45801

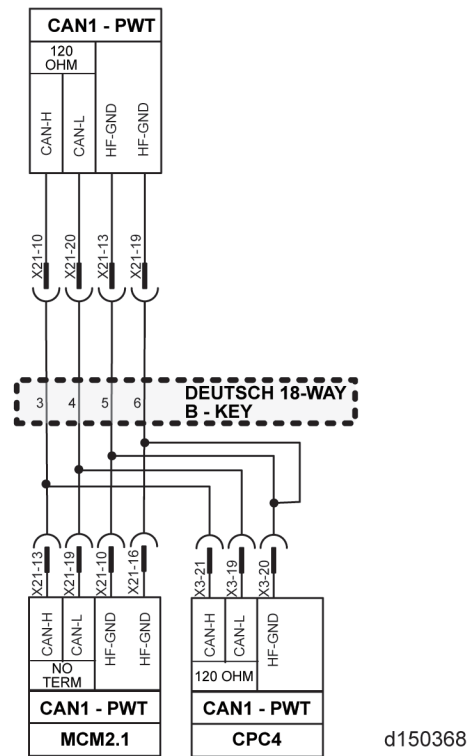
19. Measure the voltage between pins 7, 11, 12, 14, and 15 of the MCM 21-pin connector (ignition/battery voltage) and ground. Is the voltage less than 11.5 volts?
 - a. Yes; restore voltage to pins 7, 11, 12, 14, and 15 of the MCM 21-pin connector.
 - b. No; Go to step 20.
20. Turn the ignition OFF.
21. Measure the resistance between pins 5, 6, 8 and 9 of the MCM 21-pin connector and the negative battery post. Is resistance greater than five ohms?
 - a. Yes; restore the battery ground to pins 5, 6, 8 and 9 of the MCM 21-pin connector.
 - b. No; Go to step 22.
22. Disconnect MCM 120-pin connector and inspect connector for corrosion, or oil, fuel or water intrusion. Is contamination found?
 - a. Yes; repair as necessary.
 - b. No; install a test MCM. If communication is restored (fault inactive), replace the MCM. Refer to section "Removal of the Motor Control Module".

8 SPN 625/FMI 14 - EPA10 - GHG14

Motor Control Module System ID Not Received or Stopped Arriving

Table 7.

SPN 625/FMI 14	
Description	MCM Message Not Received Or Has Stopped Arriving
Monitored Parameter	CAN Communication
Typical Enabling Conditions	Always Enabled
Monitor Sequence	None
Execution Frequency	Always Enabled
Typical Duration	Two Seconds
Dash Lamps	MIL, CEL
Engine Reaction	None



Check as follows:



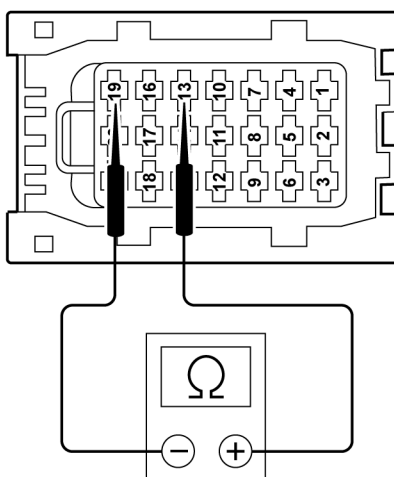
WARNING: PERSONAL INJURY

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

- Always start and operate an engine in a well ventilated area.
- If operating an engine in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system or emission control system.

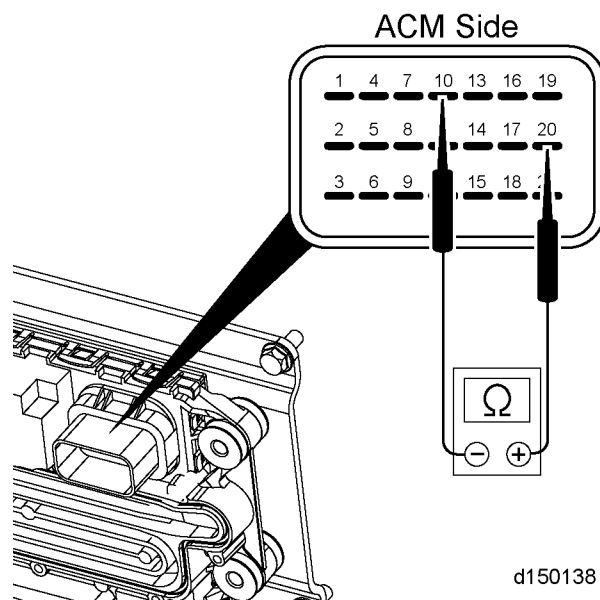
1. Are there any battery voltage faults (SPN 168/FMI ANY)?

- a. Yes; troubleshoot battery voltage faults first.
 - b. No; Go to step 2.
2. Has the Aftertreatment Control Module (ACM), Motor Control Module (MCM) or Common Powertrain Controller (CPC) been recently programmed?
 - a. Yes; clear the fault codes. If faults do not become active, release the vehicle; if faults become active, Go to step 3.
 - b. No; clear the fault codes. If faults do not become active, release the vehicle; if faults become active, Go to step 3.
3. Turn ignition OFF and wait five minutes before proceeding. Main battery power must be left ON (The five minute time frame allows the ACM to go completely offline).
4. Disconnect the MCM 21-pin connector.



d150139

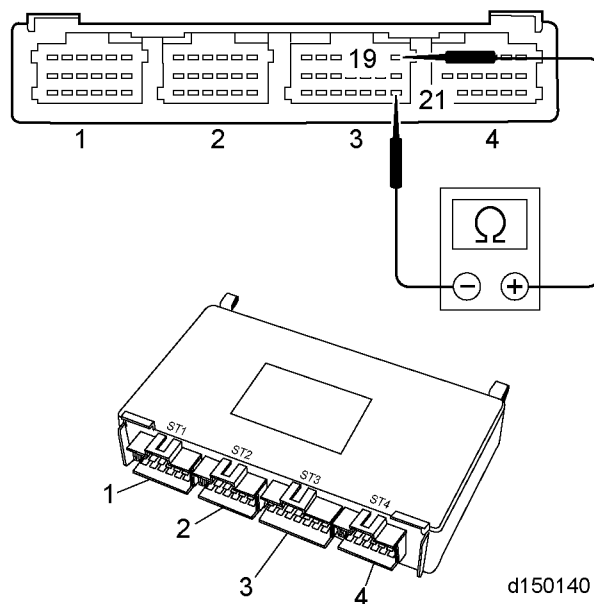
5. Measure and record the resistance across pins 13 and 19 of the MCM 21-pin connector. Is the resistance greater than 80 ohms?
 - a. Yes; . Go to step 8.
 - b. No; Go to step 6.
6. Is the resistance reading from step 5 less than six ohms?
 - a. Yes; replace the PT-CAN harness.
 - b. No; Go to step 7.
7. Is the resistance reading from step 5 between 60 plus or minus 20 ohms?
 - a. Yes; Go to step 18.
 - b. No; Go to step 8.
8. Disconnect the ACM 21-pin connector.
9. Check ACM internal terminating resistor by measuring and recording the resistance across pins 10 and 20 of the ACM 21-pin connector. Is the resistance 120 plus or minus 10 ohms?



- a. Yes; Go to step 10.
- b. No; replace the ACM.

10. Disconnect the CPC connector #3.

11. Check the CPC internal terminating resistor by measuring and recording the resistance across pins 19 and 21 of the CPC connector cavity #3. Is the resistance 120 plus or minus 10 ohms?



- a. Yes; Go to step 12.
- b. No; replace the CPC.

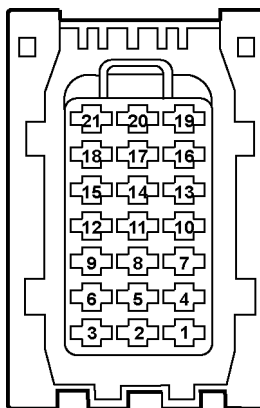
12. Measure and record the resistance between pin 19 of the CPC connector #3 and pin 20 of the ACM 21-pin connector. Is resistance greater than five ohms?

- a. Yes; Go to step 13.
- b. No; repair the wire between pin 19 of the CPC connector #3 and pin 20 of the ACM 21-pin connector.

13. Measure and record the resistance between pin 21 of the CPC connector #3 and pin 10 of the ACM 21-pin connector. Is resistance greater than five ohms?

- a. Yes; Go to step 14.
- b. No; repair the wire between pin 21 of the CPC connector #3 and pin 10 of the ACM 21-pin connector.

14. Measure and record the resistance between pin 19 of the CPC connector #3 and pin 19 of the MCM 21-pin connector. Is resistance greater than five ohms?
 - a. Yes; Go to step 15.
 - b. No; repair the wire between pin 19 of the CPC connector #3 and pin 19 of the MCM 21-pin connector.
15. Measure and record the resistance between pin 21 of the CPC connector #3 and pin 13 of the MCM 21-pin connector. Is resistance greater than five ohms?
 - a. Yes; Go to step 16.
 - b. No; repair the wire between pin 21 of the CPC connector #3 and pin 13 of the MCM 21-pin connector.
16. Measure and record the resistance between pin 19 of the MCM 21-pin connector and pin 20 of the ACM 21-pin connector. Is resistance greater than five ohms?
 - a. Yes; Go to step 17.
 - b. No; repair the wire between pin 19 of the MCM 21-pin connector and pin 20 of the ACM 21-pin connector.
17. Measure and record the resistance between pin 13 of the MCM 21-pin connector and pin 10 of the ACM 21-pin connector. Is resistance greater than five ohms?
 - a. Yes; replace the MCM. Refer to section "Removal of the Motor Control Module".
 - b. No; repair the wire between pin 13 of the MCM 21-pin connector and pin 10 of the ACM 21-pin connector.
18. Turn the ignition ON (key ON, engine OFF).



45801

19. Measure the voltage between pins 7, 11, 12, 14, and 15 of the MCM 21-pin connector (ignition/battery voltage) and ground. Is the voltage less than 11.5 volts?
 - a. Yes; restore voltage to pins 7, 11, 12, 14, and 15 of the MCM 21-pin connector.
 - b. No; Go to step 20.
20. Turn the ignition OFF.
21. Measure the resistance between pins 5, 6, 8 and 9 of the MCM 21-pin connector and the negative battery post. Is resistance greater than five ohms?
 - a. Yes; restore the battery ground to pins 5, 6, 8 and 9 of the MCM 21-pin connector.
 - b. No; Go to step 22.
22. Disconnect MCM 120-pin connector and inspect connector for corrosion, or oil, fuel or water intrusion. Is contamination found?
 - a. Yes; repair as necessary.
 - b. No; install a test MCM. If communication is restored (fault inactive), replace the MCM. Refer to section "Removal of the Motor Control Module".