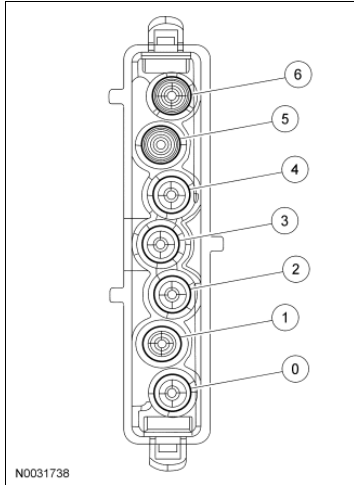


Item	Part Number	Description
1	18A318	Vacuum control motor — panel/defrost door
2	18A478	Panel/defrost door (full vacuum position)
3	—	Defrost air flow
4	18B545	Temperature blend door (full heat position)
5	19860	A/C evaporator core
6	19A813	Air inlet duct door (full vacuum position)
7	—	Outside air inlet
8	18A318	Vacuum control motor — air inlet door
9	—	Recirculated air inlet
10	19805	Blower motor
11	18476	Heater core
12	18A559	Panel/floor door (full vacuum position)
13	—	Floor air flow
14	—	Vacuum source
15	19A566	A/C vacuum reservoir tank and bracket
16	19D611	ATC solenoid and manifold
17	18A318	Vacuum control motor — panel/floor door
18	—	Panel vent air flow
19	18495	Heater control valve

ATC Solenoid and Manifold Vacuum Connector End View



Port	Hose Color	Function
0	Black	Vacuum Source
1	White	Air Inlet Duct Door
2	Yellow	Panel/Floor Door
3	Blue	Panel/Floor Door
4	Red	Panel/Defrost Door
5	Gray	Heater Control Valve
6	—	Not used

Vacuum Application Chart — EATC

Port	Color	Function	Manual Override Buttons					
			OFF	PANEL	PNL/FLR	FLR	FLR/DEF	DEF
0	Black	Vacuum Source	V	V	V	V	V	V
1	White	Air Inlet ^a	V	V/NV	V/NV	V/NV	V/NV	NV
2	Yellow	Panel/Floor	V	NV	NV	V	NV	NV
3	Blue	Panel/Floor	V	NV	V	V	V	NV
4	Red	Panel/ Defrost	NV	V	V	NV	NV	NV
5	Gray	Heater Control Valve ^b	V	V/NV	V/NV	V/NV	V/NV	V/NV

^a The EATC system may be manually set to enable or disable the recirculation of cabin air by pressing the RECIRCULATION manual override button in all manual override modes except DEFROST.

^b The automatic temperature control solenoid and manifold will supply vacuum and close the heater control valve depending on the EATC module settings and ambient conditions in any setting except OFF.

V = Vacuum

NV= No Vacuum

Inspection and Verification

1. Verify the customer concern by operating the climate control system to duplicate the condition.
2. Visually inspect for obvious signs of mechanical or electrical damage.

Visual Inspection Chart

Mechanical	Electrical
<ul style="list-style-type: none"> • Loose, missing or damaged A/C compressor drive belt • Loose or disconnected A/C clutch • Loose, misrouted or damaged vacuum lines • Broken or leaking vacuum control motor ^a • Discharged A/C system • Broken or leaking refrigerant lines 	<ul style="list-style-type: none"> • Central junction box (CJB) fuse(s): <ul style="list-style-type: none"> ◆ 23 (20A) ◆ 24 (15A) ◆ 27 (15A) ◆ 34 (10A) • Battery junction box (BJB) fuse(s): <ul style="list-style-type: none"> ◆ 2 (40A) ◆ 17 (10A) • Blower motor inoperative • A/C compressor inoperative • Circuitry open/shorted • Disconnected, loose fitting or incorrectly installed electrical connectors and pins

^a A leak in the vacuum control circuit may occur during acceleration (slow leak), may exist at all times (large leak), and may exist only when specific functions are selected (indicating a leak in that portion of the circuit). The vacuum hoses used in the passenger compartment control circuit are constructed from PVC plastic material. The vacuum hoses used in the engine compartment are constructed of Hytrel®. Because of the materials used, never pinch the vacuum hoses off during diagnosis to locate a leak. A wood golf tee can be used as a plug when it is necessary to plug one end of the vacuum hose for leak test purposes.

3. As pinpoint tests and measurements are being performed, be sure to inspect for any disconnected, loose fitting or incorrectly installed component, module and in-line electrical connectors and pins.
4. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step.
5. If the cause is not visually evident, connect a scan tool to the data link connector and select the vehicle to be tested from the scan tool menu. If the scan tool does not communicate with the vehicle:
 - check that the program card is correctly installed.
 - check the connections to the vehicle.
 - check the ignition switch position.
6. If the scan tool still does not communicate with the vehicle, refer to the scan tool operating manual.
7. Carry out the DATA LINK DIAGNOSTICS test. If the scan tool responds with:
 - SCP+, SCP- or UBP CIRCUITS FAULT = ALL ECUS NO RESP/NOT EQUIP, refer to Section 418-00 to diagnose the network concern.
 - If the powertrain control module (PCM) is not listed for a communication concern, turn the A/C controls to OFF and execute the self-test diagnostics for the PCM.
 - If the EATC module is not listed for a communication concern, execute self-test diagnostics for the EATC module.

8. If any PCM or EATC DTCs are retrieved, and are related to the concern, go to the Powertrain Control Module Diagnostic Trouble Code (DTC) Index or the Electronic Automatic Temperature Control (EATC) Module Diagnostic Trouble Code (DTC) Index to continue diagnostics.
9. If no DTCs related to the concern are retrieved, GO to Symptom Chart to continue diagnostics.
10. If the EATC module cannot be accessed by the diagnostic tool, GO to Pinpoint Test E.

Electronic Automatic Temperature Control Module — Diagnostic Methods

The electronic automatic temperature control system must be diagnosed by first retrieving any DTCs, if present.

- An on-demand (hard fault) DTC indicates that the fault is currently present. An on-demand DTC suggests a wiring fault, disconnected connector or component failure.
- A continuous (intermittent) DTC alone (corresponding on-demand DTC is not present) indicates that the fault is an intermittent condition and may not be currently present. A continuous only DTC suggests a poor wiring connection, loose pin or terminal or intermittent component failure.

On-demand (hard fault) or continuous (intermittent fault) DTCs can be retrieved using a scan tool. If using a scan tool, refer to the scan tool operating manual.

On-demand DTCs can also be retrieved by carrying out the Electronic Automatic Temperature Control Module Self-Test. To retrieve and/or clear continuous DTCs carry out the Electronic Automatic Temperature Control Module — Retrieve Continuous DTCs procedure. Always carry out the Electronic Automatic Temperature Control Module Self-Test before retrieving continuous DTCs.

If no DTCs are present, GO to Symptom Chart for the appropriate diagnostic action.

Electronic Automatic Temperature Control Module Self-Test

- The EATC module self-test will not detect concerns associated with data link messages like engine coolant temperature or vehicle speed signals. A scan tool must be used to retrieve these concerns.
- The EATC module self-test will detect concerns in the system control functions and will display hard diagnostic trouble codes (DTCs) in addition to intermittent diagnostic trouble codes for concerns that occur during system operation. The vehicle interior temperature should be between 4°-32°C (40°-90°F) when carrying out the self-test. If the temperatures are not within the specified ranges, false in-vehicle temperature sensor DTCs will be displayed.
- The self-test can be initiated at any time. Normal operation of the system stops when the self-test is activated.
- To enter the self-test, press the OFF and FLOOR buttons simultaneously and then press the AUTOMATIC button within 2 seconds. The display will show a pulse tracer going around the center of the display window. The test may run as long as 30 seconds. Record all DTCs displayed.
- If any DTCs appear during the self-test, follow the diagnostics procedure given under ACTION for each DTC given.
- If a condition exists but no DTCs appear during the self-test, GO to Symptom Chart Condition: The EATC System Is Inoperative, Intermittent or Improper Operation.
- To exit self-test and retain all intermittent DTCs, push the blue (cooler temperature) button. The control will exit self-test, retain all intermittent DTCs and then turn OFF (display blank).
- To exit self-test and clear all DTCs, press the DEFROST button. The vacuum fluorescent display window will show 888 and all function symbols for one second. Then, the EATC control assembly will turn OFF (display blank) and all DTCs will be cleared.
- Always exit the self-test before powering the system down (system turned OFF).

- Intermittent DTCs will be deleted after 80 ignition switch ON cycles after the intermittent condition occurs.

Electronic Automatic Temperature Control Module — Retrieve Continuous DTCs

The EATC module will retrieve only continuous (intermittent) DTCs when carrying out this procedure.

- Retrieval of continuous DTCs can be initiated after cycling the ignition switch from OFF to ON. Normal operation of the climate control system stops when retrieving continuous DTCs.
- To retrieve continuous DTCs press the OFF and PANEL buttons simultaneously and release, then press the AUTO button within 2 seconds. All vacuum fluorescent segments will be displayed if there are no continuous DTCs present. Continuous DTCs are indicated by the presence of the degrees Celsius symbol (°C) on the EATC module display. Record all DTCs displayed.
- If any DTCs appear, carry out the diagnostic procedure. Refer to the Electronic Automatic Temperature Control Module Diagnostic Trouble Code Index and follow the ACTION for each DTC given.
- If a condition exists but no DTCs appear, GO to Symptom Chart Condition: The EATC System Is Inoperative, Intermittent or Incorrect Operation.
- To exit and retain all continuous DTCs, press any button except DEFROST. The EATC module will exit the retrieve continuous DTCs mode and retain all continuous DTCs.
- To exit and clear all continuous DTCs, press the DEFROST button. The EATC module will exit the retrieve continuous DTCs mode and all continuous DTCs will be cleared.
- Always exit the procedure before powering the system down (system turned OFF). Once the procedure is exited the ignition switch must remain ON for at least 30 seconds to allow the temperature blend door actuators to automatically recalibrate.
- Continuous DTCs will be deleted after 80 ignition switch ON cycles after the intermittent fault occurs.

Electronic Automatic Temperature Control (EATC) Module Cold Boot Process

The purpose of the cold boot process is to allow the EATC module to reinitialize and calibrate the actuators. To carry out the cold boot process, follow the steps below.

1. Turn the ignition switch to the OFF position.
2. Disconnect the EATC module electrical connectors.
3. Wait one minute.
4. Inspect module connectors for:
 - corrosion.
 - pushed out connector pins.
 - incorrectly seated connectors.
5. Connect the EATC module electrical connectors.
6. Turn the ignition switch to the ON position.
7. Select any position except OFF on the EATC module.

The EATC module will now initialize and calibrate the actuators. Calibration of the actuators will take approximately 30 seconds.

ELECTRONIC AUTOMATIC TEMPERATURE CONTROL (EATC) MODULE DIAGNOSTIC TROUBLE CODE (DTC) INDEX

NOTE: Some PCM DTCs may inhibit air conditioning (A/C) operation. If any PCM DTCs are retrieved, diagnose those first. Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual.

DTC	Description	Action to Take
B2266	Blend door failure or short	<u>GO to Pinpoint Test A</u> .
B1251	A/C in-vehicle temperature sensor open circuit	<u>GO to Pinpoint Test B</u> .
B1253	A/C in-vehicle temperature sensor short to ground	<u>GO to Pinpoint Test B</u> .
B1255	A/C ambient temperature sensor open circuit	<u>GO to Pinpoint Test C</u> .
B1257	A/C ambient temperature sensor short to ground	<u>GO to Pinpoint Test C</u> .
B1259	A/C solar radiation sensor circuit open	<u>GO to Pinpoint Test D</u> .
B1261	A/C solar radiation sensor circuit short to ground	<u>GO to Pinpoint Test D</u> .
B2268	Steering wheel climate control circuit open	<u>GO to Pinpoint Test S</u> .
B2269	Steering wheel climate control circuit short to ground	<u>GO to Pinpoint Test S</u> .
U1073	SCP invalid or missing data for engine coolant	Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual.
U1341	SCP invalid data for vehicle speed	Refer to the Powertrain Control/Emissions Diagnosis (PC/ED) manual.

Symptom Chart

SYMPTOM CHART

Pinpoint Tests**Pinpoint Test A: DTC B2266 — Blend Door Failure Or Short**

Refer to Wiring Diagrams Cell 55 , Automatic Climate Control System for schematic and connector information.

Normal Operation

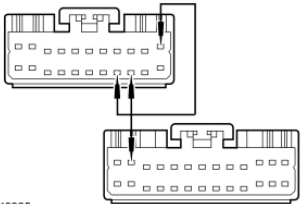
Under normal operation, the temperature blend door actuator motor is supplied voltage or ground on circuit 249 (DB/LG), depending on desired actuator rotation, by the electronic automatic temperature control (EATC) module. The EATC module then supplies the appropriate voltage or ground to the other side of the actuator motor on circuit 250 (OG).

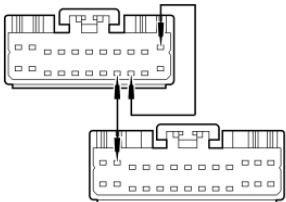
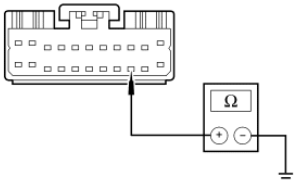
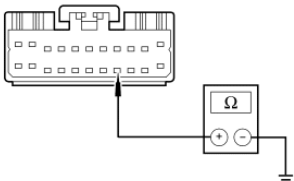
The temperature blend door actuator feedback resistor is supplied a ground from the EATC module by circuit 438 (RD/WH) and a 5-volt reference voltage on circuit 436 (RD/LG). The EATC module reads the voltage on circuit 437 (YE/LG) to determine the actuator position by the position of the actuator feedback resistor wiper arm.

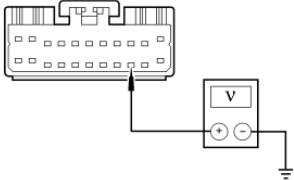
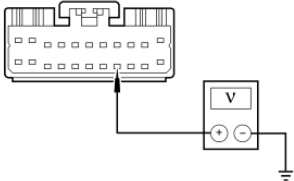
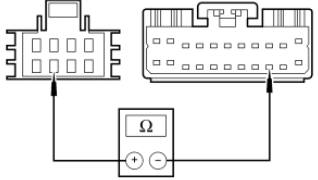
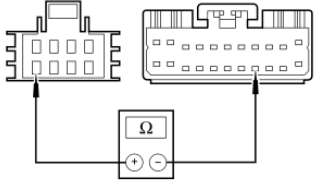
Possible causes

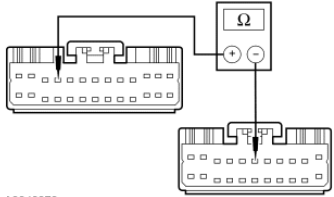
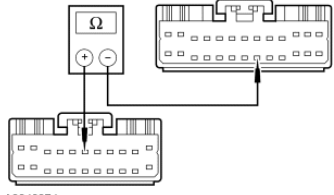
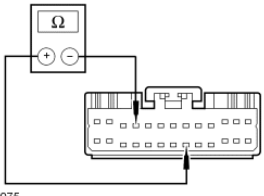
- An open, short to voltage, ground or together in circuits 249 (DB/LG), 250 (OG), 436 (RD/LG), 437 (YE/LG) or 438 (RD/WH)
- Temperature blend door actuator
- Electronic automatic temperature control (EATC) module
- Stuck or bound linkage or door

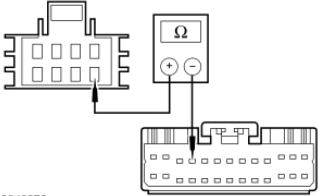
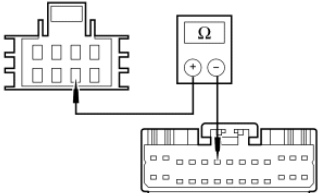
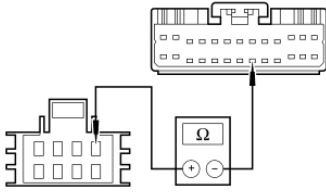
PINPOINT TEST A: DTC B2266 — BLEND DOOR FAILURE OR SHORT

Test Step	Result / Action to Take
<p>A1 CHECK THE BLEND DOOR ACTUATOR CLOCKWISE OPERATION</p> <ul style="list-style-type: none"> • Disconnect: EATC Module C228a. • Disconnect: EATC Module C228b. • Remove the door actuator and disengage the actuator drive shaft from the actuator door. Refer to <u>Section 412-01</u> . • Mark the door actuator drive shaft position. • Connect a fused jumper wire between EATC module C228b-19, circuit 250 (OG) and EATC module C228b-11, circuit 22 (LG/BK). Connect a second fused jumper wire between EATC module C228b-20, circuit 249 (DB/LG) and EATC module C228a-2, circuit 676 (PK/OG).  <p>A0040065</p> <ul style="list-style-type: none"> • Does the actuator motor move in the clockwise direction? 	<p>Yes GO to <u>A2</u> .</p> <p>No If a fuse in the fused jumper wires opened, REPAIR circuit 250 (OG) for a short to circuit 249 (DB/LG). If the fuses are OK, GO to <u>A3</u> .</p>
<p>A2 CHECK THE BLEND DOOR ACTUATOR COUNTERCLOCKWISE OPERATION</p>	
<ul style="list-style-type: none"> • Connect a fused jumper wire between EATC module C228b-20, circuit 249 (DB/LG) and EATC module C228b-11, circuit 22 (LG/BK). Connect a second fused jumper wire between EATC module C228b-19, circuit 250 (OG) and EATC module C228a-2, circuit 676 (PK/OG). 	<p>Yes GO to <u>A9</u> .</p> <p>No GO to <u>A3</u> .</p>

 <p>A0040066</p> <ul style="list-style-type: none"> • Does the air bypass door actuator motor move in the closed direction? 	
<p>A3 CHECK CIRCUIT 249 (DB/LG) FOR A SHORT TO GROUND</p>	
<ul style="list-style-type: none"> • Disconnect: Temperature Blend Door Actuator C289. • Measure the resistance between EATC module C228b-20, circuit 249 (DB/LG) and ground.  <p>A0040067</p> <ul style="list-style-type: none"> • Is the resistance greater than 10,000 ohms? 	<p>Yes GO to A4 .</p> <p>No REPAIR circuit 249 (DB/LG) for a short to ground. CLEAR the DTCs. REPEAT the self-test. TEST the system for normal operation.</p>
<p>A4 CHECK CIRCUIT 250 (OG) FOR A SHORT TO GROUND</p>	
<ul style="list-style-type: none"> • Measure the resistance between EATC module C228b-19, circuit 250 (OG) and ground.  <p>A0040068</p> <ul style="list-style-type: none"> • Is the resistance greater than 10,000 ohms? 	<p>Yes GO to A5 .</p> <p>No REPAIR circuit 250 (OG) for a short to ground. CLEAR the DTCs. REPEAT the self-test. TEST the system for normal operation.</p>
<p>A5 CHECK CIRCUIT 249 (DB/LG) FOR A SHORT TO POWER</p>	
<ul style="list-style-type: none"> • Measure the voltage between EATC module C228b-20, circuit 249 (DB/LG) and ground. 	<p>Yes REPAIR circuit 249 (DB/LG) for a short to power. CLEAR the DTCs. REPEAT the self-test. TEST the system for normal operation.</p> <p>No GO to A6 .</p>

 <p>A0040069</p> <ul style="list-style-type: none"> • Is voltage present? 	
<p>A6 CHECK CIRCUIT 250 (OG) FOR A SHORT TO POWER</p>	
<ul style="list-style-type: none"> • Measure the voltage between EATC module C228b-19, circuit 250 (OG) and ground.  <p>A0040070</p> <ul style="list-style-type: none"> • Is voltage present? 	<p>Yes REPAIR circuit 250 (OG) for a short to power. CLEAR the DTCs. REPEAT the self-test. TEST the system for normal operation.</p> <p>No GO to <u>A7</u> .</p>
<p>A7 CHECK CIRCUIT 249 (DB/LG) FOR AN OPEN</p>	
<ul style="list-style-type: none"> • Measure the resistance between EATC module C228b-20, circuit 249 (DB/LG) and the temperature blend door actuator C289-7, circuit 249 (DB/LG).  <p>A0040071</p> <ul style="list-style-type: none"> • Is the resistance less than 5 ohms? 	<p>Yes GO to <u>A8</u> .</p> <p>No REPAIR circuit 249 (DB/LG) for an open. CLEAR the DTCs. REPEAT the self-test. TEST the system for normal operation.</p>
<p>A8 CHECK CIRCUIT 250 (OG) FOR AN OPEN</p>	
<ul style="list-style-type: none"> • Measure the resistance between EATC module C228b-19, circuit 250 (OG) and the temperature blend door actuator C289-8, circuit 250 (OG).  <p>A0040072</p>	<p>Yes INSPECT for binding or broken linkage. If no condition is found, INSTALL a new door actuator. CLEAR the DTCs. REPEAT the self-test. TEST the system for normal operation.</p> <p>No REPAIR circuit 250 (OG) for an open. CLEAR the DTCs. REPEAT the self-test. TEST the system for normal operation.</p>

<ul style="list-style-type: none"> • Is the resistance less than 5 ohms? 	
<p>A9 CHECK THE FEEDBACK POTENTIOMETER TOTAL RESISTANCE</p>	
<ul style="list-style-type: none"> • Connect: Temperature Blend Door Actuator C289. • Measure the resistance between EATC module C228a-4, circuit 436 (RD/LG) and EATC module C228b-6, circuit 438 (RD/WH).  <p>A0040073</p> <ul style="list-style-type: none"> • Is the resistance between 5,000 and 6,000 ohms? 	<p>Yes GO to <u>A10</u> .</p> <p>No If the resistance is greater than 6,000 ohms, GO to <u>A12</u> . If the resistance is less than 5,000 ohms, GO to <u>A20</u> .</p>
<p>A10 CHECK POTENTIOMETER LOW SIDE RESISTANCE</p>	
<ul style="list-style-type: none"> • Measure the resistance between EATC module C228a-21, circuit 437 (YE/LG) and EATC module C228b-6, circuit 438 (RD/WH).  <p>A0040074</p> <ul style="list-style-type: none"> • Is the resistance between 250 and 5,500 ohms? 	<p>Yes GO to <u>A11</u> .</p> <p>No If the resistance is greater than 5,500 ohms, GO to <u>A13</u> . If the resistance is less than 250 ohms, GO to <u>A21</u> .</p>
<p>A11 CHECK POTENTIOMETER HIGH SIDE RESISTANCE</p>	
<ul style="list-style-type: none"> • Measure the resistance between EATC module C228a-4, circuit 436 (RD/LG) and EATC module C228a-21, circuit 437 (YE/LG).  <p>A0040075</p> <ul style="list-style-type: none"> • Is the resistance between 250 and 5,500 ohms? 	<p>Yes GO to <u>A15</u> .</p> <p>No If the resistance is greater than 5,500 ohms, GO to <u>A12</u> . If the resistance is less than 250 ohms, GO to <u>A22</u> .</p>
<p>A12 CHECK 436 (RD/LG) CIRCUIT FOR AN OPEN</p>	

<ul style="list-style-type: none"> • Disconnect: Temperature Blend Door Actuator C289. • Measure the resistance between EATC module C228a-4, circuit 436 (RD/LG) and the temperature blend door actuator C289-5, circuit 436 (RD/LG).  <p>A0040076</p> <ul style="list-style-type: none"> • Is the resistance less than 5 ohms? 	<p>Yes GO to A13 .</p> <p>No REPAIR circuit 436 (RD/LG) for an open. CLEAR the DTCs. REPEAT the self-test. TEST the system for normal operation.</p>
<p>A13 CHECK THE ACTUATOR RETURN CIRCUIT 438 (RD/WH) FOR AN OPEN</p>	
<ul style="list-style-type: none"> • Disconnect: Temperature Blend Door Actuator C289. • Measure the resistance between EATC module C228b-6, circuit 438 (RD/WH) and the temperature blend door actuator C289-6, circuit 438 (RD/WH).  <p>A0040077</p> <ul style="list-style-type: none"> • Is the resistance less than 5 ohms? 	<p>Yes GO to A14 .</p> <p>No REPAIR circuit 438 (RD/WH) for an open. CLEAR the DTCs. REPEAT the self-test. TEST the system for normal operation.</p>
<p>A14 CHECK CIRCUIT 437 (YE/LG) FOR AN OPEN</p>	
<ul style="list-style-type: none"> • Disconnect: Temperature Blend Door Actuator C289. • Measure the resistance between EATC module C228a-20, circuit 437 (YE/LG) and the temperature blend door actuator C289-1, circuit 437 (YE/LG).  <p>A0040078</p> <ul style="list-style-type: none"> • Is the resistance less than 5 ohms? 	<p>Yes INSTALL a new door actuator. REFER to Section 412-01 . CLEAR the DTCs. REPEAT the self-test. TEST the system for normal operation.</p> <p>No REPAIR circuit 437 (YE/LG) for an open. CLEAR the DTCs. REPEAT the self-test. TEST the system for normal operation.</p>
<p>A15 CHECK CIRCUIT 436 (RD/LG) FOR A SHORT TO GROUND</p>	