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Service Information Bulletin

SUBJECT	DATE
SPN 1231 (MCM) (EPA10; GHG14)	April 2018

Additions, Revisions, or Updates

Publication Number / Title	Platform	Section Title	Change
DDC-SVC-MAN-0084	DD Platform	SPN 1231/FMI 9 - EPA10 - GHG14	The procedure has been updated.

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.

DEMAND PERFORMANCE™

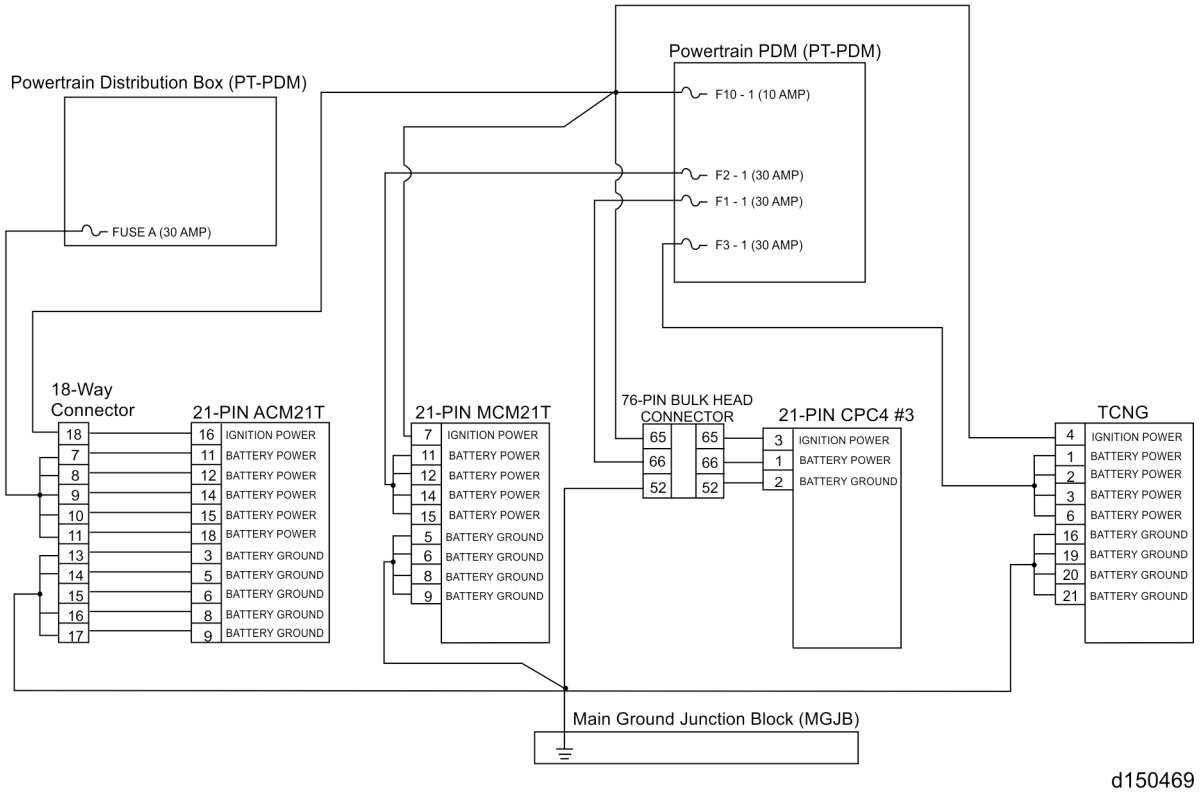
13400 Outer Drive, West, Detroit, Michigan 48239-4001
Telephone: 313-592-5000
www.demanddetroit.com

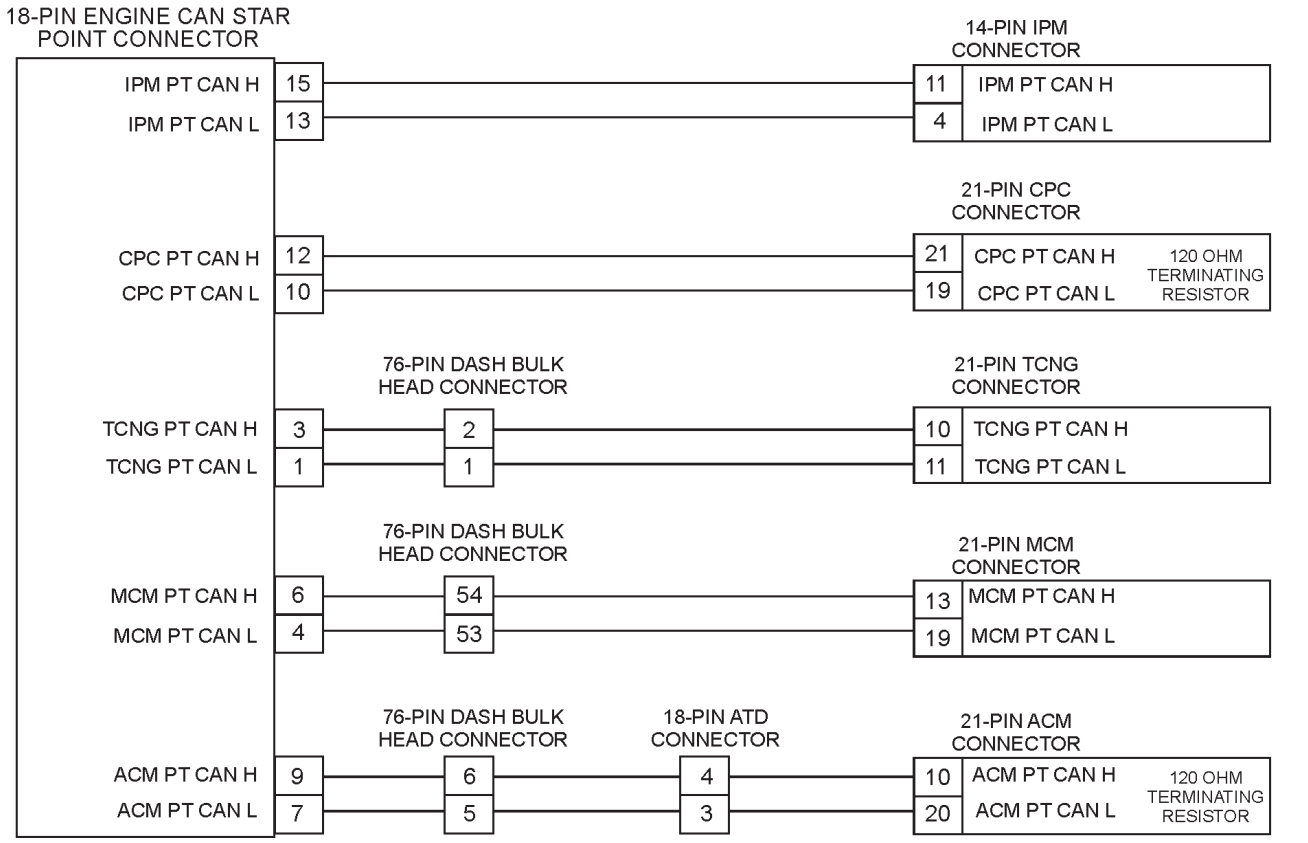
2 SPN 1231/FMI 9 - EPA10 - GHG14

Aftertreatment Control Module Message Not Received or Has Stopped Arriving

Table 1.

SPN 1231/FMI 9	
Description	This Fault Code Sets when the Motor Control Module (MCM) Stops Receiving Messages from the Aftertreatment Control Module (ACM)
Monitored Parameter	ACM Controller Area Network (CAN) Communication
Typical Enabling Conditions	Always Enabled
Monitor Sequence	None
Execution Frequency	Always Enabled
Typical Duration	Two Seconds
Dash Lamps	MIL is Solid, CEL and AWL Flash
Engine Reaction	30 Seconds Shutdown
Verification	Turn the Ignition OFF, disconnect the USB link from the 9-pin connector. Wait Five Minutes, reconnect the USB link and DiagnosticLink. Turn the Ignition ON and recheck for the fault code.





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Possible causes:

- Over/under voltage supply to the ACM module
- Fault set during a reprogram event
- Loss of power to the ACM
- Loss of ground to the ACM
- Loss of ignition switch power to the ACM
- Open in the CAN-H/Can-L communication circuit to the ACM

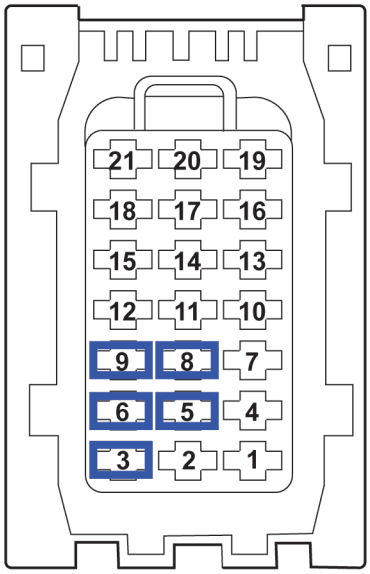
Tools Needed:

Table 2.

Part Number	Description	Wire /Shrink tube color
DKI470E16022-37	0.64mm x 0.64mm Probe	Red/Red
DKI470E16022-42	2.8mm x 0.8mm Probe	Light brown/Red

1. Connect DiagnosticLink®.
2. Have the Aftertreatment Control Module (ACM), Motor Control Module (MCM), Common Powertrain Controller (CPC), Transmission Control Module (TCM) or Integrated Powertrain Predictive Controller (IPPC)/Integrated Powertrain Module (IPM) been recently programmed?
   a. Yes; Go to step 3.
   b. No; Go to step 4.

3. Turn ignition OFF, close DiagnosticLink, and disconnect the USB link from the 9-pin connector. Wait five minutes, reconnect the USB link and DiagnosticLink. Turn the Ignition ON and recheck for the fault code. Does fault code SPN 625/FMI 9 become active in the CPC?
    a. Yes; Go to step 4.
    b. No; the fault code was set during the reprogramming event. No further diagnostics or repairs are needed for this fault.
4. Check for battery voltage fault codes. Are fault codes SPN 168/FMI any present in the modules?
    a. Yes; diagnose the battery voltage fault codes.
    b. No; Go to step 5.
5. Check for other communication fault codes; is fault code SPN 625/FMI 9 also present in the CPC?
    a. Yes; Go to step 17.
    b. No; Go to step 6.
6. Turn the ignition OFF.
7. Disconnect and inspect the ACM 21-pin electrical connector harness side. Refer to section "Electrical Connector Inspection". Is there corrosion, damage, bent or spread pins?
    a. Yes; Refer to section "Electrical Connector Inspection".
    b. No; Go to step 8.
8. Measure the resistance between 3, 5, 6, 8, and 9 of the 21-pin ACM connector, harness side and battery ground. Are the resistances less than five ohms for each pin?



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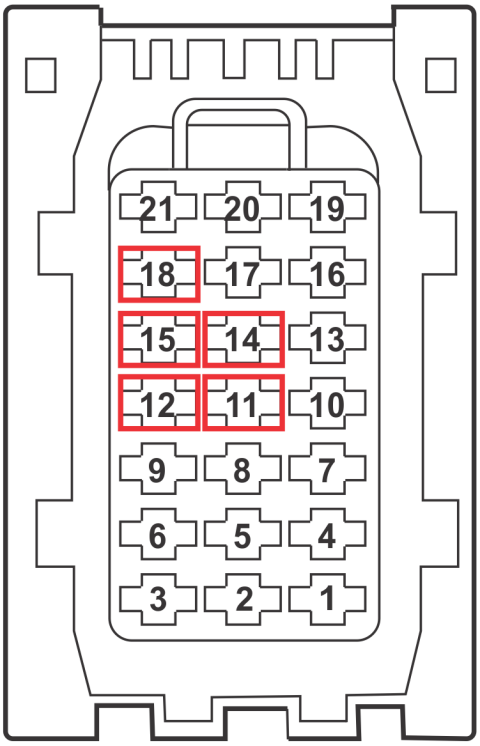
    a. Yes; Go to step 9.
    b. No; repair the circuit between pins 3, 5, 6, 8, 9 and the circuit splice.
9. Measure the battery voltage directly at the batteries. Record the results.
10. Turn the ignition ON (key ON, engine OFF).
11. Measure the voltage on pins 11, 12, 14, 15, and 18 of the ACM 21-pin connector, harness side and battery ground. Is the voltage measurement on pins 11, 12, 14, 15, and 18 within 0.5 volt of the battery voltage?



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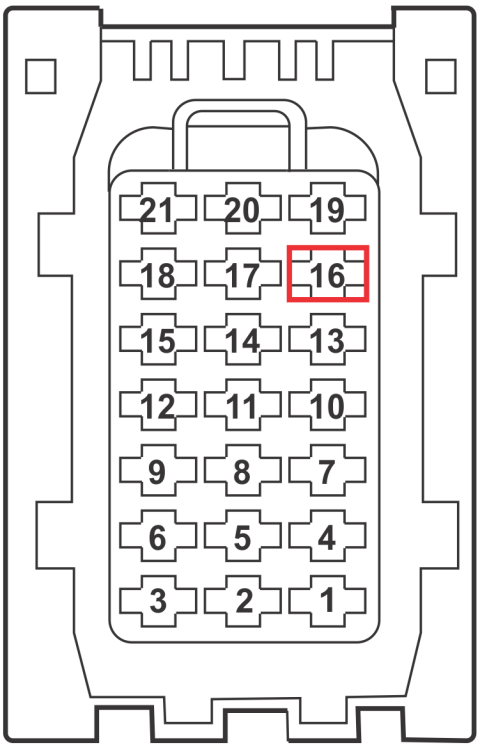
a. Yes; Go to step 12.
b. No; repair the circuits in question.

12. Measure the voltage between pin 16 of the ACM 21-pin electrical connector, harness side and battery ground. Is the voltage within 0.5 volt of the battery voltage?



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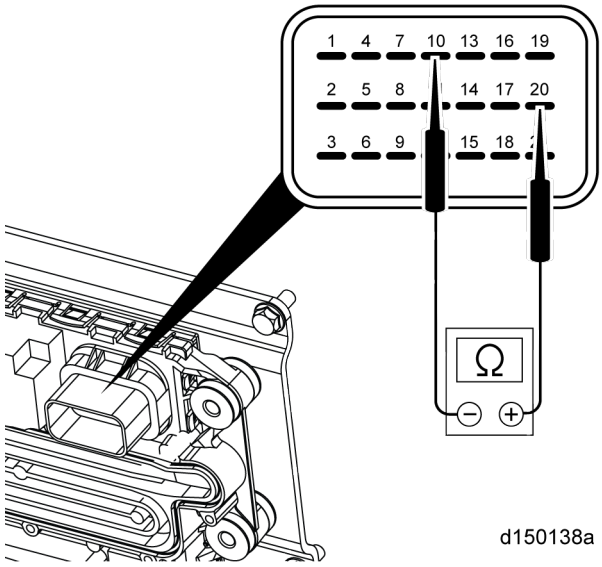
a. Yes; Go to step 13.

b. No; repair the ignition power circuit between pin 18 of the ACM 21-pin electrical connector, harness side, and fuse A in the Powernet Distribution Box (PNDB).

CAUTION: ELECTRICAL SHOCK

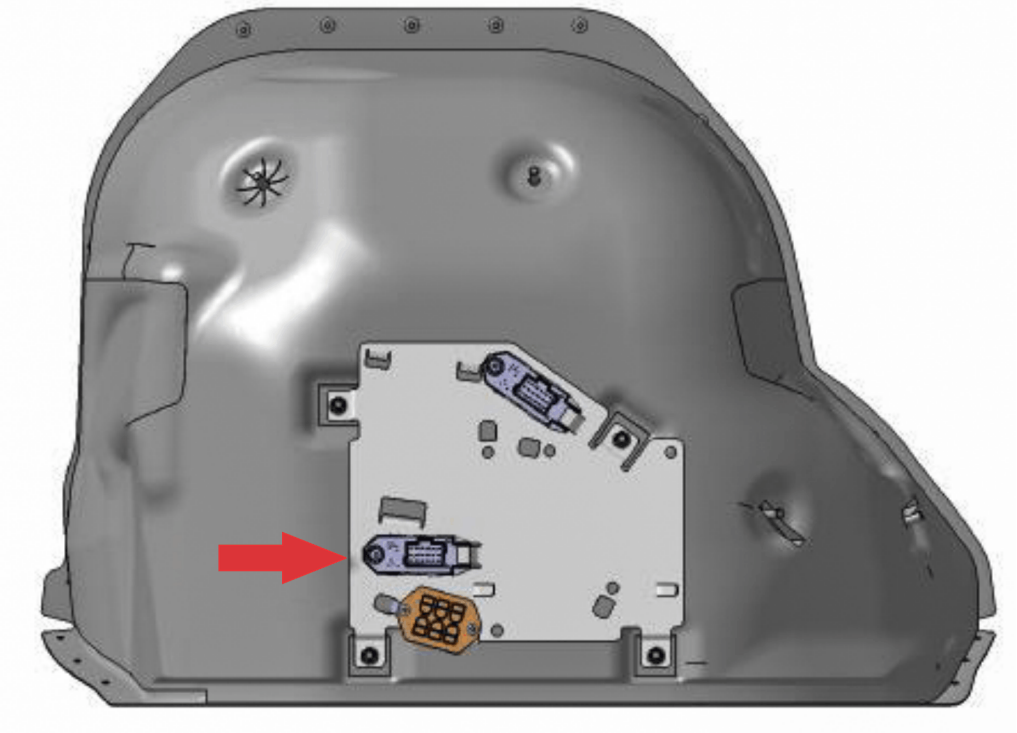
To avoid injury from electrical shock, use care when connecting battery cables. The magnetic switch studs are at battery voltage.

13. Turn the ignition OFF and disconnect the batteries.
14. Measure and record the resistance between pin 10 and pin 20 of the ACM electrical connector component side. Is the resistance between 115 and 125 ohms?



a. Yes; Reconnect the ACM 21-pin electrical connector and Go to step 15.
b. No; replace the ACM.

15. Disconnect and inspect the 18-pin Powertrain Starpoint electrical connector harness side. Refer to section "Electrical Connector Inspection". Is there corrosion, damage, bent or spread pins?



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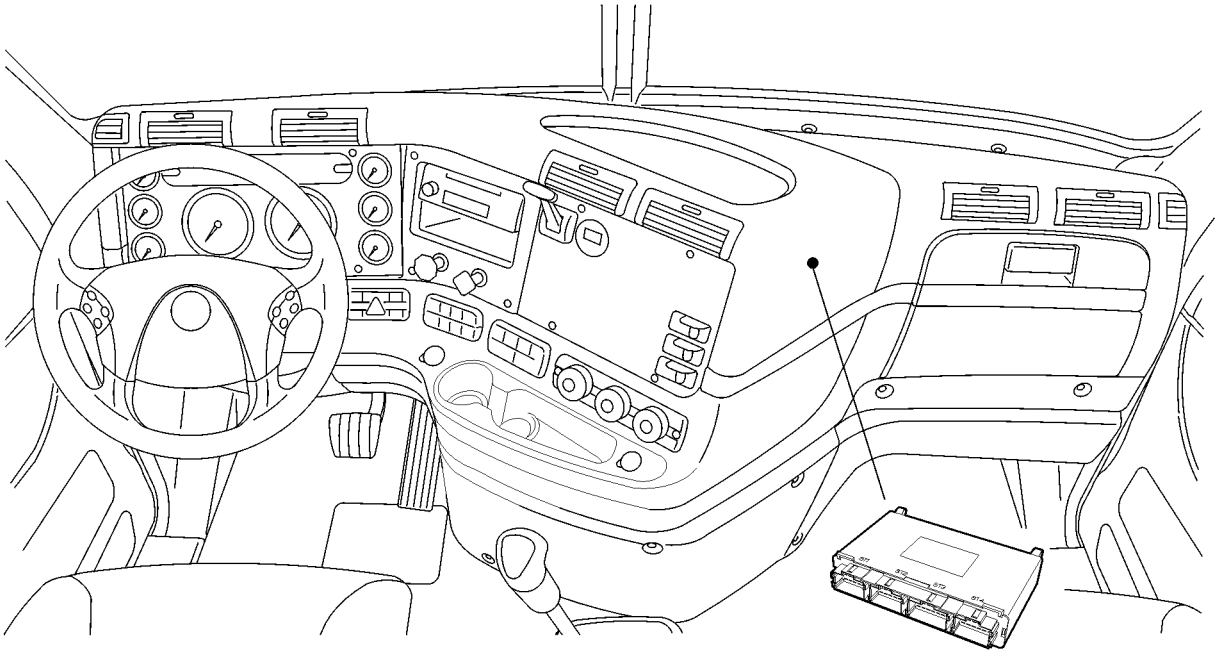
a. Yes; Refer to section "Electrical Connector Inspection".
b. No; Go to step 16.

16. Measure and record the resistance between pins 7 and 9 of the Starpoint electrical connector harness side. Is the resistance within 1.5 ohms of the measurement taken in step 14?
    a. Yes; replace ACM.
    b. No; repair the CAN circuits between the powertrain Starpoint and the ACM.
17. Disconnect and inspect the CPC electrical connector #3. Refer to section "Electrical Connector Inspection". Is there corrosion, damage, bent or spread pins?



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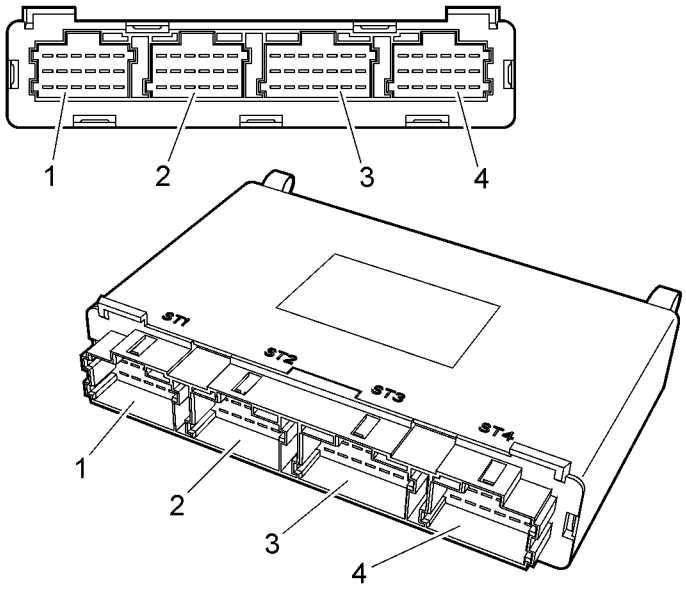

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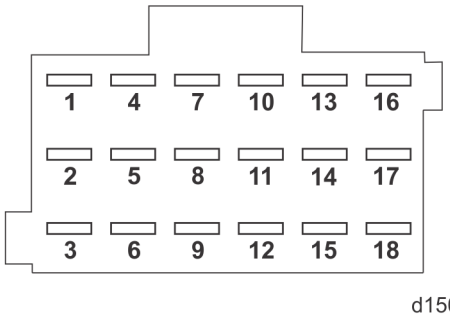
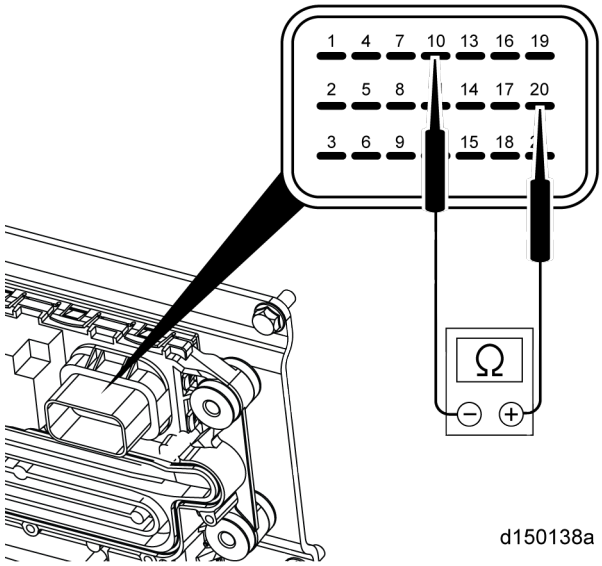
a. Yes; Refer to section "Electrical Connector Inspection".
b. No; Go to step 18.

18. Measure and record the resistance between pin 19 and pin 21 component side. Is the resistance between 115 and 125 ohms?



a. Yes; reconnect the CPC electrical connector and Go to step 19.
b. No; replace the CPC.

19. Disconnect and inspect the ACM 21-pin electrical connector harness side. Refer to section "Electrical Connector Inspection". Is there corrosion, damage, bent or spread pins?
    a. Yes; Refer to section "Electrical Connector Inspection".
    b. No; Go to step 20.
20. Measure and record the resistance between pin 10 and pin 20 of the ACM electrical connector component side. Is the resistance between 115 and 125 ohms?



a. Yes; reconnect the ACM 21-pin electrical connector and Go to step 21.
b. No; replace the ACM.

21. Multiply the resistance measurements from steps 18 and 20 together and record the results. Then add the resistance measurements from steps 18 and 20 together. Finally divide the multiple results by the added results. Record your results. Then Go to step 22.
    EX: 118 ohms x 120 ohms = 14160
    118 ohms + 120 ohms = 238
    14160 / 238 = 59 ohms
22. Disconnect and inspect the MCM 21-pin electrical connector harness side. Refer to section "Electrical Connector Inspection". Is there corrosion, damage, bent or spread pins?
    a. Yes; Refer to section "Electrical Connector Inspection".
    b. No; Go to step 23.
23. Measure and record the resistance between pins 13 and 19 of the Starpoint electrical connector harness side. Is the resistance within 1.5 ohms of the measurement taken in step 21?
    a. Yes; replace the MCM.

b. No; repair the CAN circuits between the MCM and the powertrain Starpoint.

