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Coding Information

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**Title:** Symptom 5: No-Idle HVAC Blows Warm Air

**Applies To:** ProStar® and LoneStar®

## CHANGE LOG

Please refer to the change log text box below for recent changes to this article:

\*10/01/2015 - Updated SRT table formatting.  
 \*04/21/2015 - Adjusted image step 26  
 \*03/09/2015 - Added Warranty and SRT Information  
 \*02/10/2015 - Update to steps  
 \*11/21/2014 - Initial Internal Article Release

## DESCRIPTION

This document will guide the user through the diagnostic steps for No-Idle HVAC Blows Warm Air.

## SYMPTOM(s)

**Diagnostic Trouble Code(s) & Dashboard Indicator Light(s):-**

Not Applicable

DTC/Light	Description
Not Applicable	

**Customer Observations or Concerns:**

- Loose connections
- Blown fuse
- Failed relay
- Broken wire or defective harness
- Fault code
- Blend door obstruction
- Failed blend door actuator
- Failed condenser fan motor
- Failed system controller
- Failed compressor controller
- Failed compressor
- Refrigerant leak

## SPECIAL TOOL(s) / SOFTWARE

Tool Description	Tool Number	Comments	Instructions
Navistar Test Lead Kit	77066-NAV		


[Tools Resource Center](#)


## **SERVICE PARTS INFORMATION**

Not Applicable

Kit Description	Part Number	Quantity Required	Notes
Not Applicable			

## **DIAGNOSTIC STEP(s)**

 <b>WARNING:</b>
To prevent property damage, personal injury, and / or death, park vehicle on a hard, flat surface, turn engine off, set parking brake, and install wheel chocks to prevent vehicle from moving in either direction.

 <b>WARNING:</b>
To prevent personal injury and / or death, always wear safe eye protection when performing vehicle maintenance.

<b>CAUTION:</b>
To prevent damage to components, do not attempt to connect battery voltage to evaporator blower motor, condenser fan motor, or A/C compressor. Electronic components within the motors are sensitive to arcing and reverse polarity.

<b>NOTE:</b>
Perform all of the following steps with Key-OFF and Park Brake set unless otherwise directed.

<b>NOTE:</b>
When disconnecting harness connectors, check for pushed-back and damaged terminals.

<b>NOTE:</b>
After any step where a problem is detected, repair as needed and retest for original concern.

<b>NOTE:</b>
If operator uses No-Idle A/C with ignition switch in ACCESSORY position, verify park brake input logic to system controller is correct.

<b>NOTE:</b>
Vehicles built with or updated to 150A compressor relays do not use fuse (F2); circuit protection is provided by cube fuse located in battery box.

**NOTE:**

When 12V No-Idle system controller senses battery voltage drop below 11.8V for 10 seconds, system will shut down.

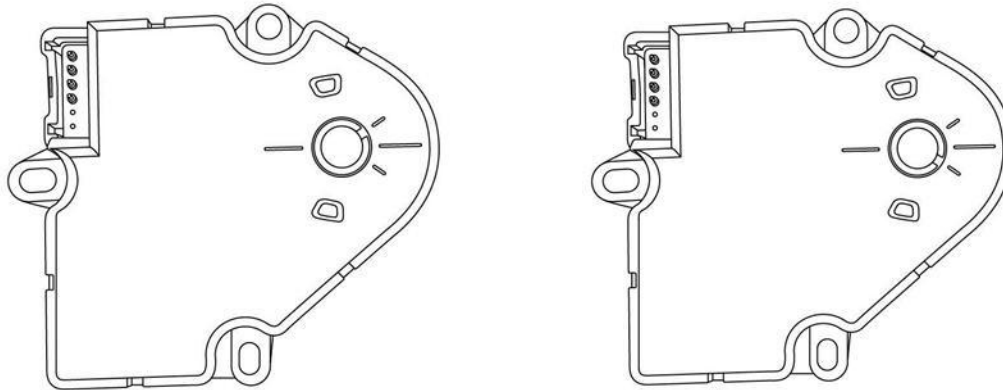
**NOTE:**

No-Idle A/C faults are transferred to Body Controller (BC) at Key-ON handshake between BC and No-Idle system controller. Inactive faults are not stored in the system controller. Only those faults that are active at handshake are transferred.

Step	Action	Decision
1	<b>OPERATIONAL CHECK:</b> a. Verify all operational checks have been performed.  Have all operational checks been performed?	Yes. Go to Step 2.
		No. Go to <a href="#">Operational Checks in IK1900235</a> .

Step	Action	Decision
2	<b>BLOWER OPERATION CHECK:</b> a. Turn ignition Key-Off and depress control panel COOL switch to start No-Idle A/C. b. Depress digital display Speed up and Speed down switches to vary blower speed. c. Depress control panel COOL switch to stop No-Idle A/C.  Does blower operate and change speeds when digital display Speed up and Speed down switches are depressed?	Yes. Go to Step 3.
		No. Blower does not operate: Perform <a href="#">Symptom 3: No-Idle HVAC Inoperative</a> .
		No. No-Idle system starts and runs in default temperature and blower speed but does not respond to digital display: Perform <a href="#">Symptom 4: No-Idle HVAC Digital Display Inoperative</a> .

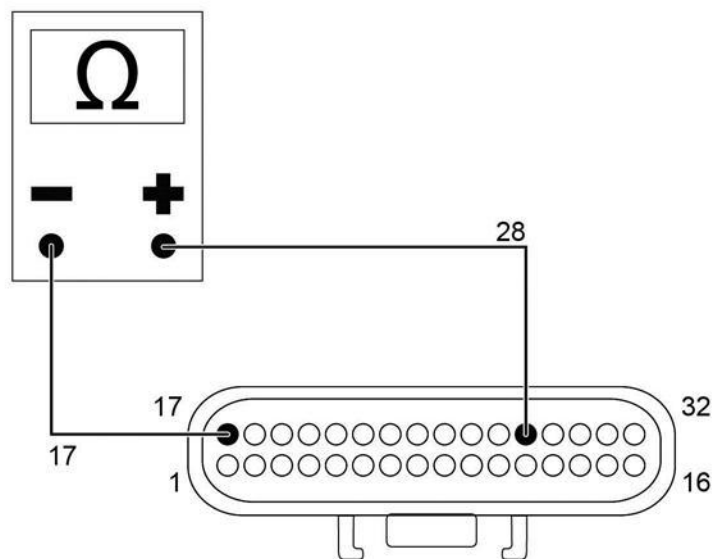




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Figure 1. Blend Door Actuator A/C Mode and Heat Mode.

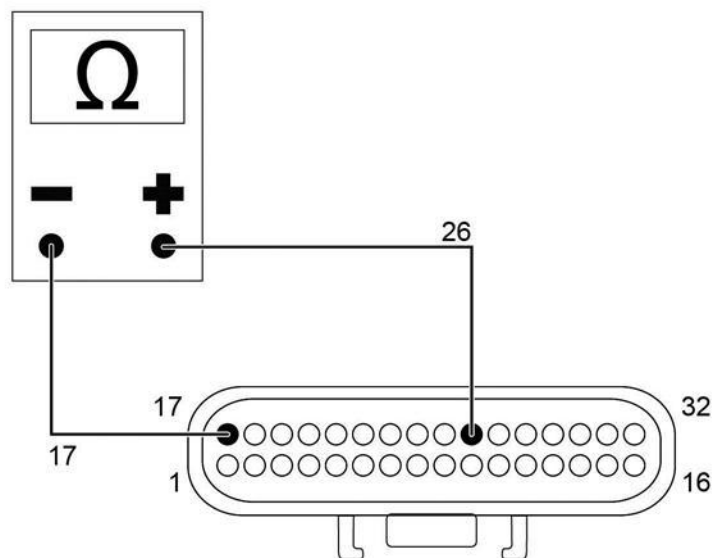
Step	Action	Decision
3	<p><b>BLEND DOOR ACTUATOR OPERATION:</b></p>	<p><b>Yes. Go to Step 4.</b></p>
	<p>a. Raise bunk to gain access to top of No-Idle system.                      b. Remove Red 10A fuse (F7) from No-Idle relay / fuse panel. After 10 seconds, install Red 10A fuse (F7) to reset blend door actuator.                      c. Turn ignition Key-Off and depress control panel COOL switch to start No-Idle A/C.                      d. Depress digital display temperature switch to coldest setting.                      e. Note position of blend door actuator collar slot.                      f. Depress control panel COOL switch to stop No-Idle system.                      g. Depress control panel HEAT switch.                      h. Note position of blend door actuator collar slot.                      i. Compare position of collar slot in Step 3.e and Step 3.h (Figure 1).                      j. Depress control panel HEAT switch to stop No-Idle system.</p> <p><b>Are Steps 3.e and 3.h collar slot positions correct for desired No-Idle function?</b></p>	<p><b>No. Go to Step 23.</b></p>



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Figure 2. 32-Way System Controller Harness Connector Face View.

Step	Action	Decision
4	<b>PRESSURE SWITCH CIRCUIT CHECK:</b> a. Disconnect 32-way system controller harness connector from system controller. b. Use a DMM to check continuity between 32-way system controller harness connector pin-17 and pin-28 (Figure 2).  Is continuity present between 32-way system controller harness connector pin-17 and pin-28?	Yes. Leave the system controller connector unplugged and go to Step 5.
		No. Leave the system controller connector unplugged and go to Step 16.



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Figure 3. 32-Way System Controller Harness Connector Face View.

Step	Action	Decision
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<b>5</b>	<b>DISCHARGE TEMPERATURE SENSOR CHECK:</b>	<b>Yes. Leave the system controller connector unplugged and go to Step 6.</b>
	<ul style="list-style-type: none"> <li>a. Use a temperature probe from an A/C machine or a digital thermometer to measure ambient temperature in area of discharge temperature sensor.</li> <li>b. Record temperature.</li> <li>c. Use a DMM to measure resistance between 32-way system controller harness connector pin-26 and pin-17 (Figure 3).</li> <li>d. Locate correct resistance on Sensor Temperature Relationship Resistance Chart.</li> <li>e. Compare measured resistance to Min - Max range on chart.</li> </ul>	<b>No. Leave the system controller connector unplugged and go to Step 17.</b>

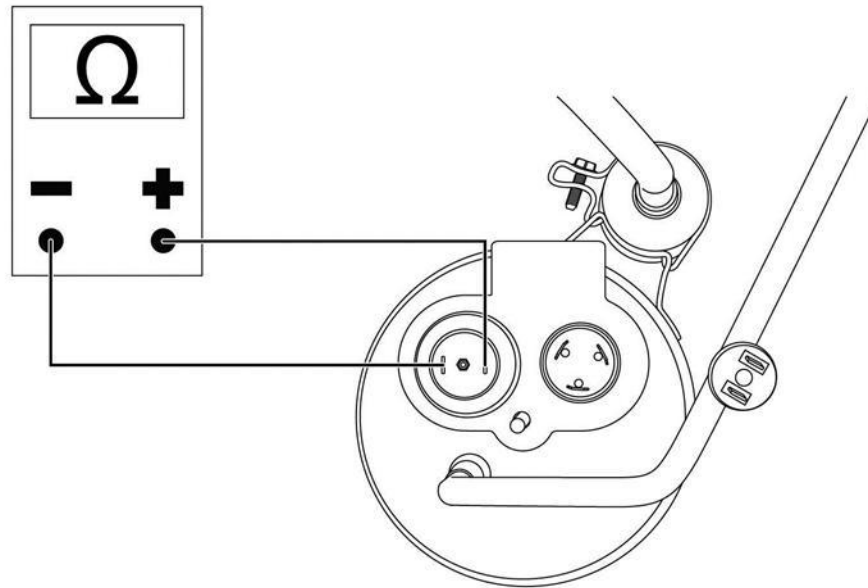
**Discharge Sensor Air Resistor Base Fall Temperature - Resistance Relationship Chart**

Resistance values in Kohms.

Temp (°F)	Temp (°C)	MIN	KΩ	MAX
32.0	0	15.84		16.16
33.8	1	15.05		15.37
35.6	2	14.30		14.62
37.4	3	13.60		13.91
39.2	4	12.93		13.24
41.0	5	12.30		12.61
42.8	6	11.70		12.01
44.6	7	11.14		11.45
46.4	8	10.61		10.91
48.2	9	10.10		10.40
50.0	10	9.62		9.91
51.8	11	9.17		9.46
53.6	12	8.74		9.02
55.4	13	8.34		8.61
57.2	14	7.95		8.22
59.0	15	7.58		7.85
60.8	16	7.24		7.50
62.6	17	6.91		7.17
64.4	18	6.60		6.85
66.2	19	6.30		6.55

68.0	20	6.02		6.26
69.8	21	5.75		5.99
71.6	22	5.50		5.73
73.4	23	5.26		5.48
75.2	24	5.03		5.25
77.0	25	4.81		5.03
78.8	26	4.60		4.81
80.6	27	4.41		4.61
82.4	28	4.22		4.42
84.2	29	4.04		4.23
86.0	30	3.87		4.06
87.8	31	3.71		3.89
89.6	32	3.55		3.73
91.4	33	3.41		3.58
93.2	34	3.26		3.44
95.0	35	3.13		3.30
96.8	36	3.00		3.17
98.6	37	2.88		3.04
100.4	38	2.76		2.92
102.2	39	2.65		2.81
104.0	40	2.55		2.70
105.8	41	2.45		2.59
107.6	42	2.35		2.49
109.4	43	2.26		2.39
111.2	44	2.17		2.30
113.0	45	2.09		2.21





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Figure 5. Thermal Limit Switch.

Step	Action	Decision
7	<p><b>THERMAL LIMIT SWITCH CHECK:</b></p> <ul style="list-style-type: none"> <li>a. Depress control panel COOL switch to stop No-Idle system.</li> <li>b. Remove compressor controller cover.</li> <li>c. Remove nut and plastic cover over thermal limit switch and compressor harness connector.</li> <li>d. Disconnect two wire terminals from thermal limit switch and inspect wires.</li> <li>e. Use a DMM to check for continuity between two thermal limit switch terminals (Figure 5).</li> </ul> <p>Is continuity present between two thermal limit switch terminals?</p>	Yes. Go to Step 8.
		Yes, but one or both of the thermal switch wires have visible damage causing an open circuit: Replace the compressor controller. Reassemble the unit to run and retest for operators concern.
		No. Continuity does not exist across thermal limit switch: Allow switch to cool and retest. If switch is closed after cooling period, check for proper air flow through condenser fan grille and for debris stopping air flow around compressor. If restrictions do not exist, replace thermal limit switch. Assemble unit to run and retest for operator concern.

Step	Action	Decision
8	<p><b>CONDENSER FAN MOTOR OPERATION CHECK:</b></p> <ul style="list-style-type: none"> <li>a. Turn ignition Key-Off and depress control panel COOL switch to start No-Idle A/C.</li> <li>b. Depress digital display blower speed up switch multiple times to highest setting.</li> <li>c. Depress digital display temperature down switch multiple times to coldest setting.</li> <li>d. Wait several minutes and check for condenser fan operation.</li> </ul> <p>Does condenser fan run?</p>	Yes. Fan operates correctly: Leave No-Idle A/C operating and go to Step 9.
		No. Go to Step 19.

Step	Action	Decision
9	<p><b>COMPRESSOR CONTROLLER OPERATION CHECK:</b></p> <ul style="list-style-type: none"> <li>a. Check air temperature at discharge vents.</li> </ul>	<p>Yes. Diagnostics are complete. No-Idle HVAC system is operating correctly.</p> <p>No. Go to Step 10.</p>

Is air exiting from discharge vents cold?

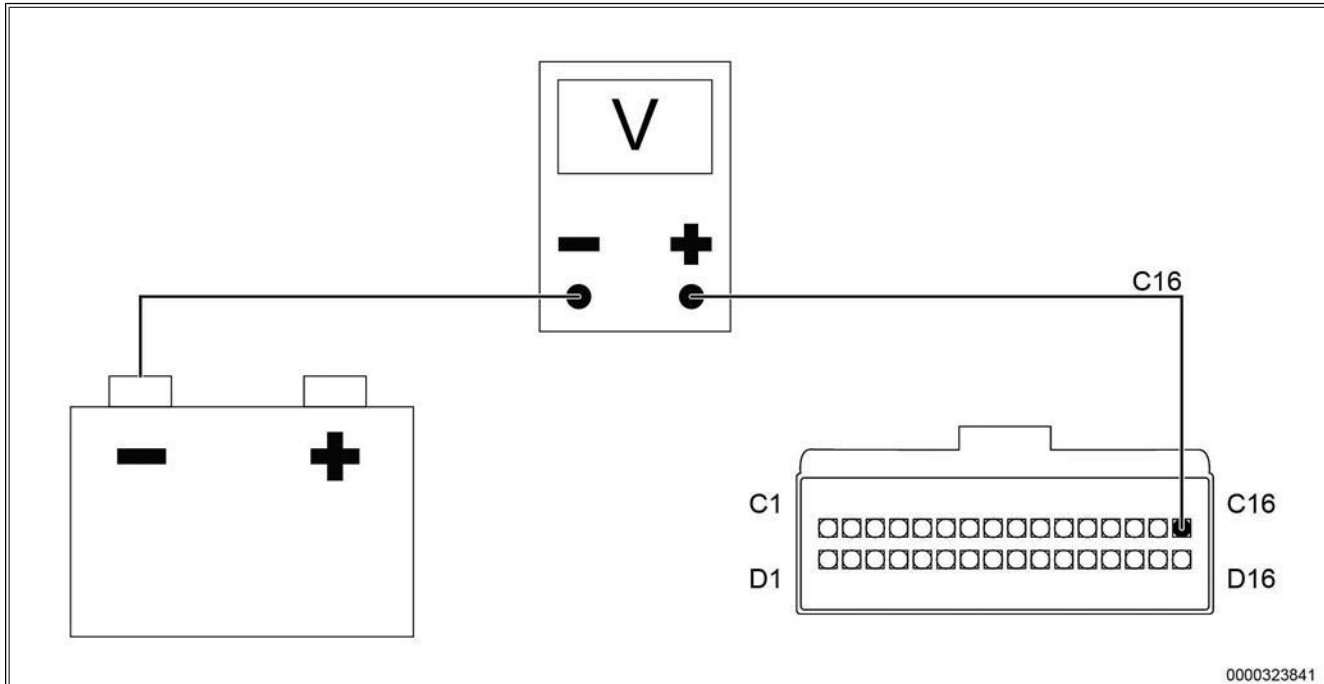
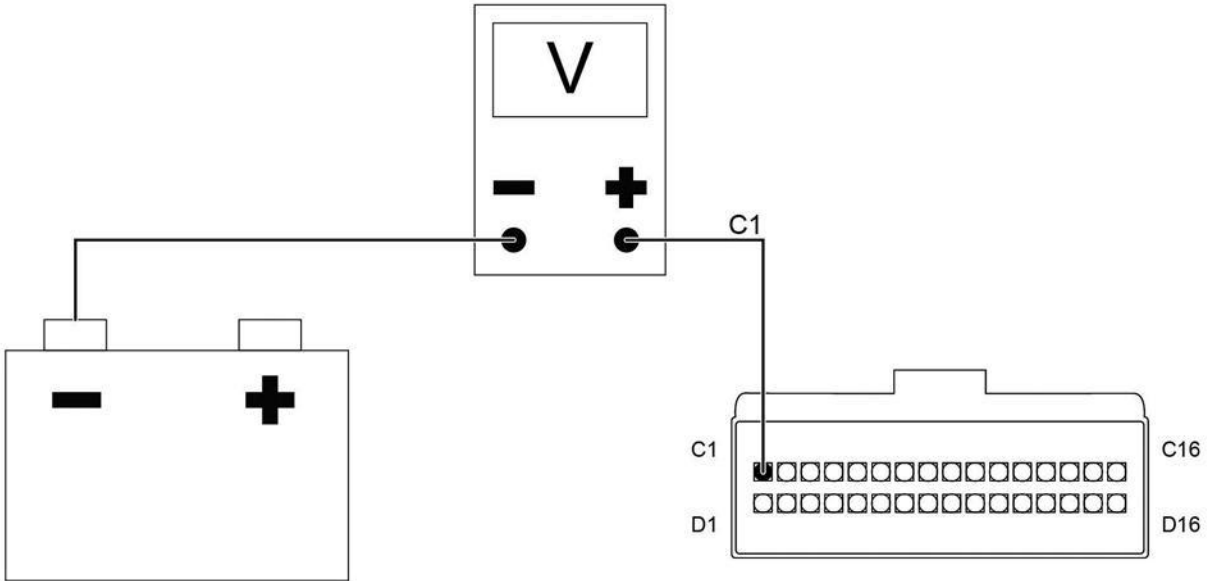


Figure 6. 32-Way Compressor Controller Connector Back View.

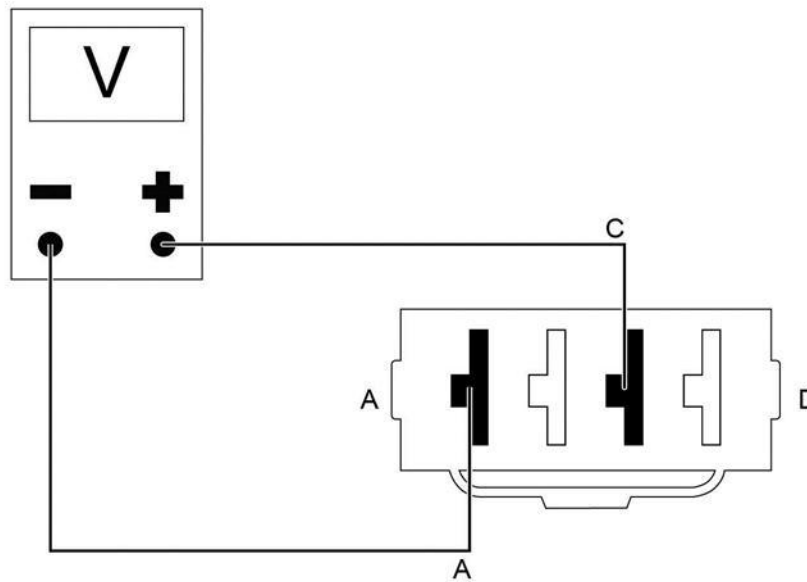
Step	Action	Decision
10	<p><b>COMPRESSOR SPEED SIGNAL CHECK:</b></p> <p>a. Turn ignition Key to the Off position</p> <p>b. Depress control panel COOL momentary switch</p> <p>c. Depress temperature control to coldest setting.</p> <p>d. Use a DMM to back probe the compressor controller connector; measure the voltage between pin-C16 and a known good ground (Figure 6).</p> <p>Is voltage on pin-C16 to a known good ground between 3.2V and 3.9V?</p>	<p>Yes. Leave No-Idle unit running and go to Step 11.</p>
		<p>No. Depress control panel COOL switch to stop No-Idle A/C and go to Step 14.</p>



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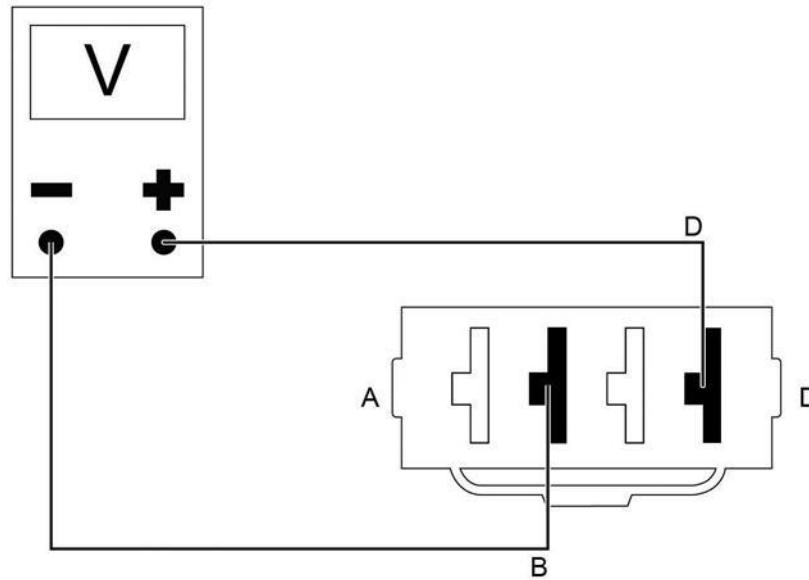
Figure 7. 32-Way Compressor Controller Connector Back View.

Step	Action	Decision
11	<p><b>COMPRESSOR CONTROLLER LOW AMP PWR CHECK:</b></p> <p>a. Use a DMM to back probe and measure voltage between 32-way compressor controller connector pin-C1 and a known good ground (Figure 7).</p> <p>b. Depress control panel COOL switch to stop No-Idle system.</p> <p>Is there B+ voltage between 32-way compressor controller connector pin-C1 and a known good ground?</p>	<p>Yes. Go to Step 12.</p>
		<p>No. Go to Step 15.</p>



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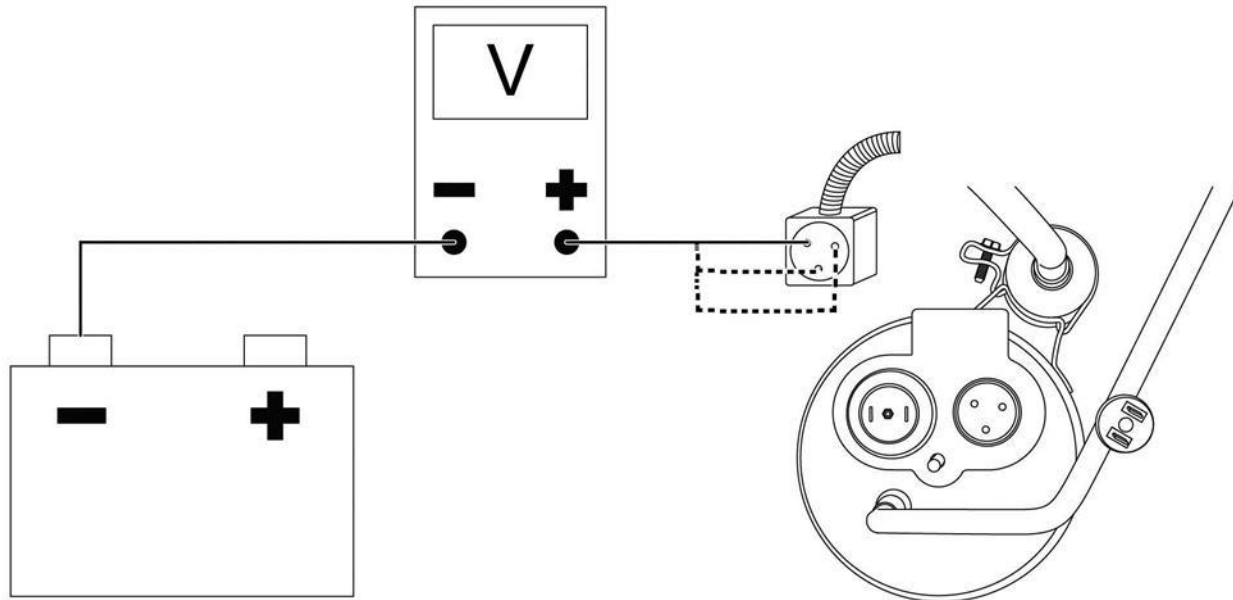
Figure 8. 4-Way Compressor Controller Connector Face View.



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Figure 9. 4-Way Compressor Controller Connector Face View.

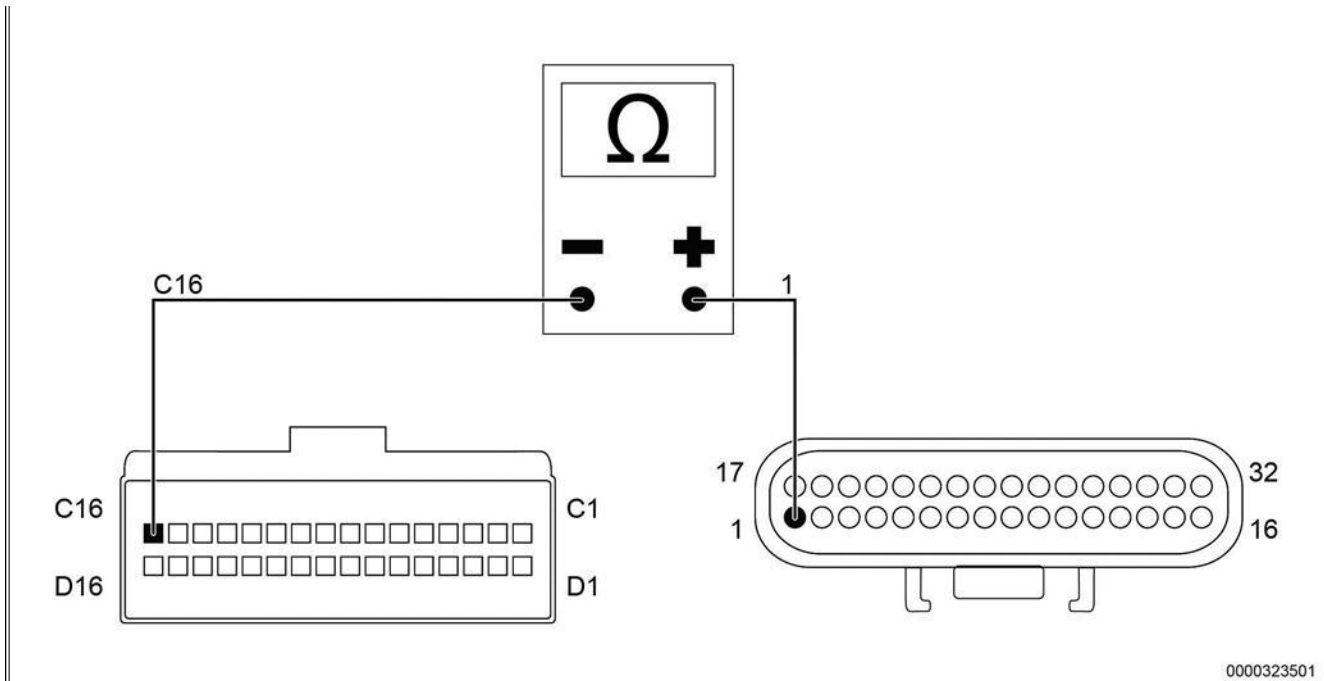
Step	Action	Decision
	<b>COMPRESSOR CONTROLLER HIGH AMP PWR / GND CHECK:</b>	<b>Yes. Go to Step 13.</b>
	<ul style="list-style-type: none"> <li>a. Inspect 4-way compressor controller PWR / GND connectors for damage and loose terminals.</li> <li>b. Use a DMM to measure voltage between 4-way compressor controller connector pin-A and pin-C (Figure 8) and between pin-B and pin-D (Figure 9).</li> </ul>	<p><b>No. Check Blue 60A compressor fuse (F2)*. Check 70A* relay (R1). Check cube fuse (60A), and check for high resistance or open circuit in ground side circuits. Assemble unit to run and retest for operator concern.</b></p>
12	Is there B+ voltage between 4-way compressor controller connector pin-A and pin-C and between pin-B and pin-D?	<p>* Vehicles built with, or updated to, 150A relay do not use fuse (F2). Circuit protection is provided by cube fuse located in battery box and 150A relay located in heater coil area of No-Idle housing.</p>



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Figure 10. 3-Way Compressor Controller Harness Connector Face View.

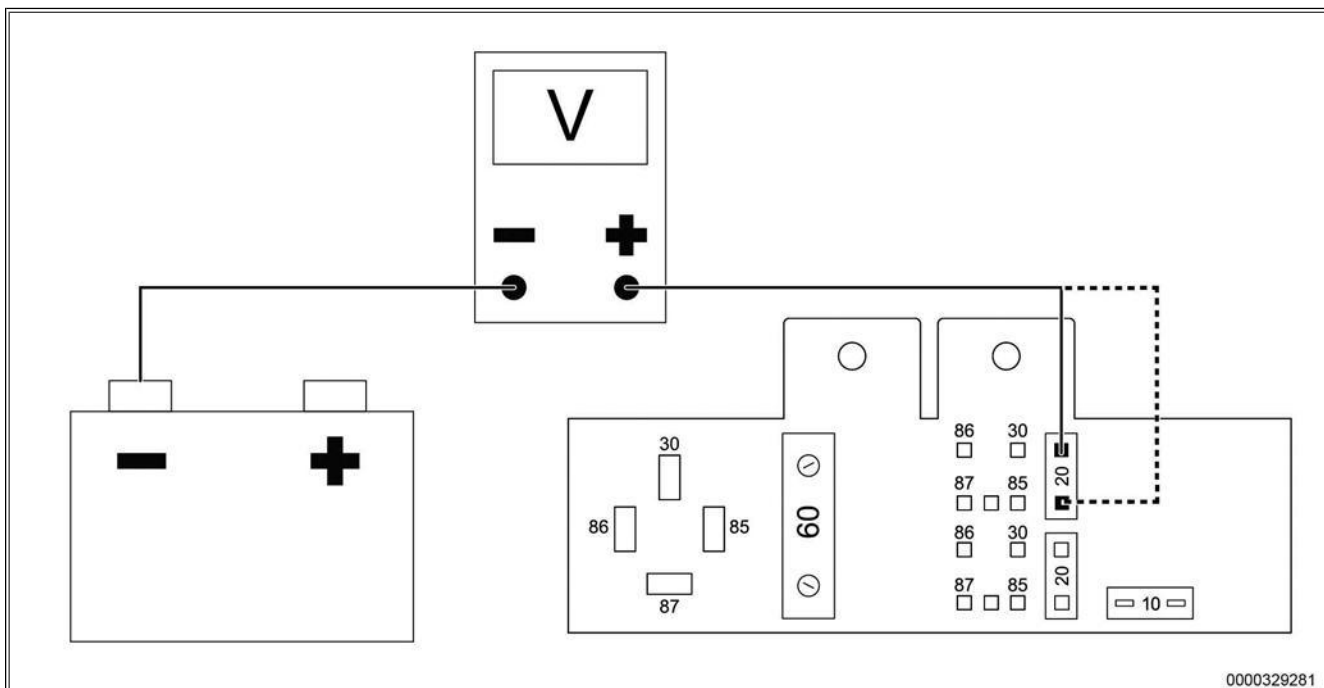
Step	Action	Decision
13	<p><b>COMPRESSOR CONTROLLER OUTPUT CHECK:</b></p> <p><b>CAUTION:</b></p> <p>To prevent damage to components, do not attempt to connect to battery voltage to evaporator blower motor, condenser fan motor, or A/C compressor. Electronic components within the motors are sensitive to arcing and reverse polarity.</p>	<p><b>Yes. Replace the refrigerant system. Reassemble unit to run and retest for operators concern.</b></p>
	<p>a. Stop the No-Idle Unit.</p> <p>b. Remove the compressor controller cover.</p> <p>c. Disconnect 3-way compressor controller harness connector from compressor.</p> <p>d. Turn ignition Key-Off and depress control panel COOL switch to start the No-Idle system.</p> <p>e. Depress digital display temperature control to coldest setting.</p> <p>f. Use a DMM to measure voltage between each individual compressor power wire and a known good ground (Figure 10). Voltage on each wire should be 5 -6V</p> <p>Is voltage correct on all three wires?</p>	<p><b>No. Replace compressor controller. Assemble unit to run and retest for operators concern.</b></p>



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Figure 11. 32-Way Compressor Controller Connector Face View and 32-Way System Controller Connector Face View.

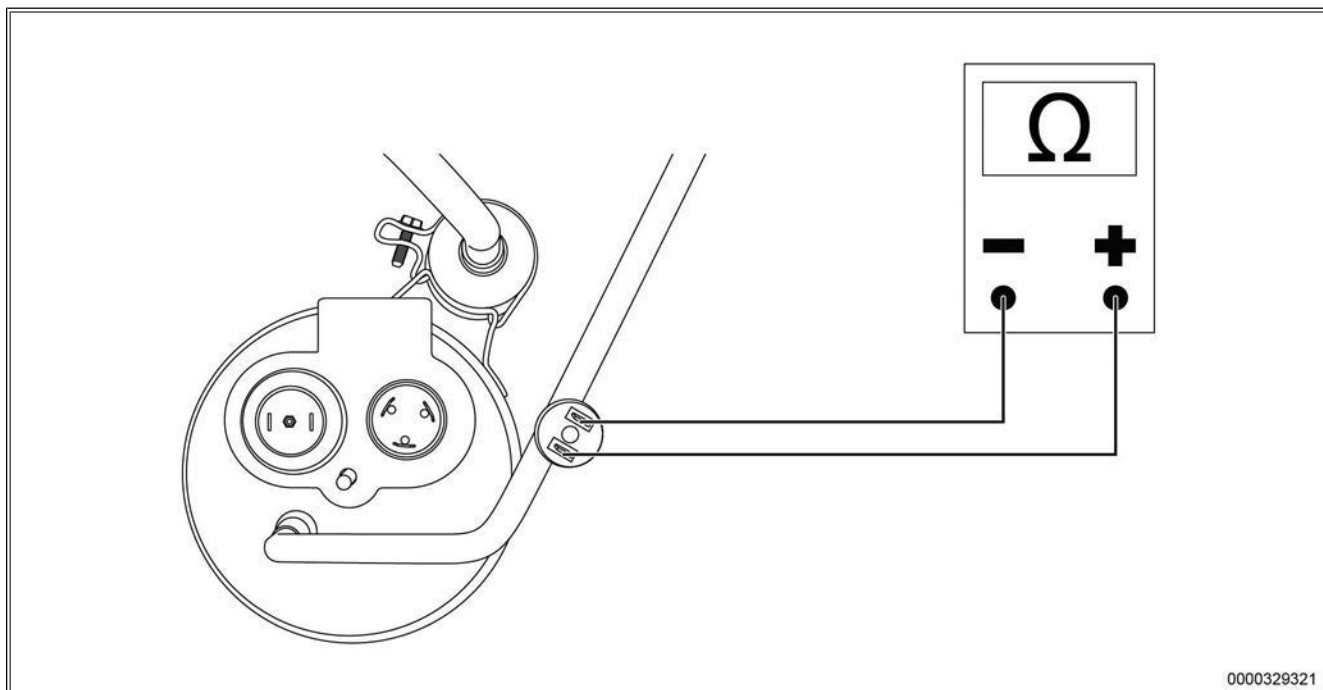
Step	Action	Decision
14	<p><b>COMPRESSOR SPEED SIGNAL CIRCUIT CHECK:</b></p> <p>a. Disconnect 32-way compressor controller connector.</p> <p>b. Disconnect 32-way system controller connector.</p> <p>c. Use a DMM to check continuity between 32-way system controller connector pin-1 and 32-way compressor controller connector pin-C16 (Figure 11).</p> <p>Is continuity present between 32-way system controller connector pin-1 and 32-way compressor controller connector pin-C16?</p>	<p>Yes. Replace system controller. Assemble unit to run and retest for operator concern.</p>
		<p>No. Replace No-Idle harness. Assemble unit to run and retest for operator concern.</p>



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Figure 12. No-Idle Fuse / Relay Panel.

Step	Action	Decision
15	<p><b>COMPRESSOR CONTROLLER LOW AMP PWR CIRCUIT CHECK*:</b></p> <p>a. Use a DMM to measure voltage on each side of Yellow 20A blower fuse (F5) (Figure 12).</p> <p>Does Yellow 20A blower fuse (F5) have B+ on both sides?</p> <p>* Vehicles built with, or updated to, 150A relays do not use compressor controller pin-C2 GND wire.</p>	<p>Yes. Replace No-Idle harness. Assemble unit to run and retest for operator concern.</p>
		<p>No. If Yellow 20A blower fuse (F5) is good, check 30-way chassis / No-Idle harness connector (5205) pin-A7 and pin-A8 for pushed back pins. Check cube fuse. Assemble unit to run and retest for operator concern.</p>
		<p>No. Yellow 20A blower fuse (F5) blows repeatedly: Go to Step 30.</p>

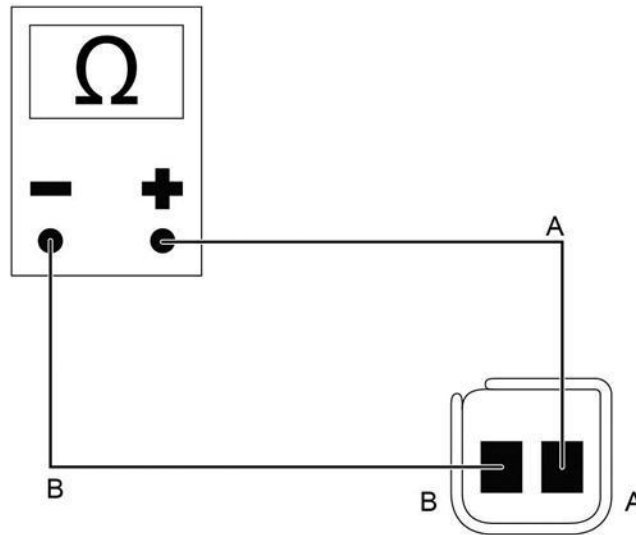


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Figure 13. Pressure Switch.

Step	Action	Decision
16	<p><b>PRESSURE SWITCH CONTINUITY CHECK:</b></p> <p>a. Depress control panel COOL switch to turn off No-Idle A/C.</p> <p>b. Remove compressor controller cover.</p> <p>c. Disconnect two wire terminals from pressure switch.</p>	<p>Yes. Replace No-Idle harness. Assemble unit to run and retest for operator concern.</p>
	<p><b>NOTE:</b></p> <p>If sufficient air does not flow through condenser, refrigerant pressure may rise and open pressure switch contacts. Allow unit to cool down and retest pressure switch. If pressure switch is closed after cooling period, check for proper condenser fan operation and debris restricting air flow through condenser.</p> <p>d. Use a DMM to check continuity across pressure switch pins (Figure 13).</p>	<p>No. Replace sealed refrigerant system. Assemble unit to run and retest for operator concern.</p>

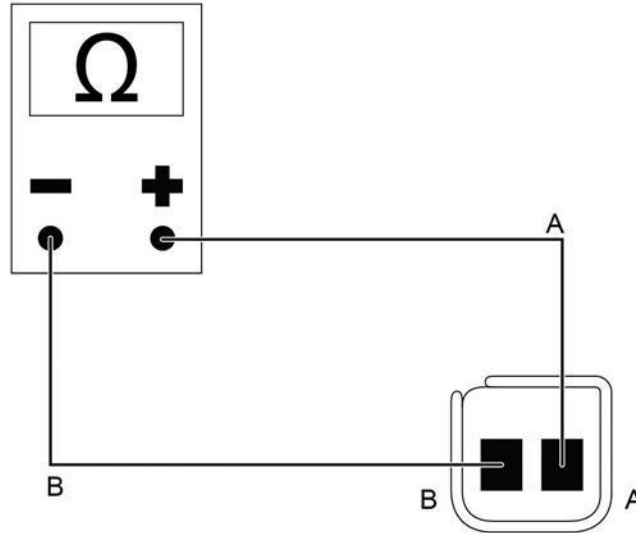
Is continuity present across pressure switch pins?



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Figure 14. 2-Way Discharge Temperature Sensor Pigtail Connector.

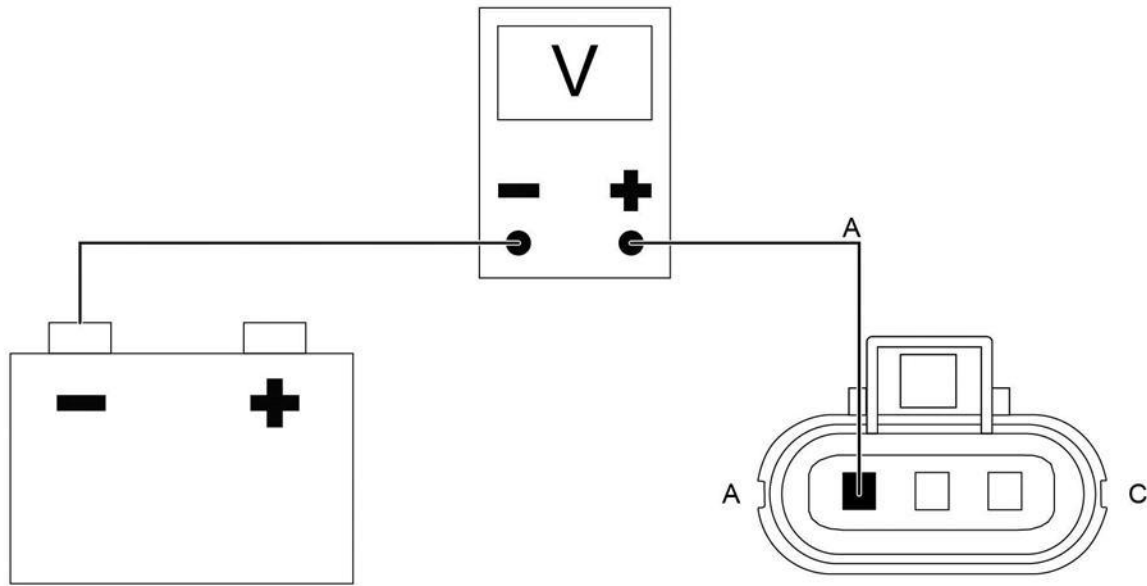
Step	Action	Decision
17	<p><b>DISCHARGE TEMPERATURE SENSOR CIRCUIT CHECK:</b></p> <ul style="list-style-type: none"> <li>a. Disconnect 2-way discharge temperature sensor pigtail connector from No-Idle harness.</li> <li>b. Use a temperature probe from and A/C machine or a digital thermometer to measure ambient temperature in area of discharge temperature sensor.</li> <li>c. Record temperature.</li> <li>d. Use a DMM to measure resistance between pin-A and pin-B of 2-way discharge temperature sensor pigtail connector (Figure 14).</li> <li>e. Locate temperature value on Discharge Sensor / Inlet Sensor chart (Refer to chart following Step 5).</li> <li>f. Compare measured resistance to Min - Max range on chart.</li> </ul> <p>Does measured resistance recorded in Step 17.c fall within Min - Max range on chart?</p>	<p><b>Yes. Replace No-Idle harness. Assemble unit to run and retest for operator concern.</b></p>
		<p><b>No. Replace discharge temperature sensor. Assemble unit to run and retest for operator concern.</b></p>



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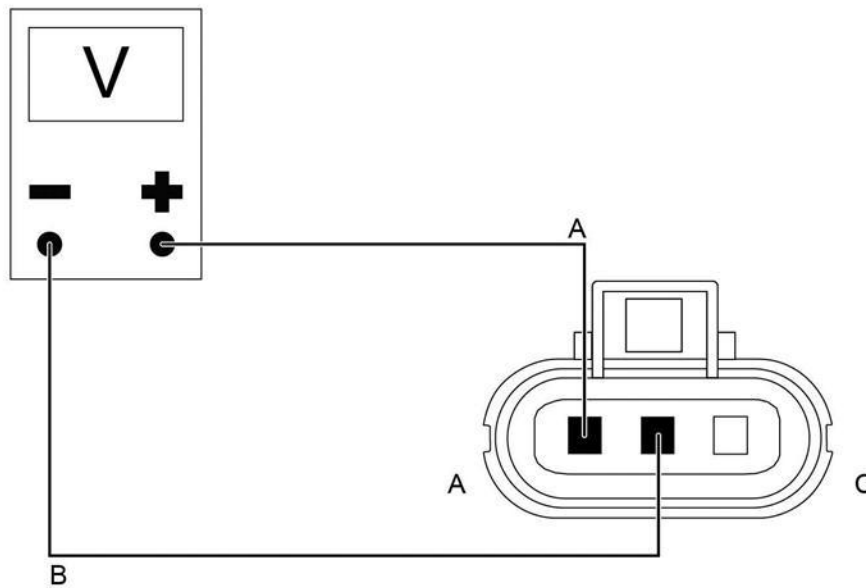
Figure 15. 2-Way Inlet Temperature Sensor Pigtail Connector.

Step	Action	Decision
18	<p><b>INLET TEMPERATURE SENSOR CIRCUIT CHECK:</b></p> <ul style="list-style-type: none"> <li>a. Disconnect 2-way inlet temperature sensor pigtail connector from No-Idle harness.</li> <li>b. Use a temperature probe from and A/C machine or a digital thermometer to measure ambient temperature in area of inlet temperature sensor.</li> <li>c. Record temperature.</li> </ul>	<p>Yes. Replace No-Idle harness. Assemble unit to run and retest for operator concern.</p>
	<ul style="list-style-type: none"> <li>d. Use a DMM to measure resistance between pin-A and pin-B of 2-way inlet temperature sensor pigtail connector (Figure 15).</li> <li>e. Locate temperature value on Discharge Sensor / Inlet Sensor chart (Refer to chart following Step 5).</li> <li>f. Compare measured resistance to Min - Max range on chart.</li> </ul> <p>Does measured resistance recorded in Step 18.c fall within Min - Max range on chart?</p>	<p>No. Replace inlet temperature sensor. Assemble unit to run and retest for operator concern.</p>



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Figure 16. 3-Way Condenser Fan Connector Face View.



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Figure 17. 3-Way Condenser Fan Connector Face View.

Step	Action	Decision
19	<p><b>CONDENSER FAN MOTOR PWR / GND CHECK:</b></p> <ul style="list-style-type: none"> <li>a. Remove the exterior condenser fan grille and unplug the fan harness connector from the motor pigtail lead.</li> <li>b. Use Navistar Test Lead Kit (NAV - 77066) to construct a breakout harness between the motor lead and the harness</li> <li>c. Turn ignition Key-Off and depress control panel COOL switch to start No-Idle unit.</li> <li>d. Depress digital display temperature control switch multiple times to coldest setting.</li> <li>e. Depress digital display blower speed switch multiple times to highest setting.</li> </ul>	<p>Yes. Leave test components connected and go to Step 20.</p> <p>No. Both Step 19.f and 19.g voltages are zero or low: Go to Step 21.</p> <p>No. Step 19.f voltage is B+ but Step 19.g voltage is zero or low. Replace No-Idle harness. Assemble unit to run and retest for operator concern.</p>

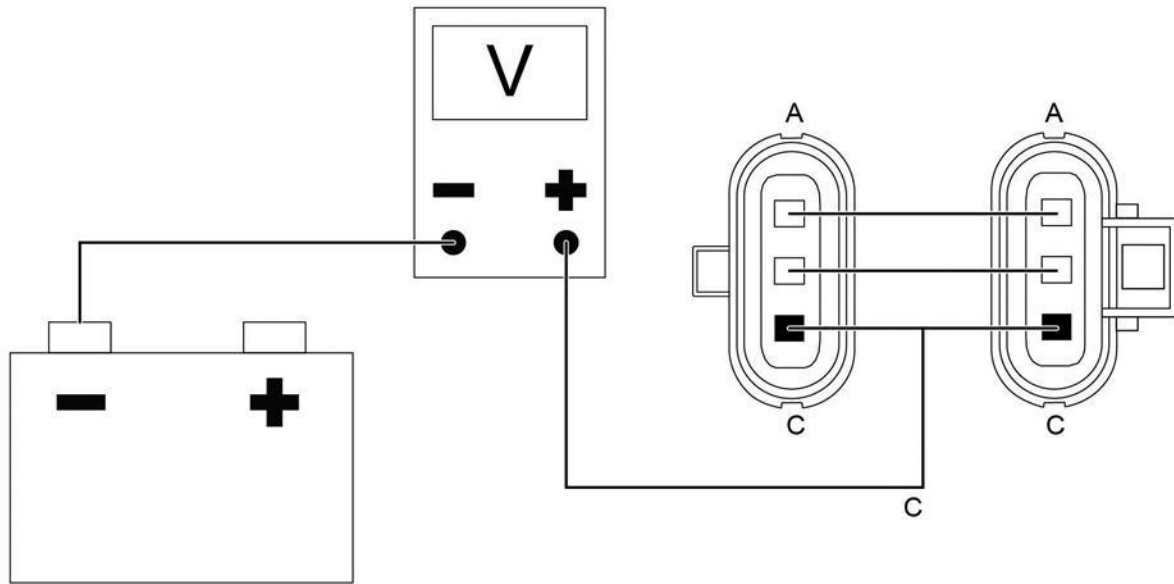
**NOTE:**

Perform Step 19.f and 19.g with compressor running. Condenser fan and compressor should start at same time or within a few seconds of each other. Listen for compressor start up or use a DMM to monitor voltage between relay side of fuse (F4) and a known good ground to verify system controller has enabled condenser and compressor relay.

- f. Use a DMM to measure and record voltage between a known good ground and breakout lead Pin - A. (Figure 16).
- g. Use a DMM to measure and record voltage between breakout lead Pin - A. and breakout lead Pin-B. (Figure 17).

Depress the COOL switch to stop the No-Idle unit

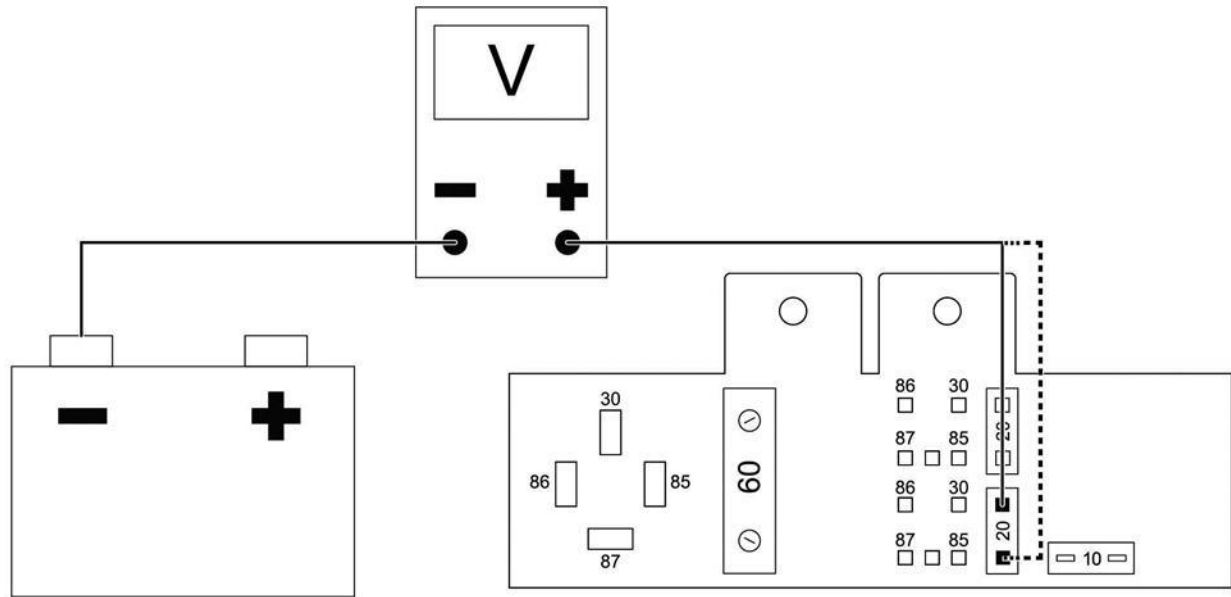
Is battery voltage (B+) measured in both Steps 19.f and 19.g



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Figure 18. 3-Way Condenser Fan Connector Face View.

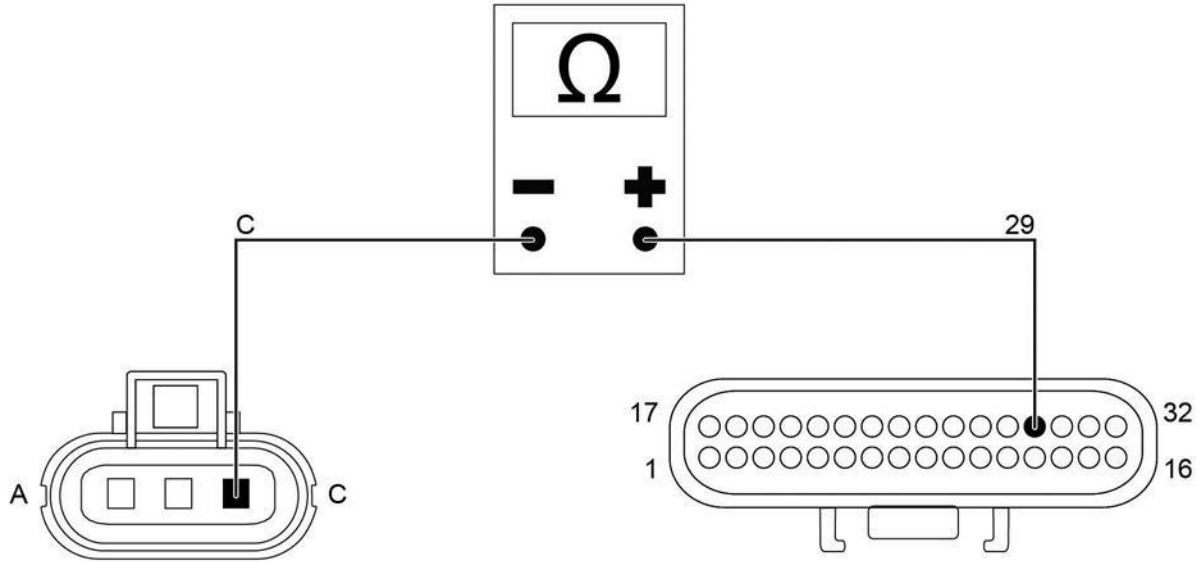
Step	Action	Decision
20	<p><b>CONDENSER FAN SPEED SIGNAL CHECK:</b></p> <ul style="list-style-type: none"> <li>a. Turn ignition Key-Off and depress control panel COOL switch to start No-Idle A/C.</li> <li>b. Depress digital display temperature control switch multiple times to coldest setting.</li> <li>c. Depress digital display blower speed switch multiple times to highest setting.</li> </ul>	<p>Yes. Replace condenser fan assembly. Assemble unit to run and retest for operator concern.</p>
	<p><b>NOTE:</b></p> <p>Perform Step 20.d when compressor is running. Listen for compressor start up or use a DMM to monitor voltage between relay side of fuse (F4) and a known good ground to verify system controller has enabled condenser and compressor relay. Condenser fan and compressor should start at same time or within a few seconds of each other.</p> <ul style="list-style-type: none"> <li>d. While condenser relay is enabled, use a DMM to measure voltage between test lead pin-C and a known good ground (Figure 18).</li> <li>e. Depress control panel COOL switch to turn off No-Idle A/C.</li> <li>f. Remove Navistar Test Lead Kit (77066-NAV).</li> </ul> <p>Is voltage measured in Step 20.d between 3.1V and 4.8V?</p>	<p>No. Leave 3-way condenser fan connector disconnected, exterior grille off, and go to Step 22.</p>



0000329301

Figure 19. No-Idle Relay / Fuse Panel and Condenser Fan Fuse (F6).

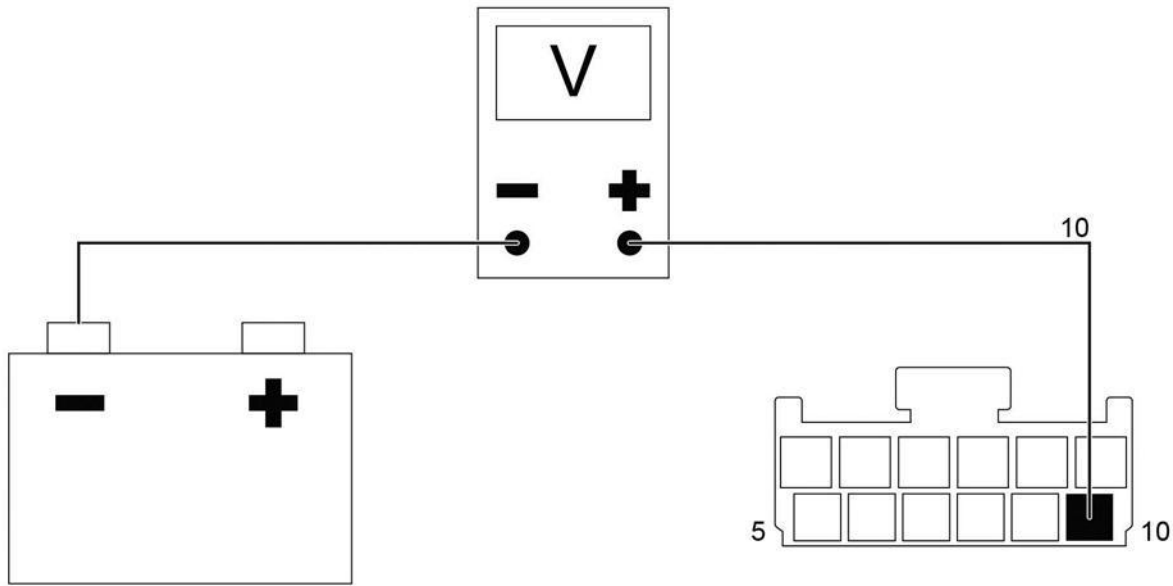
Step	Action	Decision
21	<p><b>CONDENSER FAN MOTOR PWR CIRCUIT CHECK:</b></p> <p>a. Use a DMM to measure voltage at each side of Yellow 20A condenser fuse (F6) (Figure 19).</p> <p>Does Yellow 20A condenser fuse (F6) have B+ on both sides?</p>	<p><b>Yes.</b> Replace harness as needed. Assemble unit to run and retest for operators concern.</p>
		<p><b>No.</b> Check Yellow 20A condenser fuse (F6), and check relay (R4) Step 29 and No-Idle fuse / relay panel connections.</p>
		<p><b>No.</b> Yellow 20A condenser fuse (F6) blows repeatedly: Go to Step 32.</p>



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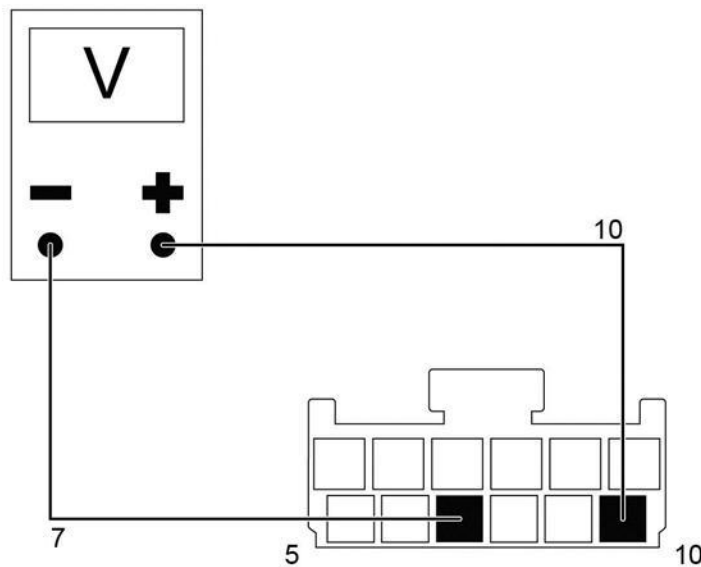
Figure 20. 3-Way Condenser Fan Connector Face View and 32-Way System Controller Connector Face View.

Step	Action	Decision
22	<p><b>CONDENSER FAN SPEED SIGNAL CIRCUIT CHECK:</b></p> <div style="border: 1px solid black; background-color: yellow; padding: 2px; margin: 5px 0;"> <p><b>CAUTION:</b></p> </div> <p>To prevent damage to components, do not attempt to connect to battery voltage to evaporator blower motor, condenser fan motor, or A/C compressor. Electronic components within the motors are sensitive to arcing and reverse polarity.</p> <ol style="list-style-type: none"> <li>a. Disconnect 32-way system controller connector.</li> <li>b. Use a DMM to check for continuity between 3-way condenser fan connector pin-C and 32-way system controller connector pin-29 (Figure 20).</li> </ol> <p>Is continuity present between 3-way condenser fan connector pin-C and 32-way system controller connector pin-29?</p>	<p><b>Yes.</b> Replace condenser fan assembly. Assemble unit to run and retest for operator concern.</p> <hr/> <p><b>No.</b> Replace No-Idle harness. Reassemble unit to run and retest for operator concern.</p>



0000324481

Figure 21. 6-Way Blend Door Actuator Connector Back View.

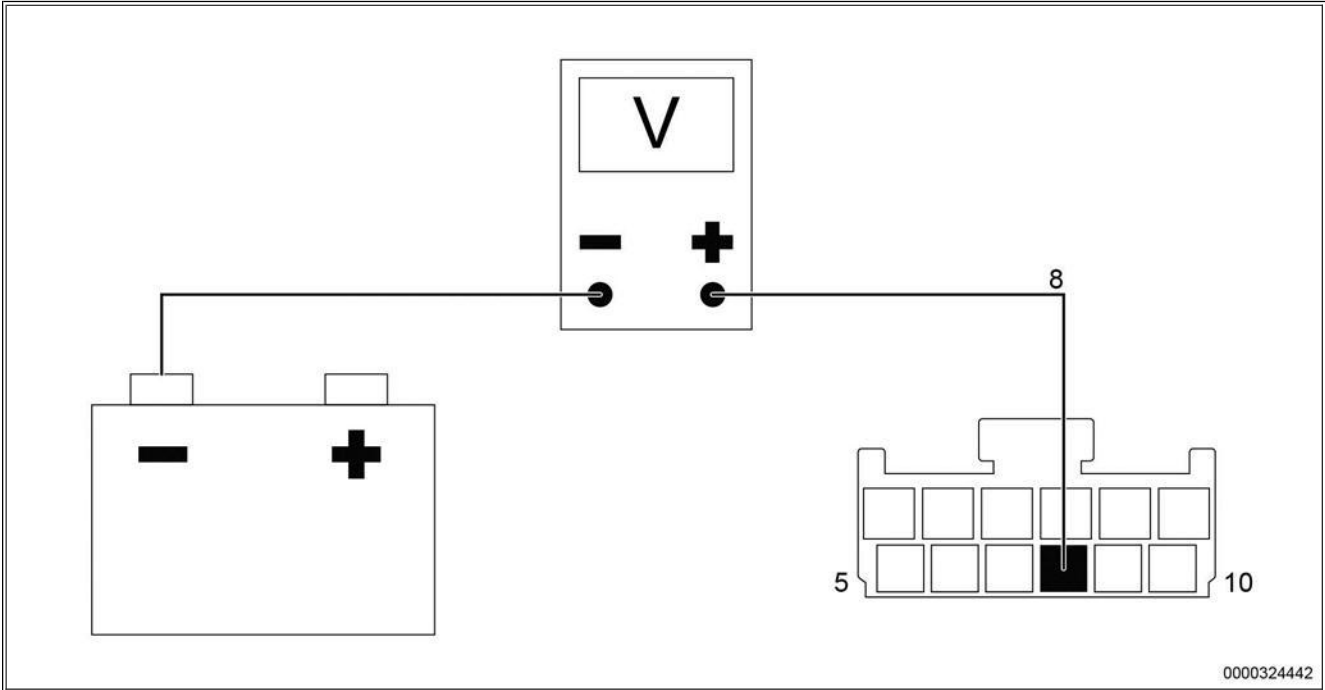


0000324501

Figure 22. 6-Way Blend Door Actuator Connector Back View.

Step	Action	Decision
23	<b>BLEND DOOR ACTUATOR PWR / GND CHECK:</b>	Yes. Go to Step 24.
	a. Verify 6-way blend door actuator connector is connected.	No. Both Steps 23.c and 23.d have low or no voltage: Go to Step 27.
	b. Turn ignition Key-Off and depress control panel COOL switch to start No-Idle A/C.	
	c. Use a DMM to back probe 6-way blend door actuator connector and measure voltage between pin-10 and a known good ground (Figure 21).	No. Step 23.c has B+ but Step 23.d has low voltage: Go to Step 28.
d. Use a DMM to back probe 6-way blend door actuator connector and measure voltage between pin-10 and pin-7 (Figure 22).		

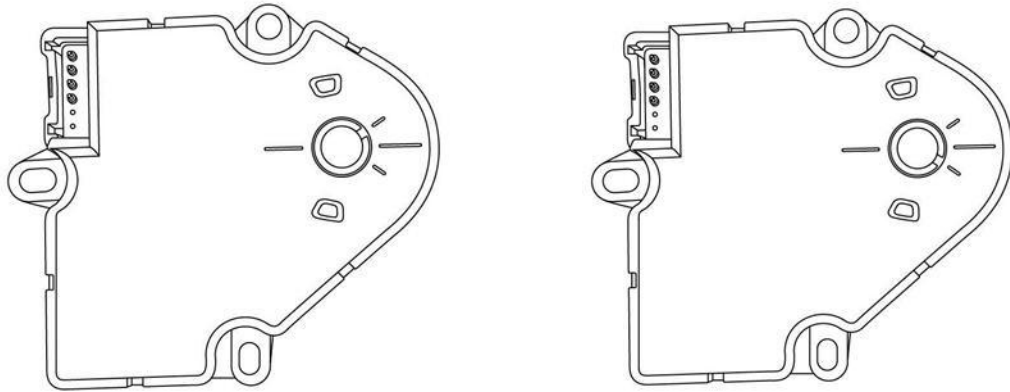
Do both Steps 23.c and 23.d measure B+?



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Figure 23. 6-Way Blend Door Actuator Connector Back View.

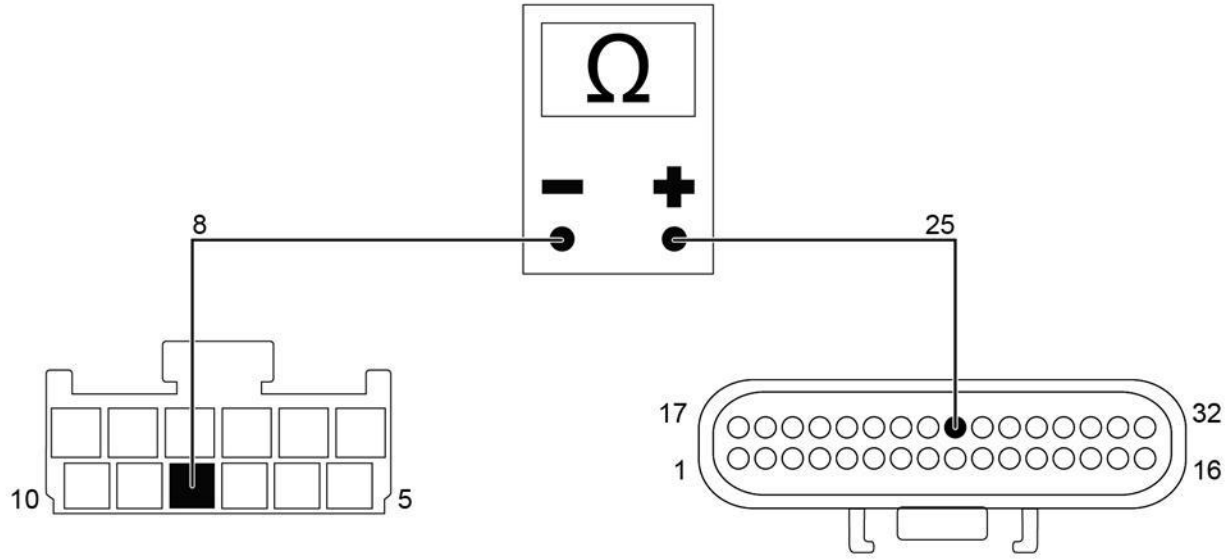
Step	Action	Decision
24	<p><b>BLEND DOOR MOVE SIGNAL CHECK:</b></p> <p>a. Turn ignition Key to OFF.</p> <p>b. Use a DMM to back probe 6-way blend door actuator connector and measure voltage between pin-8 and pin-7 as control panel COOL switch is depressed to start No-Idle A/C (Figure 23).</p> <p>c. Depress control panel COOL switch to stop No-Idle A/C.</p> <p>d. Use a DMM to back probe 6-way blend door actuator connector and measure voltage between pin-8 and pin-7 as control panel HEAT switch is depressed to start No-Idle heat unit (Figure 23).</p> <p>Does Step 24.b measure close to 11V (after control panel COOL switch was depressed) and Step 24.d measure near 0V (after control panel HEAT switch was depressed)?</p>	Yes. Go to Step 25.
		No. Voltage does not change or there is no voltage: Go to Step 26.



0000329361

Figure 24. Blend Door Actuator (A/C) and Blend Door Actuator (Heat).

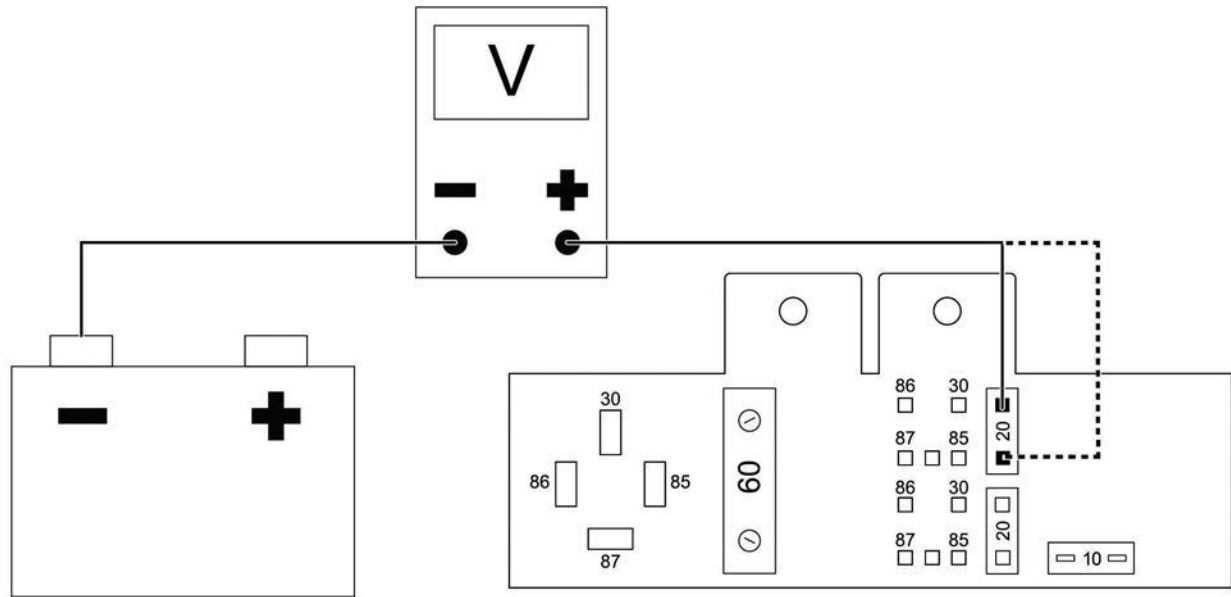
Step	Action	Decision
25	<p><b>BLEND DOOR MOVEMENT CHECK:</b></p> <ul style="list-style-type: none"> <li>a. Remove blend door actuator from No-Idle housing.</li> <li>b. Verify No-Idle harness is connected to actuator.</li> <li>c. Turn ignition Key-Off and depress control panel COOL switch to start No-Idle A/C.</li> <li>d. Depress control panel COOL switch to stop No-Idle A/C.</li> <li>e. Depress control panel HEAT switch to start No-Idle heater.</li> <li>f. Note position of blend door actuator collar slot. Blend door actuator should rotate clockwise to HEAT position (Figure 24).</li> <li>g. Depress control panel HEAT switch to stop No-Idle heater.</li> <li>h. Depress control panel COOL switch momentarily to start No-Idle A/C.</li> <li>i. Note position of blend door actuator collar slot. Blend door actuator should be in COOL position (Figure 24).</li> <li>j. Depress control panel COOL switch momentarily to stop No-Idle A/C.</li> <li>k. Compare position of blend door actuator collar slot in Step 35.f and Step 35.i to Figure 24.</li> </ul> <p>Is Step 25.f blend door actuator collar slot position correct for HEAT operation? Is Step 25.i blend door actuator collar slot position correct for A/C operation?</p>	<p>Yes. Move blend door actuator by hand to check for sticking or obstructions. Repair as needed. Assemble unit to run and retest for operator concern.</p> <hr/> <p>No. Replace blend door actuator. Remove Red 10A controller fuse (F7) from No-Idle relay / fuse block. After 10 seconds, install Red 10A controller fuse (F7) to reset blend door actuator. Assemble unit to run and retest for operator concern.</p>



0000368447

Figure 25. 6-Way Blend Door Actuator Connector Face View and 32-Way System Controller Connector Face View.

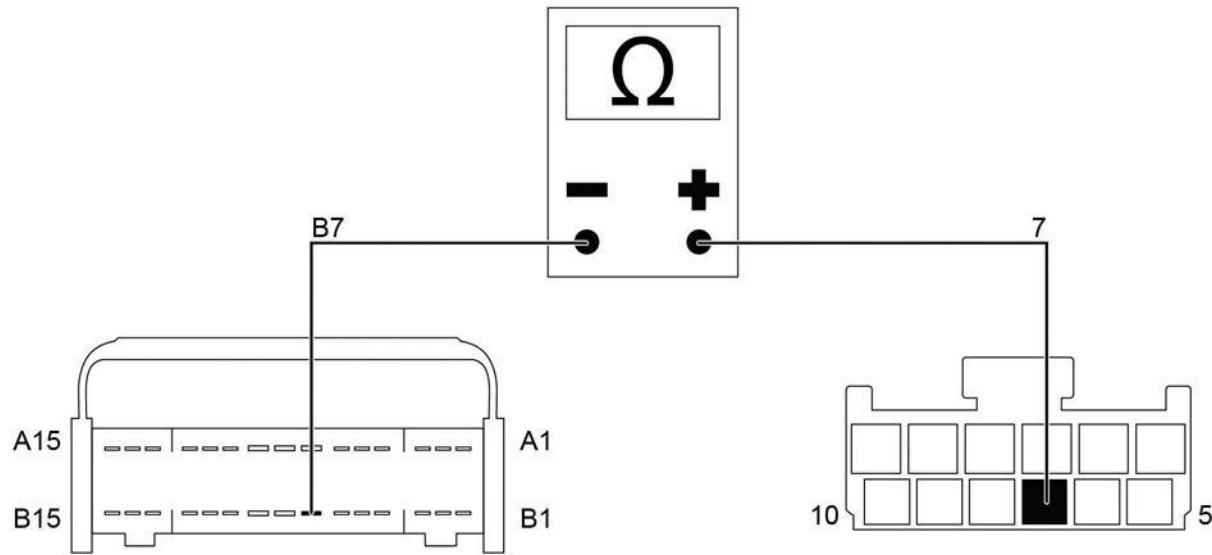
Step	Action	Decision
26	<p><b>BLEND DOOR MOVE SIGNAL CIRCUIT CHECK:</b></p> <ul style="list-style-type: none"> <li>a. Stop No-Idle system.</li> <li>b. Unplug the harness from the system controller.</li> <li>c. Disconnect the blend door actuator connector.</li> <li>d. Use DMM to measure resistance between blend door actuator connector pin-8 and system controller connector pin-25 (Figure 25).</li> <li>e. Use DMM to measure resistance between blend door actuator connector Pin-8 and a known good ground</li> </ul> <p>Does step 26.d have less than 5 Ohms and step 26.e have greater than 1000 Ohms?</p>	<p><b>Yes. Replace system controller. Assemble unit to run and retest for operators concern.</b></p>
		<p><b>No. Replace No-Idle harness. Reassemble unit to run and retest for operators concern.</b></p>



0000329281

Figure 26. No-Idle Fuse / Relay Panel Blower Fuse (F5).

Step	Action	Decision
27	<p><b>BLEND DOOR ACTUATOR PWR CIRCUIT CHECK:</b></p> <p>a. Use a DMM to measure voltage on both sides of Yellow 20A blower fuse (F5) (Figure 26).</p> <p>Does Yellow 20A blower fuse (F5) have B+ on both sides?</p>	<p><b>Yes. Replace No-Idle harness. Assemble unit to run and retest for operator concern.</b></p>
		<p><b>No. Go to Step 29 (check relay [R4] operation and No-Idle fuse / relay panel block connections between R4 and Yellow blower fuse 20A fuse [F5]).</b></p>
		<p><b>No. Yellow 20A blower fuse (F5) blows repeatedly: Go to Step 30.</b></p>



0000323441

Figure 27. 30-Way Chassis / No-Idle Connector (5205) Face View and 6-Way Blend Door Actuator Connector Face View.

Step	Action	Decision
28	<b>BLEND DOOR ACTUATOR GND CIRCUIT CHECK:</b> a. Disconnect 30-way chassis / No-Idle connector (5205). b. Use a DMM to check continuity between 6-way blend door actuator connector pin-7 and 30-way chassis / No-Idle connector (5205) pin-B7 (Figure 27).  Is continuity present between 6-way blend door actuator connector pin-7 and 30-way chassis / No-Idle connector (5205) pin-B7?	Yes. Locate and repair open or high resistance between 30-way chassis / No-Idle connector (5205) pin-B7 to battery ground. Assemble unit to run and retest for operator concern.
		No. Replace No-Idle harness. Assemble unit to run and retest for operator concern.

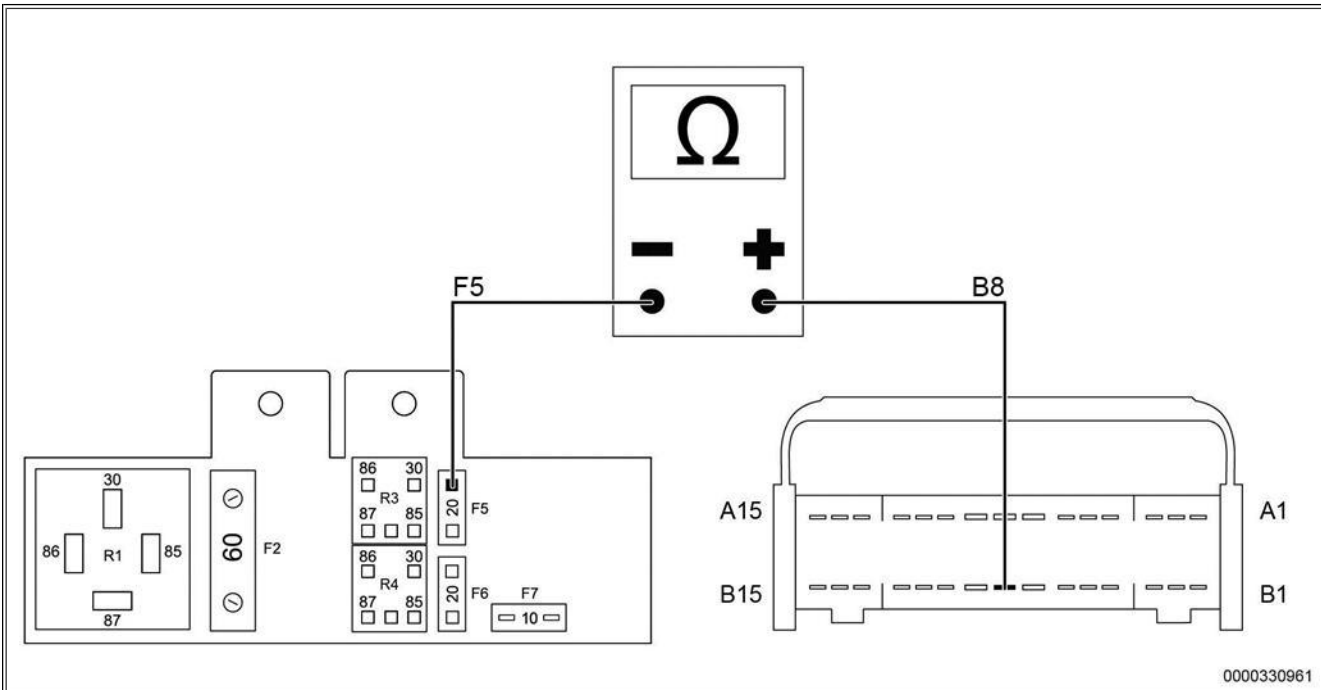
Step	Action	Decision
29	<b>RELAY TEST:</b> a. Remove appropriate relay. b. Insert relay breakout harness ZTSE4674 or use Navistar Test Lead Kit (77066-NAV) between relay and relay panel. c. Turn ignition Key-Off. d. Depress control panel COOL switch momentarily to start No-Idle A/C. e. Verify relay pins match following voltages when relay is enabled by system controller: <ul style="list-style-type: none"> <li>• Pin-30 - B+</li> <li>• Pin-85 - B+</li> <li>• Pin-87 - B+</li> <li>• Pin-86 - &lt;1V</li> </ul> Do voltages match?	Yes. Relay is working correctly. Check circuit from pin-87 to load.
		No. Voltages are: <ul style="list-style-type: none"> <li>• Pin-30 - B+</li> <li>• Pin-85 - B+</li> <li>• Pin-87 - 0V</li> <li>• Pin-86 &lt;1V</li> </ul> Pin-30, pin-86, and pin-85 are correct. Pin-87 is 0V: Replace relay.
		No. Voltages are: <ul style="list-style-type: none"> <li>• Pin-30 - 0V</li> <li>• Pin-85 - B+</li> <li>• Pin-87 - 0V</li> <li>• Pin-86 &lt;1V</li> </ul> Pin-30 has low or no voltage: Check circuit schematic for source of voltage to pin-30.
		No. Voltages are: <ul style="list-style-type: none"> <li>• Pin-30 - B+</li> <li>• Pin-85 - 0V</li> <li>• Pin-87 - 0V</li> <li>• Pin-86 - 0V</li> </ul>

Pin-85 has low or no voltage: Check circuit schematic for source of voltage to pin-85.

No. Voltages are:

- Pin-30 - B+
- Pin-85 - B+
- Pin-87 - 0V
- Pin-86 - B+

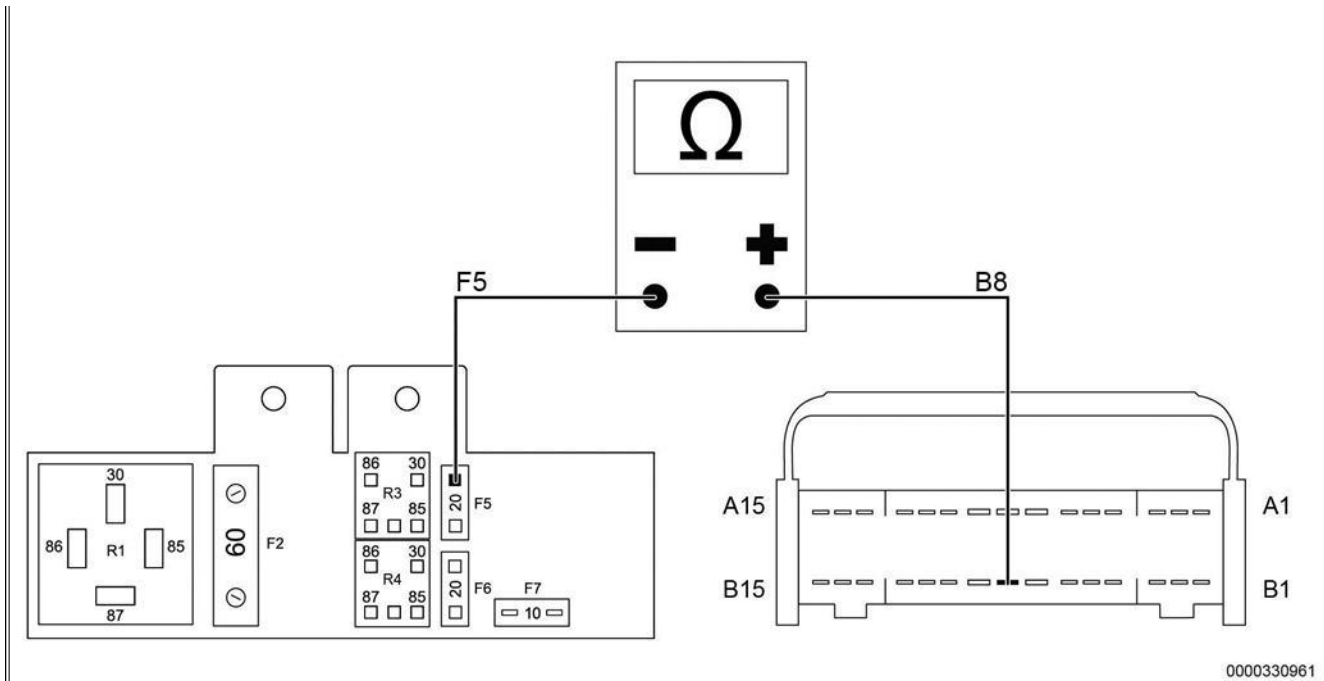
Pin-86 voltage is high: Check circuit schematic for circuit that provides a ground to pin-86.



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Figure 28. Fuse Panel Blower Fuse (F5) and No-Idle Side of 30-Way Chassis / No-Idle Connector (5205).

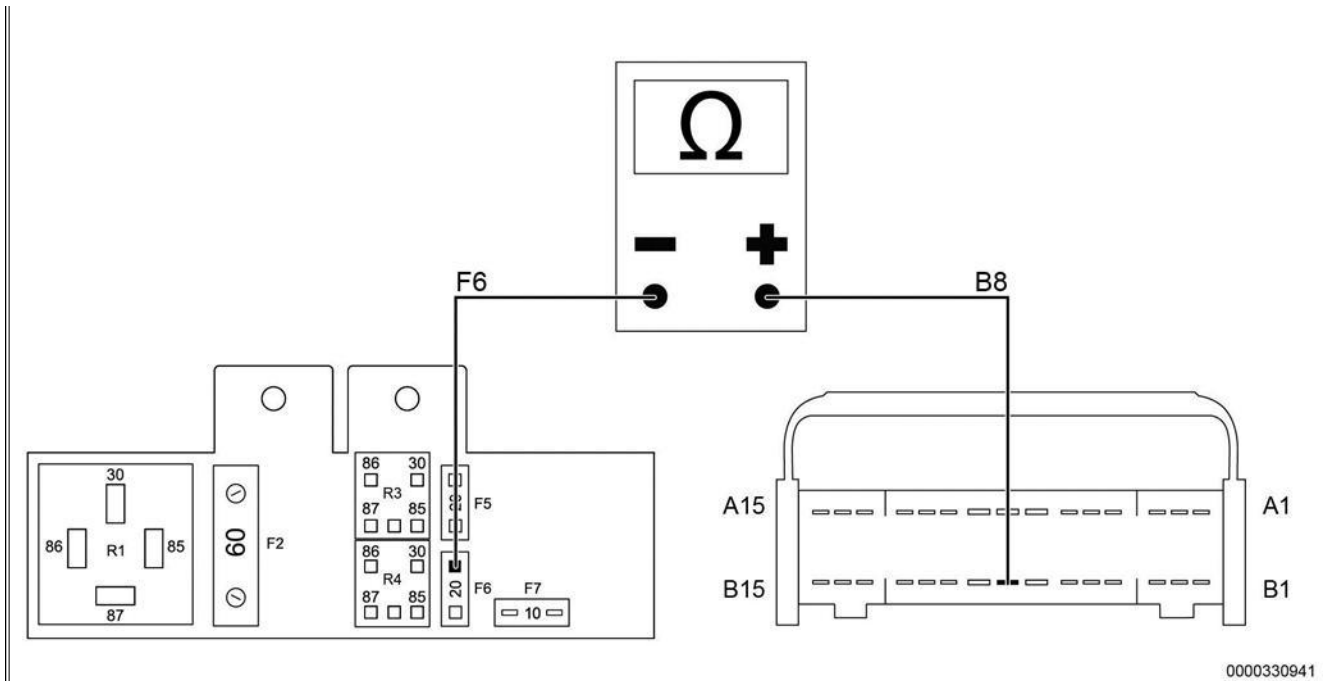
Step	Action	Decision
30	<p><b>20A BLOWER FUSE TEST:</b></p> <p>a. Disconnect following connectors:</p> <ul style="list-style-type: none"> <li>• LPM</li> <li>• Blend door actuator</li> <li>• Compressor controller</li> <li>• 30-way chassis / No Idle harness connector (5205)</li> </ul> <p>b. Remove blower relay (R3).</p> <p>c. Insert a Yellow 20A fuse in (F5).</p> <p>d. Use a DMM to check continuity between blower fuse and 30-way chassis / No-Idle harness connector (5205) pin-B8 (Figure 28).</p> <p>Is continuity present between fuse (F5) and 30-way chassis / No-Idle harness connector (5205) pin-B8?</p>	<p>Yes. Replace No-Idle harness. Assemble unit to run and retest for operator concern.</p>
	<p>No. Leave harness connectors unplugged and go to Step 31.</p>	



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Figure 29. Fuse Panel Blower Fuse (F5) and No-Idle Side of 30-Way Chassis / No-Idle Connector (5205).

Step	Action	Decision
31	<p><b>20A BLOWER FUSE CIRCUIT CHECK:</b></p> <p>a. Connect 30-way chassis / No-Idle connector (5205).</p> <p>b. Use a DMM to check continuity between blower fuse (F5) and 30-way chassis / No-Idle harness connector (5205) pin-B8 (Figure 29).</p> <p>c. Connect No-Idle harness to LPM.</p> <p>d. Use a DMM to check continuity between blower fuse (F5) and No-Idle harness connector (5205) pin-B8 (Figure 29).</p> <p>e. Connect No-Idle harness to blend door actuator.</p> <p>f. Use a DMM to check continuity between blower fuse (F5) and 30-way chassis / No-Idle harness connector (5205) pin-B8 (Figure 29).</p> <p>g. Connect harness to compressor controller.</p> <p>h. Use a DMM to check continuity between blower fuse (F5) and 30-way chassis / No-Idle harness connector (5205) pin-B8 (Figure 29).</p>	<p>30-way chassis / No-Idle harness connector (5205): Check digital display and digital display harness for short to ground.</p>
	<p>Which component caused continuity to ground?</p>	<p>LPM: Replace LPM. Reassemble unit to run and retest for operators concern.</p>
		<p>Blend door actuator: Replace blend door actuator. Assemble unit to run and retest for operators concern.</p>
		<p>Compressor controller: Replace compressor controller. Reassemble unit to run and retest for operators concern.</p>



0000330941

Figure 30. Fuse Panel Blower Fuse (F6) and No-Idle Side of 30-Way Chassis / No-Idle Connector (5205).

Step	Action	Decision
32	<p><b>20A CONDENSER FUSE (F6) TEST:</b></p> <ol style="list-style-type: none"> <li>Remove condenser fan grille to allow access to 3-way condenser fan connector.</li> <li>Disconnect 3-way condenser fan connector from condenser fan pigtail connector.</li> <li>Disconnect 30-way chassis / No-Idle harness connector (5205).</li> <li>Insert a new Yellow 20A condenser fuse (F6) into fuse / relay panel.</li> <li>Remove condenser relay (R4) from fuse / relay panel.</li> <li>Use a DMM to check continuity between load side of Yellow 20A condenser fuse (F6) and 30-way chassis / No-Idle harness connector (5205) pin-B8 (Figure 30).</li> </ol> <p>Is continuity present between Yellow 20A condenser fuse (F6) and 30-way chassis / No-Idle harness connector (5205) pin-B8?</p>	<p><b>Yes. Replace No-Idle harness. Assemble unit to run and retest for operator concern.</b></p> <hr/> <p><b>No. Replace condenser fan assembly. Assemble unit to run and retest for operator concern.</b></p>

**REPAIR STEP(S)**

Not Applicable

**REMOVAL PROCEDURE:**

Not Applicable

**INSTALLATION PROCEDURE:**

Not Applicable

**WARRANTY INFORMATION**

Warranty Claim Coding:

<b>Group:</b>	19030 - Auxiliary No-Idle HVAC
<b>Noun:</b>	638 - Electric HVAC Module

- Link to the Coding Manual: [Click Here](#)

#### Standard Repair Time(s) - ProStar:

Step	Description	Chassis	Engine	SRT	Hours
1 - 7	Thermal Limit Switch Check	ProStar	N/A	R19-1010A	<a href="#">Link to Hours</a>
1 - 15, 30 - 31	Compressor Controller Pwr/Gnd, Output, Speed Signal Circuit Check	ProStar	N/A	R19-1010A-20	
1 - 4, 16	Pressure Switch Diagnostics	ProStar	N/A	R19-1010A-21	
1 - 5, 17	Discharge Temperature Sensor Diagnostics	ProStar	N/A	R19-1010A-22	
1 - 7, 18	Inlet Temperature Sensor Diagnostics	ProStar	N/A	R19-1010A-23	
1 - 8, 19 - 22, 32	Condenser Fan Motor Pwr/Gnd, Output, Speed Signal Circuit Check	ProStar	N/A	R19-1010A-24	
1 - 3, 23 - 30	Blend Door Actuation/Circuit Check	ProStar	N/A	R19-1010A-25	

#### Standard Repair Time(s) - LoneStar:

Step	Description	Chassis	Engine	SRT	Hours
1 - 7	Thermal Limit Switch Check	LoneStar	N/A	S19-1010A	<a href="#">Link to Hours</a>
1 - 15, 30 - 31	Compressor Controller Pwr/Gnd, Output, Speed Signal Circuit Check	LoneStar	N/A	S19-1010A-20	
1 - 4, 16	Pressure Switch Diagnostics	LoneStar	N/A	S19-1010A-21	
1 - 5, 17	Discharge Temperature Sensor Diagnostics	LoneStar	N/A	S19-1010A-22	
1 - 7, 18	Inlet Temperature Sensor Diagnostics	LoneStar	N/A	S19-1010A-23	
1 - 8, 19 - 22, 32	Condenser Fan Motor Pwr/Gnd, Output, Speed Signal Circuit Check	LoneStar	N/A	S19-1010A-24	
1 - 3, 23 - 30	Blend Door Actuation/Circuit Check	ProStar	N/A	S19-1010A-25	

- Link to the Standard Repair Time Manual: [Click Here](#)

#### Claim SRT Example:

Not Applicable

#### Claim Comment Suggestion:

Not Applicable

#### Special Requirement(s):

Not Applicable

#### OTHER RESOURCES

Circuit Diagrams By Unit Build Date		
MaxxPower No-Idle System Circuit Diagram (PDF)	Units Prior to November 11, 2013	<a href="#">Click Here</a>
MaxxPower No-Idle System Circuit Diagram (PDF)	Units from November 11, 2013 to June 23, 2014	<a href="#">Click Here</a>
MaxxPower No-Idle System Circuit Diagram (PDF)	Units from June 24, 2014 through Current	<a href="#">Click Here</a>

[Master Service Information Site](#)

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