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Service Information Bulletin

SUBJECT	DATE
SPN 625/FMI 9 - EPA10 - GHG14 (CPC)	October 2013

Additions, Revisions, or Updates

Publication Number / Title	Platform	Section Title	Change
DDC-SVC-MAN-0084	EPA10/ GHG14 DD Platform	SPN 625/FMI 9 – EPA10 - GHG14 (CPC)	New diagnostics for CPC. ACM, MCM, and CPC are referred to generically because this procedure covers more than one year.

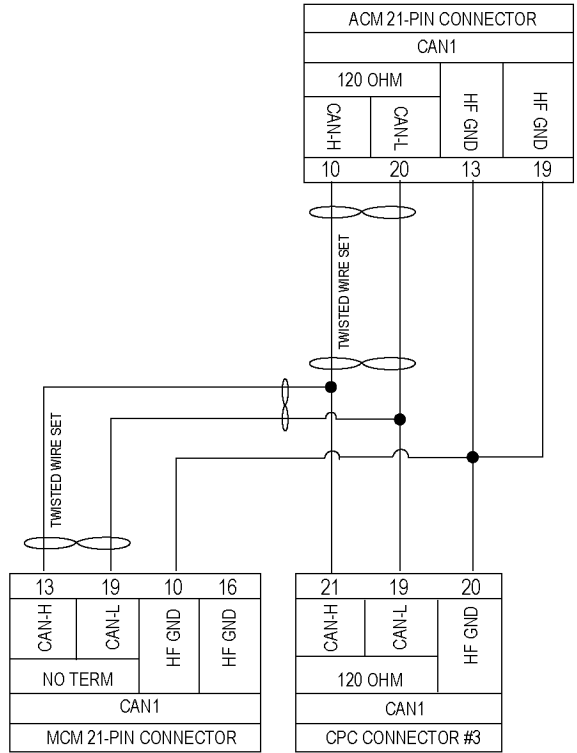


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This procedure applies to the Common Powertrain Controller (CPC).

This diagnostic is typically Aftertreatment Control Module (ACM) PT-CAN DM1 Message Not Received or has Stopped Arriving.



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Table 1.

SPN 625/FMI 9	
Description	ACM PT-CAN 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	2 Seconds
Dash Lamps	MIL, CEL
Engine Reaction	None
Verification	Ignition Cycle

Check as follows:

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

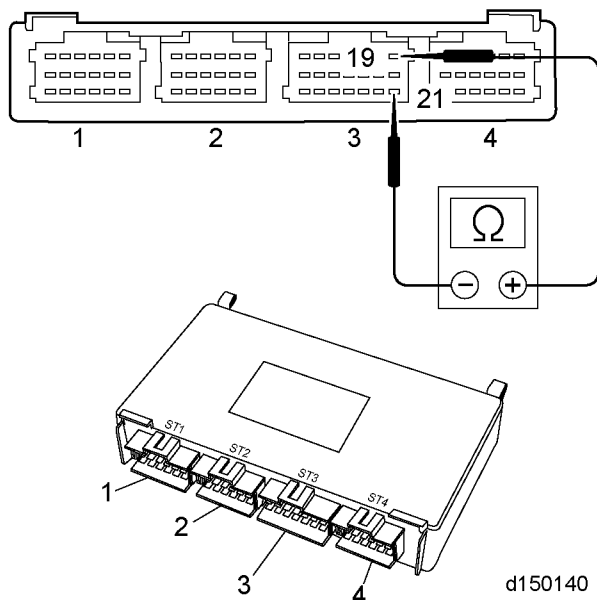
- a. Yes; clear the fault codes. If faults do not become active, release the vehicle. If faults become active, Go to step 3.
- b. No; Go to step 3.

NOTE: ACM, MCM, and CPC all communicate on the same CAN line. If water penetrates any connector, it can short the CAN line and may prevent communications with other ECUs.

NOTE: Main battery power must be left ON.

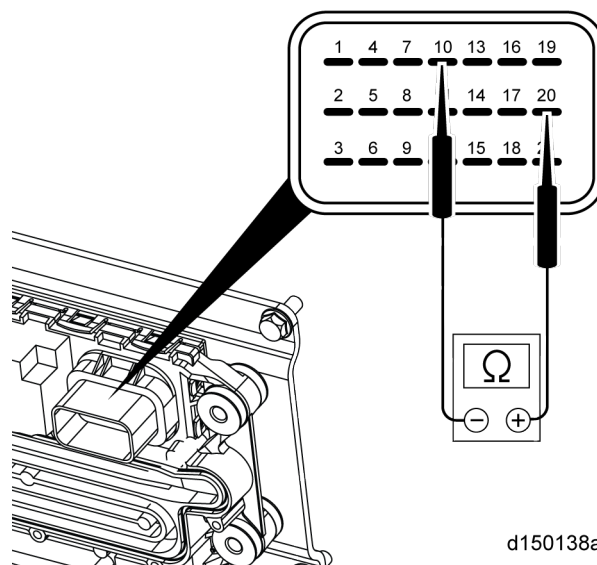
NOTE: The five minute time-frame allows the ACM to go completely offline.

3. Turn ignition OFF and wait five minutes before proceeding.
4. Disconnect the CPC electrical harness connector #3.
5. Inspect the CPC connector for corroded, unseated (pushed out) or damaged pins, bent or spread pins; inspect the connector seal for damage (signs of water or oil intrusion).
 - a. If contamination or damage is found, repair as necessary. Go to step 21.
 - b. If no contamination or damage is found, Go to step 6.
6. Check CPC internal terminating resistor by measuring the resistance across pins 19 and 21 of the CPC electrical connector #3, component side.



- a. If the resistance is between 110 to 130 ohms, Go to step 7.
- b. If the resistance is not between 110 to 130 ohms, replace the CPC. Go to step 21.
7. Measure the resistance between pin 19 of the CPC #3 connector, harness side and battery ground.
 - a. If the resistance is greater than 10K ohms, Go to step 8.
 - b. If the resistance is less than 10K ohms, repair the wire short to ground between pin 19 of the CPC #3 connector, harness side and pin 20 of the ACM 21-pin connector, harness side. Go to step 21.
8. Measure the resistance between pin 21 of the CPC connector #3, harness side and battery ground.
 - a. If the resistance is greater than 10K ohms, Go to step 9.
 - b. If the resistance is less than 10K ohms, repair the wire short to ground between pin 21 of the CPC #3 connector, harness side and pin 10 of the ACM 21-pin connector, harness side. Go to step 21.
9. Disconnect ACM 21-pin connector.
10. Inspect the 21-pin Aftertreatment Control Module (ACM) connector for corroded, unseated (pushed out) or damaged pins, bent or spread pins; inspect the connector seal for damage (signs of water or oil intrusion).
 - a. If contamination or damage is found, repair as necessary. Go to step 21.
 - b. If no contamination or damage is found, Go to step 11.

11. Check ACM internal terminating resistor by measuring and recording the resistance across pins 10 and 20 of the ACM 21-pin connector, component side.



- a. If the resistance is between 110 to 130 ohms, Go to step 12.
 - b. If the resistance is not between 110 to 130 ohms, replace the ACM. Go to step 21.
12. Check the resistance between pin 19 of the CPC connector #3, harness side and pin 20 of the ACM 21-pin connector, harness side.
 - a. If the resistance is less than 5 ohms, Go to step 13.
 - b. If the resistance is greater than 5 ohms, repair the wire between pin 19 of the CPC connector #3, harness side and pin 20 of the ACM 21-pin connector, harness side. Go to step 21.
 13. Measure the resistance between pin 21 of the CPC connector #3, harness side and pin 10 of the ACM 21-pin connector, harness side.
 - a. If the resistance is less than 5 ohms, Go to step 14.
 - b. If the resistance is greater than 5 ohms, repair the wire between pin 21 of the CPC connector #3, harness side and pin 10 of the ACM 21-pin connector, harness side. Go to step 21.
 14. Disconnect MCM 21-pin connector.
 15. Inspect the 21-pin Motor Control Module (MCM) connector for corroded, unseated (pushed out) or damaged pins, bent or spread pins; inspect the connector seal for damage (signs of water or oil intrusion).
 - a. If contamination or damage is found, repair as necessary. Go to step 21.
 - b. If no contamination or damage is found, Go to step 16.
 16. Measure the resistance between pin 19 of the CPC connector #3, harness side and pin 19 of the MCM 21-pin connector, harness side.
 - a. If the resistance is less than 5 ohms, Go to step 17.
 - b. If the resistance is greater than 5 ohms, repair the wire between pin 19 of the CPC connector #3, harness side and pin 19 of the MCM 21-pin connector, harness side. Go to step 21.
 17. Measure the resistance between pin 21 of the CPC connector #3, harness side and pin 13 of the MCM 21-pin harness connector.
 - a. If the resistance is less than 5 ohms, Go to step 18.
 - b. If the resistance is greater than 5 ohms, repair the wire between pin 21 of the CPC connector #3, harness side and pin 13 of the MCM 21-pin harness connector. Go to step 21.

NOTE: Ensure MCM and ACM connectors are disconnected during this step.

18. Measure the resistance between pins 19 and 21 of the CPC connector #3, harness side.
 - a. If the resistance is greater than 10K ohms, Go to step 19.

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- b. If the resistance is less than 10K ohms, repair the harness shorted wires between pin 19 and pin 21 of the CPC connector #3, harness side. Refer to Original Equipment Manufacturer (OEM) literature for schematic information. Go to step 21.
 19. If the resistance is less than 10K ohms, repair the harness shorted wires between pin 19 and pin 21 of the CPC connector #3, harness side. Refer to Original Equipment Manufacturer (OEM) literature for schematic information.
 - a. If the resistance is less than 5 ohms, Go to step 20.
 - b. If the resistance is greater than 5 ohms, repair the wire between pin 19 of the MCM 21-pin connector, harness side and pin 20 of the ACM 21-pin connector, harness side. Go to step 21.
 20. Measure the resistance between pin 13 of the MCM 21-pin connector, harness side and pin 10 of the ACM 21-pin connector, harness side.
 - a. If the resistance is less than 5 ohms, install a test CPC and retest. If code does not return, replace CPC. Go to step 21.
 - b. If the resistance is greater than 5 ohms, repair the wire between pin 13 of the MCM 21-pin connector, harness side and pin 10 of the ACM 21-pin connector, harness side. Go to step 21.
 21. Verify repairs. Restore all connections. Cycle the ignition key. Is fault code still active?
 - a. Yes; replace the CPC. Refer to OEM procedures.
 - b. No; If fault does not become active, clear the fault codes and release the vehicle.