
SECTION 7D

AUTOMATIC TEMPERATURE CONTROL HEATING, VENTILATION, AND AIR CONDITIONING SYSTEM

CAUTION: Disconnect the negative battery cable before removing or installing any electrical unit or when a tool or equipment could easily come in contact with exposed electrical terminals. Disconnecting this cable will help prevent personal injury and damage to the vehicle. The ignition must also be in LOCK unless otherwise noted.

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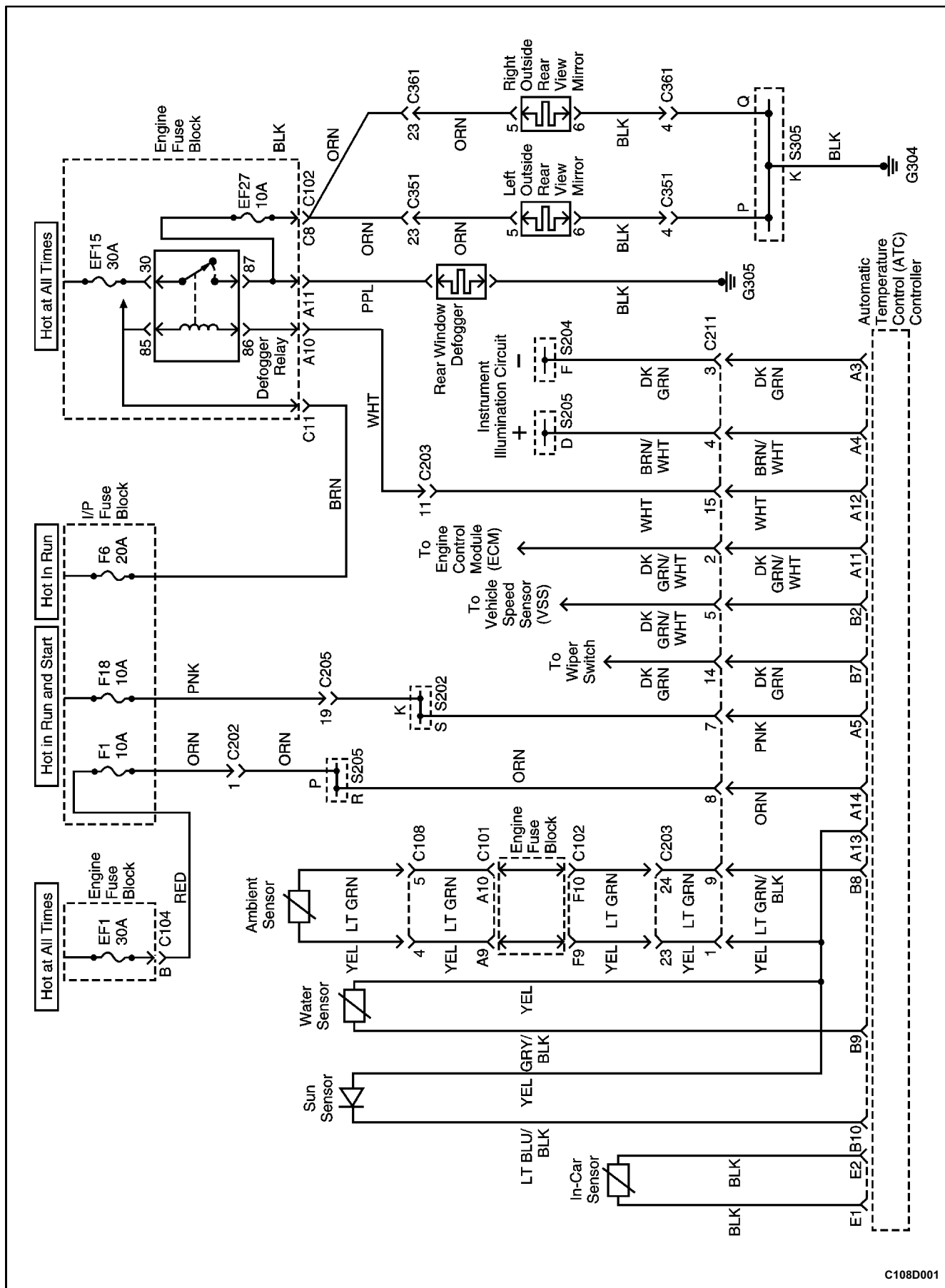
SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Application	N•m	Lb•	Lb•
Air Filter Cover Nut	4	-	35
Ambient Air Temperature Retaining Bracket Nut	6	-	53
Blower Motor Resistor Screws	6	-	53
Control Assembly Retaining Screws	4	-	35
Expansion Valve Bolts	10	-	89
Heater/Air Distributor Assembly Case Screws	8	-	71
Liquid Evaporator Pipe Retaining Nuts	10	-	89
Suction Hose Retaining Nuts	10	-	89

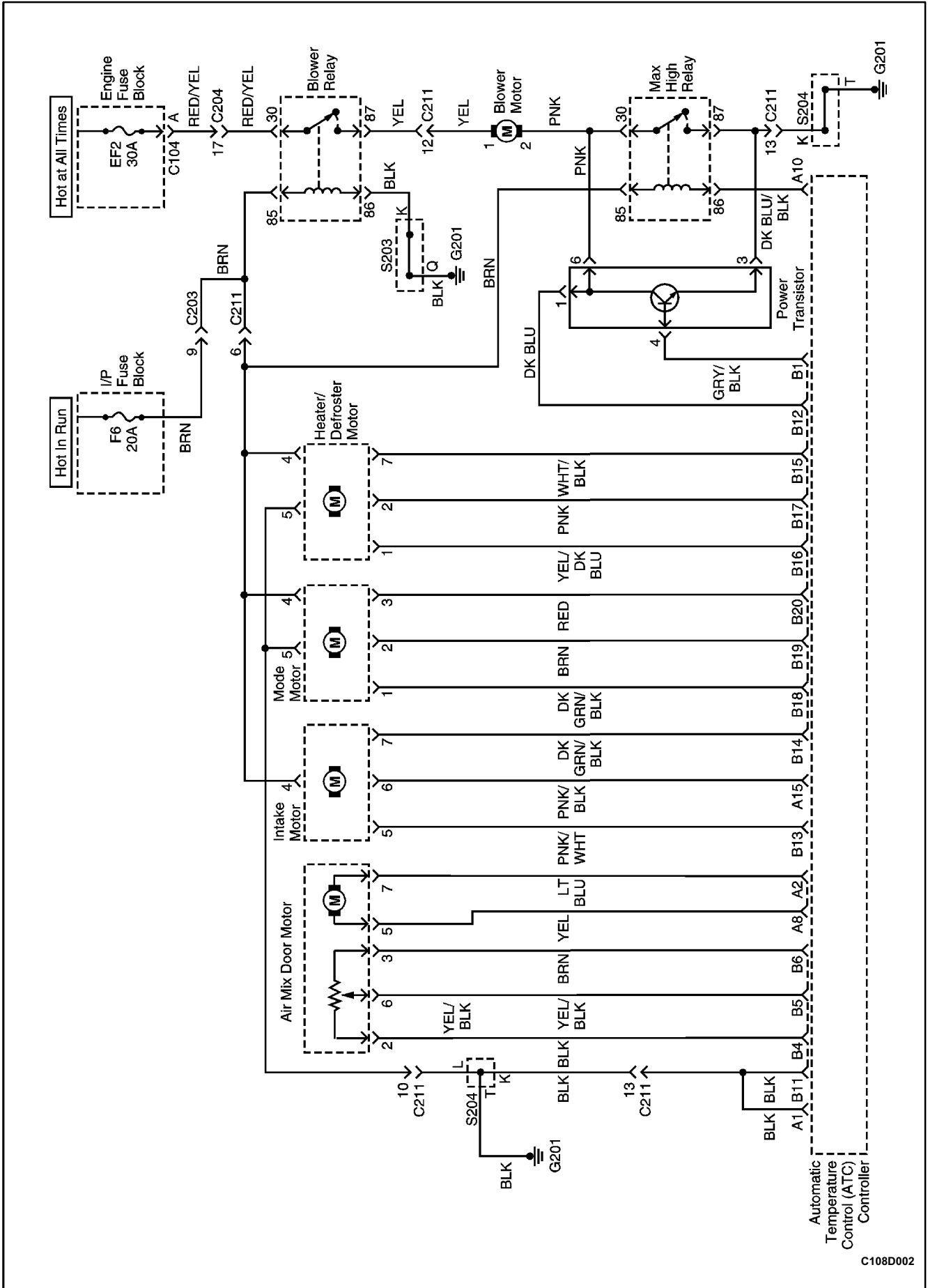
SCHEMATIC AND ROUTING DIAGRAMS

A/C SENSORS AND DEFOGGERS DIAGRAM



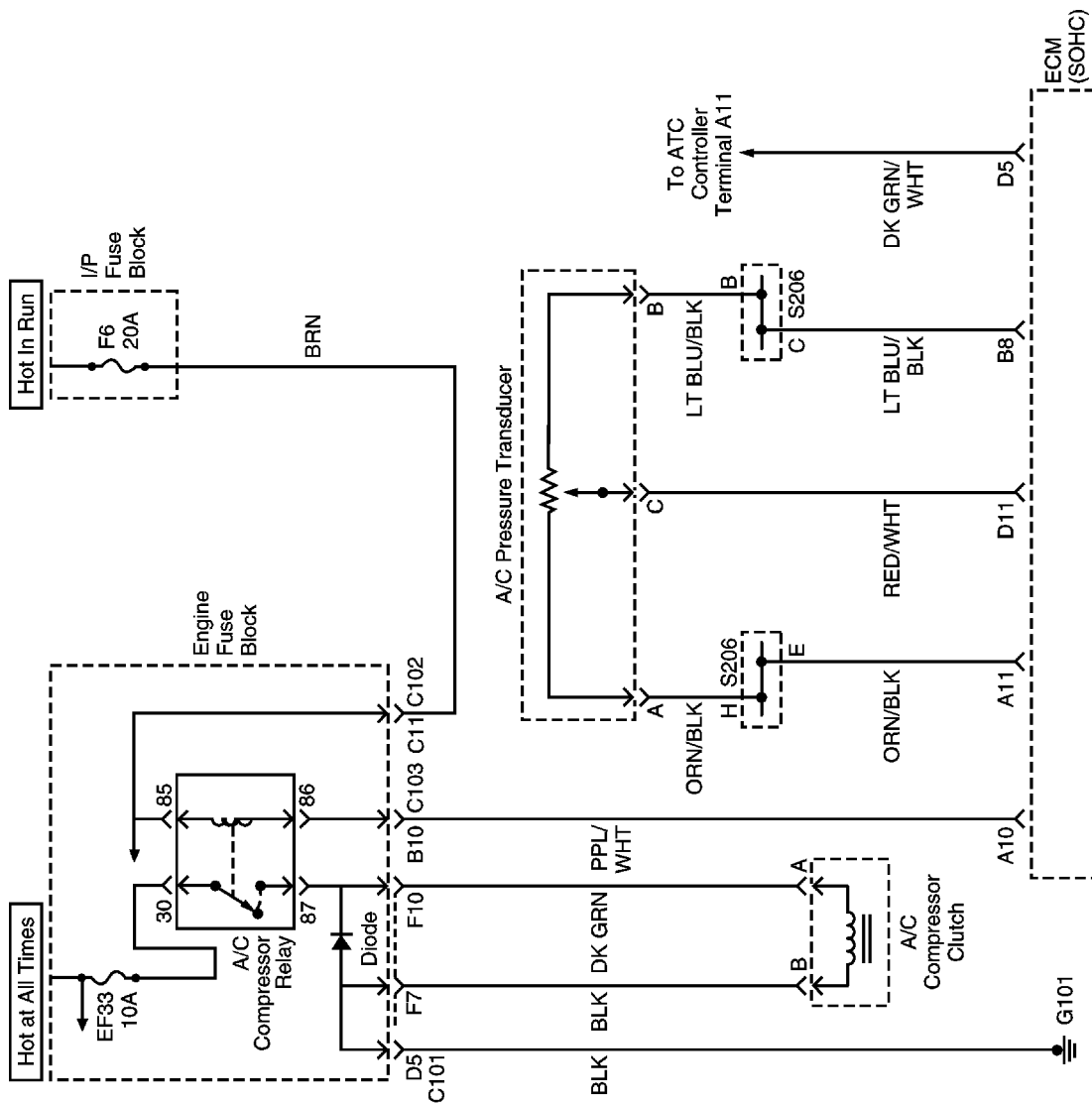
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A/C BLOWER AND MOTOR CONTROLS DIAGRAM



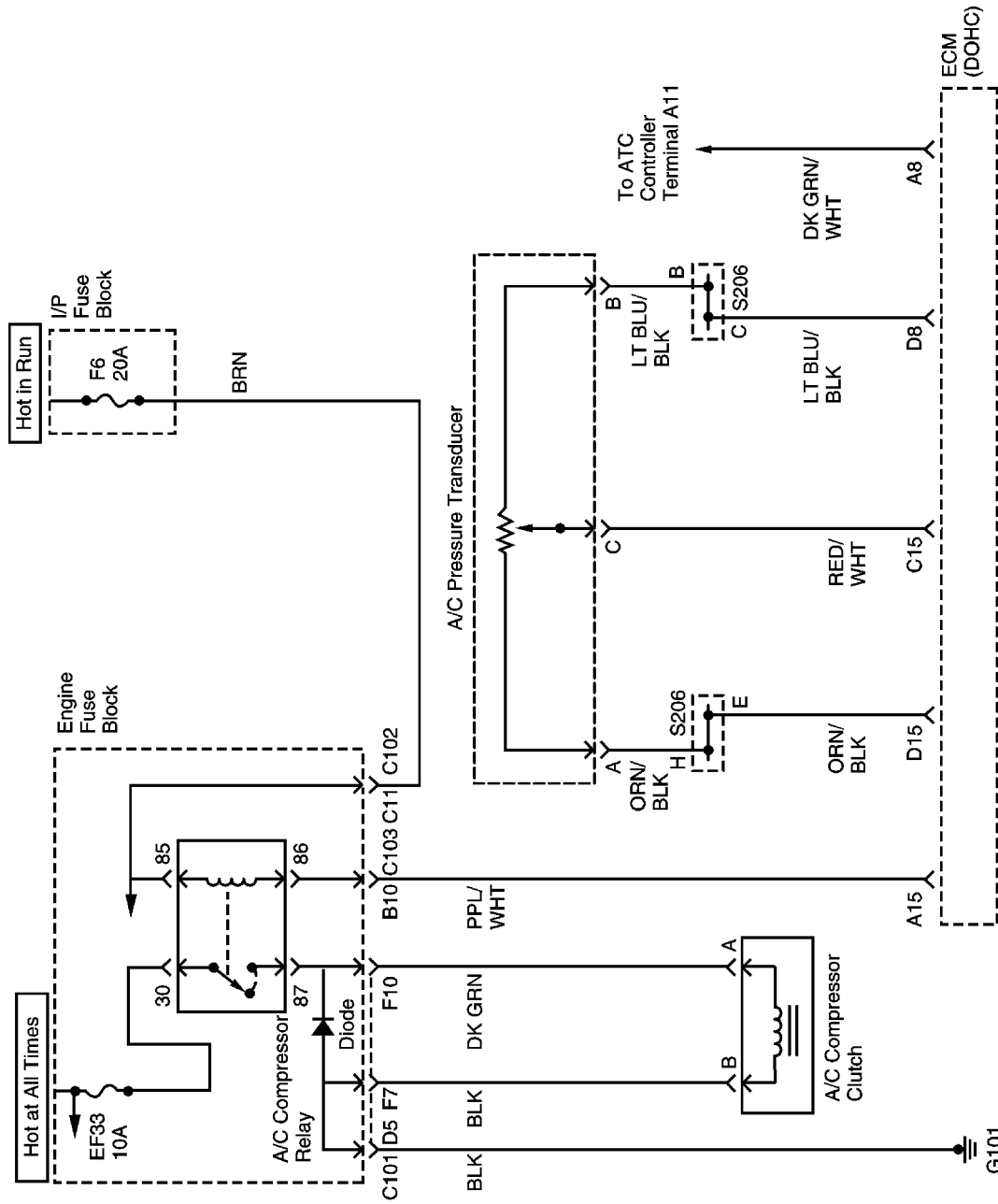
C108D002

A/C COMPRESSOR CONTROLS DIAGRAM (SOHC)



C108D003

A/C COMPRESSOR CONTROLS DIAGRAM (DOHC)



C108D004

DIAGNOSIS

GENERAL A/C DIAGNOSTICS

Refer to *Section 8B, Manual Control Heating, Ventilation, and Air Conditioning System* for details of the following procedures:

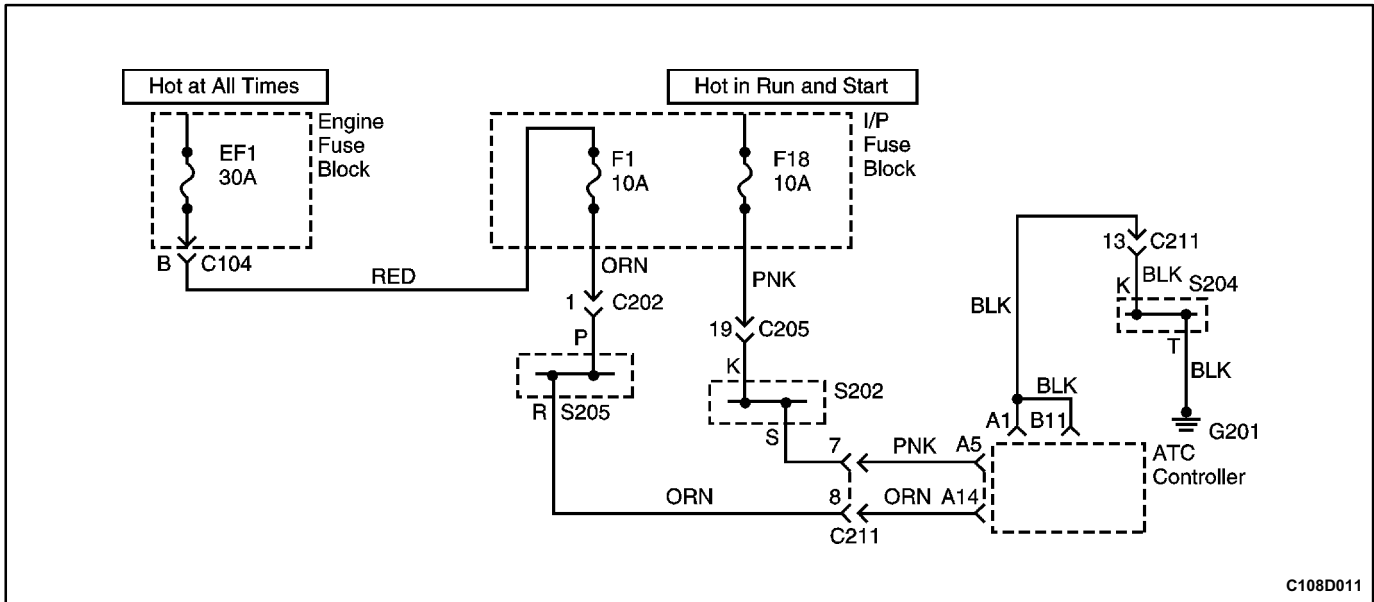
- A/C Performance Test.
- Insufficient Cooling „Quick Check” Procedure.
- Insufficient Cooling Diagnosis.
- Leak Testing the Refrigerant System.
- Low- and High-Side Pressure Relationship Chart.
- Pressure Test Chart (R-134a System).
- Pressure-Temperature Relationship of R-134a.
- Testing the Refrigerant System.

V5 SYSTEM AIR CONDITIONING AND AUTOMATIC TEMPERATURE CONTROL (ATC)

SELF-DIAGNOSTIC CIRCUIT CHECK

The Daewoo fully automatic temperature controller (FATC) contains a self-diagnosis function to aid in finding any problem with the system. To enter the diagnostic mode, perform the following procedure:

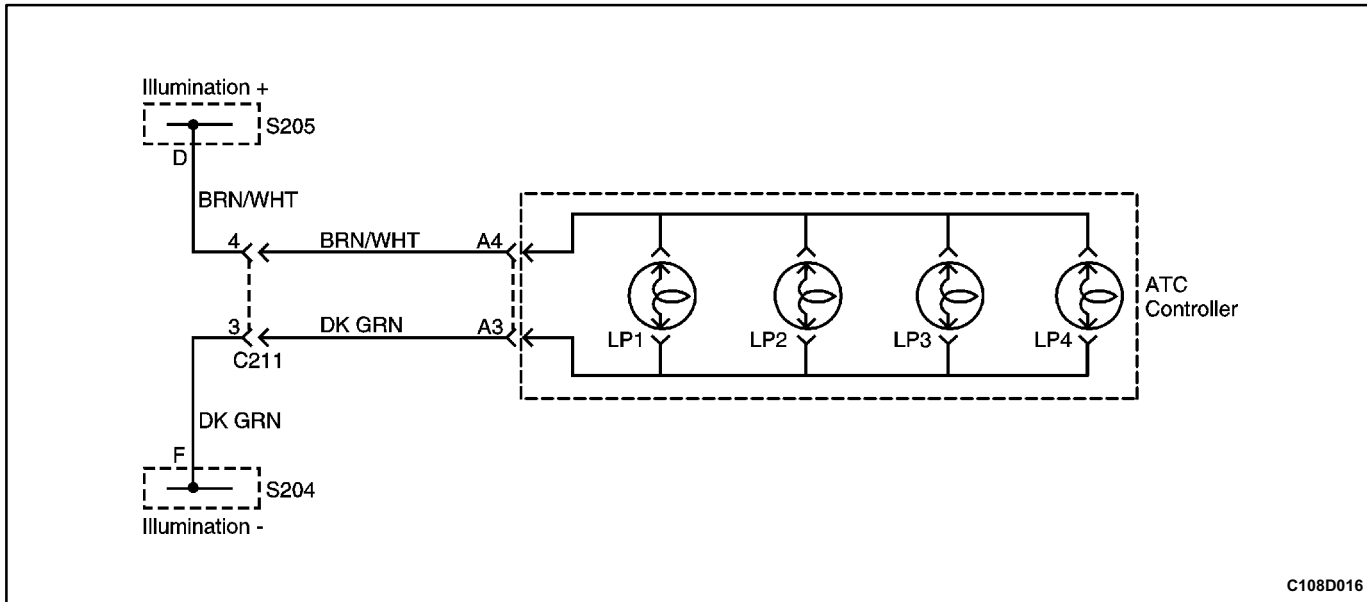
1. Turn the ignition switch ON.
2. Set the temperature control to 26°C (79°F).
3. Within 3 seconds, push the AUTO and the OFF switches simultaneously, more than three times.
4. Count the number of times the temperature indicator screen blinks.
5. If there are no error codes set, the screen will not blink. When the controller indicates an error code, proceed to the table for that code.
6. Push the OFF switch to return the controller to its normal functions.



C108D011

AUTOMATIC TEMPERATURE CONTROLLER (ATC) DOES NOT OPERATE WHEN IGNITION IS ON

Step	Action	Value(s)	Yes	No
1	Check the fuse F18. Is fuse F18 blown?	-	Go to Step 2	Go to Step 3
2	Replace fuse F18. Is the repair complete?	-	System OK	-
3	1. Remove the controller. 2. Measure the voltage between the connectors A5 and A1. Is the voltage as specified?	11-14 V	Go to Step 4	Go to Step 5
4	1. Check the controller for damage. 2. Replace the controller if it is damaged. Is the repair complete?	-	System OK	-
5	Check the voltage between terminal A1 and ground. Is this voltage as specified?	0 V	Go to Step 6	Go to Step 7
6	1. Check the wiring harness between fuse F18 and the terminal A5 for damage. 2. Replace the wiring harness if it is damaged. Is the repair complete?	-	System OK	-
7	1. Check the wiring harness between terminal A1 and ground G201 for damage. 2. Repair the wiring harness, splice S204, or ground connection as required. Is the repair complete?	-	System OK	-



CONTROLLER DOES NOT ILLUMINATE WHEN LIGHT SWITCH IS ON

Step	Action	Value(s)	Yes	No
1	Check other instrumentation lights. Are those lights also off?	-	Go to Section 9E, Instrumentation/ Driver Information	Go to Step 2
2	1. Remove the controller. 2. Check the voltage between terminals A3 and A4 of the controller connector. Is the voltage within the specified value?	11-14 V	Go to Step 4	Go to Step 3
3	Repair the wiring harness between splice S205 and controller connector terminal A4 or between splice S204 and controller connector terminal A3. Is the repair complete?	-	System OK	-
4	Check the illumination lamps. Is one burned out?	-	Go to Step 5	Go to Step 6
5	Replace the burned out illumination lamp. Is the repair complete?	-	System OK	-

NO HOT AIR FROM BLOWER

Step	Action	Value(s)	Yes	No
1	Check the coolant level. Is the coolant level correct?	-	Go to Step 3	Go to Step 2
2	Add coolant as needed. Is the heater operating?	-	System OK	Go to Step 3
3	1. Turn the ignition to ON. 2. Observe the temperature indication screen of the controller. Does the digit flash on and off?	-	Go to Step 4	Go to Step 5
4	Run a selfdiagnosis circuit check. Does the display indicate a defect code?	-	Go to the table for the code that flashes	Go to Step 7
5	Observe the blower motor operation. Is the blower motor functioning at all?	-	Go to Step 6	Go to „Blower Motor Does Not Run at All”
6	Use the blower push switch to cycle the blower through its different speeds. Does the motor function at different speeds?	-	Go to Step 7	Go to „Code 6 - Power Transistor Error”
7	1. Run the blower and operate the MODE push switch manually. 2. Check for airflow out the various outlets. Does the air flow from the different outlets as it should?	-	Go to Step 9	Go to Step 8
8	1. Remove the heater outlet and check for obstructions. 2. Remove any obstructions found. Is the heater operating?	-	System OK	Go to Step 9
9	Observe the air mix door (AMD) motor while changing the temperature setting from 18 to 32°C (64 to 90°F) and then from 32 to 18°C (90 to 64°F). Is the AMD motor functioning properly?	-	Go to Step 10	Go to „Code 3 - Air Mix Door Error”
10	Check the coolant hoses for leaks or kinks. Are the coolant hoses in good condition?	-	Go to Step 12	Go to Step 11
11	Repair any problem with the coolant hoses. Is the heater operating?	-	System OK	Go to Step 12
12	Check the surge tank cap. Is the surge tank cap in good condition?	-	Go to Step 14	Go to Step 13
13	Repair or replace the surge tank cap as needed. Is the heater operating?	-	System OK	Go to Step 14
14	1. Set the A/C switch to OFF. 2. Set the temperature control to 32°C (90°F). 3. Set the blower motor speed to full high (all segments illuminated on the display). 4. Remove the surge tank cap. 5. Start the vehicle and run the engine at idle. 6. Watch for the flow of the coolant when the thermostat opens. Does the coolant flow?	-	Go to Step 16	Go to Step 15

No Hot Air From Blower (Cont'd)

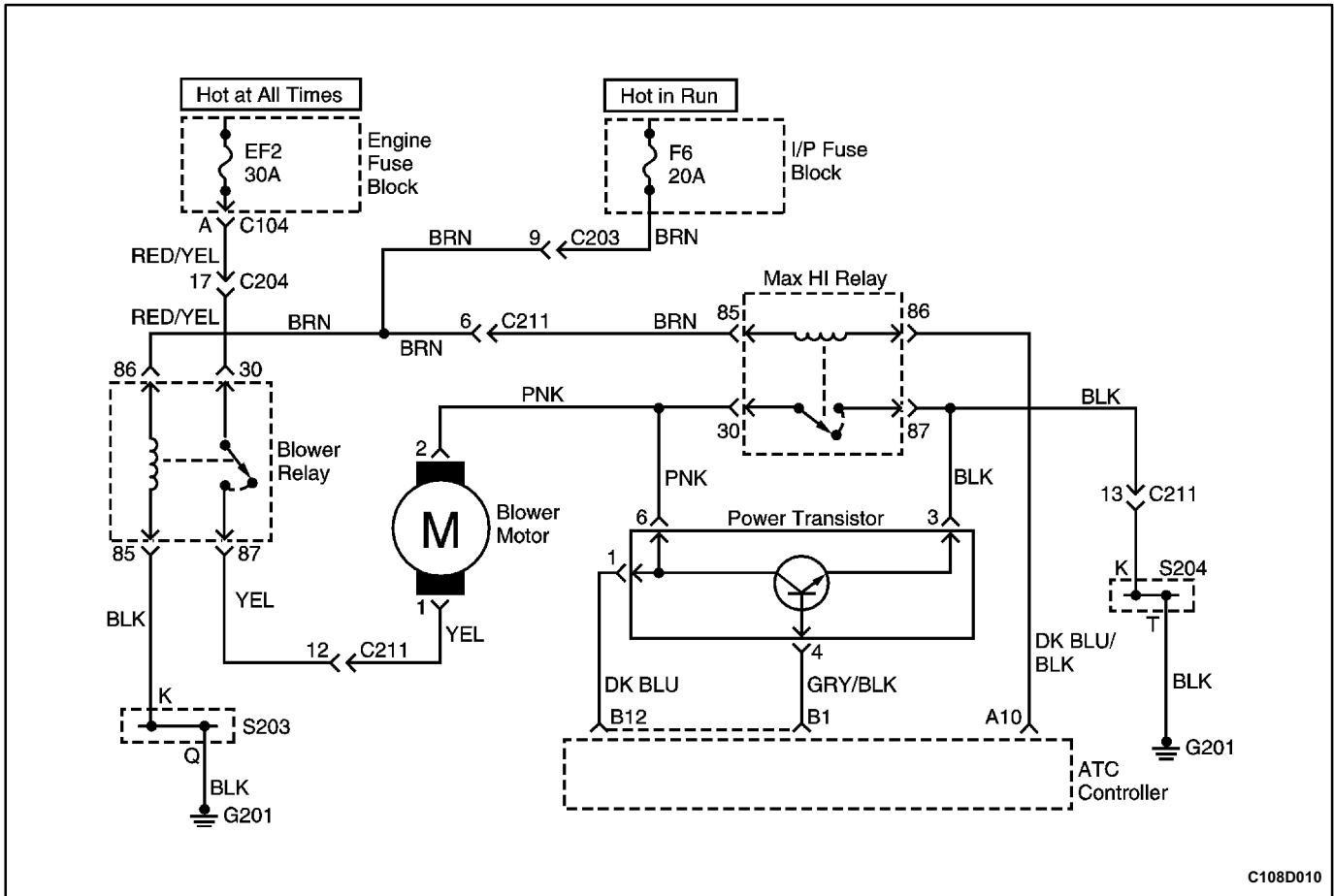
Step	Action	Value(s)	Yes	No
15	1. Check for <ul style="list-style-type: none"> ● A faulty thermostat. ● A failed coolant pump impeller. ● A restriction in the cooling system. 2. Make repairs as needed. Is the repair complete?	-	System OK	-
16	Check the temperature of the heater inlet and outlet hoses by feel. Is the heater inlet hose hot and the outlet hose warm?	-	Go to Step 18	Go to Step 17
17	Back flush or replace the heater core. Is the repair complete?	-	System OK	-
18	Check the vehicle for cold air leaks at the <ul style="list-style-type: none"> ● Dash. ● Heater cases. ● Vents. Are any leaks found?	-	Go to Step 20	Go to Step 19
19	Repair any cold air leaks. Is the repair complete?	-	System OK	-
20	Check the coolant temperature sensor using the tests in „Code 3 - Coolant Temperature Sensor Error.” Is there a problem indicated in the sensor, the sensor wiring, or the controller?	-	Go to Step 21	Go to Step 22
21	Repair or replace the sensor, the wiring, or the controller as required. Is the repair complete?	-	System OK	-
22	Check the in-car sensor using the tests in „Code 1 - In-Car Sensor Error.” Is there a problem indicated in the sensor, the sensor wiring, or the controller?	-	Go to Step 23	Go to Step 24
23	Repair or replace the sensor, the wiring, or the controller as required. Is the repair complete?	-	System OK	-
24	Check the ambient air temperature sensor using the tests in „Code 2 - Ambient Air Temperature Sensor Error.” Is there a problem indicated in the sensor, the sensor wiring, or the controller?	-	Go to Step 25	Go to Step 26
25	Repair or replace the sensor, the wiring, or the controller as required. Is the repair complete?	-	System OK	-
26	Check the sun sensor using the tests in „Code 5 - Sun Sensor Error.” Is there a problem indicated in the sensor, the sensor wiring, or the controller?	-	Go to Step 27	Go to Step 28
27	Repair or replace the sensor, the wiring, or the controller as required. Is the repair complete?	-	System OK	-
28	Replace the ATC controller. Is the repair complete?	-	System OK	-

NO COOL AIR FROM BLOWER

Step	Action	Value(s)	Yes	No
1	1. Turn the ignition to ON. 2. Observe the temperature indication screen of the controller. Does the digit flash on and off?	-	Go to Step 2	Go to Step 3
2	Run a self-diagnosis circuit check. Does the display indicate a defect code?	-	Go to the table for the code that flashes.	Go to Step 7
3	Observe the blower motor operation. Is the blower motor functioning at all?	-	Go to Step 4	Go to „Blower Motor Does Not Run at All”
4	Use the blower push switch to cycle the blower through its different speeds. Does the motor function at different speeds?	-	Go to Step 5	Go to „Code 6 Power - Transistor Error”
5	1. Run the blower and operate the MODE push switch manually. 2. Check for airflow out the various outlets. Does the air flow from the different outlets as it should?	-	Go to Step 7	Go to Step 6
6	1. Remove the heater outlet and check for obstructions. 2. Remove any obstructions found. Is the heater operating?	-	System OK	Go to Step 9
7	Observe the air mix door motor (AMD) while changing the temperature setting from 18 to 32°C (64 to 90°F) and then from 32 to 18°C (90 to 64°F). Is the AMD motor functioning properly?	-	Go to Step 8	Go to „Code 3 - Air Mix Door Error”
8	Perform the checks found in „Insufficient Cooling Diagnosis.” Is the system operating normally now?	-	System OK	Go to Step 9
9	Place the controller in the AUTO mode. Is smoke taken into the intake port of the in-car sensor?	-	Go to Step 12	Go to Step 10
10	Check the intake hose for the in-car sensor. Is the hose in good condition?	-	Go to Step 12	Go to Step 11
11	Repair or replace the intake hose. Is the repair complete?	-	System OK	-
12	Check the in-car sensor using the tests in „Code 1 - InCar Sensor Error.” Is there a problem indicated in the sensor, the sensor wiring, or the controller?	-	Go to Step 13	Go to Step 14
13	Repair or replace the sensor, the wiring, or the controller as required. Is the repair complete?	-	System OK	-
14	Check the ambient air temperature sensor using the tests in „Code 2 - Ambient Air Temperature Sensor Error.” Is there a problem indicated in the sensor, the sensor wiring, or the controller?	-	Go to Step 15	Go to Step 16

No Cool Air From Blower (Cont'd)

Step	Action	Value(s)	Yes	No
15	Repair or replace the sensor, the wiring, or the controller as required. Is the repair complete?	-	System OK	-
16	Check the sun sensor using the tests in „Code 5 - Sun Sensor Error.” Is there a problem indicated in the sensor, the sensor wiring, or the controller?	-	Go to <i>Step 17</i>	Go to <i>Step 18</i>
17	Repair or replace the sensor, the wiring, or the controller as required. Is the repair complete?	-	System OK	-
18	Perform the coolant temperature sensor test. Is the coolant temperature sensor malfunctioning?	-	Go to <i>Step 19</i>	Go to <i>Step 20</i>
19	Replace the coolant temperature sensor. Is the repair complete?	-	System OK	-
20	Replace the ATC controller. Is the repair complete?	-	System OK	-



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BLOWER MOTOR DOES NOT RUN AT ALL

Step	Action	Value(s)	Yes	No
1	1. Turn the ignition to ON. 2. Observe the temperature indication screen of the controller. Does the digit go on and off?	-	Go to Step 2	Go to Step 3
2	Run a self-diagnosis circuit check. Does the display indicate a defect code?	-	Go to the table for the code that flashes.	-
3	Check fuse F6 in the I/P fuse block. Is this fuse in good condition?	-	Go to Step 5	Go to Step 4
4	Replace fuse F6. Is the repair complete?	-	System OK	-
5	Check fuse EF2 in the engine fuse block. Is the fuse in good condition?	-	Go to Step 7	Go to Step 6
6	Replace fuse EF2. Is the repair complete?	-	System OK	-
7	1. Turn the ignition switch to ON. 2. Measure the voltage between ground and terminal 87 (YEL) of the blower relay. Is the voltage within the specified value?	11-14 V	Go to Step 15	Go to Step 8

Blower Motor Does Not Run At All (Cont'd)

Step	Action	Value(s)	Yes	No
8	Measure the voltage between ground and terminal 86 (BRN) at the blower relay. Is the voltage within the specified value?	11-14 V	Go to Step 10	Go to Step 9
9	1. Turn the ignition switch to OFF. 2. Check circuit BRN between terminal 86 of the blower relay to F6 in the I/P fuse block. 3. Repair any problem found in the wiring or terminals at the relay socket or connector C203. Is the repair complete?	-	System OK	-
10	Measure the voltage between ground and terminal 30 (RED/YEL) at the blower relay. Is the voltage within the specified value?	11-14 V	Go to Step 12	Go to Step 11
11	1. Turn the ignition switch to OFF. 2. Check circuit RED/YEL between terminal 30 of the blower relay to EF2 in the engine fuse block. 3. Repair any problem found in the wiring or terminals at the fuse block connector C104, connector C204, or at the relay socket. Is the repair complete?	-	System OK	-
12	1. Turn the ignition switch to OFF. 2. Check the continuity in the wiring harness between the blower relay terminal 85 (BLK) and ground. Does the ohmmeter show the specified value?	$\approx 0 \Omega$	Go to Step 14	Go to Step 13
13	Repair any problem found in terminal 85 at the relay connector, circuit BLK, splice S203, or ground G201. Is the repair complete?	-	System OK	-
14	Replace the blower relay. Is the repair complete?	-	System OK	-
15	1. Turn the ignition switch to OFF. 2. Disconnect the wiring harness at the blower motor. 3. Turn the ignition switch to ON. 4. Measure voltage between ground and blower connector 1 (YEL). Is the voltage within the specified value?	11-14 V	Go to Step 17	Go to Step 16
16	1. Turn the ignition switch to OFF. 2. Check circuit YEL between blower connector terminal 1 and blower relay terminal 87. 3. Repair any problem found in the wiring or a connector terminal at the blower connector, connector C211, or the blower relay socket. Is the repair complete?	-	System OK	-
17	Measure the resistance between the connector terminals on the blower motor. Does the resistance match the specified value?	$\approx 0.5 \Omega$	Go to Step 19	Go to Step 18

Blower Motor Does Not Run At All (Cont'd)

Step	Action	Value(s)	Yes	No
18	Replace the blower motor. Is the repair complete?	-	System OK	-
19	Measure the resistance of circuit PNK between terminal 2 of the blower connector and terminal 30 of the Max HI relay and terminal 6 of the power transistor. Does the resistance match the specified value?	$\approx 0 \Omega$	Go to <i>Step 21</i>	Go to <i>Step 20</i>
20	Repair the problem in circuit PNK. Is the repair complete?	-	System OK	-
21	Measure the resistance of circuit BLK from terminal 3 of the power transistor connector to ground. Does the resistance match the specified value?	$\approx 0 \Omega$	Go to <i>Step 23</i>	Go to <i>Step 22</i>
22	1. Trace circuit BLK from terminal 3 of the power transistor connector and terminal 87 of the Max HI relay to ground G201. 2. Repair any problem found in the wiring, connector C211, splice S204, or ground G201. Is the repair complete?	-	System OK	-
23	Replace the ATC controller. Is the repair complete?	-	System OK	-

MODE CONTROLS DO NOT WORK

Refer to „A/C Blower and Motor Controls” for the electrical schematic diagram of the circuits described in this procedure.

Mode Controls Do Not Work

Step	Action	Value(s)	Yes	No
1	Measure the voltage between terminal 4 and ground of the mode motor and the HTR/DEF motor. Is the voltage within the specified value for both motors?	11-14 V	Go to Step 3	Go to Step 2
2	1. Check the connector and circuit BRN for any wiring or terminal problems. 2. Repair any problems found. Is the repair complete?	-	System OK	-
3	1. Using the Motor Control Table, measure the voltages at the specified terminals of the specified motor connectors. 2. Change the mode settings and observe the voltage changes. Are the voltages as specified?	See the „Motor Control Table”	Go to Step 4	Go to Step 5
4	Replace the motor that does not operate properly. Is the repair complete?	-	System OK	-
5	1. Using the Motor Control Table, measure the voltages at the specified terminals of the specified controller connectors. 2. Change the mode settings and observe the voltage changes. Are the voltages as specified?	See the „Motor Control Table”	Go to Step 6	Go to Step 7
6	1. Check the wiring harness and connectors between the controller and the motor that is not performing properly. 2. Repair or replace the wiring harness or the defective terminal. Is the repair complete?	-	System OK	-
7	Check the connector at the controller. Is there a defective terminal?	-	Go to Step 8	Go to Step 9
8	Repair or replace the terminal. Is the repair complete?	-	System OK	-
9	Replace the controller. Is the repair complete?	-	System OK	-

Motor Control Table

Mode Setting	Mode Motor			HTR/DEF Motor		
	Connector Terminal					
	Controller/ Motor	Controller/ Motor	Controller/ Motor	Controller/ Motor	Controller/ Motor	Controller/ Motor
	B20/3	B19/2	B18/1	B17/2	B16/1	B15/7
Vent	11-14 V	11-14 V	0 V	0 V	11-14 V	11-14 V
BiLevel	11-14 V	0 V	11-14 V	11-14 V	11-14 V	0 V
Foot	0 V	11-14 V	11-14 V	11-14 V	11-14 V	0 V
Foot/Defrost	0 V	11-14 V	11-14 V	11-14 V	0 V	11-14 V
Defrost	0 V	11-14 V	11-14 V	0 V	11-14 V	11-14 V

AIR SOURCE SELECTION NOT CONTROLLED

Refer to „A/C Blower and Motor Controls” for the electrical schematic diagram of the circuits described in this procedure.

Air Source Selection Not Controlled

Step	Action	Value(s)	Yes	No
1	Measure the voltage at terminal 4 of the intake motor. Is the voltage within the value specified?	11-14 V	Go to Step 3	Go to Step 2
2	1. Check the connector and circuit BRN for any wiring or terminal problems. 2. Repair any problems found. Is the repair complete?	-	System OK	-
3	1. Using the Intake Motor Table, measure the voltages at the specified terminals of the motor connector. 2. Change the intake setting and observe the voltage changes. Are these voltages within the specified value?	See the „Intake Motor Table”	Go to Step 4	Go to Step 5
4	Replace the intake motor. Is the repair complete?	-	System OK	-
5	1. Using the Intake Motor Table, measure the voltages at the specified terminals of the controller connector. 2. Change the intake setting and observe the voltage changes. Are these voltages within the specified value?	See the „Intake Motor Table”	Go to Step 6	Go to Step 7
6	1. Check the wiring harness and connectors between the controller and the motor that is not performing properly. 2. Repair or replace the wiring harness or the defective terminal. Is the repair complete?	-	System OK	-
7	Check the connector at the controller. Is there a defective terminal?	-	Go to Step 8	Go to Step 9
8	Repair or replace the terminal. Is the repair complete?	-	System OK	-
9	Replace the controller. Is the repair complete?	-	System OK	-

Intake Control Table

Intake Setting	Intake Motor		
	Connector Terminal		
	Controller/Motor	Controller/Motor	Controller/Motor
	B14/7	A15/6	B13/5
Recirculate	0 V	11-14 V	11-14 V
1/3 Fresh	11-14 V	0 V	11-14 V
Fresh	11-14 V	11-14 V	0 V

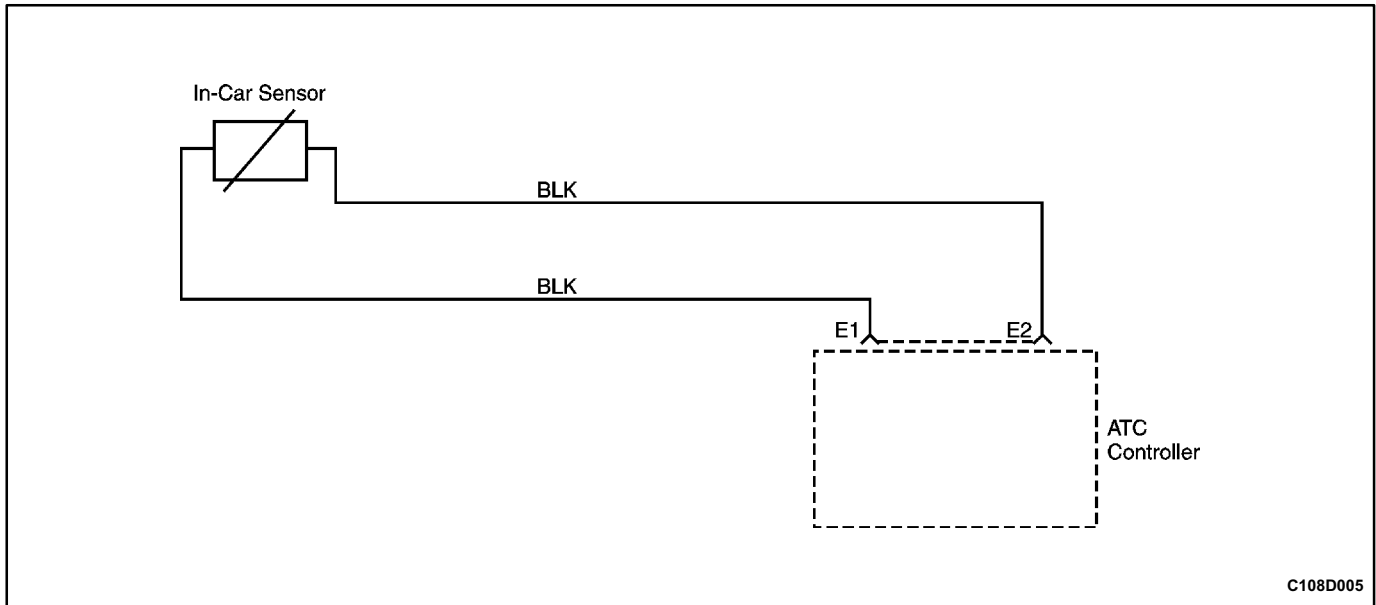
COMPRESSOR MAGNETIC CLUTCH DOES NOT ENGAGE

Refer to „A/C Compressor Controls, SOHC” or „A/C Compressor Controls, DOHC” for the electrical schematic diagram of the circuits described in this procedure.

Compressor Magnetic Clutch Does not Engage

Step	Action	Value(s)	Yes	No
1	1. Remove the ATC Controller from the instrument panel, keeping the wiring harness connected. 2. Turn the ignition switch to ON. 3. Turn the A/C switch to ON. 4. Check the voltage between ground and terminal A11 on the controller. Is the voltage within the specified value?	11-14 V	Go to „Insufficient Cooling Diagnosis”	Go to <i>Step 2</i>
2	Replace the ATC controller. Is the repair complete?	-	System OK	-

DIAGNOSTIC TROUBLE CODES



CODE 1 - IN-CAR SENSOR ERROR

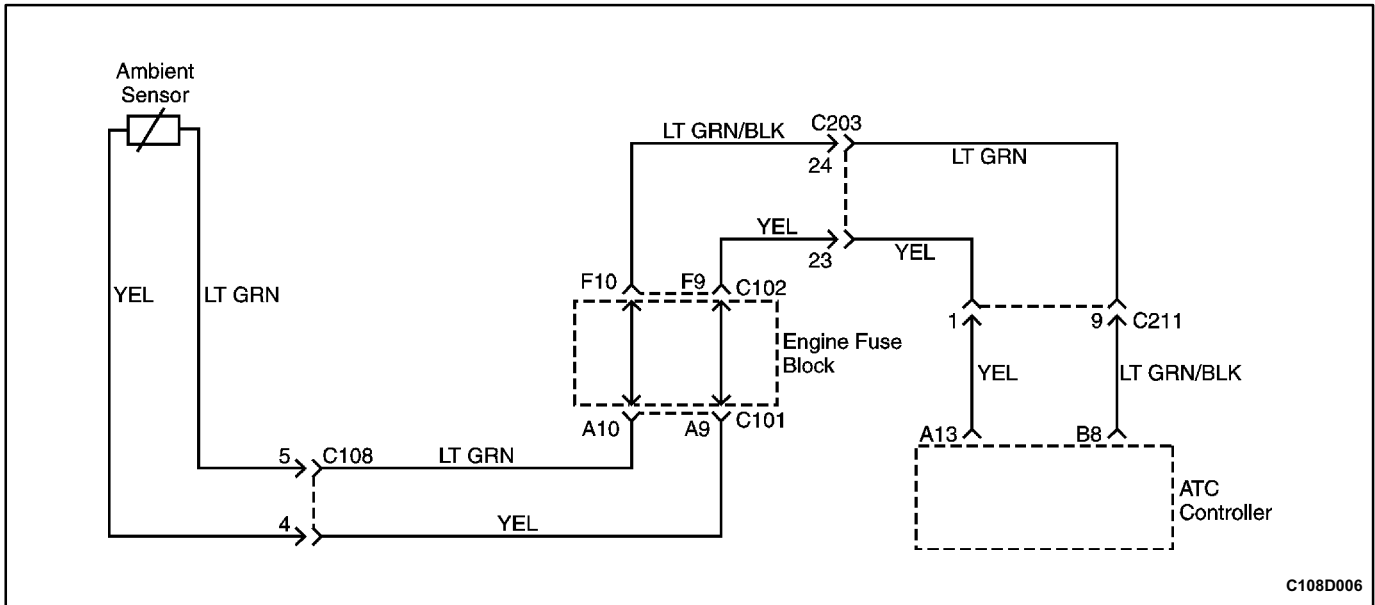
This code will set if the output of the in-car sensor indicates a probable short circuit or an open in the sensor or the associated wiring harness, or a malfunction of the ATC controller.

Code 1 - In-Car Sensor Error

Step	Action	Value(s)	Yes	No
1	1. Disconnect the in-car sensor connector from the ATC controller. 2. Examine the wiring from the sensor to the connector and the connector for any signs of damage. 3. Measure the resistance between the in-car sensor connector terminals. Is there any sign of damage in the wiring or connector, or is the resistance outside the specified value at 20 to 25°C (68 to 77°F)?	2600-2100 Ω	Go to Step 2	Go to Step 3
2	Repair the damaged wiring or the connector, or replace the in-car sensor as required. Is the repair complete?	-	System OK	-
3	1. Turn the ignition to ON. 2. Measure the voltage between the two connector terminals on the controller housing. Is the voltage equal to the value specified?	> 4 V	Go to Step 7	Go to Step 4
4	Check the terminals on the in-car sensor connector. Is any problem found with the connector?	-	Go to Step 5	Go to Step 6
5	Repair the connector terminals or replace the in-car sensor or ATC controller as required. Is the repair complete?	-	System OK	-

Code 1 - In-Car Sensor Error (Cont'd)

Step	Action	Value(s)	Yes	No
6	1. Reconnect the in-car sensor to the controller. 2. Turn the ignition switch to ON. 3. Observe the temperature display area. Does this display indicate the continuing presence of a code 1 condition?	-	Go to <i>Step 7</i>	System OK
7	Replace the ATC controller. Is the repair complete?	-	System OK	-



CODE 2 - AMBIENT AIR TEMPERATURE SENSOR ERROR

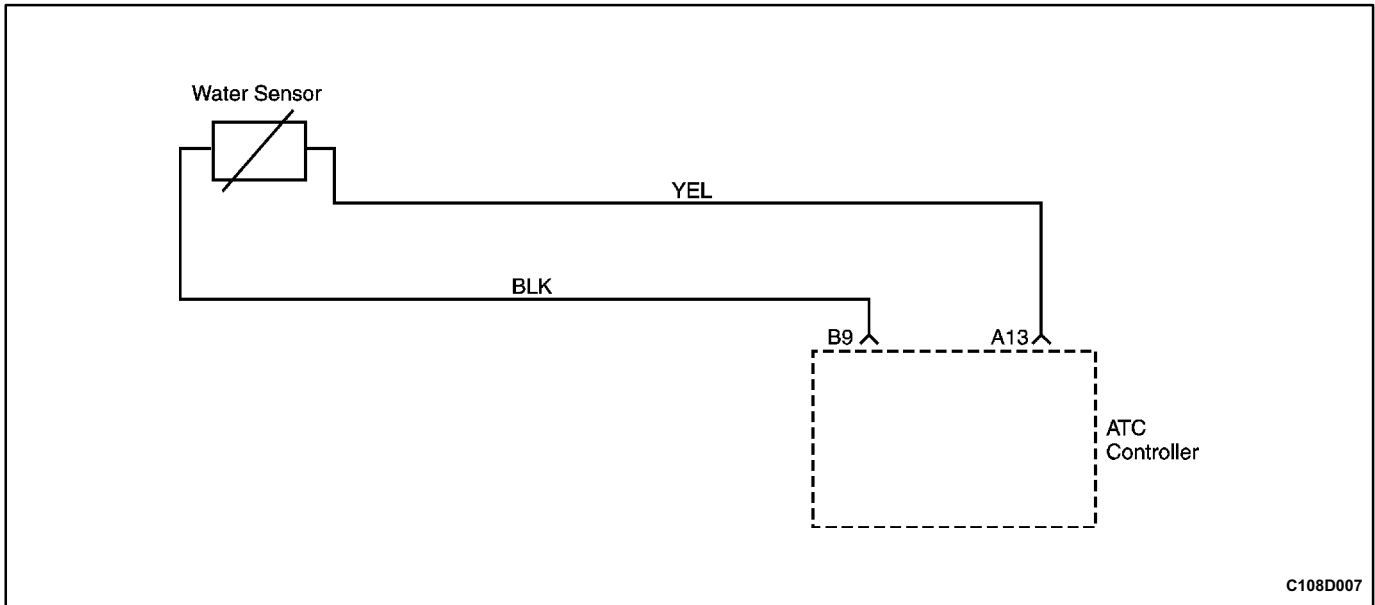
This code will set if the output of the ambient air temperature sensor indicates a probable short circuit or an open in the sensor or the associated wiring harness, or a malfunction of the ATC controller.

Code 2 - Ambient Air Temperature Sensor Error

Step	Action	Value(s)	Yes	No
1	1. Disconnect the ambient air sensor connector from the front bumper harness. 2. Measure the resistance between the ambient air sensor connector terminals. Is the resistance equal to the specified value at 20 to 25°C (68 to 77°F)?	2600-2100 Ω	Go to Step 5	Go to Step 2
2	1. Remove the ambient air sensor from behind the front bumper. 2. Examine the wiring for any open or short and examine the connector for any damage. Is there a problem with the wiring or the connector?	-	Go to Step 3	Go to Step 4
3	Repair the problem found in the ambient air sensor wiring or the connector. Is the repair complete?	-	System OK	-
4	Replace the ambient air sensor. Is the repair complete?	-	System OK	-
5	1. Turn the ignition to ON. 2. Measure the voltage between the two terminals in the ambient air sensor connector on the front bumper harness. Is the voltage equal to the value specified?	> 4 V	Go to Step 7	Go to Step 6
6	1. Reconnect the in-car sensor to the controller. 2. Turn the ignition switch to ON. 3. Observe the temperature display area. Does this display indicate the continuing presence of a code 2 condition?	-	Go to Step 8	System OK

Code 2 - Ambient Air Temperature Sensor Error (Cont'd)

Step	Action	Value(s)	Yes	No
7	1. Pull the ATC controller from the instrument panel, leaving the wiring harness connected. 2. Measure the voltage between terminals A13 and B8 by backprobing the connectors. Is the voltage equal to the value specified?	< 4 V	Go to <i>Step 8</i>	Go to <i>Step 9</i>
8	Replace the ATC Controller. Is the repair complete?	-	System OK	-
9	1. Trace the wiring for the ambient air sensor from the ATC controller, through connectors C211, C203, C101 and C102 at the engine fuse block, and C108 to the ambient air sensor connector on the front bumper harness. 2. Repair any open or high resistance condition in the wiring or a connector terminal. Is the repair complete?	-	System OK	-



CODE 3 - COOLANT TEMPERATURE SENSOR ERROR

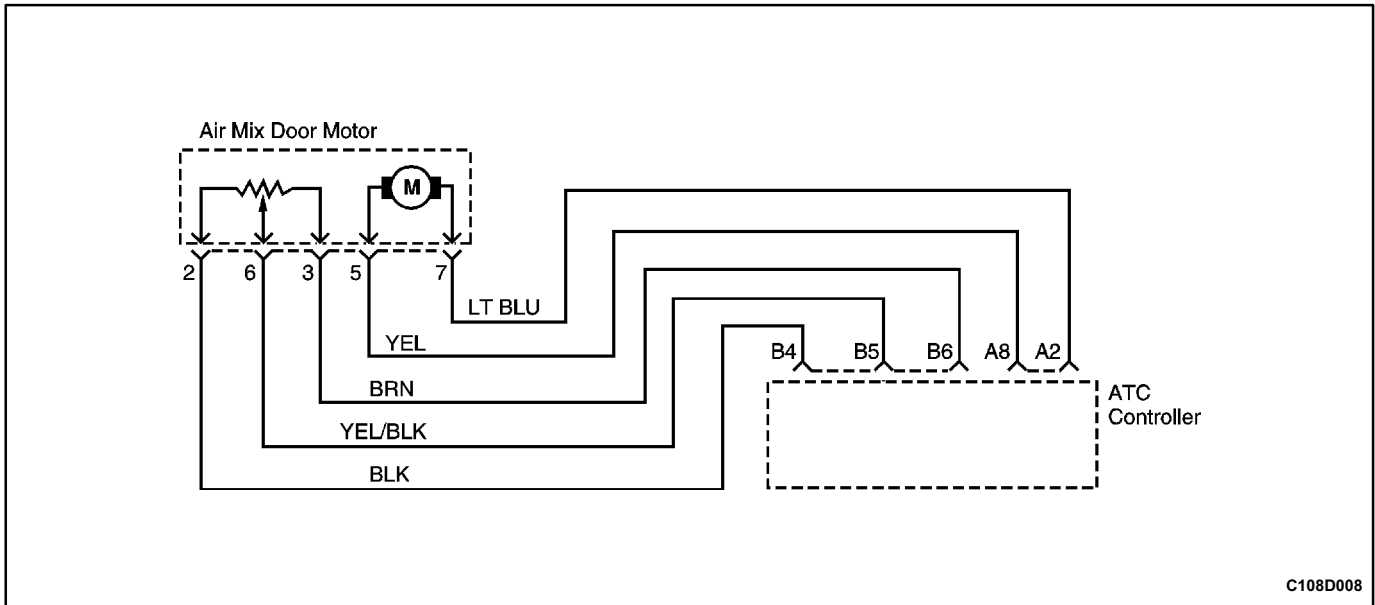
This code will set if the output of the coolant sensor indicates a probable short circuit or an open in the sensor or the associated wiring harness, or a malfunction of the ATC controller.

Code 3 - Coolant Temperature Sensor Error

Step	Action	Value(s)	Yes	No
1	1. Disconnect the coolant temperature sensor connector from the ATC harness. 2. Examine the wiring from the sensor to the connector and examine the connector for any signs of damage. 3. Measure the resistance between the coolant temperature sensor connector terminals. Is there any sign of damage in the wiring or the connector, or is the resistance outside the specified value at 20 to 25°C (68 to 77°F)?	2600-2100 Ω	Go to Step 2	Go to Step 3
2	Repair the damaged wiring or the connector, or replace the coolant temperature sensor as required. Is the repair complete?	-	System OK	-
3	1. Turn the ignition to ON. 2. Measure the voltage between the two coolant temperature sensor connector terminals on the ATC harness. Is the voltage equal to the value specified?	< 4 V	Go to Step 7	Go to Step 4
4	Check the terminals on the coolant temperature sensor connector. Is any problem found with the connector?	-	Go to Step 5	Go to Step 6
5	Repair the connector terminals or replace the coolant temperature sensor or ATC controller as required. Is the repair complete?	-	System OK	-

Code 3 - Coolant Temperature Sensor Error (Cont'd)

Step	Action	Value(s)	Yes	No
6	1. Reconnect the coolant temperature sensor to the ATC harness. 2. Turn the ignition switch to ON. 3. Observe the temperature display area. Does this display indicate the continuing presence of a code 3 condition?	-	Go to <i>Step 9</i>	System OK
7	1. Pull the ATC controller from the instrument panel, leaving the wiring harness connected. 2. Measure the voltage between terminals A13 and B9 by backprobing the connectors. Is the voltage equal to the value specified?	< 4 V	Go to <i>Step 9</i>	Go to <i>Step 8</i>
8	1. Trace the wiring from controller terminals A13 and B9 to the coolant temperature sensor connector terminals on the ATC harness connectors. 2. Repair any open or high resistance found in the wiring or connector terminals. Is the repair complete?	-	System OK	-
9	Replace the ATC controller. Is the repair complete?	-	System OK	-



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CODE 4 - AIR MIX DOOR ERROR

This code will set if the output of the mix door indicator indicates that the door opening angle is out of range or does not change value when the door should be moving. This would indicate a short circuit or an open in the sensor or the associated wiring harness, a door motor that is not operating, or a malfunction of the ATC controller.

Code 4 - Air Mix Door Error

Step	Action	Value(s)	Yes	No
1	1. Disconnect the I/P wiring harness connector from the air mix door (AMD) motor. 2. Use an ohmmeter to measure the resistance between terminals 5 and 7 on the AMD motor. Does the measured resistance indicate an open or a shorted condition?	Open = ∞ , Short = $\approx 0 \Omega$	Go to Step 4	Go to Step 2
2	Measure the resistance between terminals 2 and 3 on the AMD motor. Is the resistance equal to the value specified?	$\approx 3000 \Omega$	Go to Step 3	Go to Step 4
3	Measure the resistance between terminals 6 and 2 and between terminals 6 and 3 on the AMD motor. Do these resistances add to approximately the value measured between terminals 2 and 3?	$\approx 3000 \Omega$	Go to Step 5	Go to Step 4
4	Replace the AMD motor. Is the repair complete?	-	System OK	-
5	Check the connector terminals at the AMD motor and the wiring in the ATC harness. Is there a problem with any terminal on either the harness connector or the motor connector or the wiring?	-	Go to Step 6	Go to Step 7
6	Repair the problem found with a connector terminal or the wiring, or replace the motor as required. Is the repair complete?	-	System OK	-

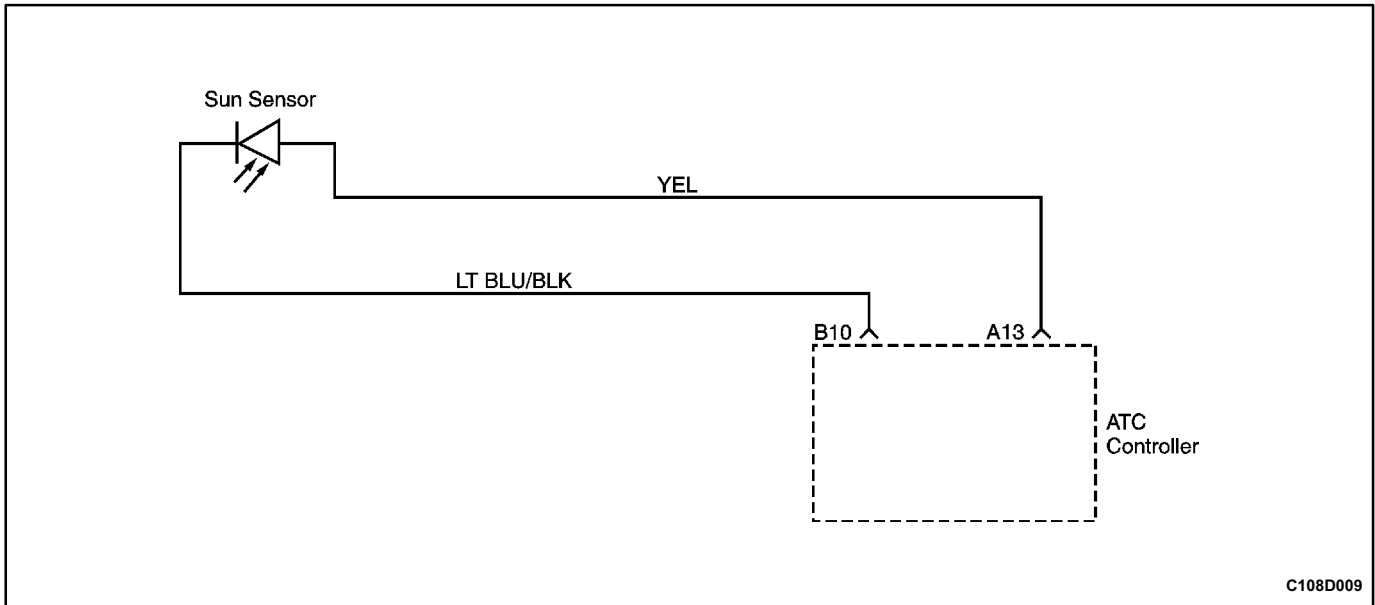
Code 4 - Air Mix Door Error (Cont'd)

Step	Action	Value(s)	Yes	No
7	1. Remove the ATC controller from the instrument panel. 2. Disconnect the harness connectors from the ATC controller. 3. Examine the connector terminals on the harness connectors and the controller connectors and the harness wiring. Is there a problem with any of these connectors or the wiring?	-	Go to Step 8	Go to Step 9
8	Repair the problem found with a connector terminal or wiring. Is the repair complete?	-	System OK	-
9	Check continuity in the harness between the controller connectors and the AMD motor connector. <ul style="list-style-type: none"> ● Controller terminal A2 to motor terminal 7. ● Controller terminal A8 to motor terminal 5. ● Controller terminal B4 to motor terminal 2. ● Controller terminal B5 to motor terminal 6. ● Controller terminal B6 to motor terminal 3. Does the continuity equal the specified value?	$\approx 0 \Omega$	Go to Step 10	Go to Step 11
10	Repair the continuity problem. Is the repair complete?	-	System OK	-
11	1. Reconnect the AMD motor to the ATC harness. 2. Reconnect the ATC harness connectors to the controller. 3. Turn the ignition to ON. 4. Use backprobing for voltage measurements. 5. Measure the voltage between ground and terminal B5 at the controller. Is the voltage equal to the specified value?	< 4 V	Go to Step 12	Go to Step 14
12	1. Set the temperature controller to 18°C (64°F). 2. Connect a voltmeter between ground and terminal A8 at the controller. It should display about 12 v. 3. Raise the temperature setting on the controller to 32°C (90°F). Does the voltage equal the specified value?	Drops from 12 V to 0 V	Go to Step 13	Go to Step 15
13	1. Connect a voltmeter between ground and terminal A2 at the controller. It should display about 12 v. 2. Change the temperature setting to 18°C (64°F). Does the voltage equal the specified value?	Drops from 12 V to 0 V	Go to Step 20	Go to Step 15
14	1. Recheck the wiring harness and the connector terminals associated with controller terminals B4, B5, and B6, and AMD motor terminals 2, 6, and 3. 2. Repair any problem found. Is the repair complete?	-	System OK	-
15	Recheck all wiring circuits between the controller and the AMD motor. Is there a problem in the wiring or the connectors?	-	Go to Step 16	Go to Step 17

Code 4 - Air Mix Door Error (Cont'd)

Step	Action	Value(s)	Yes	No
16	Repair the problem in the wiring between the ATC controller and the AMD motor. Is the repair complete?	-	System OK	-
17	Recheck the AMD motor. Is there a problem in the AMD motor?	-	Go to <i>Step 18</i>	Go to <i>Step 19</i>
18	Replace the AMD motor. Is the repair complete?	-	System OK	-
19	Replace the controller. Is the repair complete?	-	System OK	-
20	Observe the operation of the air mix door when the temperature setting is changed. Does the door move normally?	-	Go to <i>Step 22</i>	Go to <i>Step 21</i>
21	Repair or replace the air mix door. Is the repair complete?	-	System OK	-
22	Observe the operation of the AMD motor when the temperature setting is changed. Does the motor operate normally?	-	Go to <i>Step 24</i>	Go to <i>Step 23</i>
23	Replace the AMD motor. Is the repair complete?	-	System OK	-
24	Reconnect everything and test the system. Does code 4 reset?	-	Go to <i>Step 25</i>	System OK
25	Replace the controller. Is the repair complete?	-	System OK	-

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CODE 5 - SUN SENSOR ERROR

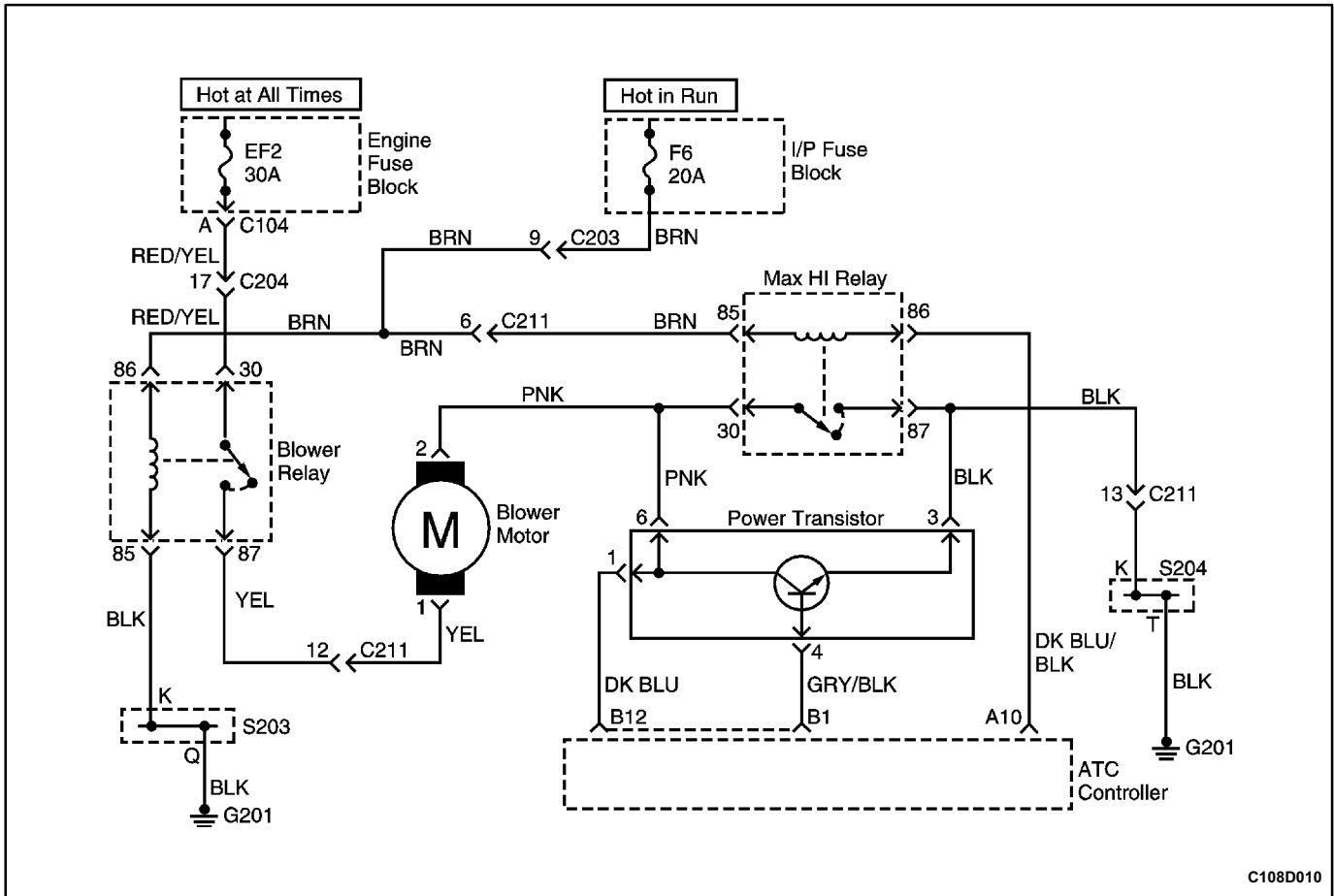
This code will set if the output of the sun sensor indicates a probable short circuit or an open in the sensor or the associated wiring harness, or a malfunction of the ATC controller.

Code 5 - Sun Sensor Error

Step	Action	Value(s)	Yes	No
1	1. Lift the sun sensor from the top of the dashboard. 2. Secure the ATC harness below the sun sensor connector so it cannot fall through the opening in the top of the dashboard. 3. Disconnect the sun sensor connector from the ATC harness. 4. Examine the wiring from the sensor to the connector, and examine the connector for any signs of damage. 5. Measure the resistance between the sun sensor connector terminals. Is there any sign of damage in the wiring or connector or does the resistance equal the value specified?	$\approx 0 \Omega$	Go to Step 2	Go to Step 3
2	Repair the damaged wiring or the connector, or replace the sun sensor as required. Is the repair complete?	-	System OK	-
3	1. Turn the ignition to ON. 2. Measure the voltage between the two sun sensor connector terminals on the ATC harness. Is the voltage equal to the value specified?	< 4 V	Go to Step 7	Go to Step 4
4	Check the terminals on the sun sensor connector. Is any problem found with the connector?	-	Go to Step 5	Go to Step 6
5	Repair the connector terminals or replace the sun sensor or ATC controller as required. Is the repair complete?	-	System OK	-

Code 5 - Sun Sensor Error (Cont'd)

Step	Action	Value(s)	Yes	No
6	1. Reconnect the sun sensor to the ATC harness. 2. Turn the ignition switch to ON. 3. Observe the temperature display area. Does this display indicate the continuing presence of a code 5 condition?	-	Go to <i>Step 9</i>	System OK
7	1. Pull the ATC controller from the instrument panel, leaving the wiring harness connected. 2. Measure the voltage between terminals A13 and B10 by backprobing the connectors. Is the voltage equal to the value specified?	< 4 V	Go to <i>Step 9</i>	Go to <i>Step 8</i>
8	1. Trace the wiring from controller terminals A13 and B10 to the sun sensor connector terminals on the ATC harness connectors. 2. Repair any open or high resistance found in the wiring or connector terminals. Is the repair complete?	-	System OK	-
9	Replace the ATC controller. Is the repair complete?	-	System OK	-

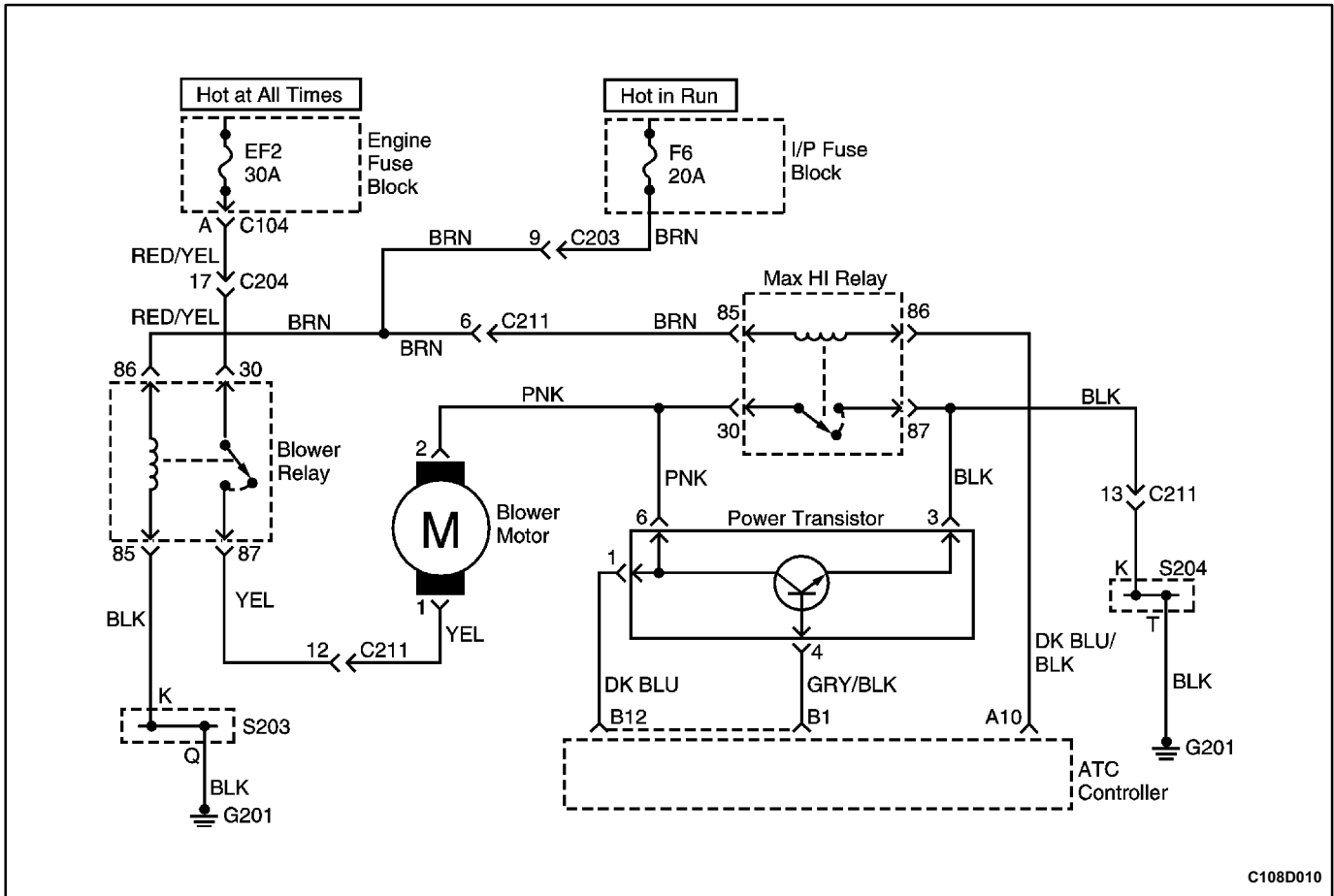


CODE 6 - POWER TRANSISTOR ERROR

Step	Action	Value(s)	Yes	No
1	1. Disconnect the ATC controller connectors A and B. 2. Disconnect the connectors from the power transistor. 3. Measure the resistance circuit GRY/BLK from terminal 4 of the power transistor to terminal B1 of the ATC controller. Does the resistance equal the specified value?	$\approx 0 \Omega$	Go to Step 2	Go to Step 6
2	Measure the resistance in the circuit from terminal 1 of the power module control unit to terminal B12 of the ATC controller. Does the resistance equal the specified value?	$\approx 0 \Omega$	Go to Step 3	Go to Step 6
3	1. Reconnect the wiring harness to the ATC controller and to the power module control unit. 2. Turn the ignition switch to ON. 3. Measure the voltage from ground to terminal B12 of the ATC controller. 4. Cycle the fan speed controller manually from the lowest (speed 1) to the highest speed (5). Do the voltages measured match approximately the specified values within $\pm 0.5 V$?	1: 8.8 V 2: 6.8 V 3: 4.4 V 4: 2.7 V 5: 0 V	Go to Step 4	Go to Step 5

Code 6 - Power Transistor Error (Cont'd)

Step	Action	Value(s)	Yes	No
4	Replace the ATC controller. Is the repair complete?	-	System OK	-
5	Measure the resistance in circuit PNK between terminal 6 of the power transistor and the blower motor terminal 2. Does the resistance equal the specified value?	$\approx 0 \Omega$	Go to Step 7	Go to Step 6
6	Repair or replace the wiring harness for circuit PNK. Is the repair complete?	-	System OK	-
7	Check the wiring harness of the motor and power supply. <ul style="list-style-type: none"> ● Check the blower relay. ● Check fuse EF2. Is there any problem in the wiring, the relay, or the fuse?	-	Go to Step 9	Go to Step 8
8	Replace the power transistor. Is the repair complete?	-	System OK	-
9	Repair or replace the wiring harness, the relay, or the fuse as required. Is the repair complete?	-	System OK	-



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CODE 7 - MAXHI RELAY ERROR

Step	Action	Value(s)	Yes	No
1	1. Turn the ignition switch ON. 2. Set the blower speed manually for 5th speed. 3. Measure voltage between the ATC controller terminal A10 and ground. Is the voltage approximately equal to the specified value?	≈ 0 V	Go to Step 3	Go to Step 2
2	Replace the ATC controller. Is the repair complete?	-	System OK	-
3	1. Check the wiring harness associated with the MAX-HI relay for defects or high terminal resistance. 2. Repair any defects found. Is the repair complete?	-	System OK	Go to Step 4
4	Replace the MAX-HI relay. Is the repair complete?	-	System OK	-

MAINTENANCE AND REPAIR

ON-VEHICLE SERVICE

GENERAL A/C SYSTEM SERVICE PROCEDURES

GENERAL SERVICE PROCEDURES

Refer to *Section 7B, Manual Control Heating, Ventilation, and Air Conditioning System*, for details of the following procedures:

- Discharging, Adding Oil, Evacuating, and Charging Procedures for A/C System.
- Handling of Refrigerant Lines and Fittings.
- Handling Refrigerant.
- Maintaining Chemical Stability in the Refrigeration System.
- O-Ring Replacement.

SERVICEABLE COMPONENTS

COMMON HVAC COMPONENTS

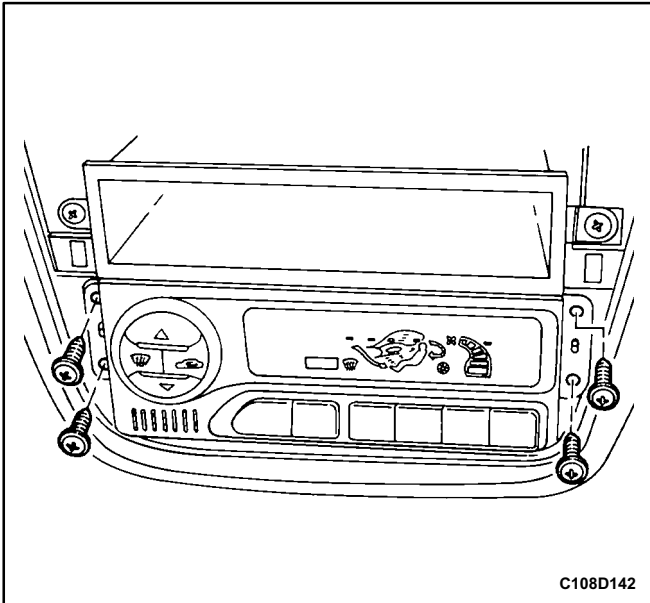
Those components used in non-automatic systems are covered in other sections of this manual.

Refer to *Section 7A, Heating and Ventilation System* for the following procedures:

- Blower Motor.
- Heater Hoses.

Refer to *Section 7B, Manual Control Heating, Ventilation, and Air Conditioning System* for the following procedures:

- A/C Pressure Transducer.
- Compressor to Condenser Hose.
- Compressor.
- Condenser.
- Evaporator to Compressor Pipe.
- Evaporator to Receiver-Dryer Pipe.
- Receiver-Dryer.



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AUTOMATIC TEMPERATURE CONTROL ASSEMBLY

Removal Procedure

1. Disconnect the negative battery cable.
2. Remove the audio trim panel. Refer to *Section 9F, Audio Systems*.
3. Remove the control assembly retaining screws.
4. Pull out the unit to gain access to the rear.
5. Disconnect the electrical connectors.
6. Remove the air inlet tube.
7. Remove the automatic temperature control assembly.

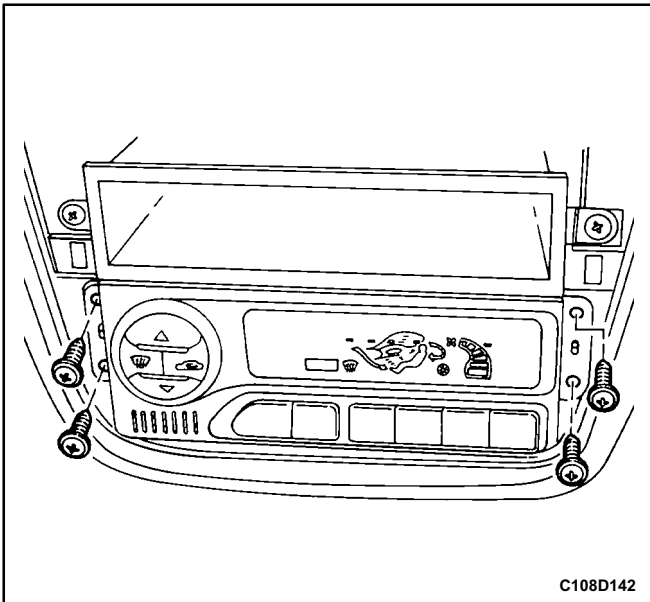
Installation Procedure

1. Connect the air inlet tube.
2. Connect the electrical connectors.
3. Position the automatic temperature control assembly and install the retaining screws.

Tighten

Tighten the control assembly retaining screws to 4 N•m (35 lb•in).

4. Install the audio trim panel. Refer to *Section 9F, Audio Systems*.
5. Connect the negative battery cable.



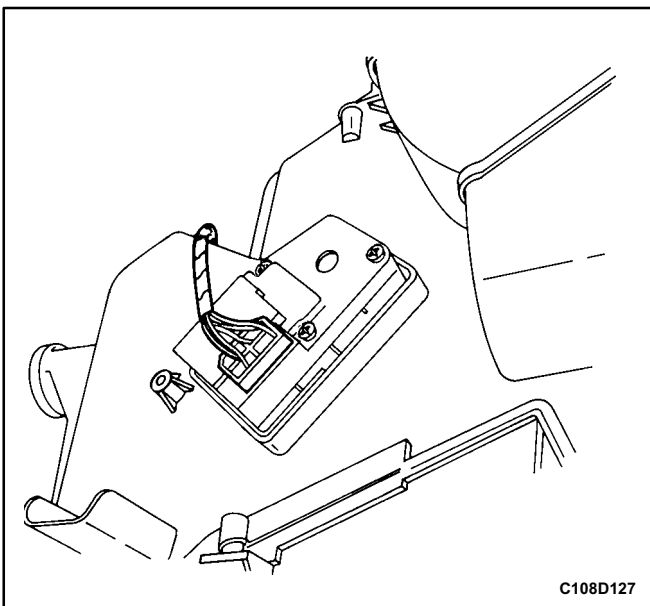
C108D142

AIR MIX DOOR MOTOR

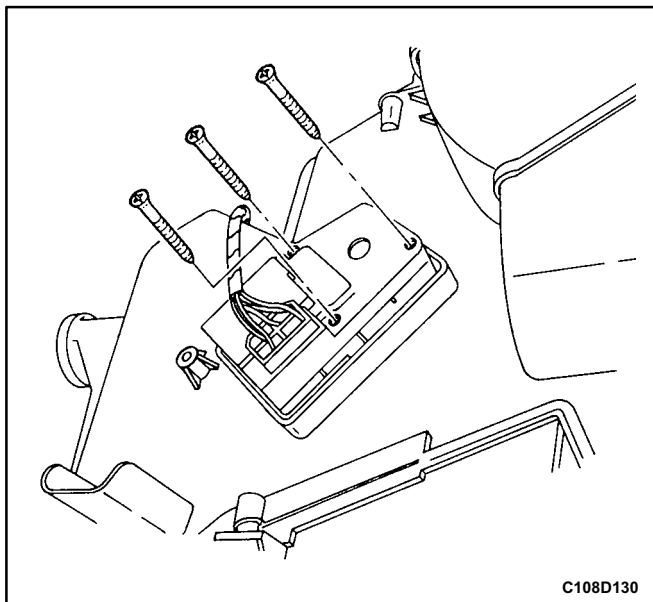
(Left-Hand Drive Shown, Right-Hand Drive Similar)

Removal Procedure

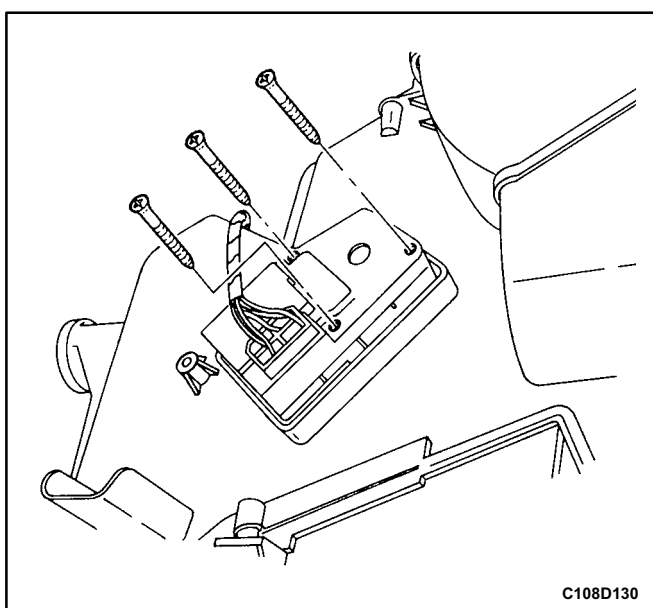
1. Disconnect the negative battery cable.
2. Disconnect the electrical connector.



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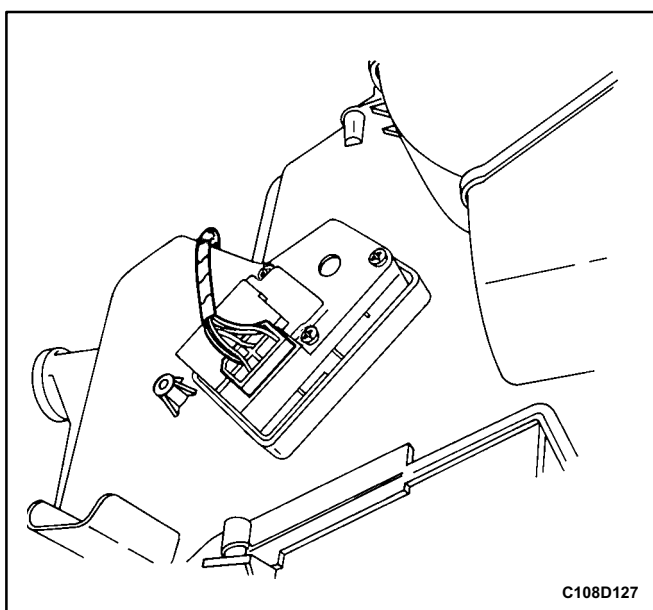


3. Remove the motor retaining bolts.
4. Slide the air mix door motor off the door shaft and remove the motor.

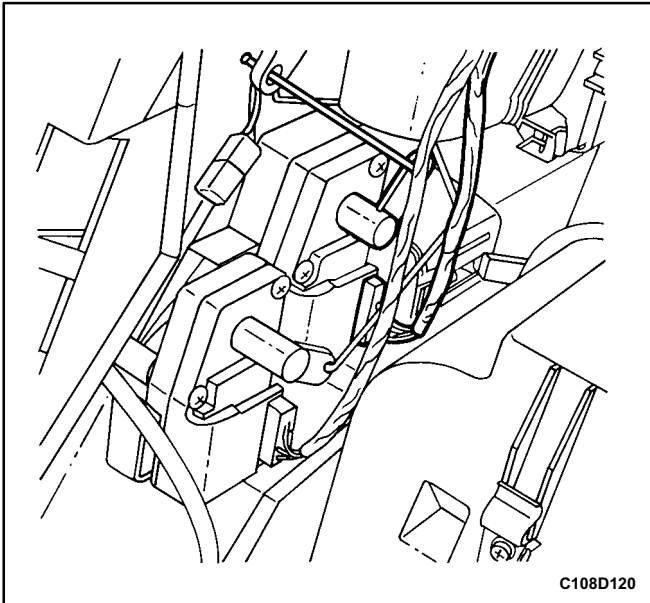


Installation Procedure

1. Position the air mix door motor onto the door shaft.
2. Install the motor retaining bolts and tighten.



3. Connect the electrical connector.
4. Connect the negative battery cable.

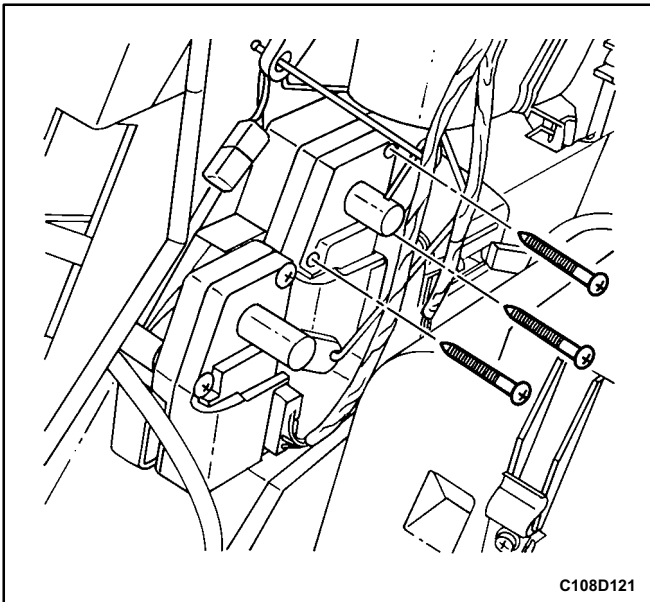


HEATER/DEFROSTER DOOR MOTOR

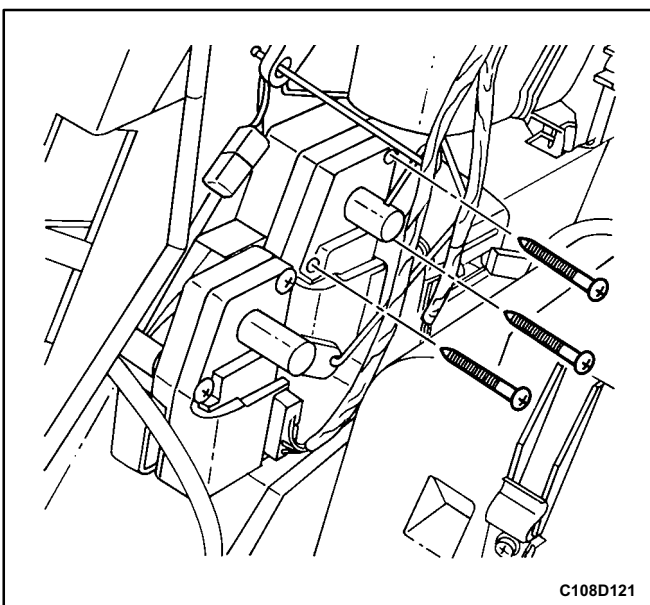
(Left-Hand Drive Shown, Right-Hand Drive Similar)

Removal Procedure

1. Disconnect the negative battery cable.
2. Remove the heater/air distributor case assembly. Refer to „Heater/Air Distributor Case Assembly” in this section.
3. Disconnect the electrical connector.
4. Remove the actuating rod by snapping it out of the lever with needle nose pliers.

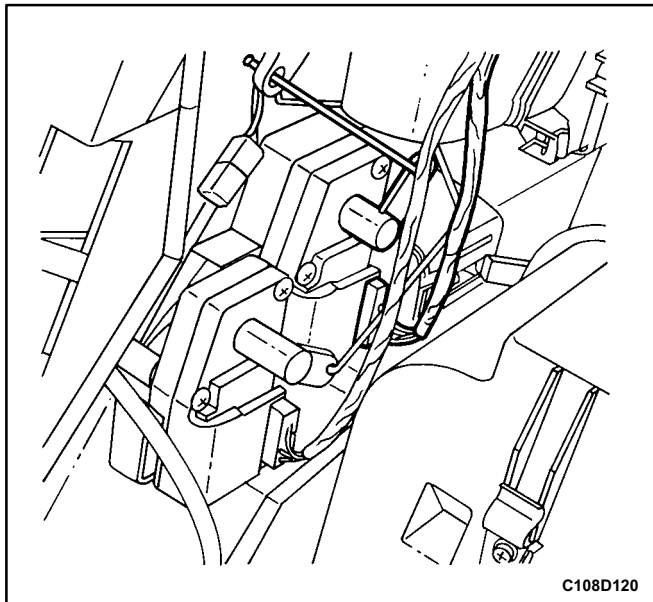


5. Remove the motor lever from its shaft by pulling the lever off.
6. Remove the motor retaining bolts.
7. Remove the heater/defroster door motor.

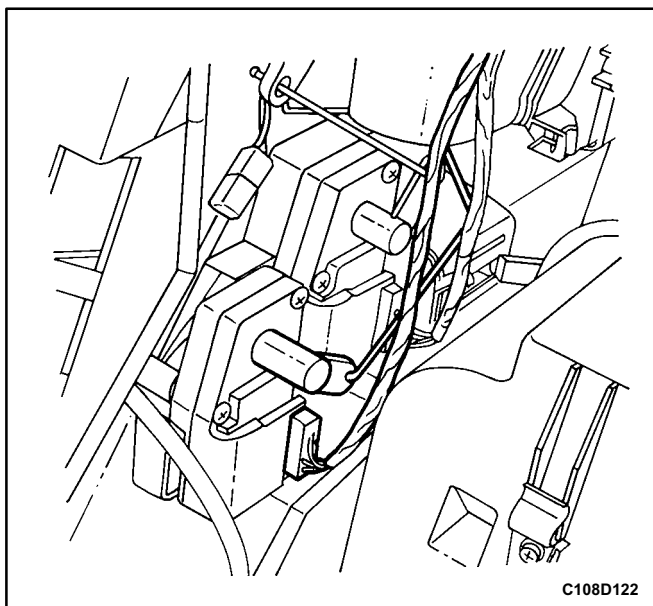


Installation Procedure

1. Install the heater/defroster door motor.
2. Install the retaining bolt and tighten.



3. Press the lever onto the motor shaft.
4. Install the actuating rod onto the lever.
5. Connect the electrical connector.
6. Install the heater/air distributor case assembly. Refer to „Heater Air/Distributor Case Assembly” in this section.
7. Connect the negative battery cable.

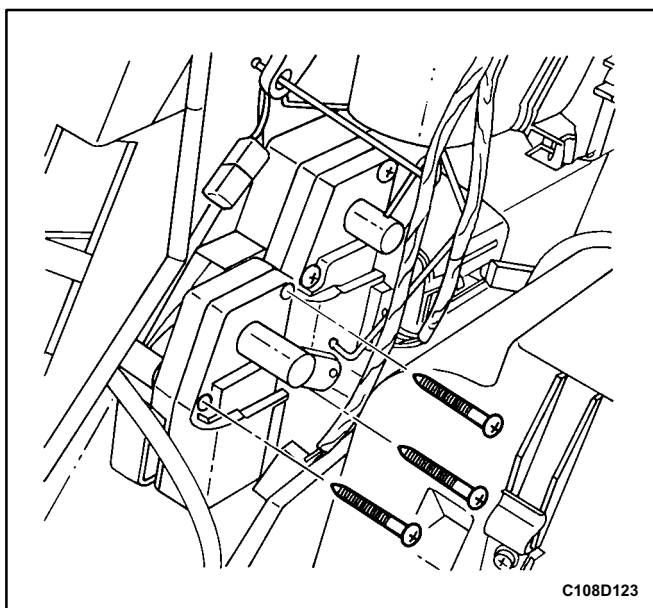


MODE DOOR MOTOR

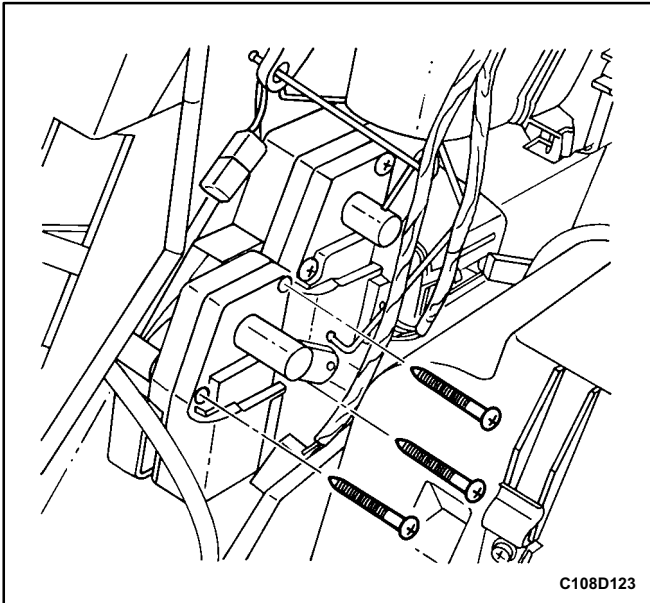
(Left-Hand Drive Shown, Right-Hand Drive Similar)

Removal Procedure

1. Disconnect the negative battery cable.
2. Remove the heater/air distributor case assembly. Refer to „Heater/Air Distributor Case Assembly in this section.
3. Disconnect the electrical connector.
4. Remove the motor actuating rod by snapping it out of the lever with needle nose pliers.

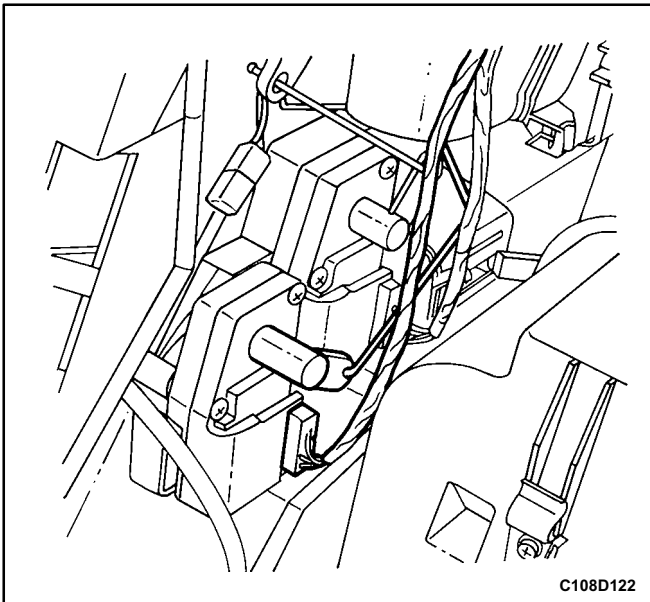


5. Remove the motor lever.
6. Remove the motor retaining bolts.
7. Remove the mode door motor.

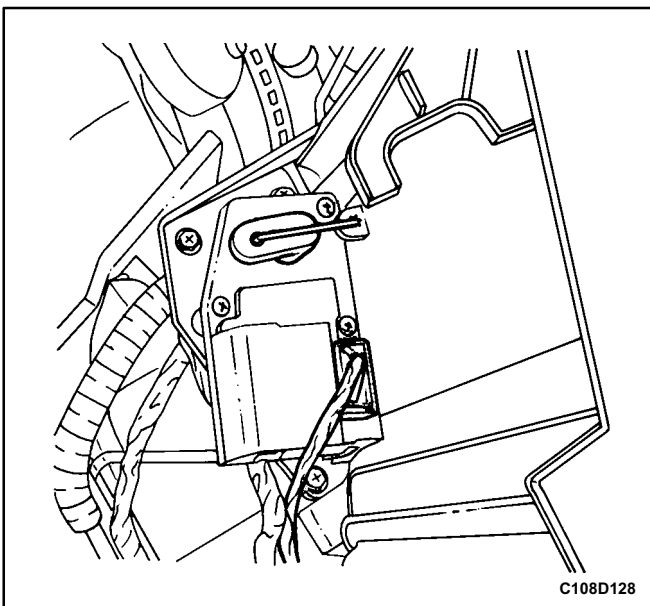


Installation Procedure

1. Install the mode door motor.
2. Install the motor retaining bolts and tighten.



3. Install the motor lever by pressing it onto its shaft.
4. Install the actuating rod.
5. Connect the electrical connector.
6. Install the heater/air distributor case. Refer to „Heater/Air Distributor Case Assembly” in this section.
7. Connect the negative battery cable.

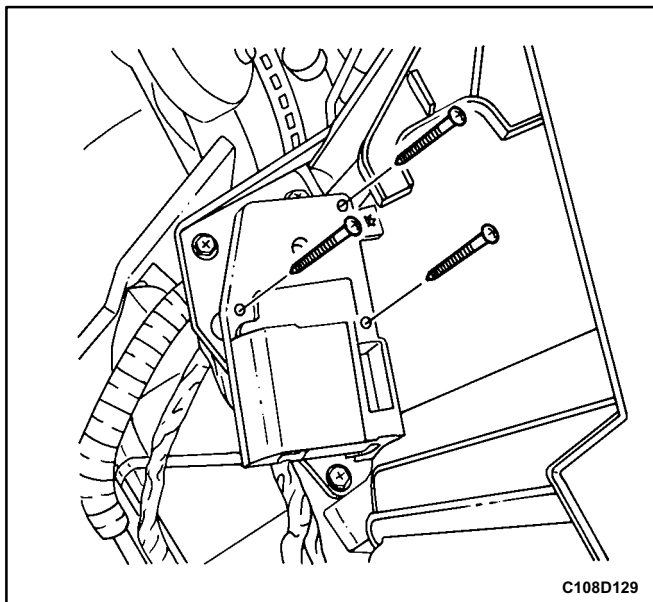


INLET AIR DOOR MOTOR

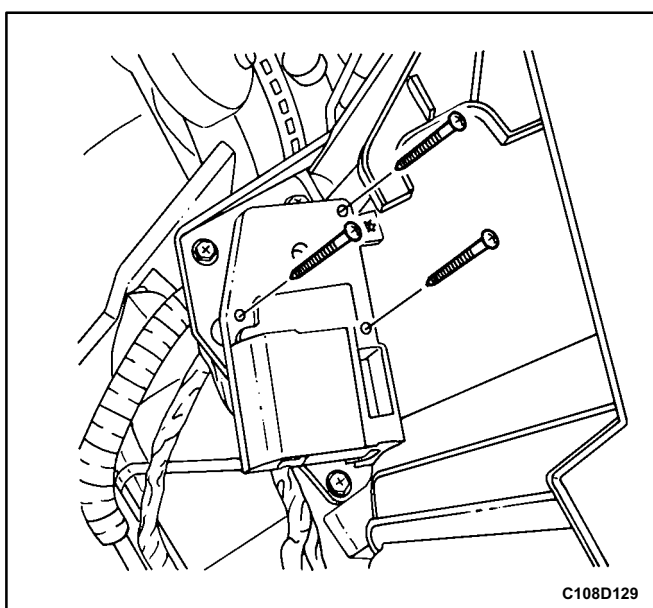
(Left-Hand Drive Shown, Right-Hand Drive Similar)

Removal Procedure

1. Disconnect the negative battery cable.
2. Remove the glove box. Refer to *Section 9E, Instrumentation/Driver Information*.
3. Remove the actuating rod by snapping the rod out of the lever with needle nose pliers
4. Remove the actuating lever.
5. Disconnect the electrical connector.

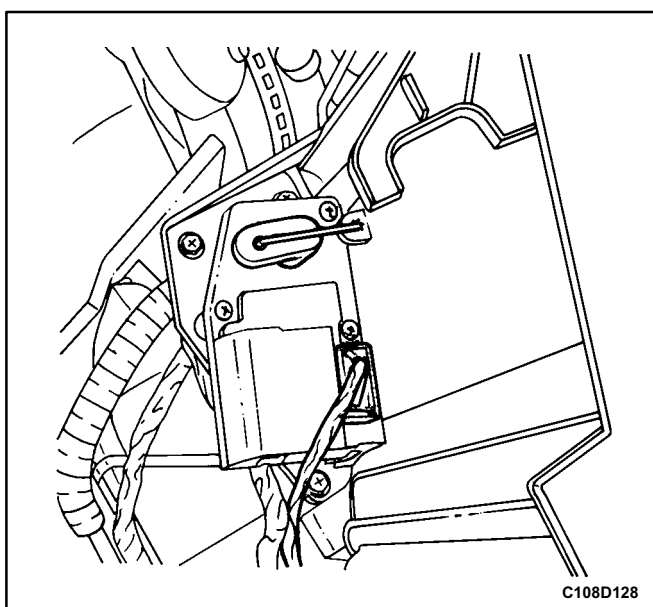


6. Remove the motor retaining bolts.
7. Remove the motor.

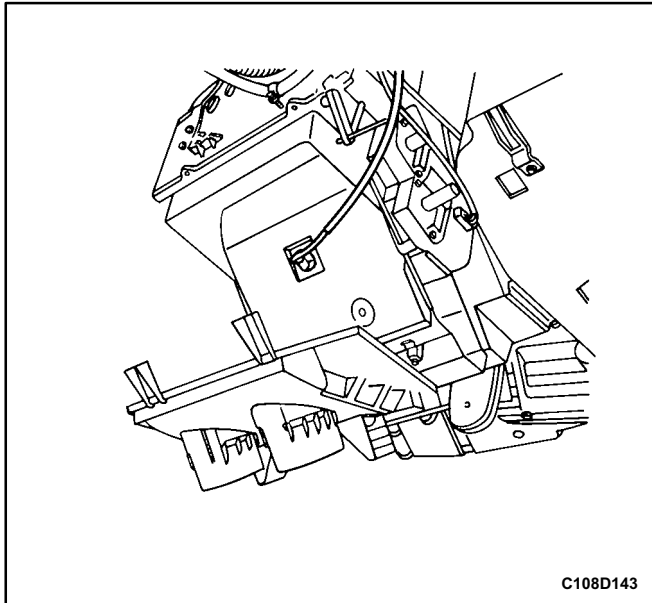


Installation Procedure

1. Install the motor.
2. Install the motor retaining bolts and tighten.



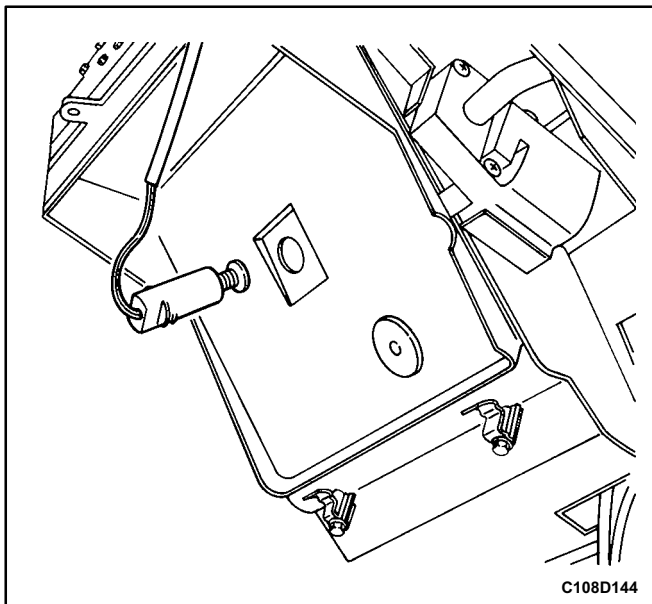
3. Install the actuating lever.
4. Install the actuating rod.
5. Connect the electrical connector.
6. Install the glove box. Refer to *Section 9E, Instrumentation/Driver Information*.
7. Connect the negative battery cable.



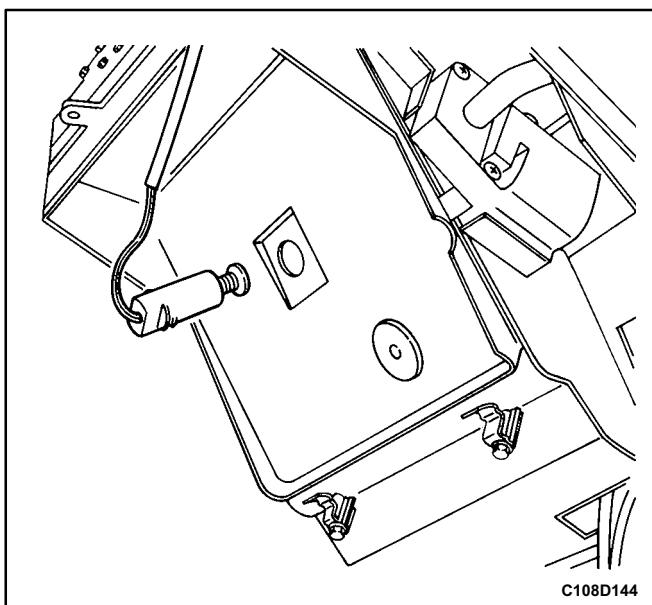
COOLANT TEMPERATURE SENSOR (Left-Hand Drive Shown, Right-Hand Drive Similar)

Removal Procedure

1. Disconnect the negative battery cable.
2. Remove the audio system and the center tray. Refer to *Section 9F, Audio Systems*.
3. Remove the glove box. Refer to *Section 9E, Instrumentation/Driver Information*.
4. Remove the heater/air distributor case assembly lower cover screws.
5. Remove the heater/air distributor case assembly lower cover to gain access to the coolant temperature sensor.

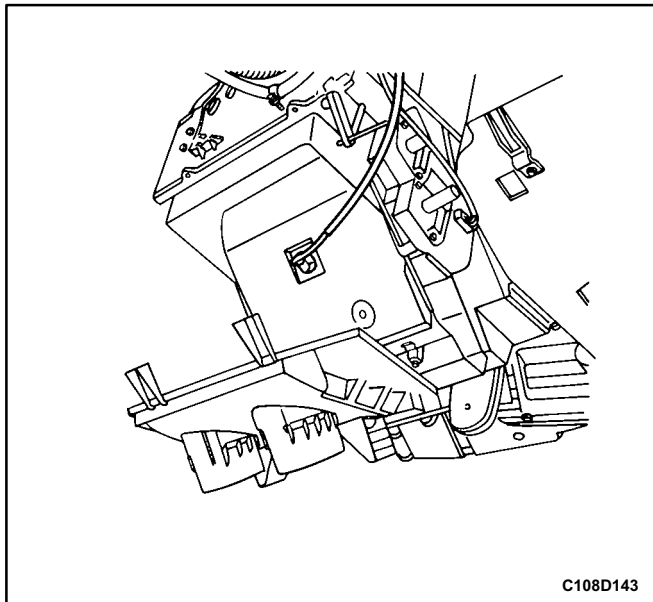


6. Turn the sensor to release it from the heater/air distributor case housing.
7. Disconnect the electrical connector.



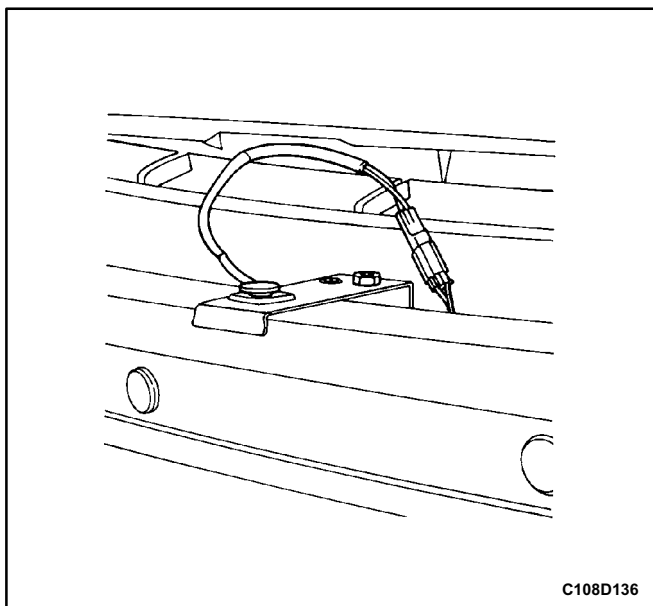
Installation Procedure

1. Install the coolant temperature sensor into the heater/air distributor case housing and turn the sensor to lock it.
2. Connect the electrical connector.



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3. Install the heater/air distributor case assembly lower cover into position.
4. Install the heater/air distributor case assembly lower cover retaining screws and tighten.
5. Install the audio system and the center tray. Refer to *Section 9F, Audio Systems*.
6. Install the glove box. Refer to *Section 9E, Instrumentation/Driver Information*.
7. Connect the negative battery cable.

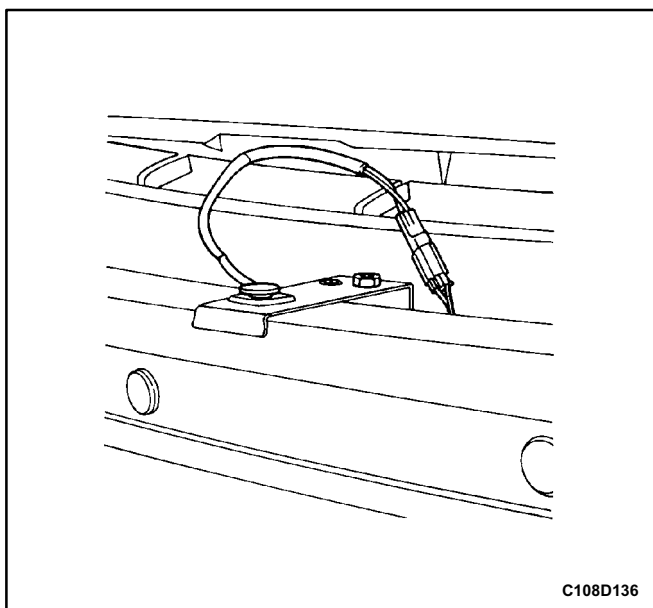


C108D136

AMBIENT AIR TEMPERATURE SENSOR

Removal Procedure

1. Disconnect the negative battery cable.
2. Disconnect the ambient air temperature sensor electrical connector.
3. Remove the retaining nut from the bracket.
4. Remove the ambient air temperature sensor.



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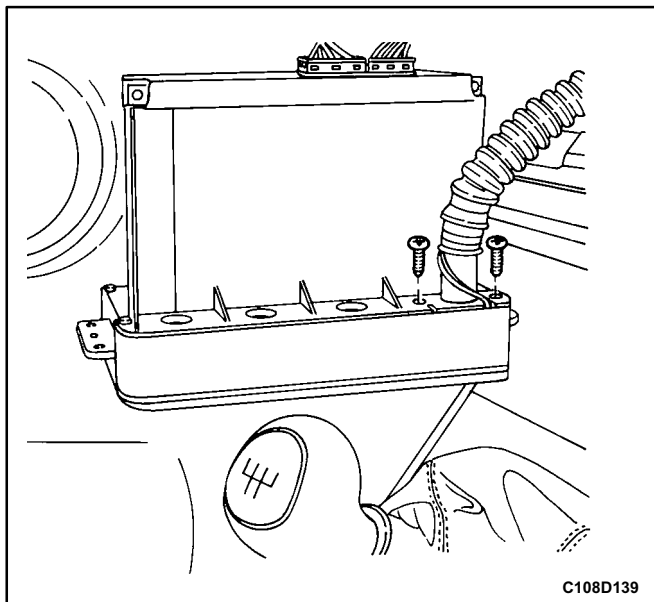
Installation Procedure

1. Position the ambient air temperature sensor into its bracket.
2. Install the retaining nut to the bracket.

Tighten

Tighten the ambient air temperature retaining bracket nut to 6 N•m (53 lb•in).

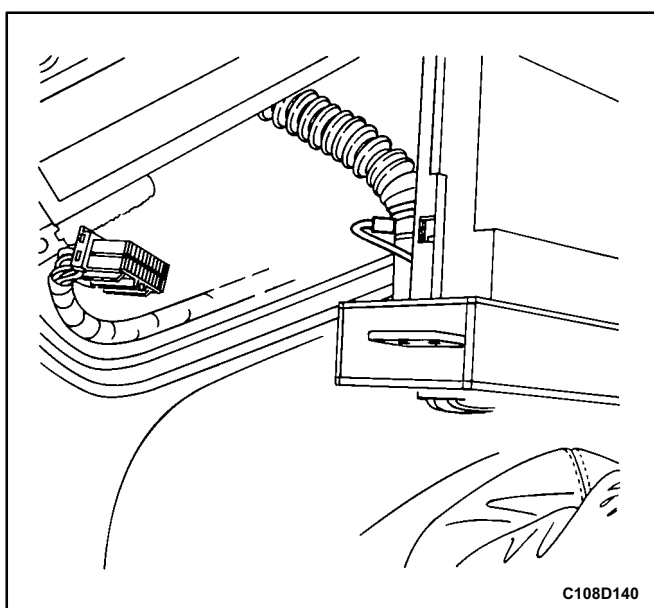
3. Connect the electrical connector.
4. Connect the negative battery cable.



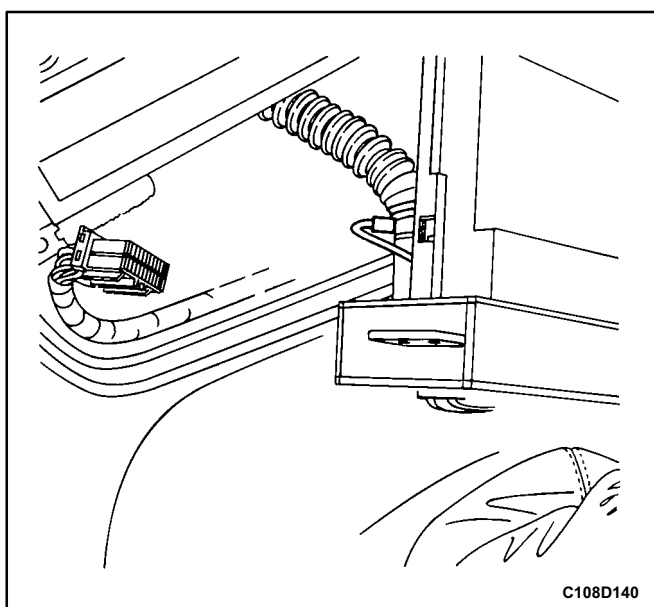
INCAR TEMPERATURE SENSOR

Removal Procedure

1. Disconnect the negative battery cable.
2. Remove the automatic temperature control assembly. Refer to „Automatic Temperature Control Assembly” in this section.
3. Remove the screws securing the in-car temperature sensor.

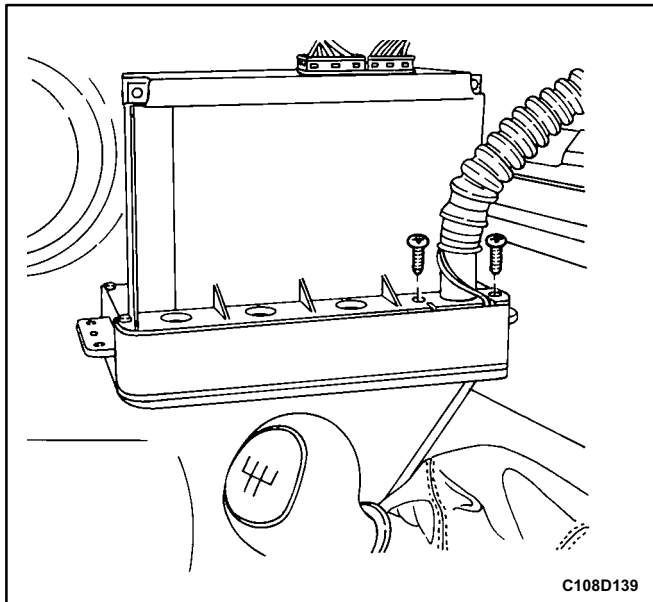


4. Disconnect the electrical connector and remove the air inlet tube.
5. Remove the in-car temperature sensor from the controller.

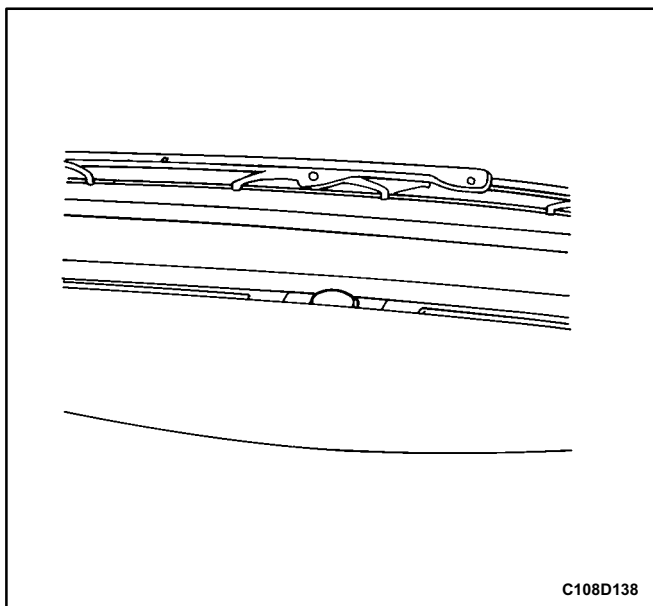


Installation Procedure

1. Install the in-car temperature sensor into the controller.



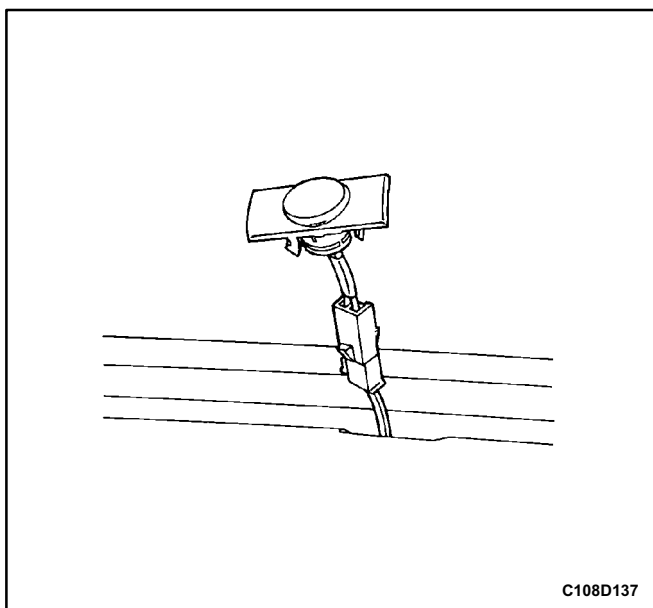
2. Install the in-car sensor retaining screws and tighten.
3. Install the air inlet tube and connect the electrical connector.
4. Install the automatic temperature control assembly. Refer to „Automatic Temperature Control Assembly” in this section.
5. Connect the battery negative cable.



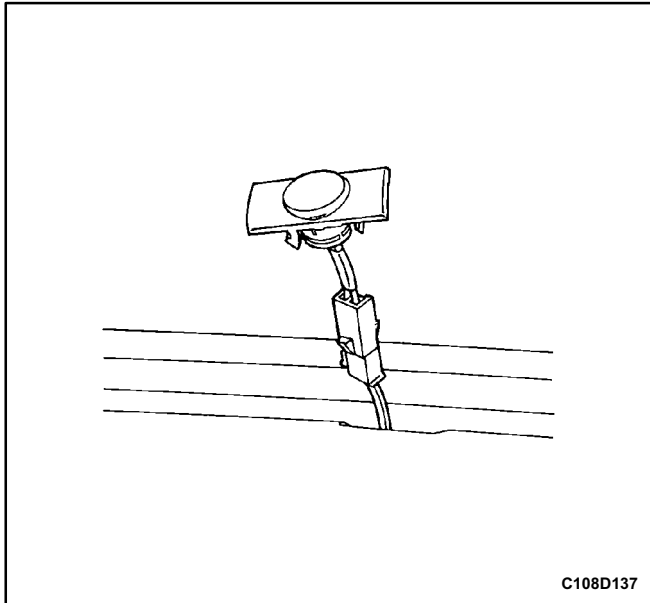
SUN SENSOR

Removal Procedure

1. Disconnect the negative battery cable.
2. Gently pry up on the sun sensor to remove it.



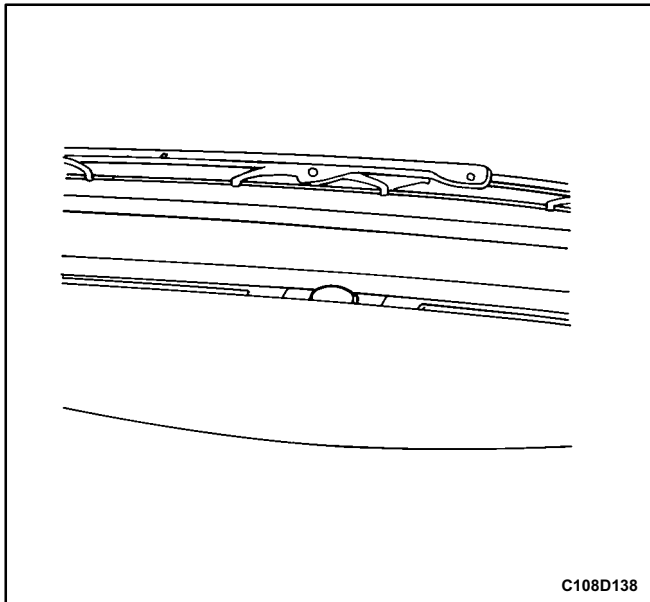
3. Secure the electrical connector to prevent it from falling beneath the dash.
4. Disconnect the electrical connector.



C108D137

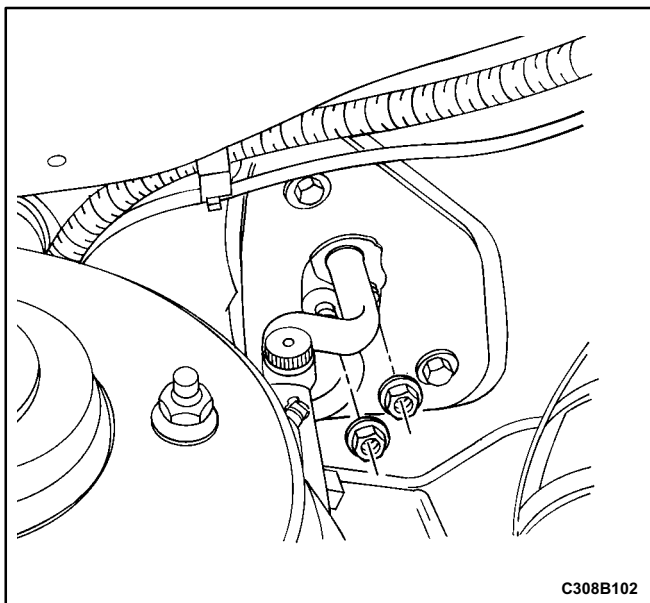
Installation Procedure

1. Connect the electrical connector.



C108D138

2. Insert and press the sun sensor into position in the dash.
3. Connect the negative battery cable.



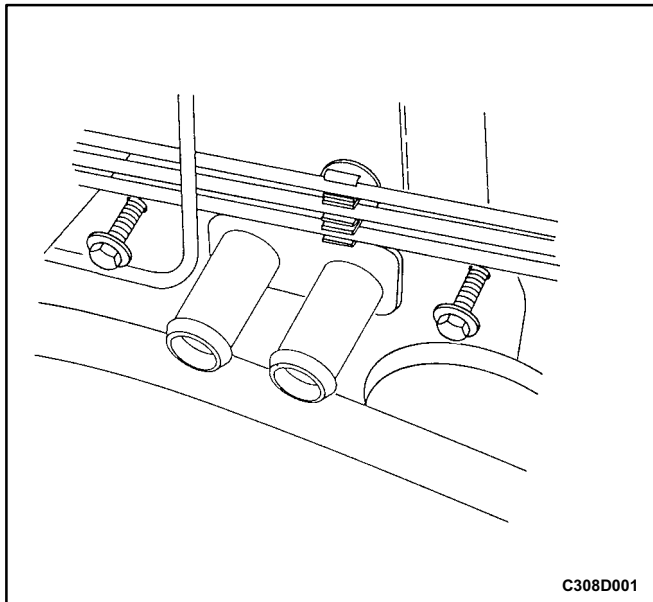
C308B102

HEATER/AIR DISTRIBUTOR CASE ASSEMBLY

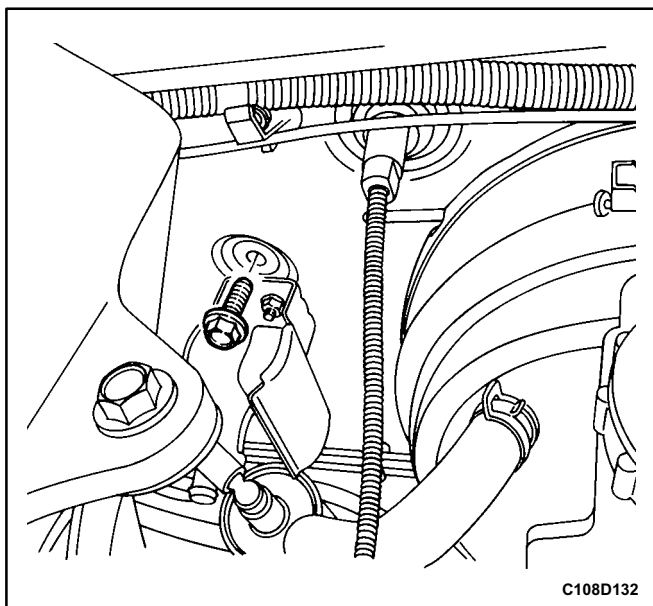
(Left-Hand Drive Shown, Right-Hand Drive Similar)

Removal Procedure

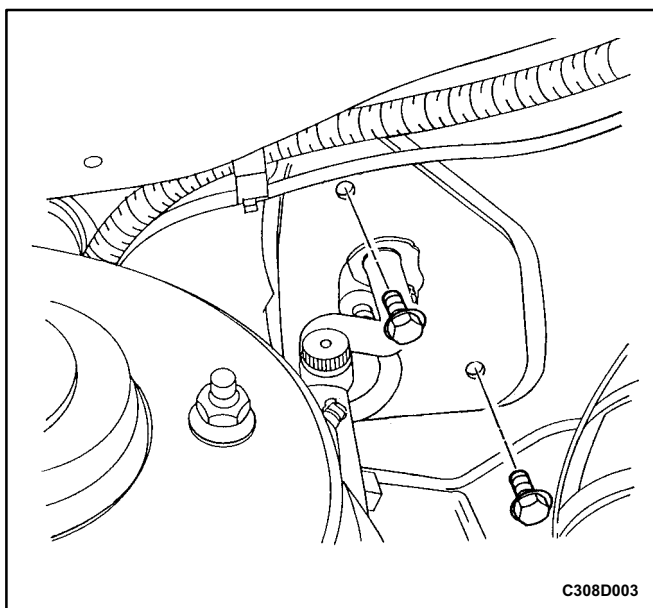
1. Disconnect the negative battery cable.
2. Remove the instrument panel carrier assembly. Refer to *Section 9E, Instrumentation/Driver Information*.
3. Drain the cooling system. Refer to *Section 1D, Engine Cooling*.
4. Recover the refrigerant. Refer to *Section 7B, Manual Control Heating, Ventilation, and Air Conditioning System*.
5. Remove the retaining nuts that secure the suction hose and the liquid evaporator pipe blocks at the fire wall.



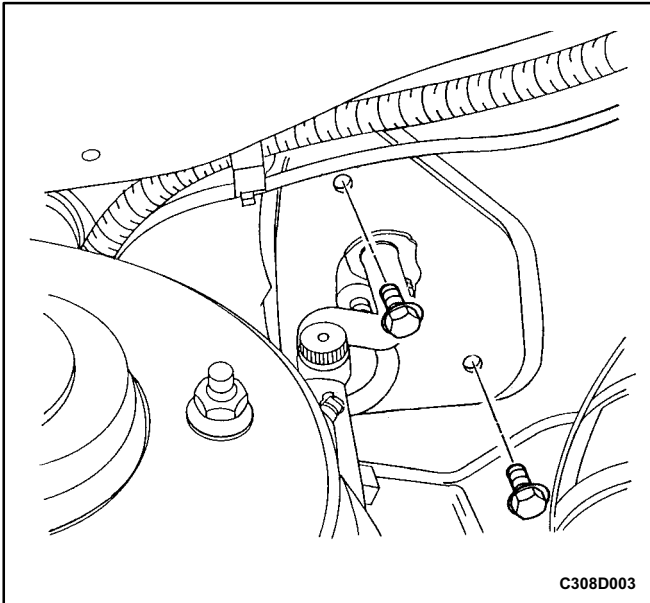
6. Loosen the clamp bolts from the suction hose and the liquid evaporator pipe to allow movement of the hose and the pipe.
7. Remove the evaporator drain hose.
8. Compress the heater hose clamps at the fire wall and slide the clamps toward the engine.
9. Remove the two heater hoses from the core lines at the fire wall.
10. Remove the screws that secure the heater/air distributor case assembly to the fire wall on either side of the heater hoses.



11. Remove the heater/air distributor case screw, that is located above the fuel filter, from the engine compartment side of the fire wall.
12. Have an assistant support the heater/air distributor case from inside the vehicle.



13. Remove the heater/air distributor case screws from the evaporator flange on the engine compartment side of the fire wall. The heater/air distributor case assembly will start to drop.
14. Pull the case straight away from the fire wall.
15. Remove the heater/air distributor case assembly from the vehicle.



Installation Procedure

1. Position the heater/air distributor case assembly in the vehicle.

Notice: To avoid damaging the heater core tubes, make sure they do not contact the fire wall opening.

2. Slowly raise the heater/air distributor case assembly into position and hold it against the fire wall while the screws are installed and tightened from the engine side of the fire wall.
3. Align and install the heater/air distributor case assembly screws above the fuel filter and at the evaporator flange.

Tighten

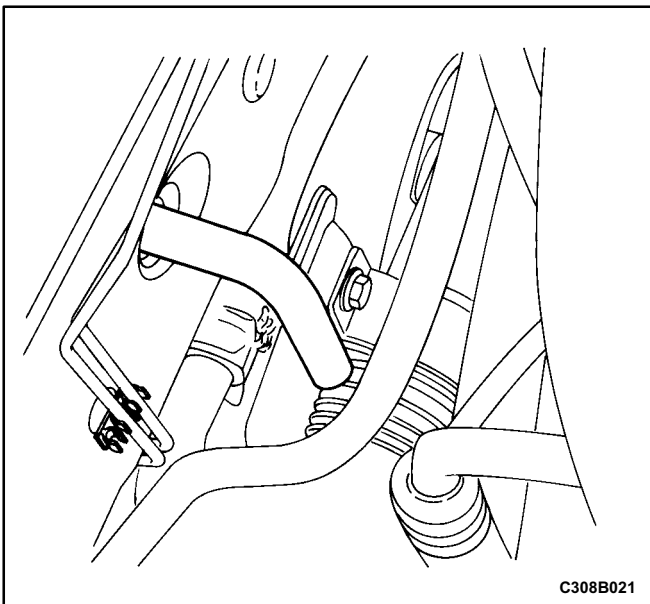
Tighten the heater/air distributor case assembly screws to 8 N•m (71 lb•in).

4. Install the heater/air distributor case assembly screws adjacent to the heater hoses.

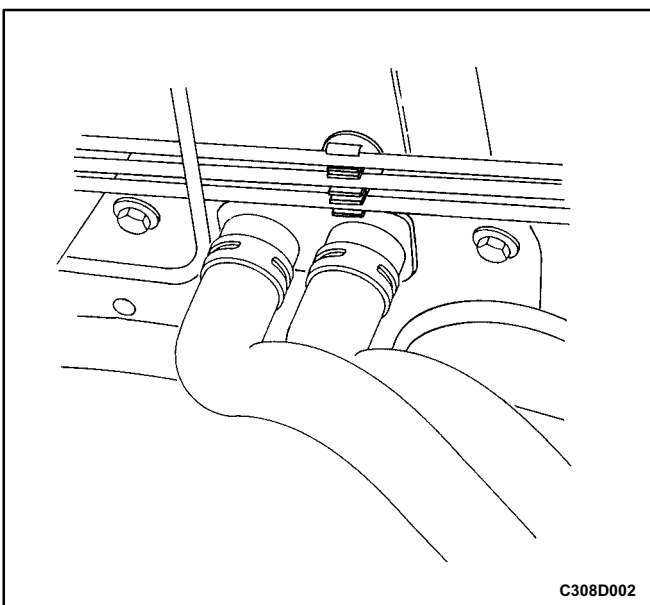
Tighten

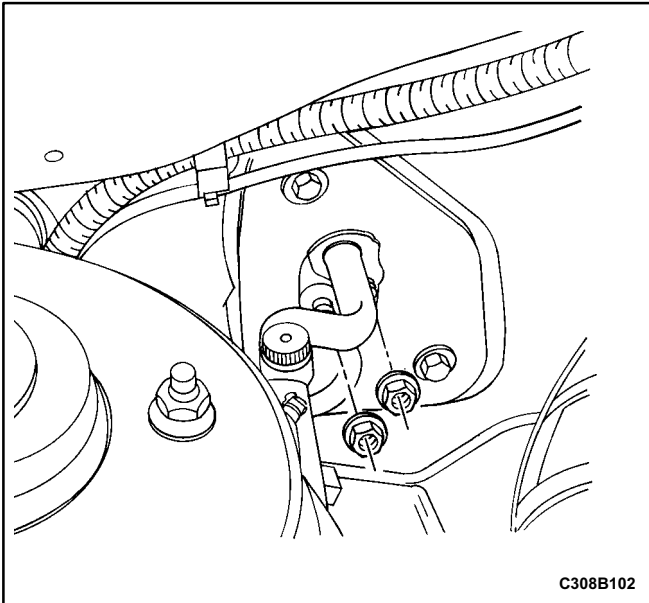
Tighten the heater/air distributor case assembly screws to 8 N•m (71 lb•in).

5. Install the evaporator drain hose.



6. Install the two heater hoses.
7. Slide the heater hose clamps into position.
8. Install the instrument panel carrier assembly. Refer to *Section 9E, Instrumentation/Driver Information*.



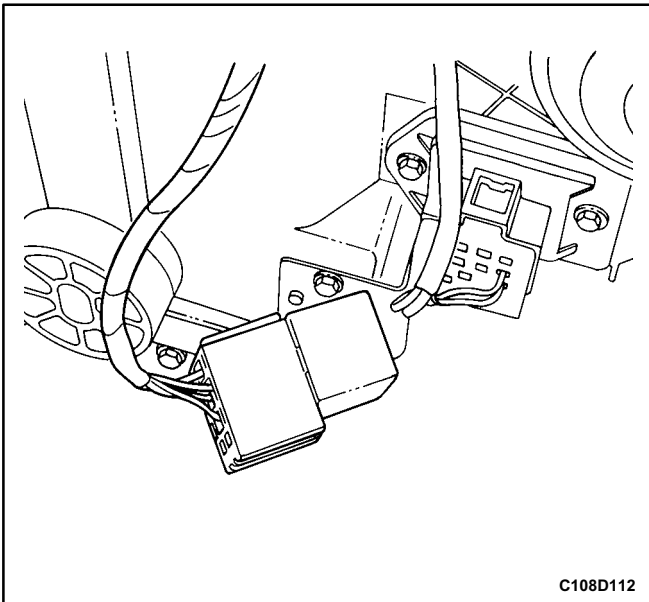


9. Install new Orings on the suction hose and the liquid evaporator pipe at the fire wall and put the pipes back in place.
10. Install the retaining nuts that secure the suction hose and the liquid evaporator pipe blocks at the fire wall.

Tighten

Tighten the suction hose and the liquid evaporator pipe retaining nuts to 10 N•m (89 lb•in).

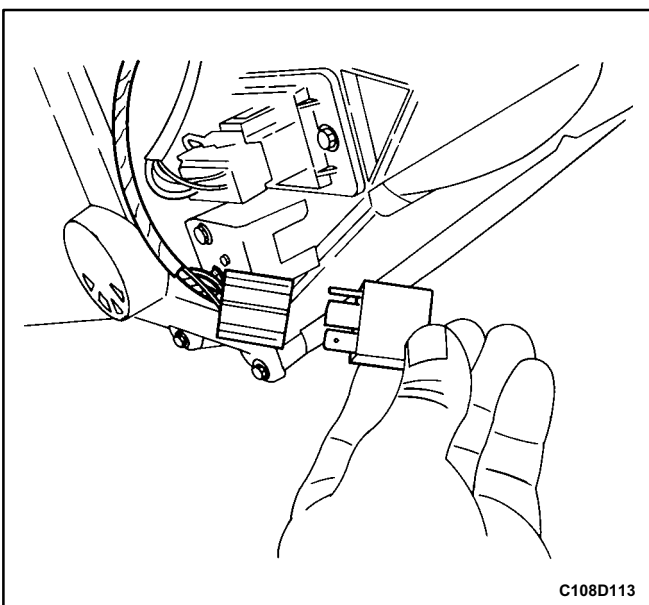
11. Fill the cooling system. Refer to *Section 1D, Engine Cooling*.
12. Recharge the A/C system. Refer to *Section 7B, Manual Control Heating, Ventilation, and Air Conditioning System*.
13. Connect the negative battery cable.



HIGH-BLOWER RELAY

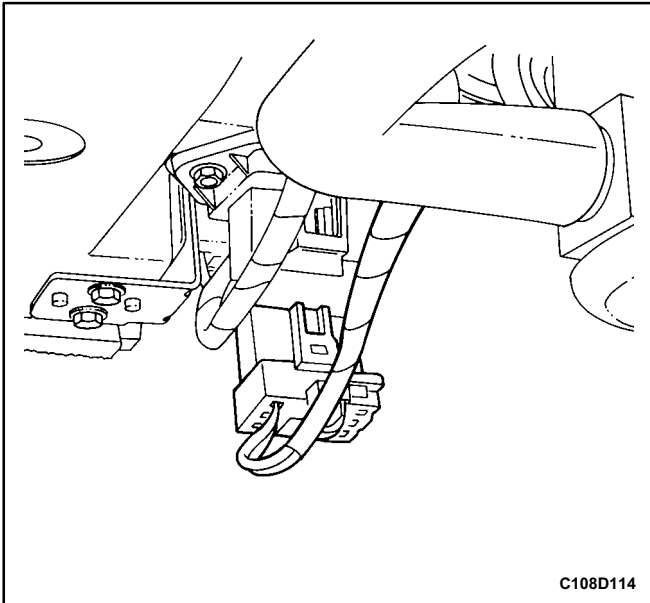
Removal Procedure

1. Disconnect the negative battery cable.
2. The relay is located in front of the blower motor.
3. Slide the relay and the connector up and out of its retaining track.
4. Separate the relay from the connector.



Installation Procedure

1. Align the high-blower relay contacts with the high-blower relay terminal slots.
2. Push the relay firmly into the base. The relay must be seated and flush with the edge of the base.
3. Connect the negative battery cable.



C108D114

POWER TRANSISTOR

Removal Procedure

1. Disconnect the negative battery cable.
2. Remove the glove box. Refer to *Section 9E, Instrumentation/Driver Information*.
3. Remove the footwell upper cover. Refer to *Section 9E, Instrumentation/Driver Information*.
4. Disconnect the electrical connector at the resistor.
5. Remove the screws from the resistor.
6. Remove the resistor from the heater/air distributor case assembly by gently pulling the resistor downward.

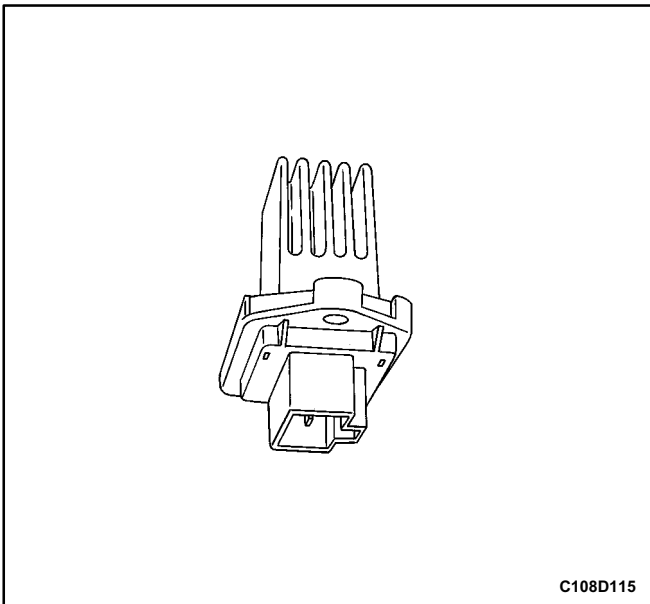
Installation Procedure

1. Install the new resistor into the heater/air distributor case assembly with the screws.

Tighten

Tighten the blower motor resistor screws to 6 N•m (53 lb•in).

2. Connect the electrical connector at the resistor.
3. Connect the negative battery cable.
4. Confirm the proper performance of the blower.
5. Replace the footwell upper cover. Refer to *Section 9E, Instrumentation/Driver Information*.
6. Replace the glove box. Refer to *Section 9E, Instrumentation/Driver Information*.



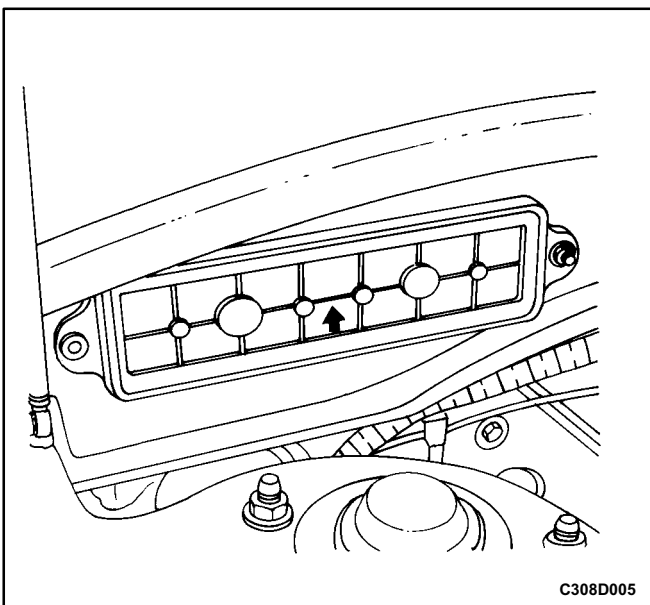
C108D115

AIR FILTER

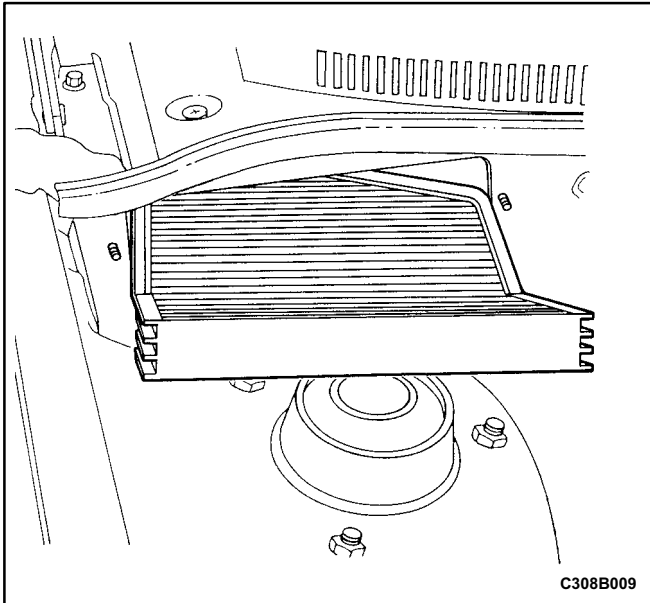
(Left-Hand Drive Shown, Right-Hand Drive Similar)

Removal Procedure

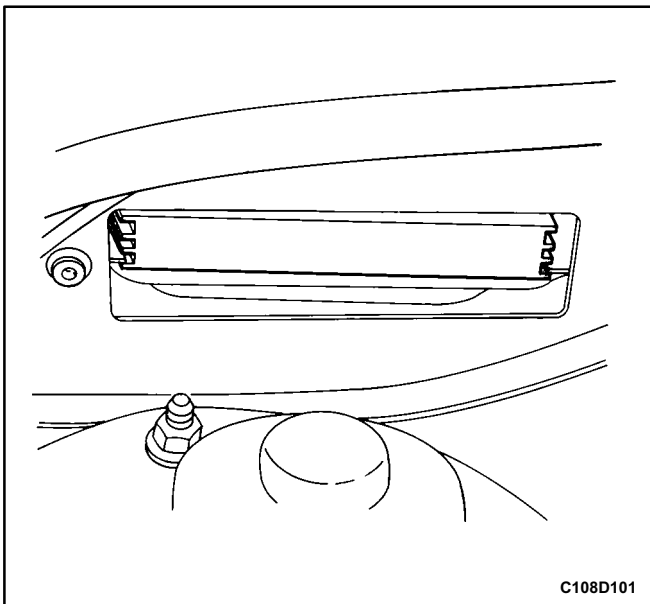
1. Remove the nut that secures the air filter cover to the fire wall.
2. Remove the cover.



C308D005



3. Pull the air filter out of the cavity in the fire wall.

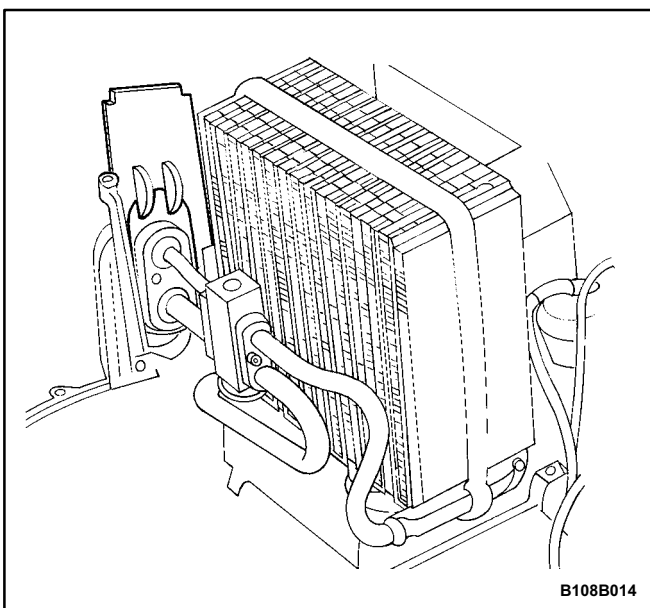


Installation Procedure

1. Install the air filter into its cavity in the fire wall.
 - Align the fins on the plastic frame of the filter with the groove in the holder before attempting to insert the filter into place.
2. Install the air filter cover with the arrow pointing up.
3. Install the nut to secure the air filter cover to the fire wall.

Tighten

Tighten the air filter cover nut to 4 N•m (35 lb•in).

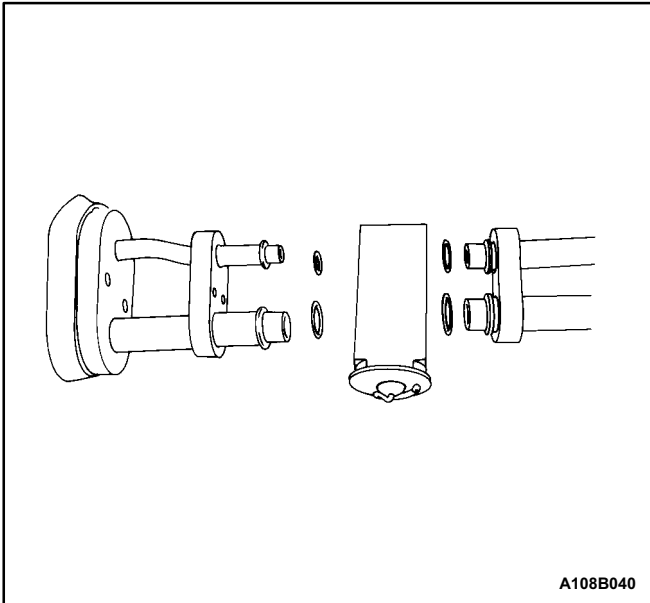


A/C EXPANSION VALVE

(Left-Hand Drive Shown, Right-Hand Drive Similar)

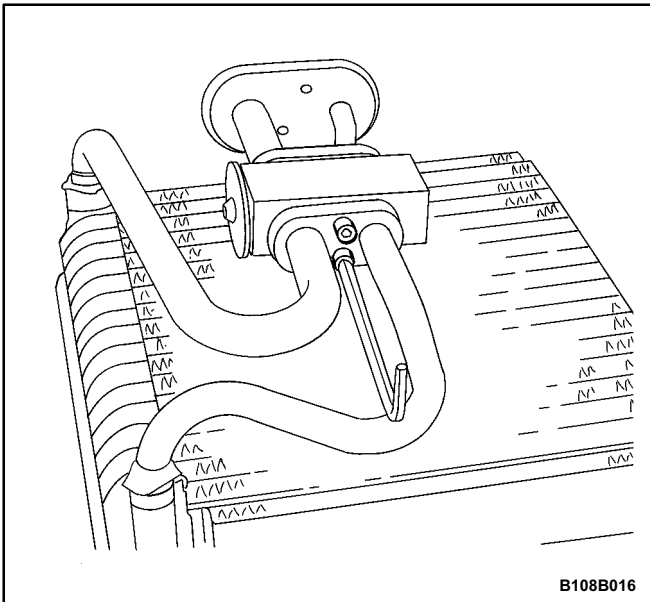
Removal Procedure

1. Remove the heater/air distributor case assembly. Refer to „Heater/Air Distributor Case Assembly” in this section.
2. Remove the screws securing the evaporator case halves.
3. Remove the evaporator core case cover.
4. Slide the evaporator flange support plate upward to facilitate evaporator removal.



A108B040

5. Remove the evaporator from the case.
6. Remove the expansion valve bolts.
7. Remove the expansion valve.
8. Remove the Orings from the evaporator lines and the A/C lines.



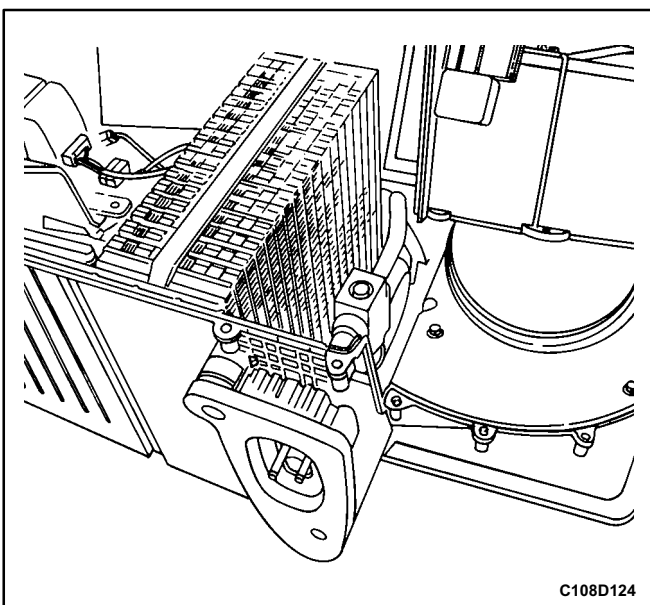
B108B016

Installation Procedure

1. Clean the O-ring surface areas of dirt or contamination.
2. Install new O-rings on the evaporator lines and the A/C lines.
3. Install a new expansion valve onto the evaporator lines.
4. Insert the expansion valve bolts through the expansion valve into the mount surface of the evaporator flange.

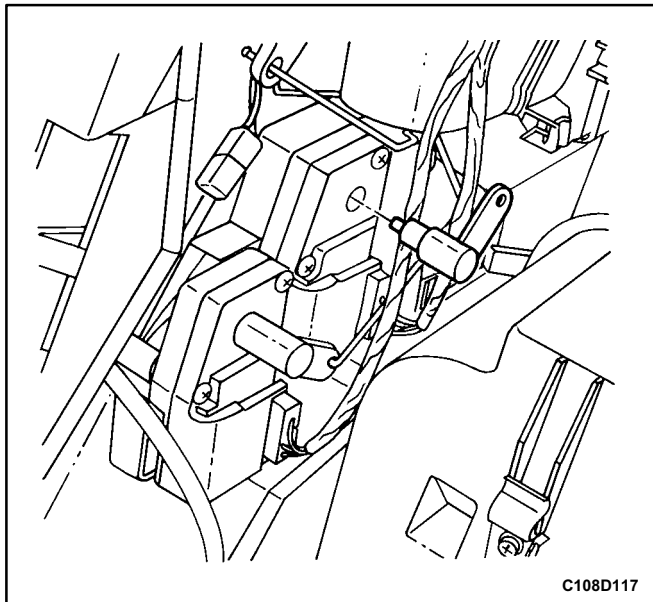
Tighten

Tighten the expansion valve bolts to 10 N•m (89 lb•in).



C108D124

5. Install the evaporator core into the case. Center the evaporator flange in the case opening.
6. Install the evaporator core case cover with the screws.
7. Install the heater/air distributor case assembly. Refer to „Heater/Air Distributor Case Assembly” in this section.



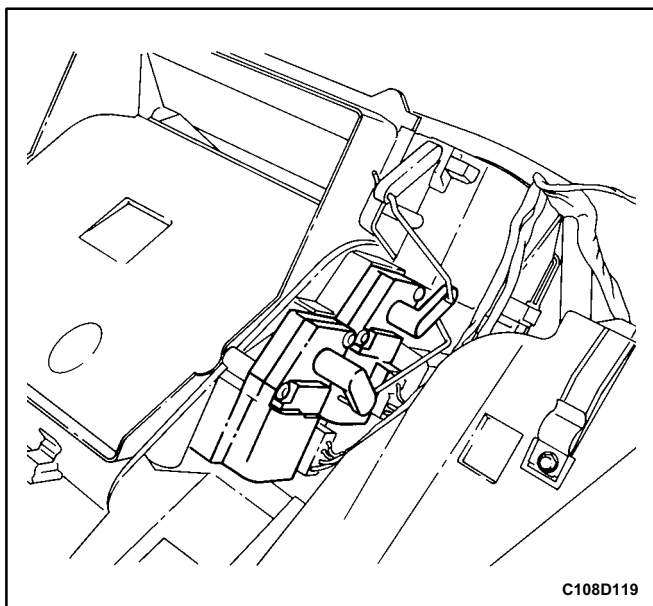
C108D117

HEATER CORE

(Left-Hand Drive Shown, Right-Hand Drive Similar)

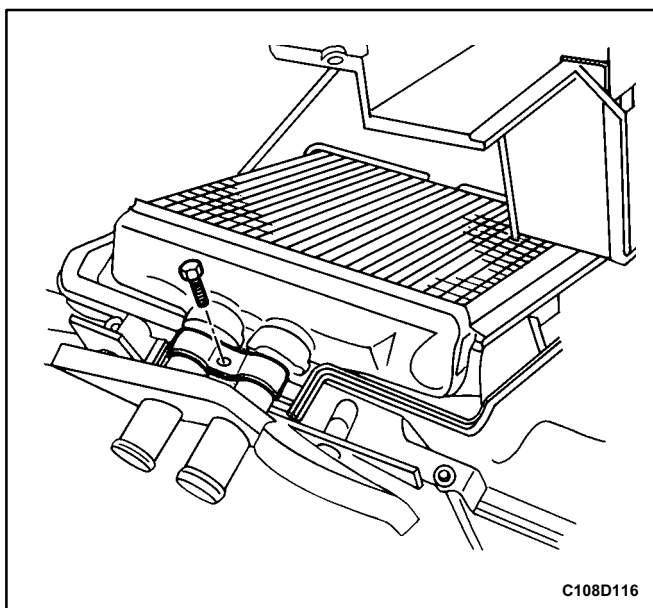
Removal Procedure

1. Remove the heater/air distributor case assembly from the vehicle. Refer to „Heater/Air Distributor Case Assembly” in this section.
2. Remove the motor lever and actuator rod.



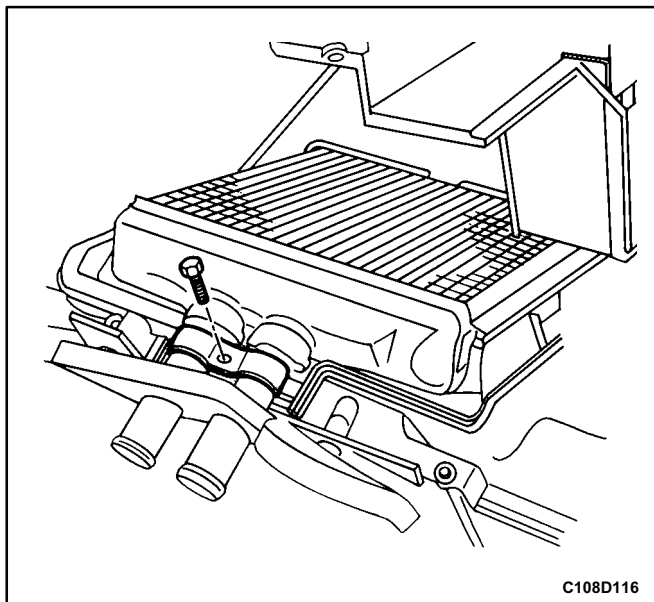
C108D119

3. Remove the motor screws and the motor to access a buried heater core cover bolt.
4. Remove the foam insulation from the tube base.
5. Remove the remaining actuator rod from the motor lever.
6. Remove the retaining screws that secure the heater core cover to the heater/air distributor case assembly.
7. Slowly separate the lower heater core cover from the rest of the assembly.



C108D116

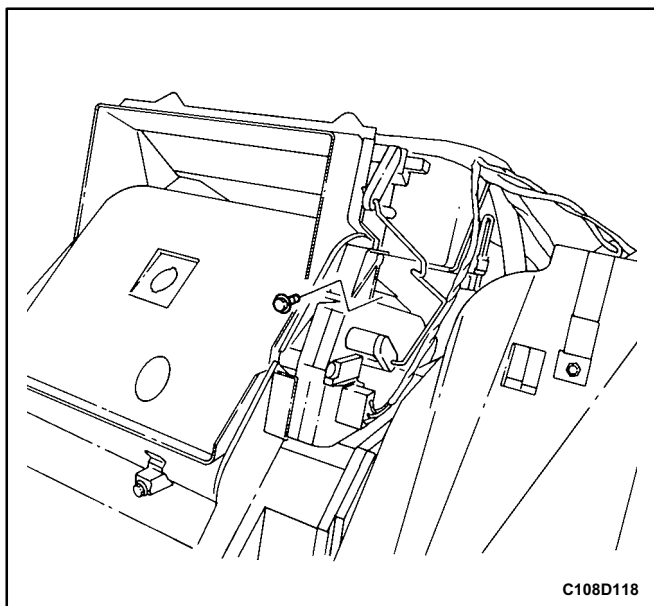
8. Remove the screw and the bracket clamp that secure the heater core lines to the case.
9. Remove the spring clamp that secures the heater core body to the case.
10. Remove the heater core from the case.



C108D116

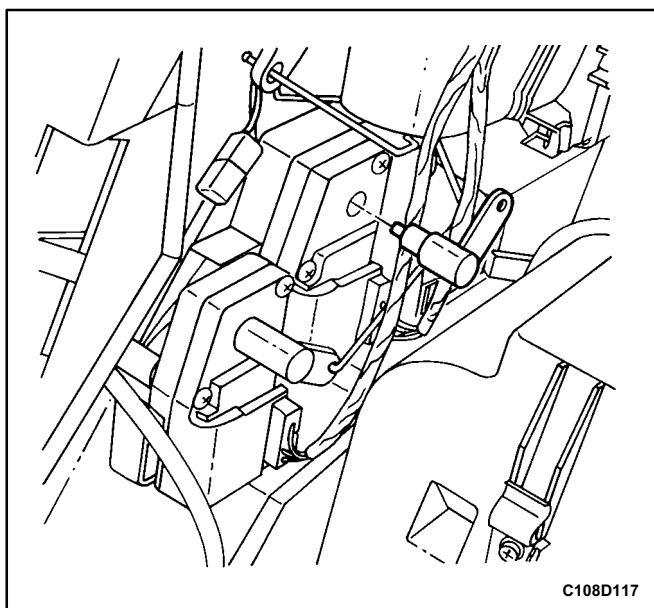
Installation Procedure

1. Install the heater core into the case.
2. Secure the heater core lines to the case with the retaining bracket clamp and the screw.



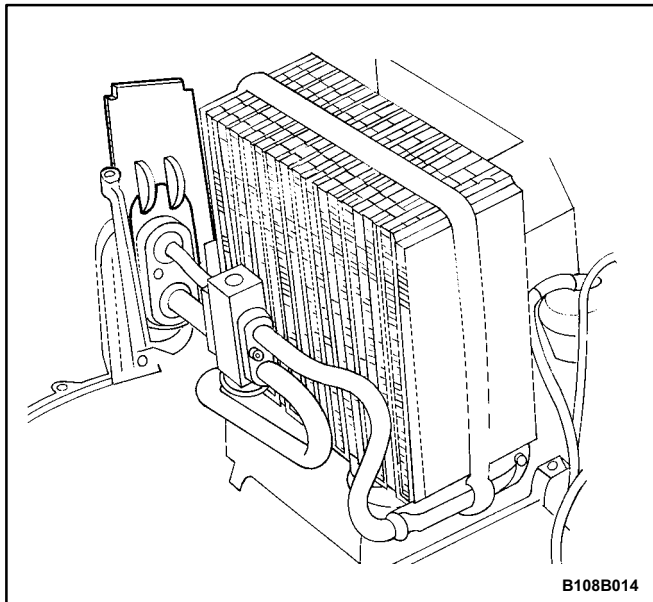
C108D118

3. Install the heater core cover.
4. Install and tighten the screws that secure the heater core cover to the heater/air distributor case assembly.



C108D117

5. Install the motor and screws for the floor diverter.
6. Install the heater/air distributor case. Refer to „Heater/Air Distributor Case Assembly” in this section.

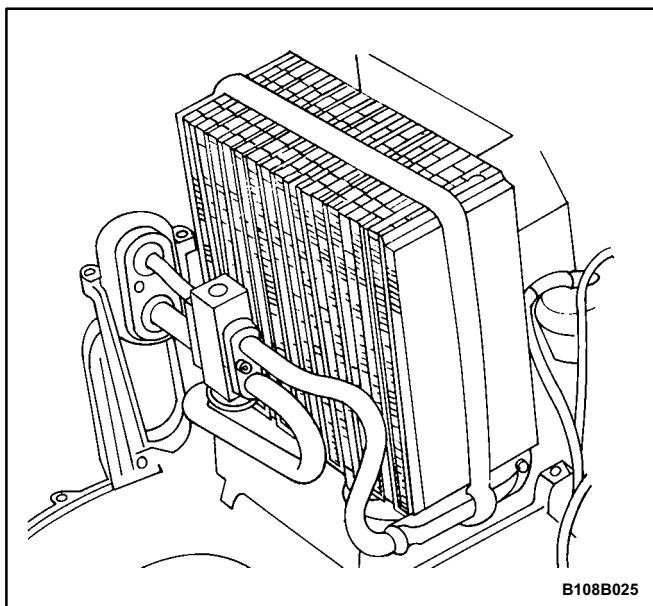


EVAPORATOR CORE

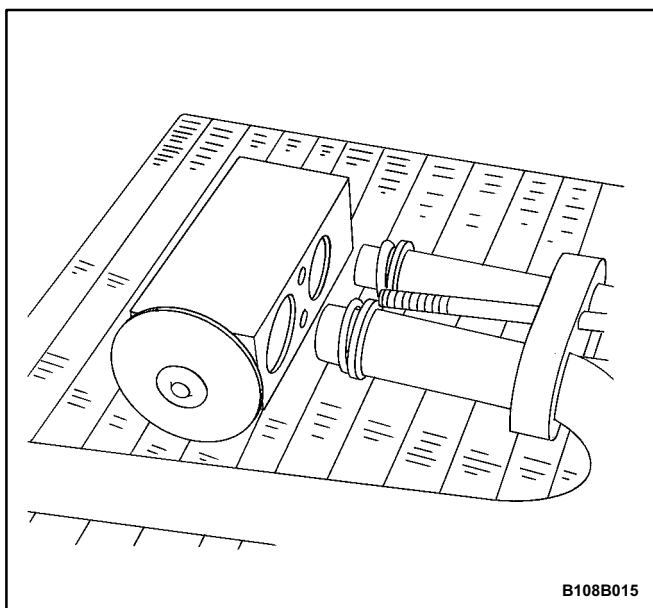
(Left-Hand Drive Shown, Right-Hand Drive Similar)

Removal Procedure

1. Remove the heater/air distribution case assembly. Refer to „Heater/Air Distribution Case Assembly” in this section.
2. Remove the screws that secure the evaporator case halves.
3. Remove the evaporator core case cover.
4. Slide the evaporator flange support plate upward to facilitate removal of the evaporator.

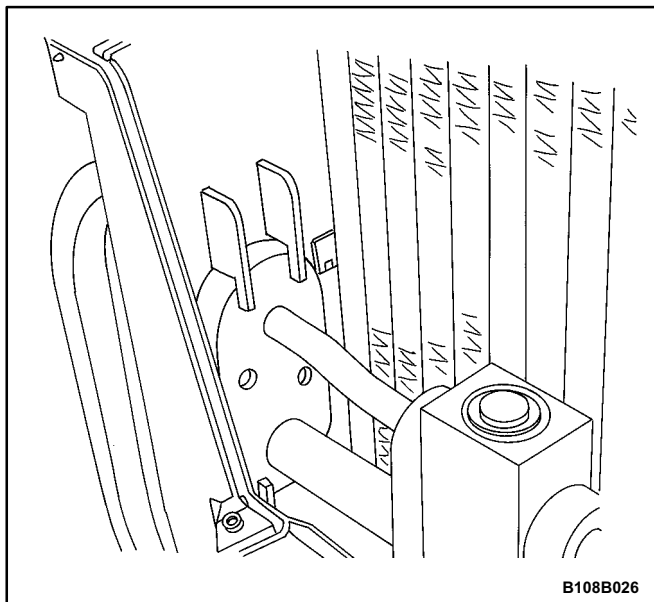


5. Remove the evaporator core from the case.
6. Remove the air conditioning expansion valve. Refer to „A/C Expansion Valve” in this section.



Installation Procedure

1. Install the Orings onto the evaporator tubes.
2. Install the A/C expansion valve. Refer to „A/C Expansion Valve” in this section.



3. Install the evaporator core into the case. Center the evaporator flange in the case opening.
4. Assemble the evaporator case halves with the screws.
5. Install the heater/air distributor case assembly. Refer to „Heater/Air Distributor Case Assembly” in this section.

UNIT REPAIR

V5 AIR CONDITIONING COMPRESSOR OVERHAUL

COMPRESSOR OVERHAUL

Refer to *Section 7B, Manual Control Heating, Ventilation, and Air Conditioning System* for details of the following procedures:

- Clutch Coil.
- Clutch Plate and Hub Assembly.
- Clutch Rotor and Bearing.
- Component Locator V5 Compressor.
- Control Valve Assembly.
- Cylinder to Front Head O-Ring.
- Leak Testing (External).
- Pressure Relief Valve.
- Rear Head, Gasket, Valve Plate, Reed Plate, and ORing.
- Shaft Seal Replacement.

GENERAL DESCRIPTION AND SYSTEM OPERATION

GENERAL INFORMATION

THE V5 SYSTEM

Refer to *Section 7B, Manual Control Heating, Ventilation, and Air Conditioning System* for general information details for the following:

- System Components - Functional.
- The V5 A/C System.
- V5 Compressor - Description of Operation.
- V5 Compressor - General Description.

SYSTEM COMPONENTS - CONTROL

Controller

The operation of the A/C system is controlled by the switches on the control head. This console-mounted heating and ventilation system contains the following knobs and display:

The Temperature Control Push Knobs

1. Raise the temperature of the air entering the vehicle by pressing the top switch, with the red arrow pointing upward.
2. Lower the temperature by pressing the bottom switch, with the blue arrow pointing downward.
3. Actuate the air mix door by an electric motor.
4. Vary the mix of the air passing through the heater core with the air bypassing the core.

Each press of a switch changes the set temperature by increments of 0.5° C (1°F). This is shown in the temperature window on the function display.

The Function Display

This is an LCD display indicating the status of the control settings selected. Starting from the left end of the display, the sections are as follows:

1. Temperature setting - Indicates the temperature set with the temperature control knob.
2. Auto status - Indicates whether the system is operating in the full auto mode or the manual mode.
3. Defroster icon - Indicates manual selection of full defrost mode.
4. Mode - Indicated by icon, the mode chosen by the system in auto (or by the operator in manual) is shown by an illumination arrow indicating the air path.
5. A/C - A snowflake icon indicating whether the A/C is ON or OFF.
6. Fan speed - Indicates the fan speed by illuminating a bar based on the segment at the front, for low speed,

and adding additional segments in order up to the fifth, for high speed.

Eight Additional Push Knobs

1. Full defrost - Causes the mode motors to direct all air to the windshield and side window outlets for maximum defrosting.
2. Air intake - Switches between fresh air intake, the default, and recirculating air. Airflow arrows on the display indicate the mode in effect.
3. Full Auto Switch - Maintains the set temperature automatically. In this mode, the fully automatic temperature control (FATC) system controls the following:
 - The air mix door motor.
 - The mode door motor.
 - The blower motor speed.
 - The inlet air door motor.
 - A/C ON/OFF.
4. OFF Switch - Turns the automatic air conditioning and fan control off.
5. Mode Switch - Allows manual selection of the airflow direction.
 - Selection is shown on the function display.
 - Each time the mode switch is pressed, the next function is displayed.
6. A/C Switch - Allows manual selection and control of the air conditioning function.
7. Fan Control Switch - Allows manual selection among five fan speeds.
8. Defogger Switch - Turns on the electric defogging heater in the rear window and the outside rearview mirrors, if the vehicle is equipped with heated mirrors.

Pressure Transducer

Pressure transducer switching incorporates the functions of the high-pressure and the low-pressure cutout switches along with the fan cycling switch. The pressure transducer is located in the high-side liquid refrigerant line behind the right strut tower, between the right strut tower and the fire wall. The output from this pressure transducer goes to the electronic control module (ECM), which controls the compressor function based on the pressure signal.

Wide-Open Throttle (WOT) Compressor Cutoff

During full-throttle acceleration, the throttle position sensor (TPS) sends a signal to the ECM, which then controls the compressor clutch.

High RPM Cutoff

As engine rpm approaches the maximum limit, the ECM will disengage the compressor clutch until the engine slows to a lower rpm.