A/C-HEATER SYSTEM - AUTOMATIC

1996 Subaru SVX

1995-96 AUTOMATIC A/C-HEATER SYSTEMS
Subaru

SVX

* 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 the AIR BAG RESTRAINT SYSTEM article in the ACCESSORIES/SAFETY EQUIPMENT section.

A/C SYSTEM SPECIFICATIONS

SPECIFICATIONS

Application	Specification
Compressor Type	Calsonic V5 5-Cyl.
Compressor Belt Deflection (1)	
New	15/64-9/32" (6.0-7.0 mm)
Used	9/32-5/16" (7.0-8.0 mm)
Compressor Oil Capacity (2)	2.4 ozs.
Refrigerant (R-134a) Capacity	22.8 ozs.
System Operating Pressures (3)	
High Side	185-213 psi (13-15 kg/cm²)
Low Side	28 psi (2 kg/cm²)

(1) - With 22 lbs. (10 kg) applied between pulleys.
(2) - Use ZXL100PG (DH-PS) Type "S" Oil (Part No. K0010PS000).
(3) - Pressure readings will vary depending on ambient temperature, humidity and altitude.

DESCRIPTION

Automatic Climate Control (ACC) system uses a microprocessor, located in the auto amplifier, to control passenger compartment temperature. To improve driveability, the compressor is controlled by communication between auto amplifier and engine control unit. The auto amplifier has self-diagnostic capability.

A/C system components include compressor, condenser, evaporator, receiver-drier, control panel (includes auto amplifier), fan control amplifier, water temperature sensor, ambient temperature sensor, pressure switch, evaporator sensor, sunload sensor, in-vehicle sensor, condenser fan, aspirator, and related vents, wiring and fuses. See Fig. 1.

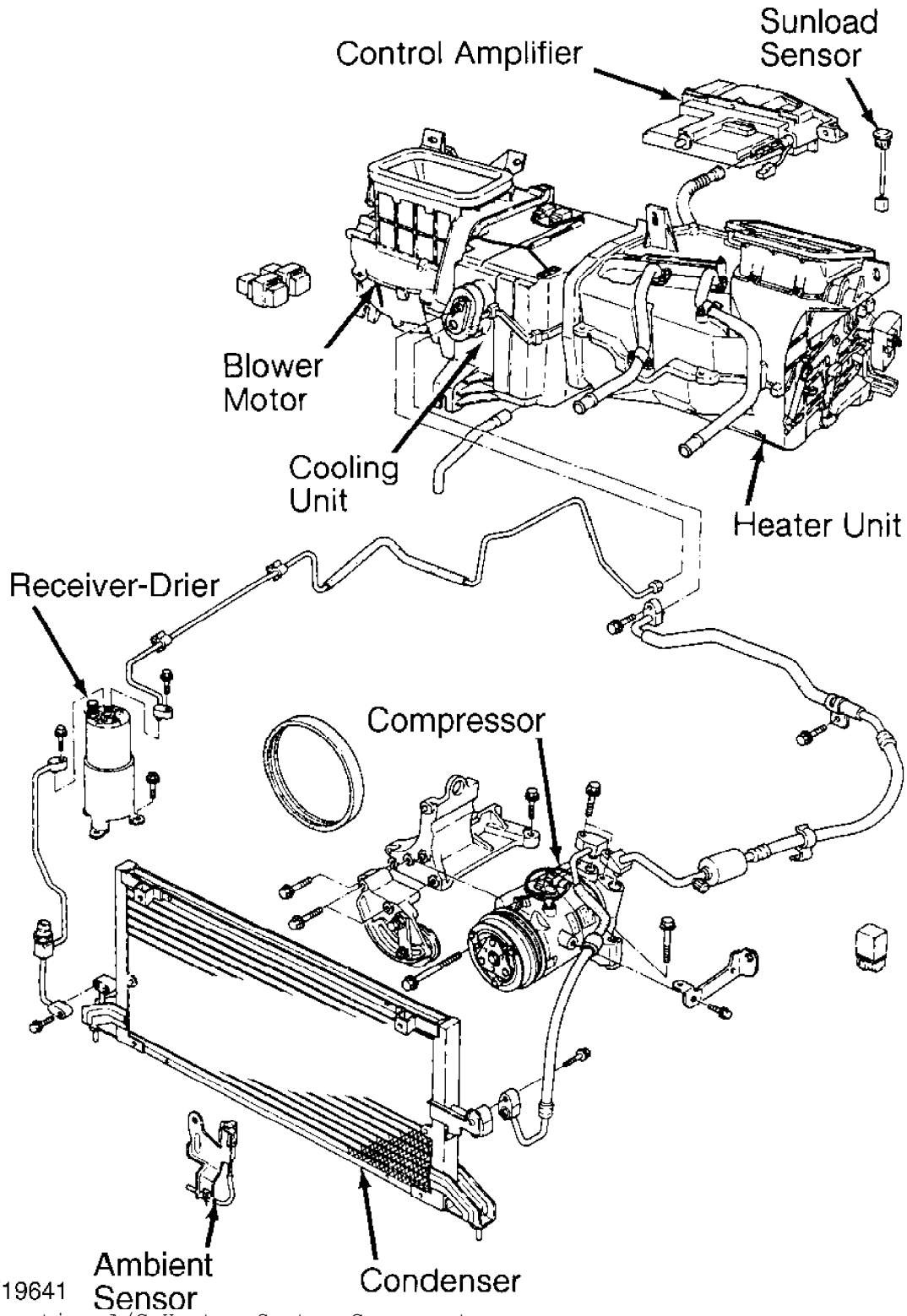

Fig. 1: Locating A/C-Heater System Components
Courtesy of Subaru of America, Inc.

OPERATION

SYSTEM OPERATION

When temperature adjustment switch is set to desired setting, auto amplifier calculates signal inputs sent from various sensors, switches and engine control unit. These calculations are used to operate air mix door, fan speed, mode door, intake door and compressor to attain desired temperature setting.

AUTO AMPLIFIER

The auto amplifier computes signals sent from each switch, sensor and engine control unit. It compares computed results to potentiometer balance resistor signal. It then sends signals to door motors, fan control amplifier and compressor solenoid actuator.

This movement automatically controls air inlet and outlet positions, air outlet temperature, air quantity and compressor operation. To aid in trouble diagnosis, auto amplifier is equipped with self-diagnostic function.

SENSORS

All sensors, except sunload sensor, convert temperature changes into resistance. The sunload sensor converts sun radiation into milliamps, which is then converted into a voltage signal.

In-vehicle sensor is located on left side of control panel. Ambient sensor is located on hood lock brace. Sunload sensor is located on upper top left corner of dash. Refrigerant temperature sensor is located in evaporator case, near expansion valve. Evaporator sensor is located in evaporator housing, on top of evaporator. Water temperature sensor is located in heater case, near heater core.

TRINARY PRESSURE SWITCH

The trinary (triple) pressure switch is located in line, on high side of system. Pressure switch is activated when system pressure is too low or too high. Switch is also used to activate condenser fan.

FAN CONTROL AMPLIFIER

The fan control amplifier is located on cooling unit. It receives reference current from auto amplifier and controls voltage sent to blower motor.

RELAYS

Max Hi Relay

The max hi (maximum high speed) relay is located on blower motor unit. It is turned on and off by auto amplifier. When max hi relay is turned on, blower motor operates at high speed.

Off Relay

The off relay is located on blower motor unit. When a control panel function is selected, auto amplifier turns the off relay on. When off relay is on, power is sent to fan control amplifier for blower motor operation. When off relay is off, power to fan control amplifier is cut off.

A/C Relay

The A/C relay is in relay box, on left side of engine compartment. A/C relay controls compressor clutch operation.

INTAKE DOOR MOTOR

The intake door motor is on the right upper side of blower motor case. It opens and closes the intake air door. Intake motor rotates in one direction only. When CIRC (recirculated air) mode and compressor are off, intake door is in fresh air position. When CIRC mode and compressor are on, intake door is positioned in fresh, 20 percent fresh or recirculated air position.

AIR MIX DOOR MOTOR

The air mix door is located on bottom of heater unit. The air mix door motor rotates in both directions. A Potentiometer Balance Resistor (PBR) is built into mix door motor. The PBR registers air mix door position and sends signal back to auto amplifier. Along with other inputs, auto amplifier then adjusts air mix door position for temperature adjustment.

MODE DOOR MOTOR

The mode door motor is located on left side of heater unit. Mode door motor actuates defrost door, vent door and heat doors. Mode door motor rotates in both directions. When AUTO position is selected on control panel, auto amplifier uses evaporator sensor and other inputs to drive mode door to vent, defrost or heat position.

FAHRENHEIT/CELSIUS SELECTION

Control panel temperature reading can be displayed in either degrees Fahrenheit (°F) or Celsius (°C). To display temperature in Fahrenheit, the connector located behind left front kick panel must be connected. See Fig. 2. Disconnect connector to display temperature in degrees Celsius.

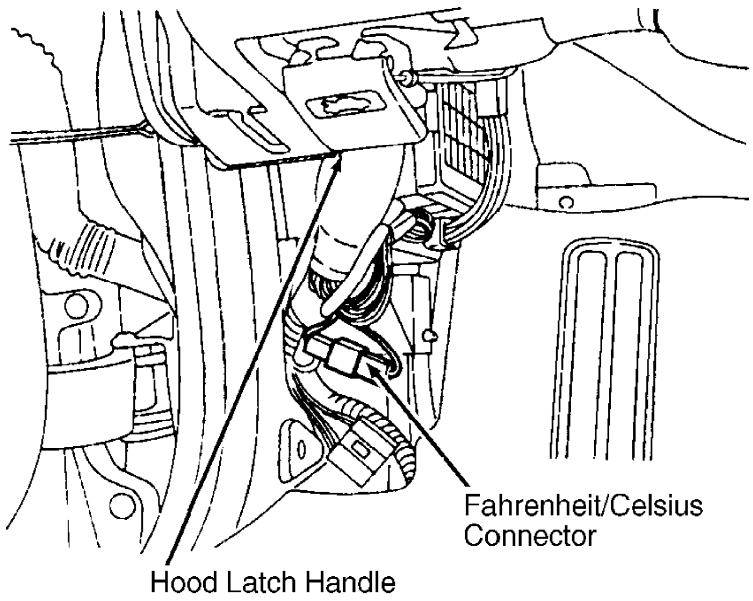

Fig. 2: Identifying Fahrenheit/Celsius Connector
Courtesy of Subaru of America, Inc.

TROUBLE SHOOTING

PRELIMINARY INSPECTION

Power Supply

Measure battery voltage and specific gravity. Battery voltage must be a minimum of 12 volts and specific gravity must be greater than 1.260. Check condition of A/C, heater and other fuses. Check wiring harness and connectors.

Refrigerant

Check amount of refrigerant through sight glass.

Control Panel Linkage

Check linkage operation of mode door, air mix door and air intake door.

BASIC CHECKS

NOTE: If any basic checks fail to function as described, proceed to SELF-DIAGNOSTIC SYSTEM.

Off Mode

With OFF switch in off position, control panel LED and temperature display should go off. Airflow should stop. Air outlet should be in heat position. Air inlet should be in fresh air position. Compressor should be off.

AUTO Mode (Temperature Set At 65°F)

With AUTO switch in on position, AUTO switch LED and temperature display should be on. Outlet air should be cool and coming from front vents. Airflow should be high and automatically controlled. Inlet air and compressor are automatically controlled.

AUTO Mode (Temperature Gradually Changed From 65°F To 85°F)

AUTO switch LED should be on. Outlet air should change from cool to hot. Outlet air should move from front vents to bi-level to heater vents. Airflow and inlet air are automatically controlled. Compressor is off.

AUTO Mode (Temperature Set At 85°F)

AUTO switch LED should be on. Outlet air should be hot and coming from heater vents. Airflow should be high and automatically controlled. Inlet air is fresh and automatically controlled. Compressor is automatically controlled.

ECON Mode (Temperature Set Between 65-85°F)

With ECON switch in on position, ECON switch LED and temperature display should be on. Air temperature, airflow and outlet air location are automatically controlled. Inlet air is fresh and compressor is off.

DEF (Defrost) Mode (Temperature Set Between 65-85°F)

With defrost switch in on position, DEF switch LED and temperature display should be on. Air temperature and airflow are automatically controlled. Inlet air is fresh, and compressor is off. Outlet air should come from defrost vents.

VENT Mode

With VENT switch in on position, VENT switch LED should be on. Temperature display should go off. In-vehicle air temperature should be the same as outside temperature. Airflow should be fixed at medium speed. Inlet air is fresh and compressor is off. Outlet air should come from front vents.

CIRC (Recirculated Air) Mode

With CIRC switch in on position, CIRC switch LED should be on. Inlet air is set to recirculated position for 10 minutes, then inlet air door will move to fresh position. CIRC LED will go off.

OUT-TEMP (Outside Temperature) Display Function

With OUT-TEMP switch in on position, ambient temperature flashes on temperature display panel. Set temperature reappears on temperature display panel after awhile.

A/C SYSTEM OR SELF-DIAGNOSTICS INOPERATIVE

1) Remove auto amplifier to access connectors. See AUTO AMPLIFIER under REMOVAL & INSTALLATION. Leave auto amplifier connected. With ignition off, measure voltage between terminal No. 1 (Blue/Red wire) of auto amplifier 16-pin connector and ground. See Fig. 3.

2) If battery voltage is present, go to next step. If battery voltage is not present, check fuse No. 25 in fuse block. If fuse is blown, repair short circuit and replace fuse. If fuse is okay, repair open Blue/Red wire.

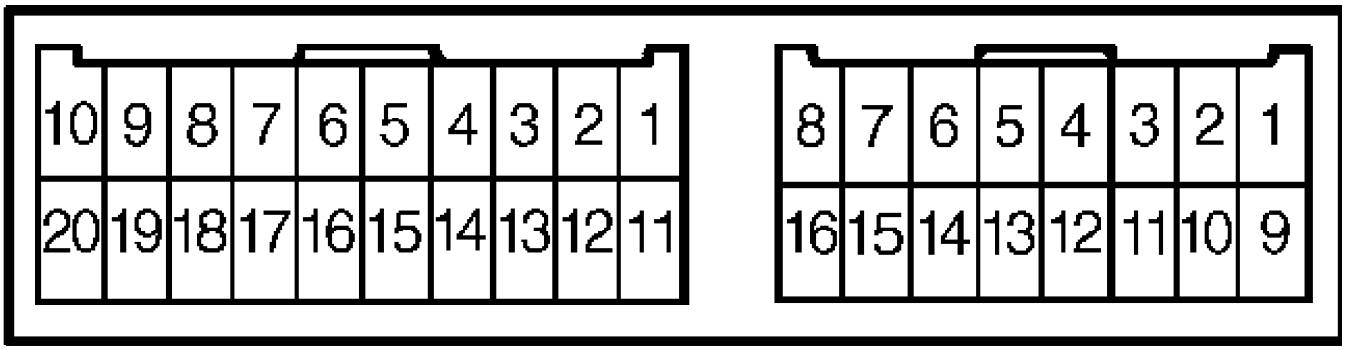

Fig. 3: Identifying Auto Amplifier Connector Terminals
Courtesy of Subaru of America, Inc.

3) With ignition switch in ACC position, measure voltage between terminal No. 18 (Light Green/Red wire) of auto amplifier 20-pin connector and ground. If battery voltage is present, go to next step. If battery voltage is not present, check fuse No. 3 in fuse block. If fuse is blown, repair short circuit and replace fuse. If fuse is okay, repair open Light Green/Red wire.

4) With ignition on, measure voltage between terminal No. 2 (Green/Red wire) of auto amplifier 16-pin connector and ground. If battery voltage is present, go to next step. If battery voltage is not present, check fuse No. 15 in fuse block. If fuse is blown, repair short circuit and replace fuse. If fuse is okay, repair open Green/Red wire.

5) Disconnect 16-pin connector from auto amplifier. Check for continuity between terminal No. 16 (Black wire) of auto amplifier 16-pin connector and ground. Continuity should exist. If continuity does not exist, repair open Black wire.

BLOWER MOTOR DOES NOT OPERATE AT ALL OR IN HIGH SPEED

1) With ignition off, measure voltage between terminal No. 2 (Red wire) of off relay connector and ground. Off relay is located on blower motor unit. If battery voltage is present, go to next step. If

battery voltage is not present, check fuses No. 20 and 21. Replace fuses as necessary. If fuses are okay, repair open Red wire.

2) With ignition on, measure voltage between terminal No. 1 (White wire) of off relay connector and ground. If battery voltage is present, go to next step. If battery voltage is not present, check fuse No. 15. If fuse is blown, repair short circuit and replace fuse. If fuse is okay, repair open White wire.

3) Turn ignition switch and A/C control panel OFF switch to the on position. Measure voltage between terminal No. 3 (Blue wire) of off relay connector and ground. If battery voltage is present, go to next step. If battery voltage is not present, check for open Blue wire between terminal No. 3 of off relay connector and terminal No. 12 of auto amplifier 16-pin connector. Repair wiring as necessary. If Blue wire is okay, replace auto amplifier and retest.

4) Put AUTO switch in on position and fan switch in HI position. Measure voltage between terminal No. 3 (Blue wire) of off relay connector and ground. If voltage is about one volt, go to next step. If voltage is not approximately one volt, replace auto amplifier and retest.

5) Disconnect 2-pin blower motor connector. Turn ignition on. Put AUTO switch in on position and fan switch in HI position. Measure voltage between terminal No. 1 (Red/Black wire) of blower motor connector and ground. If battery voltage is present, go to step 7).

6) If battery voltage is not present, check Red/Black wire between terminal No. 1 of blower motor connector and terminal No. 4 of off relay connector. Repair wiring as necessary. If Red/Black wire is okay, replace off relay.

7) Remove glove box, and disconnect fan control amplifier connector. Fan control amplifier is located on cooling unit. With ignition switch and AUTO switch in the on position, put fan switch in LO or medium position.

8) Measure voltage between terminal No. 2 (Black/Red wire) of hi relay connector and ground. If battery voltage is not present, check for open Black/Red wire. If Black/Red wire is okay, replace blower motor.

9) If battery voltage is present, measure voltage between terminal No. 1 (White wire) of hi relay connector and ground. If battery voltage is not present, repair open White wire. If voltage is present, disconnect hi relay connector.

10) Check continuity between terminal No. 4 (Black wire) of hi relay connector and ground. If no continuity exists, repair open Black wire. If continuity exists, reconnect hi relay connector and go to next step.

11) Ensure ignition is on. Put AUTO switch in on position. Put fan switch in HI position. Measure voltage between terminal No. 3 (White/Red wire) of hi relay connector and ground. If one volt is present, go to next step. If one volt is not present, check for open White/Red wire. If White/Red wire is okay, replace auto amplifier.

12) Put fan switch in medium or LOW speed position. Measure voltage between terminal No. 3 (White/Red wire) of hi relay connector and ground. If battery voltage is present, replace hi relay. If battery voltage is not present, replace auto amplifier.

BLOWER MOTOR OPERATES AT HIGH SPEED ONLY

1) Remove glove box. Disconnect fan control amplifier 3-pin connector. Turn ignition on. Put AUTO switch in on position and fan switch in HI position. Measure voltage between terminal No. 2 (Black/Red wire) of fan control amplifier connector and ground.

2) If one volt is not present, check for open Black/Red wire. Repair wiring as necessary. If one volt is present, put fan switch in LO or medium position. Measure voltage between terminal No. 2 (Black/Red wire) of fan control amplifier connector and ground.

3) If battery voltage is not present, check for open Black/ Red wire. Repair wiring as necessary. If battery voltage is present, reconnect fan control amplifier connector. With ignition on, put AUTO switch in on position and fan switch in HI position.

4) Measure voltage between terminal No. 1 (Light Green wire) of fan control amplifier connector and ground. Voltage should not be present. If voltage is present, check for faulty harness and repair as necessary. If harness is okay, replace auto amplifier. If voltage is not present, put fan switch in LO or medium position.

5) Measure voltage between terminal No. 1 (Light Green wire) of fan control amplifier connector and ground. If 1-2 volts is not present, check for faulty harness and repair as necessary. If harness is okay, replace auto amplifier. If 1-2 volts is present, disconnect fan control amplifier connector.

6) Check continuity between terminal No. 4 (Black wire) of fan control amplifier connector and ground. If continuity does not exist, check for open Black wire. Repair wiring as necessary. If continuity exists, replace fan control amplifier.

COMPRESSOR CLUTCH DOES NOT TURN ON OR OFF

Check for blown A/C fuse. See Fig. 4. If fuse is okay, check for defective trinary (triple) pressure switch, faulty A/C relay, defective multipoint injection Electronic Control Unit (ECU), insufficient refrigerant or faulty wiring harness.

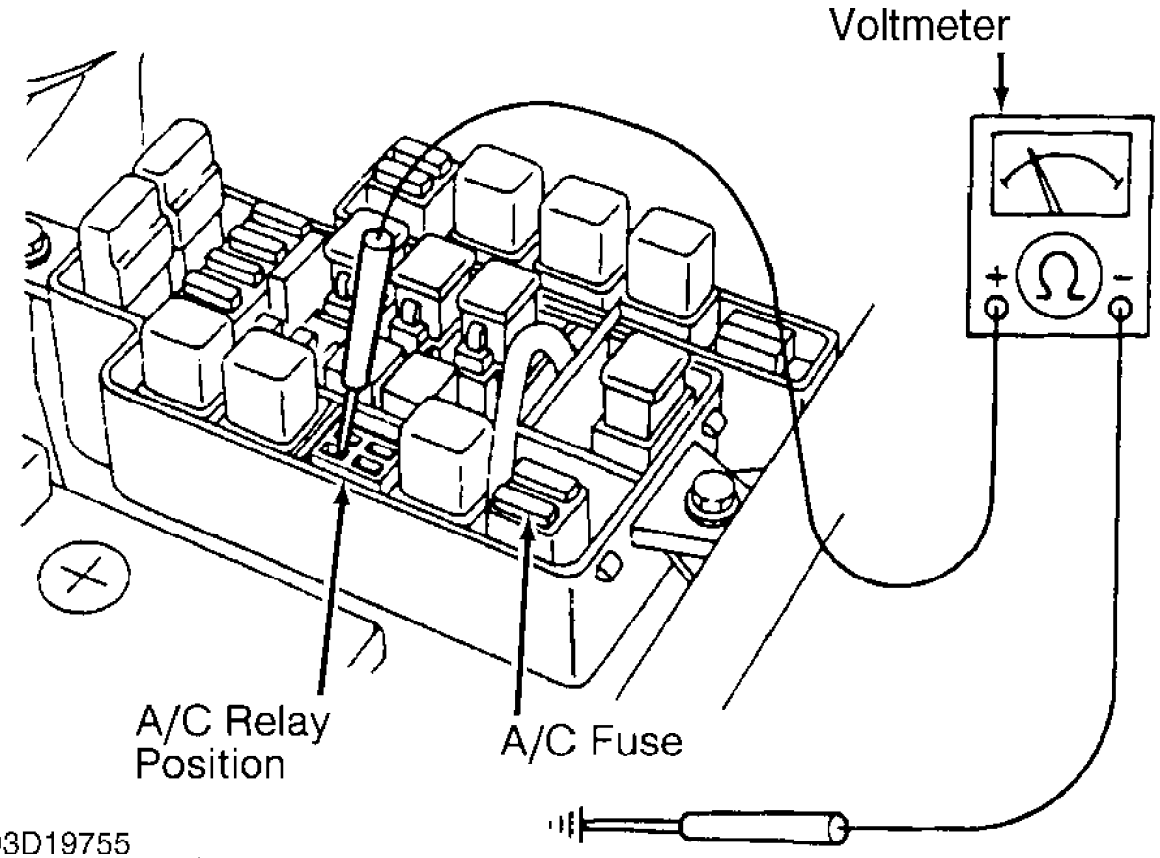

Fig. 4: Locating A/C Relay
Courtesy of Subaru of America, Inc.

SELF-DIAGNOSTIC SYSTEM

ENTERING SELF-DIAGNOSTICS

Ensure engine temperature is greater than 104°F (40°C). Depress auto amplifier OFF and AUTO switches simultaneously and turn ignition on. Auto amplifier will enter DIAGNOSTIC STEP 1. See DIAGNOSTIC STEP 1.

EXITING SELF-DIAGNOSTICS & CLEARING TROUBLE CODES

Ensure system must be in DIAGNOSTIC STEP 2. Turn ignition off. To clear trouble codes, simultaneously depress auto amplifier OFF and DEF switches and turn ignition on. AUTO switch LED and -88 will flash 3 times in temperature display window. All trouble codes are now cleared and system will exit self-diagnostics.

DIAGNOSTIC STEP 1

Display Indicator Inspection

1) Indicator lights should be on and temperature display should indicate -88 (all segments on). See Fig. 5.

2) If indicator lights are not on, or temperature display does not indicate -88, check auto amplifier power supply and ground circuits. See A/C SYSTEM OR SELF-DIAGNOSTICS INOPERATIVE. If indicator lights and temperature display segments are okay, after about 9 seconds, self-diagnostics will proceed to DIAGNOSTIC STEP 2.

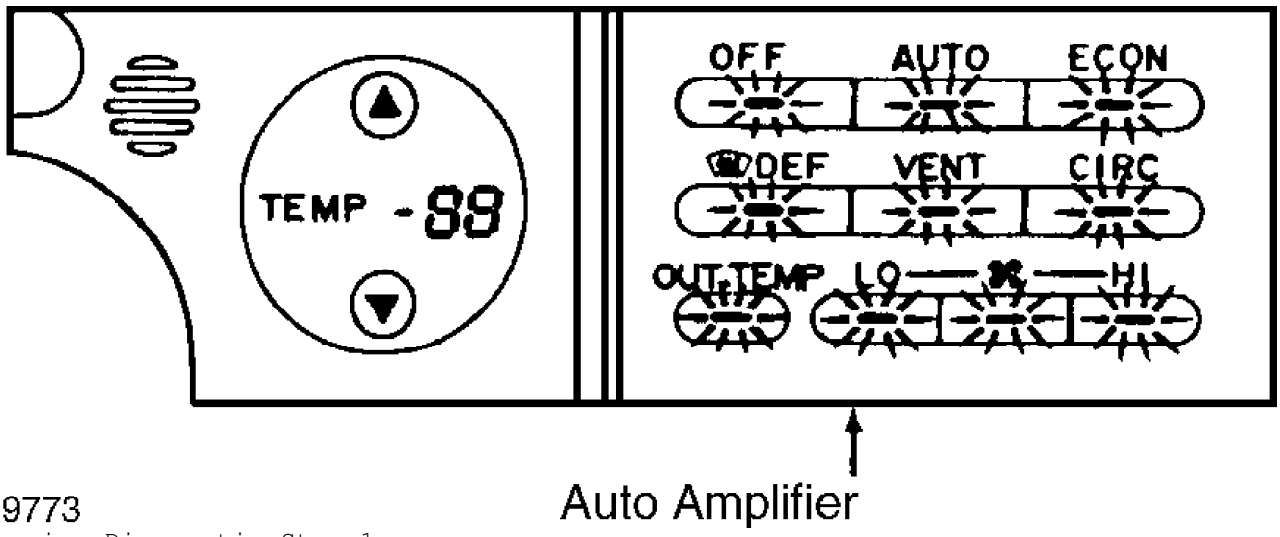

Fig. 5: Entering Diagnostic Step 1
Courtesy of Subaru of America, Inc.

DIAGNOSTIC STEP 2

Sensor Circuit & Door Motor Inspection

1) If a malfunction has occurred in a monitored circuit, temperature display will indicate a trouble code. If monitored circuits are functioning properly, temperature display will show "00", indicating no system malfunctions. See SENSOR CIRCUIT TROUBLE CODES table.

2) If a trouble code is indicated, proceed to appropriate code testing procedure under TESTING. If all sensors are okay (Code 00 displayed), depress AUTO switch to proceed to DIAGNOSTIC STEP 3 or depress DEF for a min. of 4 seconds to proceed to DIAGNOSTIC STEP 4. DIAGNOSTIC STEP 3 checks A/C output components. DIAGNOSTIC STEP 4 is

used to adjust display temperature.

SENSOR CIRCUIT TROUBLE CODES (1)

Code No.	Diagnosis
00	No Malfunctions
11/21	Open/Short In In-Vehicle Sensor Circuit
12/22	Open/Short In Ambient Sensor Circuit
13/23	Open/Short In Sunload Sensor Circuit
14/24	Open/Short In Evaporator Sensor Circuit
15/25	Open/Short In Refrigerant Temp. Sensor Circuit
16/26	Open/Short In Water Temp. Sensor Circuit
31	Shorted PBR Circuit
32	Open Or Shorted PBR Circuit
33	Faulty Air Mix Door Motor Circuit
34	Faulty Mode Door Motor Circuit
35	Faulty Intake Door Motor Circuit

(1) - If malfunction is currently occurring, code will be shown circled.

DIAGNOSTIC STEP 3

Actuator Inspection

1) Temperature display should show 41. Check compressor and blower operation and positioning of mode door motor, intake door motor and air mix door motor. See ACTUATOR OPERATION SPECIFICATIONS table.

2) To advance to next code, press DEF switch. Ensure all actuators operate as specified. If any actuators do not function as specified, test appropriate circuit under TESTING.

ACTUATOR OPERATION SPECIFICATIONS

Actuator	Test Results
Code 41	
Mode Door	Defrost
Intake Door	Fresh/Recirculation
Air Mix Door	Full Hot
Blower Motor	5 Volts
Compressor	On
Compressor Solenoid	Zero Amps
Code 42	
Mode Door	Heat
Intake Door	Fresh
Air Mix Door	Full Hot
Blower Motor	7 Volts
Compressor	On
Compressor Solenoid	.65 Amps
Code 43	
Mode Door	Bi-Level
Intake Door	Fresh
Air Mix Door	50% Hot
Blower Motor	11 Volts
Compressor	Off
Compressor Solenoid	Zero Amps
Code 44	
Mode Door	Vent
Intake Door	Fresh
Air Mix Door	Full Cold
Blower Motor	Fan High

Compressor	Off
Compressor Solenoid	Zero Amps
Code 45	
Mode Door	Vent
Intake Door	Recirculation
Air Mix Door	Full Cold
Blower Motor	Fan High
Compressor	Off
Compressor Solenoid	Zero Amps

DIAGNOSTIC STEP 4

Display Temperature Correction

1) This procedure is used to adjust display temperature when small differences between temperature setting and actual temperature exist.

2) Once DIAGNOSTIC STEP 4 has been activated, temperature display will show one of the following: 00, 05 or 10. A 10 indicates temperature has previously been adjusted to read a higher temperature.

3) A 00 indicates temperature display has previously been adjusted to read a lower temperature. A 05 indicates temperature has not been previously adjusted and is at the standard (default) position.

4) Press temperature LO or HI switch to adjust temperature display. Each time LO or HI switch is pressed, temperature setting will change. If vehicle battery is disconnected, temperature setting will default to standard position.

TESTING

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

A/C SYSTEM PERFORMANCE

Connect manifold gauge set. Open all windows. Start and run engine at 1500-1700 RPM. Place blower fan on high speed. Press temperature control button, and set temperature at 65°F (18°C). Ensure pressure readings are within specifications. See SPECIFICATIONS table at beginning of article.

A/C AUTO AMPLIFIER PIN VOLTAGE TEST

Remove A/C amplifier to access connectors. See AUTO AMPLIFIER under REMOVAL & INSTALLATION. With wiring harness connected to A/C amplifier, ensure voltages are as specified. Connect voltmeter between specified terminal(s) and/or ground.

See A/C AUTO AMPLIFIER PIN VOLTAGE TEST tables. If voltage is not as specified, check appropriate circuit and input/output device. Repair or replace as necessary. If circuit and input/output device are okay, replace A/C amplifier.

A/C AUTO AMPLIFIER PIN VOLTAGE TEST (16-PIN CONNECTOR)

Circuit & Test Condition	Voltage
A/C Relay	

Terminal No. 12 (Brown Wire) & Ground ..... (1) Battery
Air Mix Door Motor (PBR)
Terminal No. 5 (Green/Black Wire) &
Terminal No. 6 (Green/Yellow Wire) ..... (2) Battery
Auto Amplifier Ground Circuit
Terminal No. 16 (Black Wire) & Ground ..... Zero
Hi Relay
Terminal No. 12 (Yellow/Green Wire) & Ground ..... (3) Battery
Ignition Power Supply
Terminal No. 2 (Green/Red Wire) & Ground
Ignition On ..... Battery
Engine Running 13-14
Memory Back-Up (Battery Voltage)
Terminal No. 1 (Blue/Red Wire) & Ground ..... (4) 13-14
Mode Door Motor
Terminal No. 3 (Green/Red Wire) &
Terminal No. 4 (Light Green/Black Wire) ..... (5) Battery
Off Relay
Terminal No. 12 (Blue/Black Wire) & Ground ..... (4) Battery

(1) - Ignition and A/C on.
(2) - With ignition on and temperature setting at 65°F (18°C), connect voltmeter positive lead to terminal No. 5 and negative lead to terminal No. 6. With temperature setting at 85°F (32°C), battery voltage should also exist with voltmeter positive lead connected to terminal No. 6 and negative lead connected to terminal No. 5.
(3) - With ignition on.
(4) - Voltage specified is with engine running.
(5) - With ignition on and VENT switch pressed, connect voltmeter positive lead to terminal No. 3 and negative lead to terminal No. 4. With DEF switch pressed, battery voltage should also exist with voltmeter positive lead connected to terminal No. 4 and negative lead connected to terminal No. 3.

A/C AUTO AMPLIFIER PIN VOLTAGE TEST (20-PIN CONNECTOR)

Circuit &
Test Condition — Voltage

Accessory Power Supply
Terminal No. 18 (Light Green/Red Wire) & Ground
Engine Cranking ..... Zero
Engine Running ..... Battery
Air Mix Door Motor (PBR)
Terminal No. 14 (Black/White Wire) &
Terminal No. 11 (Green/Black Wire) ..... (1)
Ambient Sensor
Terminal No. 2 (White/Green Wire) &
Terminal No. 11 (Green/Black Wire) ..... (2) About 5
Evaporator Sensor
Terminal No. 3 (Black/Yellow Wire) &
Terminal No. 11 (Green/Black Wire) ..... (2) About 5
Illumination Control Signal
Terminal No. 10 (Red Wire) & Ground ..... (3) Battery
Mode Door Motor (Fresh Voltage)
Terminal No. 7 (Green/White Wire) &
Terminal No. 11 (Green/Black Wire) ..... (4) Battery
Mode Door Motor (PBR)
Terminal No. 15 (Light Green/Black Wire) &
Terminal No. 11 (Green/Black Wire) ..... (5) About 4.5

Mode Door Motor (REC Voltage)		
Terminal No. 5 (Green Wire) &		
Terminal No. 11 (Green/Black Wire)	.....	(6) Battery
Refrigerant Temperature Sensor		
Terminal No. 4 (Yellow/Blue Wire) &		
Terminal No. 11 (Green/Black Wire)	.....	(2) About 5
Sensor Ground Circuit		
Terminal No. 11 (Green/Black Wire) & Ground	.....	Zero
Sunload Sensor		
Terminal No. 13 (White/Blue Wire) &		
Terminal No. 11 (Green/Black Wire)	.....	(2) About 5
Sensor Voltage		
Terminal No. 1 (Blue/Red Wire) & Ground	.....	(7) Zero
Water Temperature Sensor		
Terminal No. 12 (Blue/White Wire) &		
Terminal No. 11 (Green/Black Wire)	.....	(2) About 5

(1) - With temperature setting at 65°F (18°C) and AUTO switch on, voltage should be about 0.5 volt. With temperature setting at 85°F (29°C), voltage should be 4.5 volts.
(2) - With ignition on and sensor connector disconnected.
(3) - With ignition and light switch on.
(4) - With ignition and DEF switch on.
(5) - With ignition and VENT switch on, voltage should be about 4.5 volts. With DEF switch on, voltage should be .5 volt.
(6) - With ignition and CIRC switch on.
(7) - With ignition on, voltage should be 5 volts.

CODE 11/21, IN-VEHICLE TEMPERATURE SENSOR CIRCUIT

In-Vehicle Sensor Resistance

1) Turn ignition off. Remove auto amplifier. See AUTO AMPLIFIER under REMOVAL & INSTALLATION. Disconnect in-vehicle temperature sensor 2-pin connector. See Fig. 6.

2) Check resistance between sensor connector terminals. See IN-VEHICLE TEMPERATURE SENSOR RESISTANCE SPECIFICATIONS table. If resistance is not as specified, replace sensor. If resistance is as specified, turn ignition on. Measure voltage available to in-vehicle sensor.

3) If voltage is not approximately 5 volts, check wiring harness between in-vehicle sensor and auto amplifier. Repair as necessary. If wiring harness is okay, replace auto amplifier. If voltage is about 5 volts, an intermittent problem may exist. Ensure auto amplifier connectors are properly connected to auto amplifier.

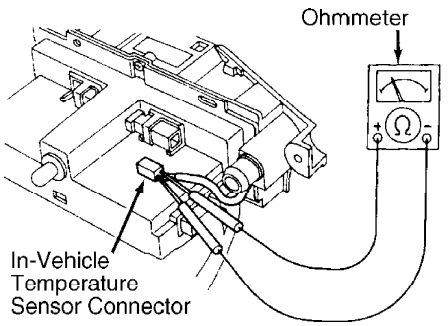

Fig. 6: Testing In-Vehicle Temperature Sensor
Courtesy of Subaru of America, Inc.

IN-VEHICLE TEMPERATURE SENSOR RESISTANCE SPECIFICATIONS

Temperature °F (°C)	Ohms
-4 (-20)	16,500
32 (0)	9930
50 (10)	6000
68 (20)	3750
77 (25)	3000
86 (30)	2420
104 (40)	1060

CODE 12/22, AMBIENT TEMPERATURE SENSOR CIRCUIT

Ambient Temperature Sensor Resistance

1) Turn ignition off. Disconnect ambient temperature sensor 2-pin connector. Sensor is located on hood lock brace.

2) Check resistance between sensor connector terminals. If resistance reading is not as specified, replace sensor. See AMBIENT TEMPERATURE SENSOR RESISTANCE SPECIFICATIONS table. If resistance reading is okay, check ambient temperature sensor harness. See AMBIENT TEMPERATURE SENSOR HARNESS CHECK.

AMBIENT TEMPERATURE SENSOR RESISTANCE SPECIFICATIONS

Temperature °F (°C)	Ohms
-4 (-20)	16,500
32 (0)	9930
50 (10)	6000
68 (20)	3750
77 (25)	3000
86 (30)	2420
104 (40)	1060

Ambient Temperature Sensor Harness Check

1) Turn ignition on. Measure voltage between terminal No. 2 (White/Green wire) of ambient temperature sensor connector and ground. If voltage is about 5 volts, go to next step. If voltage is not approximately 5 volts, check auto amplifier connectors for proper installation. If connectors are okay, replace auto amplifier.

2) Measure voltage between terminals No. 1 (Green/Black wire) and No. 2 (White/Green wire) of ambient temperature sensor connector. If voltage is not approximately 5 volts, check auto amplifier connectors for proper installation. Clean or repair connectors as necessary. If connectors are okay, replace auto amplifier. If voltage is about 5 volts, check auto amplifier output voltage. See AUTO AMPLIFIER OUTPUT VOLTAGE CHECK.

Auto Amplifier Output Voltage Check

1) Remove auto amplifier leaving connectors attached. See AUTO AMPLIFIER under REMOVAL & INSTALLATION. Disconnect ambient sensor connector. Turn ignition on. Measure voltage between terminals No. 2 (White/Green wire) and No. 11 (Green/Black wire) of auto amplifier 16-pin connector. See Fig. 3.

2) If voltage is about 5 volts, check and repair wiring harness as necessary. If voltage is not approximately 5 volts, check wiring harness between ambient sensor and auto amplifier. Repair wiring harness as necessary. If wiring is okay, replace auto amplifier.

CODE 13/23, SUNLOAD SENSOR CIRCUIT

Auto Amplifier Output Voltage Check

1) Turn ignition off. Remove auto amplifier, leaving connectors attached. See AUTO AMPLIFIER under REMOVAL & INSTALLATION. Place cover over sunload sensor to block sunlight. Sensor is located on top left corner of dash. Measure voltage between terminal No. 11 (Green/Black wire) and No. 13 (White/Black wire) of 20-pin auto amplifier connector. See Fig. 3.

2) If voltage is about 5 volts, go to next step. If voltage is not approximately 5 volts, check 20-pin auto amplifier connector for proper installation. Clean or repair connector as necessary. If connector is okay, replace auto amplifier.

NOTE: If sunlight is not available, use a 100-watt light bulb to simulate sunlight in the following step.

3) Remove cover from sunload sensor and allow sunlight to shine on sensor. Measure voltage between terminals No. 11 (Green/Black wire) and No. 13 (White/Black wire) of auto amplifier 20-pin connector. If voltage is about 3 volts, sensor circuit is okay. Replace auto amplifier.

4) If voltage is not approximately 3 volts, check wiring harness between auto amplifier and sunload sensor. Repair wiring harness as necessary and retest. If wiring harness is okay, replace sensor.

CODE 14/24, EVAPORATOR TEMPERATURE SENSOR CIRCUIT

Evaporator Temperature Sensor Resistance

1) Turn ignition off. Remove glove box. Disconnect evaporator temperature sensor 2-pin connector. Sensor is located below blower motor unit.

2) Check resistance between Yellow/Red wire and Green/White wire terminals of evaporator sensor connector. If resistance reading is not as specified, replace sensor.

See EVAPORATOR TEMPERATURE SENSOR RESISTANCE SPECIFICATIONS table. If resistance is okay, check evaporator temperature sensor harness. See EVAPORATOR TEMPERATURE SENSOR HARNESS CHECK.

EVAPORATOR TEMPERATURE SENSOR RESISTANCE SPECIFICATIONS

Temperature °F (°C)	Ohms
32 (0)	6190
50 (10)	4010
68 (20)	2670
77 (25)	2200
86 (30)	1830
104 (40)	1280

Evaporator Temperature Sensor Harness Check

1) Turn ignition on. Measure voltage between Yellow/Red wire of evaporator temperature sensor connector and ground. If voltage is about 5 volts, go to next step. If voltage is not approximately 5 volts, check auto amplifier connectors for proper installation. Clean or repair connectors as necessary. If connectors are okay, replace auto amplifier.

2) Measure voltage between Yellow/Red wire and Green/White wire terminals of evaporator temperature sensor connector. If voltage is not approximately 5 volts, check auto amplifier connectors for proper installation. If connectors are okay, replace auto amplifier. If voltage is about 5 volts, check auto amplifier output voltage. See AUTO AMPLIFIER OUTPUT VOLTAGE CHECK.

Auto Amplifier Output Voltage Check

1) Remove auto amplifier, leaving connectors attached. See AUTO AMPLIFIER under REMOVAL & INSTALLATION. Turn ignition on. Measure voltage between terminals No. 3 (Black/Yellow wire) and No. 11 (Green/Black wire) of auto amplifier 20-pin connector.

2) If voltage is about 5 volts, an intermittent problem may exist. Ensure auto amplifier connectors are properly connected to auto amplifier. If voltage is not approximately 5 volts, check auto amplifier 20-pin connector for proper installation. Clean or repair connector as necessary and retest. If connector is okay, replace auto amplifier.

CODE 15/25, REFRIGERANT TEMPERATURE SENSOR CIRCUIT

Refrigerant Temperature Sensor Resistance

1) Turn ignition off. Remove glove box. Disconnect refrigerant temperature sensor 2-pin connector. Sensor is located below blower motor unit.

2) Check resistance between Brown/White wire and Green/Black wire terminals of refrigerant sensor connector. If resistance reading is not as specified, replace sensor.

See REFRIGERANT TEMPERATURE SENSOR RESISTANCE SPECIFICATIONS table. If resistance is okay, check refrigerant temperature sensor harness. See REFRIGERANT TEMPERATURE SENSOR HARNESS CHECK.

REFRIGERANT TEMPERATURE SENSOR RESISTANCE SPECIFICATIONS

Temperature °F (°C)	Ohms
32 (0)	6190
50 (10)	4010
68 (20)	2670
77 (25)	2200
86 (30)	1830
104 (40)	1280

Refrigerant Temperature Sensor Harness Check

1) Turn ignition on. Measure voltage between Brown/White wire of refrigerant temperature sensor connector and ground. If voltage is about 5 volts, go to next step. If voltage is not approximately 5 volts, check auto amplifier connectors for proper installation. If connectors are okay, replace auto amplifier.

2) Measure voltage between Brown/White wire and Green/White wire terminals of refrigerant temperature sensor connector. If voltage is not approximately 5 volts, check auto amplifier connectors for proper installation. Clean or repair connectors as necessary. If connectors are okay, replace auto amplifier. If voltage is about 5 volts, check auto amplifier output voltage. See AUTO AMPLIFIER OUTPUT VOLTAGE CHECK.

Auto Amplifier Output Voltage Check

1) Remove auto amplifier, leaving connectors attached. See AUTO AMPLIFIER under REMOVAL & INSTALLATION. Turn ignition on. Measure voltage between terminals No. 4 (Yellow/Blue wire) and No. 11 (Green/Black wire) of auto amplifier 20-pin connector.

2) If voltage is about 5 volts, an intermittent problem may exist. Ensure auto amplifier connectors are properly connected to auto amplifier. If voltage is not approximately 5 volts, check auto amplifier 20-pin connector for proper installation. Clean or repair connector as necessary and retest. If connector is okay, replace auto amplifier.

CODE 16/26, WATER TEMPERATURE SENSOR CIRCUIT

Water Temperature Sensor Resistance

1) Turn ignition off. Remove glove box. Disconnect water temperature sensor 2-pin connector. Sensor is located in heater case, near heater core.

2) Check resistance between Red wire and White wire terminals of water sensor connector. If resistance reading is not as specified, replace sensor. See WATER TEMPERATURE SENSOR RESISTANCE SPECIFICATIONS table. If resistance is okay, check water temperature sensor harness. See WATER TEMPERATURE SENSOR HARNESS CHECK.

WATER TEMPERATURE SENSOR RESISTANCE SPECIFICATIONS

Temperature °F (°C)	Ohms
32 (0)	10090
68 (20)	3760
86 (30)	2410
104 (40)	1590
140 (60)	750
176 (80)	380

Water Temperature Sensor Harness Check

1) Turn ignition on. Measure voltage between Red wire of water temperature sensor connector and ground. If voltage is about 5 volts, go to next step. If voltage is not approximately 5 volts, check auto amplifier connectors for proper installation. Clean or repair connectors as necessary. If connectors are okay, replace auto amplifier.

2) Measure voltage between Red wire and White wire terminals of water temperature sensor connector. If voltage is not approximately 5 volts, check auto amplifier connectors for proper installation. Clean or repair connectors as necessary. If connectors are okay, replace auto amplifier. If voltage is about 5 volts, check auto amplifier output voltage. See AUTO AMPLIFIER OUTPUT VOLTAGE Check.

Auto Amplifier Output Voltage Check

1) Remove auto amplifier, leaving connectors attached. See AUTO AMPLIFIER under REMOVAL & INSTALLATION. Turn ignition on. Measure voltage between terminals No. 12 (Blue/White wire) and No. 11 (Green/Black wire) of auto amplifier 20-pin connector.

2) If voltage is about 5 volts, an intermittent problem may exist. Ensure auto amplifier connectors are properly connected to auto amplifier. If voltage is not approximately 5 volts, check auto amplifier 20-pin connector for proper installation. Clean or repair connector as necessary and retest. If connector is okay, replace auto amplifier.

CODE 31, SHORTED PBR CIRCUIT

1) Remove auto amplifier, leaving connectors attached. See AUTO AMPLIFIER under REMOVAL & INSTALLATION. Enter DIAGNOSTIC STEP 3. See ENTERING SELF-DIAGNOSTICS under SELF-DIAGNOSTIC SYSTEM.

2) Measure voltage between terminals No. 14 (Black/White wire) and No. 11 (Green/Black wire) of auto amplifier 20-pin connector. With temperature display at 41 or 42, voltage should be 4.5 volts.

3) Depress DEF switch to advance to next temperature display. With temperature display at 43, voltage should be 2.5 volts. With temperature display at 44 or 45, voltage should be .5 volt.

4) If voltage readings are okay, go to CODE 33, AIR MIX DOOR MOTOR CIRCUIT. If voltage readings are not as specified, check auto amplifier output voltage. See AUTO AMPLIFIER OUTPUT VOLTAGE CHECK.

Auto Amplifier Output Voltage Check

1) Disconnect air mix door motor 7-pin (5-wire) connector. Connector is located near cooling unit. Turn ignition on. Measure voltage between terminals No. 1 (Blue/White wire) and No. 11 (Green/Black wire) of auto amplifier 20-pin connector.

2) If voltage is not approximately 5 volts, check auto amplifier connectors for proper installation. Clean or repair connectors as necessary. If connectors are okay, replace auto amplifier. If voltage is about 5 volts, check air mix door motor wiring harness. See AIR MIX DOOR MOTOR WIRING HARNESS CHECK.

Air Mix Door Motor Wiring Harness Check

1) Disconnect auto amplifier connectors. With air mix door motor connector disconnected, measure resistance between terminal No. 1 (Blue/White wire) of auto amplifier 20-pin connector and terminal No. 3 (Blue wire) of air mix door motor connector. Resistance should be zero ohms.

2) Measure resistance between terminal No. 14 (Black/White wire) of auto amplifier 20-pin connector and terminal No. 6 (Brown wire) of air mix door motor connector. Resistance should be zero ohms.

3) Measure resistance between terminal No. 11 (Green/Black wire) of auto amplifier 20-pin connector and terminal No. 2 (White wire) of air mix door motor connector. Resistance should be zero ohms.

4) If resistance readings are as specified, go to next step. If resistance readings are not as specified, check auto amplifier connectors for proper installation. Clean or repair connectors as necessary. If connectors are okay, replace auto amplifier.

5) Measure resistance, in turn, between ground and following terminals of auto amplifier 20-pin connector: No. 11 (Green/Black wire), No. 14 (Black/White wire), and No. 3 (Blue wire). Resistance readings should be infinite. If resistance readings are not as specified, check and repair wiring harness as necessary. If resistance readings are okay, replace air mix door motor.

CODE 32, OPEN OR SHORTED PBR CIRCUIT

Potentiometer Balance Resistor (PBR) Check

1) Remove auto amplifier leaving connectors attached. See AUTO AMPLIFIER under REMOVAL & INSTALLATION. Enter DIAGNOSTIC STEP 3. See ENTERING SELF-DIAGNOSTICS under SELF-DIAGNOSTIC SYSTEM.

2) Measure voltage between terminals No. 15 (Light Green/Black wire) and No. 11 (Green/Black wire) of auto amplifier 20-pin connector. With temperature display at 41, voltage should be .5 volt. With temperature display at 44, voltage should be 4.5 volts.

3) If voltage readings are as specified, go to CODE 34, MODE DOOR MOTOR CIRCUIT. If voltage readings are not as specified, check auto amplifier output voltage. See AUTO AMPLIFIER OUTPUT VOLTAGE CHECK.

Auto Amplifier Output Voltage Check

1) Disconnect mode door motor 7-pin (5-wire) connector. Connector is located on left side of heater unit. Turn ignition on. Measure voltage between terminals No. 1 (Blue/Red wire) and No. 11 (Green/Black wire) of 20-pin connector.

2) If voltage is not approximately 5 volts, check auto amplifier connectors for proper installation. Clean or repair connectors as necessary. If connectors are okay, replace auto amplifier. If voltage is about 5 volts, check mode door motor wiring harness. See MODE DOOR MOTOR WIRING HARNESS CHECK.

Mode Door Motor Wiring Harness Check

1) Disconnect auto amplifier connectors. With mode door motor connector disconnected, measure resistance between terminal No. 1 (Blue/White wire) of auto amplifier 20-pin connector and terminal No. 3 (Blue wire) of air mix door motor connector. Resistance should be zero ohms.

2) Measure resistance between terminal No. 14 (Black/White wire) of auto amplifier 20-pin connector and terminal No. 6 (Brown wire) of air mix door motor connector. Resistance should be zero ohms.

3) Measure resistance between terminal No. 11 (Green/Black wire) of auto amplifier 20-pin connector and terminal No. 2 (White wire) of air mix door motor connector. Resistance should be zero ohms.

4) If resistance readings are as specified, go to next step. If resistance readings are not as specified, check auto amplifier connectors for proper installation. Clean or repair connectors as necessary. If connectors are okay, replace auto amplifier.

5) Measure resistance, in turn, between ground and following terminals of auto amplifier 20-pin connector: No. 11 (Green/Black wire), No. 14 (Black/White wire), and No. 3 (Blue wire). Resistance readings should be infinite. If resistance readings are not as specified, check and repair wiring harness as necessary. If resistance readings are okay, replace air mix door motor.

CODE 33, AIR MIX DOOR MOTOR CIRCUIT

Auto Amplifier Output Voltage Check

1) Remove auto amplifier, leaving connectors attached. See AUTO AMPLIFIER under REMOVAL & INSTALLATION. Enter DIAGNOSTIC STEP 3. See ENTERING SELF-DIAGNOSTICS under SELF-DIAGNOSTIC SYSTEM.

2) Using an analog voltmeter, connect voltmeter positive lead to terminal No. 6 (Green/Yellow wire) and negative lead to terminal No. 5 (Green/Black wire) of auto amplifier 16-pin connector. Observe volt-meter while changing temperature display from 45 to 41. Voltage reading should fluctuate between zero and 5 volts.

NOTE: Voltage is only displayed when air mix door motor is operating.

3) Reverse voltmeter leads, and change temperature display from 42 to 44. Voltage reading should fluctuate between zero and 5 volts. If voltage readings are not as specified, check auto amplifier connectors for proper installation. Clean or repair connectors as necessary. If connectors are okay, replace auto amplifier. If voltage readings are as specified, check air mix door motor wiring harness. See AIR MIX DOOR MOTOR WIRING HARNESS CHECK.

Air Mix Door Motor Wiring Harness Check

1) Disconnect auto amplifier and air mix door motor connectors. Measure resistance between terminal No. 6 (Green/Yellow wire) of auto amplifier 16-pin connector and terminal No. 5 (Green/ Black wire) of air mix door motor connector. Resistance should be zero ohms.

2) Measure resistance between terminal No. 5 (Green/Black wire) of auto amplifier 16-pin connector and terminal No. 7 (Yellow wire) of air mix door motor connector. Resistance should be zero ohms. If resistance is not as specified, check and repair wiring harness as necessary. If resistance is okay, go to next step.

3) Measure resistance, in turn, between ground and following terminals of auto amplifier 16-pin connector: No. 6 (Green/Yellow wire) and No. 5 (Green/Black wire). Resistance readings should be infinite. If resistance readings are not as specified, check and repair wiring harness as necessary. If resistance readings are as

specified, replace air mix door motor.

CODE 34, MODE DOOR MOTOR CIRCUIT

Auto Amplifier Output Voltage Check

1) Remove glove box. Remove auto amplifier, leaving connectors attached. See AUTO AMPLIFIER under REMOVAL & INSTALLATION. Enter DIAGNOSTIC STEP 3. See ENTERING SELF-DIAGNOSTICS under SELF-DIAGNOSTIC SYSTEM.

2) Using an analog voltmeter, connect voltmeter positive lead to terminal No. 3 (Green/Red wire) and negative lead to terminal No. 4 (Light Green/Black wire) of auto amplifier 16-pin connector. Observe volt-meter while changing temperature display from 41 to 45. Voltage reading should fluctuate between zero and 5 volts.

NOTE: Voltage is only displayed when mode door motor is operating.

3) Reverse voltmeter leads, and change set display from 45 to 41. Voltage reading should fluctuate between zero and 5 volts. If voltage readings are as specified, check mode door motor wiring harness. See MODE DOOR MOTOR WIRING HARNESS CHECK.

4) If voltage readings are not as specified, check auto amplifier connectors for proper installation. Clean or repair connectors as necessary. If connectors are okay, replace auto amplifier.

Mode Door Motor Wiring Harness Check

1) Disconnect auto amplifier and mode door motor connectors. Measure resistance between terminal No. 3 (Green/Red wire) of auto amplifier 16-pin connector and terminal No. 5 (Red/White wire) of mode door motor connector. Resistance should be zero ohms.

2) Measure resistance between terminal No. 4 (Light Green/ Black wire) of auto amplifier 16-pin connector and terminal No. 7 (White/Red wire) of mode door motor connector. Resistance should be zero ohms. If resistance readings are not as specified, check and repair wiring harness as necessary. If resistance readings are as specified, go to next step.

3) Measure resistance, in turn, between ground and following terminals of auto amplifier 16-pin connector: No. 3 (Green/Red wire) and No. 4 (Light Green/Black wire). Resistance readings should be infinite. If resistance readings are not as specified, check and repair wiring harness as necessary. If resistance readings are as specified, replace mode door motor.

CODE 35, INTAKE MODE DOOR MOTOR CIRCUIT

Intake Door Motor Voltage Check

1) Remove glove box. Disconnect intake door motor 7-pin (6 wire) connector. Connector is located on right side of blower motor unit. Turn ignition on. Measure voltage between terminal No. 4 (White wire) and ground.

2) If battery voltage is present, check intake door motor. If battery voltage is not present, check fuse No. 15 in fuse block. If fuse is blown, repair short circuit and replace fuse. If fuse is okay, check and repair wiring harness as necessary.

Intake Door Motor Check

1) Remove auto amplifier, leaving connectors attached. See AUTO AMPLIFIER under REMOVAL & INSTALLATION. Enter DIAGNOSTIC STEP 3. See ENTERING SELF-DIAGNOSTICS under SELF-DIAGNOSTIC SYSTEM.

2) Wait about 10 seconds. Measure voltage between terminal No. 5 (Green wire) of auto amplifier 20-pin connector and ground. With

temperature display at 45, voltage should be about 5 volts. With temperature display at any number other than 45, voltage should be zero volts.

3) Measure voltage between terminal No. 6 (Green/Yellow wire) of auto amplifier 20-pin connector and ground. With temperature display at 41, voltage should be about 5 volts. With temperature display at any number other than 41, voltage should be zero volts.

4) Measure voltage between terminal No. 7 (Green/White wire) of auto amplifier 20-pin connector and ground. With temperature display at 42, 43 or 44, voltage should be about 5 volts. With temperature display at 41 or 45, voltage should be zero volts.

5) If voltage readings are not as specified, check auto amplifier connectors for proper installation. Clean or repair connectors as necessary. If connectors are okay, replace auto amplifier. If voltage readings are as specified, check intake door motor wiring harness. See INTAKE DOOR MOTOR WIRING HARNESS CHECK.

Intake Door Motor Wiring Harness Check

1) Disconnect auto amplifier connectors. With intake door motor connector disconnected, measure resistance between terminal No. 5 (Green/wire) of auto amplifier 20-pin connector and terminal No. 6 (Green/Yellow wire) of intake door motor connector. Resistance should be zero ohms.

2) Measure resistance between terminal No. 6 (Green/Yellow wire) of auto amplifier 20-pin connector and terminal No. 3 (Black/ Yellow wire) of intake door motor connector. Resistance should be zero ohms.

3) Measure resistance between terminal No. 7 (Green/White wire) of auto amplifier 20-pin connector and terminal No. 2 (White/ Green wire) of intake door motor connector. Resistance should be zero ohms.

4) Measure resistance between terminal No. 11 (Green/Black wire) of auto amplifier 20-pin connector and terminal No. 1 (Blue /White wire) of intake door motor connector. Resistance should be zero ohms.

5) If resistance readings are as specified, go to next step. If resistance readings are not as specified, check auto amplifier connectors for proper installation. Clean or repair connectors as necessary. If connectors are okay, replace auto amplifier.

6) Measure resistance, in turn, between ground and following terminals of auto amplifier 20-pin connector: No. 5 (Green wire), No. 6 (Green/Yellow wire), No. 7 (Green/White wire), and No. 11 (Green/ Black wire). Resistance readings should be infinite. If resistance readings are not as specified, check and repair wiring harness as necessary. If resistance readings are as specified, replace intake door motor.

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.

AUTO AMPLIFIER

Removal & Installation

Remove instrument cluster cover. See Fig. 7. Remove center grille. Remove auto amplifier screws. Disconnect aspirator duct from auto amplifier. Remove auto amplifier from dashboard. To install, reverse removal procedure. Ensure no clearance exists between components.

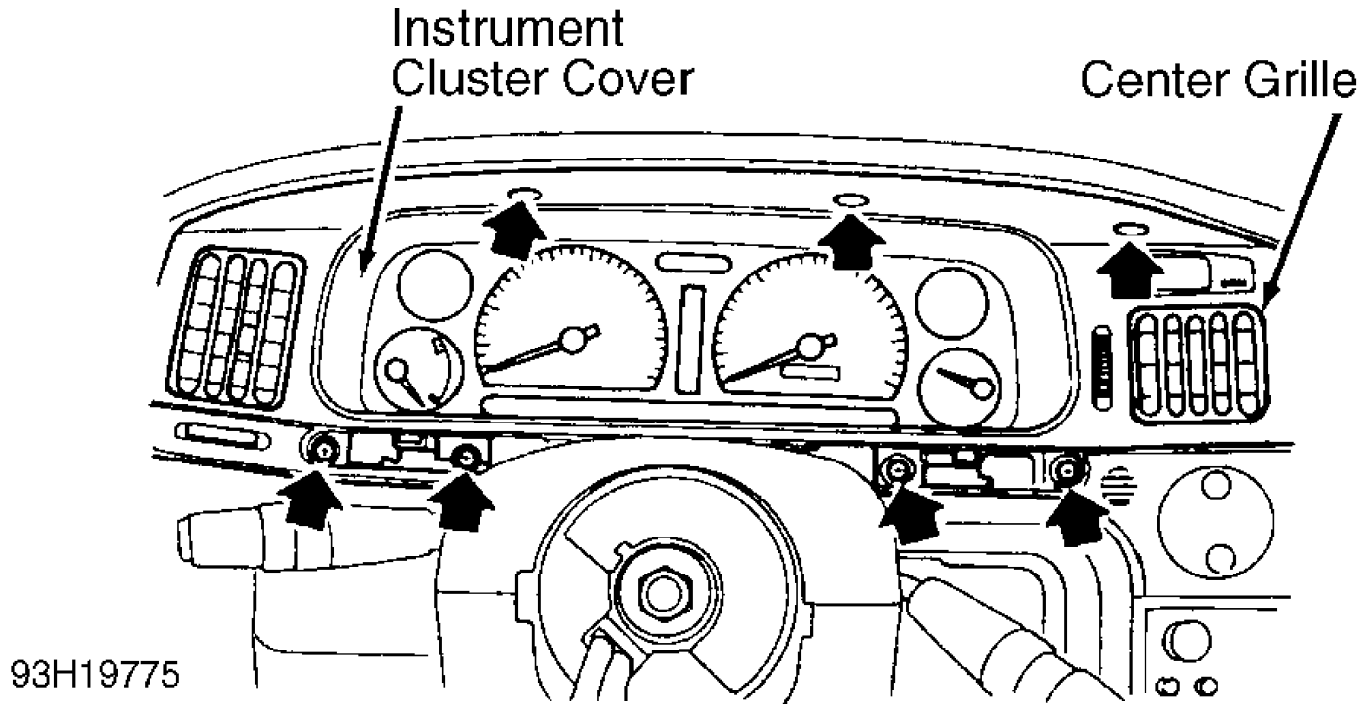

Fig. 7: Removing Instrument Cluster Cover & Center Grille
Courtesy of Subaru of America, Inc.

A/C COMPRESSOR

Removal

1) Disconnect negative battery cable. Discharge A/C system using approved refrigerant recovery/recycling equipment. Remove belt cover. Remove alternator and A/C compressor belt.

2) Disconnect low-pressure and high-pressure hoses from compressor. Remove alternator and A/C compressor connectors. Remove lower compressor bracket. Remove compressor.

Installation

To install, reverse removal procedure. Tighten compressor bolts to 23-29 ft. lbs. (31-39 N.m). Evacuate and charge A/C system. Check A/C system for proper operation.

BLOWER MOTOR

Removal & Installation

Remove glove box and glove box support bracket. Disconnect blower motor electrical connector. Remove blower motor cooling hose. Remove blower motor assembly. To install, reverse removal procedures.

CONDENSER

Removal

1) Disconnect negative battery cable. Discharge A/C system using approved refrigerant recovery/recycling equipment. Disconnect radiator fan connectors. Remove front grille. Remove upper radiator bracket. Disconnect pipe and hose connections from condenser. Remove radiator fans.

2) Disconnect cooling hose located under radiator fan shroud. Position fuel evaporation canister aside. Disconnect trinary (triple)

pressure switch connector. Raise and support vehicle.

3) Remove splash shield from underneath vehicle. Remove 2 bolts securing oil cooler to condenser. Lower vehicle. Remove condenser bolts. Move radiator forward and remove condenser.

Installation

To install, reverse removal procedure. Ensure guide on lower side of condenser is inserted into hole in radiator panel. Evacuate and charge A/C system. Check A/C system for proper operation.

EVAPORATOR

Removal

1) Disconnect negative battery cable. Discharge A/C system using approved refrigerant recovery/recycling equipment. Disconnect low- and high-pressure hoses from evaporator.

2) Remove glove box. Disconnect fan control amplifier connector. See Fig. 8. Remove time control unit. Time control unit is located above fan amplifier. Disconnect cooling unit drain hose. Remove cooling unit bolts.

3) Remove cooling unit. Remove refrigerant temperature and evaporator sensors from cooling unit. Remove clamps holding cooling unit upper and lower housings. Separate cooling unit housing. Remove evaporator. See Fig. 8.

Installation

To install, reverse removal procedure. Evacuate and charge A/C system. Check A/C system for proper operation.

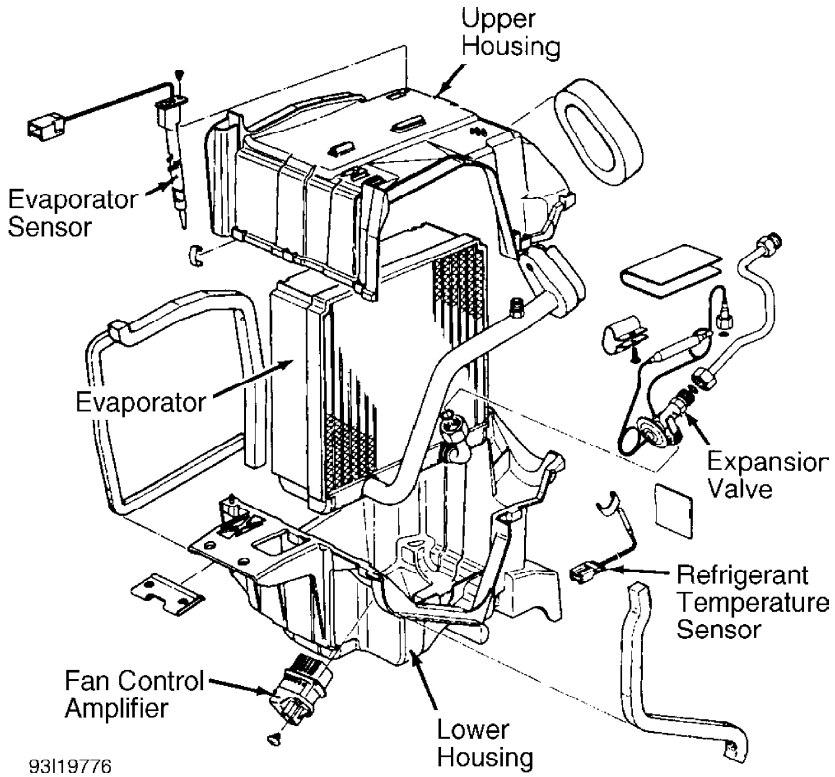

Fig. 8: Exploded View Of Cooling Unit
Courtesy of Subaru of America, Inc.

HEATER CORE

Removal & Installation

Remove heater hoses inside engine compartment. Drain heater core, and cap heater core pipe. Remove cooling unit. See EVAPORATOR. Remove evaporator. See Fig. 8. Remove heater core. To install, reverse removal procedures.

WIRING DIAGRAMS

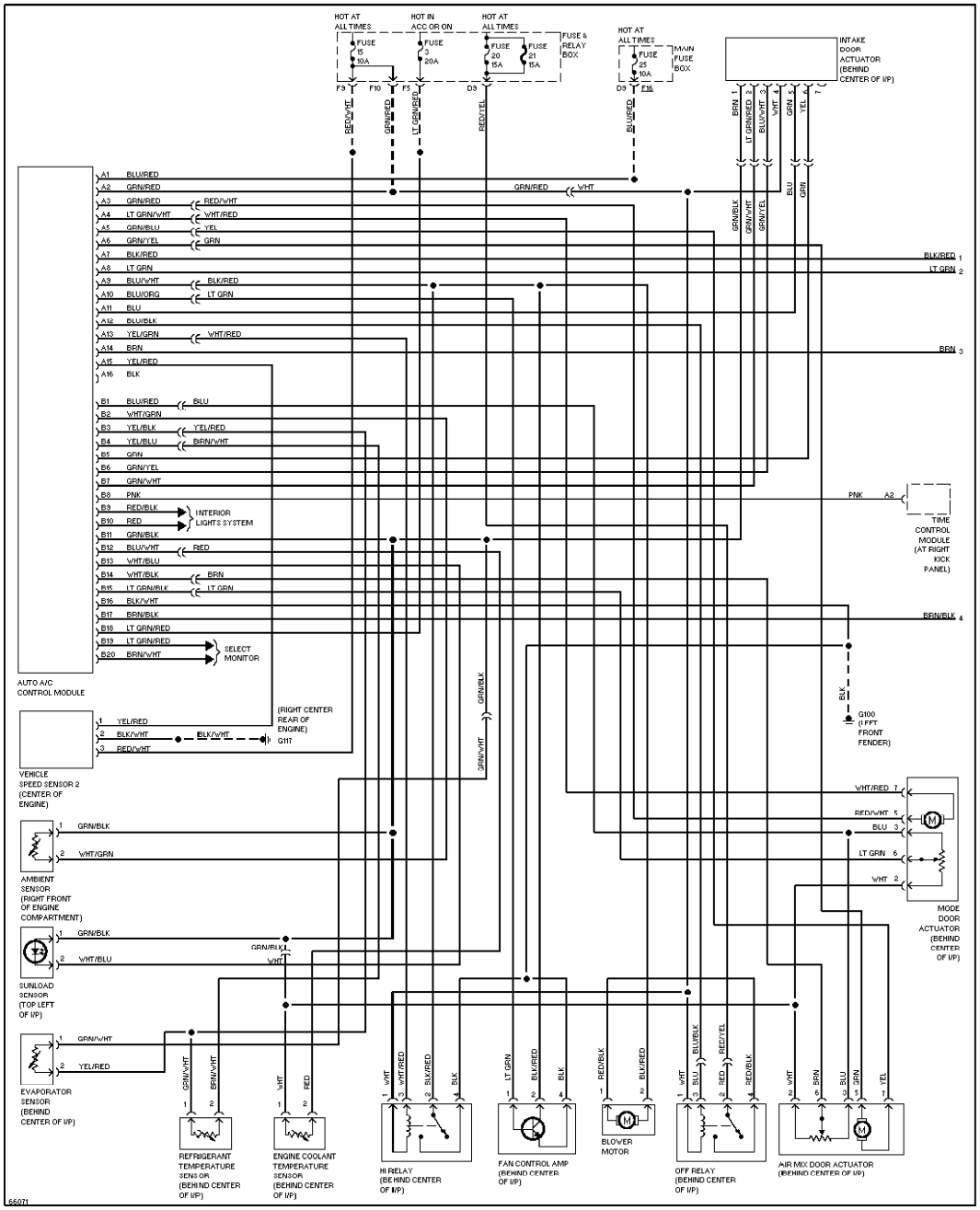

Fig. 9: Automatic A/C-Heater System Wiring Diagram (1 Of 2)

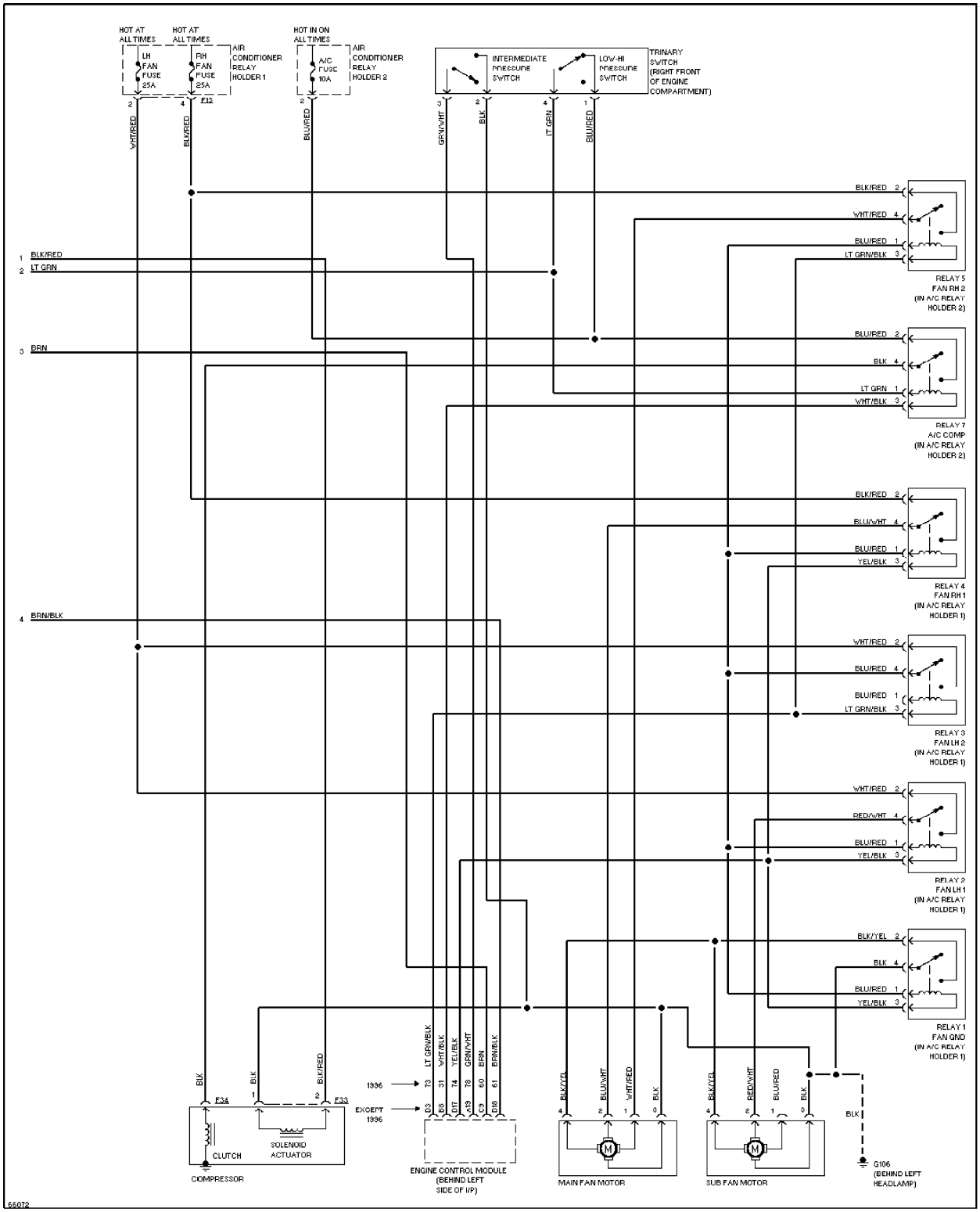

Fig. 10: Automatic A/C-Heater System Wiring Diagram (2 Of 2)