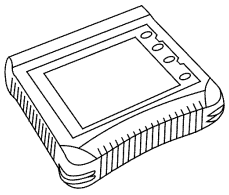
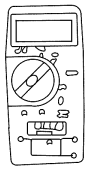
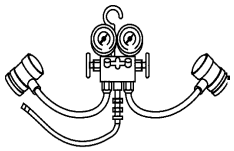
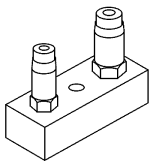
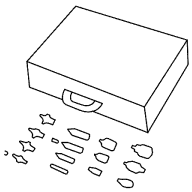
DIAGNOSIS AND TESTING

Climate Control System

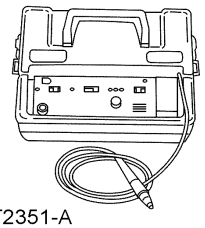
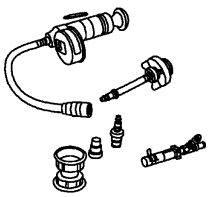
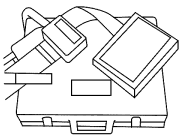
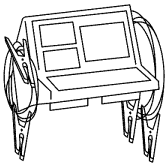
Refer to Wiring Diagrams Cell 54 for schematic and connector information.
Refer to Wiring Diagrams Cell 55 for schematic and connector information.

Special Tool(s)

 ST2332-A	Worldwide Diagnostic System (WDS) 418-F224, New Generation STAR (NGS) Tester 418-F052, or equivalent scan tool
 ST1137-A	Rotunda 73 III Automotive Meter 105-R0057 or equivalent
 ST1928-A	R134a Manifold Gauge Set 176-R032A or equivalent
 ST1176-A	Vacuum Pump Kit 416-D002 (D95L-7559-A) or equivalent
 ST1501-A	Connector, Refrigerant Pressure Line 412-093 (T94P-19623-E)
 ST1252-A	Set, A/C Fittings 412-DS028 (014-00333, D93L-19703-B) or equivalent

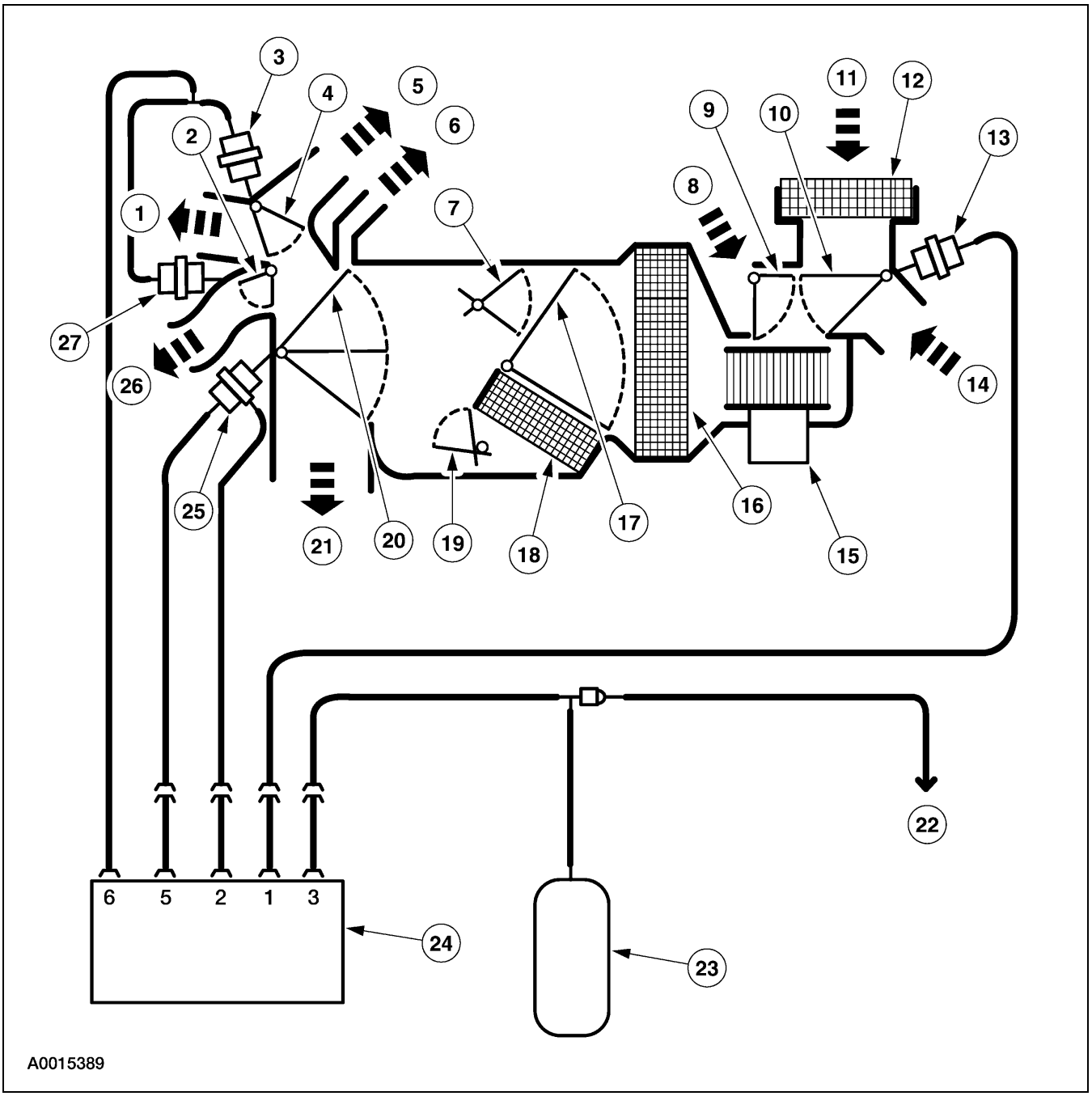
(Continued)

Special Tool(s)

 ST2351-A	Refrigerant Leak Detector 216-00001 or equivalent
 ST1474-A	Pressure Test Kit 014-R1072 or equivalent
 ST1391-A	Breakout Box, EEC V Control System 418-049 (014-00950, T94L-50-EEC-V)
 ST1179-A	Starter, Alternator, Battery, Regulator Electrical Tester (S.A.B.R.E.) 010-00736 or equivalent

DIAGNOSIS AND TESTING (Continued)

Manual Climate Control Vacuum Schematic



Item	Part Number	Description
1	—	Panel airflow
2	—	Floor console door, full vacuum position (floor console equipped only)
3	18A318	Vacuum control motor—defrost door
4	—	Defrost door, full vacuum position
5	—	Defrost airflow

(Continued)

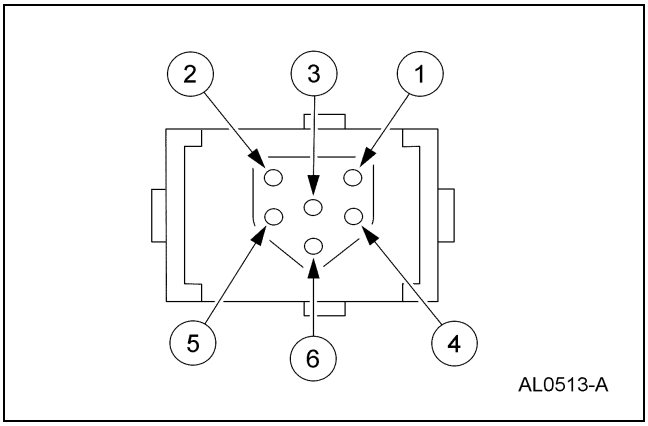
Item	Part Number	Description
6	—	Side window demister airflow
7	—	Supplemental temperature blend door, full heat position
8	—	Recirculation air inlet
9	18731	Supplemental recirculation air inlet door, full vacuum position
10	18731	Air inlet door, full vacuum position

(Continued)

DIAGNOSIS AND TESTING (Continued)

Item	Part Number	Description
11	—	Outside air inlet
12	19N619	Pollen filter (optional)
13	18A318	Vacuum control motor—air inlet doors
14	—	Recirculation air inlet
15	19805	Blower motor
16	19860	Evaporator core
17	—	Temperature blend door, full heat position
18	18476	Heater core
19	—	A/C evaporator case damper door, full heat position
20	—	Panel/floor door, full vacuum position
21	—	Floor airflow
22	—	To vacuum distribution
23	19A566	Vacuum reservoir tank
24	19B888	Function selector switch
25	18A318	Vacuum control motor—panel/floor door
26	—	Floor console airflow (floor console equipped only)
27	18A318	Vacuum control motor—floor console door (floor console equipped only)

Manual Climate Control Vacuum Connector End View



Port Number	Line Color	Function
1	White	Air inlet door
2	Red	floor door
3	Black	Source vacuum
4	—	Not used
5	Blue	floor door
6	Yellow	Defrost door [a]

a Also controls the floor console door, if equipped.

MANUAL CLIMATE CONTROL VACUUM APPLICATION CHART

Port Number	Line Color	Function	Function Selector Switch Position							
			MAX A/C	A/C	PANEL	OFF	PNL/ FLR	FLR	FLR/ DEF	DEF
1	White	Outside/ recircu-lated air	V	NV	NV	V	NV	NV	NV	NV
2	Red	Full floor	NV	NV	NV	V	NV	V	NV	NV
3	Black	Source vacuum	V	V	V	V	V	V	V	
5	Blue	Panel/ floor	NV	NV	NV	V	V	V	V	NV
6	Yellow	Defrost [a]	V	V	V	NV	V	NV	NV	NV

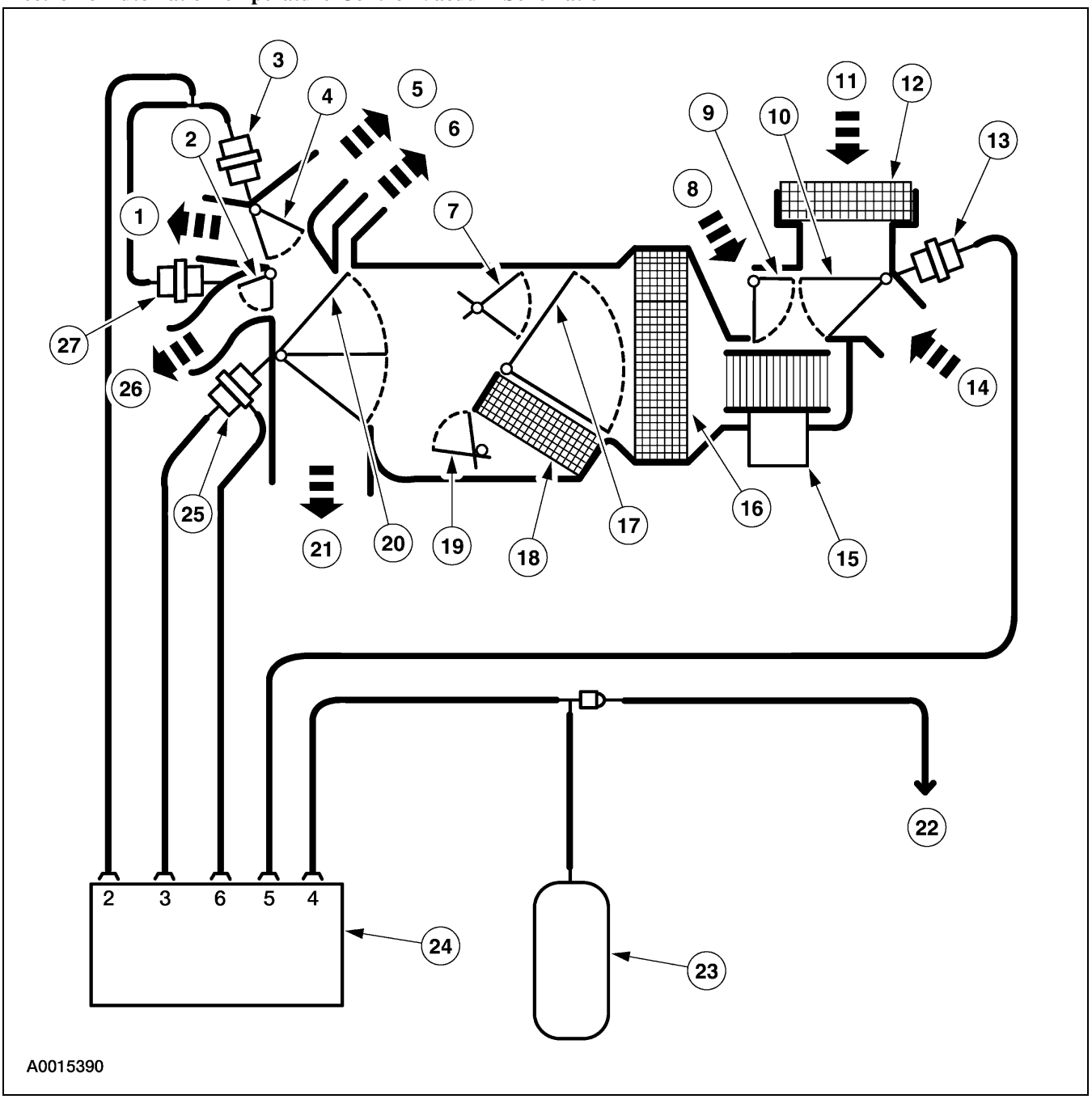
a Also controls the floor console door, if equipped.

V = vacuum

NV = no vacuum

DIAGNOSIS AND TESTING (Continued)

Electronic Automatic Temperature Control Vacuum Schematic



Item	Part Number	Description
1	—	Panel airflow
2	—	Floor console door, full vacuum position (floor console equipped only)
3	18A318	Vacuum control motor—defrost door
4	—	Defrost door, full vacuum position
5	—	Defrost airflow

(Continued)

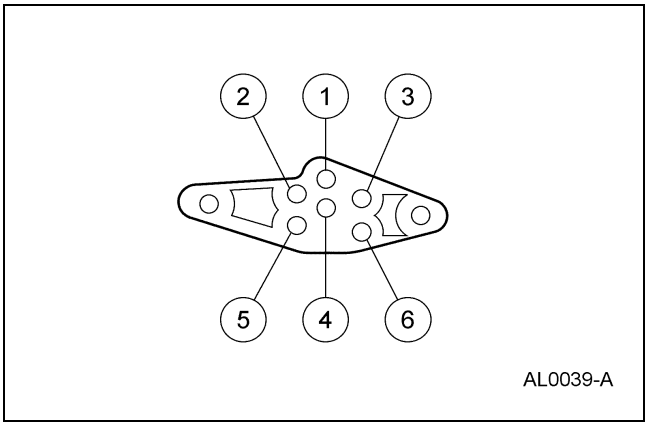
Item	Part Number	Description
6	—	Side window demister airflow
7	—	Supplemental temperature blend door, full heat position
8	—	Recirculation air inlet
9	18731	Supplemental recirculation air inlet door, full vacuum position
10	18731	Air inlet door, full vacuum position

(Continued)

DIAGNOSIS AND TESTING (Continued)

Item	Part Number	Description
11	—	Outside air inlet
12	19N619	Pollen filter (optional)
13	18A318	Vacuum control motor—air inlet doors
14	—	Recirculation air inlet
15	19805	Blower motor
16	19860	Evaporator core
17	—	Temperature blend door, full heat position
18	18476	Heater core
19	—	A/C evaporator case damper door, full heat position
20	—	Panel/floor door, full vacuum position
21	—	Floor airflow
22	—	To vacuum distribution
23	19A566	Vacuum reservoir tank
24	18C612	Remote climate control (RCC) module
25	18A318	Vacuum control motor—panel/floor door
26	—	Floor console airflow (floor console equipped only)
27	18A318	Vacuum control motor—floor console door (floor console equipped only)

Electronic Automatic Temperature Control Vacuum Connector End View



Port Number	Line Color	Function
1	—	Not used
2	Yellow	Defrost door [a]
3	Blue	Panel/floor door
4	Black	Source vacuum
5	White	Air inlet door
6	Red	Panel/floor door

a Also controls the floor console door, if equipped.

ELECTRONIC AUTOMATIC TEMPERATURE CONTROL MANUAL OVERRIDE VACUUM APPLICATION CHART

Port Number	Line Color	Function	Manual Override Selector Button						
			MAX A/C	PANEL	OFF	PNL/ FLR	FLR	FLR/ DEF	DEF
2	Yellow	Defrost [a]	V	V	NV	V	NV	NV	NV
3	Blue	Panel/ floor	NV	NV	V	V	V	V	NV
4	Black	Source vacuum	V	V	V	V	V	V	V
5	White	Outside/ recirculated air	V	NV	V	NV	NV	NV	NV
6	Red	Full floor	NV	NV	V	NV	V	NV	NV

a Also controls the floor console door, if equipped.

V = vacuum

NV = no vacuum

Inspection and Verification

1. Verify the customer's concern by operating the climate control system to duplicate the condition.
2. Inspect to determine if one of the following mechanical or electrical concerns apply:

DIAGNOSIS AND TESTING (Continued)

Visual Inspection Chart

Mechanical	Electrical
• Loose, missing or damaged A/C compressor drive belt • Loose or disconnected A/C clutch • Loose, misrouted or damaged vacuum lines [a] • Broken or leaking vacuum control motor[a] • Discharged A/C system • Broken or leaking refrigerant lines	• Open fuses • 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 carried out, be sure to inspect for any disconnected, loose fitting, or incorrectly installed component, module and in-line electrical connectors and pins.
4. If the inspection reveals obvious concern(s) that can be readily identified, repair as required.
5. If the concern remains after the inspection, connect the scan tool to the data link connector (DLC) located beneath the instrument panel and select the vehicle to be tested from the scan tool menu. If the vehicle selection cannot be entered:
   - check that the program card is correctly installed.
   - check the connections to the vehicle.
   - check the ignition switch position.

If the scan tool still does not allow with the vehicle selection to be entered, refer to the scan tool manual.

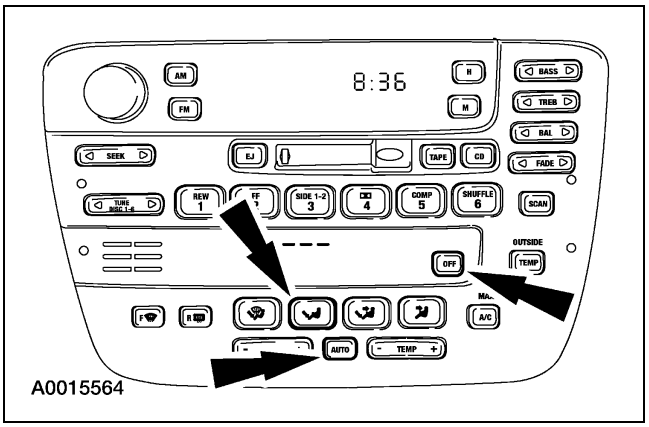
6. Carry out the DATA LINK DIAGNOSTIC TEST using the scan tool. If the scan tool responds with:
   - CKT 914 and CKT 915 = ALL MODULE NO RESPONSE/NOT EQUIPPED, go to Section 418-00 to diagnose the communications network concern.
   - If the powertrain control module (PCM) (12A650) is not listed for a communication concern, turn the A/C controls to OFF and carry out the self-test diagnostics for the PCM.
   - If the remote climate control (RCC) module (18C612) is not listed for a communication concern on vehicles equipped with EATC, carry out the Remote Climate Control Module Self-Test.
7. If any PCM or RCC module diagnostic trouble codes (DTCs) are retrieved and related to the concern, go to the POWERTRAIN CONTROL MODULE DIAGNOSTIC TROUBLE CODE (DTC) INDEX or the REMOTE CLIMATE CONTROL MODULE DIAGNOSTIC TROUBLE CODE (DTC) INDEX to continue diagnostics.
8. If no DTCs related to the concern are retrieved, go to the SYMPTOM CHART to continue the diagnostics.
9. If the RCC module cannot be accessed by the scan tool, go to Pinpoint Test I.

Remote Climate Control Module Self-Test

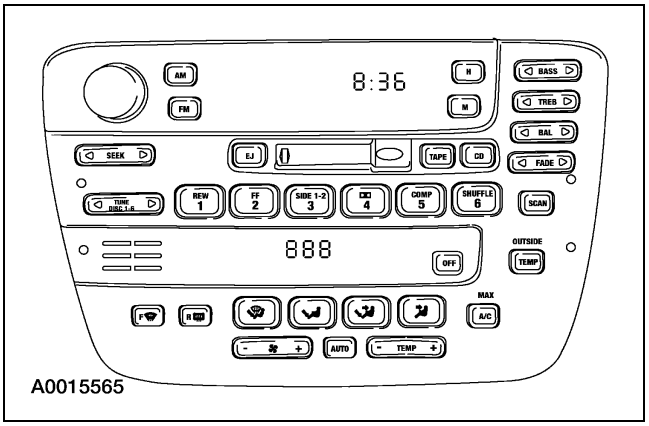
- The remote climate control (RCC) module self-test will not detect concerns associated with data link messages like engine coolant temperature or vehicle speed signals. A scan tool must be used to retrieve these concerns.
- The RCC module self-test will detect concerns in the system control functions 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°-38°C (40°-100°F) when carrying out the self-test. If the temperature is not within the specified range, false in-car 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.

DIAGNOSIS AND TESTING (Continued)

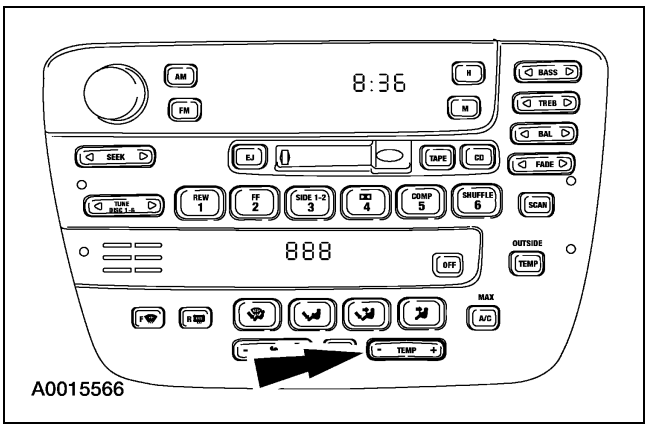
- To enter the self-test, press the OFF and floor buttons simultaneously and then press the AUTO button within two seconds. The display will show a dashed line in the center of the climate control display window of the integrated control panel (ICP).



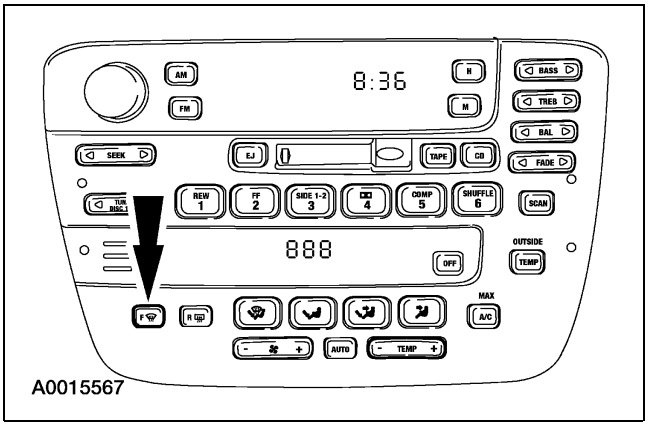
- The test may run as long as 30 seconds. Record all DTCs displayed. The self-test is completed when 888 appears in the center of the climate control display window of the ICP.



- If any DTCs appear during the self-test, refer to the REMOTE CLIMATE CONTROL MODULE DIAGNOSTIC TROUBLE CODE (DTC) INDEX. Carry out the diagnostic procedure given under ACTION TO TAKE for each DTC given.
- If a condition exists but no DTCs appear during the self-test, refer to the SYMPTOM CHART condition: The EATC System Is Inoperative, Intermittent or Incorrect Operation.
- To exit the self-test and retain all intermittent DTCs, press the ‘‘—’’ (cooler) side of the TEMP button. The RCC module will exit the self-test and retain all intermittent DTCs.



- To exit the self-test and clear all DTCs, press the front defrost button. All RCC module 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.

Diagnostic Trouble Code (DTC) Indexes

POWERTRAIN CONTROL MODULE DIAGNOSTIC TROUBLE CODE (DTC) INDEX

DTC	Description	Action
P1436	A/C Evaporator Air Temperature Sensor Circuit Low	REFER to the Powertrain Control/Emissions Diagnosis (PC/ED) manual.
P1437	A/C Evaporator Air Temperature Sensor Circuit High	REFER to the Powertrain Control/Emissions Diagnosis (PC/ED) manual.

DIAGNOSIS AND TESTING (Continued)

POWERTRAIN CONTROL MODULE DIAGNOSTIC TROUBLE CODE (DTC) INDEX (Continued)

DTC	Description	Action
P1460	Wide Open Throttle A/C Primary Circuit Malfunction	REFER to the Powertrain Control/Emissions Diagnosis (PC/ED) manual.

POWERTRAIN CONTROL MODULE DIAGNOSTIC TROUBLE CODE (DTC) INDEX (Continued)

DTC	Description	Action
P1464	A/C Demand Out Of Self-Test Range	REFER to the Powertrain Control/Emissions Diagnosis (PC/ED) manual.
P1469	Low A/C Cycling Period	REFER to the Powertrain Control/Emissions Diagnosis (PC/ED) manual.

REMOTE CLIMATE CONTROL MODULE DIAGNOSTIC TROUBLE CODE (DTC) INDEX

PCM DTC	RCC Module DTC		Description	Action to Take
	Self-test (hard) faults	Run-time (intermi-ttent) faults		
B1249	024	025	Temperature Blend Door Failure or Short	GO to Pinpoint Test A.
B1251	031	033	In-Vehicle Temperature Sensor Open	GO to Pinpoint Test B.
B1253	030	032	In-Vehicle Temperature Sensor Short to Ground	GO to Pinpoint Test B.
B1255	041	043	Ambient Temperature Sensor Open	GO to Pinpoint Test C.
B1257	040	042	Ambient Temperature Sensor Short to Ground	GO to Pinpoint Test C.
B1260	051	053	Solar Radiation Sensor Open	GO to Pinpoint Test D.
B1261	50	52	Solar Radiation Sensor Short to Ground	GO to Pinpoint Test D.
U1073	N/A	115	SCP Invalid Engine Coolant Signal	REFER to the Powertrain Control/Emissions Diagnosis (PC/ED) manual.
U1341	N/A	125	SCP Invalid Vehicle Speed Signal	REFER to the Powertrain Control/Emissions Diagnosis (PC/ED) manual.
U2005	N/A	195	ACP Communication Error Between Integrated Control Panel and Remote Climate Control Module	GO to Pinpoint Test E.

A/C Performance Check

1. Place the vehicle in the shade with the hood OPEN and windows DOWN in an enclosed shop area to minimize wind gust and sun load effects. Make sure the right front footwell is free of obstruction.
2. If equipped with manual climate control, with the engine running at idle, select MAX A/C (RECIRC) and set the temperature control to full COOL with the blower speed set to MEDIUM (Position 2).

DIAGNOSIS AND TESTING (Continued)

3. If equipped with EATC, with the engine running at idle, select A/C and RECIRC and set the temperature to the lowest setting (60°F) with the blower manually set to MEDIUM blower speed (4 bars displayed).
4. Measure the ambient temperature and humidity adjacent to the passenger side mirror, at approximately evaporator core height.
5. With all vents opened, place a thermometer in the left center register and allow the temperature to stabilize for 6 to 8 minutes.
6. Record 5 vent temperature readings at the center register within 5 minutes.
7. Calculate the Average Center Vent Temperature.
   1 Add the 5 recorded vent temperature readings to obtain the sum.
   2 Divide the sum of the vent temperature readings by 5 to obtain the Average Center Vent Temperature.
8. Compare the Average Center Vent Temperature to the A/C performance chart for the ambient conditions at the time of testing.
   - If the Average Center Vent Temperature is less than the temperature in the A/C performance chart, no further diagnosis is required.
   - If the Average Center Vent Temperature is greater than the temperature in the A/C performance chart, refer to the Symptom Chart.

A/C Performance Chart

Humidity(%)	Temperature (°F)								
	68-72	73-77	78-82	83-87	88-92	93-97	98-102	103-107	108-112
5-14	—	—	—	—	—	< 44	< 45	< 45	< 45
15-24	—	—	< 44	< 45	< 45	< 46	< 47	< 48	< 48
25-34	< 43	< 44	< 45	< 46	< 47	< 48	< 49	< 50	< 52
35-44	< 43	< 45	< 46	< 48	< 49	< 50	< 52	< 53	< 55
45-54	< 44	< 46	< 47	< 49	< 51	< 53	< 54	< 56	—
55-64	< 44	< 46	< 48	< 51	< 51	< 55	< 57	< 59	—
65-74	< 45	< 47	< 50	< 52	< 54	< 57	—	—	—
75-84	< 45	< 48	< 51	< 53	< 56	< 59	—	—	—
85-94	< 46	< 49	< 52	< 55	—	—	—	—	—

Symptom Chart

SYMPTOM CHART

Condition	Possible Sources	Action
• No communication with the remote climate control module—EATC	• Circuit open/short. • Remote climate control module communication network.	• GO to Pinpoint Test F.
• The EATC system is inoperative, intermittent or incorrect operation	• Circuit open/short. • Input sensor(s)/erratic input signals. • Charging system. • In-car temperature sensor hose and elbow.	• GO to Pinpoint Test G.

DIAGNOSIS AND TESTING (Continued)

SYMPTOM CHART (Continued)

Condition	Possible Sources	Action
• Incorrect/erratic direction of airflow from the outlets—manual climate control	• No vacuum to the function selector switch. • Function selector switch leaks vacuum. • Air distribution door binding/stuck. • Vacuum line kinked/pinched. • Vacuum control motor. • A/C vacuum check valve (19A563). • A/C vacuum reservoir tank (19A566). • Vacuum control motor actuator arm not connected to the door lever.	• GO to Pinpoint Test H.
• Incorrect/erratic direction of airflow from the outlets—EATC	• No vacuum to the remote climate control module. • Remote climate control module leaks vacuum. • Air distribution door binding/stuck. • Vacuum line kinked/pinched. • Vacuum control motor. • A/C vacuum check valve (19A563). • A/C vacuum reservoir tank (19A566). • Vacuum control motor actuator arm not connected to the door lever.	• GO to Pinpoint Test I.
• Insufficient, erratic, or no heat—manual climate control and EATC	• Low engine coolant level. • Engine overheating. • Plugged or partially plugged heater core. • Temperature blend door binding/stuck. • Temperature blend door actuator (19E616). • Temperature blend door circuit open/shorted.	• GO to Pinpoint Test J.
• The A/C does not operate/does not operate correctly	• Open fuse. • A/C control relay. • Circuit open/short. • A/C cycling switch (19E561). • A/C system discharged/low charge. • Pressure cutoff switch (19D594). • A/C control.	• GO to Pinpoint Test K.
• The A/C is always on	• Circuit short. • A/C control. • A/C control relay.	• GO to Pinpoint Test L.

DIAGNOSIS AND TESTING (Continued)

SYMPTOM CHART (Continued)

Condition	Possible Sources	Action
• No operation in all the temperature settings—manual climate control	• Open fuse. • Circuit open/short. • Temperature control switch (19C733). • Temperature blend door actuator (19E616). • Temperature blend door binding/stuck.	• GO to Pinpoint Test M.
• The blower motor does not operate—manual climate control	• Open fuse. • Circuit open/short. • Blower motor (19805). • Function selector switch (19B888). • Blower motor relay (14B192).	• GO to Pinpoint Test N.
• The blower motor is inoperative—EATC	• Open fuse. • Circuit open/short. • Blower motor. • Blower motor speed control (19E624). • Blower motor relay. • Remote climate control module.	• GO to Pinpoint Test O.
• The blower motor does not operate correctly—manual climate control	• Circuit open/short. • Blower motor. • Blower motor switch (18578). • Blower motor resistor (19A706).	• GO to Pinpoint Test P.
• The blower motor operates continuously in high speed—manual climate control	• Circuit short. • Blower motor resistor. • Blower motor switch.	• GO to Pinpoint Test Q.
• The blower motor operates continuously in high speed—EATC	• Circuit open/short. • Blower motor speed control. • Remote climate control module.	• GO to Pinpoint Test R.
• No operation in high blower setting—manual climate control	• Circuit open. • Blower motor switch. • Blower motor.	• GO to Pinpoint Test S.
• No operation in lower speeds—manual climate control	• Circuit open. • Blower motor resistor.	• GO to Pinpoint Test T.
• No operation in some blower settings—EATC	• Blower motor speed control. • Remote climate control module.	• GO to Pinpoint Test U.
• The temperature set point does not repeat after turning the ignition switch off—EATC	• Open fuse. • Circuit open. • Remote climate control module.	• REPAIR circuit 385 (WH/RD) or circuit 729 (RD/WH) for an open. If okay, INSTALL a new remote climate control module.

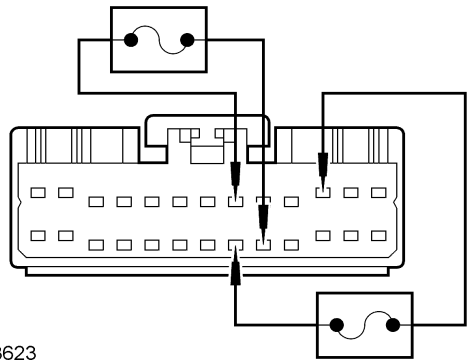
DIAGNOSIS AND TESTING (Continued)

SYMPTOM CHART (Continued)

Condition	Possible Sources	Action
• The temperature display will not switch between Celsius and Fahrenheit—EATC	• Integrated control panel (ICP) (18C864). • Remote climate control module.	• VERIFY correct front defrost and MAX A/C operation. If operation is correct, INSTALL a new remote climate control module. If operation is not correct, INSTALL a new ICP.

Pinpoint Tests

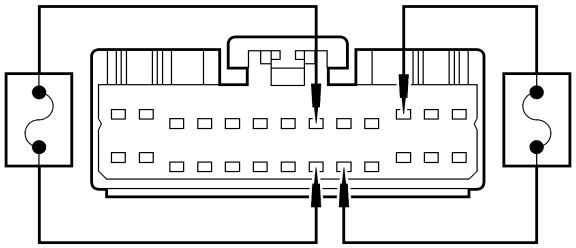
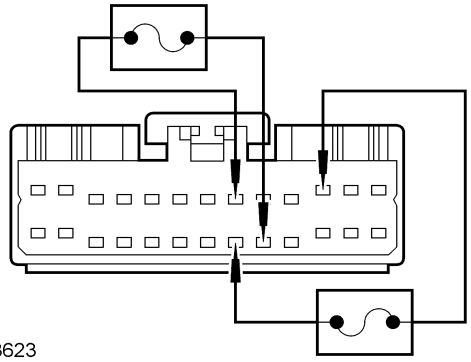
PINPOINT TEST A: DTC B1249 — BLEND DOOR FAILURE OR SHORT

Test Step		Result / Action to Take
A1	**CHECK THE BLEND DOOR ACTUATOR CLOCKWISE OPERATION**	
	• Disconnect: Remote Climate Control Module C228. • Key in ON position. • Connect a fused jumper wire between RCC module C228 pin 21, circuit 249 (DB/LG) and RCC module C228 pin 11, circuit 729 (RD/WH). Connect a second fused jumper wire between RCC module C228 pin 22, circuit 250 (OG) and RCC module C228 pin 8, circuit 570 (BK/YE).  A0013623 • **Does the actuator motor move in the clockwise direction?**	**Yes** GO to **A2**. **No** GO to **A3**.

(Continued)

DIAGNOSIS AND TESTING (Continued)

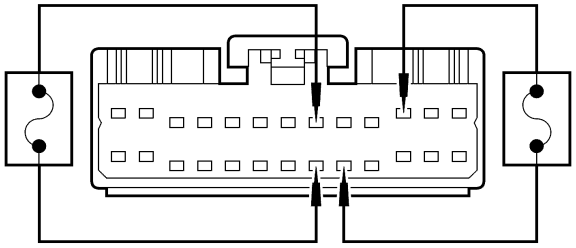
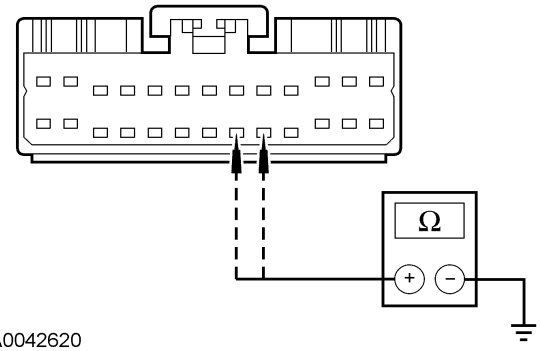
PINPOINT TEST A: DTC B1249 — BLEND DOOR FAILURE OR SHORT (Continued)

Test Step		Result / Action to Take
A2	**CHECK THE BLEND DOOR ACTUATOR COUNTERCLOCKWISE OPERATION**	
	• Connect a fused jumper wire between RCC module C228 pin 22, circuit 250 (OG) and RCC module C228 pin 11, circuit 729 (RD/WH). Connect a second fused jumper wire between RCC module C228 pin 21, circuit 249 (DB/LG) and RCC module C228 pin 8, circuit 570 (BK/YE).  A0013622 • **Does the air bypass door actuator motor move in the closed direction?**	**Yes** GO to **A9**. **No** GO to **A3**.
A3	**CHECK THE ACTUATOR CLOCKWISE OPERATION**	
	• Remove the door actuator and disengage the actuator drive shaft from the actuator door. Refer to Section 412-04. • Connect a fused jumper wire between RCC module C228 pin 21, circuit 249 (DB/LG) and RCC module C228 pin 11, circuit 729 (RD/WH). Connect a second fused jumper wire between RCC module C228 pin 22, circuit 250 (OG) and RCC module C228 pin 8, circuit 570 (BK/YE).  A0013623 • **Does the actuator motor move in the clockwise direction?**	**Yes** INSPECT for binding or broken door or linkage. If no condition is found, INSTALL a new door actuator. REFER to Section 412-04. TEST the system for normal operation. **No** GO to **A4**.

(Continued)

DIAGNOSIS AND TESTING (Continued)

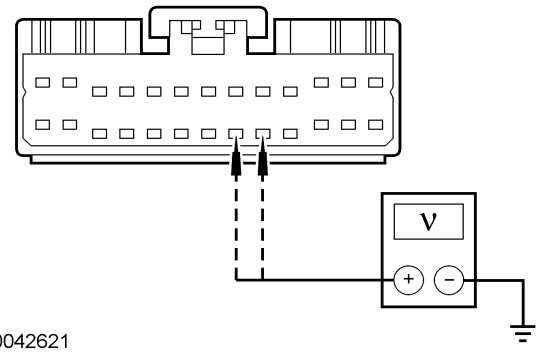
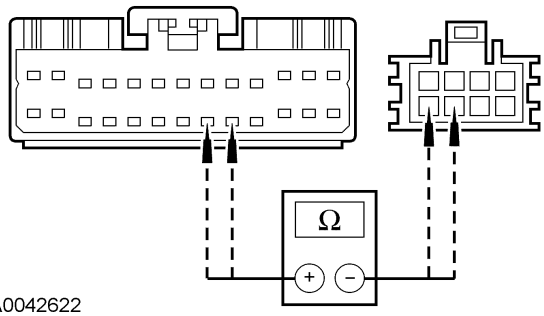
PINPOINT TEST A: DTC B1249 — BLEND DOOR FAILURE OR SHORT (Continued)

Test Step		Result / Action to Take
A4	**CHECK THE ACTUATOR COUNTERCLOCKWISE OPERATION**	
	• Connect a fused jumper wire between RCC module C228 pin 22, circuit 250 (OG) and RCC module C228 pin 11, circuit 729 (RD/WH). Connect a second fused jumper wire between RCC module C228 pin 21, circuit 249 (DB/LG) and RCC module C228 pin 8, circuit 570 (BK/YE).  A0013622 • **Does the air bypass door actuator motor move in the closed direction?**	**Yes** INSPECT for binding, broken door or linkage. If no condition is found, INSTALL a new door actuator. REFER to Section 412-04. TEST the system for normal operation. **No** GO to **A5**.
A5	**CHECK CIRCUITS 249 (DB/LG) AND 250 (OG) FOR A SHORT TO GROUND**	
	• Disconnect: Temperature Blend Door Actuator C289. • Measure the resistance between RCC module C228 pin 21, circuit 249 (DB/LG) and ground. Measure the resistance between RCC module C228 pin 22, circuit 250 (OG) and ground.  A0042620 • **Are the resistances greater than 10,000 ohms?**	**Yes** GO to **A6**. **No** REPAIR the affected circuit for a short to ground. TEST the system for normal operation.
A6	**CHECK CIRCUIT 249 (DB/LG) AND 250 (OG) FOR A SHORT TO POWER**	
	• Key in ON position.	

(Continued)

DIAGNOSIS AND TESTING (Continued)

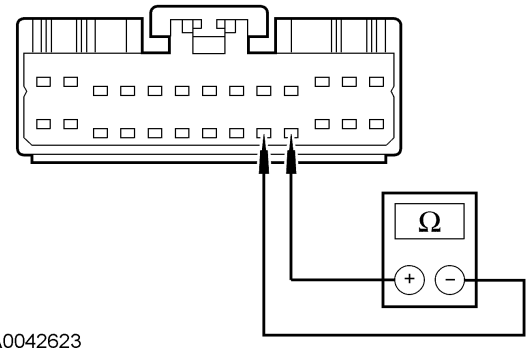
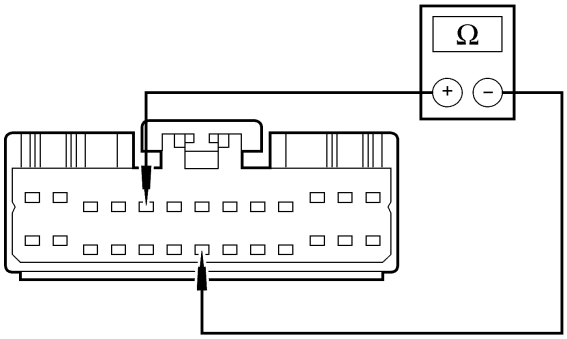
PINPOINT TEST A: DTC B1249 — BLEND DOOR FAILURE OR SHORT (Continued)

Test Step		Result / Action to Take
A6	**CHECK CIRCUIT 249 (DB/LG) AND 250 (OG) FOR A SHORT TO POWER (Continued)**	
• Measure the voltage between RCC module C228 pin 21, circuit 249 (DB/LG) and ground. Measure the voltage between RCC module C228 pin 22, circuit 250 (OG) and ground.  A0042621 • **Is voltage present?**		**Yes** REPAIR the affected circuit for a short to power. TEST the system for normal operation. **No** GO to **A7**.
A7	**CHECK CIRCUITS 249 (DB/LG) AND 250 (OG) FOR AN OPEN**	
• Key in OFF position. • Measure the resistance between RCC module C228 pin 21, circuit 249 (DB/LG) and the temperature blend door actuator C289 pin 7, circuit 249 (DB/LG). Measure the resistance between RCC module C228 pin 22, circuit 250 (OG) and the temperature blend door actuator C289 pin 8, circuit 250 (OG).  A0042622 • **Are the resistances less than 5 ohms?**		**Yes** GO to **A8**. **No** REPAIR the affected circuit for an open. TEST the system for normal operation.

(Continued)

DIAGNOSIS AND TESTING (Continued)

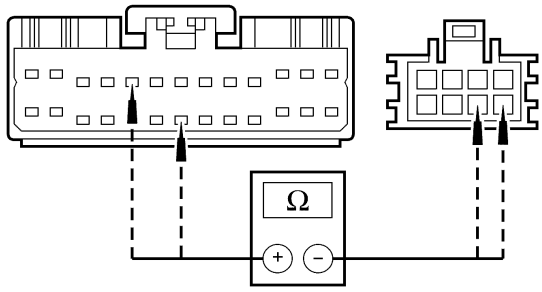
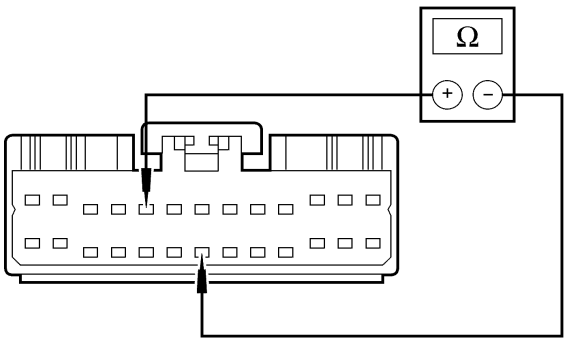
PINPOINT TEST A: DTC B1249 — BLEND DOOR FAILURE OR SHORT (Continued)

Test Step		Result / Action to Take
A8	**CHECK CIRCUIT 250 (OG) AND 249 (DB/LG) FOR A SHORT TOGETHER**	
	• Measure the resistance between RCC module C228 pin 22, circuit 250 (OG) and RCC module C228 pin 21, circuit 249 (DB/LG).  A0042623 • **Is the resistance less than 5 ohms?**	**Yes** INSTALL a new door actuator. REFER to Section 412-04. TEST the system for normal operation. **No** REPAIR circuit 250 (OG) and circuit 249 (DB/LG) for a short together. TEST the system for normal operation.
A9	**CHECK THE FEEDBACK POTENTIOMETER TOTAL RESISTANCE**	
	• Key in OFF position. • Measure the resistance between RCC module C228 pin 5, circuit 436 (RD/LG) and RCC module C228 pin 20, circuit 438 (RD/WH).  A0015887 • **Is the resistance between 5,000 and 6,000 ohms?**	**Yes** GO to **A12**. **No** If the resistance is greater than 6,000 ohms, GO to **A10**. If the resistance is less than 5,000 ohms, GO to **A11**.
A10	**CHECK CIRCUITS 436 (RD/LG) AND 438 (RD/WH) FOR AN OPEN**	
	• Disconnect: Temperature Blend Door Actuator C289.	

(Continued)

DIAGNOSIS AND TESTING (Continued)

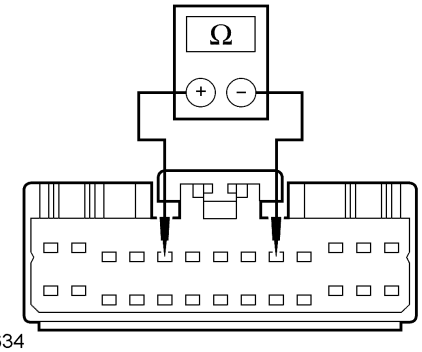
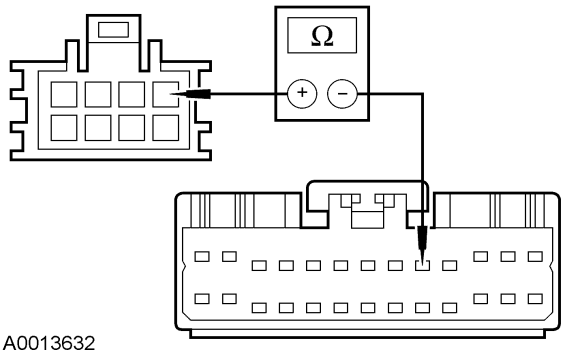
PINPOINT TEST A: DTC B1249 — BLEND DOOR FAILURE OR SHORT (Continued)

Test Step		Result / Action to Take
A10	**CHECK CIRCUITS 436 (RD/LG) AND 438 (RD/WH) FOR AN OPEN (Continued)**	
	• Measure the resistance between RCC module C228 pin 5, circuit 436 (RD/LG) and the temperature blend door actuator C289 pin 6, circuit 436 (RD/LG). Measure the resistance between RCC module C228 pin 20, circuit 438 (RD/WH) and the temperature blend door actuator C289 pin 5, circuit 438 (RD/WH).  A0042624 • **Are the resistances less than 5 ohms?**	**Yes** INSTALL a new temperature blend door actuator. REFER to Section 412-04. TEST the system for normal operation. **No** REPAIR the affected circuit for an open. TEST the system for normal operation.
A11	**CHECK CIRCUIT 438 (RD/WH) FOR A SHORT TO CIRCUIT 436 (RD/LG)**	
	• Disconnect: Temperature Blend Door Actuator C289. • Measure the resistance between RCC module C228 pin 20, circuit 438 (RD/WH) and RCC module C228 pin 5, circuit 436 (RD/LG).  A0015887 • **Is the resistance greater than 10,000 ohms?**	**Yes** INSTALL a new temperature blend door actuator (19E616). REFER to Section 412-04. TEST the system for normal operation. **No** REPAIR circuits 438 (RD/WH) for a short to circuit 436 (RD/LG). TEST the system for normal operation.
A12	**CHECK POTENTIOMETER LOW SIDE RESISTANCE**	
	• Drive the actuator to the full clockwise position. Refer to A1.	

(Continued)

DIAGNOSIS AND TESTING (Continued)

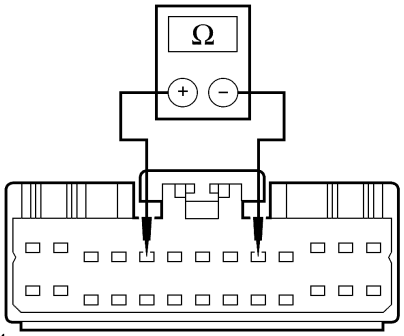
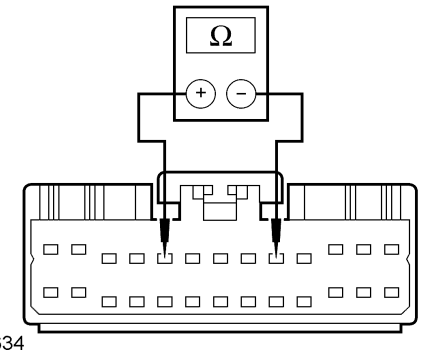
PINPOINT TEST A: DTC B1249 — BLEND DOOR FAILURE OR SHORT (Continued)

Test Step		Result / Action to Take
A12	**CHECK POTENTIOMETER LOW SIDE RESISTANCE (Continued)**	
	• Measure the resistance between RCC module C228 pin 9, circuit 437 (YE/LG) and RCC module C228 pin 20, circuit 438 (RD/WH).  A0013634 • **Is the resistance between 250 and 3,000 ohms?**	**Yes** GO to **A15**. **No** If the resistance is greater than 3,000 ohms, GO to **A13**. If the resistance is less than 250 ohms, GO to **A14**.
A13	**CHECK CIRCUIT 437 (YE/LG) FOR AN OPEN**	
	• Disconnect: Temperature Blend Door Actuator C289. • Measure the resistance between RCC module C228 pin 9, circuit 437 (YE/LG) and the temperature blend door actuator C289 pin 1, circuit 437 (YE/LG).  A0013632 • **Is the resistance less than 5 ohms?**	**Yes** INSTALL a new temperature blend door actuator (19E616). REFER to Section 412-04. TEST the system for normal operation. **No** REPAIR circuit 437 (YE/LG) for an open. TEST the system for normal operation.
A14	**CHECK CIRCUIT 438 (RD/WH) AND CIRCUIT 437 (YE/LG) FOR A SHORT TOGETHER**	
	• Disconnect: Temperature Blend Door Actuator C289.	

(Continued)

DIAGNOSIS AND TESTING (Continued)

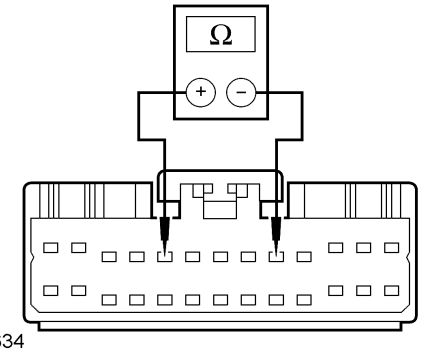
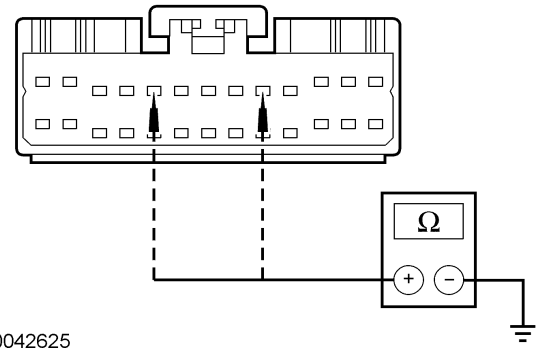
PINPOINT TEST A: DTC B1249 — BLEND DOOR FAILURE OR SHORT (Continued)

Test Step		Result / Action to Take
A14	**CHECK CIRCUIT 438 (RD/WH) AND CIRCUIT 437 (YE/LG) FOR A SHORT TOGETHER (Continued)**	
	• Measure the resistance between RCC module C228 pin 20, circuit 438 (RD/WH) and RCC module C228 pin 9, circuit 437 (YE/LG).  A0013634 • **Is the resistance greater than 10,000 ohms?**	**Yes** INSTALL a new temperature blend door actuator (19E616). REFER to Section 412-04. TEST the system for normal operation. **No** REPAIR circuits 438 (RD/WH) and circuit 437 (YE/LG) for a short together. TEST the system for normal operation.
A15	**CHECK POTENTIOMETER HIGH SIDE RESISTANCE**	
	• Measure the resistance between RCC module C228 pin 5, circuit 436 (RD/LG) and RCC module C228 pin 9, circuit 437 (YE/LG).  A0013634 • **Is the resistance between 3,000 and 6,000 ohms?**	**Yes** GO to **A17**. **No** If the resistance is greater than 6,000 ohms, INSTALL a new temperature blend door actuator. REFER to Section 412-04. TEST the system for normal operation. If the resistance is less than 3,000 ohms, GO to **A16**.
A16	**CHECK CIRCUIT 437 (YE/LG) FOR A SHORT TO CIRCUIT 436 (RD/LG)**	
	• Disconnect: Temperature Blend Door Actuator C289.	

(Continued)

DIAGNOSIS AND TESTING (Continued)

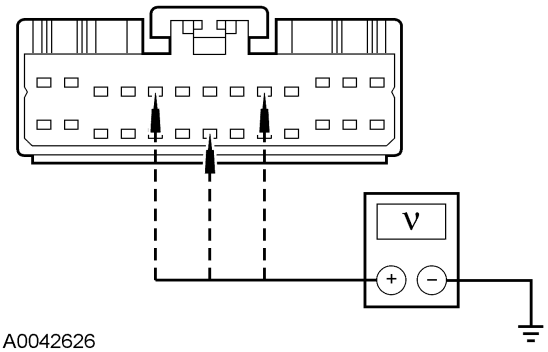
PINPOINT TEST A: DTC B1249 — BLEND DOOR FAILURE OR SHORT (Continued)

Test Step		Result / Action to Take
A16	**CHECK CIRCUIT 437 (YE/LG) FOR A SHORT TO CIRCUIT 436 (RD/LG) (Continued)**	
	• Measure the resistance between RCC module C228 pin 5, circuit 436 (RD/LG) and RCC module C228 pin 9, circuit 437 (YE/LG).  A0013634 • **Is the resistance greater than 10,000 ohms?**	**Yes** INSTALL a new temperature blend door actuator (19E616). REFER to Section 412-04. TEST the system for normal operation. **No** REPAIR circuits 437 (YE/LG) for a short to circuit 436 (RD/LG). TEST the system for normal operation.
A17	**CHECK CIRCUITS 436 (RD/LG) AND 437 (YE/LG) FOR A SHORT TO GROUND**	
	• Disconnect: Temperature Blend Door Actuator C289. • Measure the resistance between RCC module C228 pin 5, circuit 436 (RD/LG) and ground. Measure the resistance between RCC module C228 pin 9, circuit 437 (YE/LG) and ground.  A0042625 • **Are the resistances greater than 10,000 ohms?**	**Yes** GO to **A18**. **No** REPAIR the affected circuit for a short to ground. TEST the system for normal operation.
A18	**CHECK CIRCUITS 436 (RD/LG), 437 (YE/LG) AND 438 (RD/WH) FOR A SHORT TO POWER**	
	• Key in ON position.	

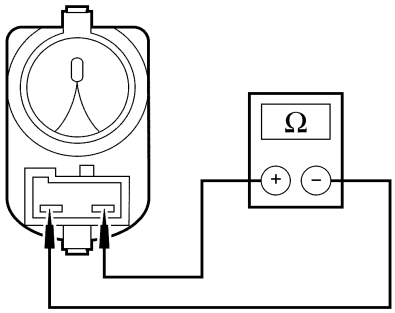
(Continued)

DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST A: DTC B1249 — BLEND DOOR FAILURE OR SHORT (Continued)

Test Step		Result / Action to Take
A18	CHECK CIRCUITS 436 (RD/LG), 437 (YE/LG) AND 438 (RD/WH) FOR A SHORT TO POWER (Continued)	
	• Measure the voltage between RCC module C228 pin 5, circuit 436 (RD/LG), RCC module C228 pin 9, circuit 437 (YE/LG) and RCC module C228 pin 20, circuit 438 (RD/WH) and ground.  A0042626 • **Is voltage present?**	**Yes** REPAIR the affected circuit for a short to power. TEST the system for normal operation. **No** INSPECT for a broken door or linkage. If no condition is found, INSTALL a new RCC module. REFER to Section 412-04. TEST the system for normal operation.

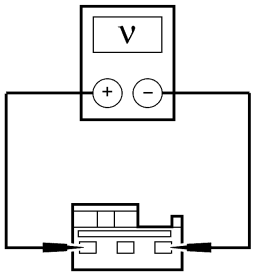
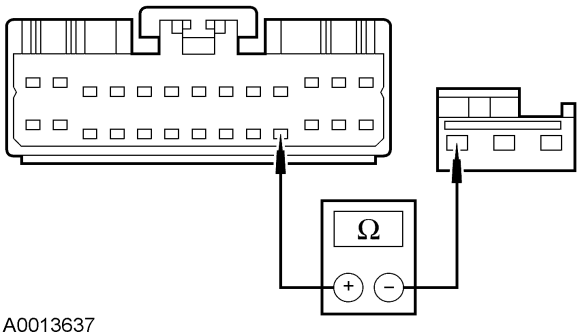
PINPOINT TEST B: DTC B1251 OR DTC1253 — A/C IN-VEHICLE TEMPERATURE SENSOR OPEN CIRCUIT OR SHORT TO GROUND

Test Step		Result / Action to Take
B1	CHECK THE SENSOR RESISTANCE	
	• Key in OFF position. • Disconnect: In-Vehicle Temperature Sensor C233. • Measure the resistance between the in-vehicle temperature sensor terminals.  A0013635 • **Is the resistance within the specified values for these temperature ranges: 10-20°C (50-68°F), 37,000-58,000 ohms; 20-30°C (68-86°F), 24,000-37,000 ohms; 30-40°C (86-104°F), 16,000-24,000 ohms?**	**Yes** GO to **B2**. **No** INSTALL a new in-vehicle temperature sensor. TEST the system for normal operation.
B2	CHECK THE REMOTE CLIMATE CONTROL (RCC) MODULE OUTPUT VOLTAGE	
	• Key in ON position. • Press the AUTOMATIC button.	

(Continued)

DIAGNOSIS AND TESTING (Continued)

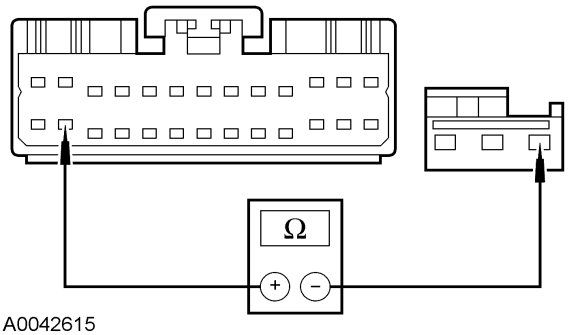
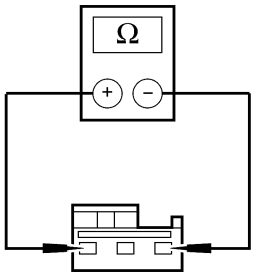
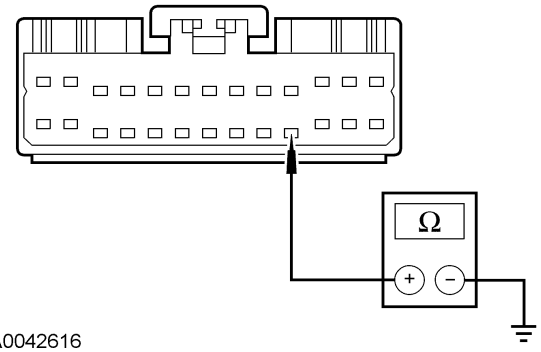
PINPOINT TEST B: DTC B1251 OR DTC1253 — A/C IN-VEHICLE TEMPERATURE SENSOR OPEN CIRCUIT OR SHORT TO GROUND (Continued)

Test Step		Result / Action to Take
B2	**CHECK THE REMOTE CLIMATE CONTROL (RCC) MODULE OUTPUT VOLTAGE (Continued)**	
	• Measure the voltage between the in-vehicle temperature sensor C233, circuit 790 (WH/OG) and circuit 470 (PK/BK).  A0040087 • **Is the voltage between 4.7 and 5.1 volts?**	**Yes** INSTALL a new RCC module. TEST the system for normal operation. **No** If diagnosing DTC B1251, GO to **B3**. If diagnosing DTC B1253, GO to **B5**.
B3	**CHECK CIRCUIT 790 (WH/OG) FOR AN OPEN**	
	• Key in OFF position. • Disconnect: RCC Module C228. • Measure the resistance between the RCC module C228 pin 23, circuit 790 (WH/OG) and the in-vehicle temperature sensor C233, circuit 790 (WH/OG).  A0013637 • **Is the resistance less than 5 ohms?**	**Yes** GO to **B4**. **No** REPAIR circuit 790 (WH/OG) for an open. TEST the system for normal operation.
B4	**CHECK CIRCUIT 470 (PK/BK) FOR AN OPEN**	
	NOTE: When carrying out tests, allow time for resistance measurement to stabilize.	

(Continued)

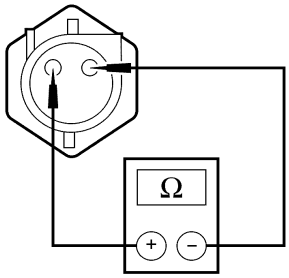
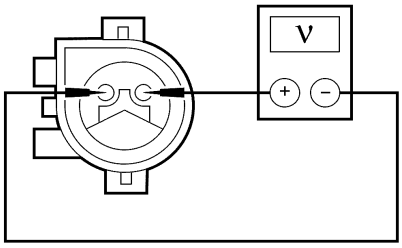
DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST B: DTC B1251 OR DTC1253 — A/C IN-VEHICLE TEMPERATURE SENSOR OPEN CIRCUIT OR SHORT TO GROUND (Continued)

Test Step		Result / Action to Take
B4	**CHECK CIRCUIT 470 (PK/BK) FOR AN OPEN (Continued)**	
	• Measure the resistance between the RCC module C228 pin 15, circuit 470 (PK/BK) and the in-vehicle temperature sensor C233, circuit 470 (PK/BK).  A0042615 • **Is the resistance less than 5 ohms?**	**Yes** INSTALL a new RCC module. TEST the system for normal operation. **No** REPAIR circuit 470 (PK/BK) for an open. TEST the system for normal operation.
B5	**CHECK CIRCUIT 790 (WH/OG) FOR A SHORT TO CIRCUIT 470 (PK/BK)**	
	• Key in OFF position. • Disconnect: RCC Module C228. • Measure the resistance between the in-vehicle temperature sensor C233, circuit 790 (WH/OG) and circuit 470 (PK/BK).  A0040090 • **Is the resistance greater than 10,000 ohms?**	**Yes** GO to **B6**. **No** REPAIR circuit 790 (WH/OG) for a short to circuit 470 (PK/BK). TEST the system for normal operation.
B6	**CHECK CIRCUIT 790 (WH/OG) FOR A SHORT TO GROUND**	
	• Measure the resistance between the RCC module C228 pin 23, circuit 790 (WH/OG) and ground.  A0042616 • **Is the resistance greater than 10,000 ohms?**	**Yes** INSTALL a new RCC module. TEST the system for normal operation. **No** REPAIR circuit 790 (WH/OG) for a short to ground. TEST the system for normal operation.

DIAGNOSIS AND TESTING (Continued)

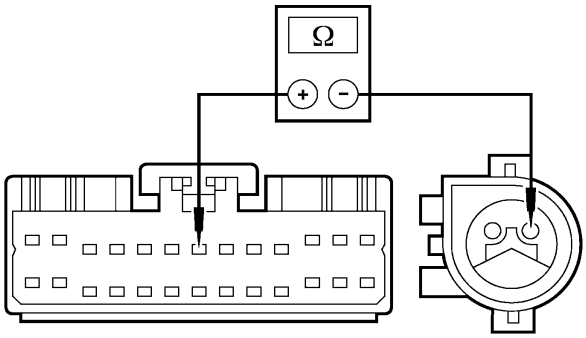
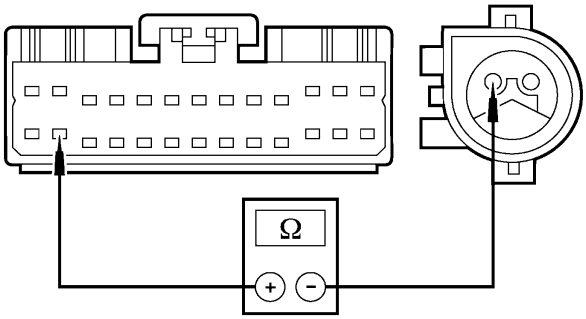
PINPOINT TEST C: DTC B1255 OR DTC B1257 — AMBIENT TEMPERATURE SENSOR OPEN CIRCUIT OR SHORT TO GROUND

Test Step		Result / Action to Take
C1	**CHECK THE AMBIENT TEMPERATURE SENSOR RESISTANCE**	
	• Key in OFF position. • Disconnect: Ambient Temperature Sensor C198. • Measure the resistance between the ambient temperature sensor terminals.  A0013640 • **Is the resistance within the specified values for these temperature ranges: 10-20°C (50-68°F), 37,000-58,000 ohms; 20-30°C (68-86°F), 24,000-37,000 ohms; 30-40°C (86-104°F), 16,000-24,000 ohms?**	**Yes** GO to **C2**. **No** INSTALL a new ambient air temperature sensor and bracket. TEST the system for normal operation.
C2	**CHECK THE REMOTE CLIMATE CONTROL MODULE OUTPUT VOLTAGE**	
	• Key in ON position. • Press the AUTOMATIC button. • Measure the voltage between the ambient temperature sensor C198, circuit 788 (RD/OG) and circuit 470 (PK/BK).  A0013641 • **Is the voltage between 4.7 and 5.1 volts?**	**Yes** INSTALL a new RCC module. TEST the system for normal operation. **No** If diagnosing DTC 1255, GO to **C3**. If diagnosing DTC 1257, GO to **C5**.
C3	**CHECK CIRCUIT 788 (RD/OG) FOR AN OPEN**	
	• Key in OFF position. • Disconnect: RCC Module C228.	

(Continued)

DIAGNOSIS AND TESTING (Continued)

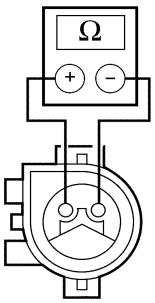
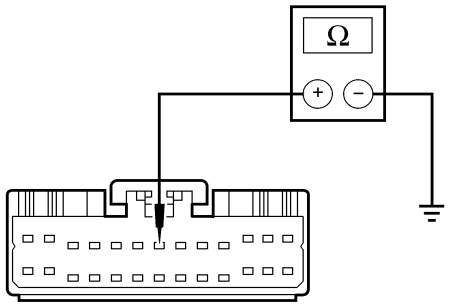
PINPOINT TEST C: DTC B1255 OR DTC B1257 — AMBIENT TEMPERATURE SENSOR OPEN CIRCUIT OR SHORT TO GROUND (Continued)

Test Step		Result / Action to Take
C3	**CHECK CIRCUIT 788 (RD/OG) FOR AN OPEN (Continued)**	
	• Measure the resistance between the RCC module C228 pin 7, circuit 788 (RD/OG) and the ambient temperature sensor C198, circuit 788 (RD/OG).  A0013642 • **Is the resistance less than 5 ohms?**	**Yes** GO to **C4**. **No** REPAIR circuit 788 (RD/OG) for an open. TEST the system for normal operation.
C4	**CHECK CIRCUIT 470 (PK/BK) FOR AN OPEN**	
	• Measure the resistance between the RCC module C228 pin 15, circuit 470 (PK/BK) and the ambient temperature sensor C198, circuit 470 (PK/BK).  A0013643 • **Is the resistance less than 5 ohms?**	**Yes** INSTALL a new RCC module. TEST the system for normal operation. **No** REPAIR circuit 470 (PK/BK) for an open. TEST the system for normal operation.
C5	**CHECK CIRCUIT 788 (RD/OG) FOR A SHORT TO CIRCUIT 470 (PK/BK)**	
	• Key in OFF position. • Disconnect: RCC Module C228.	

(Continued)

DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST C: DTC B1255 OR DTC B1257 — AMBIENT TEMPERATURE SENSOR OPEN CIRCUIT OR SHORT TO GROUND (Continued)

Test Step		Result / Action to Take
C5	**CHECK CIRCUIT 788 (RD/OG) FOR A SHORT TO CIRCUIT 470 (PK/BK) (Continued)**	
	• Measure the resistance between the ambient temperature sensor C198, circuit 788 (RD/OG) and circuit 470 (PK/BK).  A0038068 • **Is the resistance greater than 10,000 ohms?**	**Yes** GO to **C6**. **No** REPAIR circuit 788 (RD/OG) for a short to circuit 470 (PK/BK). TEST the system for normal operation.
C6	**CHECK CIRCUIT 788 (RD/OG) FOR A SHORT TO GROUND**	
	• Key in OFF position. • Measure the resistance between the RCC module C228 pin 7, circuit 788 (RD/OG) and ground.  A0040094 • **Is the resistance greater than 10,000 ohms?**	**Yes** INSTALL a new RCC module. TEST the system for normal operation. **No** REPAIR circuit 788 (RD/OG) for a short to ground. TEST the system for normal operation.

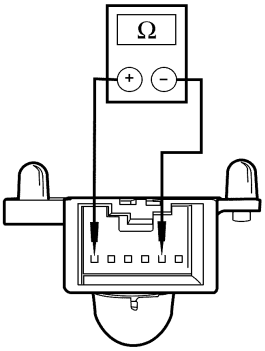
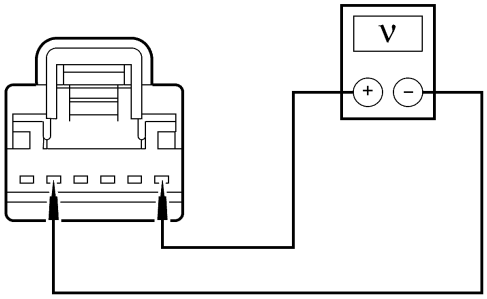
PINPOINT TEST D: DTC B1260 OR DTC B1261 — SOLAR RADIATION SENSOR OPEN CIRCUIT OR SHORT TO GROUND

Test Step		Result / Action to Take
D1	**CHECK THE SOLAR RADIATION SENSOR RESISTANCE**	
	• Key in OFF position. • Disconnect: Solar Radiation Sensor C287.	

(Continued)

DIAGNOSIS AND TESTING (Continued)

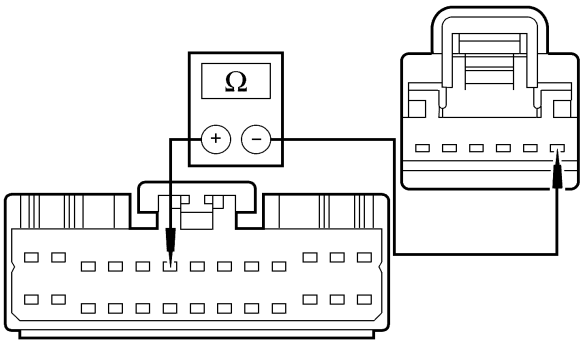
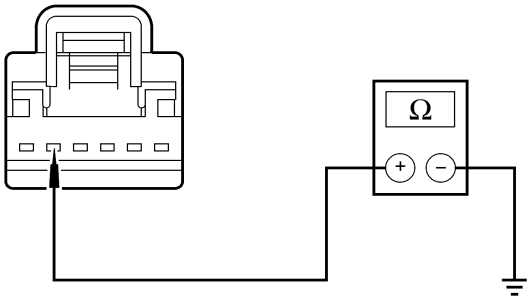
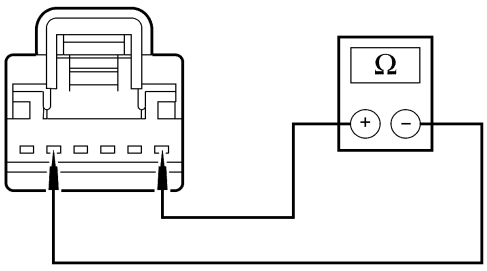
PINPOINT TEST D: DTC B1260 OR DTC B1261 — SOLAR RADIATION SENSOR OPEN CIRCUIT OR SHORT TO GROUND (Continued)

Test Step		Result / Action to Take
D1	**CHECK THE SOLAR RADIATION SENSOR RESISTANCE (Continued)**	
	• Measure the resistance between the solar radiation sensor pin 1 and pin 5, component side.  A0015934 • **Is continuity present and the resistance greater than 0 ohms?**	**Yes** GO to **D2**. **No** INSTALL a new solar radiation sensor and bracket. TEST the system for normal operation.
D2	**CHECK THE REMOTE CLIMATE CONTROL MODULE OUTPUT VOLTAGE**	
	• Key in ON position. • Press the AUTOMATIC button. • Measure the voltage between the solar radiation sensor C287 pin 1, circuit 468 (BN) and pin 5, circuit 398 (BK/YE).  A0015935 • **Is the voltage between 4.7 and 5.1 volts?**	**Yes** INSTALL a new RCC module. TEST the system for normal operation. **No** If diagnosing DTC 1260, GO to **D3**. If diagnosing DTC 1261, GO to **D5**.
D3	**CHECK CIRCUIT 468 (BN) FOR AN OPEN**	
	• Key in OFF position. • Disconnect: RCC Module C228.	

(Continued)

DIAGNOSIS AND TESTING (Continued)

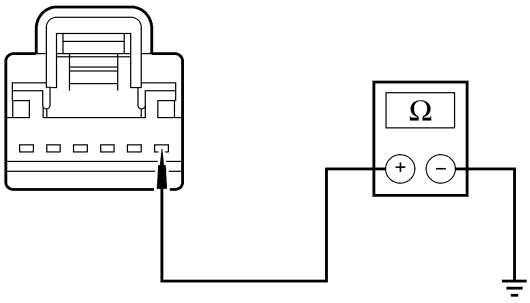
PINPOINT TEST D: DTC B1260 OR DTC B1261 — SOLAR RADIATION SENSOR OPEN CIRCUIT OR SHORT TO GROUND (Continued)

Test Step		Result / Action to Take
D3	**CHECK CIRCUIT 468 (BN) FOR AN OPEN (Continued)**	
	• Measure the resistance between the RCC module C228 pin 6, circuit 468 (BN) and the solar radiation sensor C287 pin 1, circuit 468 (BN).  A0015936 • **Is the resistance less than 5 ohms?**	**Yes** GO to D4. **No** REPAIR circuit 468 (BN) for an open. TEST the system for normal operation.
D4	**CHECK CIRCUIT 398 (BK/YE) FOR AN OPEN**	
	• Measure the resistance between the solar radiation sensor C287 pin 5, circuit 398 (BK/YE).  A0015937 • **Is the resistance less than 5 ohms?**	**Yes** INSTALL a new RCC module. TEST the system for normal operation. **No** REPAIR circuit 398 (BK/YE) for an open. TEST the system for normal operation.
D5	**CHECK CIRCUIT 468 (BN) FOR A SHORT TO CIRCUIT 398 (BK/YE)**	
	• Key in OFF position. • Disconnect: RCC Module C228. • Measure the resistance between the solar radiation sensor C287 pin 1, circuit 468 (BN) and pin 5, circuit 398 (BK/YE).  A0042617 • **Is the resistance greater than 10,000 ohms?**	**Yes** GO to D6. **No** REPAIR circuit 468 (BN) for a short to circuit 398 (BK/YE). TEST the system for normal operation.

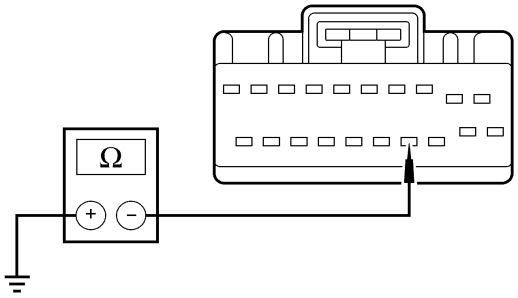
(Continued)

DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST D: DTC B1260 OR DTC B1261 — SOLAR RADIATION SENSOR OPEN CIRCUIT OR SHORT TO GROUND (Continued)

Test Step		Result / Action to Take
D6	CHECK CIRCUIT 468 (BN) FOR A SHORT TO GROUND	
	• Measure the resistance between the solar radiation sensor C287 pin 1, circuit 468 (BN) and ground.  A0015938 • **Is the resistance greater than 10,000 ohms?**	**Yes** INSTALL a new RCC module. TEST the system for normal operation. **No** REPAIR circuit 468 (BN) for a short to ground. TEST the system for normal operation.

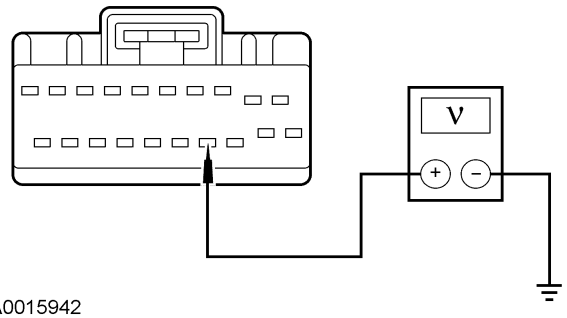
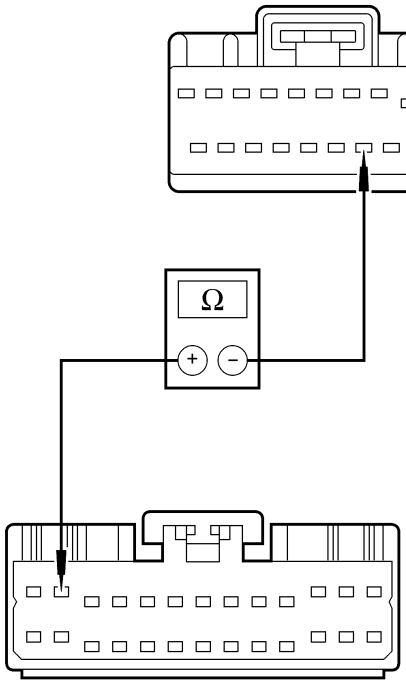
PINPOINT TEST E: DTC U2005 — ACP COMMUNICATION ERROR BETWEEN INTEGRATED CONTROL PANEL AND REMOTE CLIMATE CONTROL MODULE

Test Step		Result / Action to Take
E1	CHECK CIRCUIT 833 (TN) FOR SHORT TO GROUND	
	• Key in OFF position. • Disconnect: Integrated Control Panel C2009. • Disconnect: Remote Climate Control Module C228. • Disconnect: Rear Control Unit C388b. • Measure the resistance between the integrated control panel (ICP) C2009 pin 14, circuit 833 (TN) and ground.  A0013646 • **Is the resistance greater than 10,000 ohms?**	**Yes** GO to **E2**. **No** REPAIR circuit 833 (TN). CLEAR the DTCs. REPEAT the self-test.
E2	CHECK CIRCUIT 833 (TN) FOR SHORT TO VOLTAGE	
	• Key in ON position.	

(Continued)

DIAGNOSIS AND TESTING (Continued)

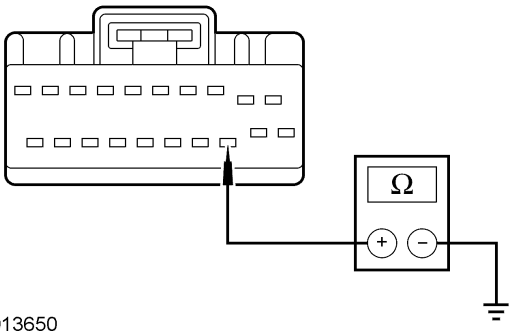
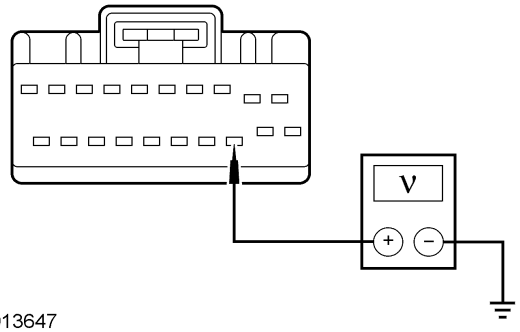
PINPOINT TEST E: DTC U2005 — ACP COMMUNICATION ERROR BETWEEN INTEGRATED CONTROL PANEL AND REMOTE CLIMATE CONTROL MODULE (Continued)

Test Step		Result / Action to Take
E2	**CHECK CIRCUIT 833 (TN) FOR SHORT TO VOLTAGE (Continued)**	
	• Measure the voltage between the ICP C2009 pin 14, circuit 833 (TN) and ground.  A0015942 • **Is voltage present?**	**Yes** REPAIR circuit 833 (TN). CLEAR the DTCs. REPEAT the self-test. **No** GO to **E3**.
E3	**CHECK CIRCUIT 833 (TN) FOR AN OPEN**	
	• Key in OFF position. • Measure the resistance between the ICP C2009 pin 14, circuit 833 (TN) and the remote climate control (RCC) module C228 pin 2, circuit 833 (TN).  A0013648 • **Is the resistance less than 5 ohms?**	**Yes** GO to **E4**. **No** REPAIR circuit 833 (TN). CLEAR the DTCs. REPEAT the self-test.

(Continued)

DIAGNOSIS AND TESTING (Continued)

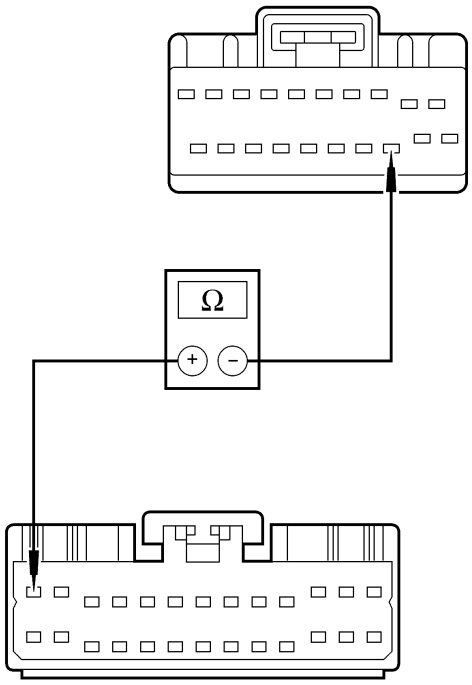
PINPOINT TEST E: DTC U2005 — ACP COMMUNICATION ERROR BETWEEN INTEGRATED CONTROL PANEL AND REMOTE CLIMATE CONTROL MODULE (Continued)

Test Step		Result / Action to Take
E4	**CHECK CIRCUIT 832 (LB/PK) FOR SHORT TO GROUND**	
	• Measure the resistance between the ICP C2009 pin 13, circuit 832 (LB/PK) and ground.  A0013650 • **Is the resistance greater than 10,000 ohms?**	**Yes** GO to **E5**. **No** REPAIR circuit 832 (LB/PK). CLEAR the DTCs. REPEAT the self-test.
E5	**CHECK CIRCUIT 832 (LB/PK) FOR SHORT TO VOLTAGE**	
	• Key in ON position. • Measure the voltage between the ICP C2009 pin 13, circuit 832 (LB/PK) and ground.  A0013647 • **Is voltage present?**	**Yes** REPAIR circuit 832 (LB/PK). CLEAR the DTCs. REPEAT the self-test. **No** GO to **E6**.
E6	**CHECK CIRCUIT 832 (LB/PK) FOR AN OPEN**	
	• Key in OFF position.	

(Continued)

DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST E: DTC U2005 — ACP COMMUNICATION ERROR BETWEEN INTEGRATED CONTROL PANEL AND REMOTE CLIMATE CONTROL MODULE (Continued)

Test Step		Result / Action to Take
E6	CHECK CIRCUIT 832 (LB/PK) FOR AN OPEN (Continued)	
• Measure the resistance between the ICP C2009 pin 13, circuit 832 (LB/PK) and the RCC module C228 pin 1, circuit 832 (LB/PK).  A0013649 • **Is the resistance less than 5 ohms?**		**Yes** INSTALL a new integrated control panel (18C858). CLEAR the DTCs. REPEAT the self-test. **No** REPAIR circuit 832 (LB/PK). CLEAR the DTCs. REPEAT the self-test.

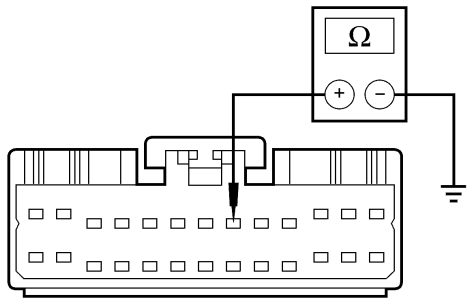
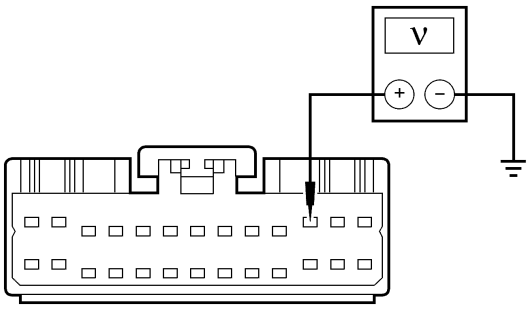
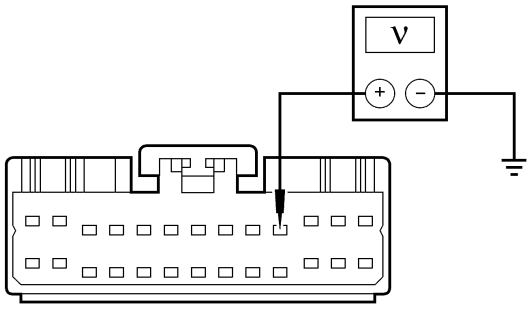
PINPOINT TEST F: NO COMMUNICATION WITH THE REMOTE CLIMATE CONTROL MODULE — EATC

Test Step		Result / Action to Take
F1	CHECK CIRCUITS 398 (BK/YE) AND 570 (BK/WH)	
• Key in OFF position. • Disconnect: Remote Climate Control Module C228.		

(Continued)

DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST F: NO COMMUNICATION WITH THE REMOTE CLIMATE CONTROL MODULE — EATC (Continued)

Test Step	Result / Action to Take
F1 CHECK CIRCUITS 398 (BK/YE) AND 570 (BK/WH) (Continued) • Measure the resistance between the remote climate control (RCC) module C228 pin 8, circuit 570 (BK/WH) and ground.  A0013651 • **Is the resistance less than 5 ohms?**	**Yes** GO to F2. **No** REPAIR circuit 398 (BK/YE) or circuit 570 (BK/WH). TEST the system for normal operation.
F2 CHECK CIRCUITS 385 (WH/RD) AND 729 (RD/WH) • Measure the voltage between the RCC module C228 pin 11, circuit 729 (RD/WH) and ground.  A0013798 • **Is the voltage greater than 10 volts?**	**Yes** GO to F3. **No** REPAIR circuit 385 (WH/RD) or circuit 729 (RD/WH). TEST the system for normal operation.
F3 CHECK CIRCUIT 298 (VT/OG) • Key in ON position. • Measure the voltage between the RCC module pin 10, circuit 298 (VT/OG) and ground.  A0013799 • **Is the voltage greater than 10 volts?**	**Yes** REFER to Section 418-00 to diagnose the network concern. **No** REPAIR circuit 298 (VT/OG). TEST the system for normal operation.

DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST G: THE EATC SYSTEM IS INOPERATIVE, INTERMITTENT OR INCORRECT OPERATION

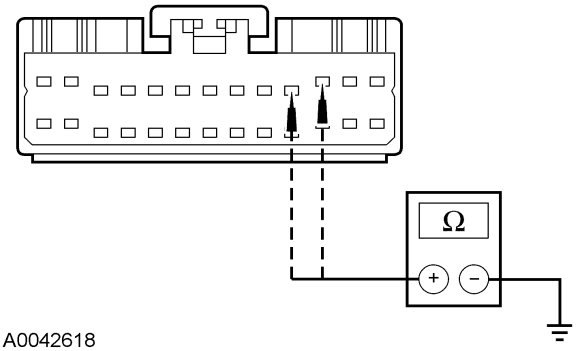
Test Step		Result / Action to Take
G1	**VERIFY AUTOMATIC OPERATION**	
	• Key in ON position. • With the engine running, press the AUTOMATIC button. • **Does AUTO and the selected temperature appear in the display window?**	**Yes** GO to **G2**. **No** GO to **G11**.
G2	**PERFORM THE EATC MODULE SELF-TEST**	
	• Key in ON position. • Carry out the remote climate control module self-test. Refer to the Electronic Automatic Temperature Control Module Self-Test in this section. Record the DTCs displayed, if any. • **Were any DTCs displayed as a result of the EATC self-test?**	**Yes** REFER to the RCC Module Diagnostic Trouble Code (DTC) Index. CARRY OUT the necessary diagnosis and REPAIR as required. **No** GO to **G3**.
G3	**CHECK THE VACUUM FLUORESCENT DISPLAY**	
	• Exit self-test by pressing the DEFROST button. Observe the function symbols displayed on the vacuum fluorescent display. • **Is the display correct and complete without any missing elements?**	**Yes** GO to **G4**. **No** INSTALL a new RCC module. TEST the system for normal operation.
G4	**CHECK THE BLOWER MANUAL OVERRIDE OPERATION**	
	• Slowly rotate the blower motor speed override control from LO to HI. • **Does the blower motor speed increase smoothly from low speed to high speed?**	**Yes** GO to **G5**. **No** If the blower motor is inoperative, GO to Pinpoint Test O. If the blower motor operates continuously in high speed, GO to Pinpoint Test R. If the blower motor is inoperative only in some speeds, GO to Pinpoint Test U.
G5	**VERIFY THE DEFROST OVERRIDE OPERATION**	
	• Press the override button for DEFROST operation. • **Is outside air being discharged from the windshield defroster nozzle and the side window demisters?**	**Yes** GO to **G6**. **No** GO to Pinpoint Test I.
G6	**VERIFY THE FLOOR OVERRIDE OPERATION**	
	• Press the override button for FLOOR operation. • **Is outside air being discharged from the floor duct?**	**Yes** GO to **G7**. **No** GO to Pinpoint Test I.
G7	**VERIFY THE VENT OVERRIDE OPERATION**	
	• Press the override button for VENT operation. • **Is outside air being discharged from the instrument panel registers?**	**Yes** GO to **G8**. **No** GO to Pinpoint Test I.
G8	**VERIFY THE A/C CLUTCH DOES NOT ENGAGE IN THE VENT MODE**	
	• Press the override button for VENT operation. • **Does the A/C clutch engage when the VENT override button is pressed?**	**Yes** REFER to the Powertrain Control/Emissions Diagnosis (PC/ED) manual. **No** GO to **G9**.
G9	**VERIFY THE MAX A/C OVERRIDE OPERATION**	
	• Make sure the ambient air temperature is above 5°C (41°F). • Press the override button for MAX A/C operation. • **Is recirculated air being discharged from the instrument panel registers?**	**Yes** GO to **G10**. **No** GO to Pinpoint Test I.

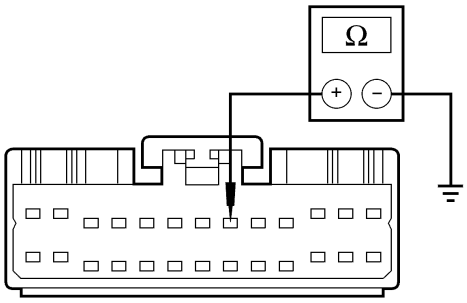
(Continued)

DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST G: THE EATC SYSTEM IS INOPERATIVE, INTERMITTENT OR INCORRECT OPERATION (Continued)

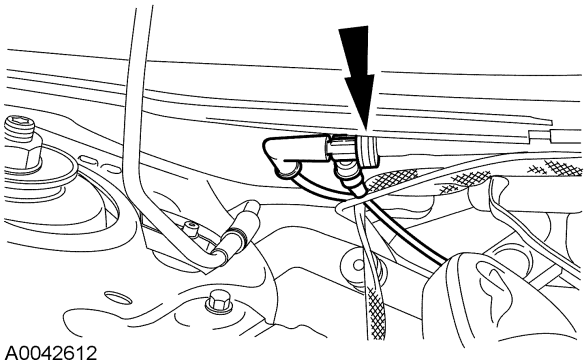
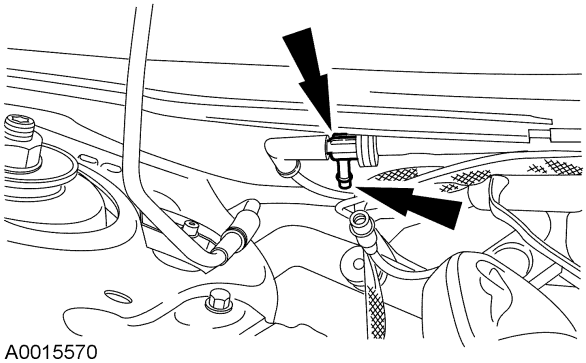
Test Step		Result / Action to Take
G10	**VERIFY A/C CLUTCH ENGAGEMENT IN THE MAX A/C MODE**	
	• Press the override button for MAX A/C operation. • **Does the A/C clutch engage when the MAX A/C override button is pressed?**	**Yes** The test is complete. The system is functioning normally. **No** GO to Pinpoint Test K.
G11	**CHECK THE RCC MODULE FUNCTIONS**	
	• Press each function button and observe the display. • **Does the RCC perform and display any functions?**	**Yes** INSTALL a new RCC module. TEST the system for normal operation. **No** GO to **G12**.
G12	**CHECK THE VOLTAGE TO THE RCC**	

	• Key in OFF position.
	• Disconnect: RCC C228.
	• Key in ON position.
	• Measure the voltage between ground and:
	  • RCC module C228 pin 11, circuit 729 (RD/WH).
	  • RCC module C228 pin 10, circuit 298 (VT/OG).
	 
	
	A0042618
	• **Are the voltages greater than 10 volts?**
		Yes
		GO to **G13**.
		No
		REPAIR the affected circuit. TEST the system for normal operation.

G13	**CHECK THE GROUND CIRCUIT TO THE RCC**	
	• Key in OFF position. • Measure the resistance between the RCC module C228 pin 8, circuit 570 (BK/YE) and ground.  A0013651 • **Is the resistance less than 5 ohms?**	**Yes** INSTALL a new RCC module. TEST the system for normal operation. **No** REPAIR circuit 570 (BK/YE) for an open. TEST the system for normal operation.

DIAGNOSIS AND TESTING (Continued)

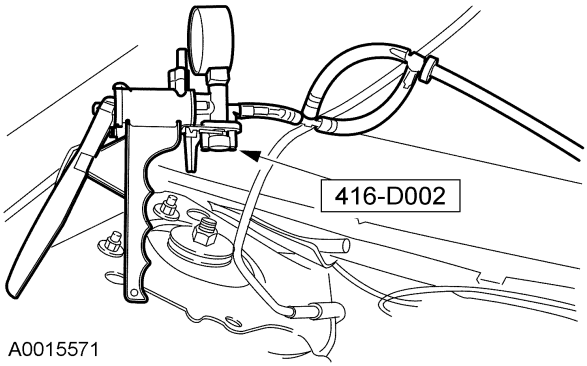
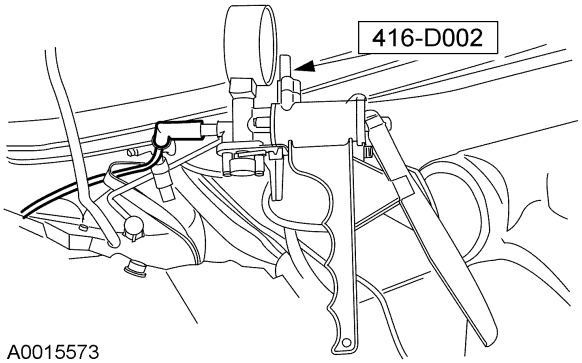
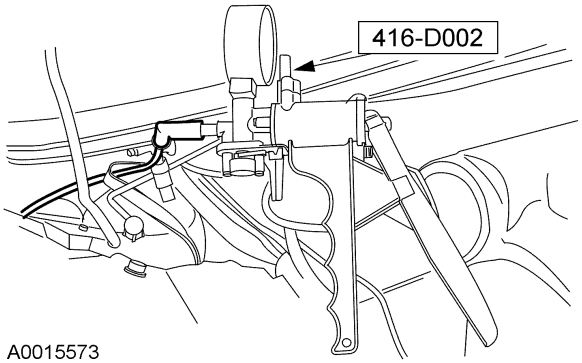
PINPOINT TEST H: INCORRECT/ERRATIC DIRECTION OF AIR FLOW FROM OUTLET — MANUAL CLIMATE CONTROL

Test Step		Result / Action to Take
H1	**CHECK THE AIR FLOW IN EACH SETTING**	
	• Key in ON position. • With the engine running, set the blower motor speed to maximum. • Check the air flow in each function selector switch setting at engine idle and under acceleration. • **Is the air flow from only the defroster outlets in each function selector switch setting?**	**Yes** GO to **H2**. **No** GO to **H10**.
H2	**CHECK FOR VACUUM AT THE CHECK VALVE**	
	• Disconnect the vacuum check valve vacuum source line and check for manifold vacuum and connect the vacuum pump.  A0042612 • **Is manifold vacuum present at the check valve vacuum source line?**	**Yes** GO to **H3**. **No** REPAIR or INSTALL a new check valve vacuum source line. TEST the system for normal operation.
H3	**CHECK THE VACUUM CHECK VALVE FOR BLOCKAGE**	
	• Reconnect the vacuum source line to the vacuum check valve. • Disconnect the vacuum reservoir line and the function selector switch source vacuum line from the vacuum check valve one at a time.  A0015570 • Check for manifold vacuum at the open port on the vacuum check valve. • **Is manifold vacuum present at the open port on the vacuum check valve?**	**Yes** GO to **H4**. **No** INSTALL a new vacuum check valve (19A563). TEST the system for normal operation.
H4	**CHECK THE VACUUM CHECK VALVE**	
	• Key in OFF position.	

(Continued)

DIAGNOSIS AND TESTING (Continued)

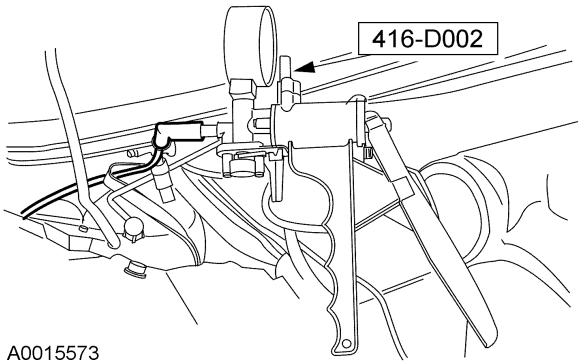
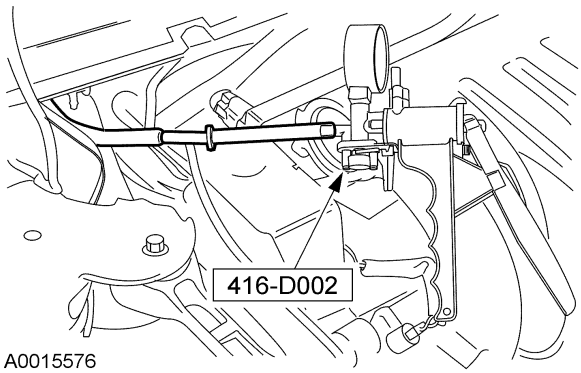
PINPOINT TEST H: INCORRECT/ERRATIC DIRECTION OF AIR FLOW FROM OUTLET — MANUAL CLIMATE CONTROL (Continued)

Test Step		Result / Action to Take
H4	**CHECK THE VACUUM CHECK VALVE (Continued)**	
	• Connect the vacuum pump to the open ports on the vacuum check valve and attempt to pull a vacuum.  A0015571 • **Can a vacuum be pulled on the vacuum check valve?**	**Yes** GO to **H5**. **No** INSTALL a new vacuum check valve (19A563). TEST the system for normal operation.
H5	**CHECK THE VACUUM RESERVOIR LINE FOR BLOCKAGE**	
	• Disconnect the vacuum reservoir line at the vacuum reservoir. • Connect the vacuum pump to the vacuum reservoir line at the vacuum check valve connection and attempt to pull a vacuum.  A0015573 • **Can a vacuum be pulled on the vacuum reservoir line?**	**Yes** REPAIR or INSTALL a new vacuum reservoir line. TEST the system for normal operation. **No** GO to **H6**.
H6	**CHECK THE VACUUM RESERVOIR LINE FOR LEAKS**	
	• Plug the vacuum reservoir line at the vacuum reservoir connection. • Leak test the vacuum reservoir line using the vacuum pump.  A0015573 • **Does the vacuum reservoir line leak?**	**Yes** REPAIR or INSTALL a new vacuum reservoir line. TEST the system for normal operation. **No** GO to **H7**.

(Continued)

DIAGNOSIS AND TESTING (Continued)

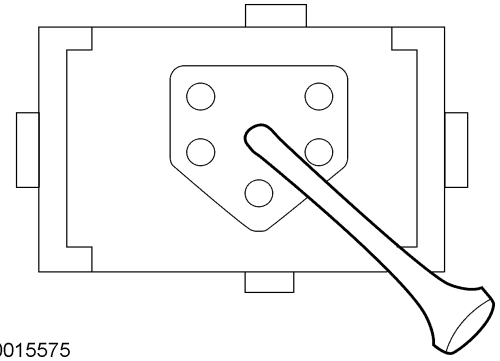
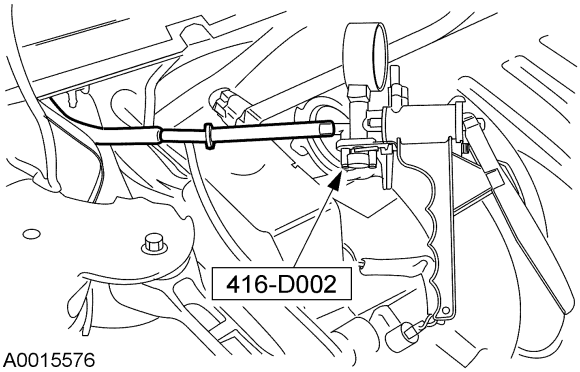
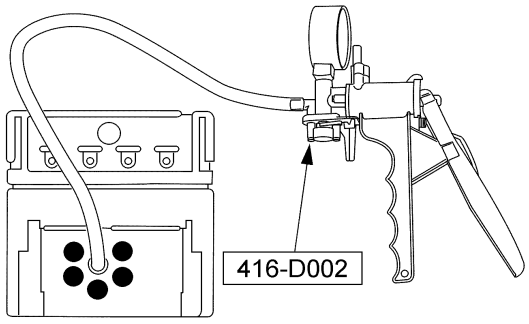
PINPOINT TEST H: INCORRECT/ERRATIC DIRECTION OF AIR FLOW FROM OUTLET — MANUAL CLIMATE CONTROL (Continued)

Test Step		Result / Action to Take
H7	**CHECK THE VACUUM RESERVOIR FOR A LEAK**	
	• Connect the vacuum pump reservoir line to the vacuum reservoir. • With the vacuum pump connected to the vacuum reservoir line, leak test the vacuum reservoir.  A0015573 • **Does the vacuum reservoir leak?**	**Yes** INSTALL a new vacuum reservoir (19A566). TEST the system for normal operation. **No** GO to **H8**.
H8	**CHECK THE FUNCTION SELECTOR SWITCH VACUUM SOURCE LINE FOR BLOCKAGE**	
	• Disconnect the function selector switch vacuum connector. • Connect the vacuum pump to the function selector switch vacuum source line and attempt to pull a vacuum.  A0015576 • **Can a vacuum be pulled on the function selector switch vacuum source line?**	**Yes** REPAIR or INSTALL a new function selector switch vacuum source line. TEST the system for normal operation. **No** GO to **H9**.

(Continued)

DIAGNOSIS AND TESTING (Continued)

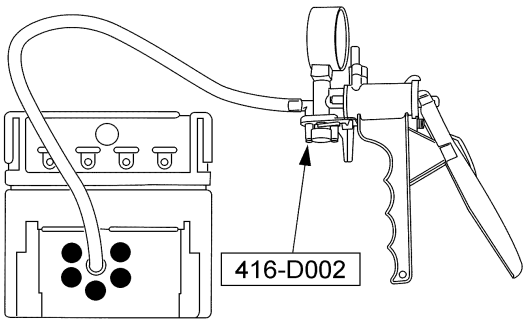
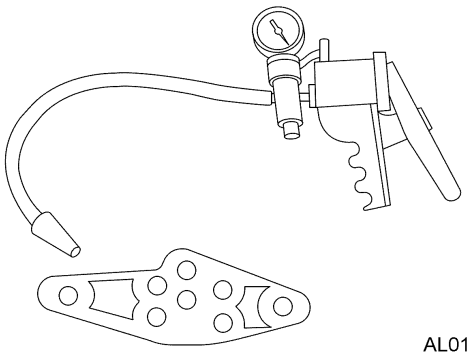
PINPOINT TEST H: INCORRECT/ERRATIC DIRECTION OF AIR FLOW FROM OUTLET — MANUAL CLIMATE CONTROL (Continued)

Test Step		Result / Action to Take
H9	**CHECK THE FUNCTION SELECTOR SWITCH VACUUM SOURCE LINE FOR LEAKS**	
• Plug the function selector switch vacuum source line at the function selector switch connection.  A0015575 • Leak test the function selector switch vacuum source line using the vacuum pump.  A0015576 • **Does the function selector switch vacuum source line leak?**		**Yes** REPAIR or INSTALL a new function selector switch vacuum source line. TEST the system for normal operation. **No** INSTALL a new function selector switch (19B888). REFER to Section 412-04. TEST the system for normal operation.
H10	**CHECK THE FUNCTION SELECTOR SWITCH FOR BLOCKAGE**	
• Disconnect: Function Selector Switch Vacuum Harness. • Connect a vacuum pump to the function selector switch vacuum supply port and try to pull a vacuum in each function selector switch position. If the vacuum pump can pull and hold a vacuum, the switch is plugged. If the vacuum pump pulls a vacuum that slowly decays, the hose is restricted.  A0015578 • **Is the switch plugged or restricted?**		**Yes** INSTALL a new function selector switch (19B888). REFER to Section 412-04. TEST the system for normal operation. **No** GO to **H11**.

(Continued)

DIAGNOSIS AND TESTING (Continued)

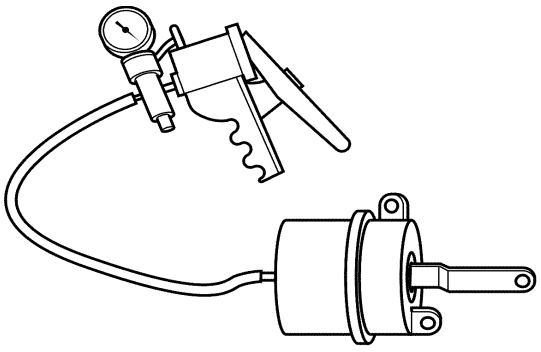
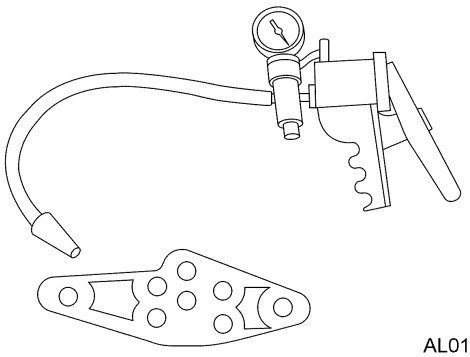
PINPOINT TEST H: INCORRECT/ERRATIC DIRECTION OF AIR FLOW FROM OUTLET — MANUAL CLIMATE CONTROL (Continued)

Test Step		Result / Action to Take
H11	**LEAK TEST THE FUNCTION SELECTOR SWITCH**	
	• Connect a vacuum pump to the function selector switch vacuum supply port and plug each control port.  A0015578 • At each function selector switch position apply 51 kPa (15 in-Hg) of vacuum. • **Does the vacuum drop exceed 3.37 kPa (1 in-Hg) per minute?**	**Yes** INSTALL a new function selector switch (19B888). REFER to Section 412-04. TEST the system for normal operation. **No** GO to **H12**.
H12	**CHECK THE VACUUM HOSE**	
	• Disconnect the suspect hose. • Connect a vacuum pump to each hose and attempt to pull and hold a vacuum.  AL0157-A • **Does the vacuum in any hose drop exceed 3.37 kPa (1 in-Hg) per minute?**	**Yes** GO to **H13**. **No** GO to **H14**.
H13	**CHECK THE VACUUM CONTROL MOTOR**	
	• Disconnect: Vacuum Control Motor.	

(Continued)

DIAGNOSIS AND TESTING (Continued)

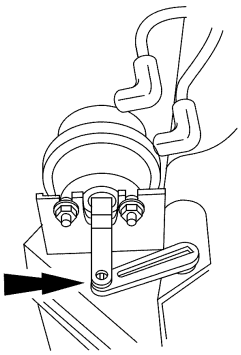
PINPOINT TEST H: INCORRECT/ERRATIC DIRECTION OF AIR FLOW FROM OUTLET — MANUAL CLIMATE CONTROL (Continued)

Test Step		Result / Action to Take
H13	**CHECK THE VACUUM CONTROL MOTOR (Continued)**	
	• Connect a vacuum pump to the affected vacuum control motor. Apply 51 kPa (15 in-Hg) of vacuum.  AL0136-A • **Does the vacuum drop exceed 1.68 kPa (0.5 in-Hg) per minute?**	**Yes** INSTALL a new vacuum control motor (18A318). REFER to Section 412-04. TEST the system for normal operation. **No** REPAIR or INSTALL a new vacuum harness (19C827). TEST the system for normal operation.
H14	**CHECK THE VACUUM CONTROL MOTOR HOSES FOR BLOCKAGE**	
	• Disconnect: Vacuum Control Motors. • Connect a vacuum pump to each hose and try to pull a vacuum. If the vacuum pump can pull and hold a vacuum, the hose is plugged. If the vacuum pump pulls a vacuum that slowly decays, the hose is restricted.  AL0157-A • **Is the hose plugged or restricted?**	**Yes** REPAIR or INSTALL a new vacuum harness (19C827). TEST the system for normal operation. **No** GO to **H15**.

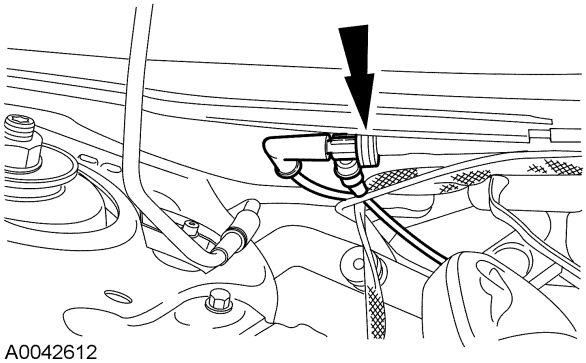
(Continued)

DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST H: INCORRECT/ERRATIC DIRECTION OF AIR FLOW FROM OUTLET — MANUAL CLIMATE CONTROL (Continued)

Test Step		Result / Action to Take
H15	CHECK THE VACUUM CONTROL MOTOR INSTALLATION	
	• Check the attachment of the vacuum control motor arm to the damper door.  AL0158-A • **Is the vacuum control motor arm attached to the door or door crank arm?**	**Yes** REPAIR the damper door. TEST the system for normal operation. **No** CONNECT the vacuum control motor arm to the door crank arm. TEST the system for normal operation.

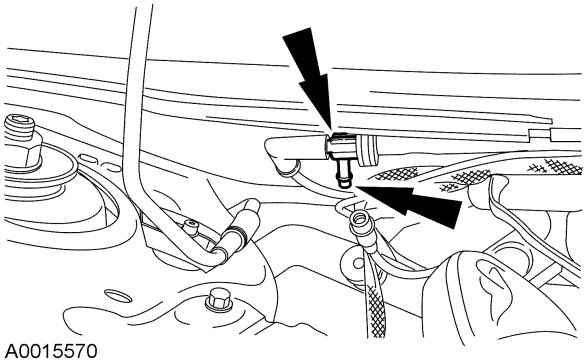
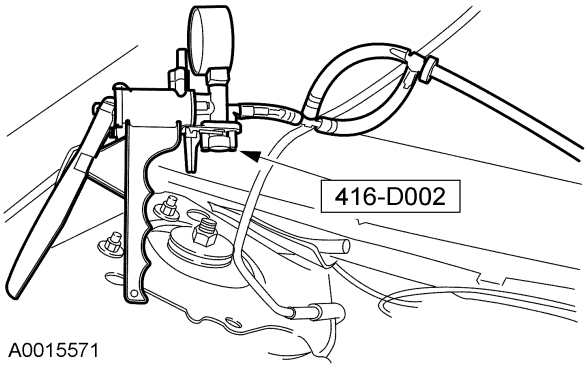
PINPOINT TEST I: INCORRECT/ERRATIC DIRECTION OF AIR FLOW FROM OUTLET — EATC

Test Step		Result / Action to Take
I1	CHECK THE AIR FLOW IN EACH SETTING	
	• Key in ON position. • With the engine running, check the air flow in each manual override setting on the EATC module during engine idle and under acceleration. • **Is the air flow correct in each manual override setting?**	**Yes** The system is operating normally. **No** If the air flow is from the defrost outlet only in all settings, GO to I2. If the air flow is incorrect in one setting only, NOTE the non-functional setting. GO to I10. If the air flow is incorrect in MAX only, GO to I14.
I2	CHECK FOR VACUUM AT THE CHECK VALVE	
	• Disconnect the vacuum check valve vacuum source line and connect the vacuum pump.  A0042612 • **Is manifold vacuum present at the check valve vacuum source line?**	**Yes** GO to I3. **No** REPAIR or INSTALL a new check valve vacuum source line. TEST the system for normal operation.
I3	CHECK THE VACUUM CHECK VALVE FOR BLOCKAGE	
	• Reconnect the vacuum source line to the vacuum check valve.	

(Continued)

DIAGNOSIS AND TESTING (Continued)

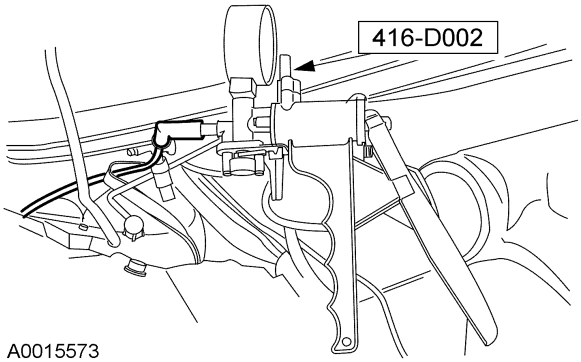
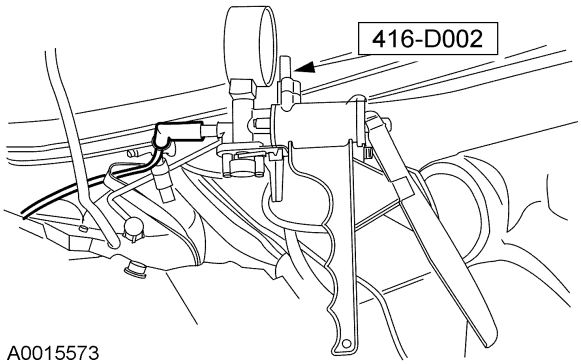
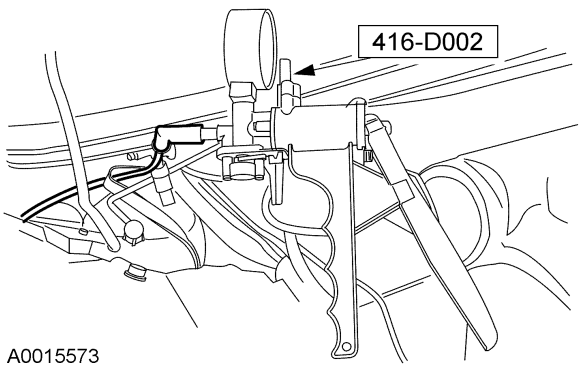
PINPOINT TEST I: INCORRECT/ERRATIC DIRECTION OF AIR FLOW FROM OUTLET — EATC (Continued)

Test Step		Result / Action to Take
I3	**CHECK THE VACUUM CHECK VALVE FOR BLOCKAGE (Continued)**	
	• Disconnect the vacuum reservoir line and the EATC module vacuum line from the vacuum check valve one at a time.  A0015570 • Check for manifold vacuum at the open port on the vacuum check valve. • **Is manifold vacuum present at the open port on the vacuum check valve?**	**Yes** GO to I4. **No** INSTALL a new vacuum check valve. TEST the system for normal operation.
I4	**CHECK THE VACUUM CHECK VALVE**	
	• Key in OFF position. • Disconnect: A/C Vacuum Check Valve. • Connect the vacuum pump to the vacuum check valve and attempt to pull a vacuum.  A0015571 • **Can a vacuum be pulled on the vacuum check valve?**	**Yes** GO to I5. **No** INSTALL a new vacuum check valve. TEST the system for normal operation.
I5	**CHECK THE VACUUM RESERVOIR LINE FOR BLOCKAGE**	
	• Disconnect the vacuum reservoir line at the vacuum reservoir.	

(Continued)

DIAGNOSIS AND TESTING (Continued)

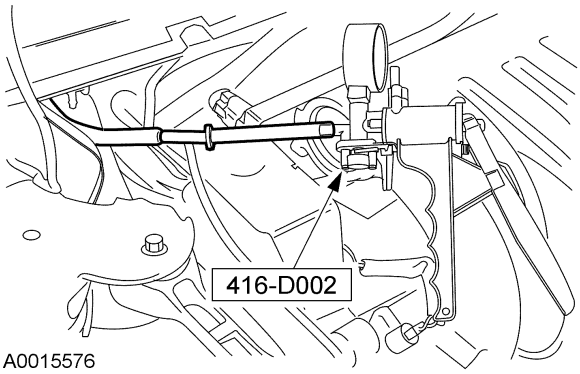
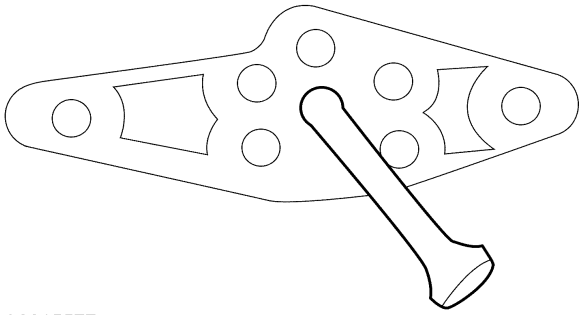
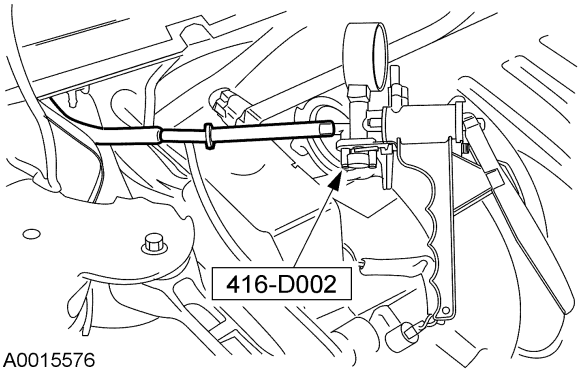
PINPOINT TEST I: INCORRECT/ERRATIC DIRECTION OF AIR FLOW FROM OUTLET — EATC (Continued)

Test Step		Result / Action to Take
I5	**CHECK THE VACUUM RESERVOIR LINE FOR BLOCKAGE (Continued)**	
	• Connect the vacuum pump to the vacuum reservoir line at the vacuum check valve connection and attempt to pull a vacuum.  A0015573 • **Can a vacuum be pulled on the vacuum reservoir line?**	**Yes** REPAIR or INSTALL a new vacuum reservoir line. TEST the system for normal operation. **No** GO to I6.
I6	**CHECK THE VACUUM RESERVOIR LINE FOR LEAKS**	
	• Plug the vacuum reservoir line at the vacuum reservoir connection. • Leak test the vacuum reservoir line using the vacuum pump.  A0015573 • **Does the vacuum reservoir line leak?**	**Yes** REPAIR or INSTALL a new vacuum reservoir line. TEST the system for normal operation. **No** GO to I7.
I7	**CHECK THE VACUUM RESERVOIR FOR A LEAK**	
	• Connect the vacuum pump reservoir line to the vacuum reservoir. • With the vacuum pump connected to the vacuum reservoir line, leak test the vacuum reservoir.  A0015573 • **Does the vacuum reservoir leak?**	**Yes** INSTALL a new vacuum reservoir. TEST the system for normal operation. **No** GO to I8.

(Continued)

DIAGNOSIS AND TESTING (Continued)

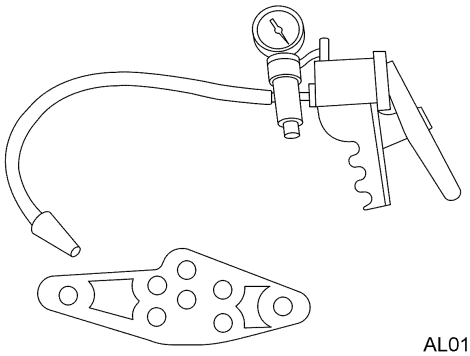
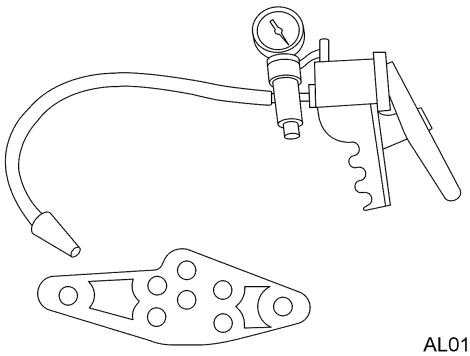
PINPOINT TEST I: INCORRECT/ERRATIC DIRECTION OF AIR FLOW FROM OUTLET — EATC (Continued)

Test Step		Result / Action to Take
I8	**CHECK THE EATC MODULE VACUUM SOURCE LINE FOR BLOCKAGE**	
	• Disconnect the EATC module vacuum connector. • Connect the vacuum pump to the EATC module vacuum source line and attempt to pull a vacuum.  A0015576 • **Can a vacuum be pulled on the EATC module vacuum source line?**	**Yes** REPAIR or INSTALL a new EATC module vacuum source line. TEST the system for normal operation. **No** GO to I9.
I9	**CHECK THE EATC MODULE VACUUM SOURCE LINE FOR LEAKS**	
	• Plug the EATC module vacuum source line at the EATC module connection.  A0015577 • Leak test the EATC module vacuum source line using the vacuum pump.  A0015576 • **Does the EATC module vacuum source line leak?**	**Yes** REPAIR or INSTALL a new EATC module vacuum source line. TEST the system for normal operation. **No** INSTALL a new EATC module (19980). TEST the system for normal operation.

(Continued)

DIAGNOSIS AND TESTING (Continued)

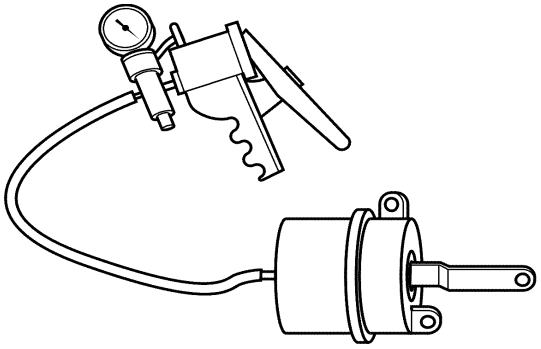
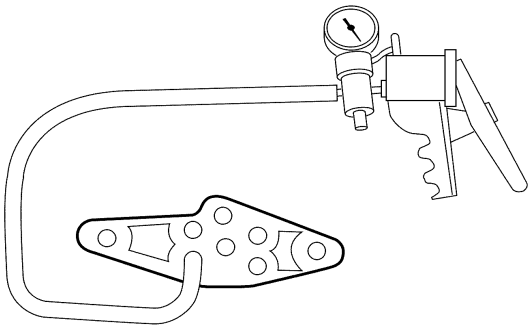
PINPOINT TEST I: INCORRECT/ERRATIC DIRECTION OF AIR FLOW FROM OUTLET — EATC (Continued)

Test Step		Result / Action to Take
I10	**CHECK THE VACUUM CONTROL MOTOR LINE FOR BLOCKAGE**	
	• Key in OFF position. • Disconnect the EATC module vacuum connector. • Disconnect the vacuum line from the appropriate vacuum control motor noted in step I1. • Connect the vacuum pump to the appropriate vacuum control motor line noted in step I1, and attempt to pull a vacuum.  AL0157-A • **Can a vacuum be pulled on the vacuum control motor line?**	**Yes** REPAIR or INSTALL a new plenum vacuum harness (19C827). TEST the system for normal operation. **No** GO to **I11**.
I11	**CHECK THE VACUUM CONTROL MOTOR LINE FOR LEAKS**	
	• Plug the vacuum control motor line at the vacuum control motor connection. • Leak test the vacuum control motor line using the vacuum pump.  AL0157-A • **Does the vacuum control motor line leak?**	**Yes** REPAIR or INSTALL a new vacuum harness. TEST the system for normal operation. **No** GO to **I12**.

(Continued)

DIAGNOSIS AND TESTING (Continued)

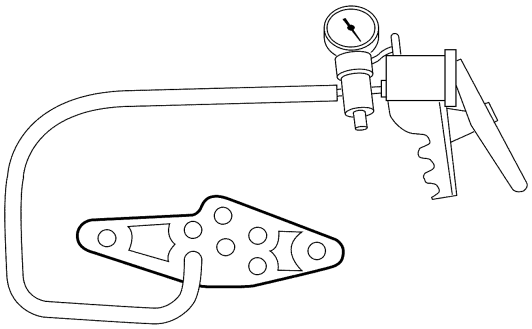
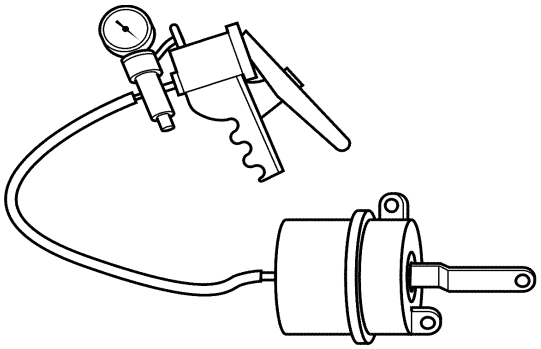
PINPOINT TEST I: INCORRECT/ERRATIC DIRECTION OF AIR FLOW FROM OUTLET — EATC (Continued)

Test Step		Result / Action to Take
I12	**CHECK THE VACUUM CONTROL MOTOR FOR LEAKS AND CORRECT OPERATION**	
	• Connect the vacuum pump to the appropriate vacuum control motor and pull a vacuum.  AL0136-A • **Does the vacuum control motor operate and hold vacuum?**	**Yes** GO to I13. **No** INSTALL a new vacuum control motor (18A318). TEST the system for normal operation.
I13	**CHECK THE MODE DOOR LINKAGE AND MOVEMENT**	
	• Inspect the mode door linkage and verify correct movement of the mode door. • **Is the mode door or mode door linkage broken, binding or otherwise obstructed?**	**Yes** REPAIR the mode door or mode door linkage as necessary. TEST the system for normal operation. **No** INSTALL a new EATC module. TEST the system for normal operation.
I14	**CHECK THE AIR INLET DOOR VACUUM CONTROL MOTOR LINE FOR BLOCKAGE**	
	• Key in OFF position. • Disconnect the air inlet door vacuum control motor vacuum connector. • Disconnect the EATC module vacuum connector and attempt to pull a vacuum on the RECIRC vacuum control motor line using the vacuum pump.  A0036133 • **Can a vacuum be pulled on the air inlet door vacuum control motor line?**	**Yes** REPAIR or INSTALL a new plenum vacuum harness (19C827). TEST the system for normal operation. **No** GO to I15.
I15	**CHECK THE AIR INLET DOOR VACUUM CONTROL MOTOR LINE FOR LEAKS.**	
	• Plug the air inlet door vacuum control motor line at the RECIRC vacuum control motor connection.	

(Continued)

DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST I: INCORRECT/ERRATIC DIRECTION OF AIR FLOW FROM OUTLET — EATC (Continued)

Test Step		Result / Action to Take
I15	**CHECK THE AIR INLET DOOR VACUUM CONTROL MOTOR LINE FOR LEAKS. (Continued)**	
	• Leak test the air inlet door vacuum control motor line using the vacuum pump.  A0036133 • **Does the air inlet door vacuum control motor line leak?**	**Yes** REPAIR or INSTALL a new vacuum harness (19C827). TEST the system for normal operation. **No** GO to **I16**.
I16	**CHECK THE AIR INLET DOOR VACUUM CONTROL MOTOR FOR LEAKS AND CORRECT OPERATION**	
	• Connect the vacuum pump to the air inlet door vacuum control motor and pull a vacuum.  AL0136-A • **Does the air inlet door vacuum control motor operate and hold a vacuum?**	**Yes** GO to **I17**. **No** INSTALL a new air inlet door vacuum control motor (18A318). TEST the system for normal operation.
I17	**INSPECT THE AIR INLET DOOR LINKAGE AND MOVEMENT**	
	• Inspect the air inlet door linkage and verify correct movement of the door. • **Is the air inlet door or air inlet door linkage broken, binding or otherwise obstructed?**	**Yes** REPAIR the air inlet door or air inlet door linkage as needed. TEST the system for correct operation. **No** INSTALL a new EATC module (19980). TEST the system for normal operation.

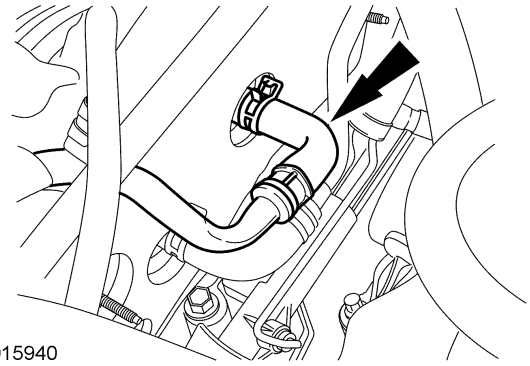
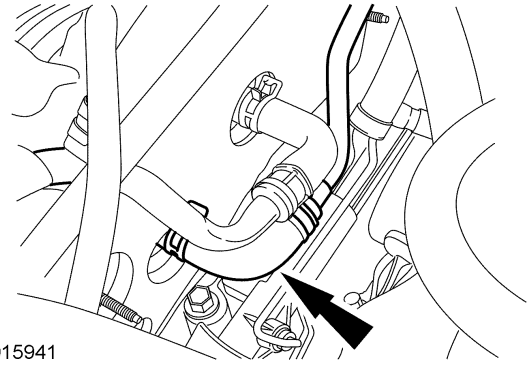
PINPOINT TEST J: INSUFFICIENT, ERRATIC, OR NO HEAT — MANUAL CLIMATE CONTROL AND EATC

Test Step		Result / Action to Take
J1	**CHECK FOR CORRECT COOLANT LEVEL**	
	• Key in OFF position. • Check the engine coolant level when hot and cold. • **Is the engine coolant at the correct levels (hot and cold)?**	**Yes** GO to **J2**. **No** GO to **J3**.

(Continued)

DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST J: INSUFFICIENT, ERRATIC, OR NO HEAT — MANUAL CLIMATE CONTROL AND EATC (Continued)

Test Step		Result / Action to Take
J2	**CHECK FOR HOT COOLANT AT THE HEATER CORE INLET HOSE**	
	WARNING: The heater core inlet hose will become too hot to handle and may cause serious burns if the system is working correctly. • Allow the engine to reach normal operating temperature. • Feel the heater core inlet hose.  A0015940 • **Is the heater core inlet hose too hot to handle?**	**Yes** GO to **J4**. **No** REFER to Section 303-03 to check the cooling system function.
J3	**CHECK THE ENGINE COOLING SYSTEM FOR LEAKS**	
	• Fill the engine cooling system to the specified level. • Pressure check the cooling system, including the pressure relief cap. Refer to Section 303-03. It is not necessary to check the components separately at this time. • **Does the engine cooling system, including the pressure relief cap, hold pressure?**	**Yes** GO to **J4**. **No** REPAIR the engine cooling system leak. TEST the system for normal operation.
J4	**CHECK FOR HOT COOLANT AT THE HEATER CORE OUTLET HOSE**	
	WARNING: The heater core outlet hose will become too hot to handle and may cause serious burns if the system is working correctly. • Allow the engine to reach normal operating temperature. • Feel the heater core outlet hose.  A0015941 • **Is the heater core outlet hose cool or cold?**	**Yes** CARRY OUT the heater core component test. REFER to Heater Core under Component Tests in this section to determine whether a plugged or partially plugged condition exists. **No** Vehicles with manual climate control, GO to Pinpoint Test M. Vehicles with EATC, GO to Pinpoint Test A.

DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST K: THE A/C DOES NOT OPERATE/DOES NOT OPERATE CORRECTLY

NOTE: Before carrying out the following test, diagnose any PCM DTCs.

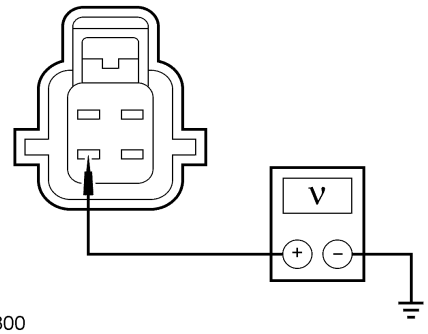
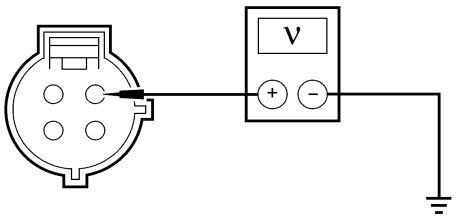
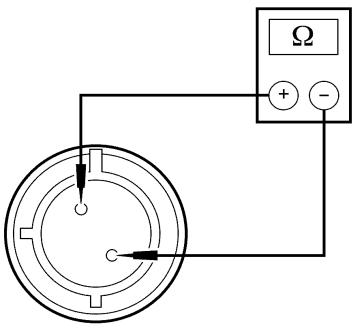
NOTE: Before carrying out the following test, make sure that the A/C system pressure is above 290 kPa (42 psi). If the pressure is below 290 kPa (42 psi), refer to Fluorescent Dye Leak Detection in this section.

	Test Step	Result / Action to Take
K1	**CHECK THE A/C PRESSURE PCM PID**	
	• Key in ON position. • Enter the following diagnostic mode on the scan tool: A/C Pressure PCM PID. • With the manifold gauge set connected, compare the pressure readings of the manifold gauge set and the A/C pressure PID. • **Are the pressure values of the manifold gauge set and the A/C pressure PID similar?**	**Yes** GO to K2. **No** INSTALL a new A/C pressure transducer. TEST the system for normal operation.
K2	**CHECK THE A/C EVAPORATOR TEMPERATURE PID**	
	• Allow the vehicle exterior and interior to stabilize to an ambient temperature above 16°C (60°F). • Enter the following diagnostic mode on the scan tool: A/C Evaporator Discharge Temperature PCM PID. • **Does the A/C evaporator discharge temperature PID read similar to the ambient temperature?**	**Yes** GO to K3. **No** INSTALL a new A/C evaporator discharge temperature sensor. TEST the system for normal operation.
K3	**CHECK PID ACCS WITH THE A/C OFF**	
	• Key in ON position. • With the engine running, place the function selector switch to the OFF position or press the OFF manual override button on the remote climate control (RCC) module. • Enter the following diagnostic mode on the scan tool: PCM PID ACCS. • **Does the PCM PID ACCS read ON?**	**Yes** REFER to the Powertrain Control/Emissions Diagnosis (PC/ED) manual. **No** GO to K4.
K4	**CHECK PID WAC WITH THE A/C OFF**	
	• Enter the following diagnostic mode on the scan tool: PCM PID WAC. • **Does the PCM PID WAC read ON?**	**Yes** REFER to the Powertrain Control/Emissions Diagnosis (PC/ED) manual. **No** GO to K5.
K5	**CHECK THE PID ACCS WITH THE A/C ON**	
	• Enter the following diagnostic mode on the scan tool: PCM PID ACCS. • Place the function selector switch in the MAX A/C position. • **Does the PCM PID ACCS read ON?**	**Yes** GO to K6. **No** GO to K7.
K6	**CHECK THE PID WAC WITH THE A/C ON**	
	• Enter the following diagnostic mode on the scan tool: PCM PID WAC. • **Does the PCM PID WAC read ON?**	**Yes** GO to K16. **No** REFER to the Powertrain Control/Emissions Diagnosis (PC/ED) manual.
K7	**CHECK THE A/C PRESSURE CUTOFF SWITCH VOLTAGE**	
	• Key in OFF position. • Disconnect: A/C Pressure Cutoff Switch C1062. • Key in ON position.	

(Continued)

DIAGNOSIS AND TESTING (Continued)

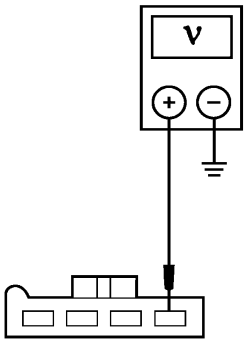
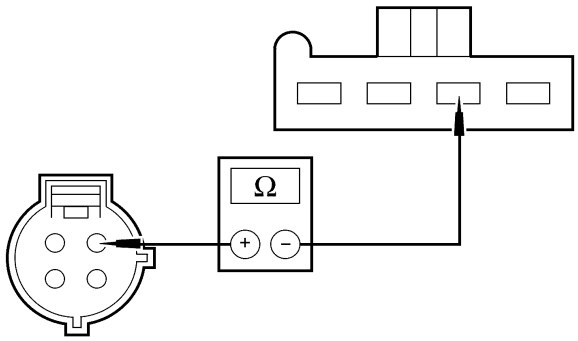
PINPOINT TEST K: THE A/C DOES NOT OPERATE/DOES NOT OPERATE CORRECTLY (Continued)

Test Step		Result / Action to Take
K7	**CHECK THE A/C PRESSURE CUTOFF SWITCH VOLTAGE (Continued)**	
	• Measure the voltage between the A/C pressure cutoff switch C1062 pin 4, circuit 441 (RD/YE) and ground.  A0013800 • **Is the voltage greater than 10 volts?**	**Yes** GO to **K14**. **No** GO to **K8**.
K8	**CHECK THE LOW CHARGE SWITCH VOLTAGE**	
	• Key in OFF position. • Disconnect: Low Charge Switch C130. • Key in ON position. • Measure the voltage between the low charge switch C130 pin 1, circuit 348 (VT) and ground.  A0013801 • **Is the voltage greater than 10 volts?**	**Yes** GO to **K9**. **No** Vehicles with manual climate control, GO to **K10**. Vehicles with EATC, GO to **K12**.
K9	**CHECK THE LOW CHARGE SWITCH**	
	• Key in OFF position. • Measure the resistance between the low charge switch terminals.  N0029346 • **Is the resistance less than 21 ohms?**	**Yes** REPAIR circuit 441 (RD/YE). TEST the system for normal operation. **No** GO to **K13**.

(Continued)

DIAGNOSIS AND TESTING (Continued)

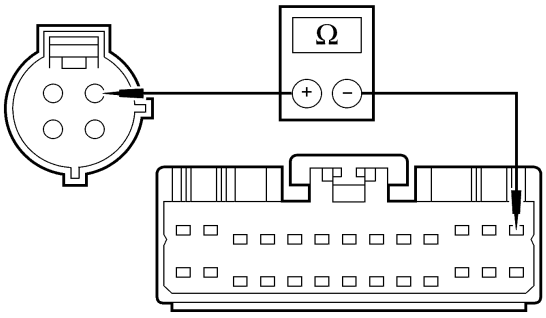
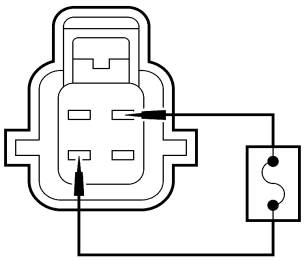
PINPOINT TEST K: THE A/C DOES NOT OPERATE/DOES NOT OPERATE CORRECTLY (Continued)

Test Step		Result / Action to Take
K10	**CHECK THE VOLTAGE AT THE FUNCTION SELECTOR SWITCH**	
	• Key in OFF position. • Remove the climate control assembly. Refer to Section 412-04. • Disconnect: Function Selector Switch C294b. • Key in ON position. • Measure the voltage between the function selector switch C294b pin 1, circuit 1087 (OG) and ground.  AM0585-A • **Is the voltage greater than 10 volts?**	**Yes** GO to **K11**. **No** REPAIR circuit 1087 (OG). TEST the system for normal operation.
K11	**CHECK CIRCUIT 348 (VT) FOR AN OPEN**	
	• Key in OFF position. • Measure the resistance between the function selector switch C294b pin 2, circuit 348 (VT) and the low charge switch C130 pin 1, circuit 348 (VT).  A0022809 • **Is the resistance less than 5 ohms?**	**Yes** INSTALL a new function selector switch. REFER to Section 412-04. TEST the system for normal operation. **No** REPAIR circuit 348 (VT). TEST the system for normal operation.
K12	**CHECK CIRCUIT 348 (VT) FOR AN OPEN**	
	• Key in OFF position.	

(Continued)

DIAGNOSIS AND TESTING (Continued)

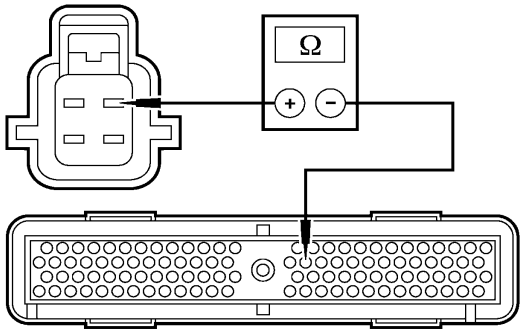
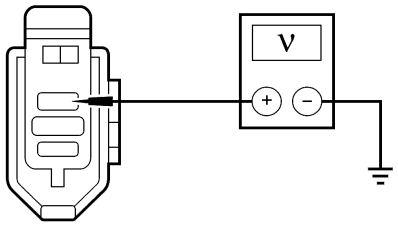
PINPOINT TEST K: THE A/C DOES NOT OPERATE/DOES NOT OPERATE CORRECTLY (Continued)

Test Step		Result / Action to Take
K12	**CHECK CIRCUIT 348 (VT) FOR AN OPEN (Continued)**	
	• Measure the resistance between the RCC C228 pin 13, circuit 348 (VT) and the low charge switch C130 pin 1, circuit 348 (VT).  A0013803 • **Is the resistance less than 5 ohms?**	**Yes** INSTALL a new RCC module. REFER to Section 412-04. TEST the system for normal operation. **No** REPAIR circuit 348 (VT). TEST the system for normal operation.
K13	**CHECK THE A/C SYSTEM PRESSURE**	
	• Key in OFF position. • Connect the manifold gauge set. Refer to Manifold Gauge Set Connection in this section. • **Is the pressure reading between 345 kPa (50 psi) and 1724 kPa (250 psi)?**	**Yes** INSTALL a new low charge switch. TEST the system for normal operation. **No** CHECK the system for refrigerant leaks. REFER to Electronic Leak Detection and Fluorescent Dye Leak Detection in this section.
K14	**CHECK THE A/C PRESSURE CUTOFF SWITCH**	
	• Key in OFF position. • Connect a fused jumper lead between the A/C pressure cutoff switch C1062 pin 4, circuit 441 (RD/YE) and pin 1, circuit 879 (DG/WH).  A0013805 • Key in START position. • **Does the A/C compressor operate?**	**Yes** INSTALL a new A/C pressure cutoff switch (19D594). TEST the system for normal operation. **No** GO to **K15**.
K15	**CHECK CIRCUIT 879 (DG/WH)**	
	• Key in OFF position. • Remove the fused jumper lead from the A/C pressure cutoff switch C1062. • Disconnect: PCM C175.	

(Continued)

DIAGNOSIS AND TESTING (Continued)

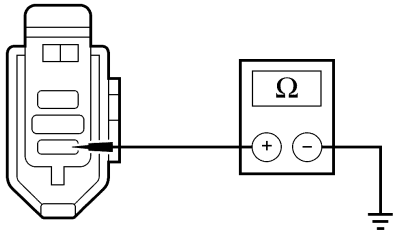
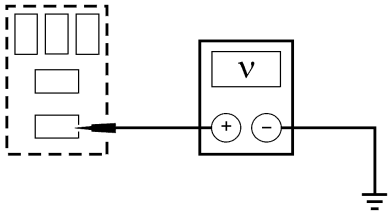
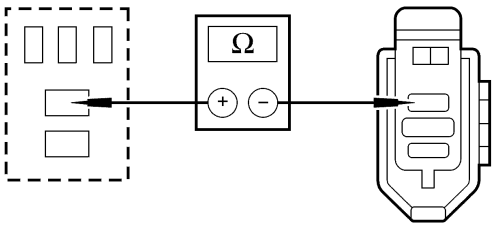
PINPOINT TEST K: THE A/C DOES NOT OPERATE/DOES NOT OPERATE CORRECTLY (Continued)

Test Step		Result / Action to Take
K15	**CHECK CIRCUIT 879 (DG/WH) (Continued)**	
	• Measure the resistance between the A/C pressure cutoff switch C1062 pin 1, circuit 879 (DG/WH) and the PCM C175 pin 41, circuit 879 (DG/WH).  A0042075 • **Is the resistance less than 5 ohms?**	**Yes** INSTALL a new PCM. REFER to Section 303-14. **No** REPAIR circuit 879 (DG/WH). TEST the system for normal operation.
K16	**CHECK THE VOLTAGE AT THE A/C COMPRESSOR CLUTCH FIELD COIL**	
	• Key in OFF position. • Disconnect: A/C Compressor Clutch Field Coil C100. • Key in ON position. • Measure the voltage between the A/C compressor clutch field coil C100, circuit 347 (BK/YE) and ground.  A0013807 • **Is the voltage greater than 10 volts?**	**Yes** GO to **K17**. **No** GO to **K18**.
K17	**CHECK THE GROUND AT THE A/C COMPRESSOR CLUTCH FIELD COIL**	
	• Key in OFF position.	

(Continued)

DIAGNOSIS AND TESTING (Continued)

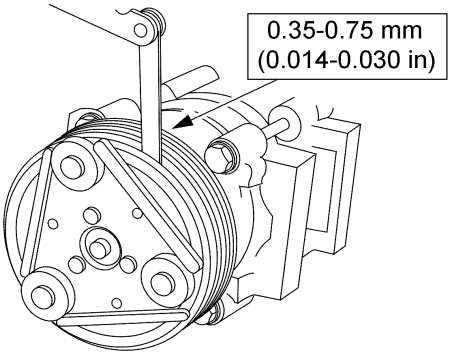
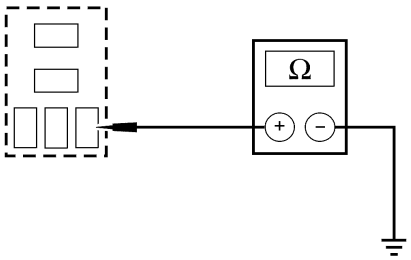
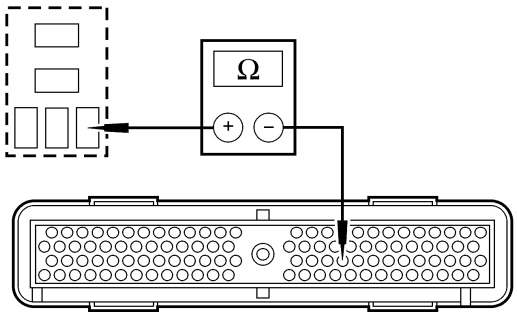
PINPOINT TEST K: THE A/C DOES NOT OPERATE/DOES NOT OPERATE CORRECTLY (Continued)

Test Step		Result / Action to Take
K17	**CHECK THE GROUND AT THE A/C COMPRESSOR CLUTCH FIELD COIL (Continued)**	
	• Measure the resistance between the A/C compressor clutch field coil C100, circuit 57 (BK) and ground.  A0013808 • **Is the resistance less than 5 ohms?**	**Yes** GO to K20. **No** REPAIR circuit 57 (BK). TEST the system for normal operation.
K18	**CHECK CIRCUIT 883 (PK/LB)**	
	• Key in OFF position. • Disconnect: A/C Control Relay. • Measure the voltage between the A/C control relay socket pin 3, circuit 883 (PK/LB) and ground.  A0013810 • **Is the voltage greater than 10 volts?**	**Yes** GO to K19. **No** REPAIR circuit 883 (PK/LB). TEST the system for normal operation.
K19	**CHECK CIRCUIT 347 (BK/YE)**	
	• Measure the resistance between the A/C control relay socket pin 5, circuit 347 (BK/YE) and the A/C compressor clutch field coil C100, circuit 347 (BK/YE).  A0013809 • **Is the resistance less than 5 ohms?**	**Yes** GO to K21. **No** REPAIR circuit 347 (BK/YE). TEST the system for normal operation.

(Continued)

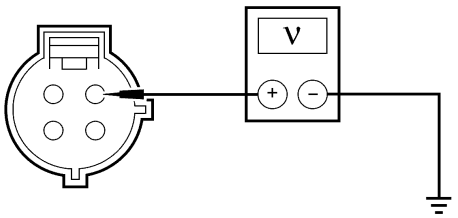
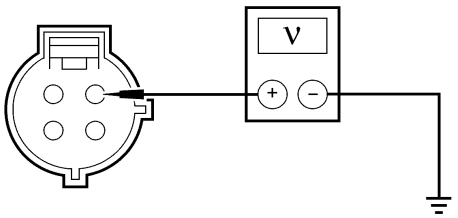
DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST K: THE A/C DOES NOT OPERATE/DOES NOT OPERATE CORRECTLY (Continued)

Test Step		Result / Action to Take
K20	**CHECK THE A/C COMPRESSOR CLUTCH AIR GAP**	
	• Measure the A/C compressor clutch air gap at three equally spaced locations between the clutch hub and the A/C compressor clutch pulley.  A0031504 • **Is the A/C compressor clutch air gap greater than 0.75 mm (0.030 in)?**	**Yes** ADJUST the A/C compressor clutch field coil. REFER to Air Conditioning (A/C) Clutch Air Gap Adjustment in this section. TEST the system for normal operation. **No** INSTALL a new A/C compressor clutch field coil. REFER to Section 412-03. TEST the system for normal operation.
K21	**CHECK THE WAC OUTPUT FROM THE PCM**	
	• Key in ON position. • With the engine running, measure the resistance between the A/C control relay socket pin 2, circuit 331 (PK/YE) and ground.  A0040180 • **Is the resistance less than 5 ohms?**	**Yes** INSTALL a new A/C control relay. CLEAR the DTCs. TEST the system for normal operation. **No** GO to **K22**.
K22	**CHECK CIRCUIT 331 (PK/YE)**	
	• Key in OFF position. • Disconnect: PCM C175. • Measure the resistance between the A/C control relay socket pin 2, circuit 331 (PK/YE) and the PCM C175 pin 69 circuit 331 (PK/YE).  A0042619 • **Is the resistance less than 5 ohms?**	**Yes** INSTALL a new PCM. REFER to Section 303-14. TEST the system for normal operation. **No** REPAIR circuit 331 (PK/YE). CLEAR the DTCs. TEST the system for normal operation.

DIAGNOSIS AND TESTING (Continued)

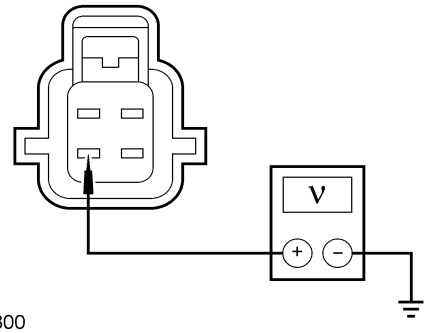
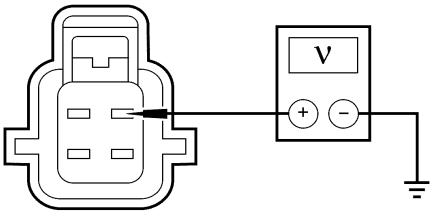
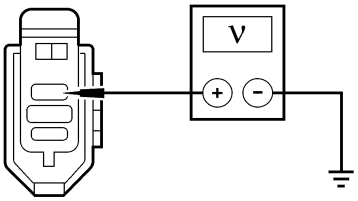
PINPOINT TEST L: THE A/C IS ALWAYS ON

Test Step		Result / Action to Take
L1	**CHECK PID WACF WITH THE A/C OFF**	
	• Key in ON position. • Place the function selector switch to the OFF position or press the OFF manual override button . • Enter the following diagnostic mode on the scan tool: PCM PID WACF. • **Does the PCM PID WACF read YES?**	**Yes** REPAIR circuit 331 (PK/YE). TEST the system for normal operation. **No** GO to L2.
L2	**CHECK PID ACCS WITH THE A/C OFF**	
	• Enter the following diagnostic mode on the scan tool: PCM PID ACCS. • **Does the PCM PID ACCS read ON?**	**Yes** GO to L3. **No** GO to L7.
L3	**CHECK FOR VOLTAGE AT THE LOW CHARGE SWITCH**	
	• Key in OFF position. • Disconnect: Low Charge Switch C130. • Key in ON position. • Measure the voltage between the low charge switch C130 pin 1, circuit 348 (VT) and ground.  A0013801 • **Is the voltage greater than 10 volts?**	**Yes** GO to L4. **No** GO to L5.
L4	**CHECK CIRCUIT 348 (VT)**	
	• Key in OFF position. • Remove the climate control assembly. Refer to Section 412-04. • Disconnect: Function Selector Switch C294b or RCC module C228. • Key in ON position. • Measure the voltage between the low charge switch C130 pin 1, circuit 348 (VT) and ground.  A0013801 • **Is the voltage greater than 10 volts?**	**Yes** REPAIR circuit 348 (VT) for a short to voltage. TEST the system for normal operation. **No** INSTALL a new function selector switch. REFER to Section 412-04. TEST the system for normal operation.
L5	**CHECK CIRCUIT 441 (RD/YE)**	
	• Key in OFF position. • Disconnect: A/C Pressure Cutoff Switch C1062. • Key in ON position.	

(Continued)

DIAGNOSIS AND TESTING (Continued)

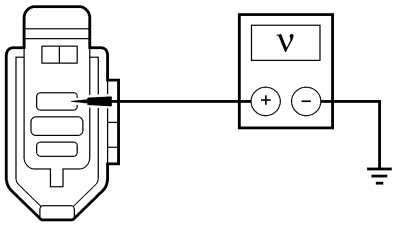
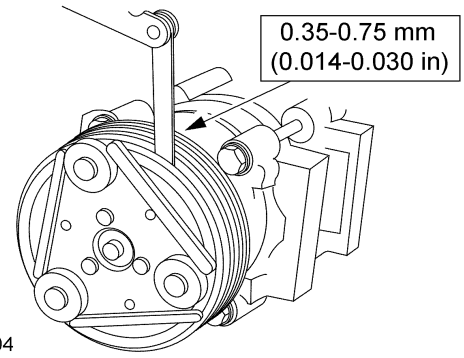
PINPOINT TEST L: THE A/C IS ALWAYS ON (Continued)

Test Step		Result / Action to Take
L5	**CHECK CIRCUIT 441 (RD/YE) (Continued)**	
	• Measure the voltage between the A/C pressure cutoff switch C1062 pin 4, circuit 441 (RD/YE) and ground.  A0013800 • **Is the voltage greater than 10 volts?**	**Yes** REPAIR circuit 441 (RD/YE). TEST the system for normal operation. **No** GO to L6.
L6	**CHECK CIRCUIT 879 (DG/WH)**	
	• Measure the voltage between the A/C pressure cutoff switch C1062 pin 1, circuit 879 (DG/WH) and ground.  A0013848 • **Is the voltage greater than 10 volts?**	**Yes** REPAIR circuit 879 (DG/WH) for a short voltage. TEST the system for normal operation. **No** INSTALL a new PCM. REFER to Section 303-14. TEST the system for normal operation.
L7	**CHECK FOR VOLTAGE TO THE A/C COMPRESSOR CLUTCH FIELD COIL**	
	• Key in OFF position. • Disconnect: A/C Compressor Clutch Field Coil C100. • Key in ON position. • Measure the voltage between the A/C compressor clutch field coil C100, circuit 347 (BK/YE) and ground.  GL1034-A • **Is the voltage greater than 10 volts?**	**Yes** GO to L8. **No** GO to L9.

(Continued)

DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST L: THE A/C IS ALWAYS ON (Continued)

Test Step		Result / Action to Take
L8	**CHECK CIRCUIT 347 (BK/YE)**	
	• Key in OFF position. • Disconnect: A/C Control Relay. • Key in ON position. • Measure the voltage between the A/C compressor clutch field coil C100, circuit 347 (BK/YE) and ground.  A0013807 • **Is the voltage greater than 10 volts?**	**Yes** REPAIR circuit 347 (BK/YE). TEST the system for normal operation. **No** INSTALL a new A/C control relay. TEST the system for normal operation.
L9	**CHECK THE A/C COMPRESSOR CLUTCH AIR GAP**	
	• Key in OFF position. • Measure the A/C compressor clutch air gap at three equally spaced locations between the clutch hub and the A/C compressor clutch pulley.  A0031504 • **Is the A/C compressor clutch air gap greater than 0.75 mm (0.030 in)?**	**Yes** ADJUST the A/C compressor clutch field coil. REFER to Air Conditioning (A/C) Clutch Air Gap Adjustment in this section. TEST the system for normal operation. **No** INSTALL a new A/C compressor clutch field coil. REFER to Section 412-03. TEST the system for normal operation.

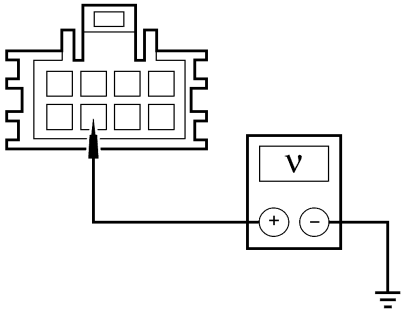
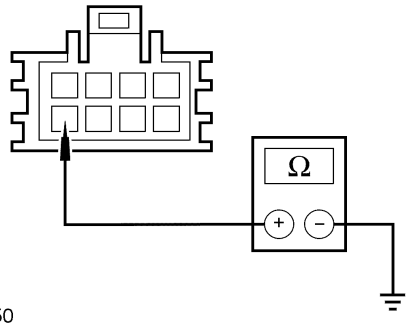
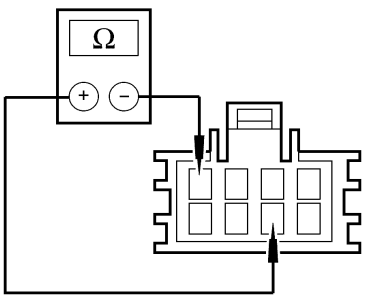
PINPOINT TEST M: NO OPERATION IN ALL TEMPERATURE SETTINGS—MANUAL CLIMATE CONTROL

Test Step		Result / Action to Take
M1	**CHECK THE VOLTAGE TO THE TEMPERATURE BLEND DOOR ACTUATOR MOTOR**	
	• Key in OFF position. • Disconnect: Temperature Blend Door Actuator Motor C289. • Key in ON position.	

(Continued)

DIAGNOSIS AND TESTING (Continued)

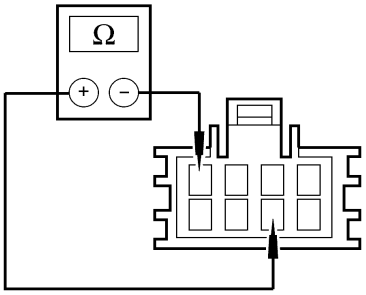
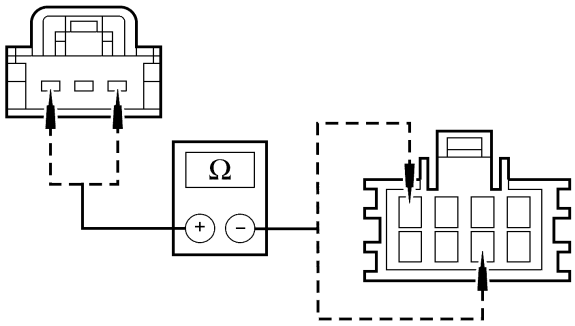
PINPOINT TEST M: NO OPERATION IN ALL TEMPERATURE SETTINGS—MANUAL CLIMATE CONTROL (Continued)

Test Step		Result / Action to Take
M1	**CHECK THE VOLTAGE TO THE TEMPERATURE BLEND DOOR ACTUATOR MOTOR (Continued)**	
	• Measure the voltage between the temperature blend door actuator C289 pin 7, circuit 1087 (OG) and ground.  A0013849 • **Is the voltage greater than 10 volts?**	**Yes** GO to **M2**. **No** REPAIR circuit 1087 (OG). TEST the system for normal operation.
M2	**CHECK THE GROUND TO THE BLEND DOOR ACTUATOR**	
	• Key in OFF position. • Measure the resistance between the blend door actuator C289 pin 8, circuit 57 (BK) and ground.  A0013850 • **Is the resistance less than 5 ohms?**	**Yes** GO to **M3**. **No** REPAIR circuit 57 (BK). TEST the system for normal operation.
M3	**CHECK THE TEMPERATURE CONTROL POTENTIOMETER TOTAL RESISTANCE**	
	• Measure the resistance between temperature blend door actuator C289 pin 6, circuit 436 (RD/LG) and pin 4, circuit 438 (RD/WH).  A0042533 • **Is the resistance between 4,500 and 5,500 ohms?**	**Yes** GO to **M6**. **No** If the resistance is less than 4,500 ohms, GO to **M4**. If the resistance is greater than 5,500 ohms, GO to **M5**.

(Continued)

DIAGNOSIS AND TESTING (Continued)

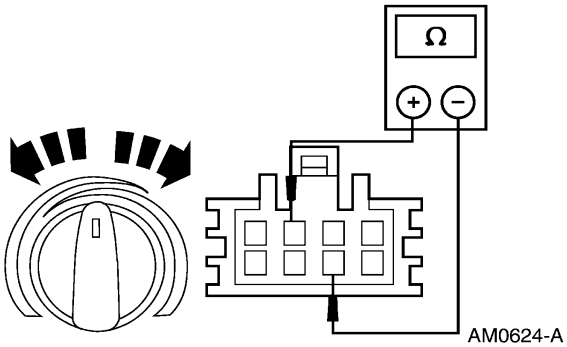
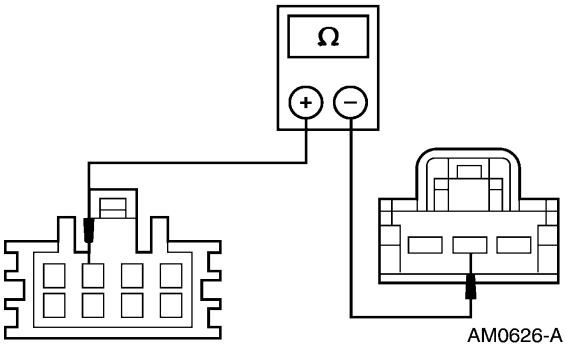
PINPOINT TEST M: NO OPERATION IN ALL TEMPERATURE SETTINGS—MANUAL CLIMATE CONTROL (Continued)

Test Step		Result / Action to Take
M4	**CHECK CIRCUITS 436 (RD/LG) AND 438 (RD/WH) FOR A SHORT TOGETHER**	
	• Disconnect: Temperature Control Potentiometer C294c. • Measure the resistance between temperature blend door actuator C289 pin 6, circuit 436 (RD/LG) and pin 4, circuit 438 (RD/WH).  A0042533 • **Is the resistance less than 5 ohms?**	**Yes** REPAIR circuits 436 (RD/LG) and 438 (RD/WH) for a short together. TEST the system for normal operation. **No** INSTALL a new temperature control potentiometer. REFER to Section 412-04. TEST the system for normal operation.
M5	**CHECK CIRCUITS 436 (RD/LG) AND 438 (RD/WH) FOR AN OPEN**	
	• Disconnect: Temperature Control Potentiometer C294c. • Measure the resistance between temperature blend door actuator C289 pin 6, circuit 436 (RD/LG) and temperature control potentiometer C294c pin 1, circuit 436 (RD/LG), and between temperature blend door actuator C289 pin 4, circuit 438 (RD/WH) and temperature control potentiometer C294c pin 3, circuit 438 (RD/WH).  A0042534 • **Are the resistances less than 5 ohms?**	**Yes** INSTALL a new temperature control potentiometer. REFER to Section 412-04. TEST the system for normal operation. **No** REPAIR the affected circuit. TEST the system for normal operation.

(Continued)

DIAGNOSIS AND TESTING (Continued)

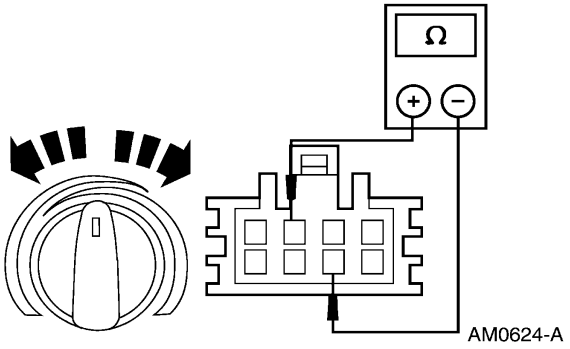
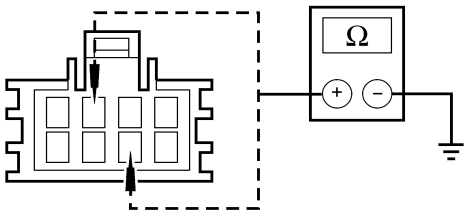
PINPOINT TEST M: NO OPERATION IN ALL TEMPERATURE SETTINGS—MANUAL CLIMATE CONTROL (Continued)

Test Step		Result / Action to Take
M6	**CHECK THE TEMPERATURE CONTROL POTENTIOMETER OPERATION**	
	• Measure the resistance between temperature blend door actuator C289 pin 6, circuit 436 (RD/LG) and pin 3, circuit 437 (YE/LG) while rotating the temperature control potentiometer from full WARM to full COOL.  AM0624-A • **Does the resistance vary between 150 and 4,800 ohms?**	**Yes** GO to M9. **No** GO to M7.
M7	**CHECK CIRCUIT 437 (YE/LG) FOR AN OPEN**	
	• Disconnect: Temperature Control Potentiometer C294c. • Measure the resistances between actuator C289 pin 3, circuit 437 (YE/LG) and temperature control potentiometer C294c pin 2, circuit 437 (YE/LG).  AM0626-A • **Is the resistance less than 5 ohms?**	**Yes** GO to M8. **No** REPAIR circuit 437 (YE/LG) for an open. TEST the system for normal operation.

(Continued)

DIAGNOSIS AND TESTING (Continued)

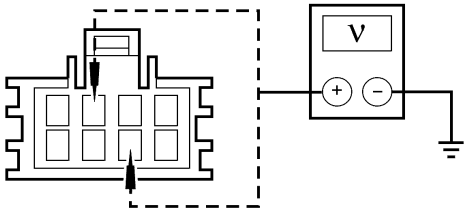
PINPOINT TEST M: NO OPERATION IN ALL TEMPERATURE SETTINGS—MANUAL CLIMATE CONTROL (Continued)

Test Step		Result / Action to Take
M8	**CHECK CIRCUITS 436 (RD/LG) AND 437 (YE/LG) FOR A SHORT TOGETHER**	
	• Measure the resistance between temperature blend door actuator C289 pin 6, circuit 436 (RD/LG) and pin 3, circuit 437 (YE/LG).  AM0624-A • **Is the resistance less than 5 ohms?**	**Yes** REPAIR circuits 436 (RD/LG) and 437 (YE/LG) for a short together. TEST the system for normal operation. **No** INSTALL a new temperature control potentiometer. REFER to Section 412-04. TEST the system for normal operation.
M9	**CHECK CIRCUITS 436 (RD/LG) AND 437 (YE/LG) FOR A SHORT TO GROUND**	
	• Disconnect: Temperature Control Potentiometer C294c. • Measure the resistances between temperature blend door actuator C289 pin 6, circuit 436 (RD/LG) and ground, and between temperature blend door actuator C289 pin 3, circuit 437 (YE/LG) and ground.  A0042535 • **Are the resistances less than 5 ohms?**	**Yes** REPAIR the affected circuit for a short to ground. TEST the system for normal operation. **No** GO to **M10**.
M10	**CHECK CIRCUITS 437 (YE/LG) AND 438 (RD/WH) FOR A SHORT TO GROUND**	
	• Disconnect: Temperature Control Potentiometer C294c. • Key in ON position.	

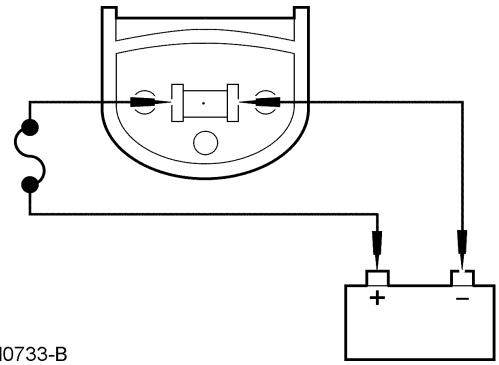
(Continued)

DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST M: NO OPERATION IN ALL TEMPERATURE SETTINGS—MANUAL CLIMATE CONTROL (Continued)

Test Step		Result / Action to Take
M10	**CHECK CIRCUITS 437 (YE/LG) AND 438 (RD/WH) FOR A SHORT TO GROUND (Continued)**	
	• Measure the voltages between temperature blend door actuator C289 pin 4, circuit 438 (RD/WH) and ground, and between temperature blend door actuator C289 pin 3, circuit 437 (YE/LG) and ground.  A0042536 • **Is voltage present?**	**Yes** REPAIR the affected circuit for a short to power. TEST the system for normal operation. **No** GO to M11.
M11	**CHECK FOR A BINDING, STUCK OR BROKEN BLEND DOOR**	
	• Key in OFF position. • Remove the actuator. Refer to Section 412-04. • Inspect for a binding, stuck or broken blend door or linkage. • **Is there a binding, stuck or broken blend door or linkage condition?**	**Yes** REPAIR the blend door/linkage. REFER to Section 412-04. TEST the system for normal operation. **No** INSTALL a new temperature blend door actuator. REFER to Section 412-04. TEST the system for normal operation.

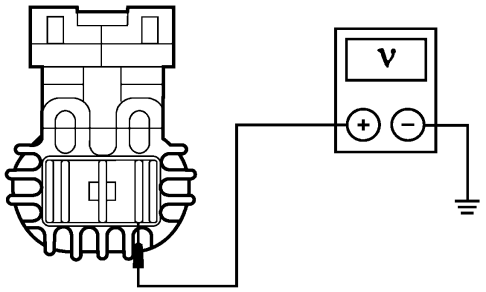
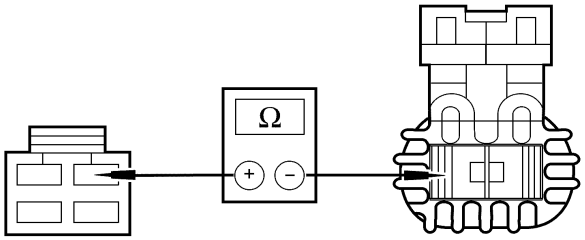
PINPOINT TEST N: THE BLOWER MOTOR DOES NOT OPERATE — MANUAL CLIMATE CONTROL

Test Step		Result / Action to Take
N1	**CHECK THE BLOWER MOTOR**	
	• Key in OFF position. • Disconnect: Blower Motor C2004. • Connect battery voltage and ground to the blower motor.  DM0733-B • **Does the blower motor operate?**	**Yes** GO to N2. **No** INSTALL a new blower motor (19805). TEST the system for normal operation.
N2	**CHECK FOR VOLTAGE TO THE BLOWER MOTOR**	
	• Key in ON position. • Place the function selector switch in the floor position.	

(Continued)

DIAGNOSIS AND TESTING (Continued)

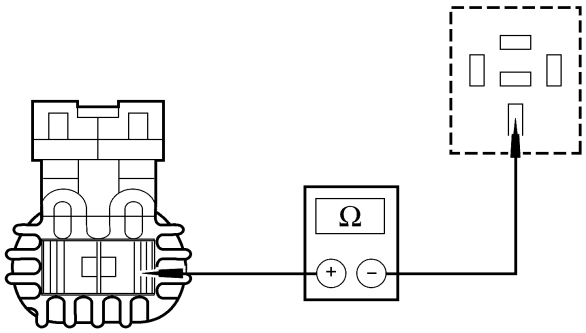
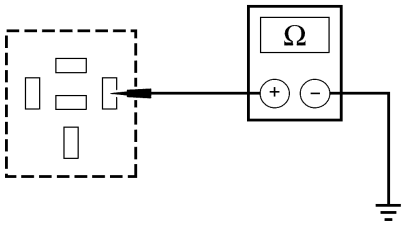
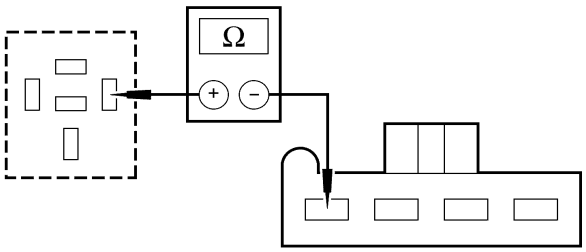
PINPOINT TEST N: THE BLOWER MOTOR DOES NOT OPERATE — MANUAL CLIMATE CONTROL (Continued)

Test Step		Result / Action to Take
N2	**CHECK FOR VOLTAGE TO THE BLOWER MOTOR (Continued)**	
	• Measure the voltage between the blower motor C2004, circuit 371 (PK/WH) and ground.  AM0416-A • **Is the voltage greater than 10 volts?**	**Yes** GO to **N3**. **No** GO to **N4**.
N3	**CHECK THE BLOWER MOTOR GROUND**	
	• Key in OFF position. • Disconnect: Blower Motor Resistor C293. • Measure the resistance between the blower motor resistor C293 pin 2, circuit 261 (OG/BK) and the blower motor C2004, circuit 261 (OG/BK).  A0013856 • **Is the resistance less than 5 ohms?**	**Yes** REPAIR circuit 57 (BK). TEST the system for normal operation. **No** REPAIR circuit 261 (OG/BK). TEST the system for normal operation.
N4	**CHECK CIRCUIT 371 (PK/WH)**	
	• Disconnect: Blower Motor Relay C2017.	

(Continued)

DIAGNOSIS AND TESTING (Continued)

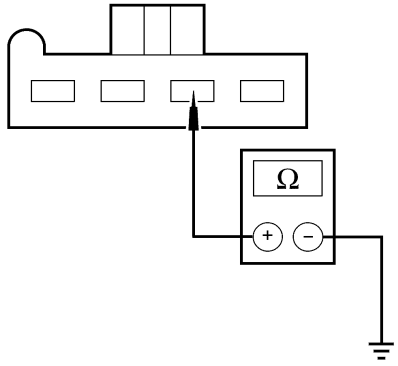
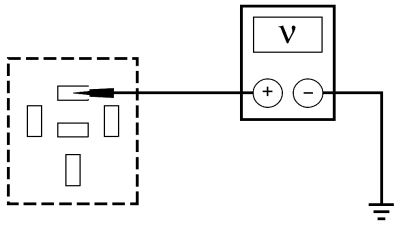
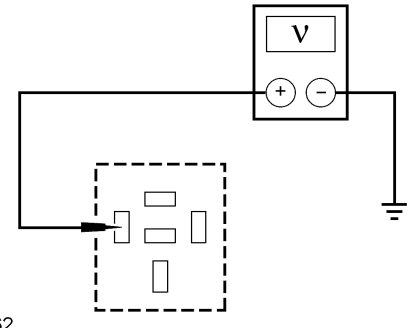
PINPOINT TEST N: THE BLOWER MOTOR DOES NOT OPERATE — MANUAL CLIMATE CONTROL (Continued)

Test Step		Result / Action to Take
N4	**CHECK CIRCUIT 371 (PK/WH) (Continued)**	
	• Measure the resistance between the blower motor C2004, circuit 371 (PK/WH) and the blower motor relay C2017 socket pin 30, circuit 371 (PK/WH).  A0013857 • **Is the resistance less than 5 ohms?**	**Yes** GO to **N5**. **No** REPAIR circuit 371 (PK/WH). TEST the system for normal operation.
N5	**CHECK THE BLOWER MOTOR RELAY GROUND**	
	• Measure the resistance between the blower motor relay C2017 socket pin 86, circuit 275 (YE) and ground.  A0013858 • **Is the resistance less than 5 ohms?**	**Yes** GO to **N8**. **No** GO to **N6**.
N6	**CHECK CIRCUIT 275 (YE)**	
	• Disconnect: Function Selector Switch C294b. • Measure the resistance between the blower motor relay C2017 socket pin 86, circuit 275 (YE) and the function selector switch C294b pin 4, circuit 275 (YE).  A0013859 • **Is the resistance less than 5 ohms?**	**Yes** GO to **N7**. **No** REPAIR circuit 275 (YE). TEST the system for normal operation.

(Continued)

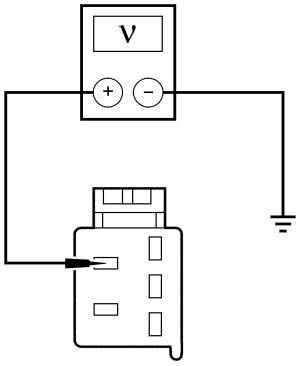
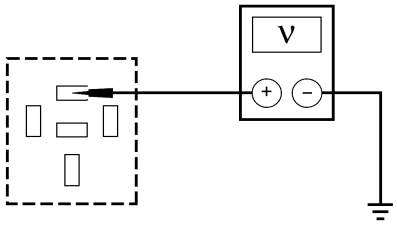
DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST N: THE BLOWER MOTOR DOES NOT OPERATE — MANUAL CLIMATE CONTROL (Continued)

Test Step		Result / Action to Take
N7	**CHECK CIRCUIT 57 (BK)**	
	• Measure the resistance between the function selector switch C294b pin 3, circuit 57 (BK) and ground.  A0013860 • **Is the resistance less than 5 ohms?**	**Yes** INSTALL a new function selector switch (19B888). TEST the system for normal operation. **No** REPAIR circuit 57 (BK). TEST the system for normal operation.
N8	**CHECK CIRCUIT 687 (GY/YE)**	
	• Key in ON position. • Measure the voltage between the blower motor relay C2017 socket pin 87 and ground.  A0013861 • **Is the voltage greater than 10 volts?**	**Yes** GO to N9. **No** REPAIR circuit 687 (GY/YE). TEST the system for normal operation.
N9	**CHECK CIRCUIT 1001 (WH/YE)**	
	• Measure the voltage between the blower motor relay C2017 socket pin 85 and ground.  A0013862 • **Is the voltage greater than 10 volts?**	**Yes** INSTALL a new blower motor relay (14B192). TEST the system for normal operation. **No** REPAIR circuit 1001 (WH/YE). TEST the system for normal operation.

DIAGNOSIS AND TESTING (Continued)

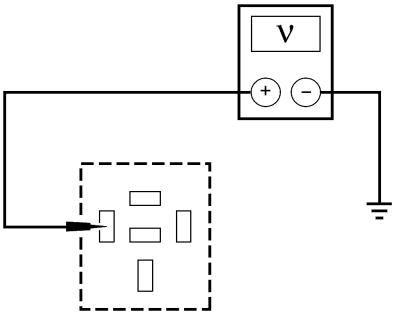
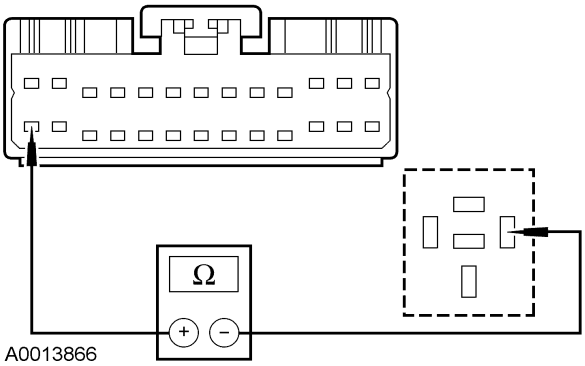
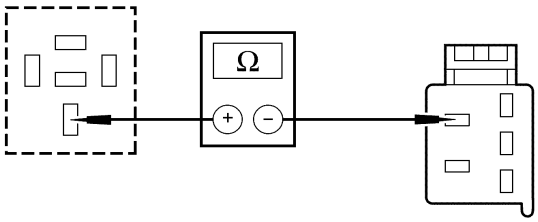
PINPOINT TEST O: THE BLOWER MOTOR IS INOPERATIVE — EATC

Test Step		Result / Action to Take
O1	**CHECK THE BLOWER MOTOR SPEED CONTROL SUPPLY VOLTAGE**	
	• Key in OFF position. • Disconnect: Blower Motor Speed Control C271a. • Key in ON position. • Press the AUTOMATIC button on the remote climate control (RCC) module. • Measure the voltage between the blower motor speed control C271a pin 1, circuit 371 (PK/WH) and ground.  A0013863 • **Is the voltage greater than 10 volts?**	**Yes** GO to **O7**. **No** GO to **O2**.
O2	**CHECK THE BLOWER MOTOR RELAY SUPPLY VOLTAGE, SWITCH SIDE**	
	• Key in OFF position. • Disconnect: Blower Motor Relay. • Measure the voltage between the blower motor relay socket pin 87 and ground.  A0013861 • **Is the voltage greater than 10 volts?**	**Yes** GO to **O3**. **No** REPAIR the affected circuit. TEST the system for normal operation.
O3	**CHECK THE BLOWER MOTOR RELAY SUPPLY VOLTAGE, COIL SIDE**	
	• Key in ON position.	

(Continued)

DIAGNOSIS AND TESTING (Continued)

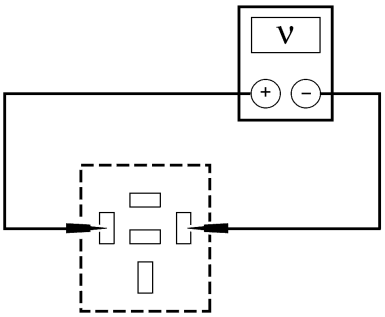
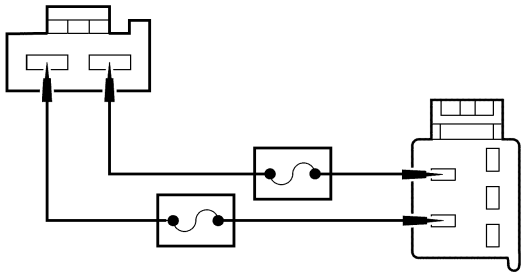
PINPOINT TEST O: THE BLOWER MOTOR IS INOPERATIVE — EATC (Continued)

Test Step		Result / Action to Take
O3	**CHECK THE BLOWER MOTOR RELAY SUPPLY VOLTAGE, COIL SIDE (Continued)**	
	• Measure the voltage between the blower motor relay socket pin 85 and ground.  A0013862 • **Is the voltage greater than 10 volts?**	**Yes** GO to O4. **No** REPAIR the affected circuit. TEST the system for normal operation.
O4	**CHECK CIRCUIT 275 (YE) FOR AN OPEN**	
	• Key in OFF position. • Disconnect: RCC Module C228. • Measure the resistance between the RCC module C228 pin 14, circuit 275 (YE) and the blower motor relay socket pin 86, circuit 275 (YE).  A0013866 • **Is the resistance less than 5 ohms?**	**Yes** GO to O5. **No** REPAIR circuit 275 (YE). TEST the system for normal operation.
O5	**CHECK CIRCUIT 371 (PK/WH) FOR AN OPEN**	
	• Measure the resistance between the blower motor speed control C271a pin 1, circuit 371 (PK/WH) and the blower motor relay socket pin 30, circuit 371 (PK/WH).  A0015040 • **Is the resistance less than 5 ohms?**	**Yes** GO to O6. **No** REPAIR circuit 371 (PK/WH). TEST the system for normal operation.

(Continued)

DIAGNOSIS AND TESTING (Continued)

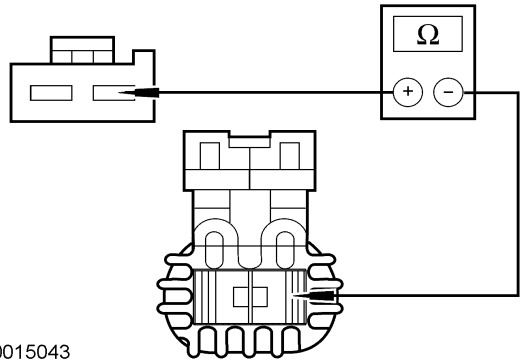
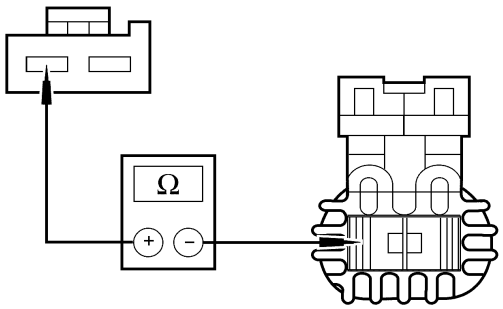
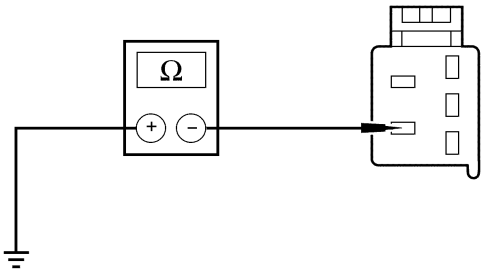
PINPOINT TEST O: THE BLOWER MOTOR IS INOPERATIVE — EATC (Continued)

Test Step		Result / Action to Take
O6	**CHECK THE RCC MODULE**	
	• Connect: RCC Module C228. • Key in ON position. • Depress the AUTO button. • Measure the voltage between blower motor relay socket pin 85 and blower motor relay socket pin 86, circuit 275 (YE).  A0038291 • **Is the voltage greater than 10 volts?**	**Yes** INSTALL a new blower motor relay. TEST the system for normal operation. **No** INSTALL a new RCC module. TEST the system for normal operation.
O7	**BYPASS THE BLOWER MOTOR RELAY**	
	• Key in OFF position. • Disconnect: Blower Motor Speed Control C271b. • Key in ON position. • Connect a fused (40A) 12 gauge jumper lead between the blower motor speed control C271a pin 1, circuit 371 (PK/WH) and the blower motor speed control C271b, circuit 371 (OG); connect a second fused (40A) jumper lead between the blower motor speed control C271a pin 2, circuit 57 (BK) and the blower motor speed control C271b, circuit 261 (BK).  A0015042 • **Does the blower motor operate at high speed?**	**Yes** GO to **O11**. **No** GO to **O8**.
O8	**CHECK CIRCUIT 371 (PK/WH)**	
	• Key in OFF position. • Disconnect: Blower Motor C2006.	

(Continued)

DIAGNOSIS AND TESTING (Continued)

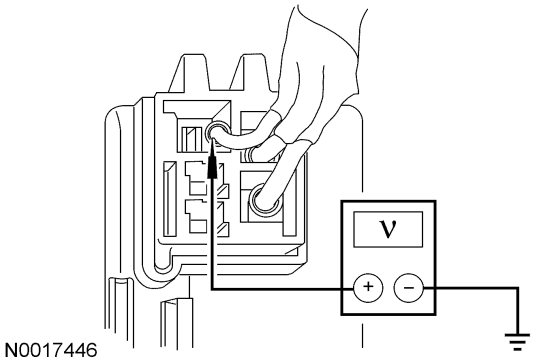
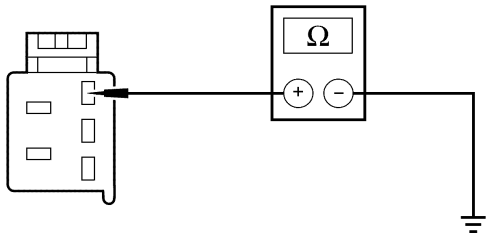
PINPOINT TEST O: THE BLOWER MOTOR IS INOPERATIVE — EATC (Continued)

Test Step		Result / Action to Take
O8	**CHECK CIRCUIT 371 (PK/WH) (Continued)**	
	• Measure the resistance between the blower motor speed control C271b, circuit 371 (OG) and the blower motor C2006, circuit 371 (OG).  A0015043 • **Is the resistance less than 5 ohms?**	**Yes** GO to **O9**. **No** REPAIR circuit 371 (PK/WH). TEST the system for normal operation.
O9	**CHECK CIRCUIT 261 (OG/BK)**	
	• Measure the resistance between the blower motor speed control C271b, circuit 261 (BK) and the blower motor C2006, circuit 261 (BK).  A0015044 • **Is the resistance less than 5 ohms?**	**Yes** GO to **O10**. **No** REPAIR circuit 261 (OG/BK). TEST the system for normal operation.
O10	**CHECK CIRCUIT 57 (BK)**	
	• Measure the resistance between the blower motor speed control C271a pin 2, circuit 57 (BK) and ground.  A0013873 • **Is the resistance less than 5 ohms?**	**Yes** INSTALL a new blower motor. TEST the system for normal operation. **No** REPAIR circuit 57 (BK). TEST the system for normal operation.

(Continued)

DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST O: THE BLOWER MOTOR IS INOPERATIVE — EATC (Continued)

Test Step		Result / Action to Take
O11	CHECK THE BLOWER MOTOR SPEED CONTROL INPUT SIGNAL	
	• Key in OFF position. • Remove the fused jumper leads from the blower motor speed control C271a and C271b. • Connect: Blower Motor Speed Control C271a. • Key in ON position. • Press the MAX A/C manual override button and adjust the blower speed to maximum. • Measure the voltage between the blower motor speed control C271a pin 3, circuit 776 (OG/BK) and ground by back-probing the blower motor speed control C271a pin 3, circuit 776 (OG/BK).  N0017446 • **Is the voltage approximately 5 volts?**	**Yes** INSTALL a new blower motor speed control. TEST the system for normal operation. **No** GO to **O12**.
O12	CHECK CIRCUIT 776 (OG/BK) FOR A SHORT TO GROUND	
	• Disconnect: RCC Module C228. • Measure the resistance between the blower motor speed control C271a pin 3, circuit 776 (OG/BK) and ground.  A0013876 • **Is the resistance greater than 10,000 ohms?**	**Yes** INSTALL a new RCC module. TEST the system for normal operation. **No** REPAIR circuit 776 (OG/BK). TEST the system for normal operation.

PINPOINT TEST P: THE BLOWER MOTOR DOES NOT OPERATE CORRECTLY — MANUAL CLIMATE CONTROL

Test Step		Result / Action to Take
P1	CHECK THE BLOWER MOTOR SWITCH	
	• Key in OFF position. • Disconnect: Blower Motor Switch C294a. • Measure the resistance between the blower motor switch pins, component side, in the following blower motor switch positions:	

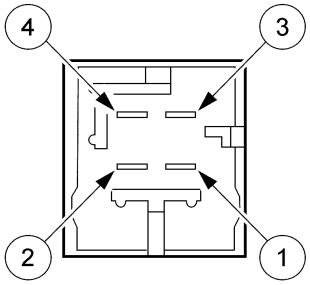
(Continued)

DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST P: THE BLOWER MOTOR DOES NOT OPERATE CORRECTLY — MANUAL CLIMATE CONTROL (Continued)

Test Step	Result / Action to Take
P1 CHECK THE BLOWER MOTOR SWITCH (Continued)	

Switch Position	Continuity Between Pins
low	none
med-low	2 and 3
med-high	2, 3, and 4
high	1, 2, and 4



A0013877

- **Are the resistances less than 5 ohms when continuity is expected and greater than 10,000 ohms for all others?**

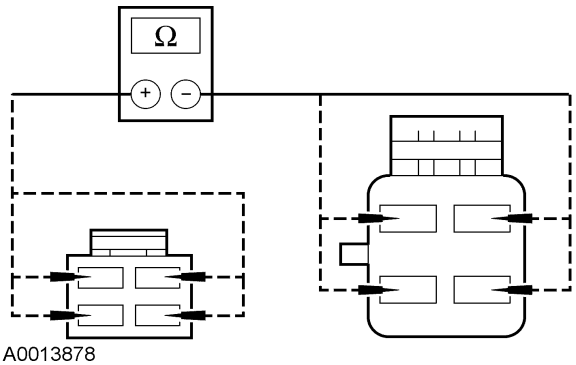
Yes
GO to **P2**.

No
INSTALL a new blower motor switch (18578). TEST the system for normal operation.

P2 CHECK CIRCUITS 261 (OG/BK), 752 (YE/RD), AND 754 (LG/WH) FOR AN OPEN

- Disconnect: Blower Motor Resistor C293.
- Measure the resistance between the blower motor switch C294a and the blower motor resistor C293 as follows:

Blower Motor Switch C294a	Blower Motor Resistor C293
pin 3, circuit 57 (BK)	pin 3, circuit 57 (BK)
pin 4, circuit 261 (OG/BK)	pin 2, circuit 261 (OG/BK)
pin 1, circuit 754 (LG/WH)	pin 1, circuit 754 (LG/WH)
pin 2, circuit 752 (YE/RD)	pin 4, circuit 752 (YE/RD)



A0013878

- **Are the resistances less than 5 ohms?**

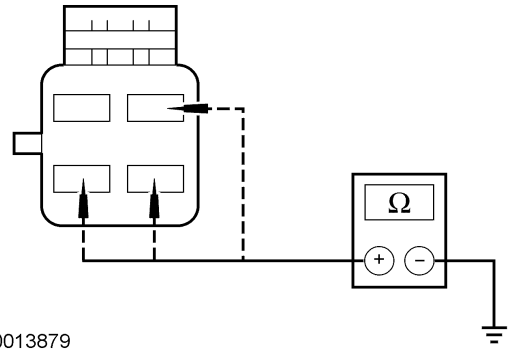
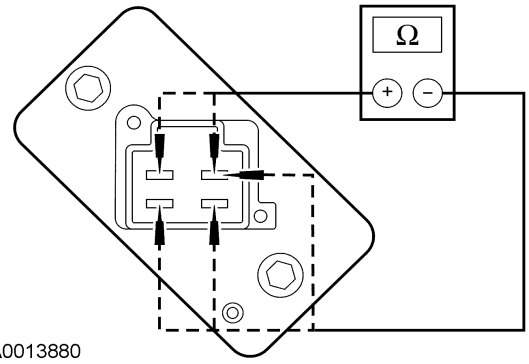
Yes
GO to **P3**.

No
REPAIR the affected circuit(s). TEST the system for normal operation.

(Continued)

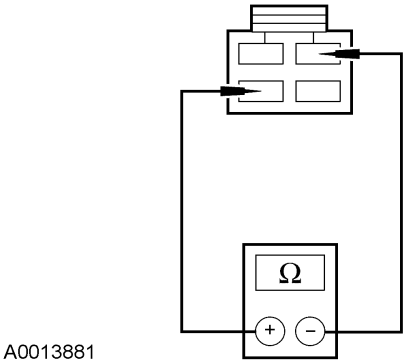
DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST P: THE BLOWER MOTOR DOES NOT OPERATE CORRECTLY — MANUAL CLIMATE CONTROL (Continued)

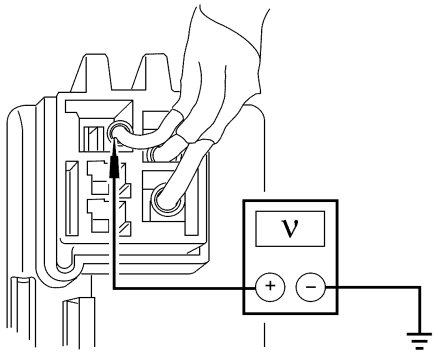
Test Step		Result / Action to Take
P3	**CHECK CIRCUITS 261 (OG/BK), 752 (YE/RD), AND 754 (LG/WH) FOR A SHORT**	
	• Measure the resistances between the blower motor switch C294a: — pin 1, circuit 754 (LG/WH) and ground. — pin 2, circuit 752 (YE/RD) and ground. — pin 4, circuit 261 (OG/BK) and ground.  A0013879 • **Are the resistances greater than 10,000 ohms?**	**Yes** GO to **P4**. **No** REPAIR the affected circuit(s). TEST the system for normal operation.
P4	**CHECK THE BLOWER MOTOR RESISTOR**	
	• Measure the resistance between the blower motor resistor pins, component side, as follows: **Blower Motor Resistor Pins** / **Resistance** 2 and 3 — 2.2 ohms 1 and 3 — 0.9 ohms 1 and 2 — 1.4 ohms 2 and 4 — 1.9 ohms  A0013880 • **Are the resistances as indicated?**	**Yes** INSTALL a new blower motor (19805). TEST the system for normal operation. **No** INSTALL a new blower motor resistor (19A706). TEST the system for normal operation.

DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST Q: THE BLOWER MOTOR OPERATES CONTINUOUSLY IN HIGH SPEED — MANUAL CLIMATE CONTROL

Test Step		Result / Action to Take
Q1	**CHECK THE BLOWER MOTOR GROUND**	
	• Key in OFF position. • Disconnect: Blower Motor Resistor C293. • Key in ON position. • Place the function selector switch in the floor position and the blower motor switch in the low position. • **Does the blower motor speed operate in high speed?**	**Yes** GO to **Q2**. **No** INSTALL a new blower motor resistor (19A706). TEST the system for normal operation.
Q2	**CHECK CIRCUIT 261 (OG/BK)**	
	• Key in OFF position. • Measure the resistance between the blower motor resistor C293 pin 2, circuit 261 (OG/BK) and pin 3, circuit 57 (BK).  A0013881 • **Is the resistance greater than 10,000 ohms?**	**Yes** REPAIR circuit 261 (OG/BK). TEST the system for normal operation. **No** INSTALL a new blower motor switch (18578). TEST the system for normal operation.

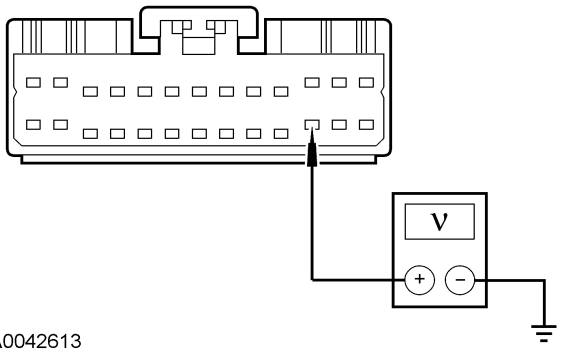
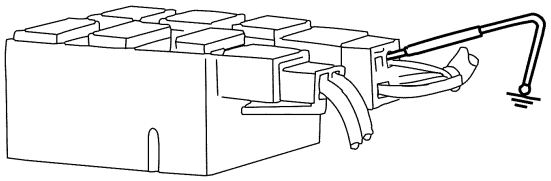
PINPOINT TEST R: THE BLOWER MOTOR OPERATES CONTINUOUSLY IN HIGH SPEED — EATC

Test Step		Result / Action to Take
R1	**CHECK BLOWER OPERATION**	
	• Key in ON position. • Press the override button for MAX A/C operation and rotate the blower motor speed override control fully down. • **Does the blower speed reduce?**	**Yes** The system is functioning normally. **No** GO to **R2**.
R2	**CHECK CIRCUIT 776 (OG/BK) FOR VOLTAGE**	
	• Press the OFF button. • Measure the voltage between the blower motor speed control C271a pin 3, circuit 776 (OG/BK) and ground by backprobing at the connector.  N0017446 • **Is the voltage greater than 0 volts?**	**Yes** GO to **R4**. **No** GO to **R3**.
R3	**CHECK BLOWER MOTOR SPEED CONTROL INPUT VOLTAGE**	
	• Key in OFF position. • Disconnect: Remote Climate Control (RCC) Module C228. • Key in ON position.	

(Continued)

DIAGNOSIS AND TESTING (Continued)

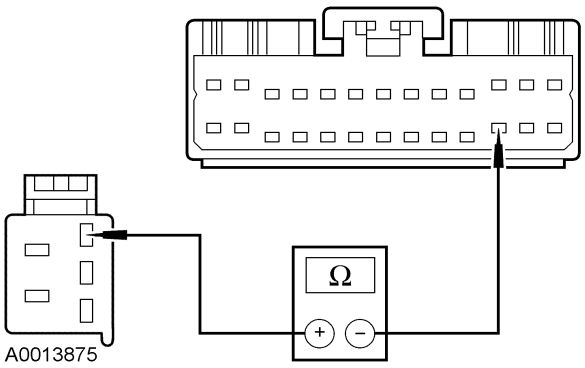
PINPOINT TEST R: THE BLOWER MOTOR OPERATES CONTINUOUSLY IN HIGH SPEED — EATC (Continued)

Test Step		Result / Action to Take
R3	**CHECK BLOWER MOTOR SPEED CONTROL INPUT VOLTAGE (Continued)**	
	• Measure the voltage between RCC module C228 pin 24, circuit 776 (OG/BK) and ground.  A0042613 • **Is the voltage greater than 4.5 volts?**	**Yes** INSTALL a new RCC module. TEST the system for normal operation. **No** INSTALL a new blower motor speed control module. TEST the system for normal operation.
R4	**CHECK THE BLOWER MOTOR SPEED CONTROL**	
	• Press the MAX A/C button blower motor speed override control fully down. • Without disconnecting the blower motor speed control C271a from the blower motor speed control, use a fused jumper lead to connect pin 3, circuit 776 (OG/BK) to ground.  AL0145-B • **Does the blower motor operation stop or decrease substantially?**	**Yes** GO to **R5**. **No** INSTALL a new blower motor speed control. TEST the system for normal operation.
R5	**CHECK CIRCUIT 776 (OG/BK) FOR AN OPEN**	
	• Key in OFF position. • Disconnect: RCC Module C228. • Key in ON position.	

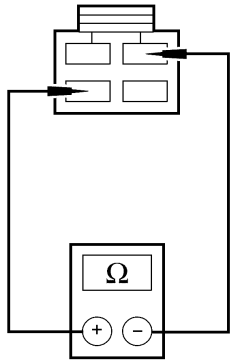
(Continued)

DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST R: THE BLOWER MOTOR OPERATES CONTINUOUSLY IN HIGH SPEED — EATC (Continued)

Test Step		Result / Action to Take
R5	CHECK CIRCUIT 776 (OG/BK) FOR AN OPEN (Continued)	
• Measure the resistance between the blower motor speed control C271a pin3, circuit 776 (OG/BK) and the RCC module C228 pin 24, circuit 776 (OG/BK).  A0013875 • **Is the resistance less than 5 ohms?**		**Yes** INSTALL a new RCC module. TEST the system for normal operation. **No** REPAIR circuit 776 (OG/BK) for an open. TEST the system for normal operation.

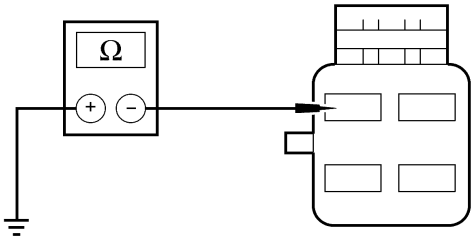
PINPOINT TEST S: NO OPERATION IN HIGH BLOWER SETTING — MANUAL CLIMATE CONTROL

Test Step		Result / Action to Take
S1	CHECK THE BLOWER MOTOR GROUND	
• Key in OFF position. • Disconnect: Blower Motor Resistor C293. • Place the blower motor switch in the high position. • Measure the resistance between the blower motor resistor C293 pin 2, circuit 261 (OG/BK) and pin 3, circuit 57 (BK).  A0013881 • **Is the resistance less than 5 ohms?**		**Yes** INSTALL a new blower motor (19805). TEST the system for normal operation. **No** GO to **S2**.
S2	CHECK CIRCUIT 57 (BK)	
• Disconnect: Blower Motor Switch C294a.		

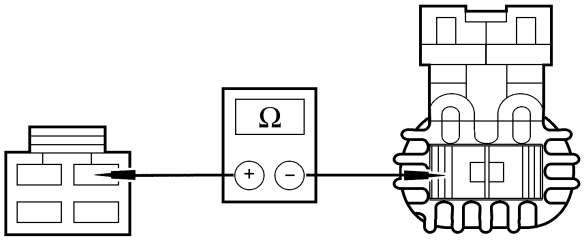
(Continued)

DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST S: NO OPERATION IN HIGH BLOWER SETTING — MANUAL CLIMATE CONTROL (Continued)

Test Step		Result / Action to Take
S2	**CHECK CIRCUIT 57 (BK) (Continued)**	
	• Measure the resistance between the blower motor switch C294a pin 3, circuit 57 (BK) and ground.  A0013882 • **Is the resistance less than 5 ohms?**	**Yes** INSTALL a new blower motor switch (18578). TEST the system for normal operation. **No** REPAIR circuit 57 (BK). TEST the system for normal operation.

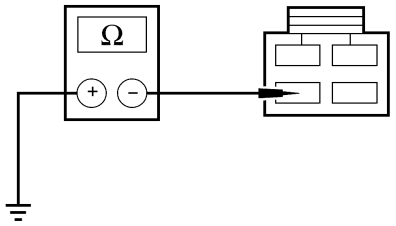
PINPOINT TEST T: NO OPERATION IN LOWER SPEEDS — MANUAL CLIMATE CONTROL

Test Step		Result / Action to Take
T1	**CHECK CIRCUIT 261 (OG/BK)**	
	• Key in OFF position. • Disconnect: Blower Motor C2004. • Disconnect: Blower Motor Resistor C293. • Measure the resistance between the blower motor C2004, circuit 261 (OG/BK) and the blower motor resistor C293 pin 2, circuit 261 (OG/BK).  A0013856 • **Is the resistance less than 5 ohms?**	**Yes** GO to **T2**. **No** REPAIR circuit 261 (OG/BK). TEST the system for normal operation.

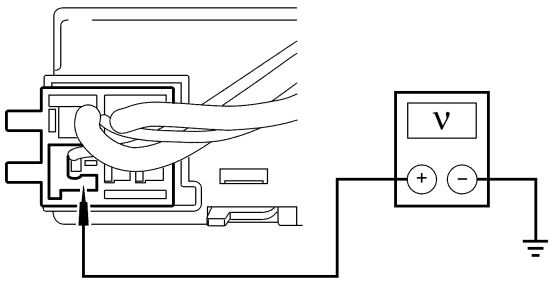
(Continued)

DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST T: NO OPERATION IN LOWER SPEEDS — MANUAL CLIMATE CONTROL (Continued)

Test Step		Result / Action to Take
T2	CHECK CIRCUIT 57 (BK)	
	• Measure the resistance between the blower motor resistor C293 pin 3, circuit 57 (BK) and ground.  A0013883 • **Is the resistance less than 5 ohms?**	**Yes** INSTALL a new blower motor resistor (19A706). TEST the system for normal operation. **No** REPAIR circuit 57 (BK). TEST the system for normal operation.

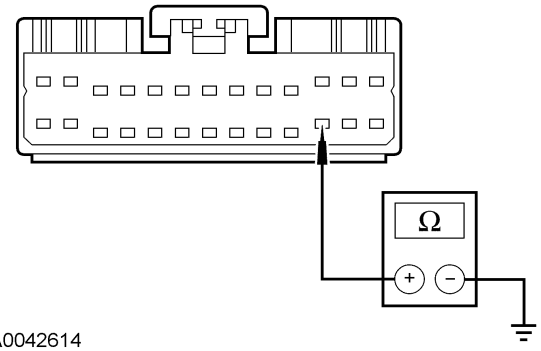
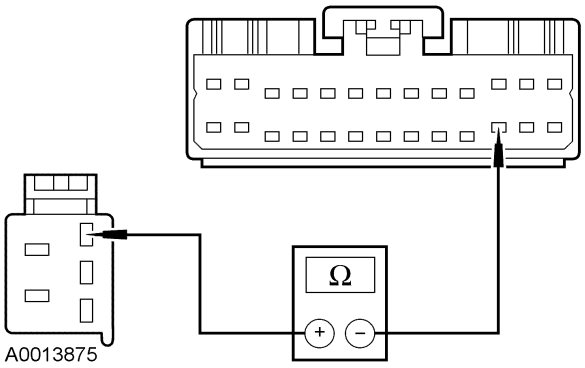
PINPOINT TEST U: NO OPERATION IN SOME BLOWER SPEEDS — EATC

Test Step		Result / Action to Take
U1	CHECK THE BLOWER OPERATION	
	• Key in ON position. • Press the MAX A/C button and rotate the blower motor speed control to HI. • **Does the blower speed increase as you rotate the blower motor speed override control toward HI?**	**Yes** The system is functioning correctly. **No** GO to **U2**.
U2	CHECK FOR DISCONTINUITIES IN THE CONTROL SIGNAL	
	• Key in OFF position. • Without disconnecting the blower motor speed control C271a from the blower motor speed control, measure the voltage between the blower motor speed control C271a pin 3, circuit 776 (OG/BK) and ground.  A0016762 • Key in ON position. • Press the MAX A/C button and adjust the blower motor speed to maximum. • Slowly adjust the blower motor speed to minimum while observing the voltmeter. Watch for discontinuities in the voltage as it decreases. The voltage should decrease in steps from 5 volts to a point less than 1 volt. • **Did the voltage continually decrease without discontinuities?**	**Yes** INSTALL a new blower motor speed control. TEST the system for normal operation. **No** GO to **U3**.
U3	CHECK CIRCUIT 776 (OG/BK) FOR A SHORT TO GROUND	
	• Key in OFF position. • Disconnect: Blower Motor Speed Control C271a.	

(Continued)

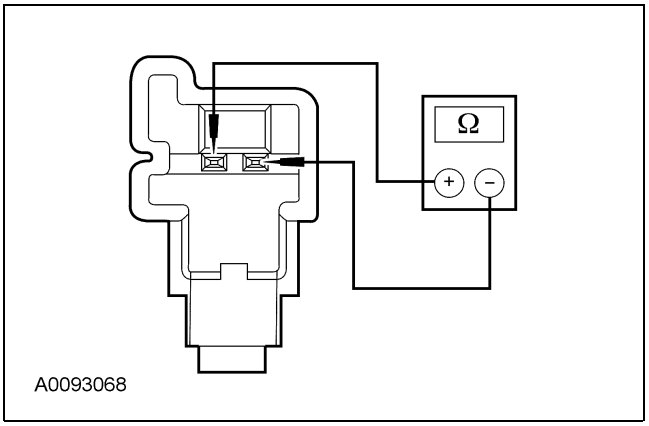
DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST U: NO OPERATION IN SOME BLOWER SPEEDS — EATC (Continued)

Test Step		Result / Action to Take
U3	CHECK CIRCUIT 776 (OG/BK) FOR A SHORT TO GROUND (Continued)	
	• Measure the resistance between the remote climate control (RCC) module C228 pin 24, circuit 776 (OG/BK) and ground.  A0042614 • **Is the resistance greater than 10,000 ohms?**	**Yes** GO to **U4**. **No** REPAIR circuit 776 (OG/BK) for a short to ground. TEST the system for normal operation.
U4	CHECK CIRCUIT 776 (OG/BK) FOR AN OPEN	
	• Measure the resistance between the RCC module C228 pin 24, circuit 776 (OG/BK) and the blower motor speed control C271a pin 3, circuit 776 (OG/BK).  A0013875 • **Is the resistance less than 5 ohms?**	**Yes** INSTALL a new RCC module. TEST the system for normal operation. **No** REPAIR circuit 776 (OG/BK) for an open. TEST the system for normal operation.

Component Tests

A/C Evaporator Discharge Temperature Sensor



A0093068

Temperature	Resistance
-40°C (-40°F)	832,500-1,017,500 ohms
-20°C (-4°F)	263,100-290,800 ohms
0°C (32°F)	91,050-100,600 ohms
20°C (68°F)	35,500-39,000 ohms
25°C (77°F)	28,500-31,500 ohms
40°C (104°F)	15,300-16,900 ohms
60°C (140°F)	7,170-7,930 ohms
100°C (212°F)	1,975-2,185 ohms
-20°C (248°F)	1,130-1,250 ohms

DIAGNOSIS AND TESTING (Continued)

Heater Core

⚠ WARNING: Carbon monoxide is colorless, odorless and dangerous. If it is necessary to operate the engine with the vehicle in a closed area such as a garage, always use an exhaust collector to vent the exhaust gases outside the closed area.

1. **NOTE:** Testing of returned heater cores reveals that a large percentage are good and did not require installation of a new heater core. If a heater core leak is suspected, the heater core must be tested by following the plugged heater core component test before the heater core pressure test. Carry out a system inspection by checking the heater system thoroughly as follows:

   Inspect for evidence of coolant leakage at the heater water hose to heater core attachments. A coolant leak in the heater water hose (18472) could follow the heater core tube to the heater core and appear as a leak in the heater core (18476).
2. **NOTE:** Spring-type clamps are installed as original equipment. Installation and over-tightening of non-specification clamps can cause leakage at the heater water hose connection and damage the heater core.

   Check the integrity of the heater water hose clamps.

Heater Core—Plugged

⚠ WARNING: The heater core inlet hose will become too hot to handle if the system is working correctly.

1. Check to see that the engine coolant is at the correct level.
2. Start the engine and turn on the heater.
3. When the engine coolant reaches operating temperature, feel the heater core outlet hose to see if it is hot.

   If it is not hot:

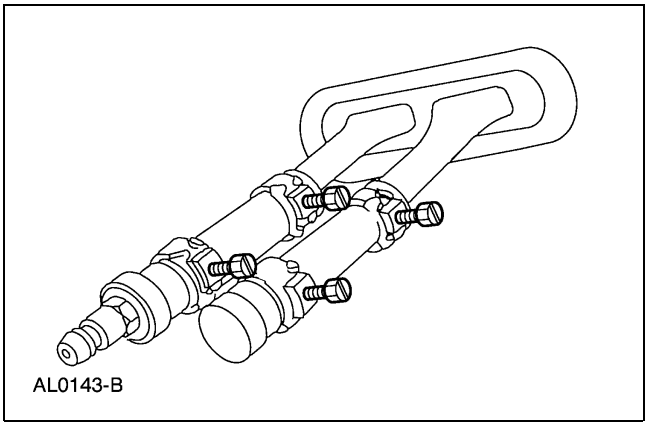
   - the heater core may have an air pocket.
   - the heater core may be plugged.
   - the thermostat (8575) is not working correctly.

Heater Core—Pressure Test

Use the Radiator/Heater Core Pressure Tester to carry out the pressure test.

1. **NOTE:** Due to space limitations, a bench test may be necessary for pressure testing.

   Drain the coolant from the cooling system.
2. Disconnect the heater water hoses from the heater core. Refer to Section 412-02.
3. Install a short piece of heater water hose, approximately 101 mm (4 inches) long on each heater core tube.
4. Fill the heater core and heater water hoses with water and install Plug BT-7422-B and adapter BT-7422-A from the radiator/heater core pressure tester in the heater water hose ends. Secure the heater water hoses, plug and adapter with hose clamps.



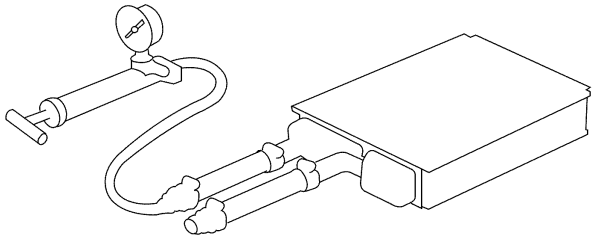
5. Attach the pump and gauge assembly from the radiator/heater core pressure tester to the adapter.
6. Close the bleed valve at the base of the gauge. Pump 138 kPa (20 psi) of air pressure into the heater core.
7. Observe the pressure gauge for a minimum of three minutes.
8. If the pressure drops, check the heater water hose connections to the core tubes for leaks. If the heater water hoses do not leak, remove the heater core from the vehicle and carry out the bench test.

Heater Core—Bench Test

1. Remove the heater core from the vehicle. Refer to Section 412-02.
2. Drain all of the coolant from the heater core.

DIAGNOSIS AND TESTING (Continued)

3. Connect the 101 mm (4 inch) test heater water hoses with plug and adapter to the core tubes. Then connect the radiator/heater core pressure tester to the adapter.
4. Apply 138 kPa (20 psi) of air pressure to the heater core. Submerge the heater core in water.
5. If a leak is observed, install a new heater core.



L10130-A

A/C Evaporator/Condenser Core—On-Vehicle Leak Test

1. Discharge and recover the refrigerant. Refer to Air Conditioning (A/C) System Recovery, Evacuation and Charging in this section.
2. ⚠ **CAUTION: DO NOT leak test an evaporator core with the suction accumulator attached to the core tubes.**

   Disconnect the suspect evaporator core (19860) or condenser core (19712) from the A/C system. Refer to Section 412-03.
3. Clean the spring lock couplings. Refer to Spring Lock Coupling in this section.
4. Connect the appropriate test fittings from the R-12/R-134a Air Conditioning Test Fitting Set to the evaporator or condenser tube connections.
5. **NOTE:** The automatic shut-off valves on some gauge set hoses do not open when connected to the test fittings. If available, use hoses without shut-off valves. If hoses with shut-off valves are used, make sure the valve opens when attached to the test fittings or install an adapter which will activate the valve. The test is not valid if the shut-off valve does not open.

   Connect the red and blue hoses from the R-134a Manifold Gauge Set to the test fittings on the evaporator core or condenser core. Connect the yellow hose to a known good vacuum pump.
6. Open both gauge set valves and start the vacuum pump. Allow the vacuum pump to operate for a minimum of 45 minutes after the gauge set low pressure gauge indicates 101 kPa (30 inches-Hg). The 45 minute evacuation is necessary to remove any refrigerant from oil left in the evaporator core or condenser core. If the refrigerant is not completely removed from the oil, outgassing will degrade the vacuum and appear as a refrigerant leak.
7. If the low pressure gauge reading will not drop to 101 kPa (30 inches-Hg) when the valves on the gauge and manifold set are open and the vacuum pump is operating, close the gauge set valves and observe the low pressure gauge. If the pressure rises rapidly to zero, a large leak is indicated. Recheck the test fitting connections and gauge set connections before installing a new evaporator core or condenser core.
8. After evacuating for 45 minutes, close the gauge set valves and stop the vacuum pump. Observe the low pressure gauge; it should remain at the 101 kPa (30 inches-Hg) mark.
   - If the low pressure gauge reading rises 34 kPa or more (10 inches-Hg or more) of vacuum from the 101 kPa (30 inches-Hg) position in 10 minutes, a leak is indicated.
   - If a very small leak is suspected, wait 30 minutes and observe the vacuum gauge.
   - If a small amount of vacuum is lost, operate the vacuum pump with gauge valves open for an additional 30 minutes to remove any remaining refrigerant from the oil in the evaporator core or condenser core. Then recheck for loss of vacuum.
   - If a very small leak is suspected, allow the system to set overnight with vacuum applied and check for vacuum loss.
9. If the evaporator core or condenser core does leak, as verified by the above procedure, install a new evaporator core or condenser core. Refer to Section 412-03.

A/C Compressor—External Leak Test

1. Install the A/C pressure test adapter on the rear head of the A/C compressor (19703) using the existing manifold retaining bolt.

DIAGNOSIS AND TESTING (Continued)

2. Connect the high and low pressure lines of a manifold gauge set or a refrigerant recovery/recycling station such as the R-134a A/C Refrigerant Center to the corresponding fittings on the A/C pressure test adapter.
3. Attach the center hose of the R-134a Manifold Gauge Set to a refrigerant container standing in an upright position.
4. Hand-rotate the compressor shaft 10 complete revolutions to distribute the oil inside the A/C compressor.
5. Open the low pressure gauge valve, the high pressure gauge valve and the valve on the refrigerant container to allow the refrigerant vapor to flow into the A/C compressor.
6. Using the Refrigerant Leak Detector, check for leaks at the compressor shaft seal and the compressor center seal.
7. If a shaft seal leak is found, install a new shaft seal. Refer to Section 412-03. If an external leak is found at the center joint of the A/C compressor, install a new A/C compressor.
8. When the leak test is complete, recover the refrigerant from the compressor.