

# A/C-HEATER SYSTEM - MANUAL

2001 Chevrolet Camaro

2000-01 MANUAL A/C-HEATER SYSTEMS  
General Motors

Chevrolet; Camaro  
Pontiac; Firebird

## \* PLEASE READ THIS FIRST \*

**WARNING:** To avoid injury from accidental air bag deployment, read and carefully follow all SERVICE PRECAUTIONS and DISABLING & ACTIVATING AIR BAG SYSTEM procedures in AIR BAG RESTRAINT SYSTEM article in ACCESSORIES/SAFETY EQUIPMENT section.

## SPECIFICATIONS

### SPECIFICATIONS

| Application                         | Specification                               |
|-------------------------------------|---|
| Compressor Type .....               | Harrison V7 7-Cyl.                          |
| System Oil Capacity (1) .....       | 9 ozs.                                      |
| Refrigerant (R-134a) Capacity ..... | 24.0 ozs.                                   |
| System Operating Pressures (2)      |   |
| 2000 Models                         |   |
| High Side .....                     | 115-200 psi (8.1-14.1 kg/cm <sup>2</sup> )  |
| Low Side .....                      | 25-37 psi (1.8-2.6 kg/cm <sup>2</sup> )     |
| 2001 Models                         |   |
| High Side .....                     | 202-244 psi (14.2-17.2 kg/cm <sup>2</sup> ) |
| Low Side .....                      | 40-44 psi (2.8-3.1 kg/cm <sup>2</sup> )     |

(1) - Use PAG Refrigerant Oil (Part No. 12345923).

(2) - Measured at ambient temperature of 70-80°F (21-27°C),  
with more than 50 percent relative humidity.

## DESCRIPTION

The manual A/C-heater system delivers heated or cooled and dehumidified air. Air distribution is controlled through a manual A/C-heater control panel and vacuum-operated doors.

## OPERATION

### A/C-HEATER CONTROL PANEL

Several mode settings are available on the A/C-heater control panel to allow selection of a desirable comfort level. See Fig. 1. The available settings are as follows:

#### OFF

No blower and A/C operation in this position. With vehicle moving forward, a slight amount of air will enter passenger compartment.

#### MAX

Maximum cooling is provided in this setting. Conditioned air is distributed through dash registers. This is the only mode in which

some of the air is recirculated through the A/C system.

**A/C**

Conditioned air is directed through dash registers.

**Bi-Level**

Conditioned air is directed through dash registers and floor outlets. A small amount of air is directed to defrost outlets.

**Vent**

Compressor does not operate in this setting. Outside air is delivered through dash registers.

**Heater**

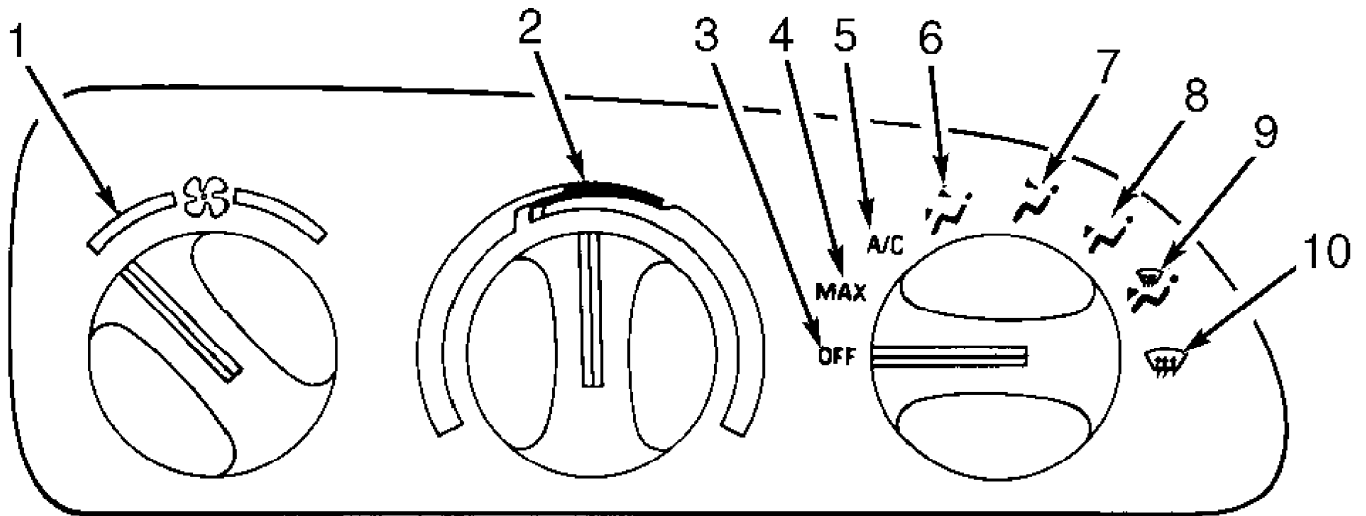
Compressor does not operate in this setting. Outside air is heated and distributed as follows: about 80 percent to floor and 20 percent to windshield and side windows.

**Defrost**

In defrost position, air is distributed to windshield.

**Defrost Blend**

In defrost blend position, air is distributed to floor, windshield and side windows.



- |                               |                       |
|-------------------------------|-----------------------|
| 1. Blower Motor Speed Control | 6. Bi-Level Mode      |
| 2. Temperature Control        | 7. Vent Mode          |
| 3. Off Mode                   | 8. Heater Mode        |
| 4. Maximum A/C Mode           | 9. Defrost Blend Mode |
| 5. Normal A/C Mode            | 10. Defrost Mode      |

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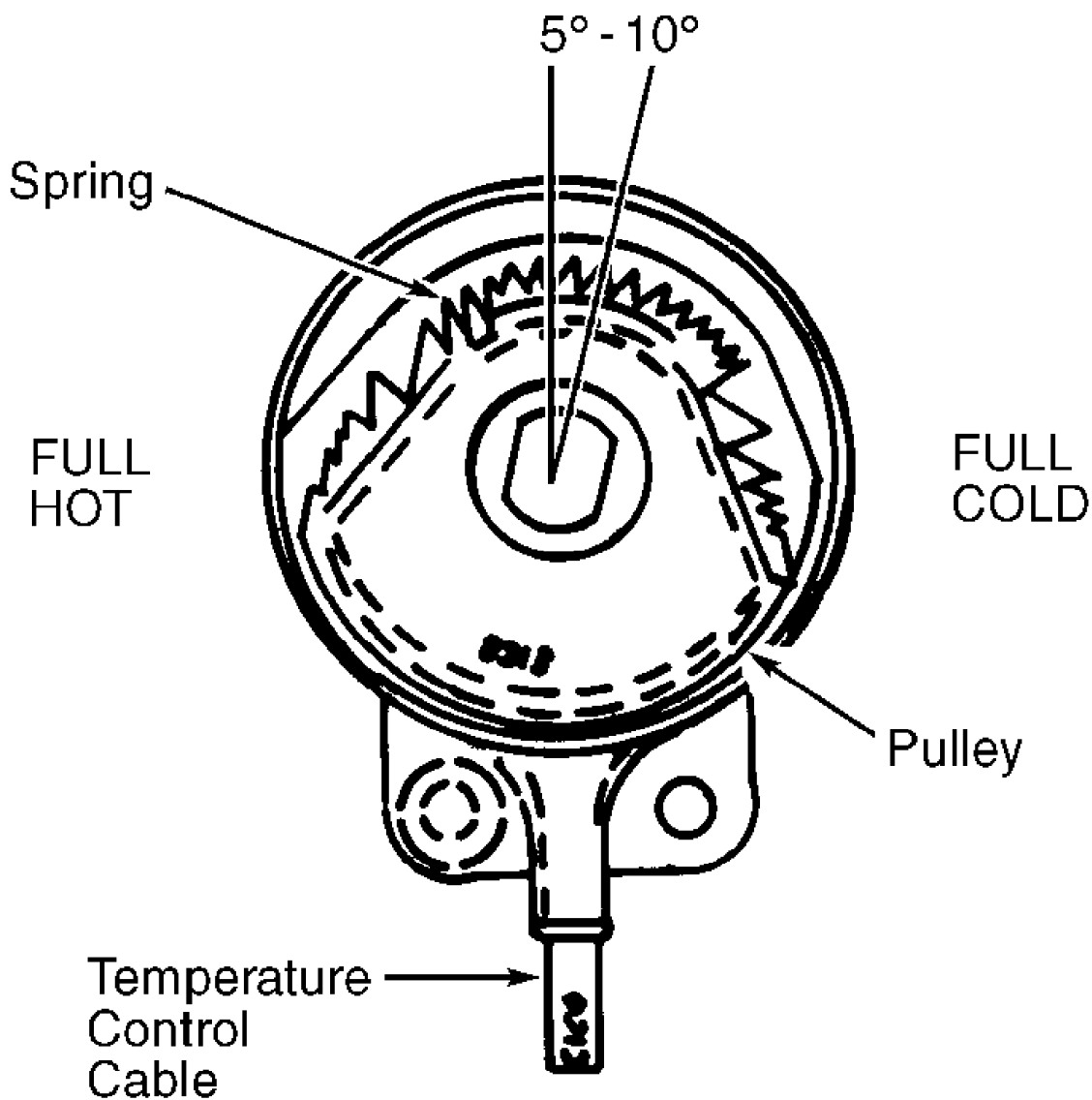
Fig. 1: Identifying Control Panel Settings (Typical)  
Courtesy of General Motors Corp.

**ADJUSTMENTS**

**TEMPERATURE CONTROL CABLE**

1) Remove right instrument panel sound insulator. Remove temperature control cable from heater housing. Move temperature control knob from full cold to full hot setting. If cable binds or pulley does not rotate freely, replace cable. Set temperature control knob to detent position halfway between full cold and full hot setting.

2) If control cable pulley is offset by 5-10 degrees toward full cold side, no adjustment is necessary. See Fig. 2. If control cable pulley is offset toward full hot side, remove spring from control cable pulley. Rotate pulley 5-10 degrees toward full cold. Install control cable pulley spring. Install temperature control cable to heater housing.



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Fig. 2: Adjusting Temperature Control Cable  
Courtesy of General Motors Corp.

## TROUBLE SHOOTING

NOTE: For additional trouble shooting information, see MANUAL A/C-HEATER SYSTEMS - TROUBLE SHOOTING article.

## BLOWER MOTOR

1) If blower does not operate, check HVAC fuse (20-amp) in instrument panel fuse block. If fuse is blown, check for short to ground in Brown wire between HVAC fuse (20-amp) and mode selector switch 3-pin connector terminal "C". If fuse is okay, check I/P-1 fuse (40-amp) in underhood electrical center. If fuse is blown, check for short to ground in Red wire between I/P-1 fuse (40-amp) and blower motor relay harness connector terminal A2.

2) Ensure ground connectors located near left or right "A" pillar, bolted to instrument panel mounting stud behind kick panel are clean and tight. Check for a broken or partially broken wire inside of insulation which could cause system malfunction but prove good in a continuity/voltage check with system disconnected. Check for proper installation of aftermarket electronic equipment.

## SYSTEM TESTS

WARNING: To avoid injury from accidental air bag deployment, read and carefully follow all SERVICE PRECAUTIONS and DISABLING & ACTIVATING AIR BAG SYSTEM procedures in AIR BAG SYSTEM SAFETY article in GENERAL SERVICING.

## A/C SYSTEM PERFORMANCE

1) Rotate temperature control knob from full cold to full hot and back to full cold. Listen for temperature valve to seat in both full hot and full cold position. If temperature valve seats in both positions, go to next step. If temperature valve does not seat in both positions, go to step 4).

2) Park vehicle out of direct sunlight. Close doors and windows. Open driver's window 5-6" (127-152 mm). Open engine hood. Place vehicle in Park (A/T) or Neutral (M/T), and set parking brake. Set temperature control to maximum cold, maximum A/C, and blower to high speed. Start engine and go to next step.

3) Observe A/C compressor. If compressor engages, go to next step. If compressor does not engage, see A/C COMPRESSOR CLUTCH CONTROLS - ALL MODELS article.

4) Check cooling fan operation. If both cooling fans are operating, go to next step. If both cooling fans are not operating, see ELECTRIC COOLING FANS - ALL MODELS article.

5) Connect A/C manifold gauge set. Place thermometer at instrument panel center vent. Set temperature control to maximum cold, maximum A/C, and blower to high speed. Run engine at idle for 2 minutes. Note high-side and low-side pressures on A/C manifold gauge set. Determine relative humidity and ambient air temperature.

Ensure system is operating within specified range. See A/C SYSTEM PERFORMANCE PRESSURE SPECIFICATIONS (2000 MODELS) and A/C SYSTEM PERFORMANCE TEMPERATURE SPECIFICATIONS (2000 MODELS) tables. Also see

A/C SYSTEM PERFORMANCE PRESSURE SPECIFICATIONS (2001 MODELS) and A/C SYSTEM PERFORMANCE TEMPERATURE SPECIFICATIONS (2001 MODELS).

6) If system is operating within specified range, system is okay. If system is not operating within specified range, check Variable Displacement Orifice Tube (VDOT) system. See MANUAL A/C-HEATER SYSTEMS - TROUBLE SHOOTING article.

A/C SYSTEM PERFORMANCE PRESSURE SPECIFICATIONS (2000 MODELS)

| Ambient Temp.<br>°F (°C) | High Pressure<br>psi (kg/cm <sup>2</sup> ) | Low Pressure<br>psi (kg/cm <sup>2</sup> ) |
|--------------------------|--|---|
| 70-80 (21-29) (1) .....  | 115-190 (8.1-13.4) .....                   | 24-34 (1.7-2.4)                           |
| 70-80 (21-29) (2) .....  | 115-200 (8.1-14.1) .....                   | 25-37 (1.8-2.6)                           |
| 80-90 (27-33) (1) .....  | 140-215 (9.8-15.1) .....                   | 28-38 (2.0-2.7)                           |
| 80-90 (27-33) (2) .....  | 150-235 (10.5-16.5) .....                  | 30-40 (2.1-2.8)                           |
| 90-100 (33-38) (3) ....  | 165-260 (11.6-18.2) .....                  | 34-43 (2.4-3.0)                           |
| 90-100 (33-38) (4) ....  | 185-270 (13.0-19.0) .....                  | 36-48 (2.5-3.4)                           |
| 100-110 (38-44) (5) ...  | 210-290 (14.8-20.4) .....                  | 40-49 (2.8-3.4)                           |
| 100-110 (38-44) (6) ...  | 220-310 (15.5-21.8) .....                  | 43-52 (3.0-3.7)                           |

- (1) - With relative humidity at less than 50 percent.
- (2) - With relative humidity at more than 50 percent.
- (3) - With relative humidity at less than 40 percent.
- (4) - With relative humidity at more than 40 percent.
- (5) - With relative humidity at less than 20 percent.
- (6) - With relative humidity at more than 20 percent.

A/C SYSTEM PERFORMANCE TEMPERATURE SPECIFICATIONS (2000 MODELS)

| Ambient Temp. °F (°C)     | Center Vent Temp. °F (°C) |
|---------------------------|---------------------------|
| 70-80 (21-27) (1) .....   | 38-48 (3-9)               |
| 70-80 (21-27) (2) .....   | 40-55 (4-13)              |
| 80-90 (27-33) (1) .....   | 38-55 (3-13)              |
| 80-90 (27-33) (2) .....   | 45-65 (7-18)              |
| 90-100 (33-38) (3) .....  | 45-63 (7-17)              |
| 90-100 (33-38) (4) .....  | 55-68 (13-20)             |
| 100-110 (38-44) (5) ..... | 53-64 (12-18)             |
| 100-110 (38-44) (6) ..... | 58-70 (14-21)             |

- (1) - With relative humidity at less than 50 percent.
- (2) - With relative humidity at more than 50 percent.
- (3) - With relative humidity at less than 40 percent.
- (4) - With relative humidity at more than 40 percent.
- (5) - With relative humidity at less than 20 percent.
- (6) - With relative humidity at more than 20 percent.

A/C SYSTEM PERFORMANCE PRESSURE SPECIFICATIONS (2001 MODELS)

| Ambient Temp.<br>°F (°C) | High Pressure<br>psi (kg/cm <sup>2</sup> ) | Low Pressure<br>psi (kg/cm <sup>2</sup> ) |
|--------------------------|--|---|
| 50-55 (13-18) (1) .....  | 157-187 (11.0-13.1) .....                  | 32-37 (2.2-2.6)                           |
| 66-75 (19-24) (2) .....  | 177-218 (12.4-15.3) .....                  | 36-41 (2.5-2.9)                           |
| 76-85 (25-29) (3) .....  | 202-244 (14.2-17.2) .....                  | 40-44 (2.8-3.1)                           |
| 86-95 (30-35) (4) .....  | 218-261 (15.3-18.4) .....                  | 42-46 (3.0-3.2)                           |
| 96-105 (36-41) (6) ....  | 245-293 (17.2-20.6) .....                  | 46-51 (3.2-3.6)                           |
| 106-115 (42-46) (5) ...  | 255-300 (17.9-21.0) .....                  | 48-53 (3.4-3.7)                           |
| 116-120 (47-49) (7) ...  | 273-303 (19.2-21.3) .....                  | 49-54 (3.4-3.8)                           |

- (1) - With relative humidity at 0-50 percent.
- (2) - With relative humidity at more than 40 percent.
- (3) - With relative humidity at more than 60 percent.
- (4) - With relative humidity at more than 30 percent.
- (5) - With relative humidity at more than 40 percent.
- (6) - With relative humidity at more than 20 percent.
- (7) - With relative humidity at less than 30 percent.

## A/C SYSTEM PERFORMANCE TEMPERATURE SPECIFICATIONS (2001 MODELS)

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| Ambient Temp. °F (°C)     | Center Vent Temp. °F (°C) |
|---------------------------|---------------------------|
| 70-80 (21-27) (1) .....   | 38-48 (3-9)               |
| 70-80 (21-27) (2) .....   | 40-55 (4-13)              |
| 80-90 (27-33) (1) .....   | 38-55 (3-13)              |
| 80-90 (27-33) (2) .....   | 45-65 (7-18)              |
| 90-100 (33-38) (3) .....  | 45-63 (7-17)              |
| 90-100 (33-38) (4) .....  | 55-68 (13-20)             |
| 100-110 (38-44) (5) ..... | 53-64 (12-18)             |
| 100-110 (38-44) (6) ..... | 58-70 (14-21)             |

- (1) - With relative humidity at less than 50 percent.  
(2) - With relative humidity at more than 50 percent.  
(3) - With relative humidity at less than 40 percent.  
(4) - With relative humidity at more than 40 percent.  
(5) - With relative humidity at less than 20 percent.  
(6) - With relative humidity at more than 20 percent.
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## DIAGNOSTIC SYSTEM TEST

1) Connect scan tool to Data Link Connector (DLC). DLC is located under instrument panel, near steering column. If scan tool powers up, go to next step. If scan tool does not power up, go to appropriate BODY CONTROL MODULES article in ACCESSORIES & EQUIPMENT.

2) Turn ignition switch to ON position. Attempt to establish communications with A/C-heater control module, Body Control Module (BCM) and Powertrain Control Module (PCM). If communications is establish to all desired modules, go to next step. If communications is not established to all desired modules, go to appropriate BODY CONTROL MODULES article in ACCESSORIES & EQUIPMENT.

3) Following scan tool manufacturer's instructions, select DISPLAY DTCs function for A/C-heater control module, BCM and PCM. If any Diagnostic Trouble Codes (DTCs) are displayed, go to next step. If no DTCs are displayed, perform procedure for appropriate symptom.

4) If scan tool displays any DTCs beginning with "U", go to appropriate BODY CONTROL MODULES article in ACCESSORIES & EQUIPMENT. If no DTCs beginning with "U" are displayed, go to next step.

5) If scan tool displays any DTCs beginning with "B", go to appropriate BODY CONTROL MODULES article in ACCESSORIES & EQUIPMENT. If no DTCs beginning with "B" are displayed, go to next step.

6) If scan tool displays any DTCs beginning with "P", go to appropriate SELF-DIAGNOSTICS article in ENGINE PERFORMANCE. If no DTCs beginning with "P" are displayed, perform procedure for appropriate symptom.

## BLOWER MOTOR ALWAYS ON

### 2000 Models

1) Perform DIAGNOSTIC SYSTEM TEST. Go to next step.

2) Turn ignition switch to OFF position. Disconnect blower motor relay. Using test light connected to ground, probe blower motor relay harness connector terminal A1 (Orange wire). If test light illuminates, go to next step. If test light does not illuminate, go to step 4).

3) Repair short to battery voltage in Orange wire between blower motor relay harness connector terminal A1 and blower motor switch harness connector C1 terminal "B" located at A/C-heater control panel. After repair, go to step 9).

4) Using test light connected to ground, probe blower motor

relay harness connector terminal B2 (Dark Blue wire). If test light illuminates, go to next step. If test light does not illuminate, go to step 6).

5) Repair short to battery voltage in Dark Blue wire between blower motor relay harness connector terminal B2 and blower motor resistor harness connector terminal "C". After repair, go to step 9).

6) Using test light connected to ground, probe blower motor relay harness connector terminal C1 (Purple wire). If test light illuminates, go to next step. If test light does not illuminate, go to step 8).

7) Repair short to battery voltage in Purple wire between blower motor relay harness connector terminal C1 and blower motor harness connector terminal "B". After repair, go to step 9).

8) Replace blower motor relay. After repair, go to next step.

9) Operate blower system to verify repair. If blower motor operates normally, repair is complete. If blower motor is still inoperative, return to step 2).

#### 2001 Models

1) Perform DIAGNOSTIC SYSTEM TEST. Go to next step.

2) Turn ignition switch to ON position. Set mode switch in OFF position. If blower motor is off, problem is intermittent. Check for faulty wiring or poor connections. Repair or replace as necessary. After repair, go to step 14). If no problem is found, go to next step.

3) Turn ignition switch to OFF position. Disconnect blower motor relay. Turn ignition switch to ON position. If blower motor does not operate, go to next step. If blower motor operates, go to 11).

4) Ensure mode switch is in OFF position. Set blower speed switch at lowest speed position. Using test light connected to ground, probe blower motor relay harness connector terminal B2. If test light illuminates, go to next step. If test light does not illuminate, go to step 6).

5) Check Orange wire between blower motor switch harness connector C1 terminal "B" and blower motor relay harness connector terminal B2 for short to voltage. Repair Orange wire as necessary. After repair, go to step 14). If wire is okay, go to step 10).

6) Using test light connected to ground, probe blower motor relay harness connector terminal B2 (Dark Blue wire). If test light illuminates, go to next step. If test light does not illuminate, go to step 9).

7) Check Dark Blue wire between blower motor relay harness connector terminal B2 and blower motor resistor harness connector terminal "C" for short to voltage. Repair Dark Blue wire as necessary. After repair, go to step 14). If wire is okay, go to next step.

8) Check Yellow, Tan and Light Blue wires for short to voltage between blower motor switch harness connector C1 at A/C-heater control panel and blower motor resistor harness connector. Repair suspect wire as necessary. After repair, go to step 14). If wires are okay, go to step 10).

9) Check for poor connections or connector damage at blower motor relay harness connectors. Repair or replace as necessary. After repair, go to step 14). If connections are okay, go to step 12).

10) Check for poor connections or connector damage at A/C-heater control panel harness connectors. Repair or replace as necessary. After repair, go to step 14). If connections are okay, go to step 13).

11) Repair short to voltage in Purple wire between blower motor harness connector terminal "B" and blower motor relay harness connector terminal C1. After repair, go to step 14).

12) Replace blower motor relay. After repair, go to step 14).

13) Replace A/C-heater control panel. See A/C-HEATER CONTROL PANEL under REMOVAL & INSTALLATION. After repair, go to next step.

14) Operate blower system to verify repair. If blower motor operates normally, repair is complete. If blower motor is still inoperative, return to step 2).

## BLOWER MOTOR INOPERATIVE IN HIGH SPEED

2000 Models

- 1) Perform DIAGNOSTIC SYSTEM TEST. Go to next step.
- 2) Set mode switch in VENT position. Set blower motor switch in highest speed position. Using test light connected to ground, backprobe A/C-heater control panel harness connector C1 terminal "B" (Orange wire). If test light illuminates, go to next step. If test light does not illuminate, go to step 4).
- 3) Using test light connected to ground, probe blower motor relay harness connector terminal A1 (Orange wire). If test light illuminates, go to step 6). If test light does not illuminate, go to step 7).
- 4) Check for poor connection or connector damage at A/C-heater control panel harness connector C1. See WIRING DIAGRAMS. Repair or replace as necessary. After repair, go to step 13). If connections are okay, go to next step.
- 5) Replace blower motor switch. See BLOWER MOTOR SWITCH under REMOVAL & INSTALLATION. After repair, go to step 13).
- 6) Connect test light between blower motor relay harness connector terminals A1 (Orange wire) and C2 (Black wire). If test light illuminates, go to step 8). If test light does not illuminate, go to step 9).
- 7) Repair open or poor connection in Orange wire between blower motor relay harness connector terminal A1 and blower motor resistor harness connector terminal "C". After repair, go to step 13).
- 8) Connect test light between blower motor relay harness connector terminals A2 (Red wire) and C2 (Black wire). If test light illuminates, go to step 10). If test light does not illuminate, go to step 12).
- 9) Repair open or poor connection in Black wire between blower motor relay harness connector terminal C2 and ground. After repair, go to step 13).
- 10) Check for poor connections or connector damage at blower motor relay harness connector. Repair or replace as necessary. After repair, go to step 13). If connections are okay, go to next step.
- 11) Replace blower motor relay. After repair, go to step 13).
- 12) Repair open or poor connection in Red wire between blower motor relay harness connector terminal A2 and I/P MAXI-FUSE No. 1 located in underhood electrical center. After repair, go to next step.
- 13) Operate blower system to verify repair. If blower motor operates normally, repair is complete. If blower motor is still inoperative in high speed, return to step 3).

## BLOWER MOTOR INOPERATIVE

2000 Models

- 1) Perform DIAGNOSTIC SYSTEM TEST. Go to next step.
- 2) Turn ignition switch to ON position. Set mode selector switch to VENT position. Using test light connected to ground, probe A/C-heater control panel harness connector C1 terminal "E" (Light Green wire). If test light illuminates, go to next step. If test light does not illuminate, go to step 15).
- 3) Set blower motor switch in low speed position. Using test light connected to ground, probe A/C-heater control panel harness connector C1 terminal "A" (Yellow wire). If test light illuminates, go to next step. If test light does not illuminate, go to step 5).
- 4) Turn ignition switch to OFF position. Disconnect blower motor relay. Connect fused jumper wire between blower motor relay



harness connector terminal B2 (Dark Blue wire) and C1 (Purple wire). Turn ignition switch to ON position. Set mode selector switch to VENT position. Place blower motor switch in low speed position. If blower motor operates, go to step 8). If blower motor does not operate, go to step 7).

5) Check for poor connection or connector damage at blower switch harness connector. Repair or replace as necessary. After repair, go to step 20). If connection is okay, go to next step.

6) Replace blower motor switch. See BLOWER MOTOR SWITCH under REMOVAL & INSTALLATION. After repair, go to step 20).

7) Leave jumper wire connected as described in step 4). Turn ignition switch to OFF position. Disconnect blower motor harness connector. Turn ignition switch to ON position. Connect test light between blower motor harness connector terminals "A" (Black wire) and "B" (Purple wire). If test light illuminates, go to step 11). If test light does not illuminate, go to step 10).

8) Check for poor connection at blower motor relay harness connector. Repair or replace as necessary. After repair, go to step 20). If connection is okay, go to next step.

9) Replace blower motor relay. After repair, go to step 20).

10) Leave jumper wire connected. Using test light connected to ground, probe blower motor harness connector terminal "B" (Purple wire). If test light illuminates, go to step 14). If test light does not illuminate, go to step 13).

11) Check for poor connection or connector damage at blower motor harness connector. Repair or replace as necessary. After repair, go to step 20). If connection is okay, go to next step.

12) Replace blower motor. See BLOWER MOTOR under REMOVAL & INSTALLATION. After repair, go to step 20).

13) Repair open or poor connection in Purple wire between blower motor relay harness connector terminal C1 and blower motor harness connector terminal "B". After repair, go to step 20).

14) Repair open or poor connection in Black wire between ground and blower motor harness connector terminal "A". After repair, go to step 20).

15) Using test light connected to ground, probe A/C-heater control panel harness connector C2 terminal "C" (Brown wire). If test light illuminates, go to next step. If test light does not illuminate, go to step 19).

16) Check for open circuit or poor connection between A/C-heater control panel harness connector C2 terminals "B" (Light Green wire) and "C" (Brown wire). See WIRING DIAGRAMS. Repair or replace as necessary. After repair, go to step 20). If no problem is found, go to next step.

17) Check for poor connection(s) or connector damage at A/C-heater control panel switch harness connectors. Repair or replace as necessary. After repair, go to step 20). If connections are okay, go to next step.

18) Replace A/C-heater control panel. See A/C-HEATER CONTROL PANEL under REMOVAL & INSTALLATION. After repair, go to step 20).

19) Check for poor connection or wire damage in Brown wire between A/C-heater control panel harness connector C2 terminal "C" and HVAC fuse (20-amp) located in instrument panel fuse block. Repair or replace as necessary. After repair, go to next step.

20) Operate blower system to verify repair. If blower motor operates normally, repair is complete. If blower motor is still inoperative, return to step 3).

#### 2001 Models

1) Perform DIAGNOSTIC SYSTEM TEST. Go to next step.

2) Turn ignition switch to ON position. Set mode selector switch to VENT position. Place blower motor switch in each speed

position. If blower operates in any position, problem is intermittent. Check for poor connections, loose components or damaged wiring. Repair or replace as necessary. After repair, go to step 16). If blower motor does not operate in any speed position, go to next step.

3) Turn ignition switch to OFF position. Disconnect blower motor harness connector. Turn ignition switch to ON position. Place blower motor switch in lowest speed position. Using test light connected to ground, probe blower motor harness connector terminal "B" (Purple wire). If test light illuminates, go to next step. If test light does not illuminate, go to step 5).

4) Check Black wire between blower motor harness connector terminal "A" and ground for open or high resistance. See WIRING DIAGRAMS. Repair Black wire as necessary. After repair, go to step 16). If wire is okay, go to step 10).

5) Turn ignition switch to OFF position. Disconnect blower motor resistor harness connector. Turn ignition switch to ON position. Set blower motor switch to lowest speed position. Using test light connected to ground, probe blower motor resistor harness connector terminal "B" (Yellow wire). If test light does not illuminate, go to next step. If test light illuminates, go to step 8).

6) Check Yellow wire between blower motor resistor harness connector terminal "B" and A/C-heater control panel harness connector C1 terminal "A" for open or high resistance. Repair Yellow wire as necessary. After repair, go to step 16). If wire is okay, go to next step.

7) Turn ignition switch to OFF position. Disconnect A/C-heater control panel harness connector C2. See WIRING DIAGRAMS. Turn ignition switch to ON position. Using test light connected to ground, probe A/C-heater control panel harness connector C2 terminal "C" (Brown wire). If test light illuminates, go to step 11). If test light does not illuminate, go to step 12).

8) Check Purple wire between blower motor relay harness connector terminal C1 and blower motor harness connector terminal "B" for open or high resistance. Repair Purple wire as necessary. After repair, go to step 16). If wire is okay, go to next step.

9) Check for poor connections or connector damage at blower motor relay harness connector. Repair or replace as necessary. After repair, go to step 16). If connections are okay, go to step 13).

10) Check for poor connections or connector damage at blower motor harness connector. Repair or replace as necessary. After repair, go to step 16). If connections are okay, go to step 14).

11) Check for poor connections or connector damage at A/C-heater control panel harness connector. Repair or replace as necessary. After repair, go to step 16). If connections are okay, go to step 15).

12) Repair Brown wire between HVAC fuse (20-amp) located in instrument panel fuse block and A/C-heater control panel harness connector C2 terminal "C" as necessary. After repair, go to step 16).

13) Replace blower motor relay. After repair, go to step 16).

14) Replace blower motor. See BLOWER MOTOR under REMOVAL & INSTALLATION. After repair, go to step 16).

15) Replace A/C-heater control panel. See A/C-HEATER CONTROL PANEL under REMOVAL & INSTALLATION. After repair, go to next step.

16) Operate blower system to verify repair. If blower motor operates normally, repair is complete. If blower motor is still inoperative, return to step 3).

## BLOWER MOTOR OPERATES IN HIGH SPEED ONLY

2000 Models

1) Perform DIAGNOSTIC SYSTEM TEST. Go to next step.

2) Turn ignition switch to ON position. Set mode selector

switch in VENT position. Set blower motor switch in lowest speed position. Using test light connected to ground, probe blower motor resistor harness connector terminal "C" (Dark Blue wire). If test light illuminates, go to next step. If test light does not illuminate, go to step 4).

3) Using test light connected to ground, probe blower motor relay harness connector terminal B2 (Dark Blue wire). If test light illuminates, go to step 6). If test light does not illuminate, go to step 8).

4) Check for poor connection or connector damage at blower motor resistor harness connector. Repair or replace as necessary. After repair, go to step 9). If connection is okay, go to next step.

5) Replace blower motor resistor. See BLOWER MOTOR RESISTOR under REMOVAL & INSTALLATION. After repair, go to step 9).

6) Check for poor connection or connector damage at blower motor relay harness connector. Repair or replace as necessary. After repair, go to step 9). If connection is okay, go to next step.

7) Replace blower motor relay. After repair, go to step 9).

8) Repair open or poor connection in Dark Blue wire between blower relay harness connector terminal B2 and blower motor resistor harness connector terminal "C". After repair, go to next step.

9) Operate blower system to verify repair. If blower motor operates normally, repair is complete. If blower motor is still inoperative, return to step 3).

## **BLOWER SPEED INOPERATIVE IN LOW, MEDIUM-LOW OR MEDIUM-HIGH SPEED**

### 2000 Models

1) Perform DIAGNOSTIC SYSTEM TEST. Go to next step.

2) Turn ignition switch to OFF position. Disconnect blower motor resistor harness connector. Turn ignition switch to ON position. Set blower motor switch in OFF position. Using test light connected to ground, probe A/C-heater control panel harness connector C1 terminal for circuit corresponding to inoperative blower speed. See WIRING DIAGRAMS. If test light illuminates on suspect circuit, go to next step. If test light does not illuminate, go to step 5).

3) Check for poor connection or connector damage at blower motor resistor harness connector. Repair or replace as necessary. After repair, go to step 9). If connections are okay, go to next step.

4) Replace blower motor resistor. See BLOWER MOTOR RESISTOR under REMOVAL & INSTALLATION. After repair, go to step 9).

5) Using test light connected to ground, individually probe A/C-heater control panel harness connector C1 terminal which did not cause test light to illuminate in step 2). If test light illuminates, go to next step. If test light does not illuminate, go to step 7).

6) Repair open or poor connection in Yellow, Tan or Light Blue wire(s) between A/C-heater control panel harness connector C1 and blower motor resistor harness connector. See WIRING DIAGRAMS. After repair, go to step 9).

7) Check for poor connections or connector damage at A/C-heater control panel harness connector C1. Repair or replace as necessary. After repair, go to step 9). If connections are okay, go to next step.

8) Replace blower motor switch. See BLOWER MOTOR SWITCH under REMOVAL & INSTALLATION. After repair, go to next step.

9) Operate blower system to verify repair. If blower motor operates normally, repair is complete. If blower motor is still inoperative, return to step 3).

## **BLOWER MOTOR MALFUNCTIONS**

### 2001 Models

- 1) Perform DIAGNOSTIC SYSTEM TEST. Go to next step.
- 2) Turn ignition switch to ON position. Set mode switch to VENT position. Turn blower switch to each speed position. If blower motor operates normally, go to next step. If blower motor malfunctions, go to step 4).
- 3) Place blower motor switch at maximum speed position. Place mode switch in each position. If blower operates in each switch position, problem is intermittent. Check for faulty wiring, poor connections or damaged components. Repair as necessary. After repair, go to step 24). If no problem is found, go to step 18).
- 4) Turn ignition switch to OFF position. Disconnect blower motor harness connector. Turn ignition switch to ON position. Using test light connected to ground, probe blower motor harness connector terminal "B" (Purple wire). Place blower motor switch in each speed position. If test light does not illuminate in each speed position, go to next step. If test light illuminates in all speed positions, go to step 16).
- 5) If test light does not illuminate in maximum speed position, go to next step. If test light illuminates in maximum speed position, go to step 10).
- 6) Turn ignition switch to OFF position. Disconnect blower motor relay. Turn ignition switch to ON position. Using test light connected to ground, probe blower motor relay harness connector terminal A2 (Red wire). If test light illuminates, go to next step. If test light does not illuminate, go to step 19).
- 7) Set blower motor switch in maximum speed position. Using test light connected to ground, probe blower motor relay harness connector terminal A1 (Orange wire). If test light does not illuminate, go to next step. If test light illuminates, go to step 9).
- 8) Check Orange wire between blower motor relay harness connector terminal A1 and blower motor switch harness connector C1 terminal "B" located at A/C-heater control panel for open or high resistance. Repair Orange wire as necessary. After repair, go to step 24). If wire is okay, go to step 14).
- 9) Check Black wire for open or high resistance between blower motor relay harness connector terminal C2 and ground. Repair Black wire as necessary. After repair, go to step 24). If wire is okay, go to step 15).
- 10) Turn ignition switch to OFF position. Disconnect blower motor relay. Turn ignition switch to ON position. Using test light connected to ground, probe blower motor relay harness connector terminal B2 (Dark Blue wire). Alternately set blower motor switch in minimum, M1 (medium-low) and M2 (medium-high) speed positions. If test light illuminates in each speed position, go to step 15). If test light does not illuminate, go to next step.
- 11) Check Dark Blue wire between blower motor relay harness connector terminal B2 and blower motor resistor harness connector terminal "C" for short to ground, open or high resistance. Repair Dark Blue wire as necessary. After repair, go to step 24). If wire is okay, go to next step.
- 12) Turn ignition switch to OFF position. Disconnect blower motor resistor harness connector. Turn ignition switch to ON position. Set mode switch in VENT position. Using test light connected to ground, individually probe blower motor resistor harness connector terminals "A" (Tan wire), "B" (Yellow wire) and "D" (Light Blue wire). See WIRING DIAGRAMS. Set blower motor switch in speed position corresponding to wire being tested. If test light does not illuminate at any switch position, go to next step. If test light illuminates at each switch position, go to step 17).
- 13) Check suspect blower motor control circuit identified in previous step for open or high resistance. Repair suspect wire as necessary. After repair, go to step 24). If wire is okay, go to step 18).

14) Check Light Green wire between A/C-heater control panel harness connector C2 terminal "B" and blower motor switch harness connector C1 terminal "E" located at A/C-heater control panel for open or high resistance. Repair Light Green wire as necessary. After repair, go to step 24). If wire is okay, go to step 18).

15) Check for poor connections or connector damage at blower motor relay harness connector. Repair or replace as necessary. After repair, go to step 24). If connections are okay, go to step 20).

16) Check for poor connections or connector damage at blower motor harness connector. Repair or replace as necessary. After repair, go to step 24). If connections are okay, go to step 21).

17) Check for poor connections or connector damage at blower motor resistor harness connector. Repair or replace as necessary. After repair, go to step 24). If connections are okay, go to step 22).

18) Check for poor connections or connector damage at A/C-heater control panel harness connectors. Repair or replace as necessary. After repair, go to step 24). If connections are okay, go to step 23).

19) Repair Red wire between blower motor relay harness connector terminal A2 and I/P-1 fuse (40-amp) located in underhood fuse block. After repair, go to step 24).

20) Replace blower motor relay. After repair, go to step 24).

21) Replace blower motor. See BLOWER MOTOR under REMOVAL & INSTALLATION. After repair, go to step 24).

22) Replace blower motor resistor. See BLOWER MOTOR RESISTOR under REMOVAL & INSTALLATION. After repair, go to step 24).

23) Replace A/C-heater control panel. See A/C-HEATER CONTROL PANEL under REMOVAL & INSTALLATION. After repair, go to next step.

24) Operate blower system to verify repair. If blower motor operates normally, repair is complete. If blower motor is still inoperative, return to step 2).

## REMOVAL & INSTALLATION

**WARNING:** To avoid injury from accidental air bag deployment, read and carefully follow all SERVICE PRECAUTIONS and DISABLING & ACTIVATING AIR BAG SYSTEM procedures in AIR BAG SYSTEM SAFETY article in GENERAL SERVICING.

## A/C COMPRESSOR

### Removal (3.8L Engine)

1) Disconnect negative battery cable from engine block ground stud. Discharge A/C system, using approved refrigerant recovery/recycling equipment. Remove serpentine drive belt. Disconnect electrical harness connector. Remove strap from compressor and condenser hose assembly.

2) Raise and support vehicle. Remove compressor and condenser hose bolt. Disconnect compressor and condenser hose assembly. Discard "O" ring. Remove compressor bolts. Remove compressor and rear bracket (if necessary).

### Installation

1) To install, reverse removal procedure. If compressor is being replaced, drain refrigerant oil from old compressor. Measure amount of oil from old compressor. If measured amount is less than one ounce, add 2 ounces to new compressor.

2) If more than one ounce is drained from old compressor, add same amount to new compressor. Clean all fittings with mineral-base refrigerant oil. Lightly coat all seals with mineral-base refrigerant oil before assembling. Evacuate and charge A/C system.

#### Removal (5.7L Engine)

Disconnect negative battery cable. Discharge A/C system, using approved refrigerant recovery/recycling equipment. Raise and support vehicle. Remove serpentine drive belt and tensioner. Remove compressor and condenser hose bolt. Disconnect compressor and condenser hose assembly. Discard seal. Disconnect transmission oil cooler pipes from engine bracket. Disconnect compressor electrical connector. Remove compressor bolts. Remove compressor.

#### Installation

1) To install, reverse removal procedure. If compressor is being replaced, drain refrigerant oil from old compressor. Measure amount of oil from old compressor. If measured amount is less than one ounce, add 2 ounces to new compressor.

2) If more than one ounce is drained from old compressor, add same amount to new compressor. Clean all fittings with mineral-base refrigerant oil. Lightly coat all seals with mineral-base refrigerant oil before assembling. Evacuate and charge A/C system.

### A/C-HEATER CONTROL PANEL

#### Removal & Installation

1) Disconnect negative battery cable. Remove center instrument panel trim plate. Remove A/C-heater control panel retaining bolts.

2) Pull A/C-heater control panel out from dash sufficiently to disconnect wiring harness connectors, temperature control cable and vacuum harness. Remove A/C-heater control panel. To install, reverse removal procedure.

### BLOWER MOTOR

#### Removal & Installation

Remove right side instrument panel insulator. Disconnect blower motor harness connector. Remove blower motor retaining bolts. Remove blower motor. To install, reverse removal procedure.

### BLOWER MOTOR RESISTOR

#### Removal & Installation

Disconnect negative battery cable. Remove right instrument panel insulator. Pull carpet away from A/C-heater case assembly. Disconnect blower motor resistor electrical connector. Remove mounting bolt from blower motor resistor. Remove blower motor resistor. To install, reverse removal procedure.

### BLOWER MOTOR SWITCH

#### Removal & Installation

Remove A/C-heater control panel. See A/C-HEATER CONTROL PANEL . Pull off blower motor switch knob. Remove blower motor switch retaining screw. Remove blower motor switch from A/C-heater control panel. To install, reverse removal procedure.

### CONDENSER

#### Removal & Installation

1) Disconnect negative battery cable. Discharge A/C system, using approved refrigerant recovery/recycling equipment. Remove air intake duct and air cleaner assembly. Remove upper radiator shroud assembly.

2) Raise and support vehicle. Remove compressor and condenser hose assembly fitting at condenser. Discard "O" ring. Lower vehicle. Remove accumulator tube. Remove radiator air upper baffle from condenser. Remove condenser.

3) To install, reverse removal procedure. Lightly coat "O" rings with mineral-base refrigerant oil. Evacuate and charge A/C system.

## EVAPORATOR TUBE

### Removal

Disconnect negative battery cable. Discharge A/C system, using approved refrigerant recovery/recycling equipment. Disconnect electrical connector at refrigerant pressure sensor. Remove strap from evaporator tube. Remove accumulator tube. See ACCUMULATOR. Remove evaporator tube fitting at accumulator and condenser. Remove evaporator tube and discard "O" rings.

### Installation

To install, reverse removal procedure. Clean all fittings with mineral-base refrigerant oil. Lightly coat all seals with mineral-base refrigerant oil before assembling. Evacuate and charge A/C system.

## EVAPORATOR

### Removal

1) Disconnect negative battery cable. Discharge A/C system, using approved refrigerant recovery/recycling equipment. Remove right instrument panel sound insulator panel. Drain cooling system. Remove heater hoses at heater core. Open glove box. Push sides of glove box and remove glove box. Remove heater core. See HEATER CORE.

2) Remove temperature control cable at A/C-heater case. Remove bolts, located in engine compartment, from A/C-heater case. Slide A/C-heater case down to disengage upper case clip and A/C-heater case.

3) Place a mat on passenger side floor to protect carpeting. Using a small hand saw, remove perforated section of A/C-heater case as one piece (DO NOT discard). Remove bolts and hoses retaining A/C evaporator. Slide evaporator to left. Remove evaporator from A/C-heater case. See Fig. 3.





screen to new evaporator. Using appropriate adhesive, install NEW evaporator core gasket in same position as original. Slide new evaporator to right until full seated in A/C-heater case.

2) Apply sealer (not epoxy) between evaporator and evaporator upper and lower case. Using epoxy, glue perforated section of heater and A/C evaporator case to A/C-heater case. After epoxy dries, use thumb to grade sealant on inside and outside to ensure a water-tight seal.

3) Slide temperature valve case upward into position until upper clip engages. Engage snap on left edge of A/C-heater case to distribution case. Refill cooling system. Evacuate and charge A/C system.

## HEATER CORE

**CAUTION:** DO NOT use excessive force to remove heater hoses from heater core pipes. Heater core can be damaged.

### Removal

Drain cooling system. Remove heater hoses from heater core pipes. Open glove box. Push sides of glove box and remove glove box. Remove heater module bolts and cover. Remove heater core bolt, heater core clamp and heater core.

### Installation

To install, reverse removal procedure. Lubricate heater pipes. Verify seal is installed correctly by observing seal from inside engine compartment. If seal leaks, apply sealer between heater core pipes and evaporator housing. Refill cooling system.

## ACCUMULATOR

### Removal

Disconnect negative battery cable. Discharge A/C system, using approved refrigerant recovery/recycling equipment. Remove accumulator tube fitting at accumulator. Remove accumulator tube, and discard "O" ring. Remove evaporator tube fitting at accumulator. Remove accumulator from bracket, and discard "O" ring.

### Installation

1) If accumulator is being replaced, drain and measure amount of refrigerant oil in old accumulator. Add drained amount plus one fluid ounce of new refrigerant oil to new accumulator.

2) Clean all fittings with mineral-base refrigerant oil. Lightly coat all seals with mineral-base refrigerant oil before assembling. Evacuate and charge A/C system.

## ORIFICE (EXPANSION) TUBE

**CAUTION:** If vehicle is equipped with a pressure switch mounted near orifice tube location, remove switch before heating inlet tube to prevent damage to switch.

### Removal & Installation

1) Discharge A/C system, using approved refrigerant recovery/recycling equipment. Remove evaporator tube. See EVAPORATOR TUBE. Using needle-nose pliers or orifice tube remover, remove orifice tube from evaporator tube.

2) If removal of orifice tube is difficult, remove as much of the impacted residue as possible. Using a heat gun, apply heat 1/4" (7 mm) from dimples on inlet pipe. DO NOT overheat evaporator tube.

3) To install, reverse removal procedure. Lubricate new "O" ring with clean refrigerant oil prior to installation. DO NOT soak "O"

ring, as this will cause it to expand. Insert short screen end of orifice tube first. Evacuate, charge, and leak test A/C system.

## TORQUE SPECIFICATIONS

### TORQUE SPECIFICATIONS

| Application  | Ft. Lbs. (N.m)  |
|--|-----------------|
| Accumulator Hose Fitting At Evaporator .....             | 28 (38)         |
| Accumulator Tube Bolt .....                              | 10 (14)         |
| Compressor & Condenser Hose Bolt .....                   | 24 (33)         |
| Compressor & Condenser Hose Fitting At Condenser .....   | 12 (16)         |
| Compressor & Condenser Hose Fitting At Accumulator ..... | 12 (16)         |
| Compressor Support Bracket Bolt                          |                 |
| Front (5.7L) .....                                       | 37 (50)         |
| Rear   |                 |
| 3.8L .....   | 22 (30)         |
| 5.7L .....   | 37 (50)         |
| Evaporator Tube Bolt At Condenser .....                  | 12 (16)         |
| Evaporator Tube Bolt At Evaporator .....                 | 12 (16)         |
| Evaporator Tube Fitting At Accumulator .....             | 12 (16)         |
| Generator Bracket  |                 |
| 5.7L   |                 |
| Mounting Bolts .....                                     | 37 (50)         |
| Rear Brace Nut .....                                     | 24 (33)         |
|  | INCH Lbs. (N.m) |
| Accumulator Bracket Clamp Bolt .....                     | 53 (6)          |
| Compressor & Condenser Hose Clip Nut .....               | 71 (8)          |
| Compressor Low Pressure Cut-Off Switch .....             | 53 (6)          |
| Pressure Sensor .....                                    | 53 (6)          |
| Refrigerant Service Valve .....                          | 97 (11)         |
| Temperature Control Cable Screw .....                    | 17 (2)          |

## WIRING DIAGRAMS

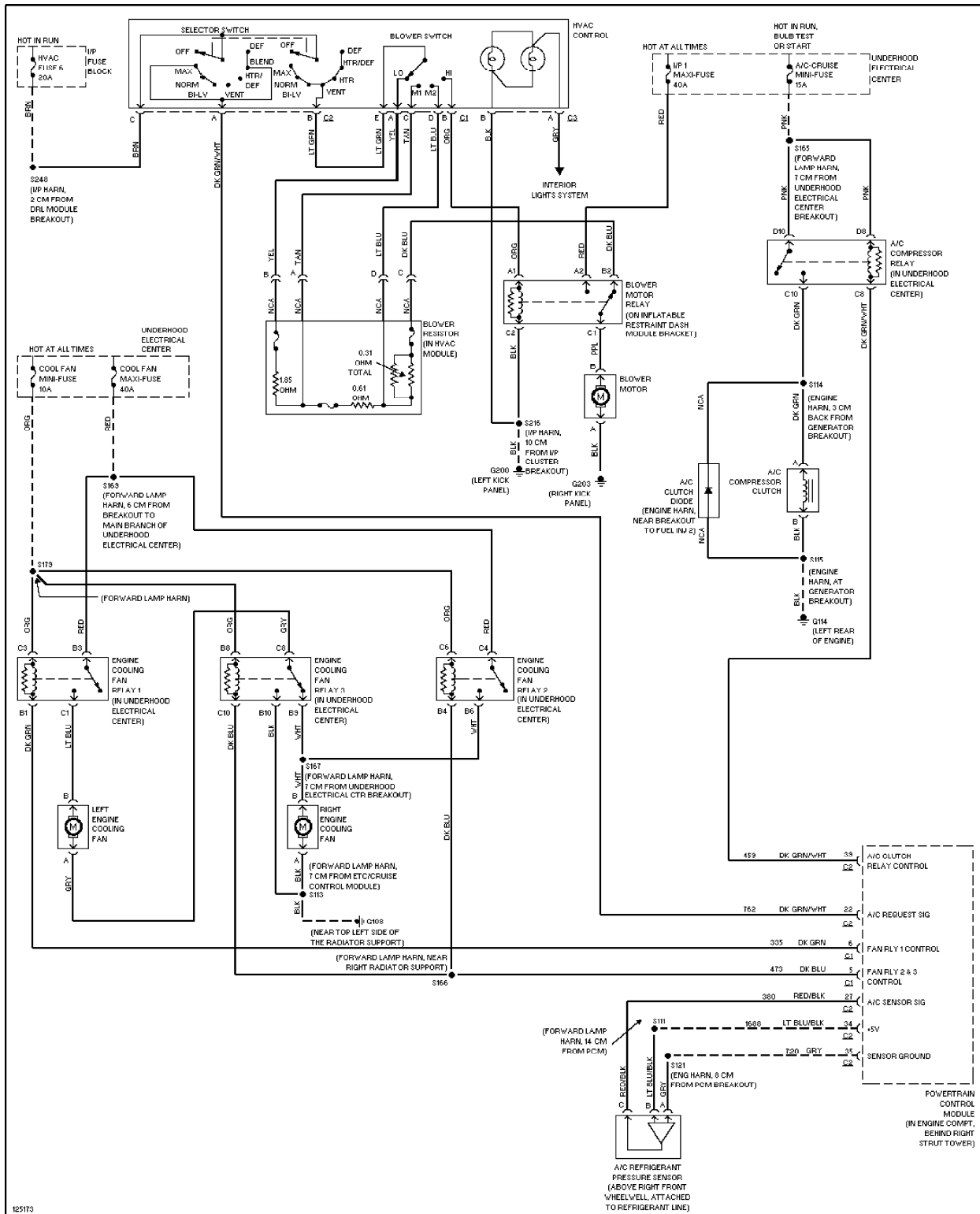


Fig. 4: Manual A/C-Heater System Wiring Diagram (2000 Camaro & Firebird With 3.8L Engine)

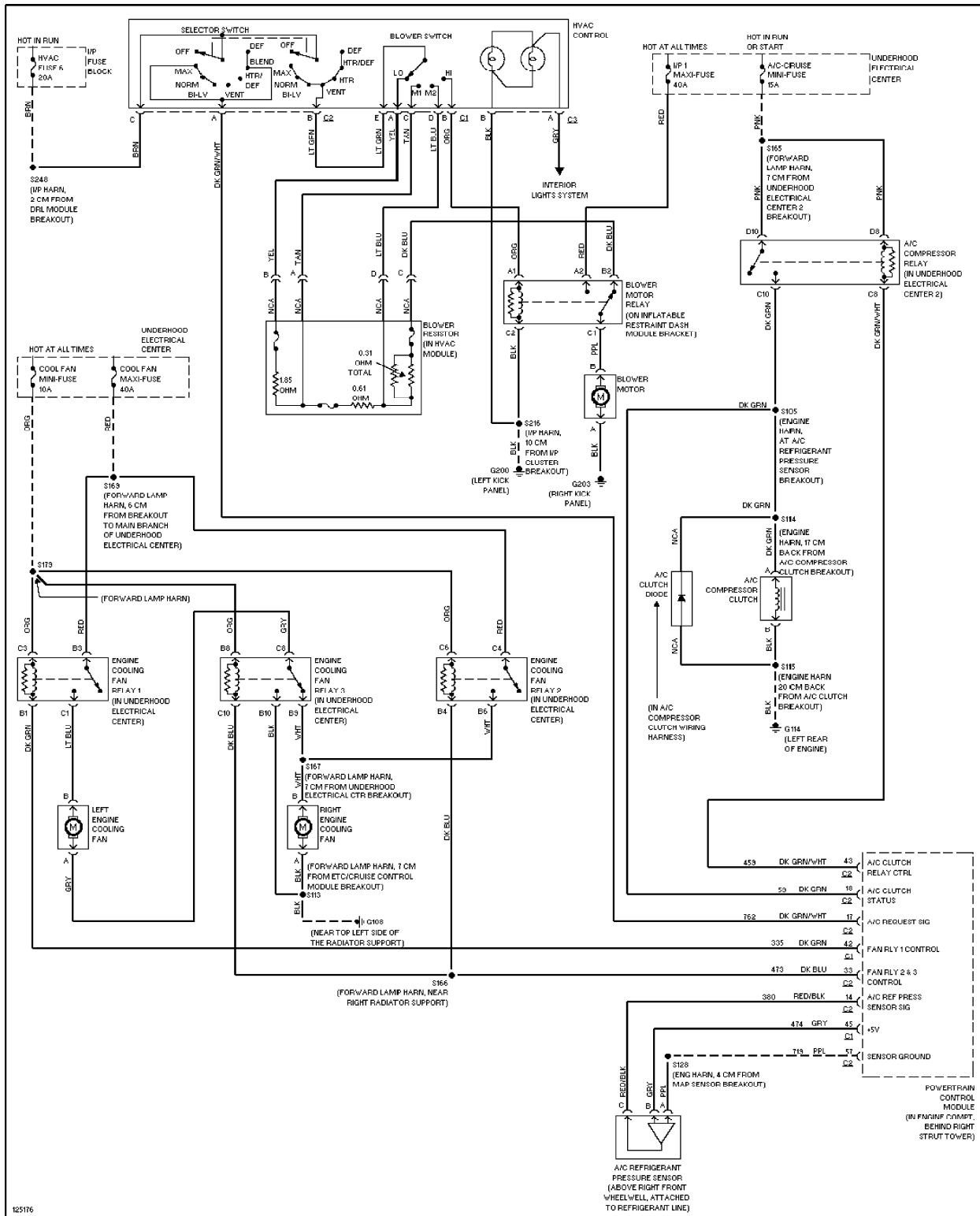


Fig. 5: Manual A/C-Heater System Wiring Diagram (2000 Camaro & Firebird With 5.7L Engine)



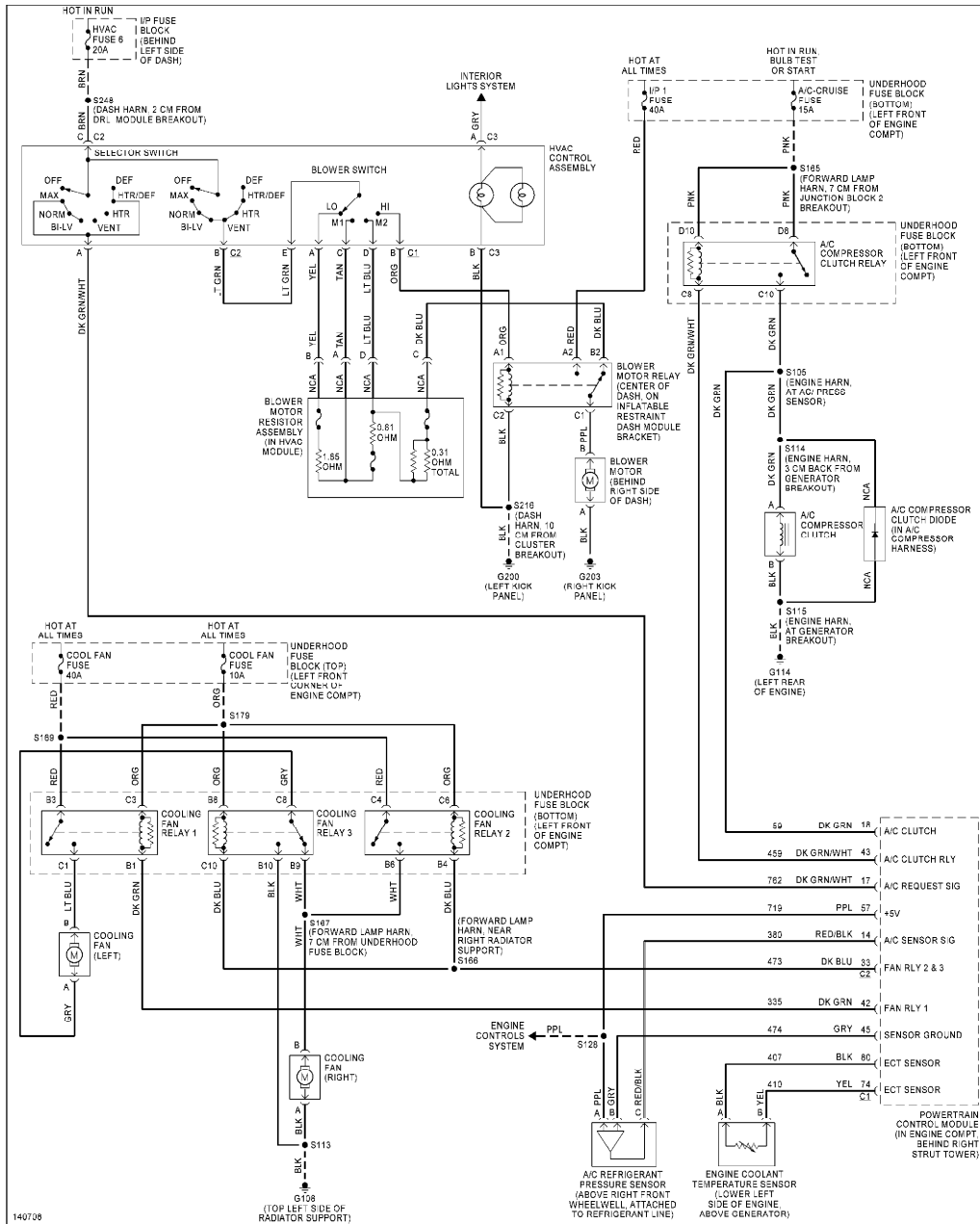


Fig. 7: Manual A/C-Heater System Wiring Diagram (2001 Camaro & Firebird With 5.7L Engine)

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