

Automatic Climate Control

Special Tools	22- 2
Illustrated Index	22- 3
Heater-Evaporator Door Positions	22- 4
Description	22- 6
*Wiring/Connector Location	22- 9
Circuit Diagram	22-10
Troubleshooting	
Self-diagnosis Indicators	22-12
Function Selection and Operation Check	22-13
Symptom-to-Components Chart	22-14
Control Unit Signals	22-15
Troubleshooting Flowchart	22-16
Blower	
Replacement	22-63
Recirculation Control Motor	
Replacement	22-64
A/C Service Tips and Precautions	22-65
*Heater-Evaporator Assembly	
Replacement	22-66
Coolant Temperature Sensor	
Removal	22-68
Evaporator Temperature Sensor	
Removal	22-68
Vent Door Control Motor	
Replacement	22-69
Mode Control Motor	
Replacement	22-69
Air Mix Control Motor	
Replacement	22-70
Heater-Evaporator Unit	
Disassembly/Reassembly	22-71
"DEF" Door Adjustment	22-72
"HEAT" Door Adjustment	22-72
Condenser	
Description	22-73
Condenser Assembly	
Replacement	22-74
Disassembly/Reassembly	22-75
Compressor	
Description	22-76
Replacement	22-77
Compressor Belt Adjustment	22-79
Clutch Inspection	22-80
Clutch Overhaul	22-81
Relief Valve Replacement	22-82
Component Removal/Replacement	
*Climate Control Unit	22-84
*In-car Temperature Sensor	22-85
Ambient Temperature Sensor	22-86
Sunlight Sensor	22-86
Component Tests	
In-car Temperature Sensor	22-87
Ambient Temperature Sensor	22-87
Coolant Temperature Sensor	22-88
Evaporator Temperature Sensor	22-88
Sunlight Sensor	22-89
Recirculation Control Motor	22-89
Air Mix Control Motor	22-90
Vent Door Control Motor	22-90
Mode Control Motor	22-91
Aspirator Fan	22-91
Relay	22-92
Control Unit Adjustment	22-92
A/C System Service	
Discharge	22-93
Evacuation	22-93
Leak Test	22-94
Charging Procedure	22-95
Performance Test	22-96
Pressure Test	22-98

SUPPLEMENTAL RESTRAINT SYSTEM (SRS)

The NSX includes a driver's side Airbag, located in the steering wheel hub, as part of a Supplemental Restraint System (SRS). Information necessary to safely service the SRS is included in this Service Manual. Items marked * in this section include, or are located near, SRS components. Servicing, disassembling or replacing these items will require special cautions and tools and should therefore be done by an authorized Acura dealer.

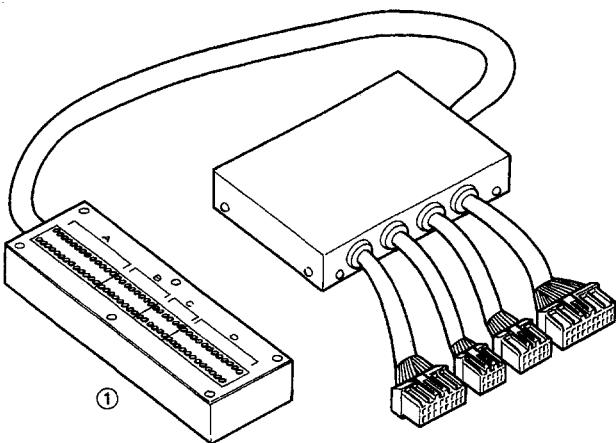


WARNING

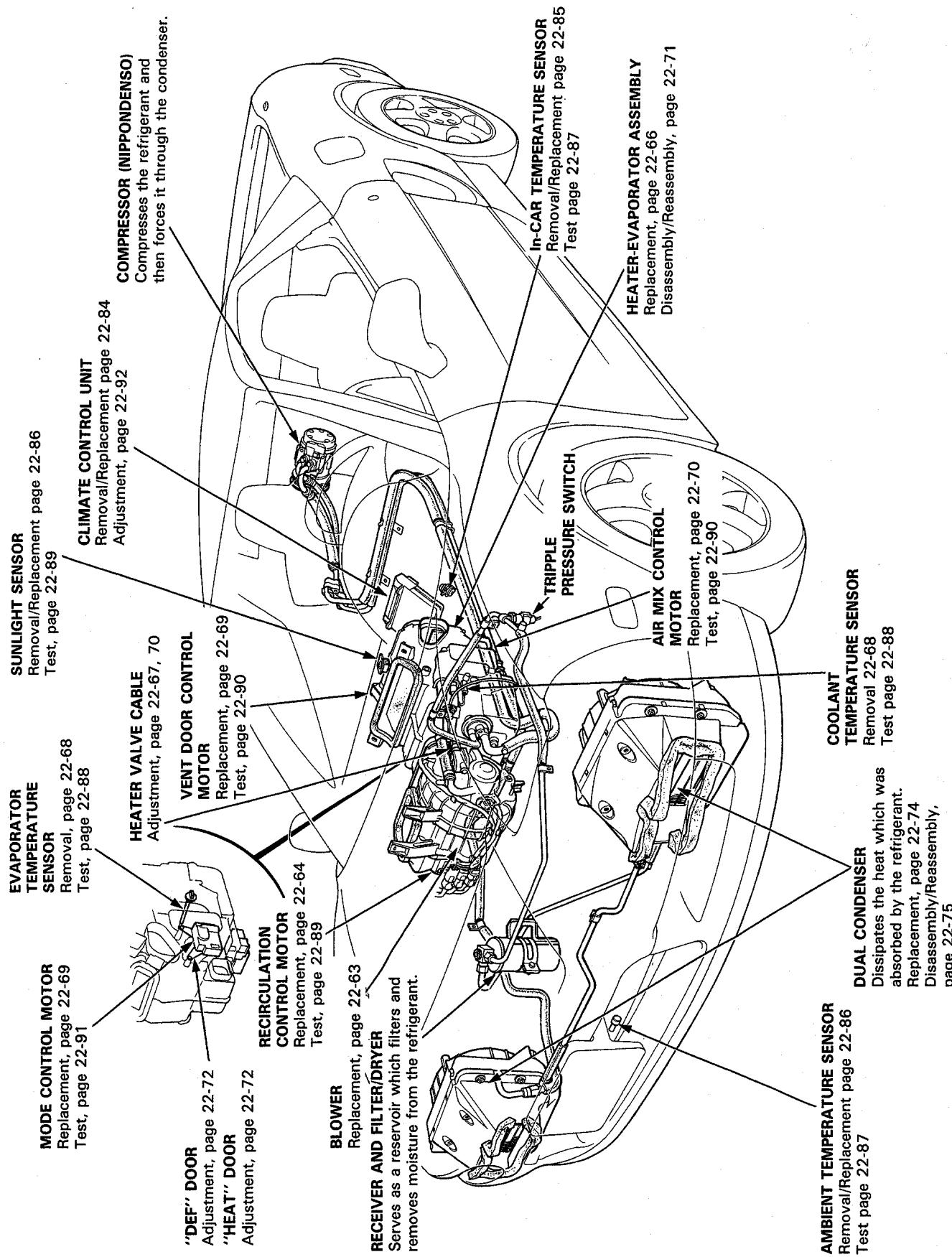
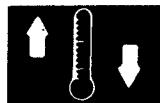
- To avoid rendering the SRS inoperative, which can lead to personal injury or death in the event of a severe frontal collision, all maintenance must be performed by an authorized Acura dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the Airbag.
- All SRS electrical wiring harnesses are covered with yellow outer insulation and related components are located in the steering column, center console, dash, and dashboard lower panel. Do not use electrical test equipment on these circuits.

Special Tools

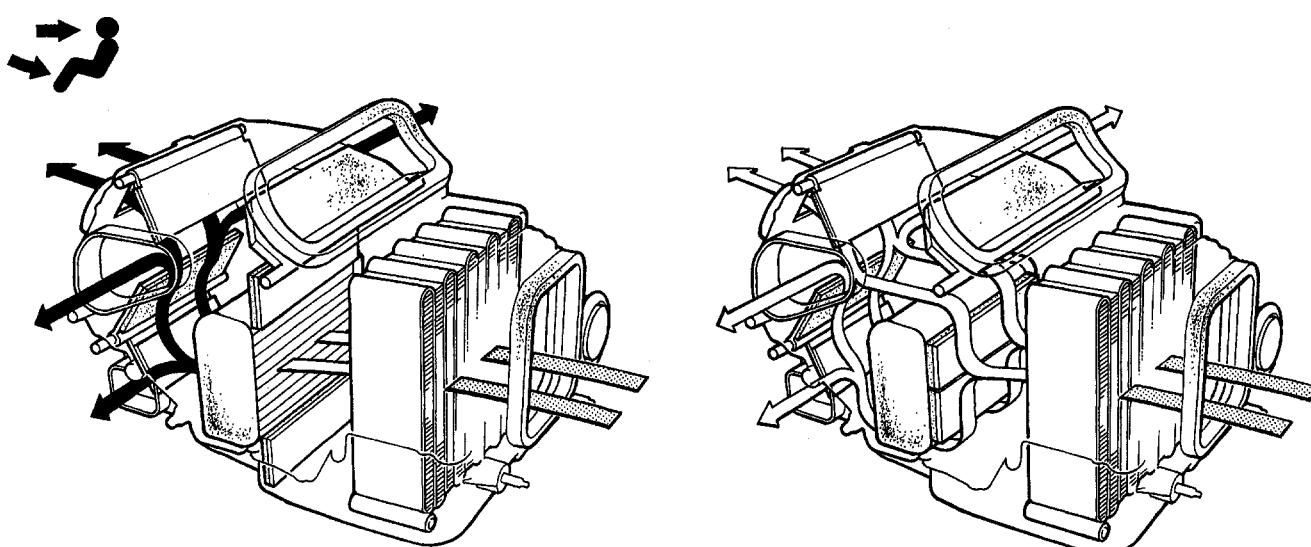
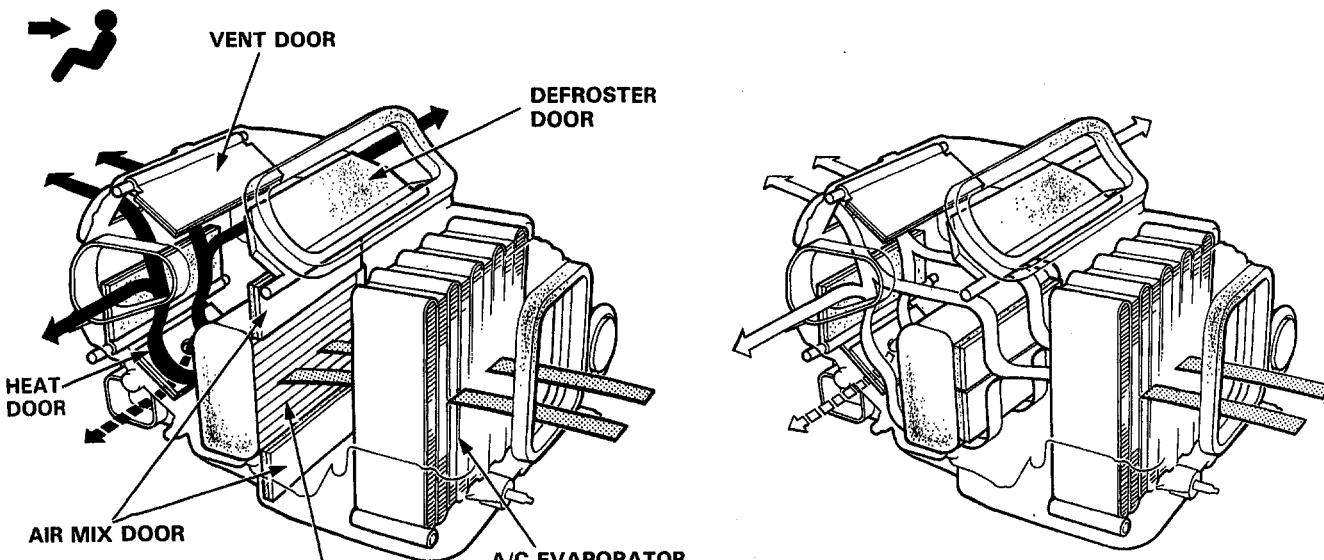
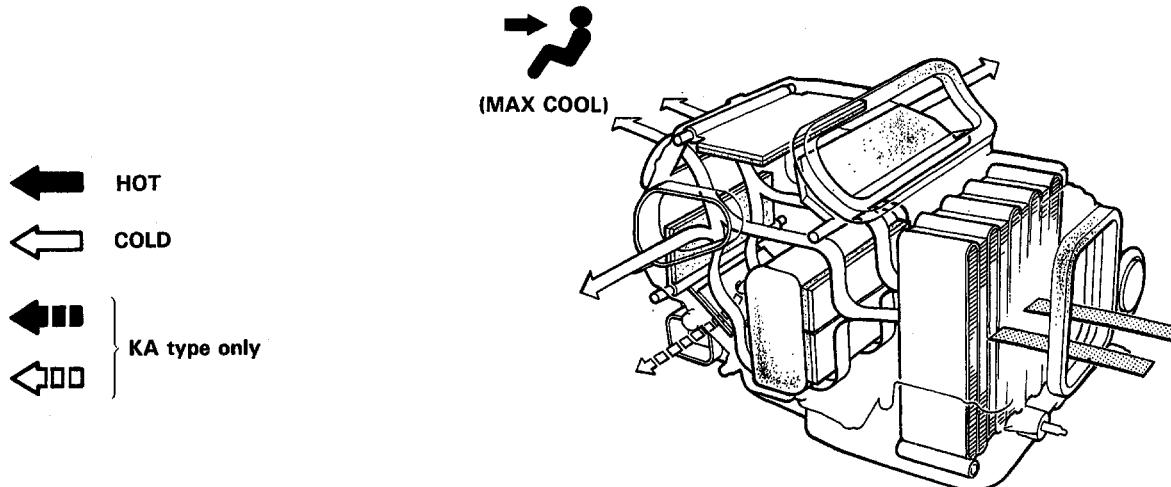
Ref. No.	Tool Number	Description	Q'ty	Page Reference
①	07LAJ-PT3010A	ECU Test Harness	1	22-57, 58

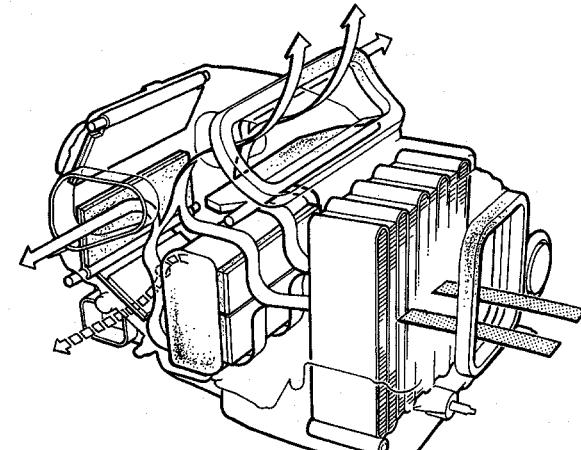
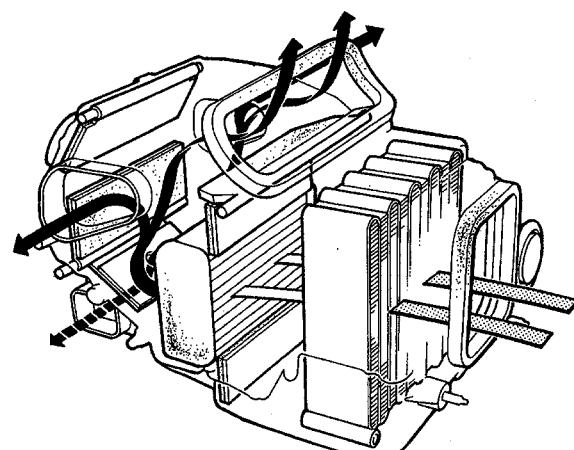
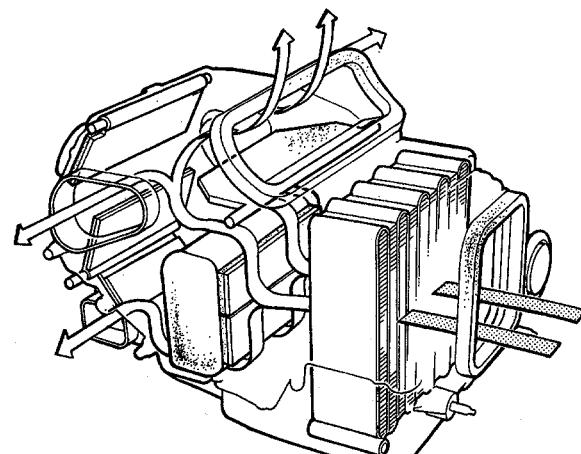
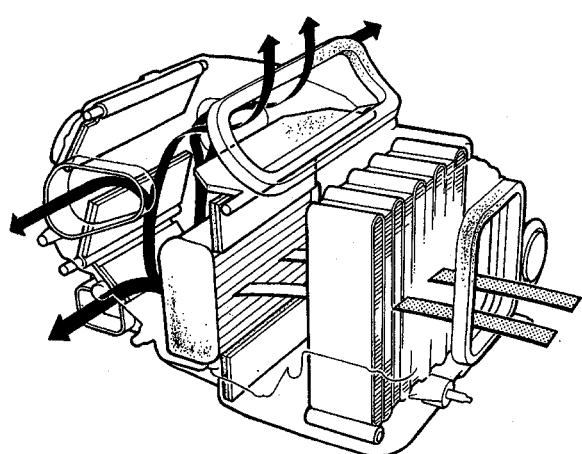
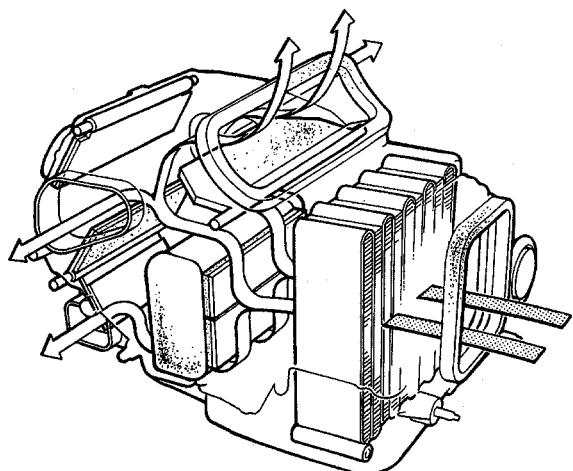
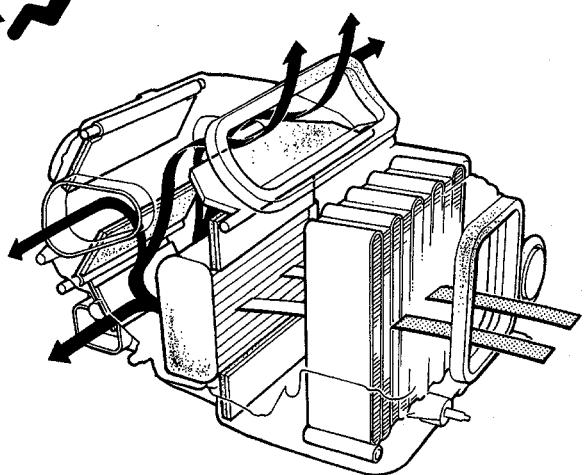
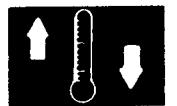


Illustrated Index



Heater-Evaporator Door Position

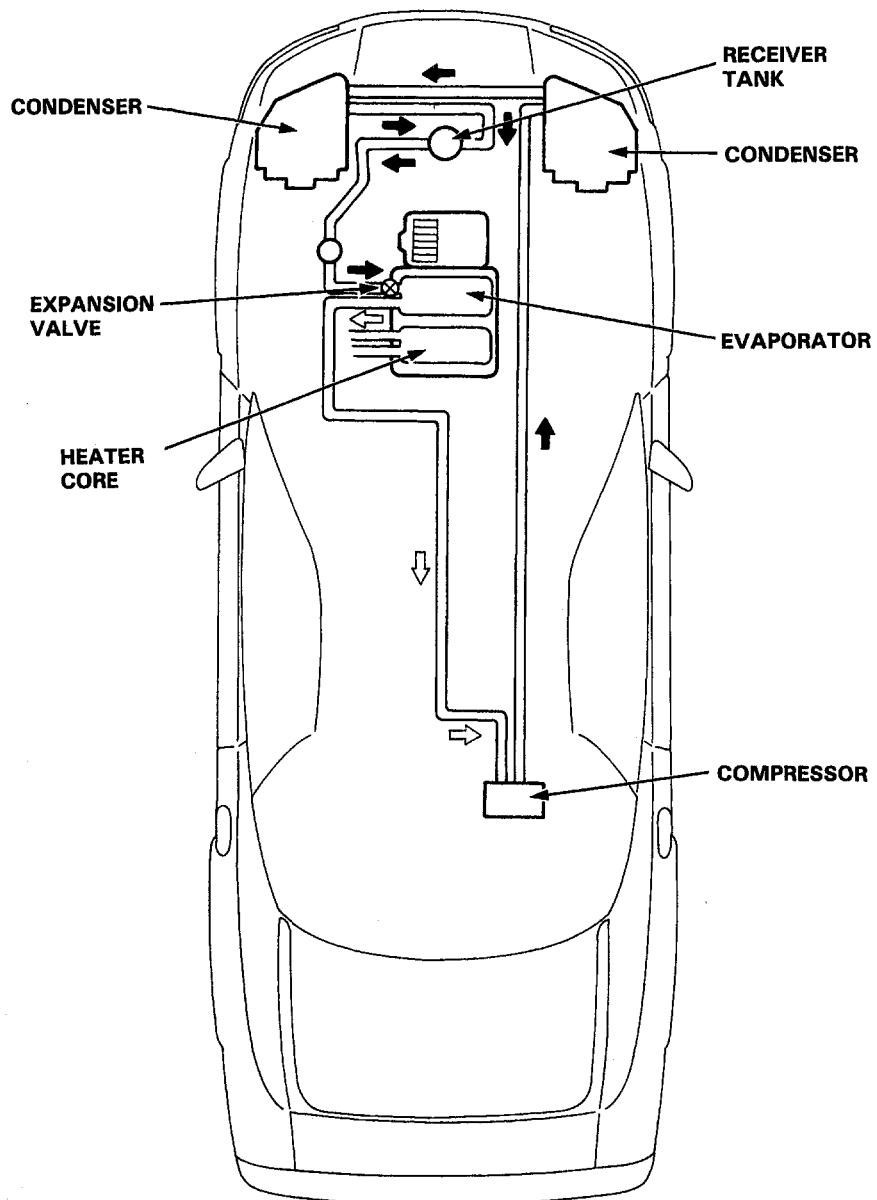
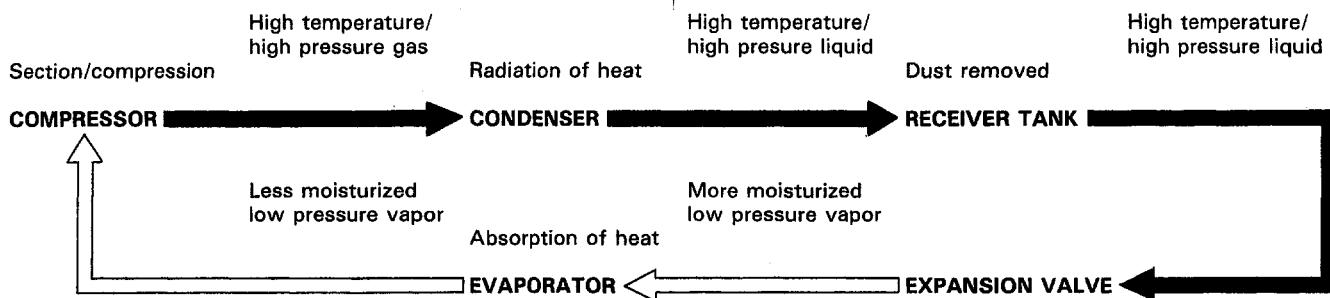




Description

Outline

The air conditioner provides the cooled air into the passenger compartment via the route shown below.





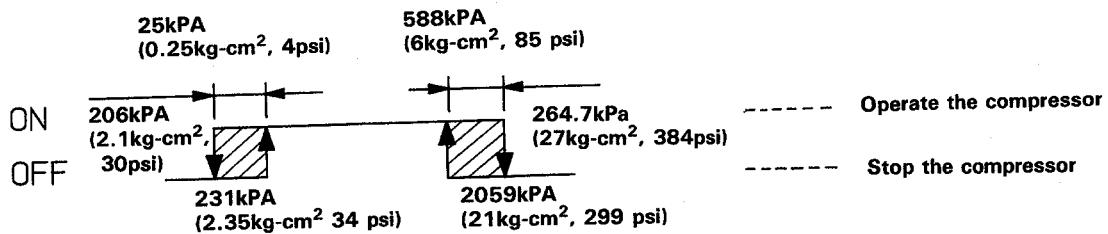
Triple Pressure Switch

Construction

The triple pressure switch consists of pressure switch A (Hi-Low pressure switch) and pressure switch B (middle pressure switch).

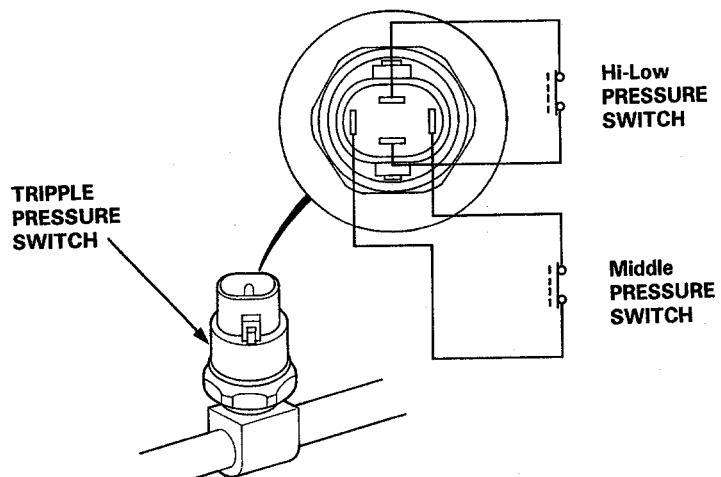
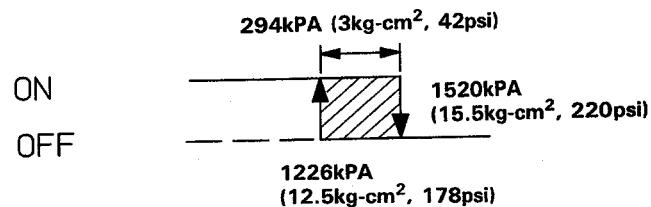
• Hi-Low pressure switch

If the refrigerant pressure becomes too high (due to blockage) or too low (due to leakagae), the triple pressure switch sends a signal to the cooling fan control unit to prevent the compressor from operating.



• Middle pressure switch

If the refrigerant pressure goes above or below 1520 kpa (15.5kg·cm², 220 psi), the triple pressure switch sends a signal to the PGM-FI ECU, then the PGM-FI ECU operates the idle control.



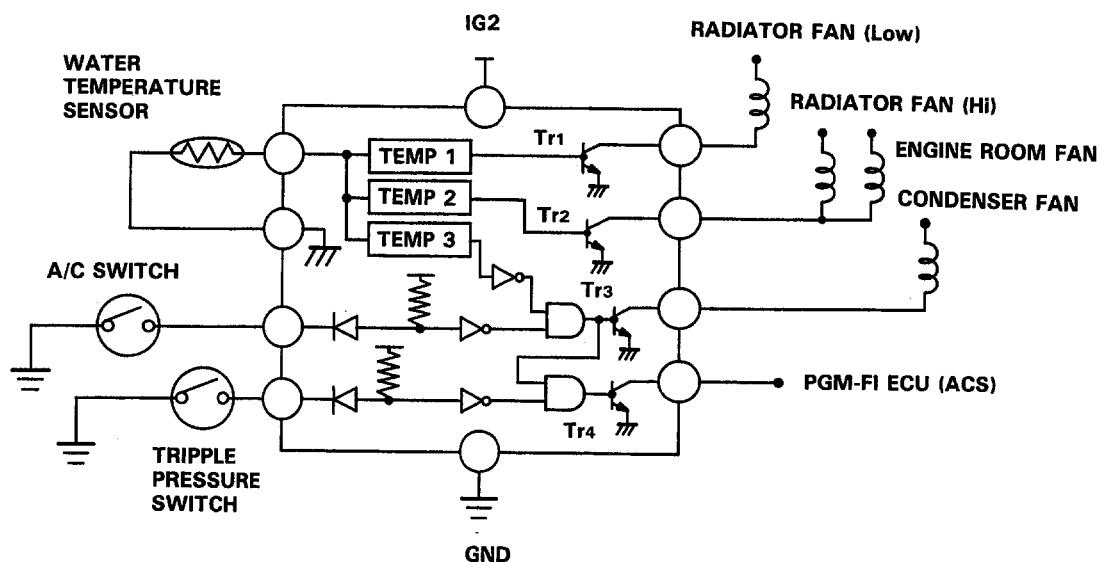
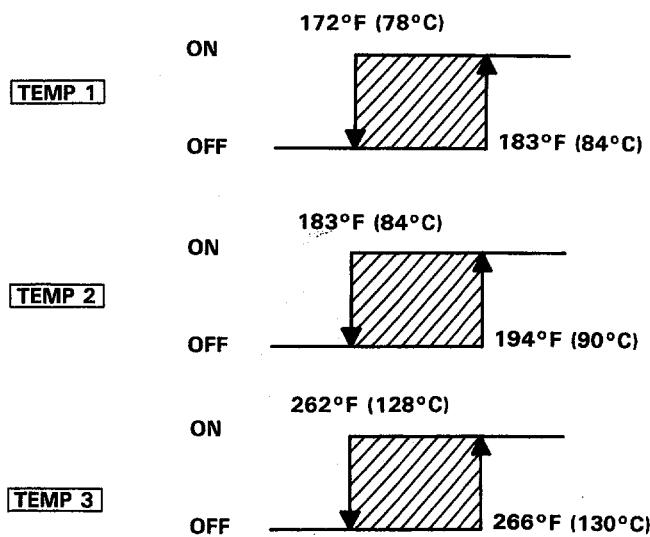
Description

Cooling Fan Control Unit

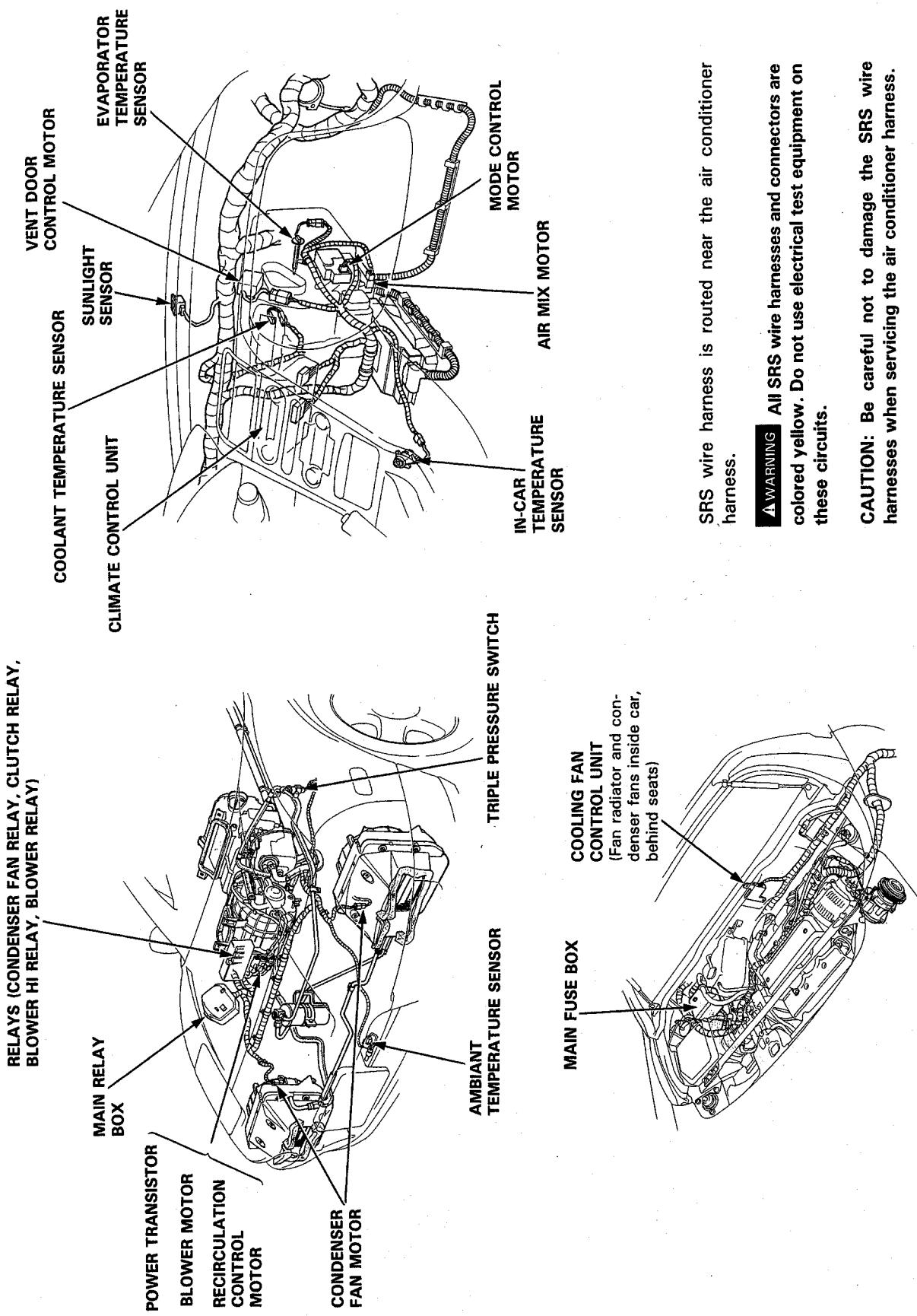
Construction

The cooling fan control unit performs calculations on the basis of signals from the water temperature sensor and controls the operation of radiator fan speed (Hi-Low), engine compartment fan, condenser fan and A/C system.

- TEMP 1: When radiator coolant temperature is above 183°F (84°C), the control unit operates Tr₁ ON and radiator fan at low speed.
- TEMP 2: When radiator coolant temperature is above 194°F (90°C), the control unit operates Tr₂ ON, radiator fan at high speed and engine compartment fan.
- TEMP 3: When radiator coolant temperature is above 266°F (130°C), the control unit operates Tr₃ OFF and stops the condenser fan. Then it operates Tr₄ OFF and stops the compressor.



Wiring/Connector Location



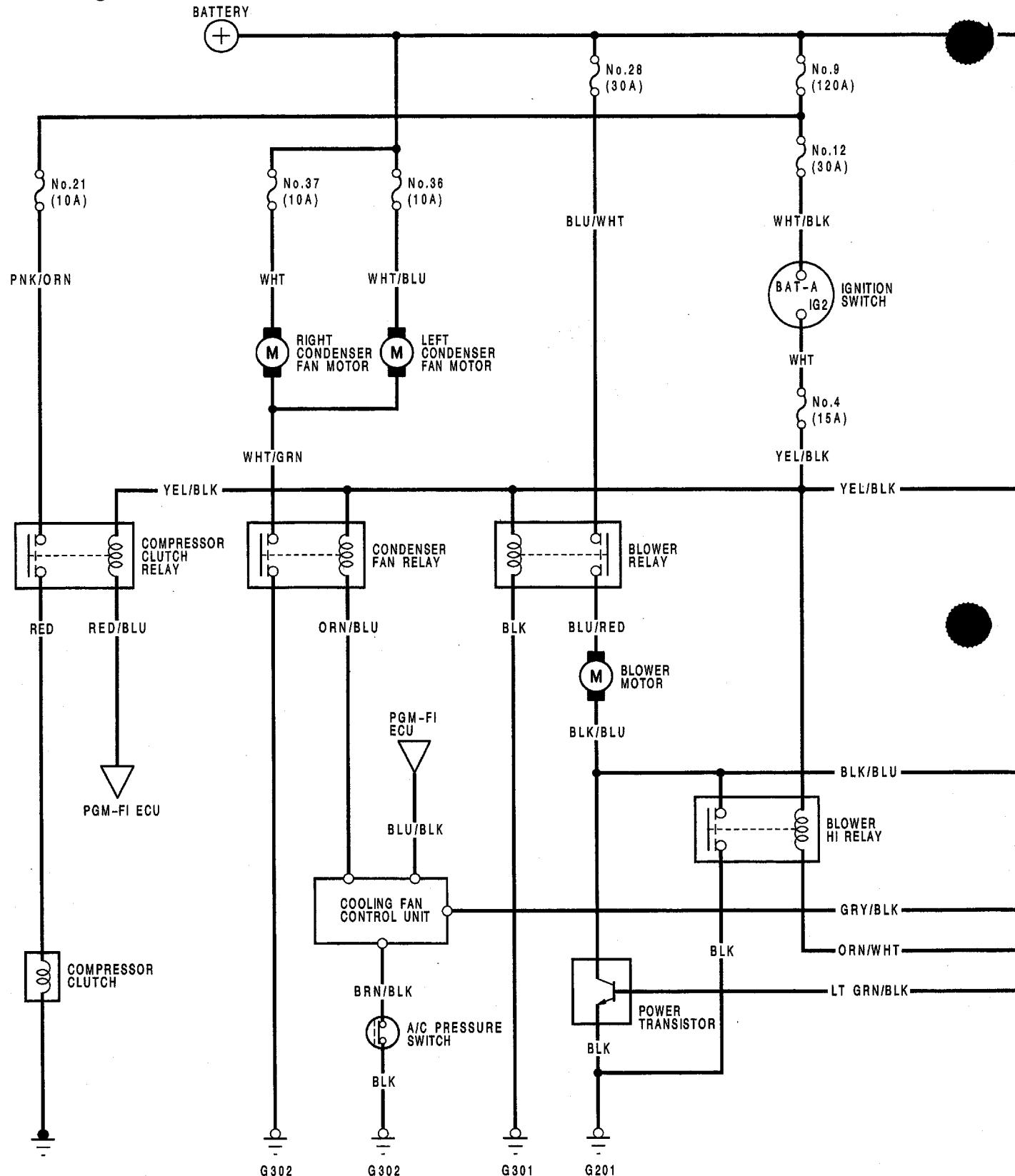
SRS wire harness is routed near the air conditioner harness.

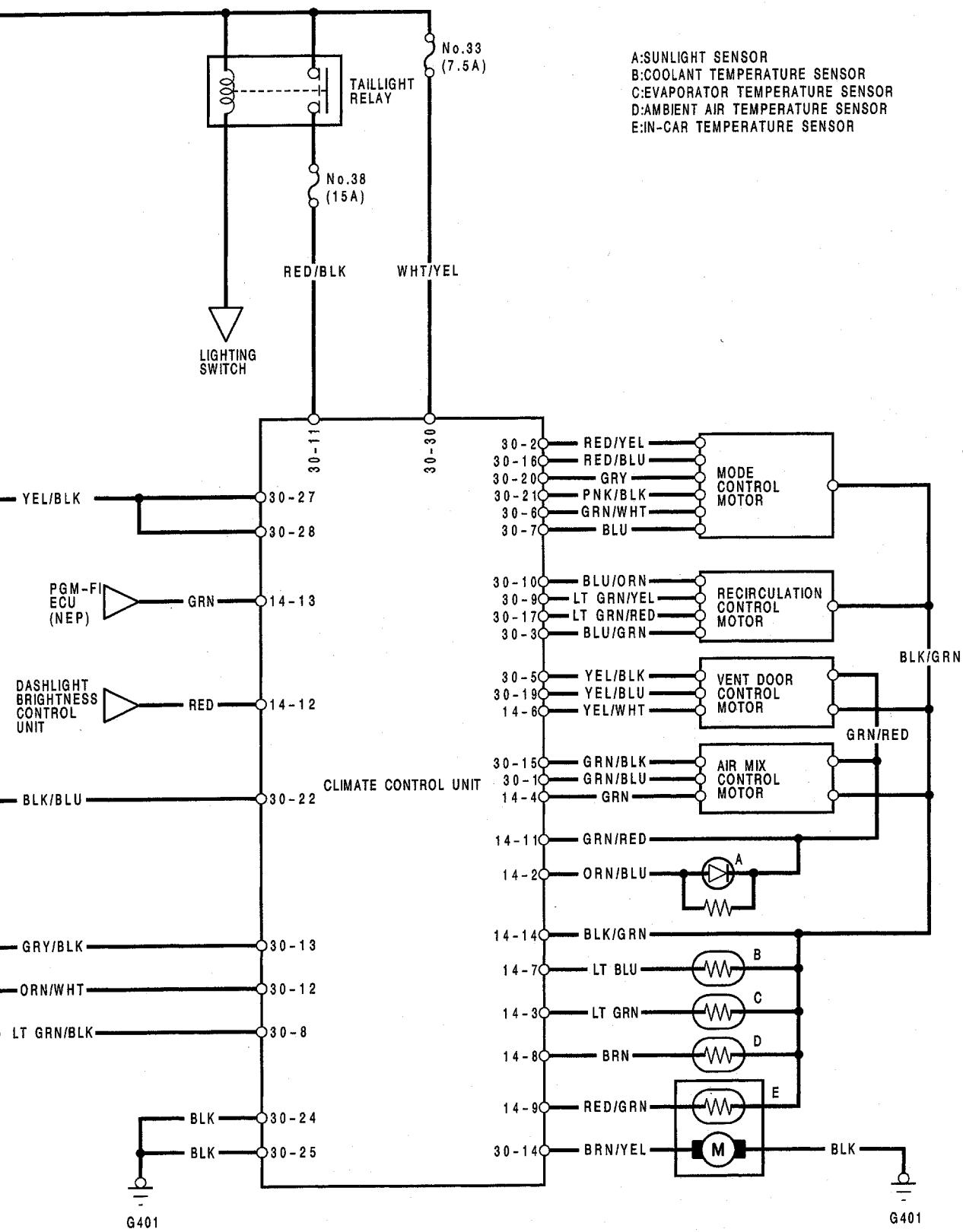
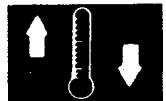
WARNING All SRS wire harnesses and connectors are colored yellow. Do not use electrical test equipment on these circuits.

CAUTION: Be careful not to damage the SRS wire harnesses when servicing the air conditioner harness.

Circuit Diagram

Circuit Diagram



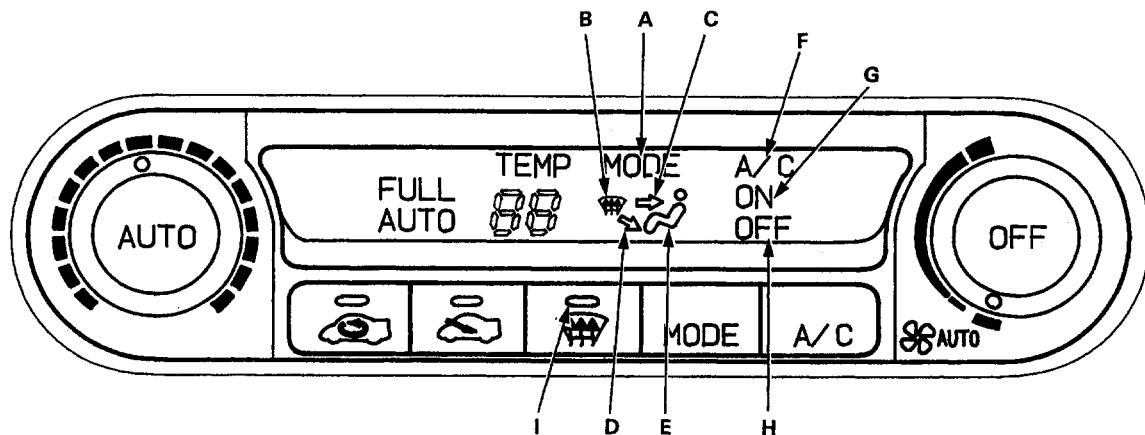


Troubleshooting

Self-diagnosis Circuit Check

The Automatic Climate Control System has a built-in self-diagnosis feature. To run it, turn the ignition switch ON and turn the FAN switch to AUTO position. Wait for at least one minute on each TEMP display 18°C (64°F), 32°C (90°F). Then, push both the AUTO and OFF buttons on the control unit at the same time. Any problems in circuits "A" through "I" listed below will be indicated by the respective indicator coming on.

The climate control unit does not memorize which self-diagnosis indicator lights comes on. If you turn the ignition switch OFF, the indicator light memory will be lost.



	INDICATOR	COMPONENT WITH PROBLEM	POSSIBLE CAUSE	Refer to PAGE
A	MODE	IN-CAR TEMPERATURE SENSOR	Open or short circuit	22-16
B	VENT	AMBIENT TEMPERATURE SENSOR	Open or short circuit	22-18
C	RIGHT TURN SIGNAL	SUNLIGHT SENSOR	Open or short circuit	22-20
D	COOLANT	COOLANT TEMPERATURE SENSOR	Open or short circuit	22-22
E	EVAPORATOR	EVAPORATOR TEMPERATURE SENSOR	Open or short circuit	22-24
F	A/C	AIR MIX CONTROL MOTOR	Open or short circuit Air mix door stuck	22-26
G	ON (A/C)	MODE CONTROL MOTOR	Open position signal circuit Mode door stuck	22-30
H	OFF (A/C)	RECIRCULATION CONTROL MOTOR	Open position signal circuit	22-32
I	LED on defroster button	VENT DOOR CONTROL MOTOR	Open or short circuit Vent door stuck	22-34



Function Selection and Operation Check

This check will quickly and automatically select and operate all functions of the climate control system, in the combinations and sequence shown below. It may help clarify a problem, or identify one that didn't show up when you ran the self-diagnosis circuit check.

Turn the FAN switch to AUTO, then push in both the MODE and AUTO buttons and hold them in while you start the engine. The control unit will then automatically run the check in eight steps one step every 5 seconds.

To stop at one of those steps, push the MODE button; to continue, push it again for each step after that.

Pushing the OFF button or turning the ignition OFF, will turn off the check.

Check the temperature, volume, and source of this air flow, and compare it to what the chart shows it should be.

	“TEMP” Display	88	1	2	3	4	5	6	7	8	88
Function Selected	FAN				7	10 (Hi)		7	4	1	
	AirMix Door	OFF	1 (LO)	4							OFF
	MODE and (VENT)										
	Fresh Recirc										
	A/C	OFF			ON		*		OFF		

Troubleshooting

Symptom-to-Components Chart

Use this chart if the self-diagnosis checks don't identify any cause for the symptom.

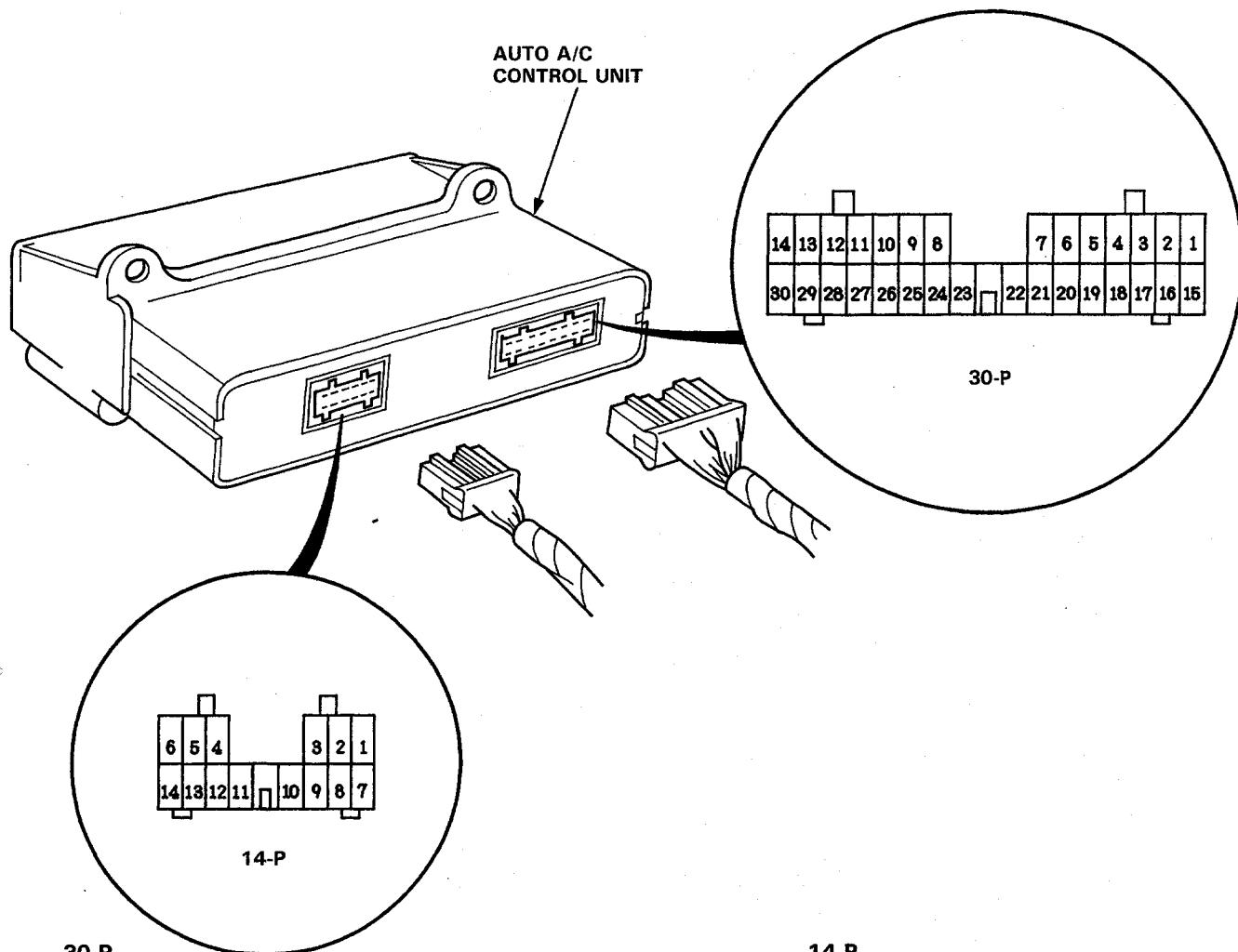
Across each row in the chart, the potential sources of a symptom are ranked in the order they should be inspected in, starting with ①. Find the symptom in the left column, read across to the most likely source, then refer to the page listed at the top of that column. If inspection shows the component is OK, try component ②, etc.

PAGE	SYSTEM	POWER CIRCUITS TO CLIMATE CONTROL UNIT	IN-CAR TEMPERATURE SENSOR	AMBIENT TEMPERATURE SENSOR	SUNLIGHT SENSOR	COOLANT TEMPERATURE SENSOR	EVAPORATOR TEMPERATURE SENSOR	AIR MIX CONTROL MOTOR	MODE CONTROL MOTOR	RECIRCULATION CONTROL MOTOR	VENT DOOR CONTROL MOTOR	BLOWER MOTOR	BLOWER SPEED CONTROLS	A/C SYSTEM	A/C CONDENSER FAN	A/C COMPRESSOR
SYMPOTM		22-38	23-16	22-18	22-20	22-22	22-24	22-26	22-30	22-32	22-34	22-40	22-46	22-50	22-52	22-56
Climate control system does not work at all.	①															
No air from blower.	①					②						③				
No cold air from blower.		①	②				③									
No hot air from blower.		②						①								
Actual temperature is different from set temperature.	②	③	①													
Blower motor does not run.												①				
Blower motor speed does not change.						②	③						①			
Compressor clutch does not engage, and the condenser fan does not run.	*If coolant temperature is above 130°C; If coolant temperature is below 130°C;													①		
Condenser fan does not run, but the compressor runs normally.														①		
Compressor clutch does not engage, but the condenser fan runs normally.				②				③							①	

* Cool down coolant, and recheck.



Control Unit Signals



No.	Signal	No.	Signal	No.	Signal	No.	Signal	No.	Signal
1	Air Mix Motor COLD \oplus	11	Small Light	21	MODE 2	1		11	+ 5 V
2	VENT (mode)	12	Blower High Relay	22	Blower Feedback	2	Sunlight Sensor	12	Illumination Control
3	Fresh Position Signal	13	A/C Signal	23		3	Evaporator Tem- perature Sensor	13	Engine Revolution Pulse
4		14	Asperator Fan	24	GND	4	Air Mix Motor Potential	14	Signal GND
5	Vent Motor CLOSE \oplus	15	Air Mix Motor HOT \oplus	25	GND	5			
6	MODE 3	16	DEF	26		6	Vent Motor Potential		
7	MODE 4	17	Recirc. Position Signal	27	IG2	7	Coolant tempera- ture Sensor		
8	Power Transistor Base	18		28	IG2	8	Ambient Temper- ature Sensor		
9	RECIRC. \oplus	19	Vent Motor OPEN \oplus	29		9	In-car Temper- ature Sensor		
10	FRESH \oplus	20	MODE 1	30	+B	10			

Troubleshooting

In-car Temperature Sensor

Self-diagnosis indicator light A comes on: Indicates a problem in the in-car temperature sensor circuit. Use a digital multimeter (KS-AHM-32-003) to check it.

The in-car temperature sensor is a temperature dependent resistor (thermistor). The resistance of the thermistor decreases as the temperature inside the car increases.

Problem in the in-car temperature sensor circuit.

Remove the center console panel (page 22-84), then disconnect the 4-P connector from the in-car temperature sensor.

Measure resistance between the No.1 terminal and No.2 terminal in the sensor half of the connector.

Is there 1-12k Ω ?

NO

Replace in-car temperature sensor

YES

Turn the ignition switch ON.

Measure voltage between the RED/GRN wire (+) terminal in the other half of the connector and body ground.

Is there approx. 5V?

NO

Turn the ignition switch OFF.

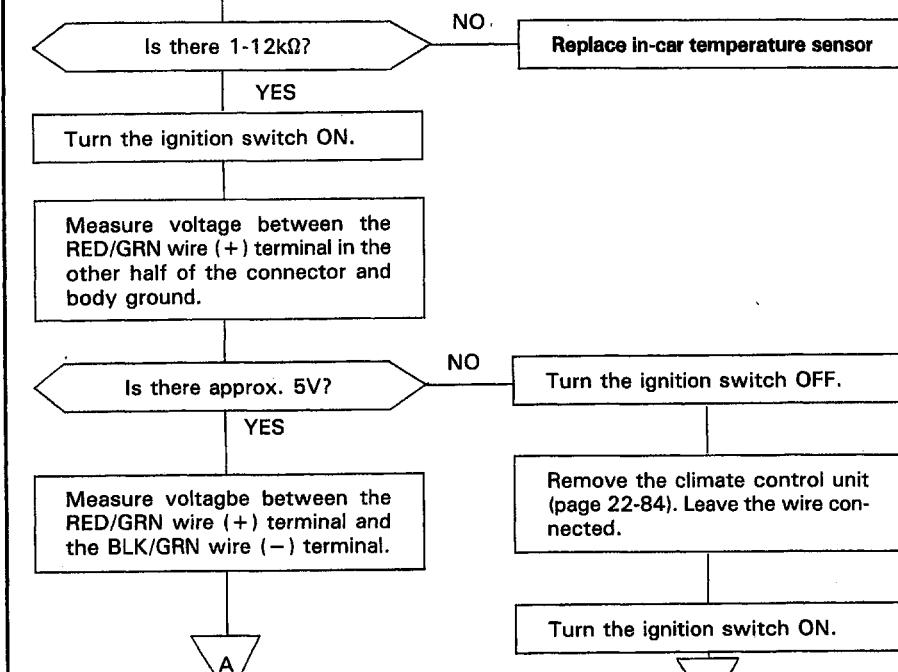
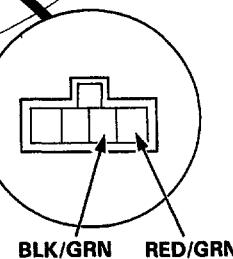
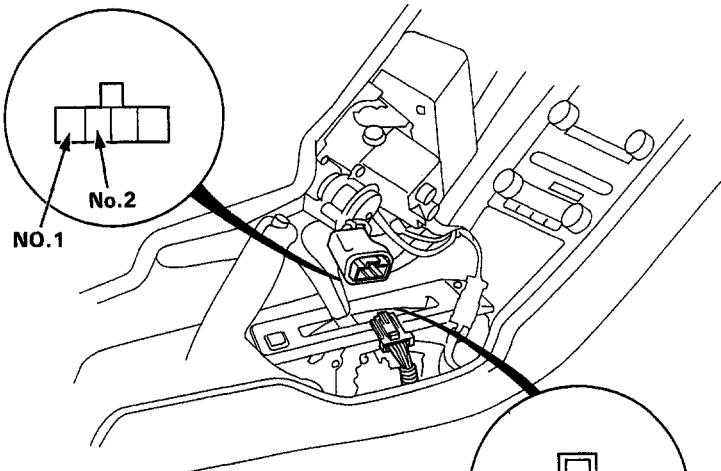
YES

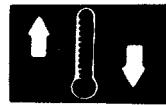
Measure voltage between the RED/GRN wire (+) terminal and the BLK/GRN wire (-) terminal.

Remove the climate control unit (page 22-84). Leave the wire connected.

(To page 22-17)

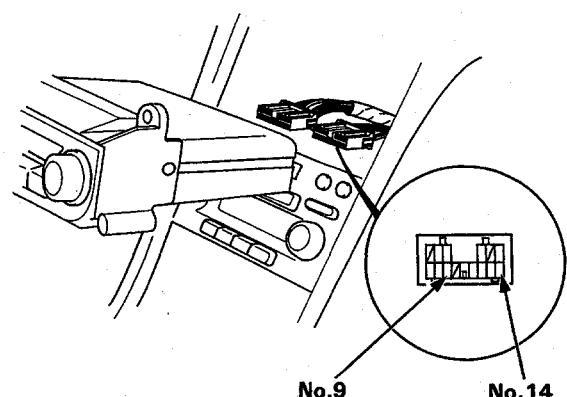
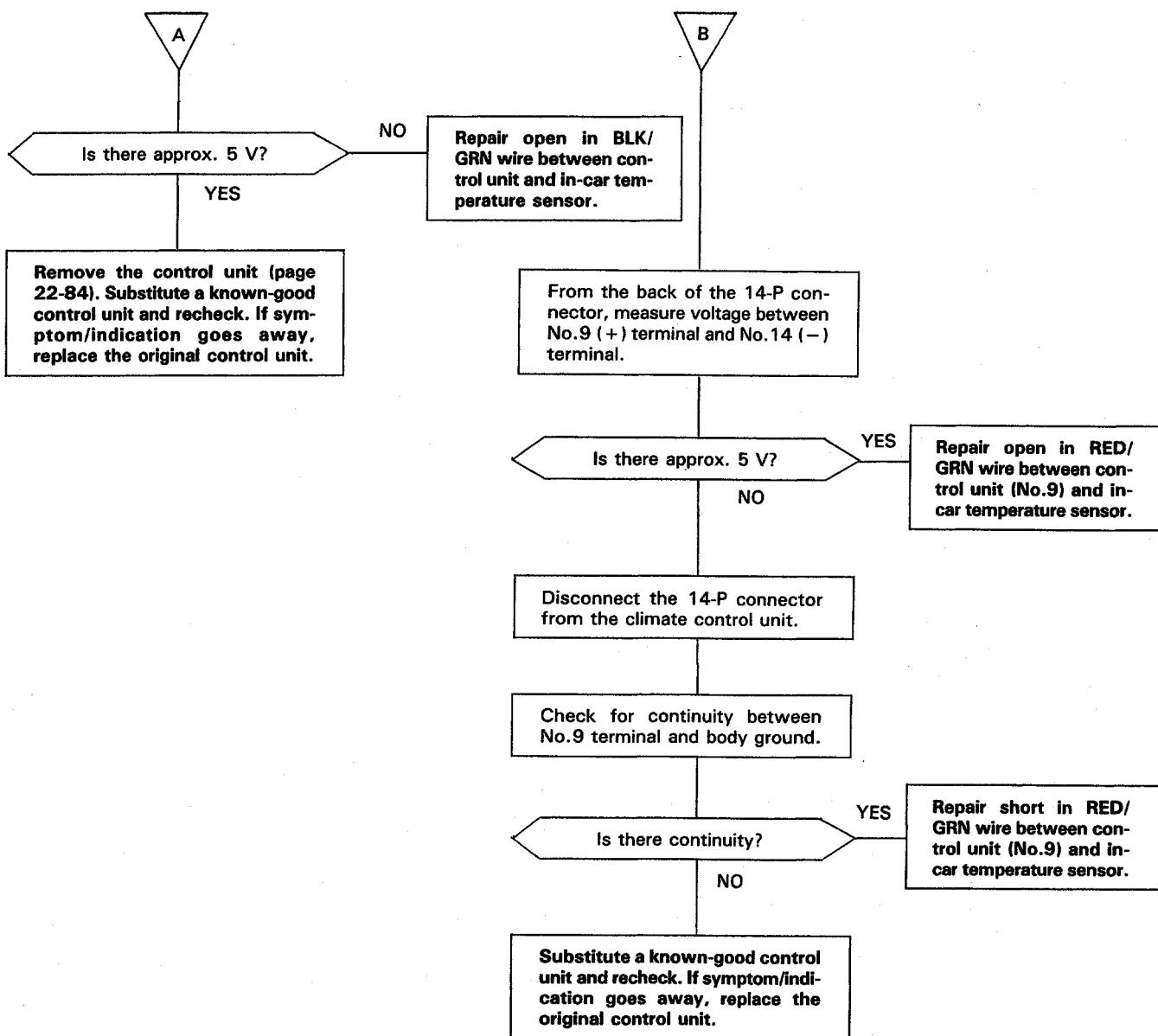
(To page 22-17)





(From page 22-16)

(From page 22-16)

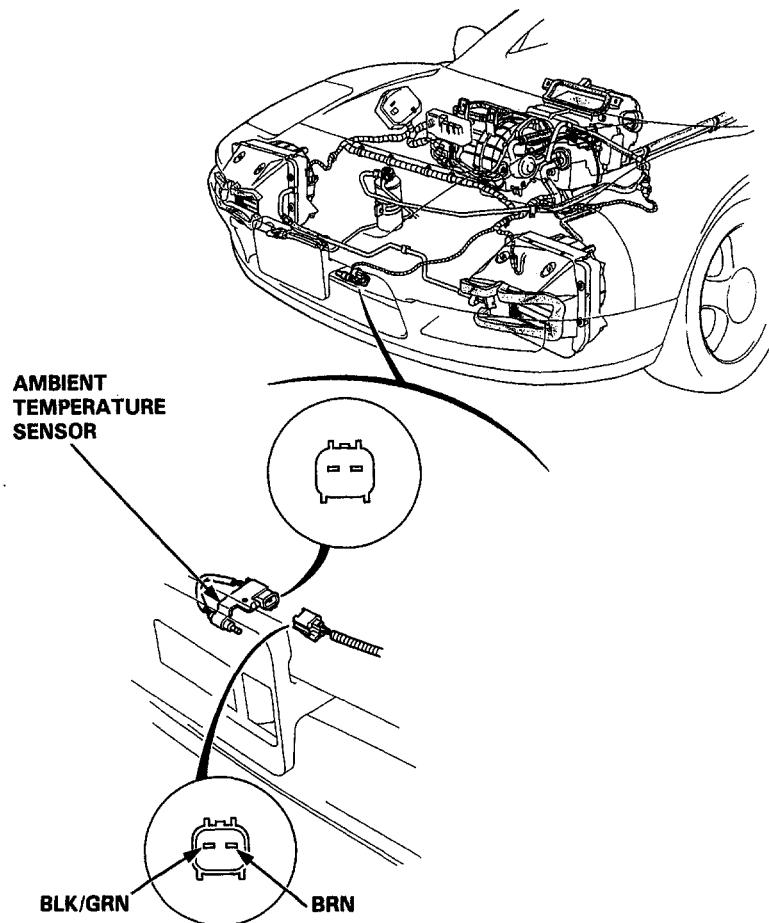
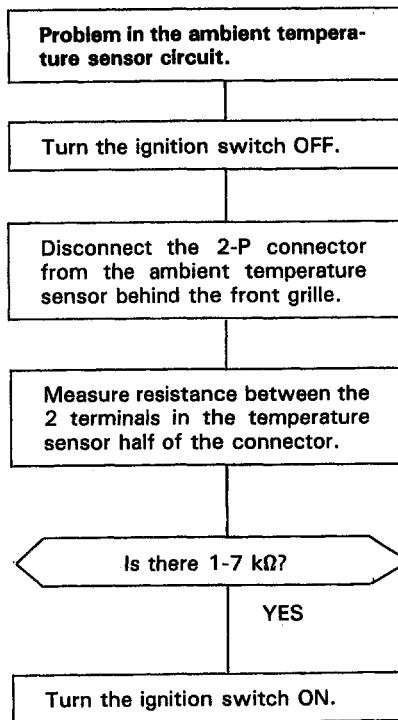


Troubleshooting

Ambient Temperature Sensor

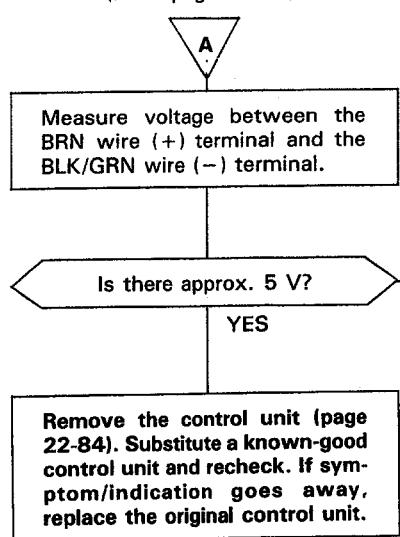
Self-diagnosis indicator light B comes on: Indicates a problem in the ambient temperature sensor circuit. Use a digital multimeter (KS-AHM-32-003) to check it.

The ambient temperature sensor is a temperature dependent resistor (thermistor). The resistance of the thermistor decreases as the temperature outside the car increases.

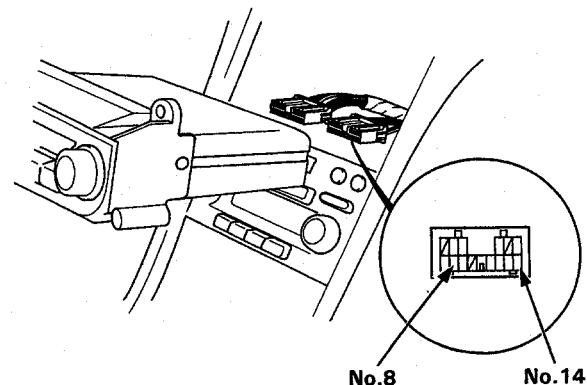
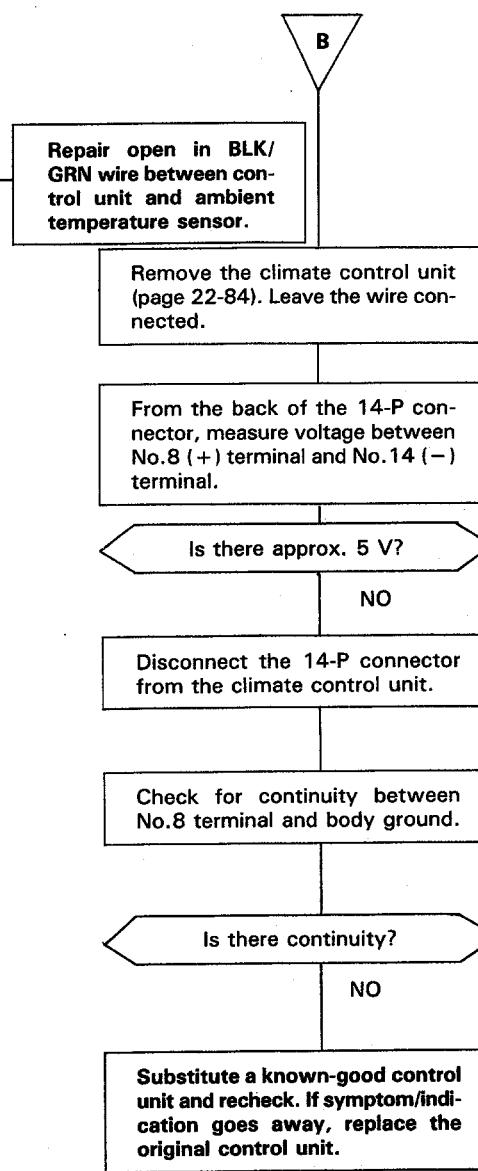




(From page 22-18)



(From page 22-18)

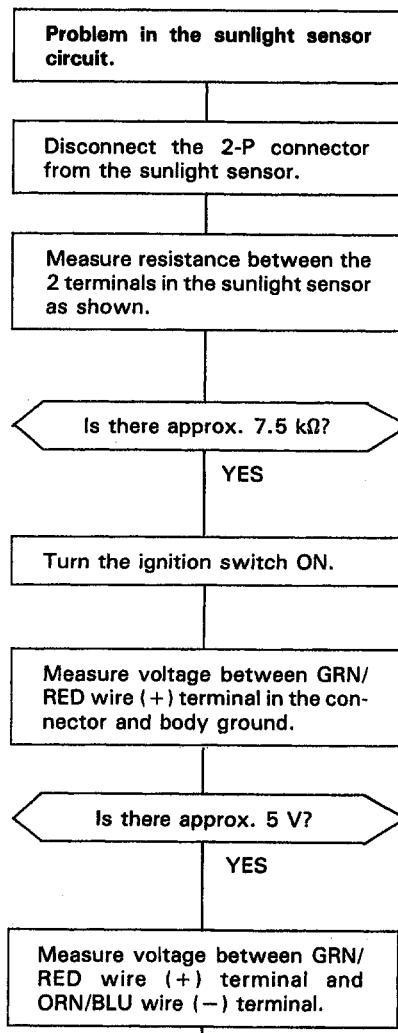


Troubleshooting

Sunlight Sensor

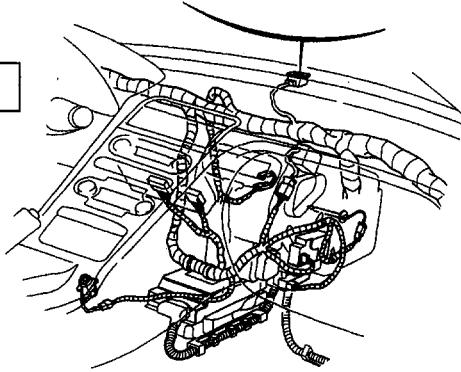
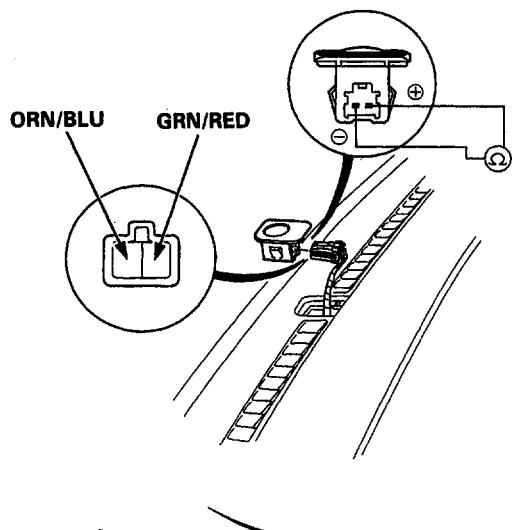
Self-diagnosis indicator light C comes on: Indicates a problem in the sunlight sensor circuit. Use a digital multimeter (KS-AHM-32-003) to check it.

The sunlight sensor is a light sensitive, variable resistance diode. The resistance of the diode increases as the intensity of the light increases.



To page 22-21

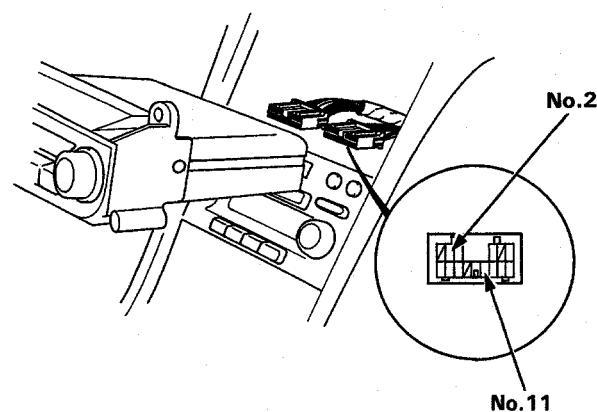
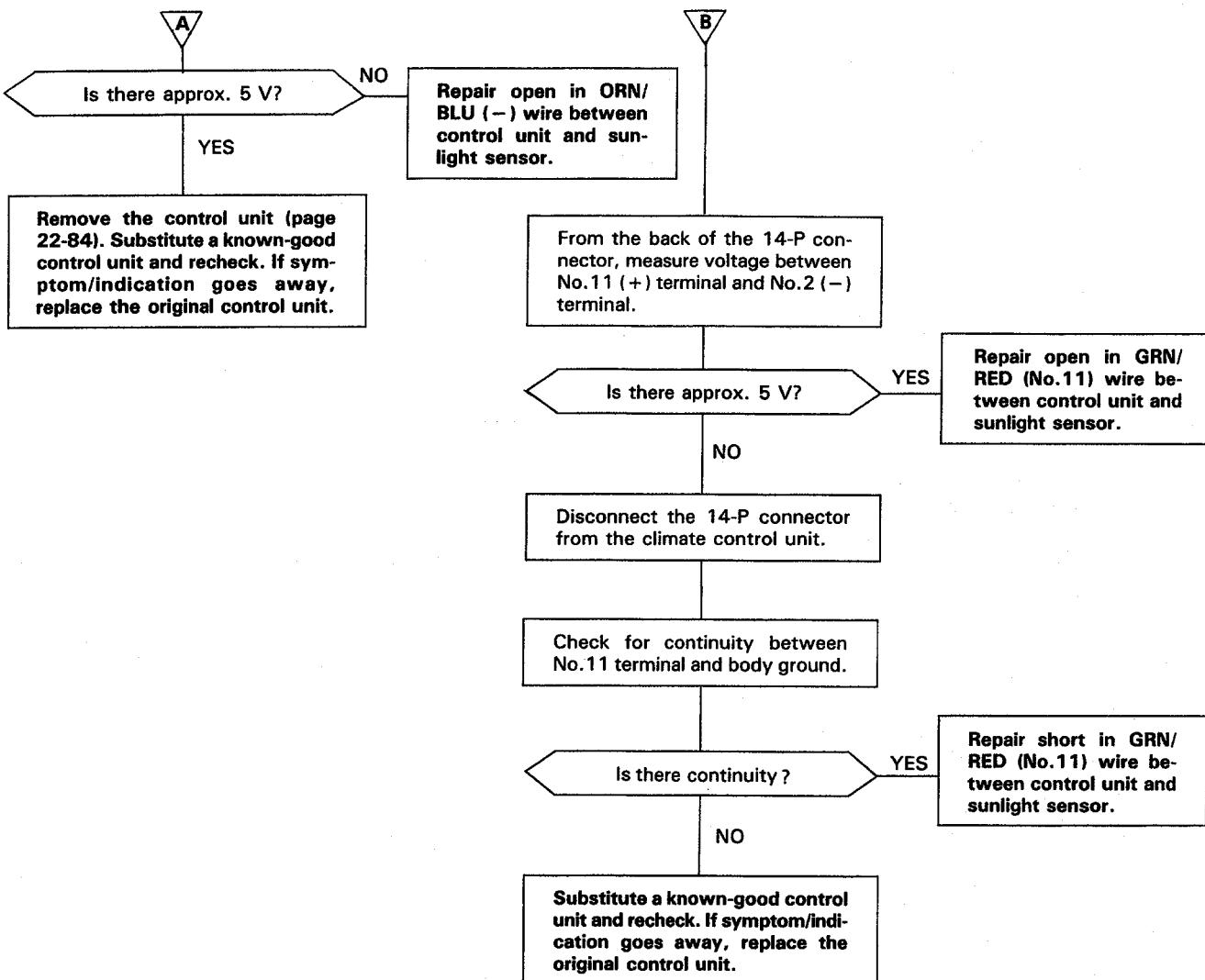
To page 22-21





From page 22-20

From page 22-20



Troubleshooting

Coolant Temperature Sensor

Self-diagnosis indicator light D comes on: Indicates a problem in the coolant temperature sensor circuit. Use a digital multimeter (KS-AHM-32-003) to check it.

The coolant temperature sensor is a temperature dependent resistor (thermistor). The resistance of the thermister decreases as the coolant temperature increases.

Problem in the coolant temperature sensor circuit.

Disconnect the 2-P connector from the coolant temperature sensor.

Measure resistance between the 2 terminals in the temperature sensor half of the connector.

Is there 5 ~ 30 k Ω ?

YES

Turn the ignition switch ON.

Measure voltage between LT BLU wire (+) terminal in the other half of the connector and body ground.

Is there approx. 5 V?

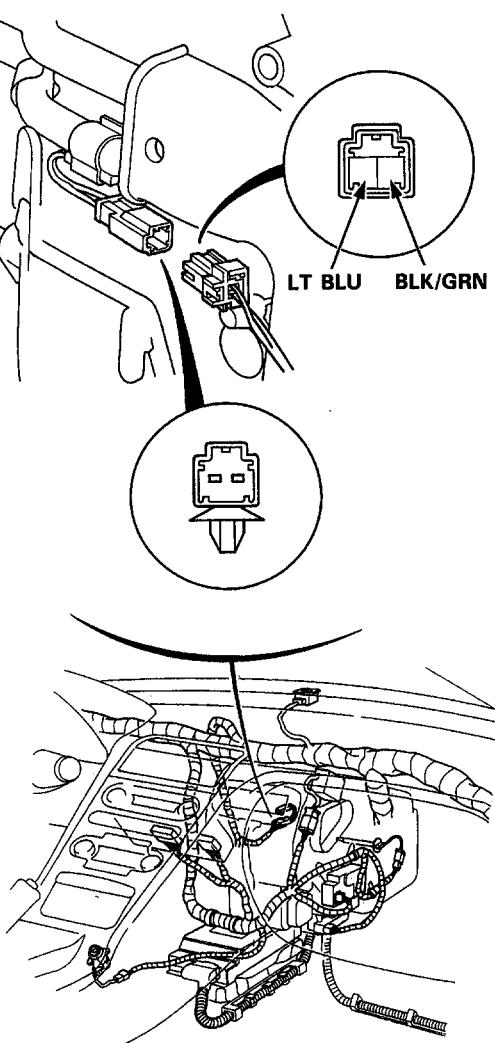
YES

Measure voltage between LT BLU wire (+) terminal and BLK/GRN wire (-) terminal.

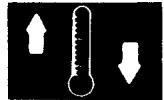
To page 22-23

Replace coolant temperature sensor.

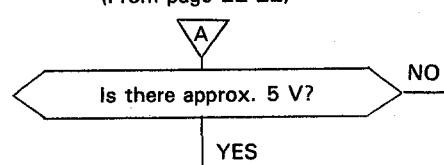
NO



To page 22-23



(From page 22-22)

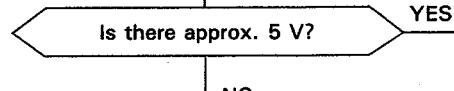


(From page 22-22)

Repair open in BLK/
GRN (-) wire between
control unit and coolant
temperature sensor.

Remove the control unit (page 22-84). Substitute a known-good control unit and recheck. If symptom/indication goes away, replace the original control unit.

From the back of the 14-P connector, measure voltage between No.7 (+) terminal and No.14 (-) terminal.

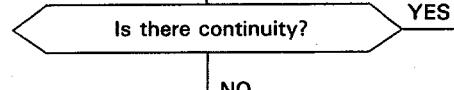


Repair open in LT BLU
(No.7) wire between
control unit and coolant
temperature sensor.

NO

Disconnect 14-P connector from
the control unit.

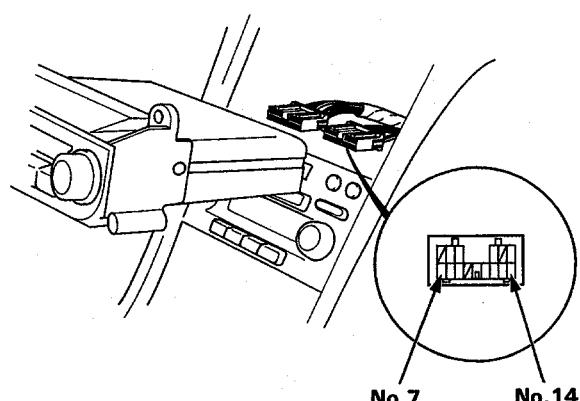
Check for continuity between
No.7 terminal and body ground.



Repair short in LT BLU
(No.7) wire between
control unit and coolant
temperature sensor.

NO

Substitute a known-good control
unit and recheck. If symptom/indication
goes away, replace the
original control unit.

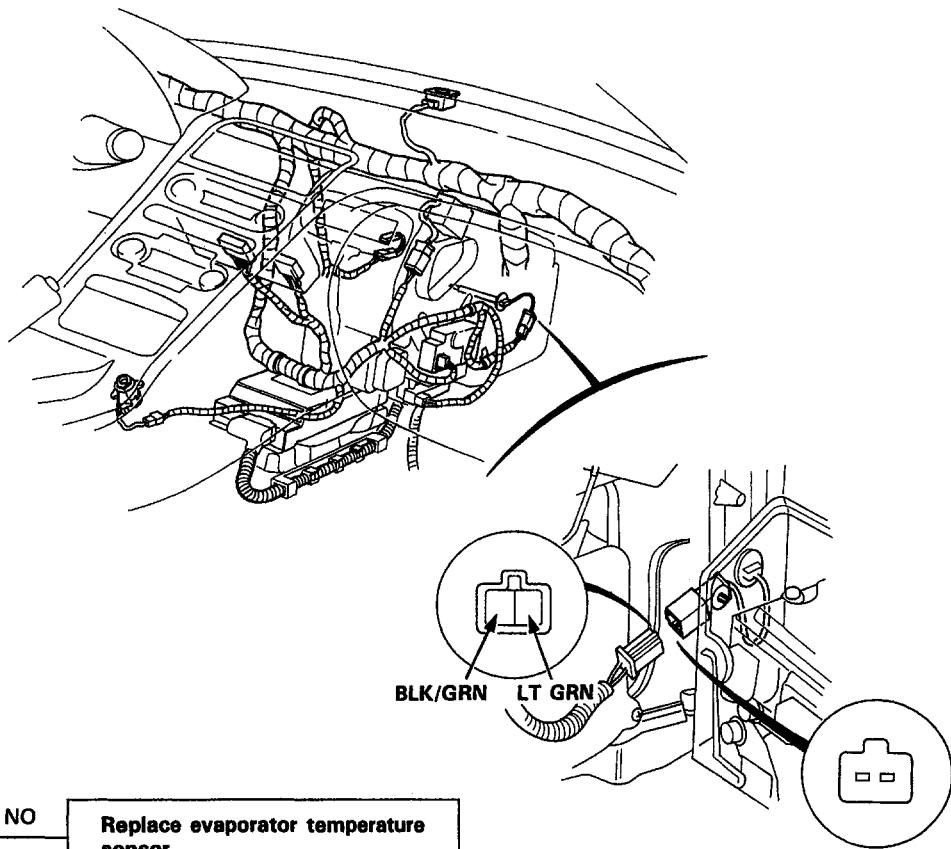
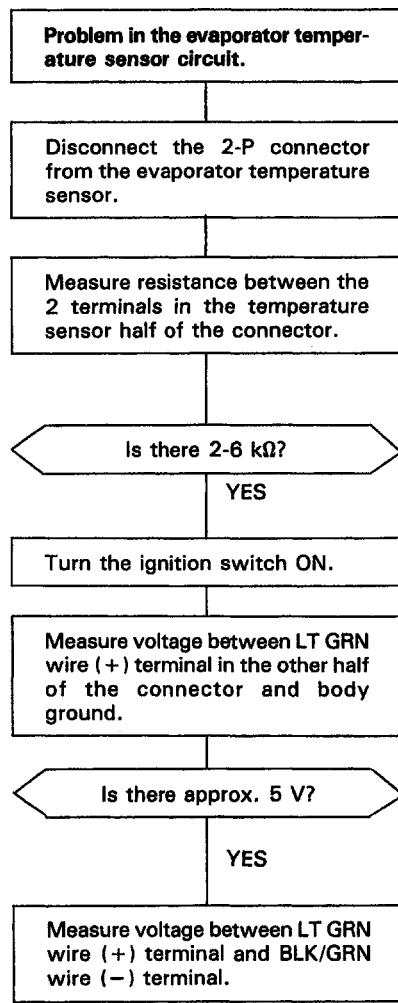


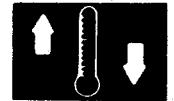
Troubleshooting

Evaporator Temperature Sensor

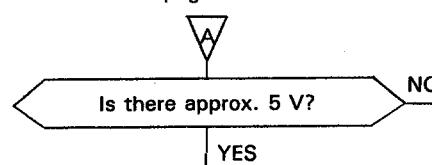
Self-diagnosis indicator light E comes on: Indicates a problem in the evaporator sensor circuit. Use a digital multimeter (KS-AHM-32-003) to check it.

The evaporator temperature sensor is a temperature dependent resistor (thermistor). The resistance of the thermistor decreases as the evaporator outlet air temperature increases.





From page 22-24

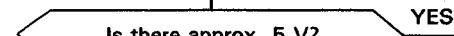


Remove the control unit (page 22-84).
Substitute a know-good control unit and recheck. If symptom/indication goes away, replace the original control unit.

From page 22-24

Repair open in BLK/GRN (-) wire between control unit and evaporator temperature sensor.

From the back of the 14-P connector, measure voltage between No.3 (+) terminal and No.14 (-) terminal.

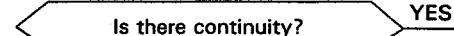


NO

Repair open in LT GRN wire between control unit (No.3) and evaporator temperature sensor.

Disconnect 14-P connector from the control unit.

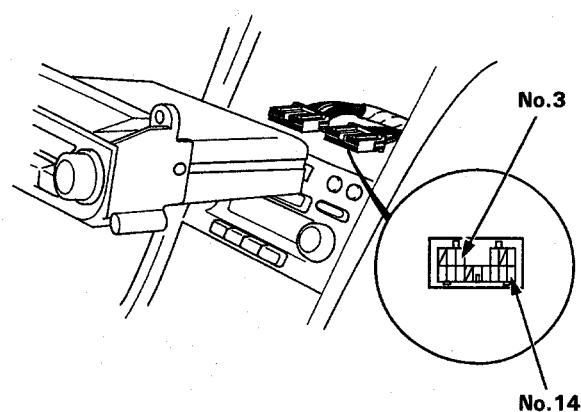
Check for continuity between No.3 terminal and body ground.



NO

Repair short in LT GRN wire between control unit (No.3) and evaporator temperature sensor.

Substitute a know-good control unit and recheck. If symptom/indication goes away, replace the original control unit.

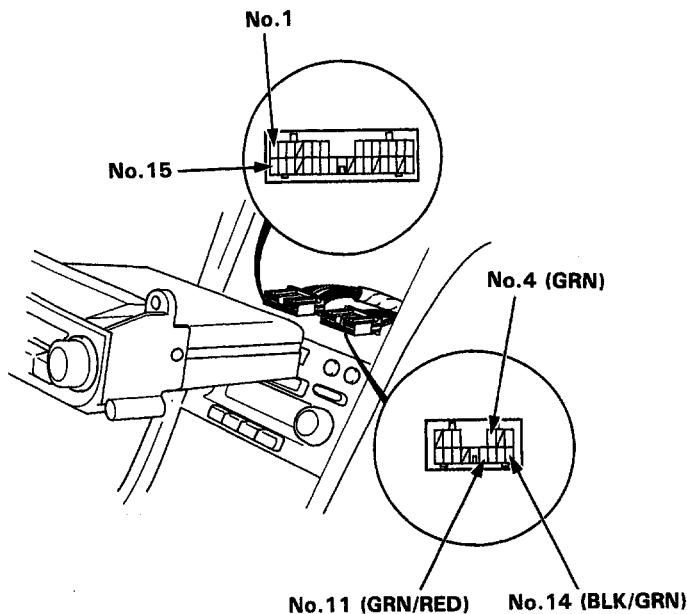
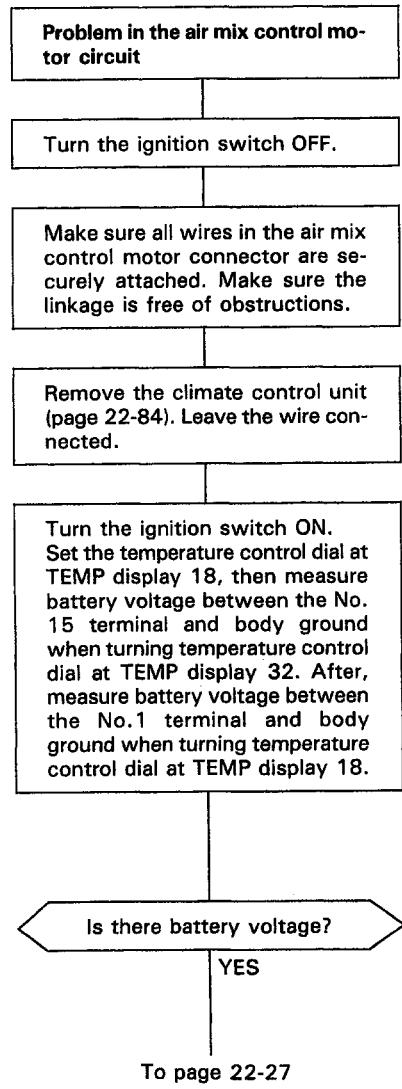


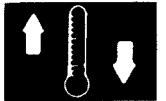
Troubleshooting

Air Mix Control Motor

Self-diagnosis indicator light F comes on: Indicates a problem in the air mix control motor circuit. Use a digital multimeter (KS-AHM-32-003) to check it.

The air mix control motor regulates the mixture to cold/hot air according to output from the control unit.



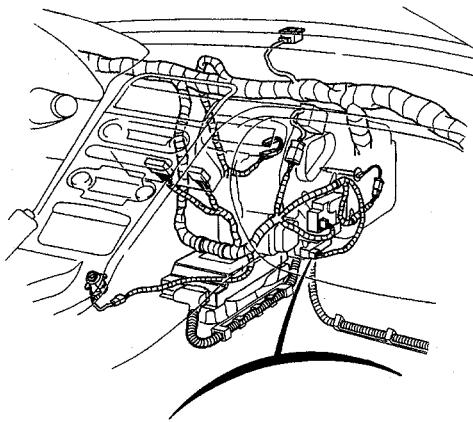


From page 22-26

Turn the ignition switch OFF.

Disconnect the 6-P connector from the air mix control motor.

Turn the ignition switch ON. Set the temperature control dial at TEMP display 18, then measure battery voltage between the GRN/BLK terminal and body ground when turning temperature control dial at TEMP display 32. After, measure battery voltage between the GRN/BLU terminal and body ground when turning temperature control dial at TEMP display 18.



Is there battery voltage?

YES

Repair open in the GRN/BLK or GRN/BLU wires between the air mix control motor and the control unit.

Turn the ignition switch OFF. Disconnect the 30-P connector from the control unit.

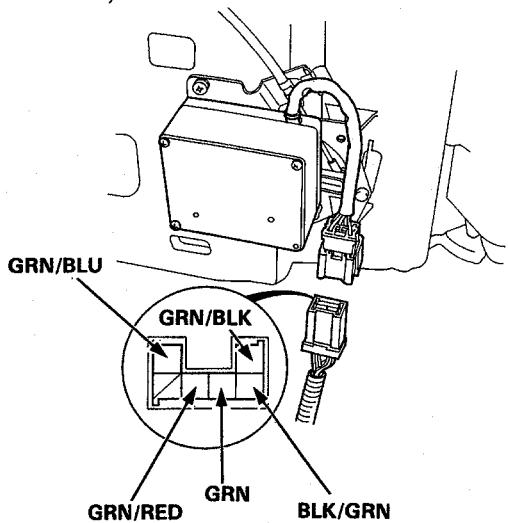
Check for continuity between GRN/BLK or GRN/BLU terminals and body ground.

Is there continuity?

YES

Repair short in the GRN/BLK or GRN/BLU wires between the air mix control motor and the control unit.

Reconnect the 30-P connector.



To page 22-28.

(cont'd)

Troubleshooting

Air Mix Control Motor (cont'd)

From page 22-27

From the back of the 14-P connector at the control unit, measure voltage between the No. 11 and body ground.

Is there approx. 5 V

YES

Substitute a known-good control unit and recheck. If symptom/indication goes away, replace the original control unit.

Measure voltage between the GRN/RED terminal and body ground.

Is there approx. 5 V

YES

Repair open in the GRN/RED wire between the air mix control motor and control unit.

Turn the ignition switch OFF.

Disconnect the 14-P connector from the control unit.

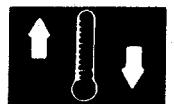
Check each wires for continuity:
• GRN wire
• BLK/GRN wire

Is there continuity?

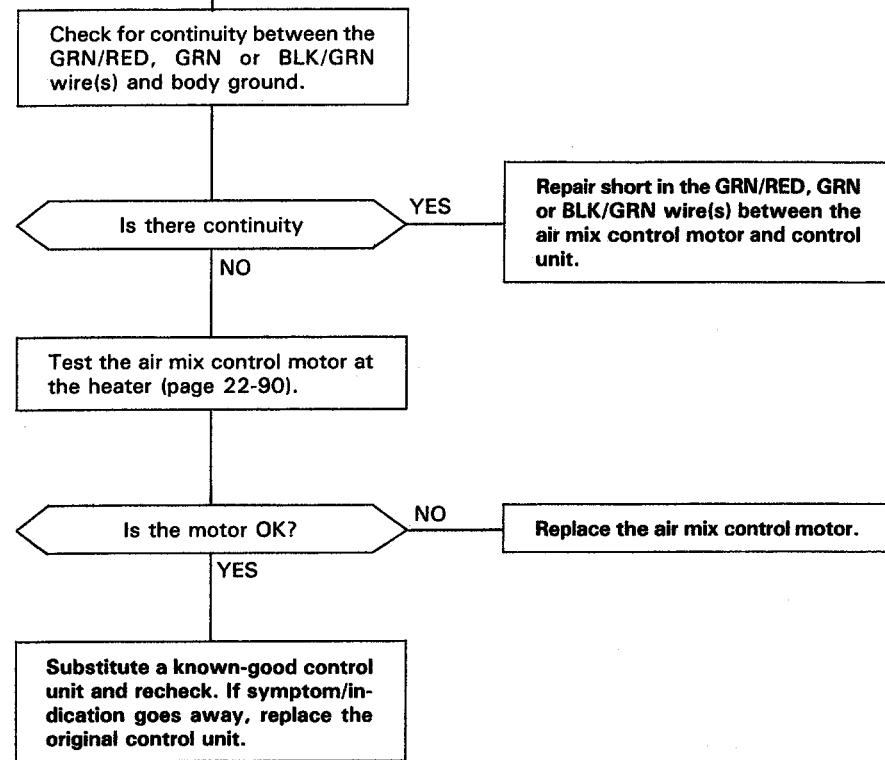
YES

Repair open in the GRN or BLK/GRN wire(s) between the air mix control motor and control unit.

To page 22-29



From page 22-28

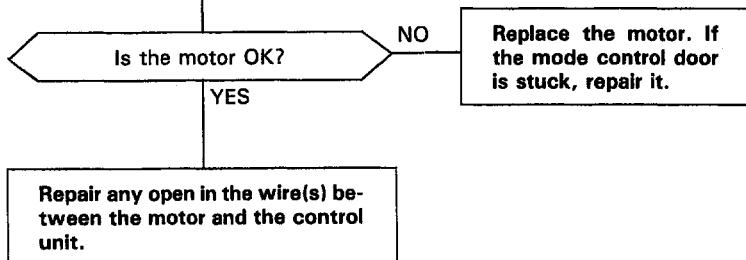
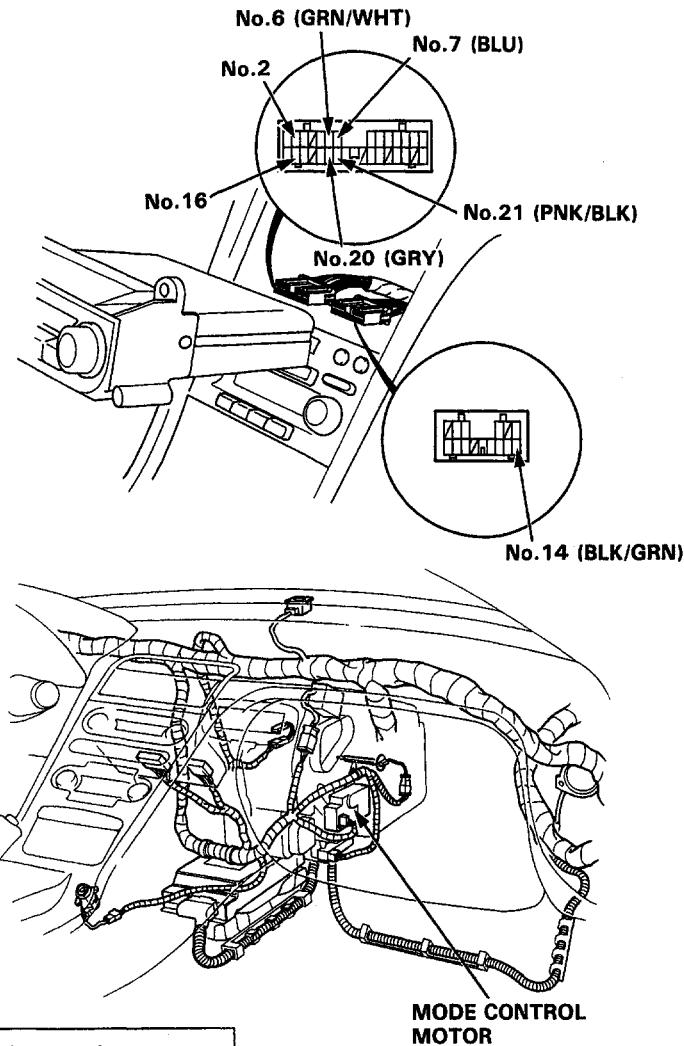
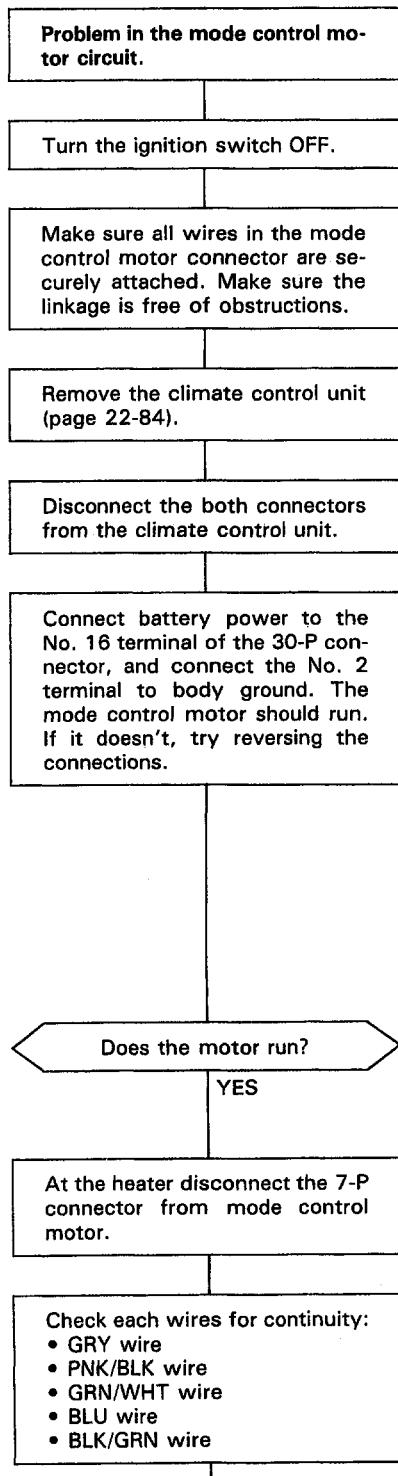


Troubleshooting

Mode Control Motor

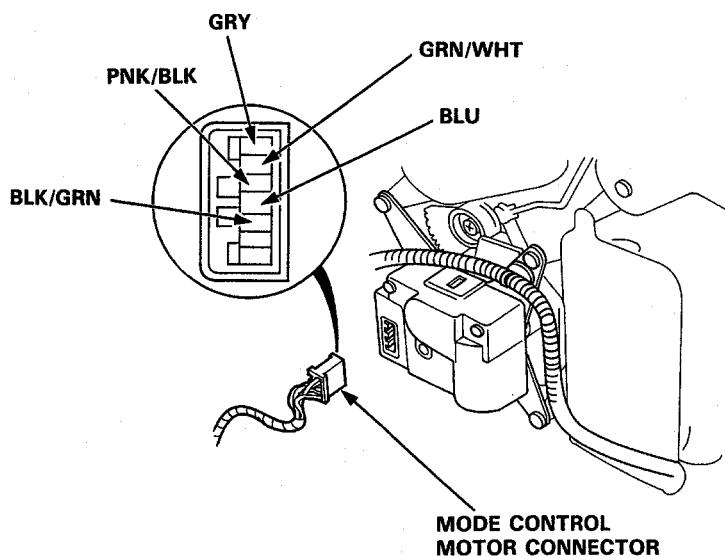
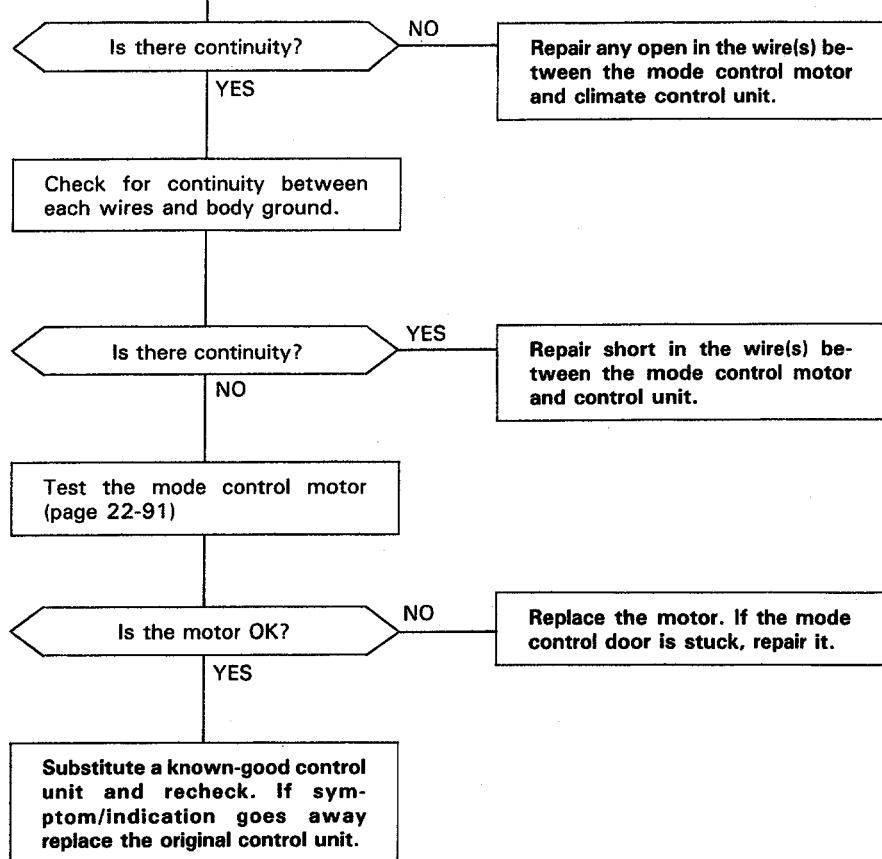
Self-diagnosis indicator light G comes on: Indicates a problem in the mode control motor circuit. Use a digital multimeter (KS-AHM-32-003) to check it.

The mode control motor controls the outlet air direction and volume according to output from the control unit.





From page 22-30

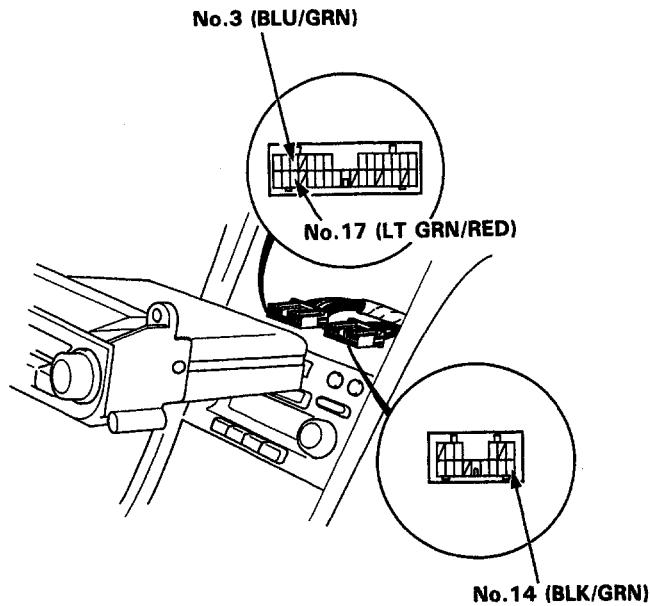
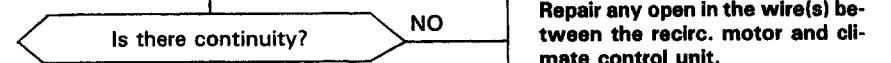
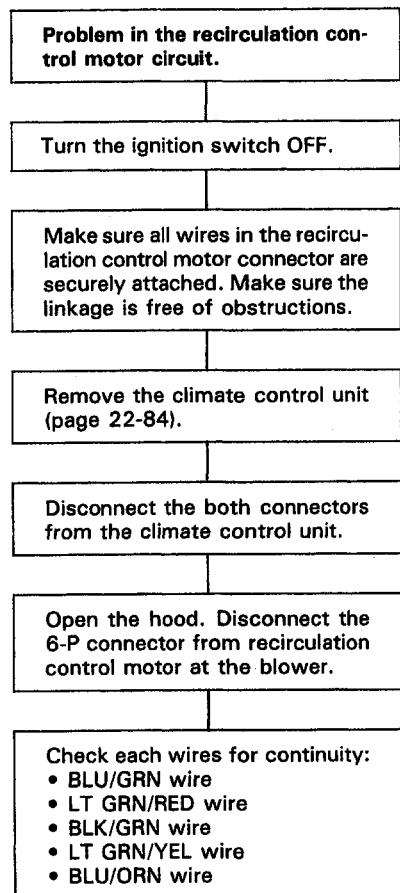


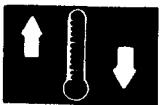
Troubleshooting

Recirculation Control Motor

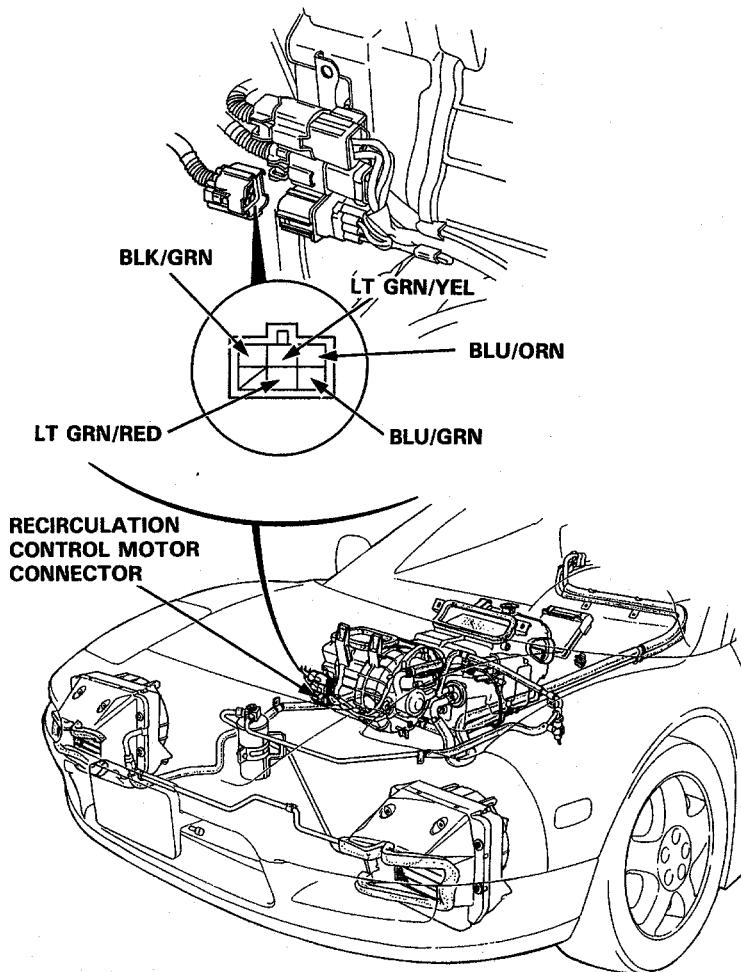
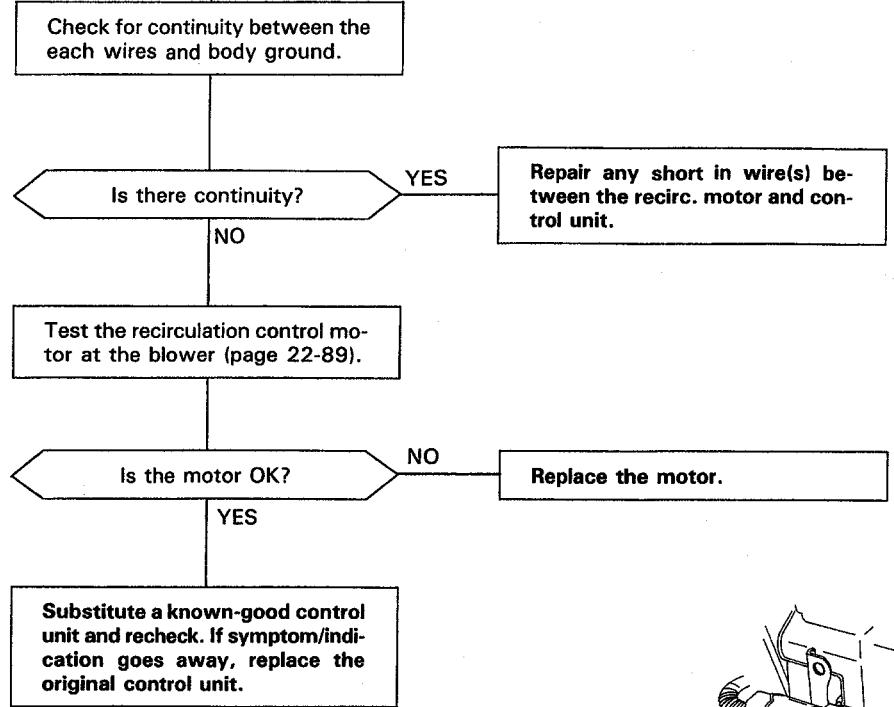
Self-diagnosis indicator light H comes on: Indicates a problem in the recirculation control motor circuit. Use a digital multimeter (KS-AHM32-003) to check it.

The recirculation control motor regulates the fresh/recirc door according to output from the control unit.





From page 22-32

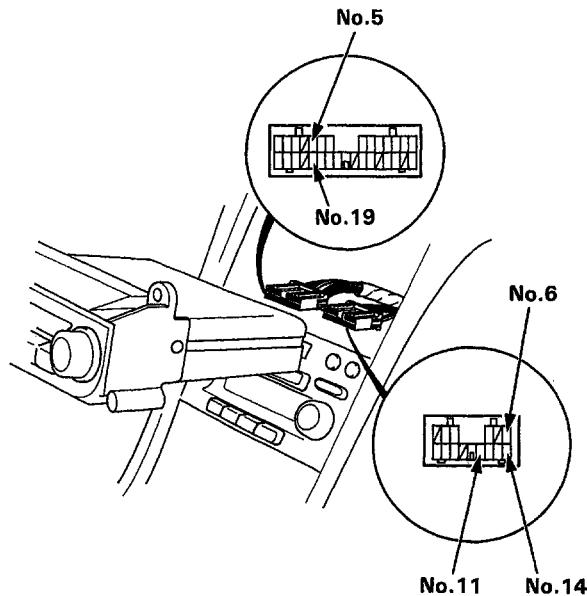
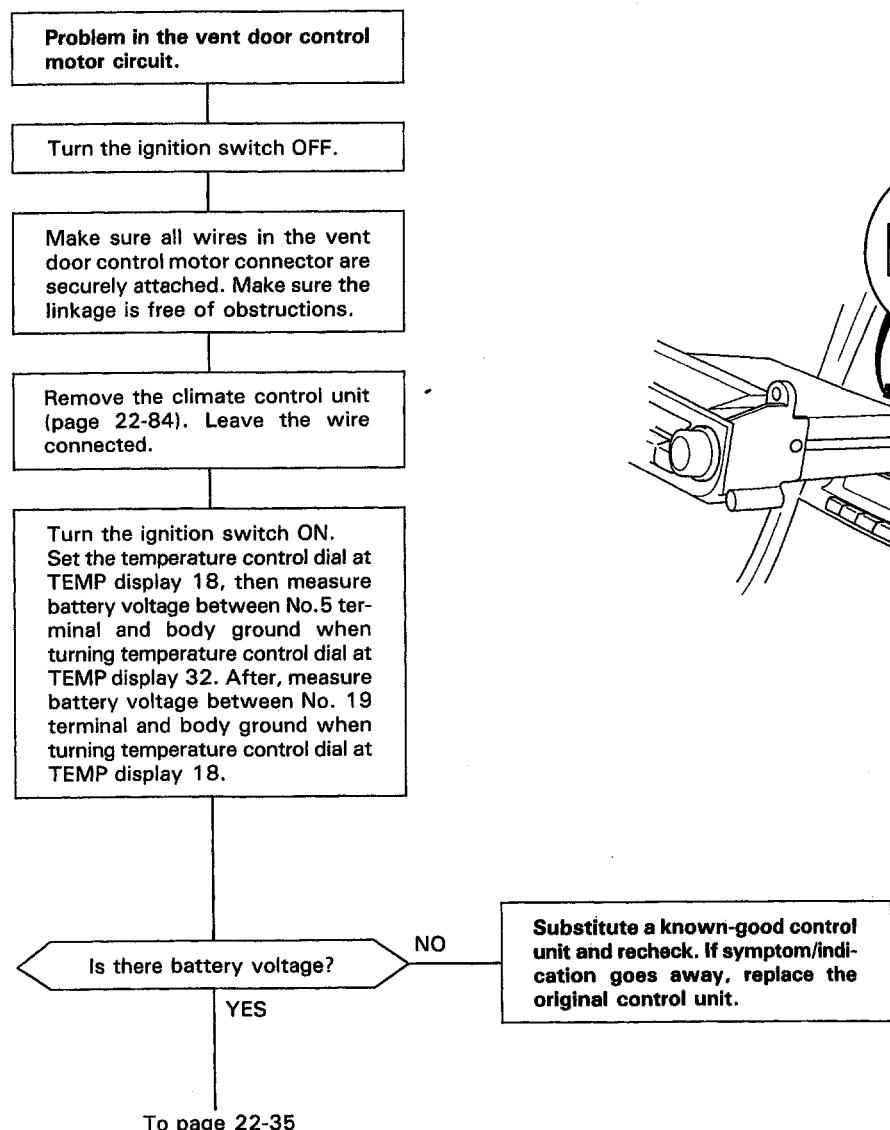


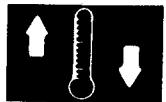
Troubleshooting

Vent Door Control Motor

Self-diagnosis indicator light I comes on: Indicates a problem in the vent door control motor circuit. Use a digital multimeter (KS-AHM32-03) to check it.

The vent door control motor regulates the vent door according to output from the control unit.

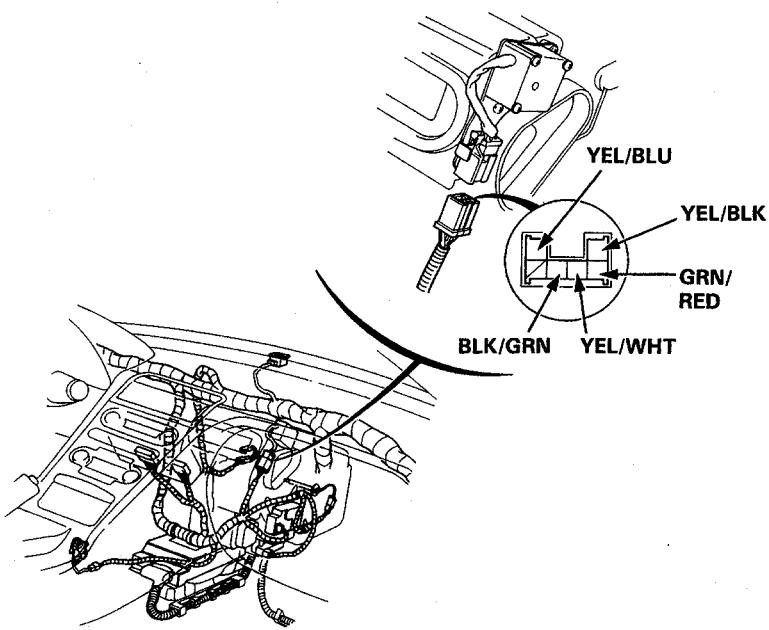




(From page 22-34)

Turn the ignition switch OFF.
Disconnect the 6-P connector from the vent door control motor.

Turn the ignition switch ON. Set the temperature control dial at TEMP display 18, then measure battery voltage between the YEL/BLK terminal and body ground when turning the temperature control dial at TEMP display 32. After, measure battery voltage between the YEL/BLU terminal and body ground when turning the temperature control dial at TEMP display 18.



Is there battery voltage? NO
Repair open in YEL/BLK or YEL/BLU wires between the vent door control motor and control unit.

YES

Turn the ignition switch OFF. Disconnect the 14-P connector from the control unit.

Check for continuity between YEL/BLK or YEL/BLU terminals and body ground.

Is there continuity? YES
Repair short in the YEL/BLK or YEL/BLU wires between the vent door control motor and control unit.

NO

Reconnect the 14-P connector.

To page 22-36

(cont'd)

Troubleshooting

Vent Door Control Motor (cont'd)

From page 22-35

From the back of the 14-P connector at the control unit, measure voltage between the No. 11 and body ground.

Is there approx. 5V

NO

Substitute a known-good control unit and recheck. If symptom/indication goes away, replace the original control unit.

YES

Measure voltage between the GRN/RED terminal and body ground.

Is there approx. 5V

NO

Repair open in the GRN/RED wire between the vent door control motor and control unit.

YES

Turn the ignition switch OFF.

Disconnect the 14-P connector from the control unit.

Check each wires for continuity:

- YEL/WHT wire
- BLK/GRN wire

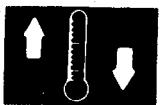
Is there continuity?

NO

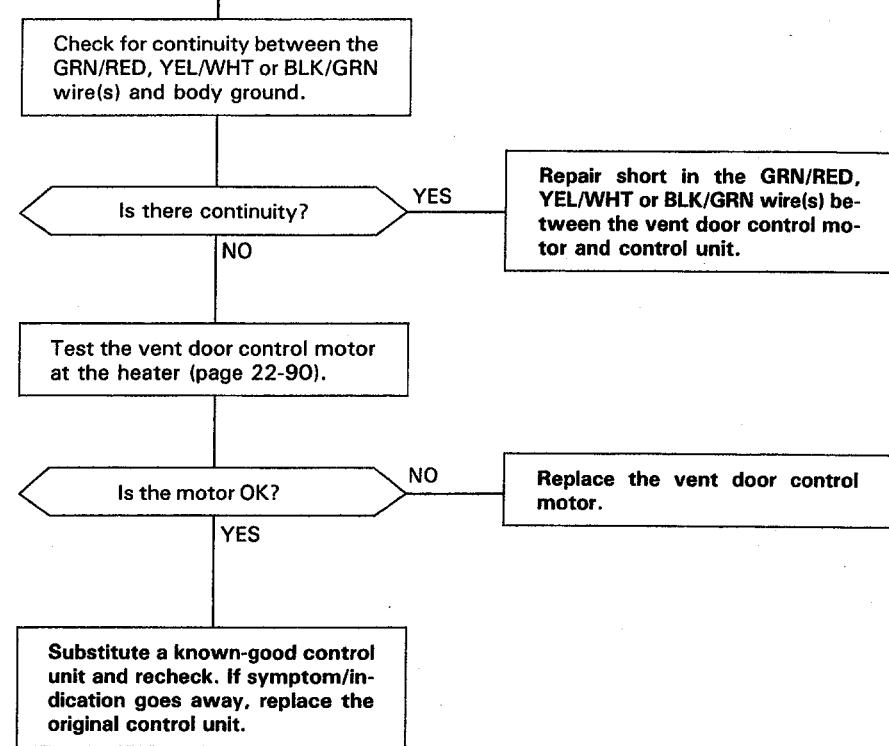
Repair open in the YEL/WHT or BLK/GRN wire(s) between the vent door control motor and control unit.

YES

To page 22-37



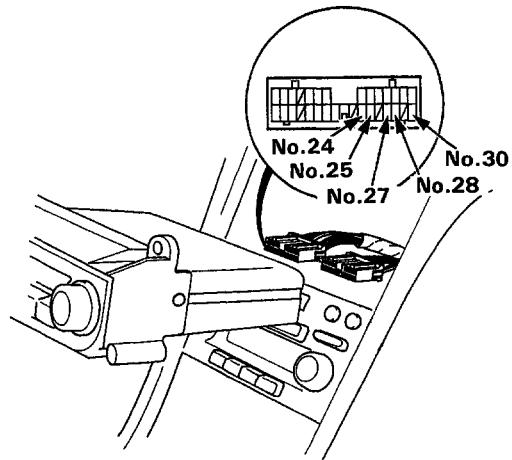
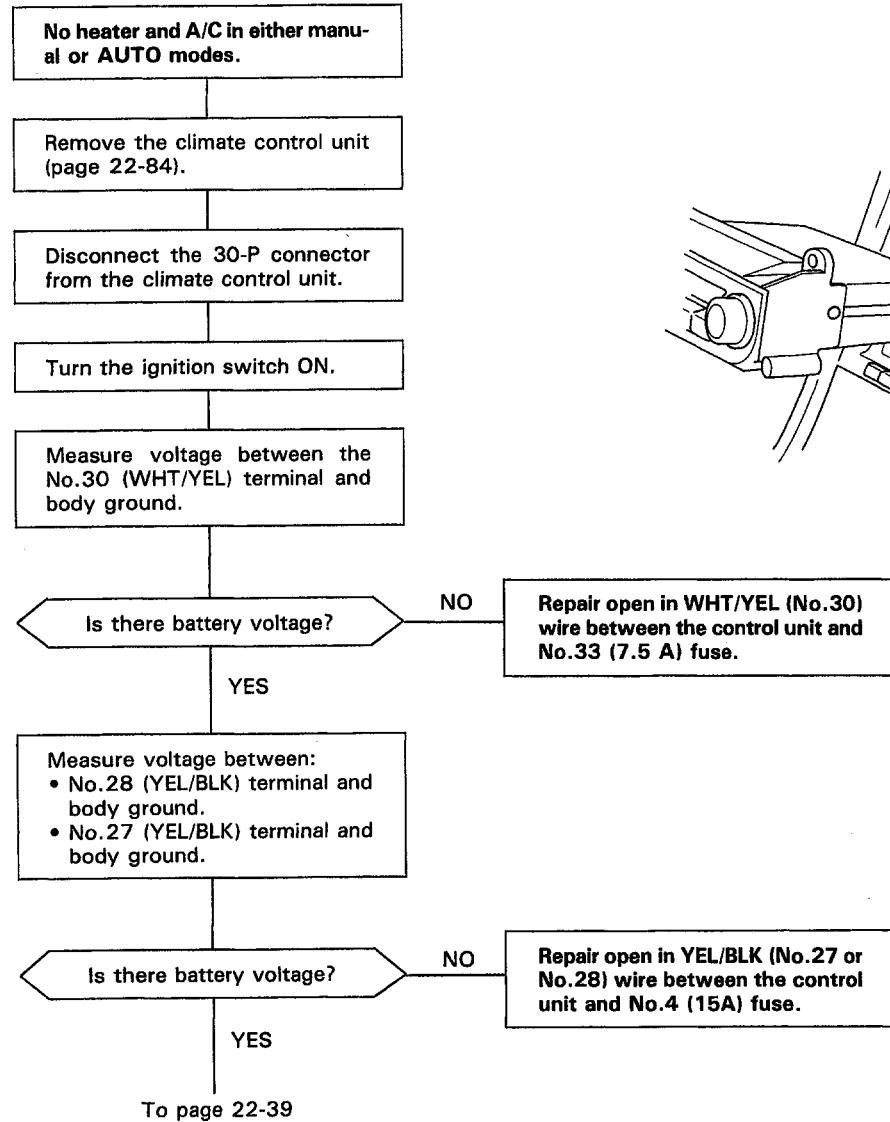
From page 22-36



Troubleshooting

Power Circuits to A/C Control Unit

First, check for blown No.33 (7.5A) and No.4 (15A) fuses.





From page 22-38

Check for continuity between:
• No.25 (BLK) and body ground.
• No.24 (BLK) and body ground.

Is there continuity?

NO

Repair open BLK (No.24 or No.25)
wire between the control unit
and body ground. If wires are OK,
check for poor ground at G401.

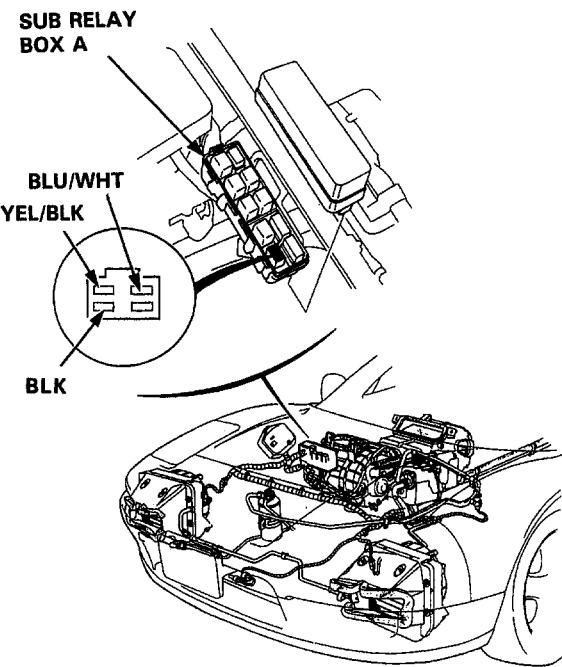
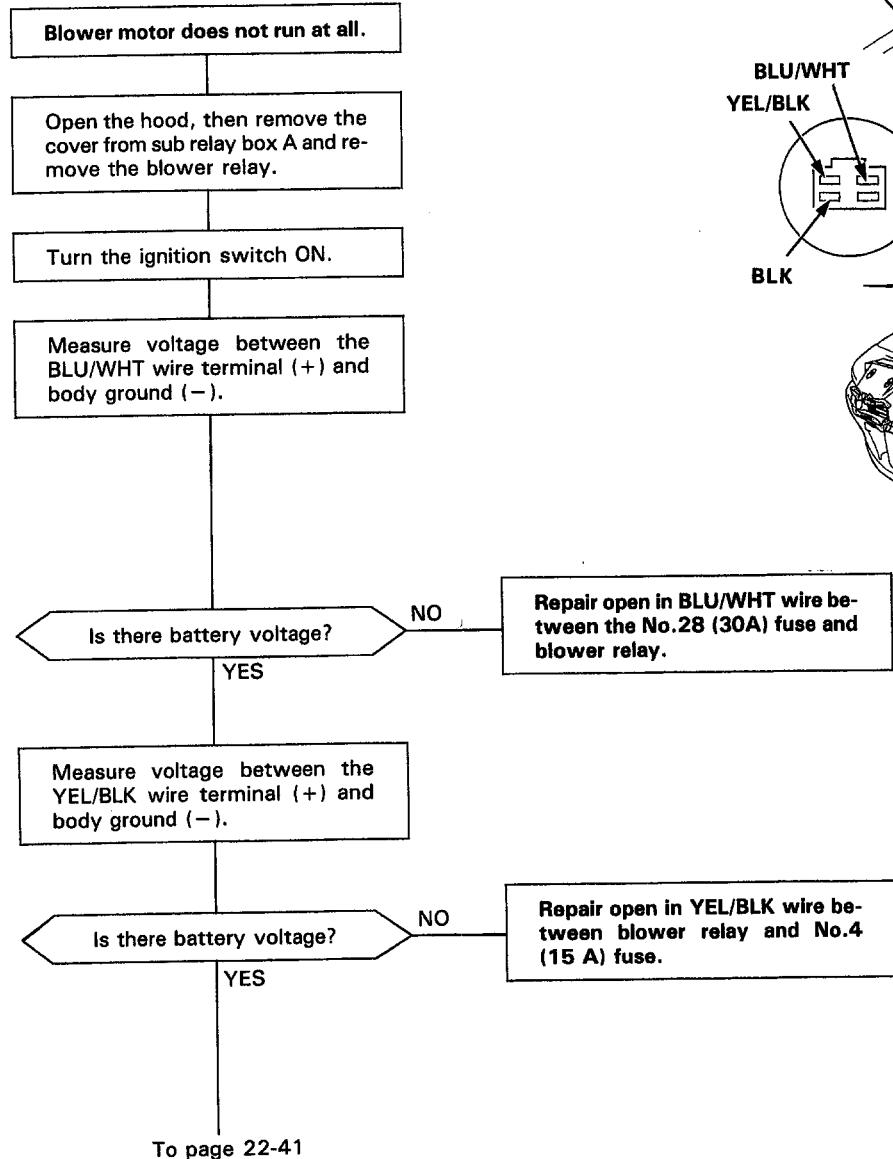
YES

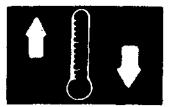
Substitute a known-good control
unit and recheck. If symptom/indi-
cation goes away, replace the
original control unit.

Troubleshooting

Blower Motor

First, check for blown No.28(30A) and No.4(15A) fuse





From page 22-40

Test the blower relay: Connect battery power to relay terminal C, then connect terminal D to body ground. There should be continuity between terminals A and B with power connected, no continuity with power disconnected.

Is the relay OK?

NO

Replace the blower relay.

YES

Check for continuity between the BLK wire terminal and body ground

Is there continuity?

NO

Repair open in BLK wire between the blower relay and body ground. If wire is OK, check for poor ground at G301.

YES

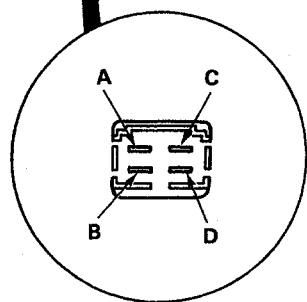
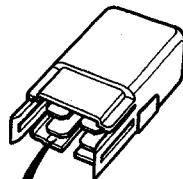
Turn the ignition switch OFF.

Reinstall the blower relay.

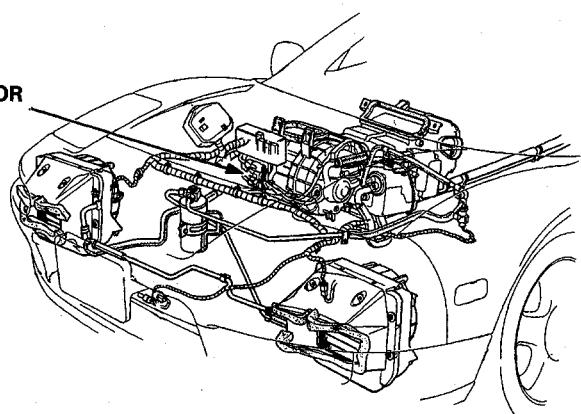
Disconnect the 2-P connector from the blower motor.

Turn the ignition switch ON.

To page 22-42



BLOWER MOTOR
CONNECTOR



(cont'd)

Troubleshooting

Blower Motor (cont'd)

From page 22-41

Measure voltage between the BLU/RED wire terminal (+) and body ground (-).

Is there battery voltage?

NO

Repair open in BLU/RED wire between blower motor and blower relay

Inspect the blower motor.

NOTE: Connect the battery power to the BLU/RED wire terminal and connect the BLK/BLU wire terminal to body ground. The blower motor should run.

Does the blower motor run?

NO

Replace the blower motor.

YES

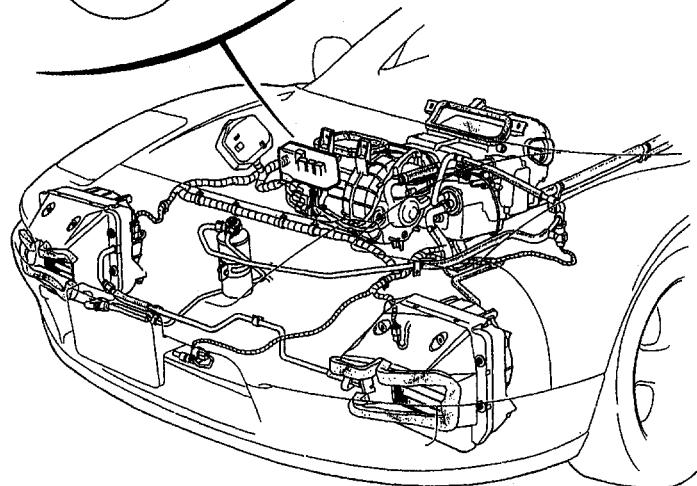
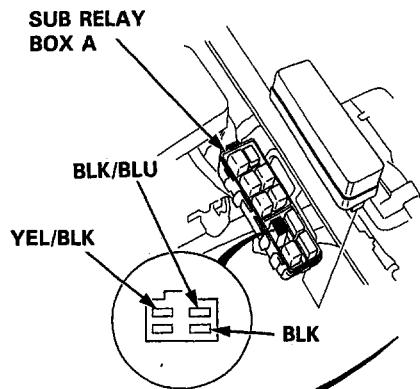
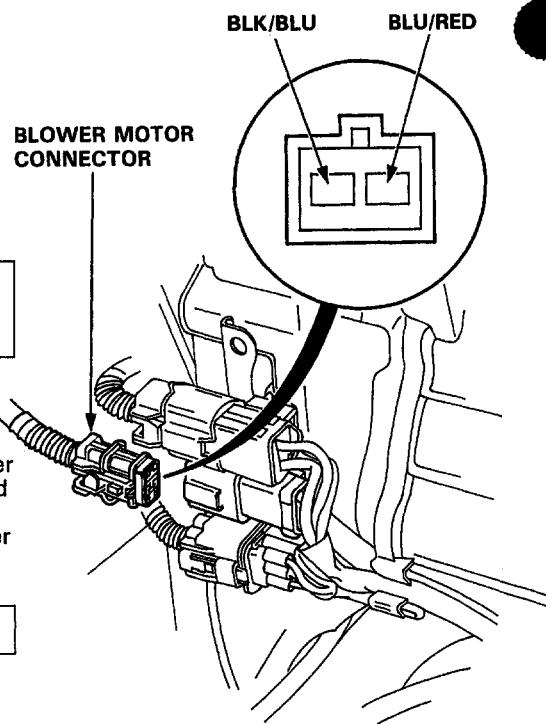
Turn the ignition switch OFF.

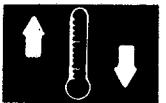
Reconnect the connector to the blower motor.

Remove the blower high relay from the sub relay box A.

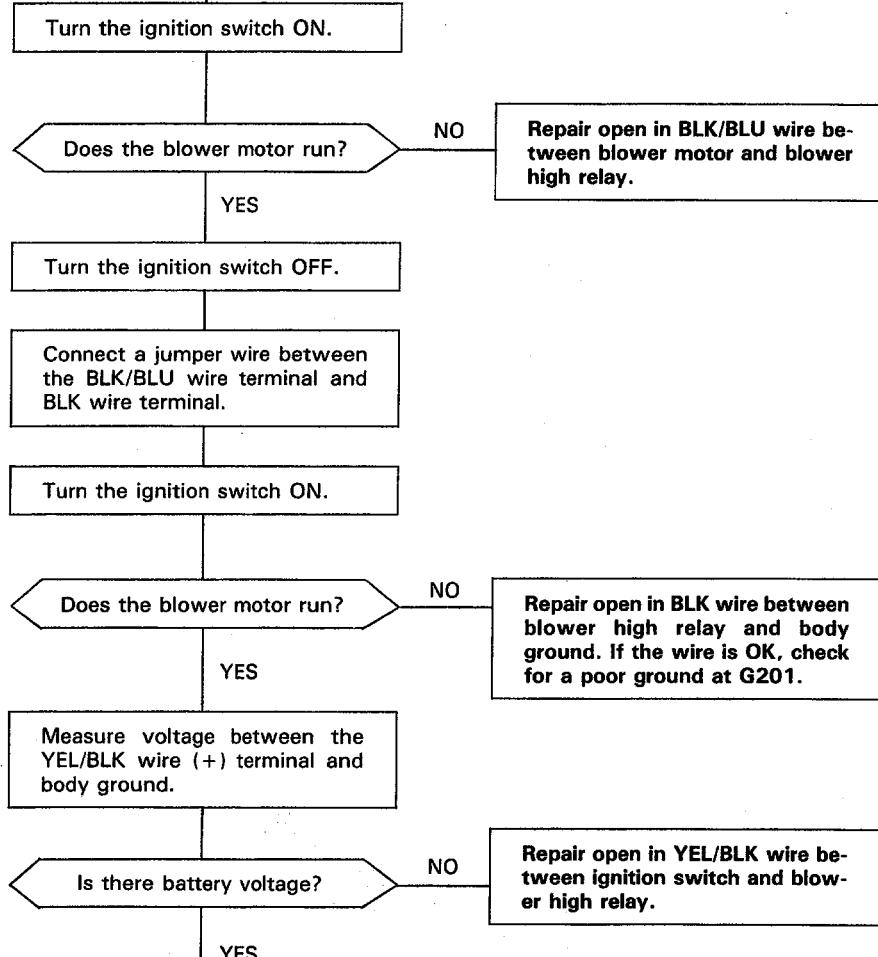
Connect a jumper wire between the BLK/BLU wire terminal (+) and body ground.

To page 22-43





From page 22-42



To page 22-44

(cont'd)

Troubleshooting

Blower Motor (cont'd)

From page 22-43

Test the blower high relay: Connect battery power to relay terminal C, then connect terminal D to body ground. There should be continuity between terminals A and B with power connected, no continuity with power disconnected.

Is the relay OK?

NO

Replace the blower high relay.

YES

Turn the ignition switch OFF.

Reinstall the blower high relay.

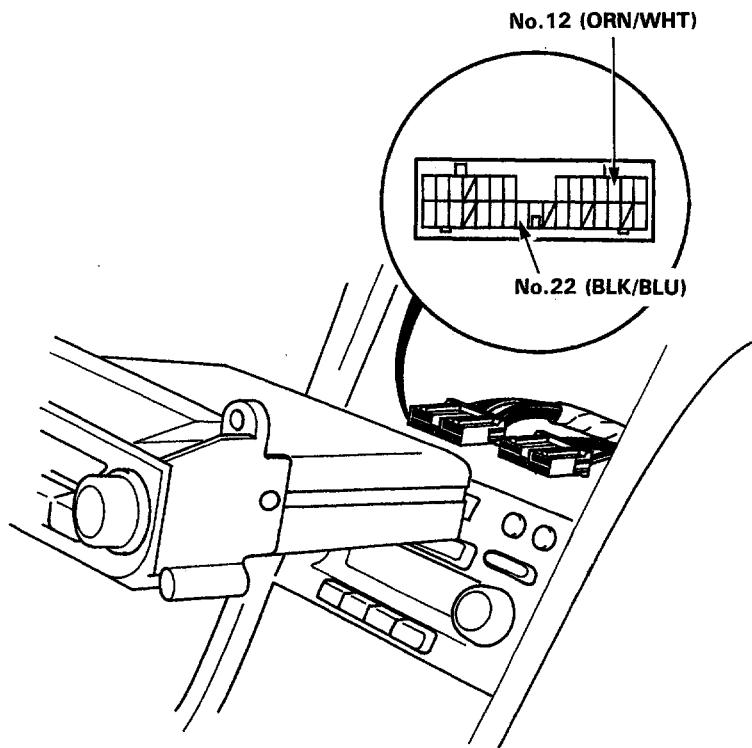
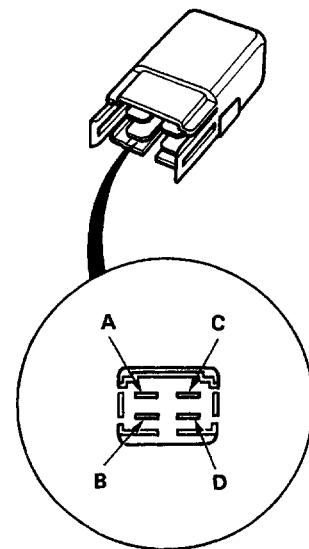
Remove the climate control unit
(page 22-84).

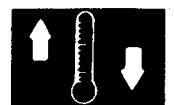
Disconnect the 30-P connector
from the climate control unit.

Connect a jumper wire between
the ORN/WHT wire terminal and
body ground.

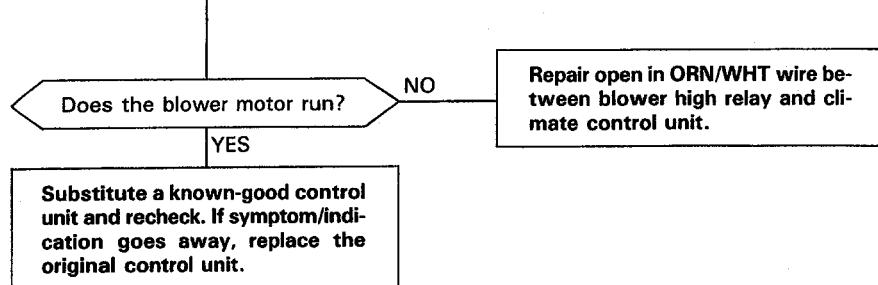
Turn the ignition switch ON.

To page 22-45



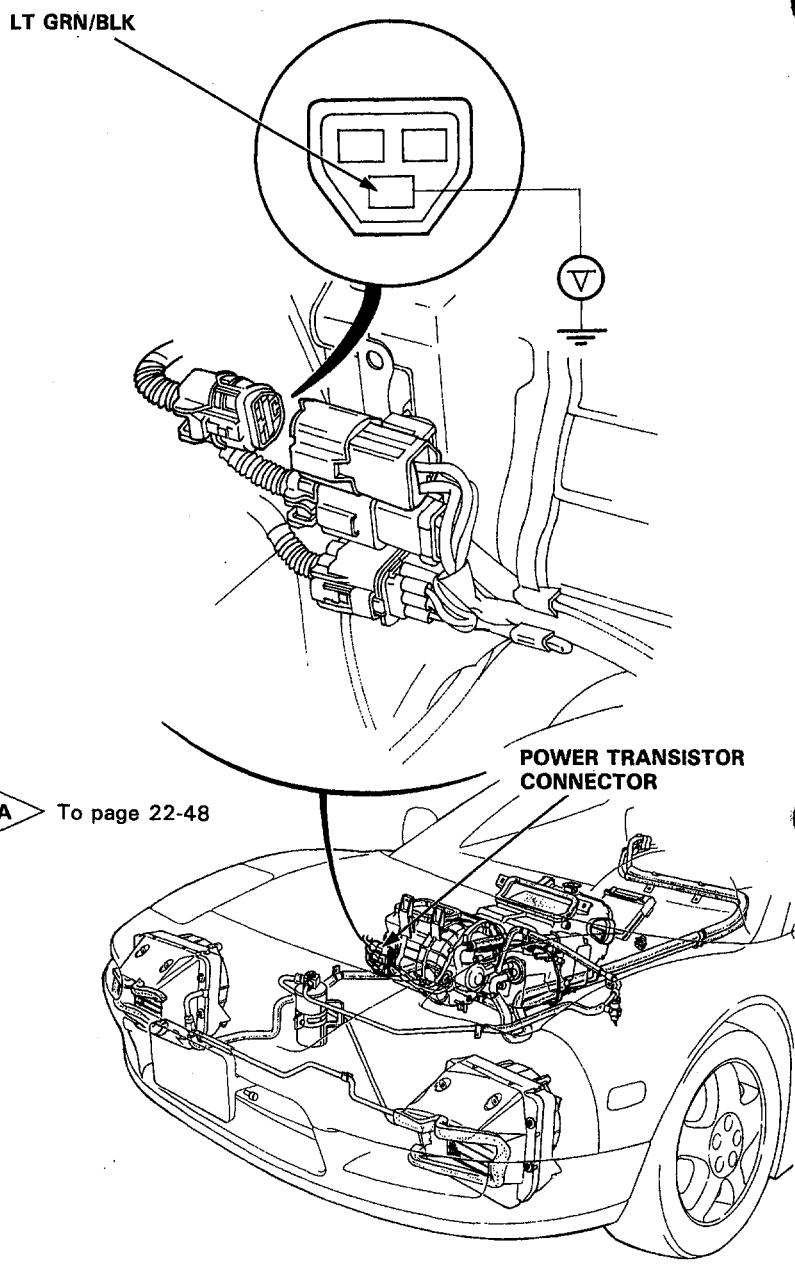
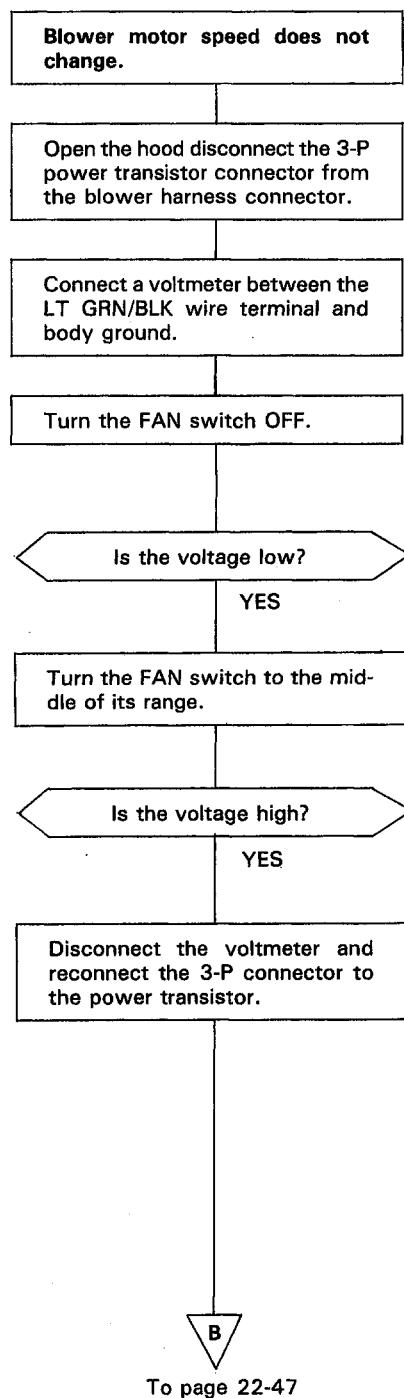


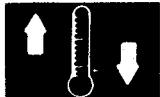
From page 22-44



Troubleshooting

Blower Speed Controls





From page 22-46



Connect a jumper wire between the BLK/BLU wire terminal and the BLK wire terminal.

Does blower motor run? NO See troubleshooting, page 22-40

YES

Disconnect the 30-P connector from the control unit and the 2-P connector from the blower motor.

Check for continuity in the BLK/BLU wire.

Is there continuity? NO

YES

Repair open in the BLK/BLU wire between the blower motor and control unit.

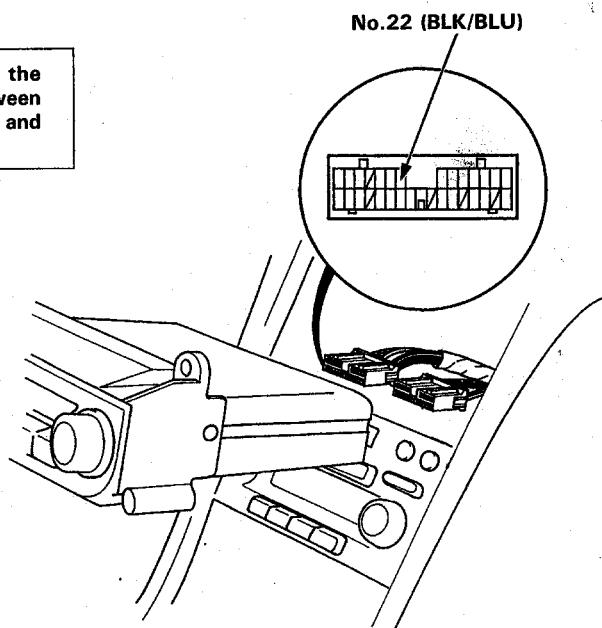
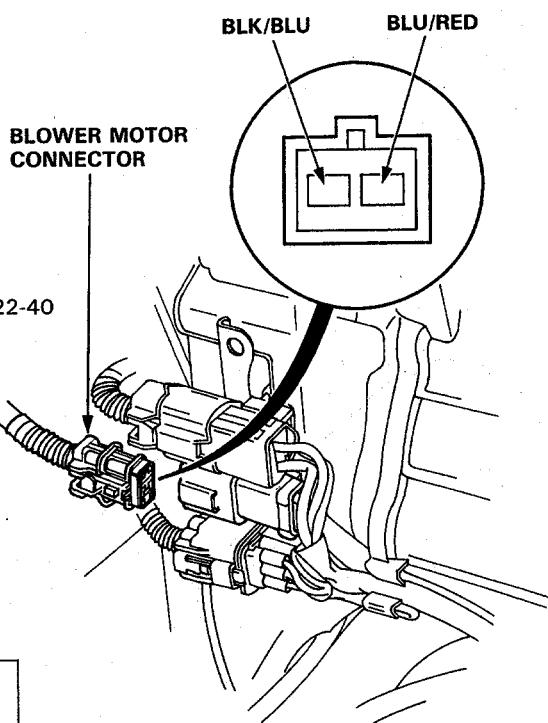
Check for continuity between the BLK/BLU terminal and body ground.

Is there continuity? YES

NO

Repair short in the BLK/BLU wire between the blower motor and control unit.

Replace the power transistor.

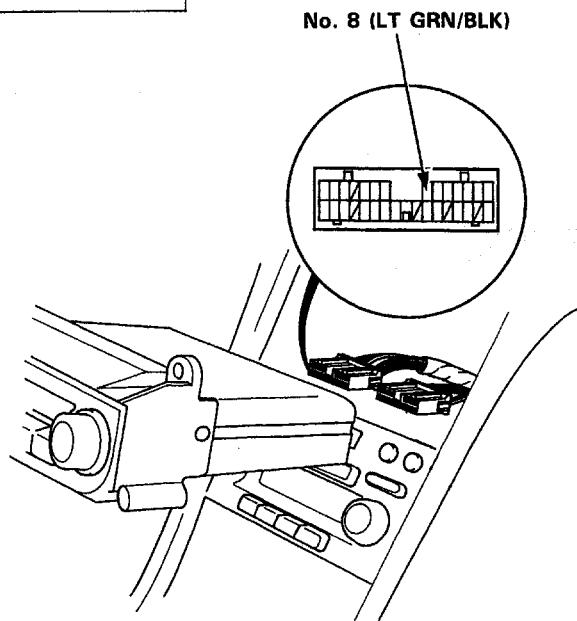
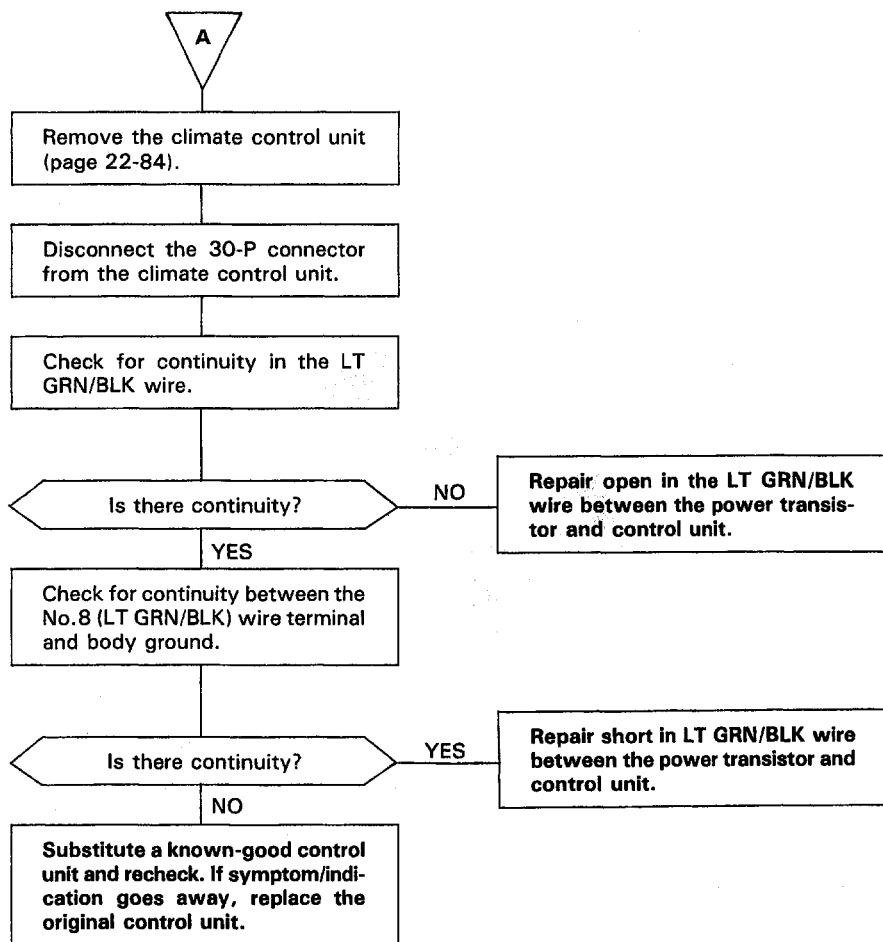


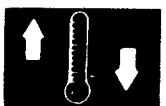
(cont'd)

Troubleshooting

Blower Speed Controls (cont'd)

From page 22-46



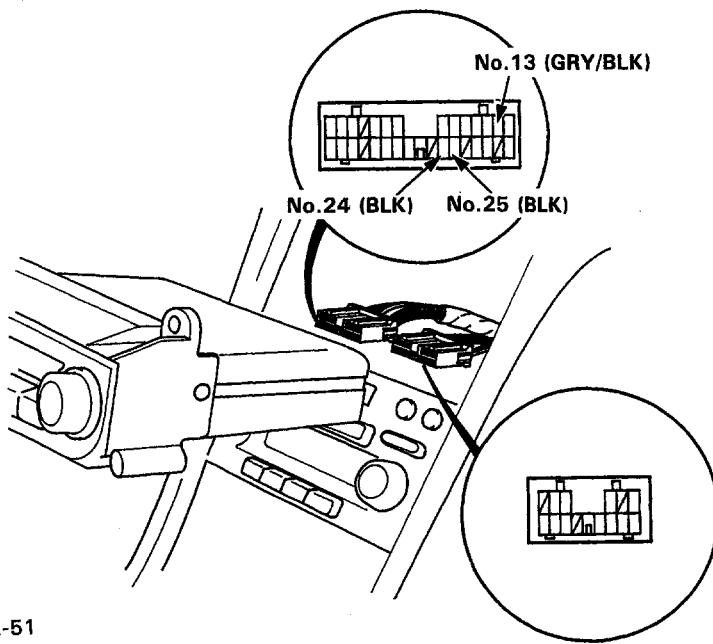
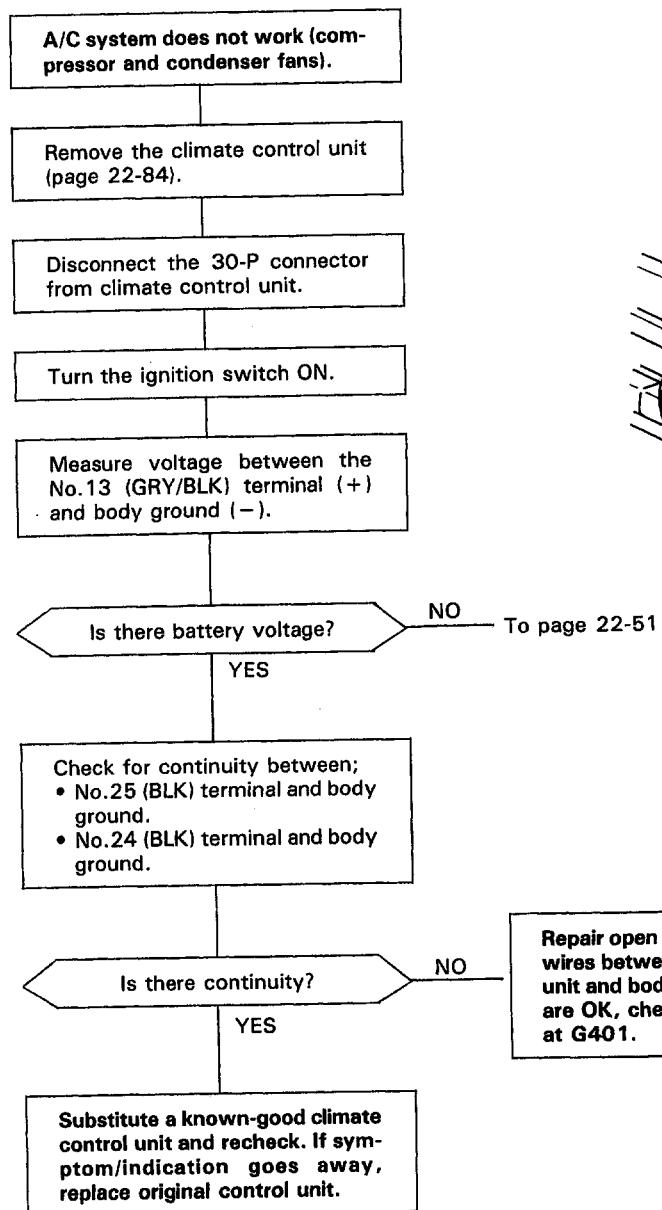


22-49

Troubleshooting

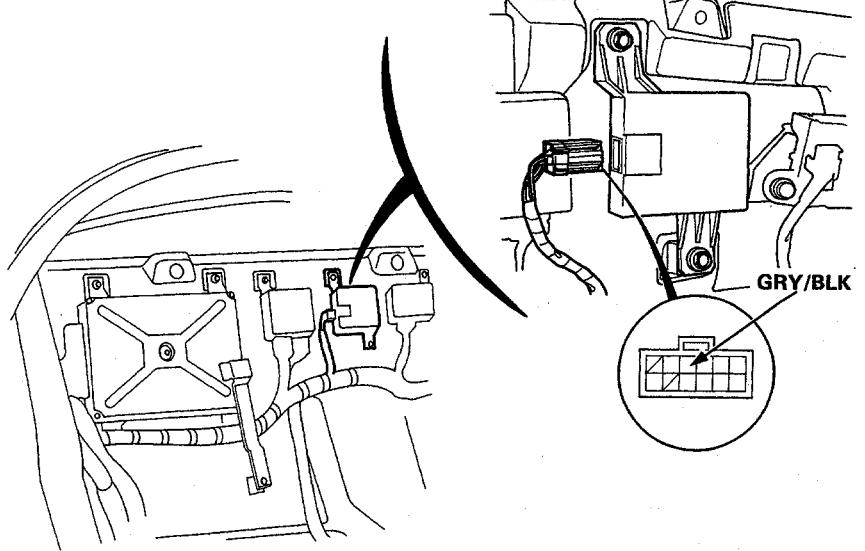
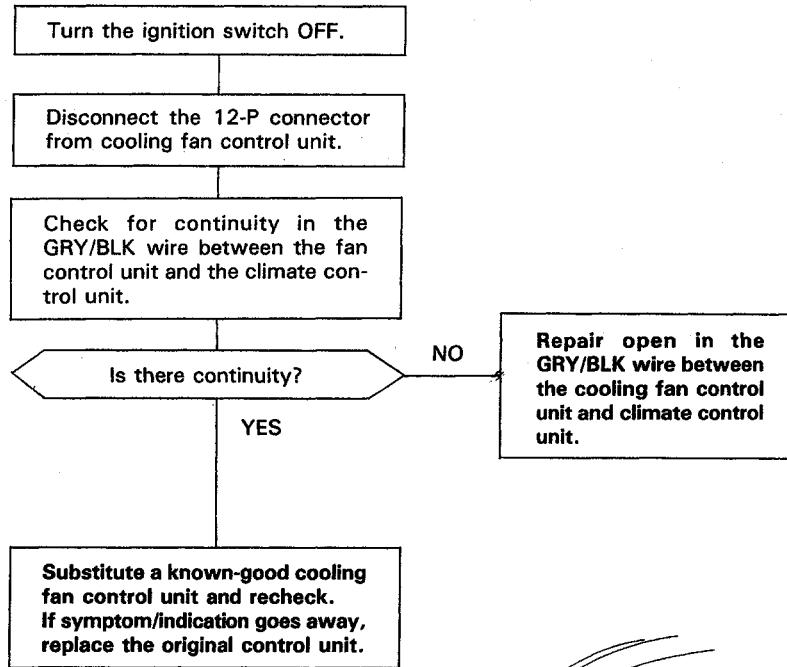
A/C System

First, check for blown fuses: No. 4 (15 A), No. 36 (10 A), No. 37 (10 A), No. 21 (10 A).





From page 22-50



Troubleshooting

Condenser Fan

First, check for blown fuses: No. 4 (15 A), No.36 (10 A), No. 37 (10 A).

One or both condenser fans does not run at all.

Open the hood, then remove the cover from sub relay box A and remove the condenser fan relay.

Using a jumper wire, connect the WHT/GRN wire terminal to body ground.

Do both condenser fans run?

NO

To page 22-55

YES

Connect a jumper wire between the WHT/GRN wire terminal and BLK wire terminal.

Do both condenser fans run?

NO

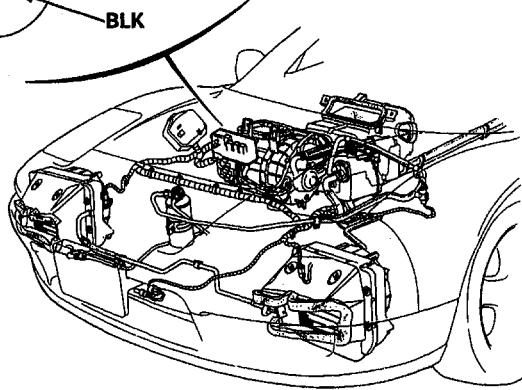
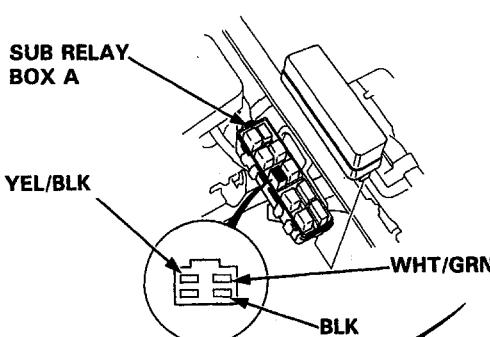
Repair open in the BLK wire between the condenser fan relay and body ground. If the wire is OK, check for a poor ground at G302.

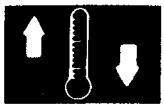
YES

Turn the ignition switch ON.

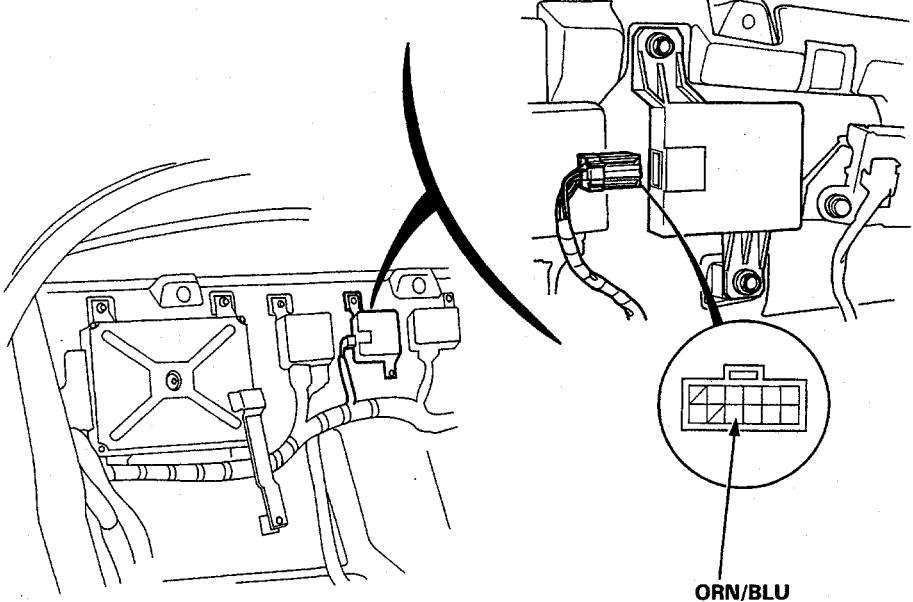
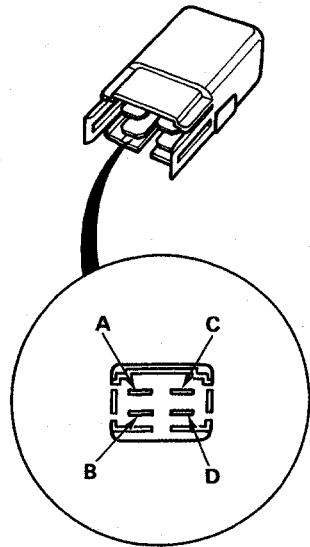
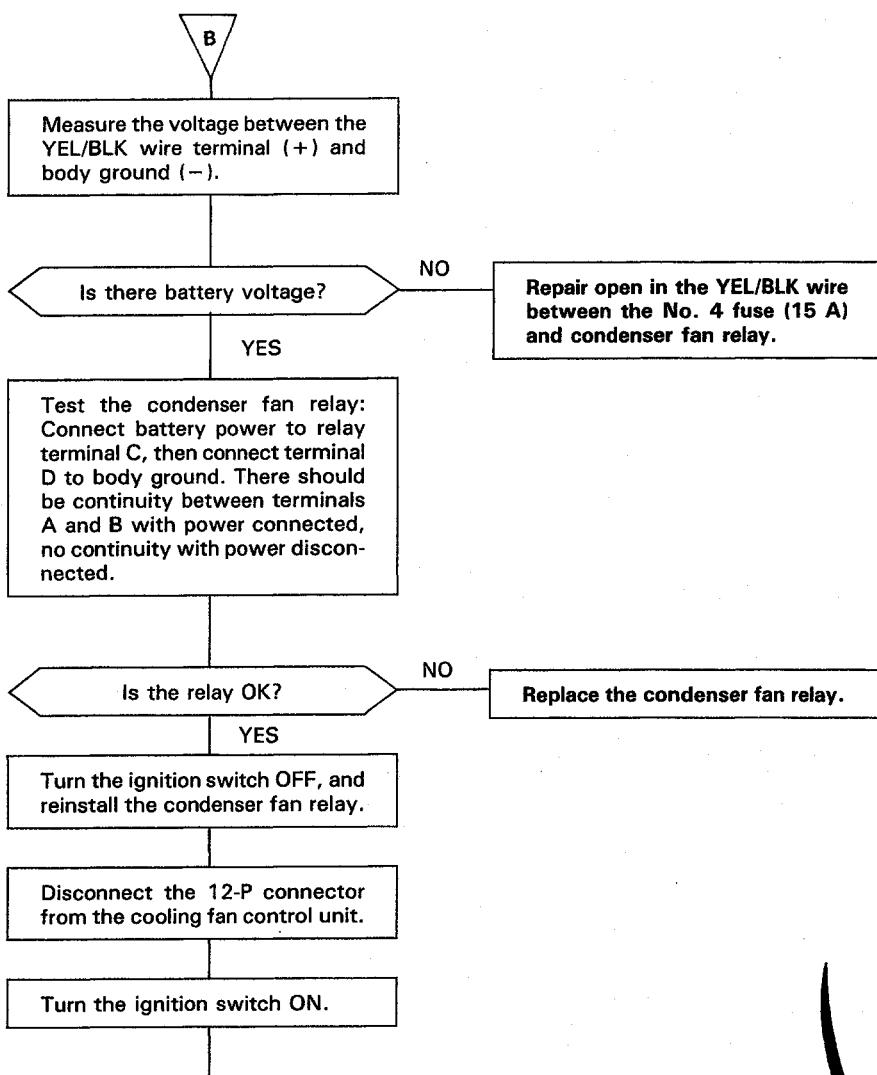


To page 22-53





From page 22-52



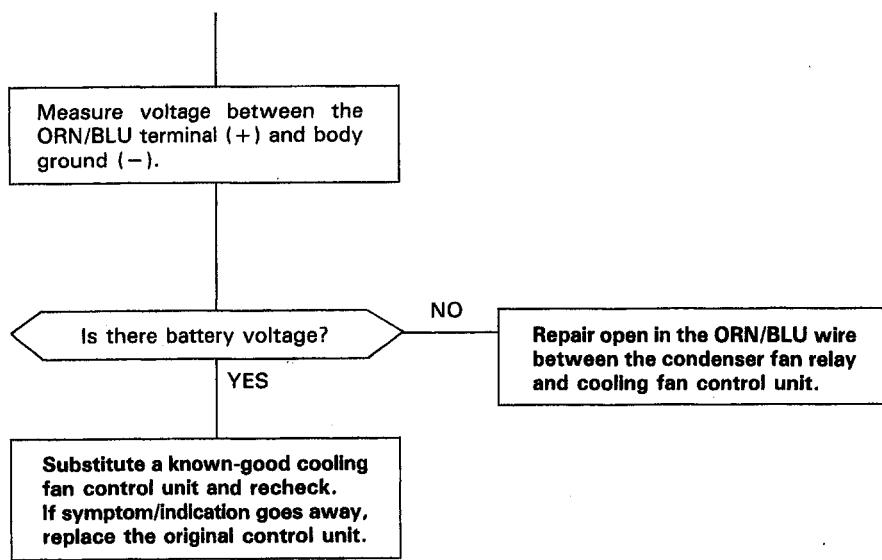
To page 22-54

(cont'd)

Troubleshooting

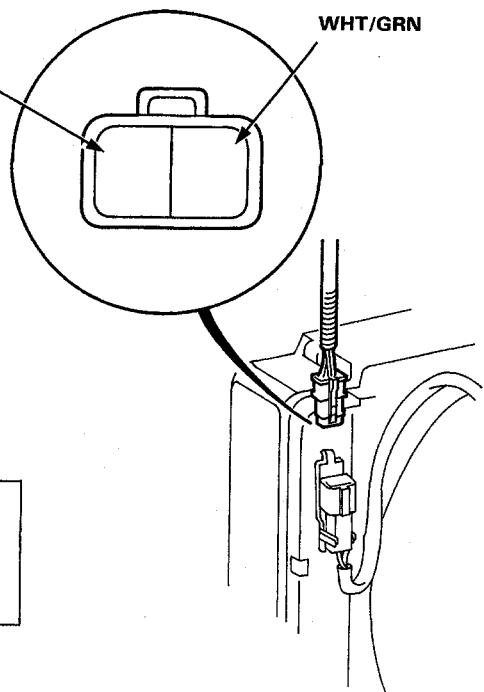
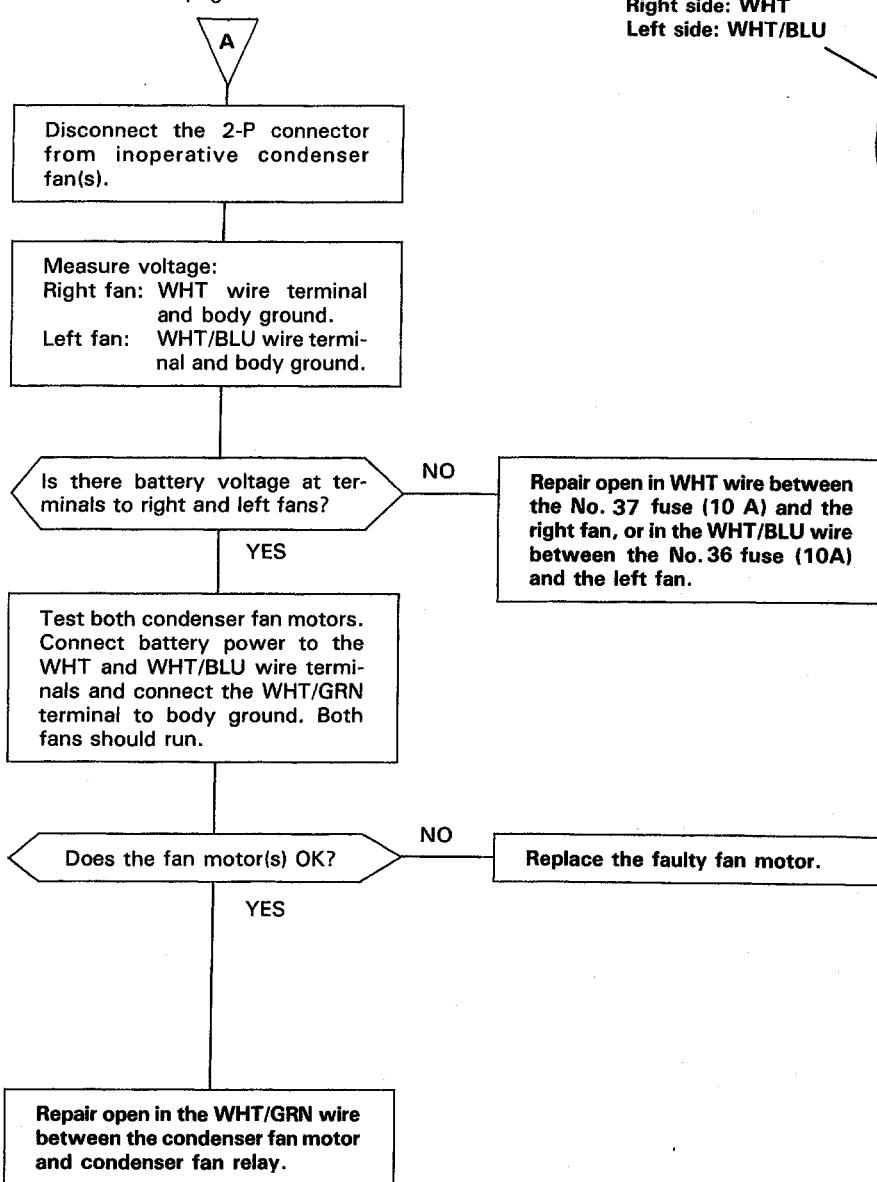
Condenser (cont'd)

From page 22-53





From page 22-52



Troubleshooting

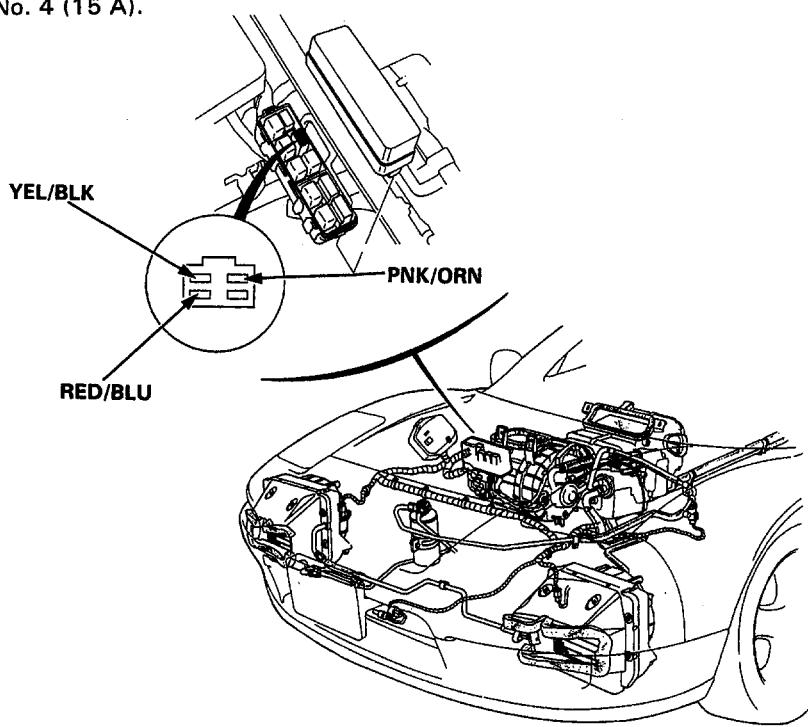
A/C Compressor

First, check for blown fuses: No. 21 (10 A), No. 4 (15 A).

Compressor clutch does not engage. When A/C is turned on with engine running.

Remove the compressor clutch relay from sub relay box A.

Measure voltage between the PNK/ORN wire terminal (+) and body ground (-).



NO

Repair open in the PNK/ORN wire between the No. 21 (10 A) fuse and compressor clutch relay.

YES

Turn the ignition switch ON.

Measure voltage between the YEL/BLK wire terminal (+) and body ground (-).

NO

Repair open in the YEL/BLK wire between the No. 4 (15 A) fuse and compressor clutch relay.

YES

To page 22-57



From page 22-56

Test the compressor clutch relay: Connect battery power to relay terminal C, then connect terminal D to body ground. There should be continuity between terminals A and B with power connected, no power with power disconnected.

Is the relay OK?

YES

Turn the ignition switch OFF.

Reinstall the compressor clutch relay.

Remove the panel from behind the passenger seat. Disconnect the 4 connectors from PGM-FI-ECU. Connect the ECU test harness connectors to the ECU.

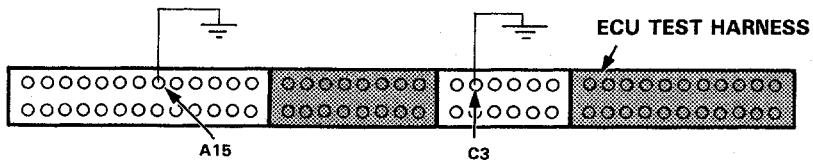
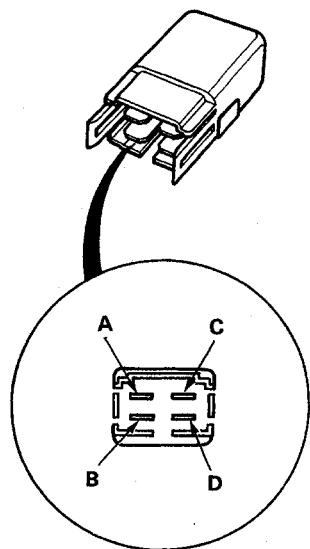
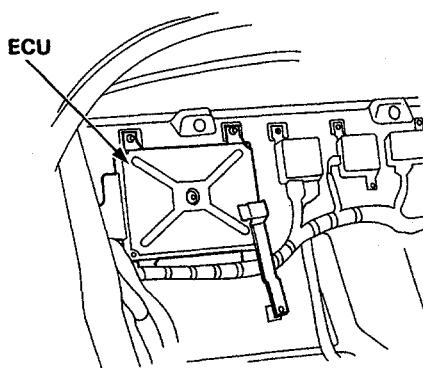
Turn the ignition switch ON.

Measure battery voltage between test harness terminal A15 and body ground.

Is there battery voltage?

YES

Replace the compressor clutch relay.



Repair open in the RED/BLU wire between the compressor clutch relay and PGM-FI-ECU.

To page 22-58

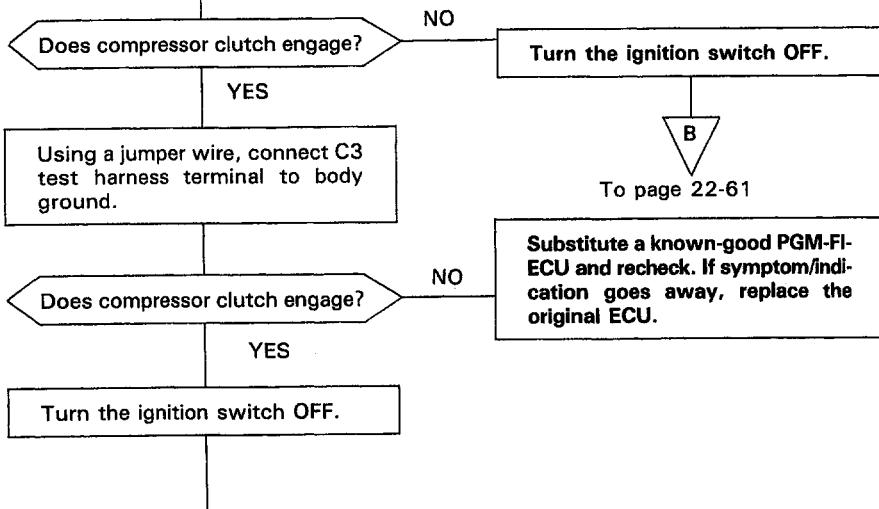
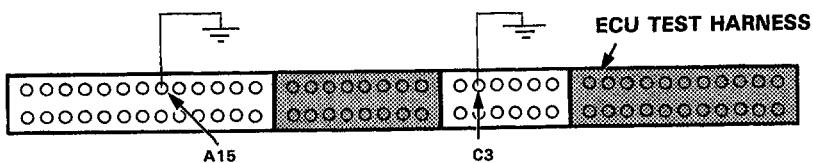
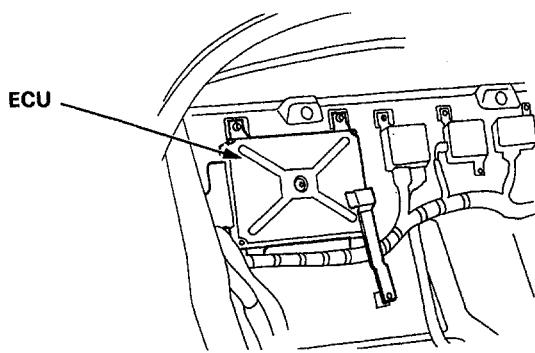
(cont'd)

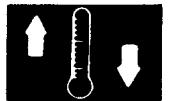
Troubleshooting

A/C Compressor (cont'd)

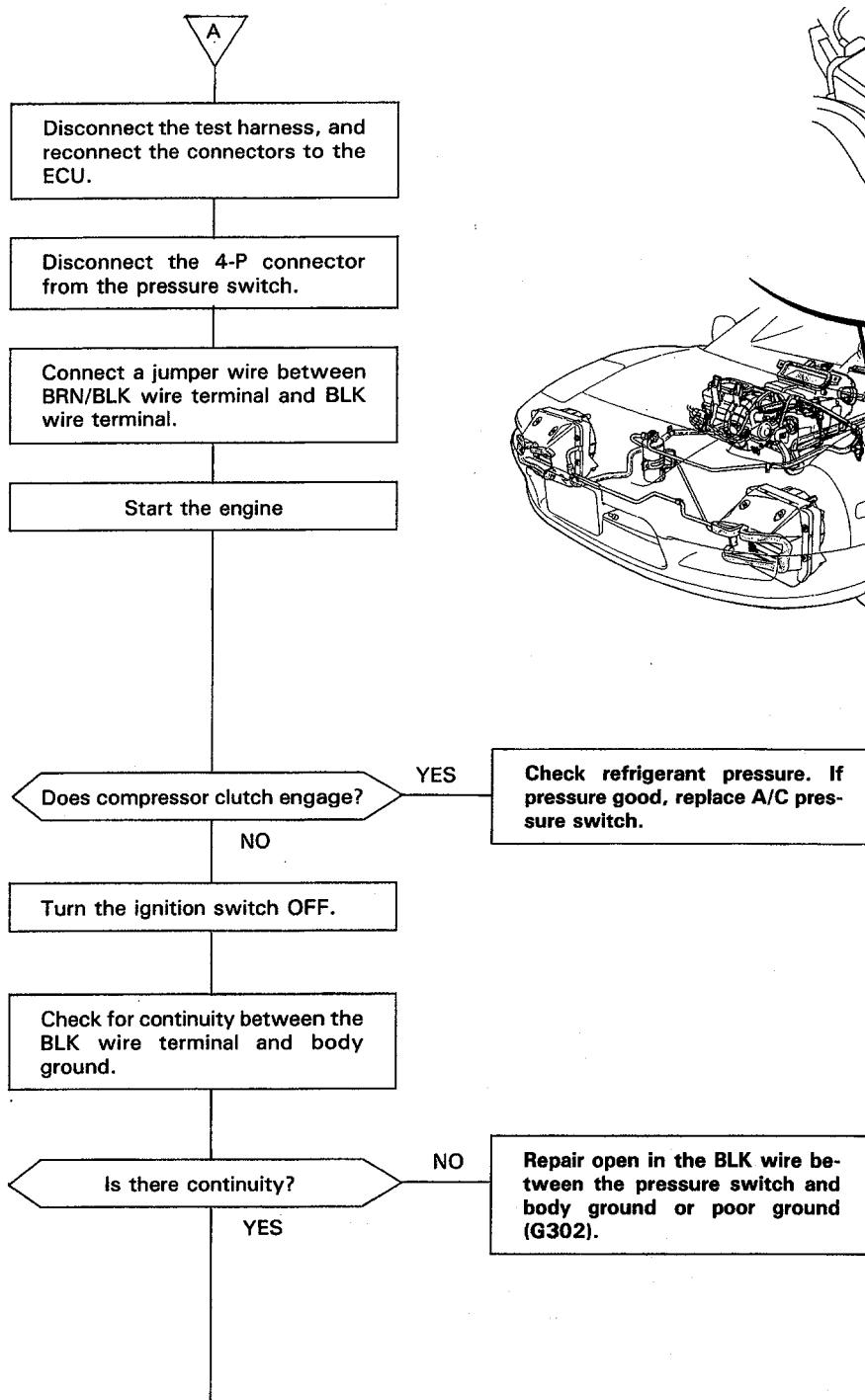
From page 22-57

Start the engine and connect a jumper wire between test harness terminal A15 and body ground.

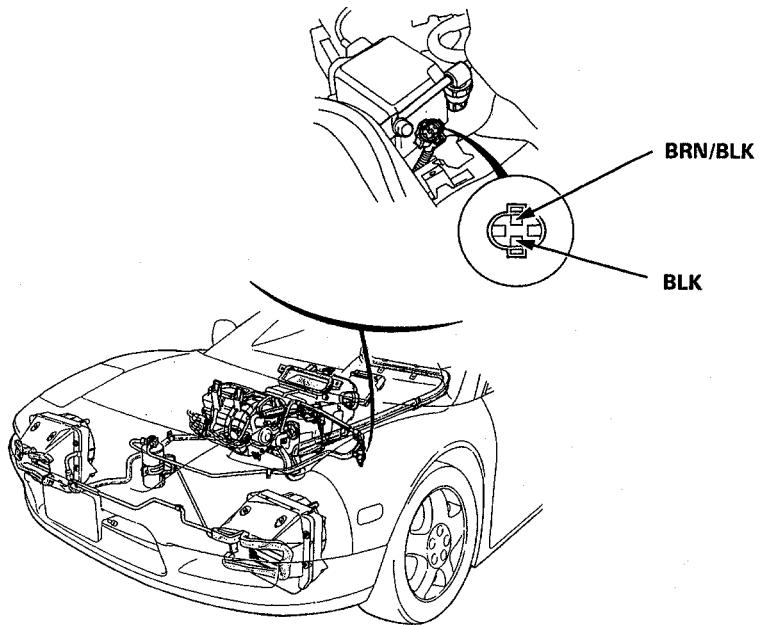




From page 22-58



To page 22-60



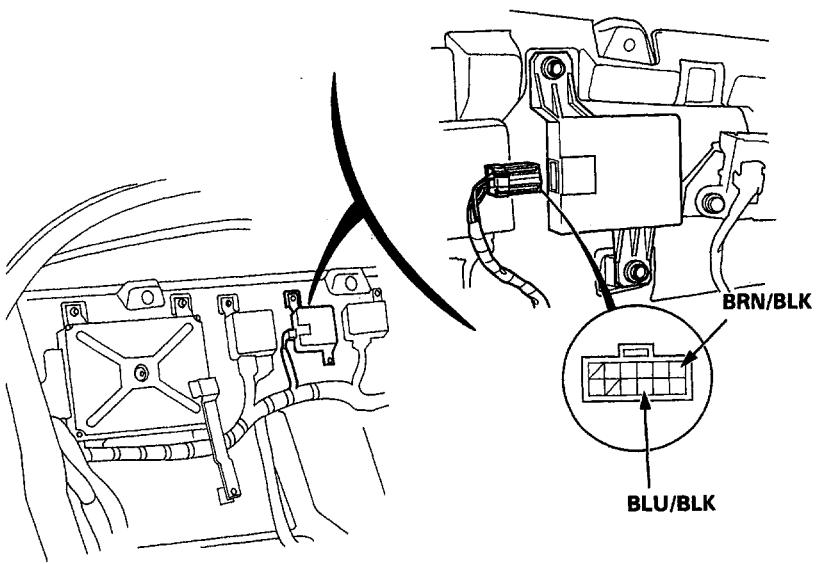
(cont'd)

Troubleshooting

A/C Compressor (cont'd)

From page 22-59

Remove the panel behind the seats, and disconnect the 12-P connector from the cooling fan control unit.



Check for continuity of BRN/BLK wire between the cooling fan control unit and pressure switch.

NO

Repair open in the BRN/BLK wire between the cooling fan control unit and pressure switch.

YES

Connect a jumper wire between the BLU/BLK wire terminal and body ground.

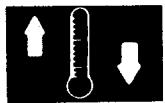
Start the engine.

NO

Repair open in the BLU/BLK wire between PGM-FI-ECU and cooling fan control unit.

YES

Substitute a known-good cooling fan control unit and recheck. If symptom/indication goes away, replace the original control unit.



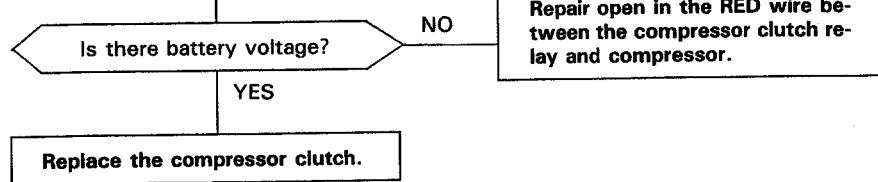
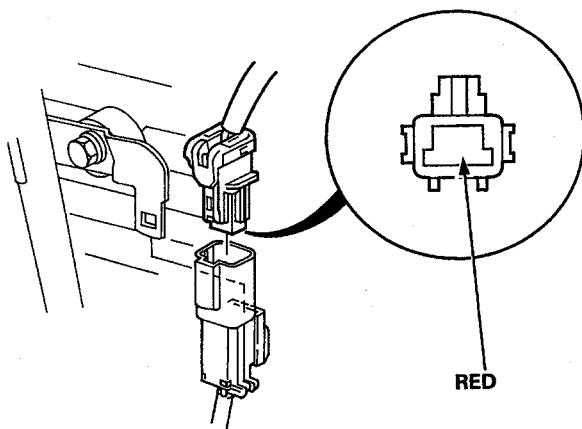
From page 22-58



Disconnect the connector from compressor.

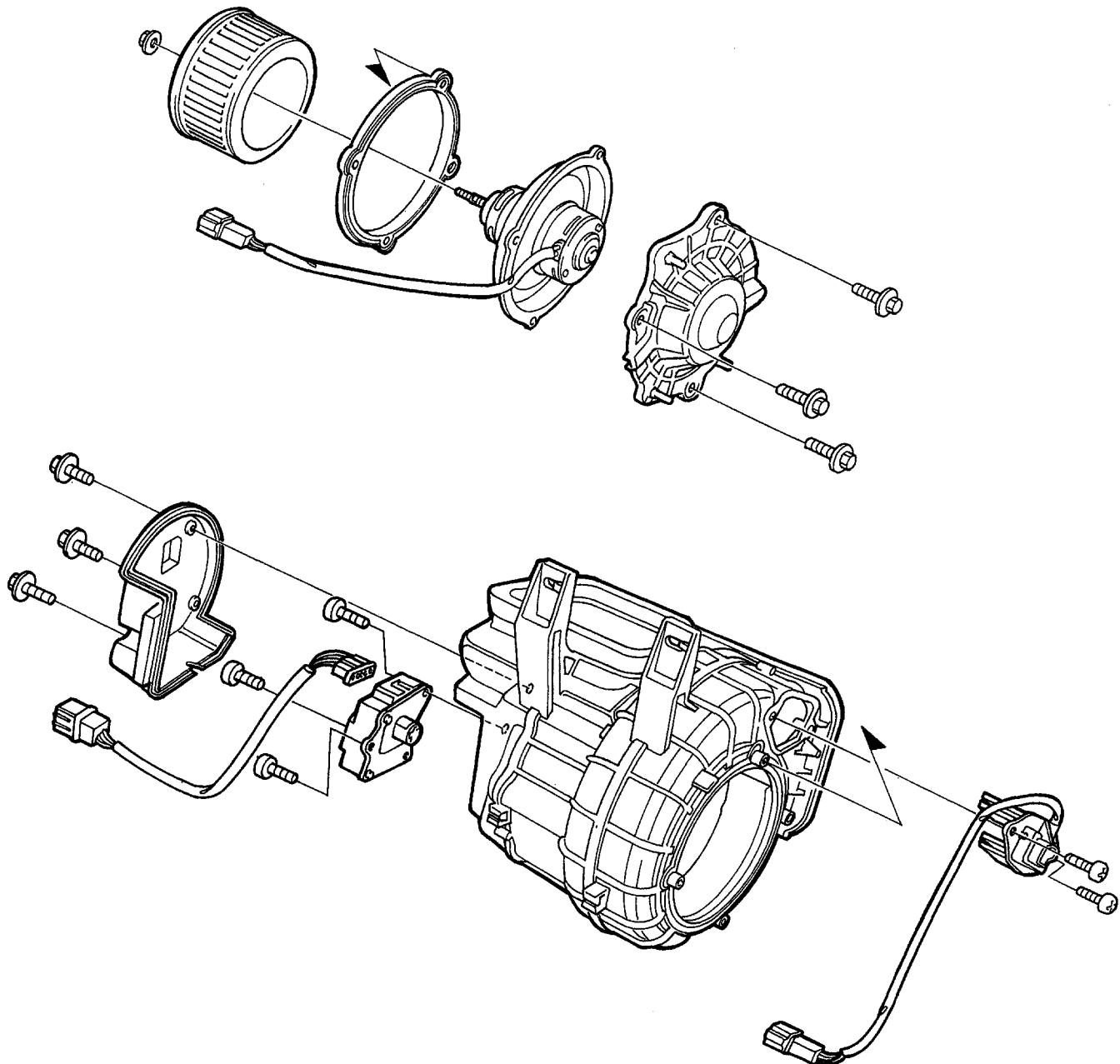
Turn the ignition switch ON.

Measure voltage between the RED wire terminal (+) and body ground (-).



Replace the compressor clutch.

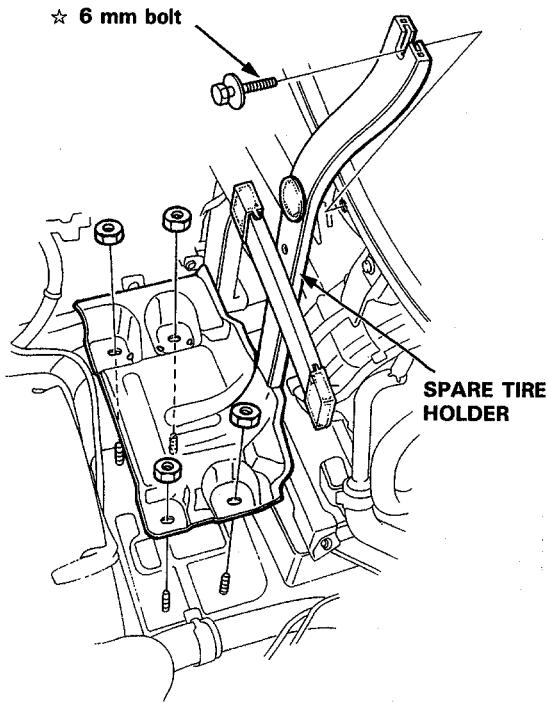
Blower



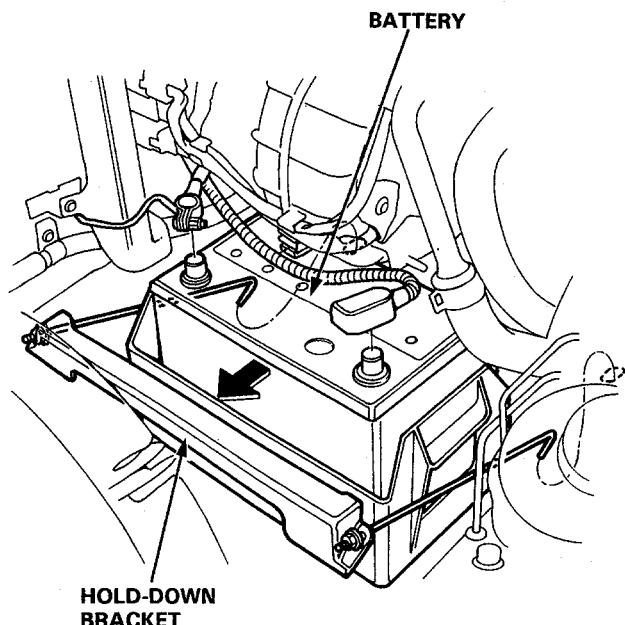


Replacement

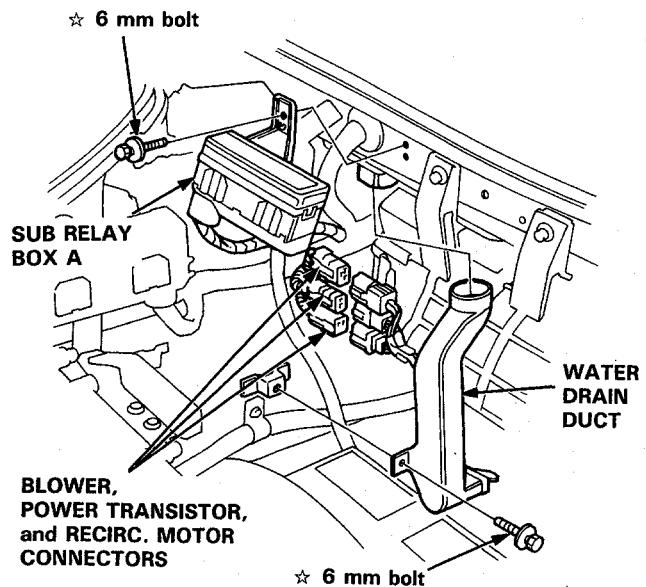
1. Remove the spare tire (refer to Owner's manual).
2. Remove the spare tire holder.
★ CORROSION RESISTANT BOLT



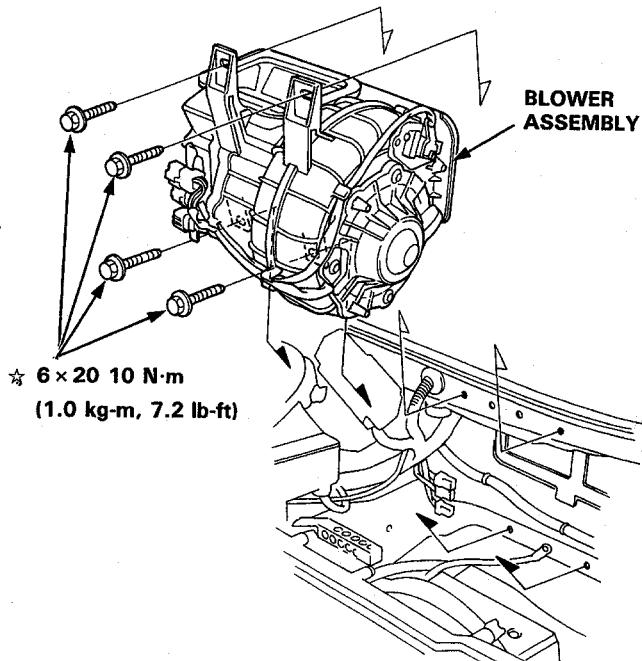
3. Disconnect the battery cables, loosen the hold-down bracket nuts, and remove the hold-down bracket. Then, remove the battery.



4. Remove the sub relay box A and the water drain duct. Disconnect the connectors from the blower motor, power transistor and recirculation control motor.
★ CORROSION RESISTANT BOLT



5. Remove the blower mounting bolts, then remove the blower.
★ CORROSION RESISTANT BOLT

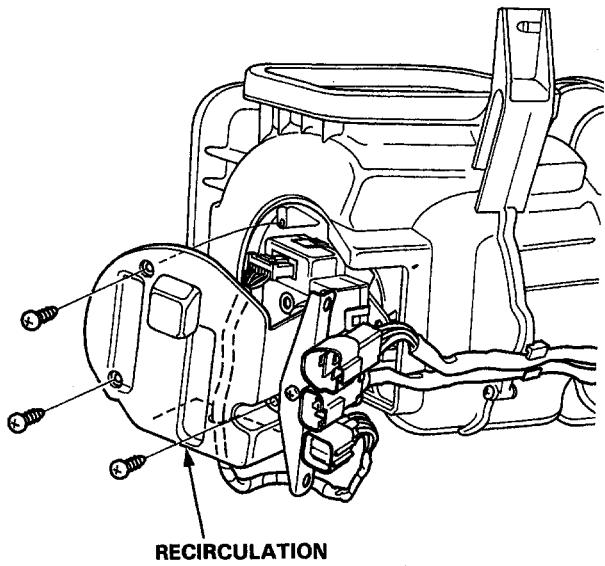


6. Install the blower in the reverse order of removal, then make sure it runs and doesn't leak any air.

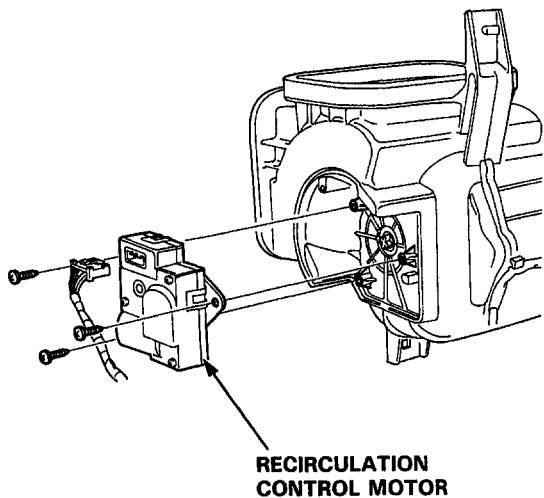
Recirculation Control Motor

Replacement

1. Remove the blower (previous page).
2. Remove the recirculation control motor cover from the blower (3 screws).



3. Remove the recirculation control motor (1 connector and 3 screws).



4. Install the recirculation control motor in the reverse order of removal. Apply battery voltage (page 22-89) and watch the door movement.
Make sure that the recirculation door moves smoothly without binding.
Make sure the motor doesn't pull the door too far.

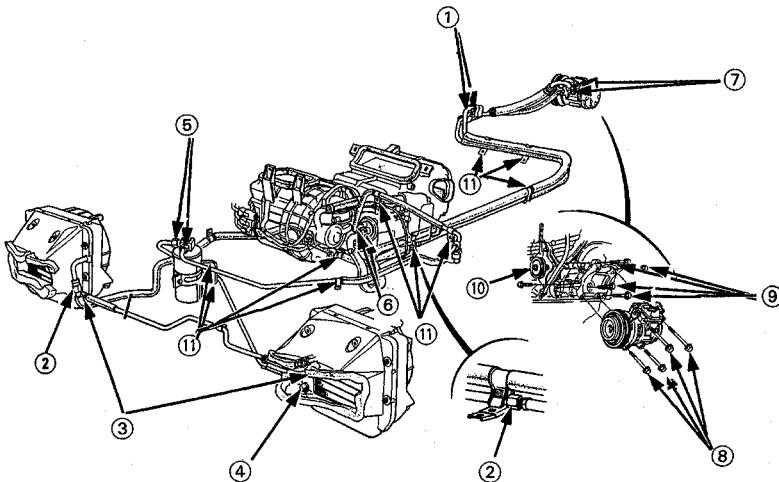
A/C Service Tips and Precautions



1. Always disconnect the negative cable from the battery whenever replacing air conditioner parts.
2. Keep moisture and dust out of the system. When disconnecting any lines, plug or cap the fittings immediately; don't remove the caps or plugs until just before you reconnect each line.
3. Before connecting any hose or line, apply a few drops of refrigerant oil to the O-ring.
4. When tightening or loosening a fitting, use a second wrench to support the matching fitting.
5. When discharging the system, use a refrigerant recovery system; don't release refrigerant into the atmosphere.
6. And refrigerant oil after replacing the following parts:

Condenser 10 cc (1/3 fl oz)
 Evaporator 10 cc (1/3 fl oz)
 Line or hose 20 cc (2/3 fl oz)
 Receiver 10 cc (1/3 fl oz)
 Compressor 10 cc (1/3 fl oz)

On compressor replacement, subtract the volume of oil drained from the removed compressor from 80 cc (2 2/3 fl oz), and drain the calculated volume of oil from the new compressor: 80 cc (2 2/3 fl oz) - Volume of oil from removed compressor = Volume to drain from new compressor.



Don't overtighten fittings; you could damage them. Leaks are caused by faulty O-rings, overtightening won't stop them.

★ CORROSION RESISTANT BOLT

- ① Suction hose and discharge hose to A/C lines 22 N·m (2.2 kg-m, 16 lb-ft)
- ② Discharge line C (both side) 23 N·m (2.3 kg-m, 17 lb-ft)
- ③ Condenser line A (both side) 23 N·m (2.3 kg-m, 17 lb-ft)
- ④ Condenser line C to left side condenser 14 N·m (1.4 kg-m, 10 lb-ft)
- ⑤ Receiver-dryer 14 N·m (1.4 kg-m, 10 lb-ft)

- ⑥ Receiver line and suction line to heater assembly 22 N·m (2.2 kg-m, 16 lb-ft)
- ⑦ Compressor hose mounting bolts 22 N·m (2.2 kg-m, 16 lb-ft)
- ⑧ Compressor mounting bolts 25 N·m (2.5 kg-m, 18 lb-ft)
- ⑨ Compressor bracket mounting bolts 50 N·m (4.5 kg-m, 36 lb-ft)
- ⑩ Idler pulley center nut 45 N·m (4.5 kg-m, 32.5 lb-ft)
- ⑪ ★ 6 mm bolt 10 N·m (1.0 kg-m, 7.2 lb-ft)

⚠ WARNING

When handling refrigerant (R-12):

- Always wear eye protection.
- Do not let refrigerant get on your skin or in your eyes. If it does:
 - Do not rub your eyes or skin.
 - Splash large quantities of cool water in your eyes or on your skin.
 - Rush to a physician or hospital for immediate treatment. Do not attempt to treat it yourself.
- Keep refrigerant containers (cans of R-12) stored below 40°C (100°F).
- Do not handle or discharge refrigerant in an enclosed area near an open flame; it may ignite and produce a poisonous gas.
- The ozone is fragile layer surrounding the earth which acts as a shield against the sun's ultraviolet radiation. Chlorine from chemicals called chlorofluorocarbons (CFCs) destroy the ozone in the stratosphere. Automotive air conditioning systems currently use chlorofluorocarbons as the refrigerant. Auto air conditioning service equipment has been developed to minimize the release of CFCs to the atmosphere. All service procedures should be performed using this equipment and the manufacturer's instructions.

Heater-Evaporator Unit

Replacement

SRS wire harness is routed near the heater.

WARNING All SRS wire harnesses and connectors are colored yellow. Do not use electrical test equipment on these circuits.

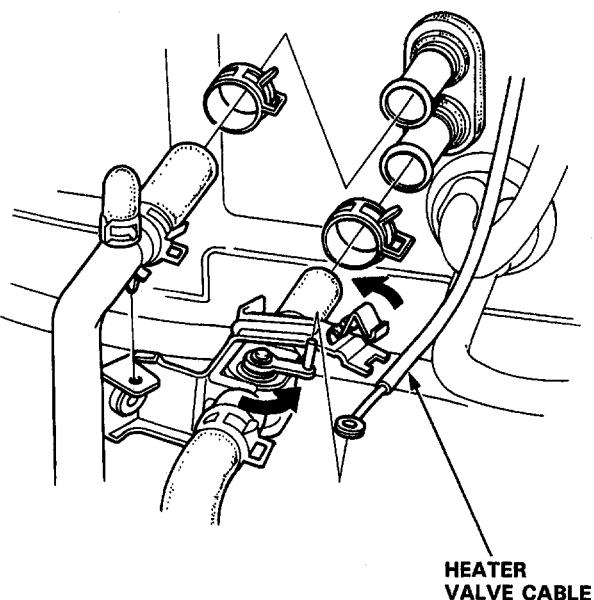
CAUTION: Be careful not to damage the SRS wire harnesses when servicing the heater.

1. Remove the blower (page 22-63).
2. When the engine is cool, drain the coolant from the radiator (Section 10).

WARNING

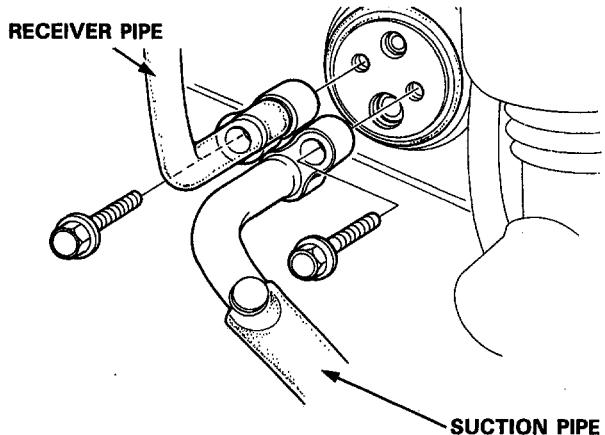
 - Do not remove the radiator cap when the engine is hot; the coolant is under pressure and could severely scald you.
 - Keep hands away from the radiator fan. The fan may start automatically without warning and run for up to 30 minutes, even after the engine is turned off.

CAUTION: Radiator coolant will damage paint. Quickly rinse any spilled coolant off painted surfaces.
3. Disconnect the heater hoses at the heater. Coolant will run out when the hoses are disconnected, drain it into a clean drip pan.
4. Disconnect the heater valve cable from the heater valve.

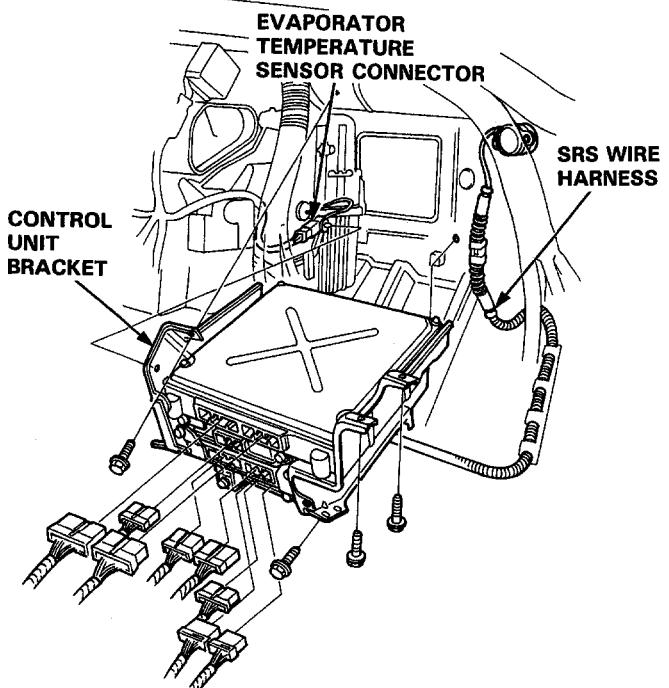


5. Remove all refrigerant from the A/C system with a refrigerant recovery system. (page 22-93).

6. Disconnect the receiver line and the suction line from the evaporator. Cap the open fittings immediately to keep moisture out of the system.



7. Remove the dashboard (Section 20).
8. Remove the heater duct.
9. Remove the mounting bolts(4) and disconnect the connectors from control units and evaporator temperature sensor connector from the control unit bracket, then remove the control unit bracket.

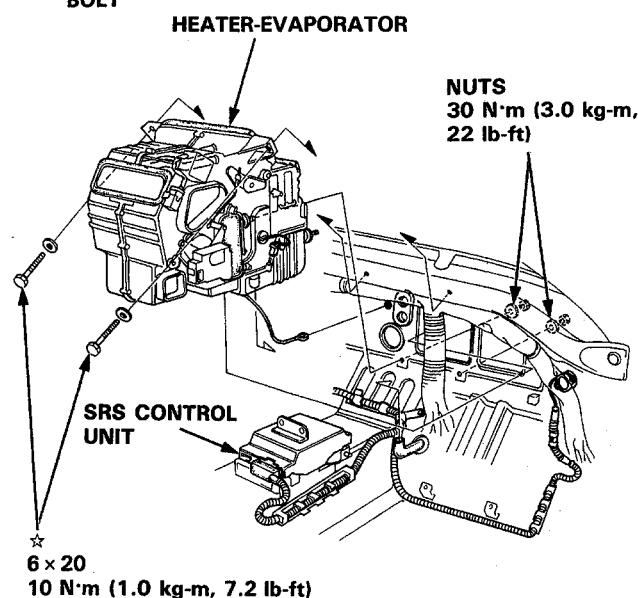


10. Remove the enclosure woofer.



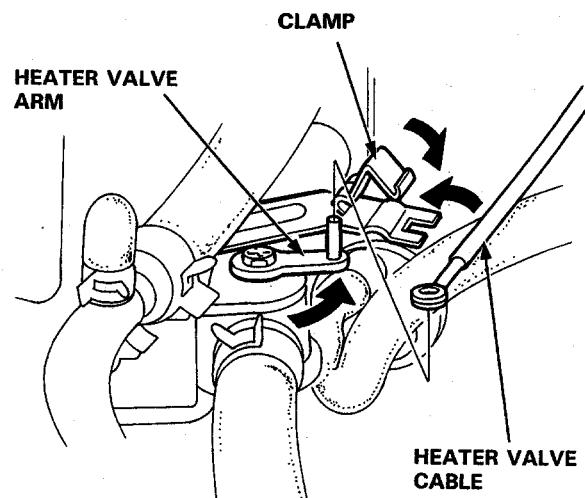
11. Disconnect the connectors from all the actuators and sensors attached to the heater-evaporator.
12. Remove the mounting bolts(2-under the dash) and nuts(2-under the hood), then remove the heater-evaporator through the passenger door.

★: CORROSION RESISTANT
BOLT



13. Install in the reverse order of removal, and:
 - Apply sealant to the A/C line grommets.
 - Do not interchange the inlet and outlet heater hoses. Make sure that the hose clamps are tight.
 14. Fill the radiator and reservoir tank with the proper coolant mixture. Bleed the air from the cooling system (Section 10).
- CAUTION:** Follow the sequence described in the air bleed procedure. If you don't, you may leave air in the system which could damage the engine.

15. If necessary, adjust the heater valve cable:
 - Set the air mix control motor at COLD position (page 22-90).
 - Connect the end of the cable to the heater valve arm.
 - Gently slide the cable outer housing back from the end enough to take up any slack in the cable, but not enough to make the other end move the arm on the air mix motor. Then snap the clamp down over the cable housing.

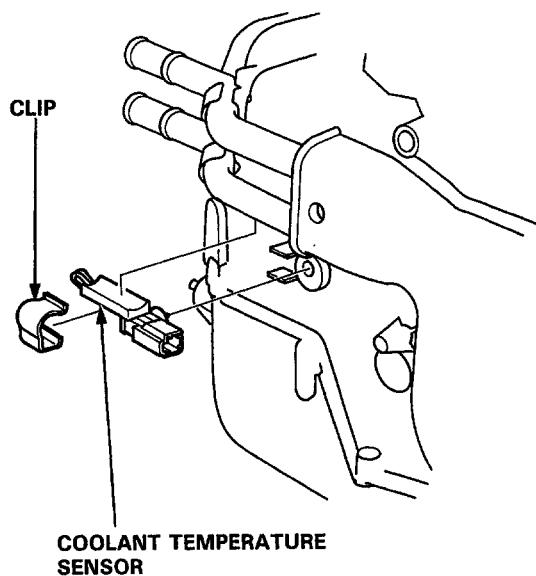


16. Turn the blower on and make sure that there is no air leakage.
17. Charge the system (page 22-93~95) and test performance (page 22-96).

Coolant Temperature Sensor

Removal

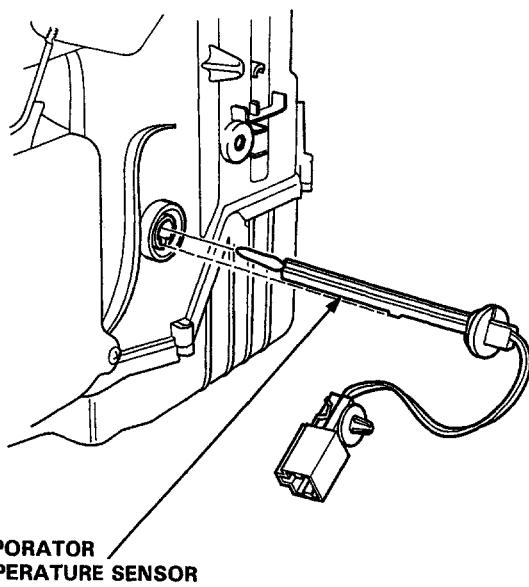
Disconnect the connector, and remove the coolant temperature sensor clip and the sensor.

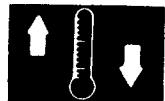


Evaporator Temperature Sensor

Removal

Give the evaporator temperature sensor a quarter turn and then pull out it.

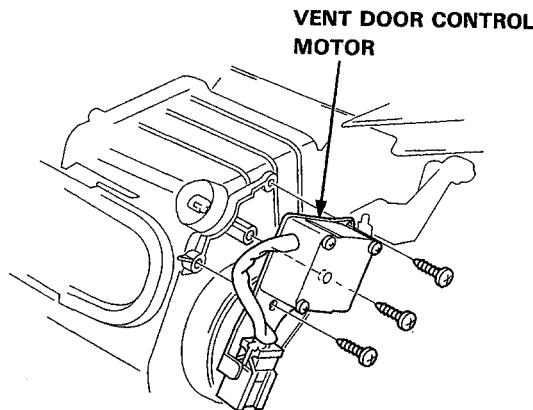




Vent Door Control Motor

Replacement

1. Remove the mounting screws, then remove the vent door control motor.

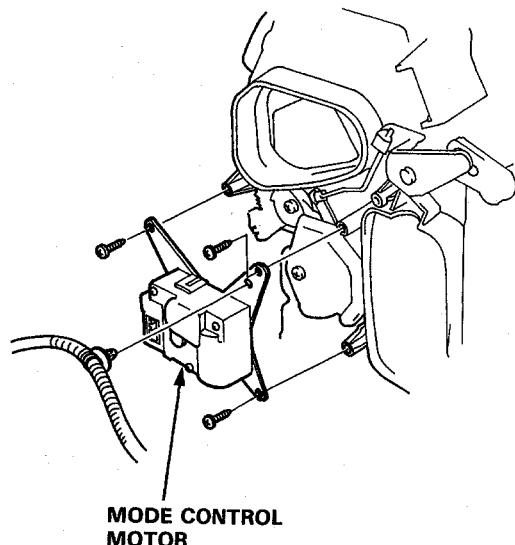


2. Install the vent door control motor in the reverse order of removal. Then apply battery voltage (page 22-90) and watch the door move.
 - Make sure that the vent door moves smoothly without binding.
 - Make sure the motor doesn't pull the vent door too far.

Mode Control Motor

Replacement

1. Remove the mounting screws, then remove the mode control motor.

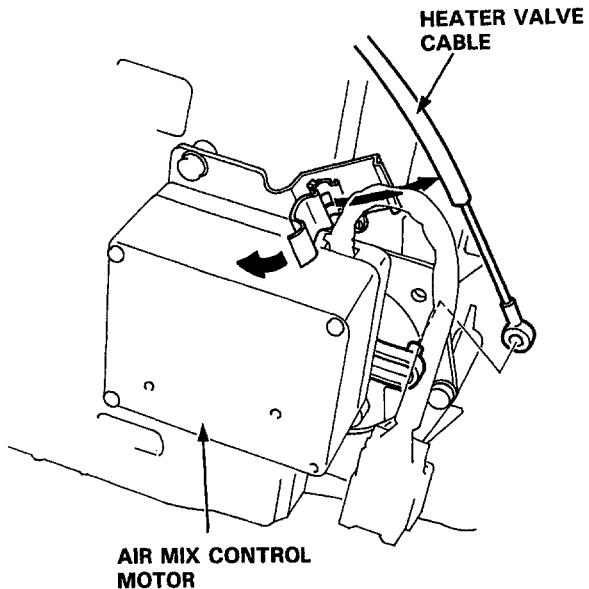


2. Install the mode control motor in the reverse order of removal. Then apply battery voltage (page 22-91) and watch the doors move.
 - Make sure that the HEAT and DEF doors moves smoothly without binding.
 - Make sure the motor doesn't pull the HEAT and DEF doors too far.

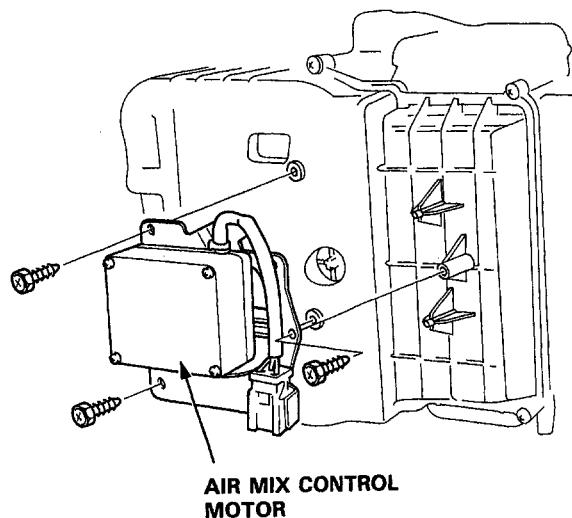
Air Mix Control Motor

Replacement

1. Disconnect the heater valve cable from the air mix control motor.



2. Remove the air mix control motor (3 screws, 1 connector).

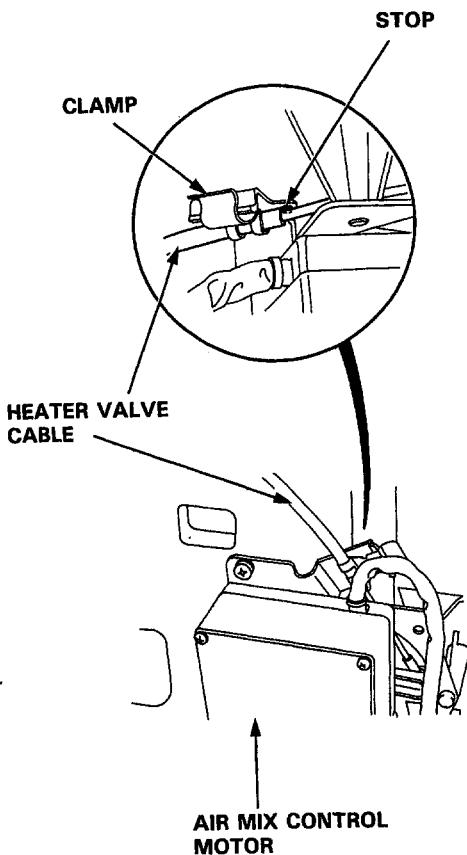


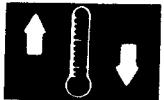
3. Install the air mix control motor in the reverse order of removal. Then apply battery voltage (page 22-90) and watch the door move.

Make sure that the air mix door moves smoothly without binding.

Make sure the motor doesn't pull the air mix door too far.

4. If necessary, to adjust the heater valve cable:
 - Set the air mix control motor at COLD position (page 22-90).
 - Hold the end of the cable housing against the stop on the cable. Then snap the clamp down over the housing.
 - After adjusting the cable, make sure that the air mix control motor still moves smoothly without binding.

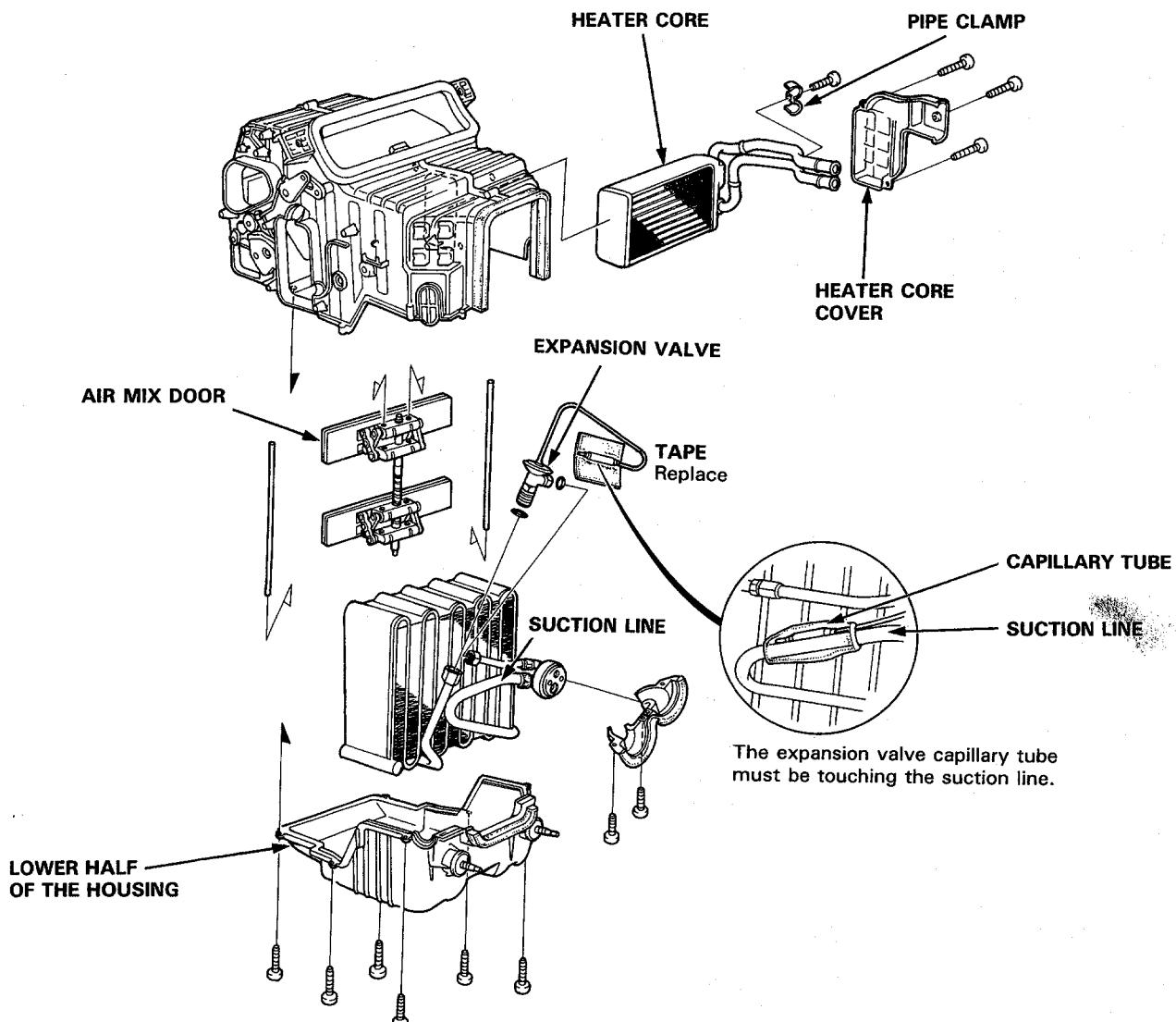




Heater-Evaporator Unit

Disassembly/Reassembly

1. Remove the heater core cover, remove the pipe clamp, then pull out the heater core.
2. Remove the lower half of the housing, then remove the evaporator.
3. Remove the expansion valve if necessary.

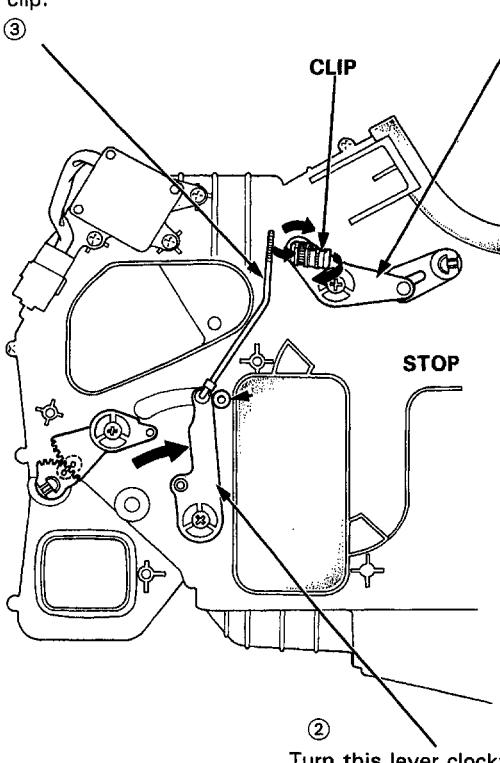


4. Assemble the heater-evaporator unit in the reverse order of disassembly. Hold the expansion valve capillary tube down against the suction line, and wrap it with tape to hold it there.

Heater-Evaporator Unit

"DEF" Door Adjustment

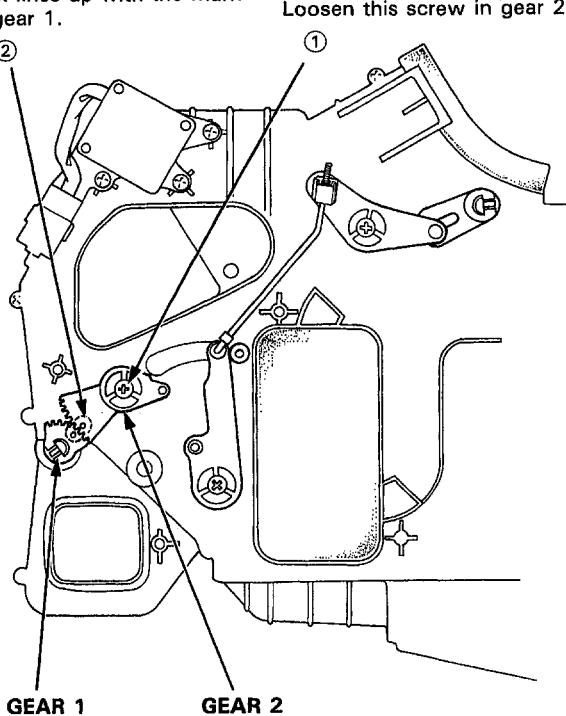
Connect the control rod to the clip.



Turn this lever all the way clockwise and hold it there.

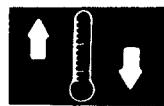
"HEAT" Door Adjustment

Reposition gear 2 so this mark lines up with the mark on gear 1.



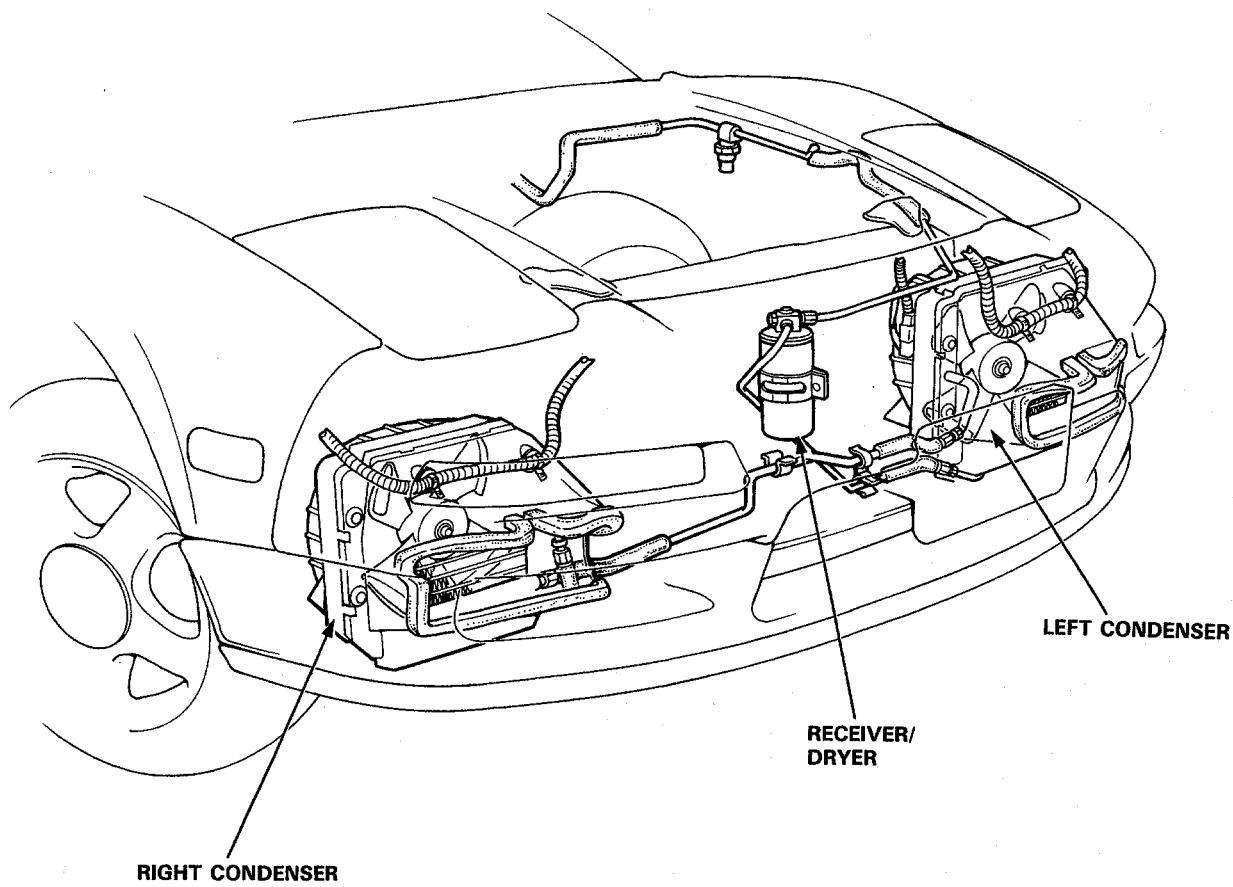
Loosen this screw in gear 2.

Condenser



Description

Dual condensers are mounted behind the right and left side of the front bumper as shown. The cooling efficiency of parallel-dual condensers is as good as or better than a single condenser mounted in front of radiator.

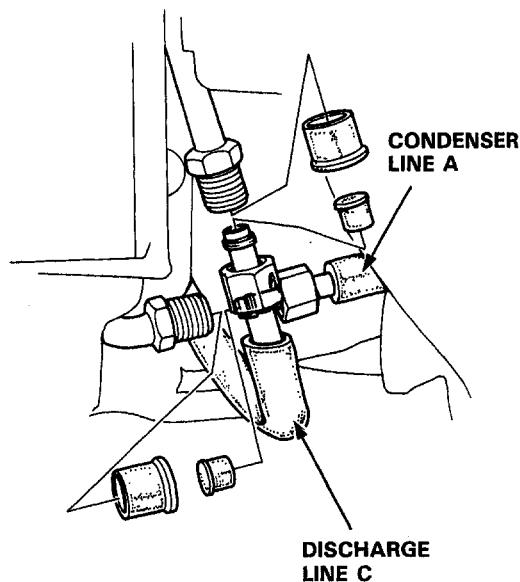


Condenser Assembly

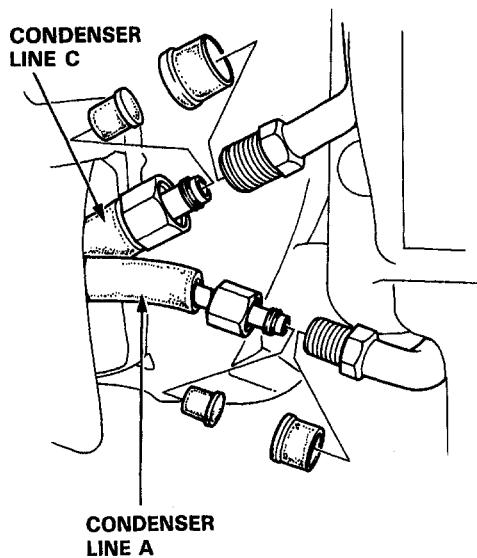
Replacement

1. Disconnect the battery negative terminal.
2. Use a refrigerant recovery system to discharge the refrigerant (page 22-93).
3. Disconnect the discharge line and the condenser lines from the condenser.
Cap the open fittings immediately to keep moisture and dirt out of system.

(Right Condenser)



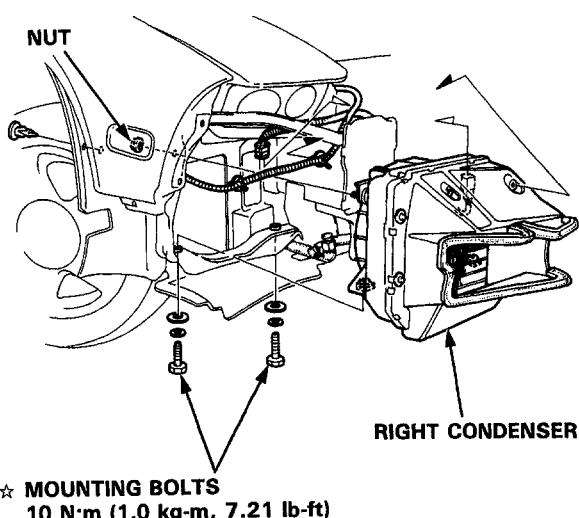
(Left Condenser)



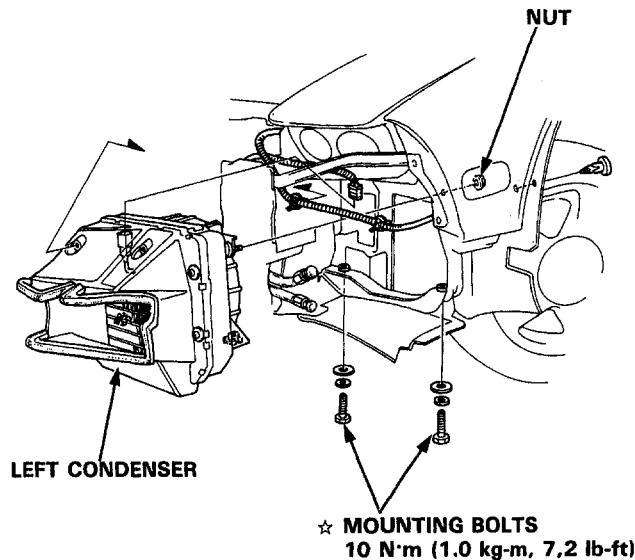
4. Disconnect the connector from the condenser fan motor, remove the mounting bolts(2) and nut, then remove the condenser.

★: CORROSION RESISTANT BOLT

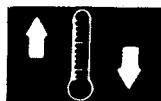
(Right Condenser)



(Left Condenser)

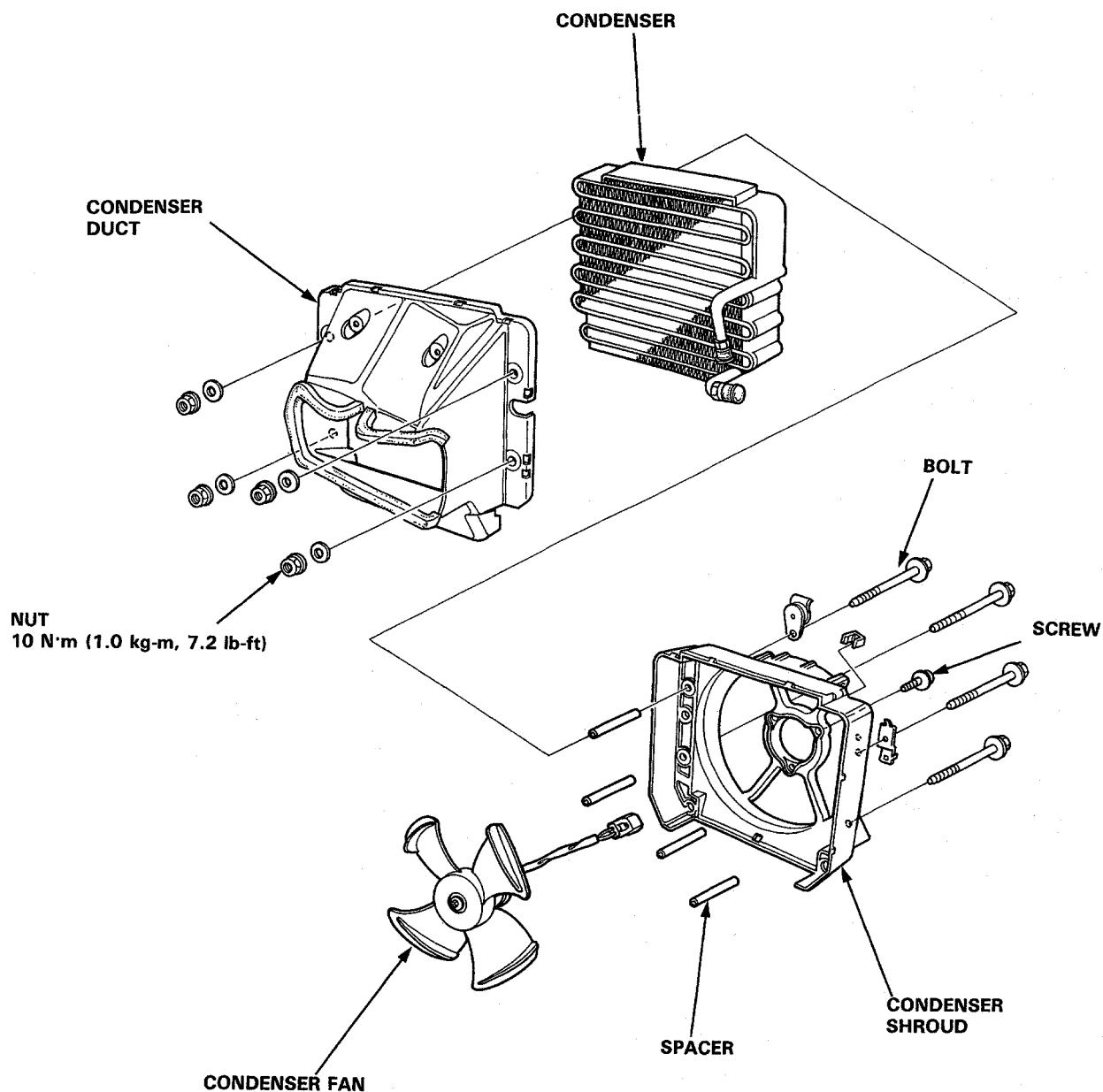


5. Install the condenser in the reverse order of removal;
 - Replace O-rings with new ones each fitting.
 - Charge the system (page 22-93~95) and test its performance (page 22-96).



Disassembly/Reassembly

1. Remove the bolts and nuts (4). Then separate the condenser duct from the shroud, and remove the condenser.
2. Remove the fan mounting screws (3), then remove the fan from the shroud.

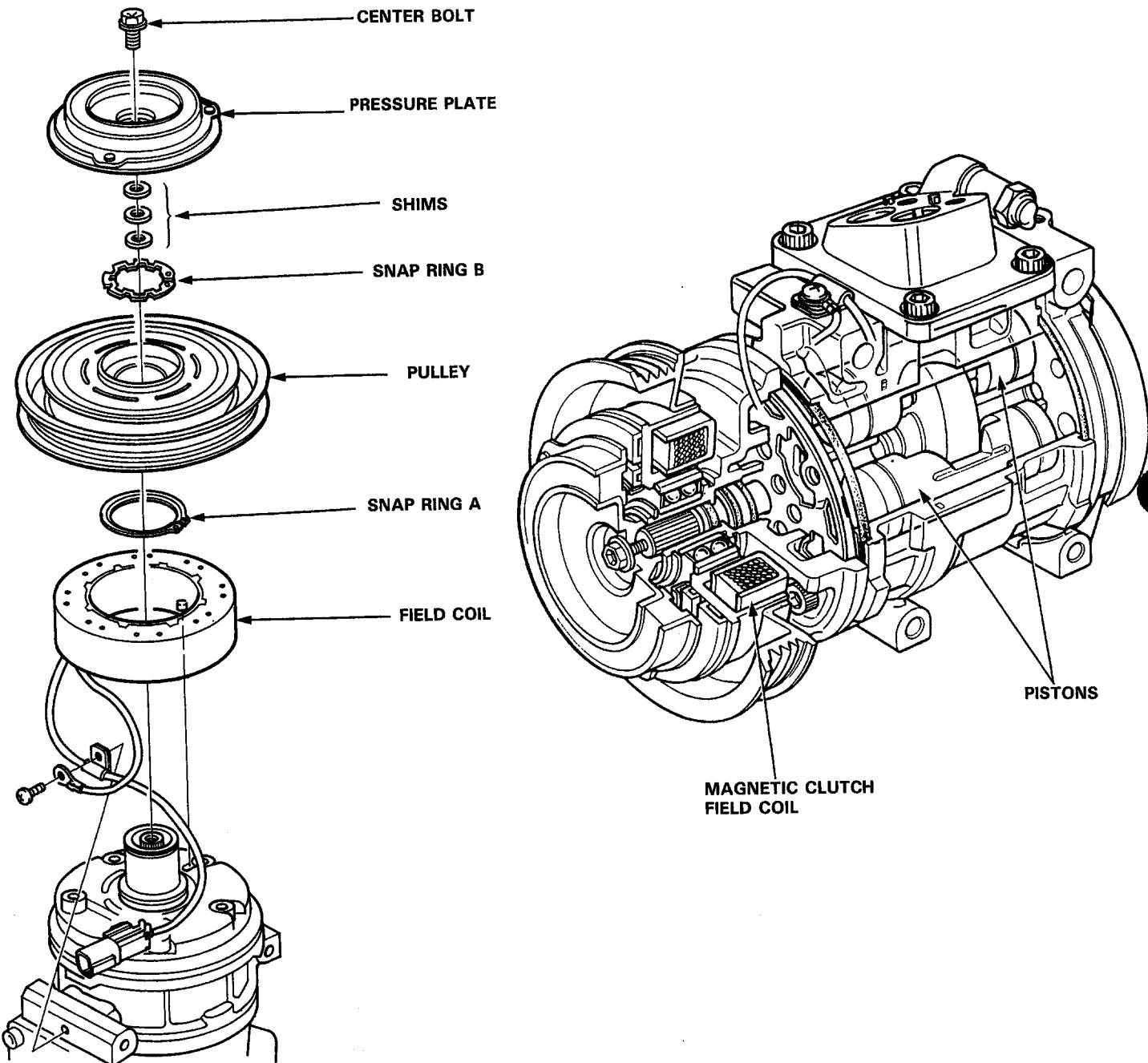


3. Assemble the condenser in the reverse order.
Be careful not to damage the tabs on the condenser shroud when you attach it to the air intake duct.

Compressor

Description

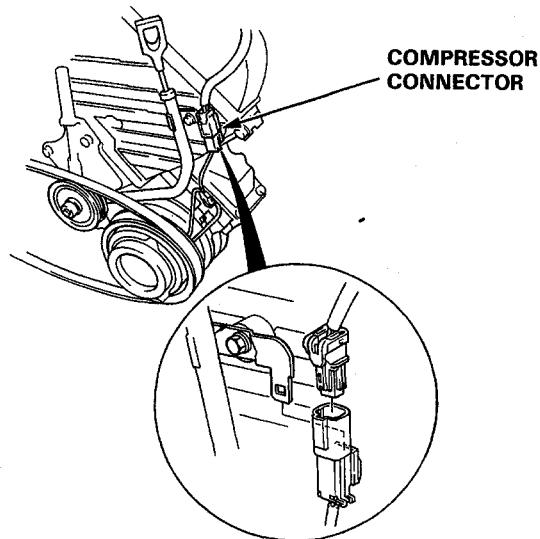
This compressor is a Nippondenso piston type. A revolving inclined disc drives the surrounding 10 reciprocating pistons. As the inclined disc revolved, it pushes the pistons, protected by a ceramic shoe, thus compressing the refrigerant.



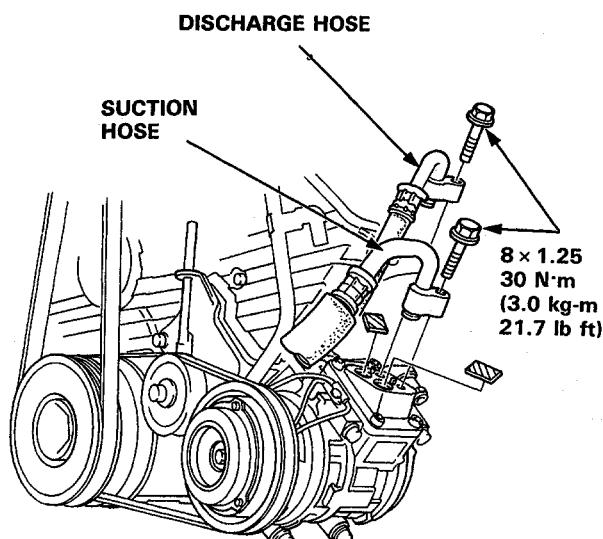


Replacement

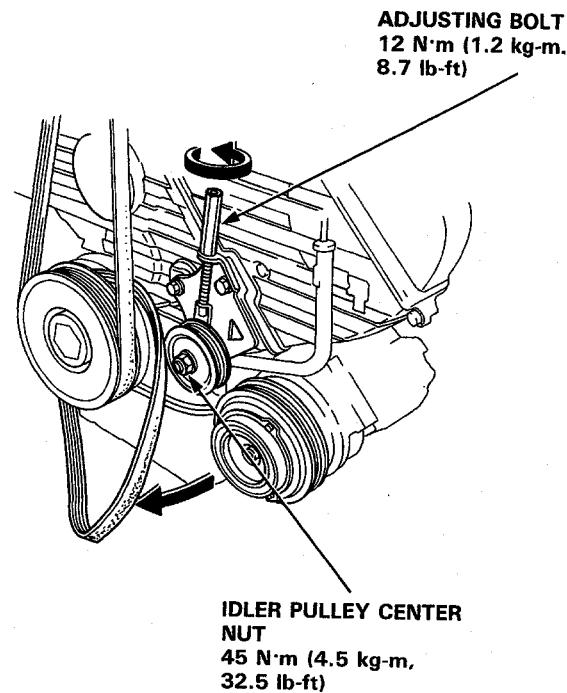
1. If the compressor still works, run the engine at idle for a few minutes with the A/C on, then shut the engine off and disconnect the negative cable from the battery.
2. Use a refrigerant recovery system to discharge the refrigerant from the system (page 22-93).
3. Disconnect the compressor connector.



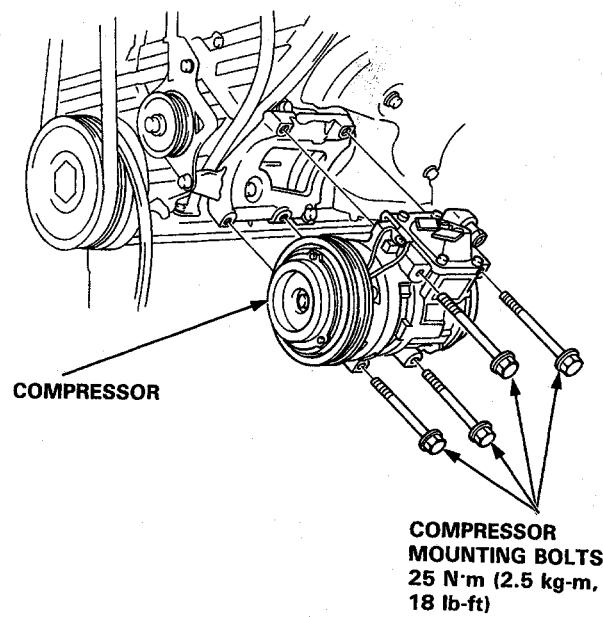
4. Raise the car on a hoist. Make sure it's properly supported (Section 1).
5. Remove the front beam (Section 5).
6. Disconnect the suction and discharge hoses from the compressor. Cap the open fittings immediately to keep moisture and dirt out of the system.



7. Loosen the idler pulley center nut and adjusting bolt, then remove the belt from compressor.



8. Remove the four compressor mounting bolts and compressor.

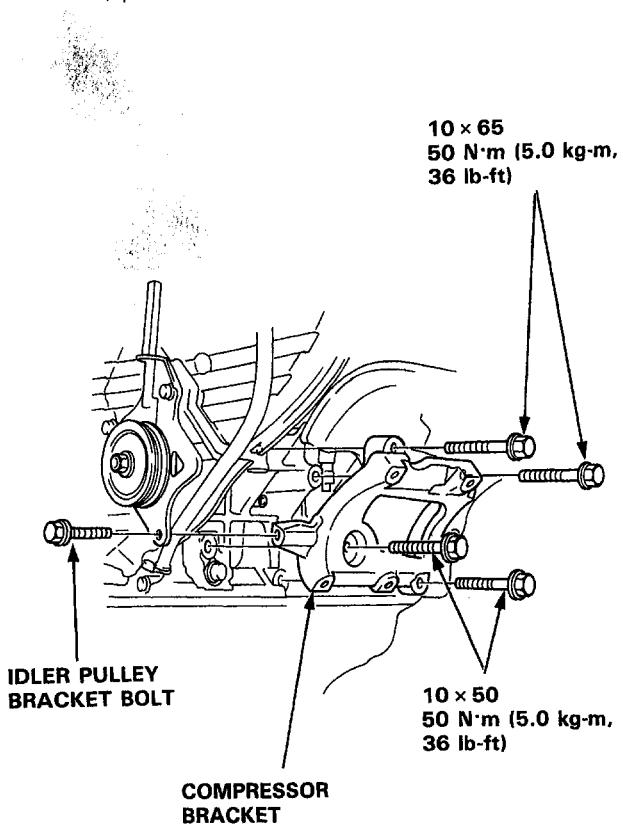


(cont'd)

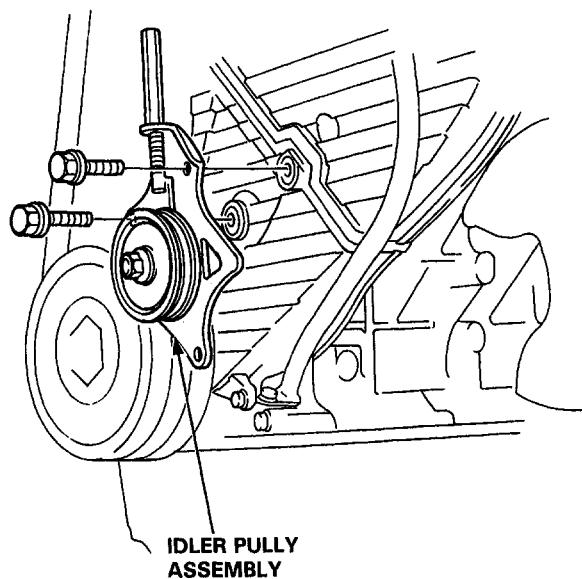
Compressor

Replacement (cont'd)

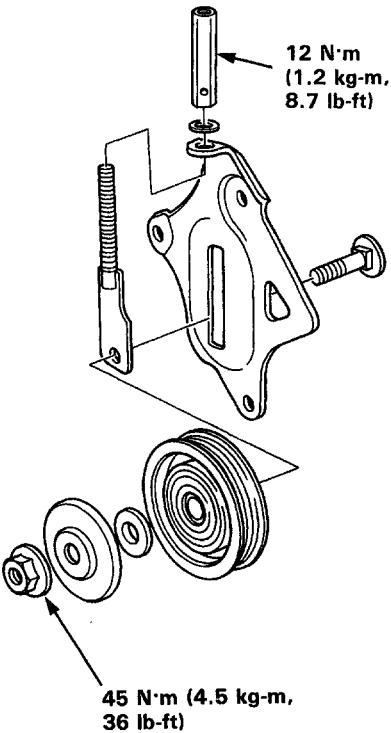
9. If necessary, remove the compressor bracket (4 bolts, plus 1 from the idler pulley bracket).



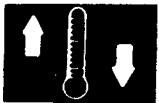
10. If necessary remove the idler pulley (2 more bolts).



- Check the idler pulley bearing for play and drag. Replace it with a new one if it's noisy or has excessive play or drag.



- Install in the reverse order of removal.
If you're installing a new compressor, drain all the refrigerant oil out of the old compressor and measure its volume. Subtract the volume of old oil from 80 CC (2 1/3 floz); the result is the amount of oil you should drain from the new compressor (through the suction fitting).
- Adjust the compressor belt (page 22-79).
After adjusting the belt, tighten the pulley center nut. Then tighten the adjusting bolt securely.
- Charge the system (page 22-93~95).
- Test system performance (page 22-96).

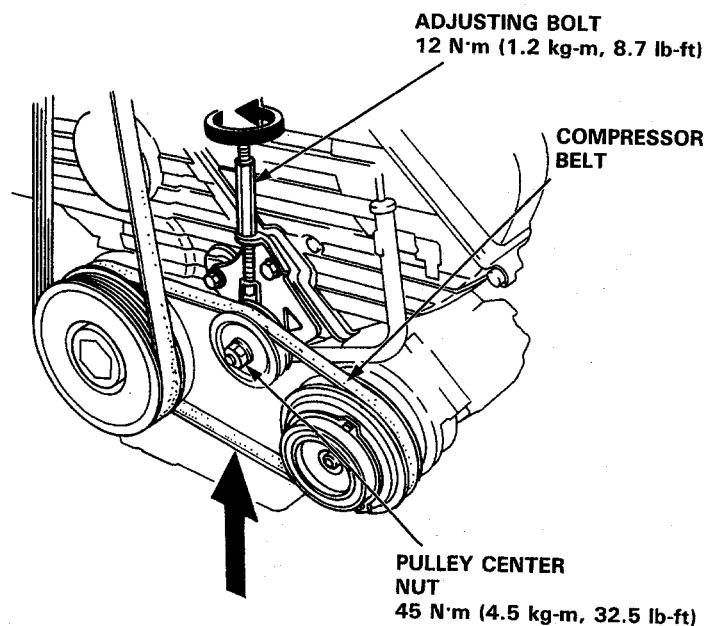


Compressor Belt Adjustment

- "New belt" refers to a belt which has been used less than 5 minutes on a running engine.
- "Used belt" refers to a belt which has been used on a running engine for 5 minutes or more.

NOTE: Check for belt damage. If necessary, replace the belt.

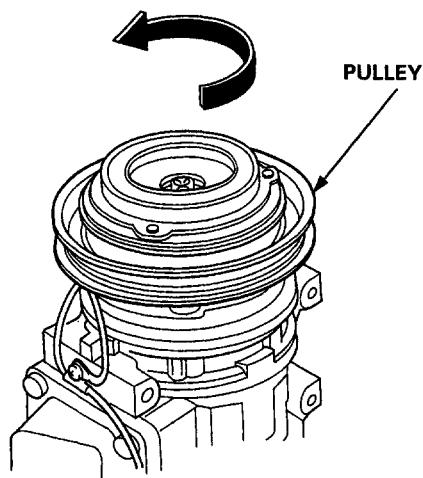
Belt tension [mm/10 kg]	
New belt	Used belt
7–9	12–14



Compressor

Clutch Inspection

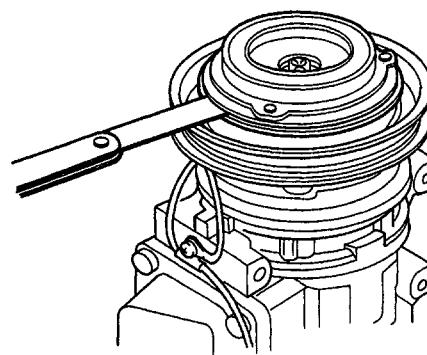
1. Check pulley bearing play and drag by rotating the pulley by hand. Replace the pulley with a new one if it is noisy or has excessive play/drag.



3. Measure the clearance between the pulley and pressure plate all the way around. If the clearance is not within specified limits, the pressure plate must be removed and shims added or removed as required, following the procedure on the next page.

CLEARANCE: 0.5 ± 0.15 (0.020 ± 0.006 in)

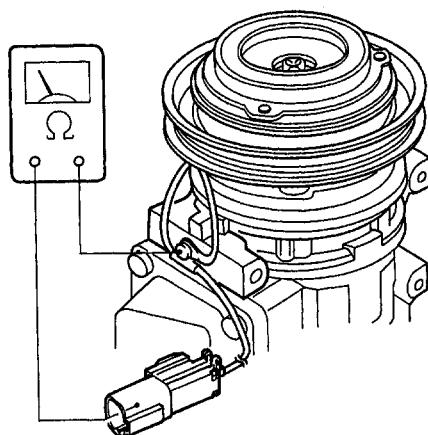
NOTE: The shims are available in three sizes: 0.1 mm, 0.2 mm and 0.5 mm of thickness.

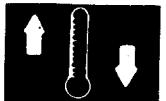


2. Check resistance of the field coil:

**Field Coil Resistance: 3.6 ± 0.2 ohm at
 20°C (68°F)**

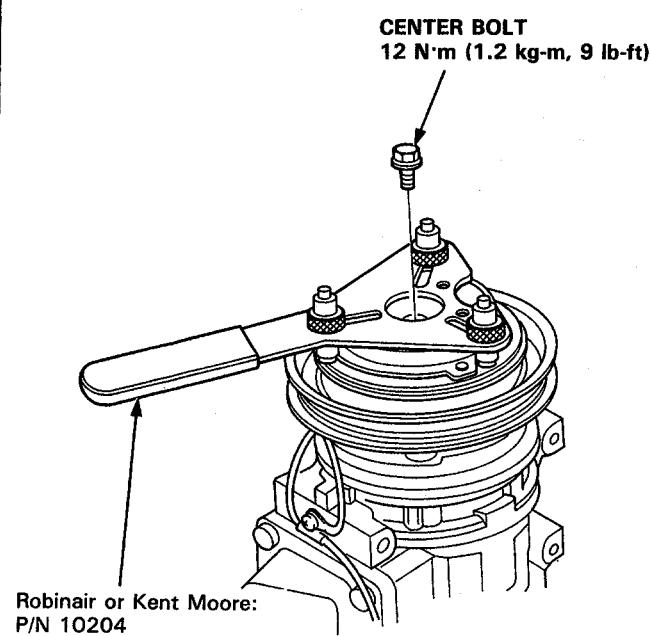
If resistance is not within specifications, replace the coil.



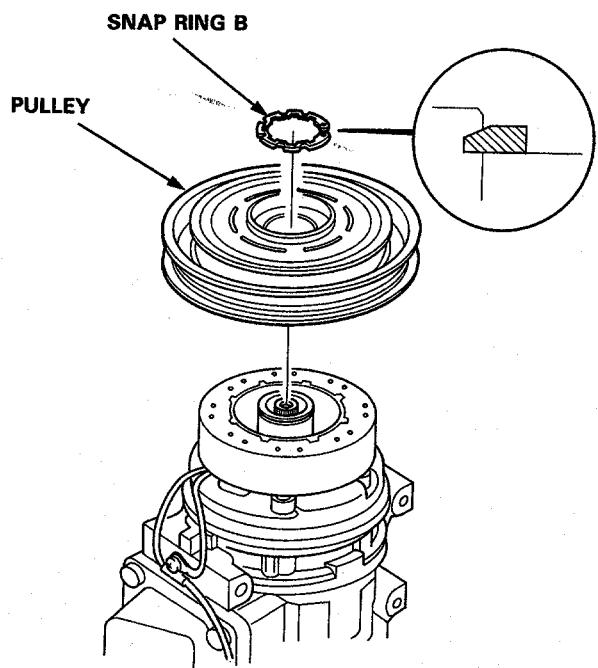


Clutch Overhaul

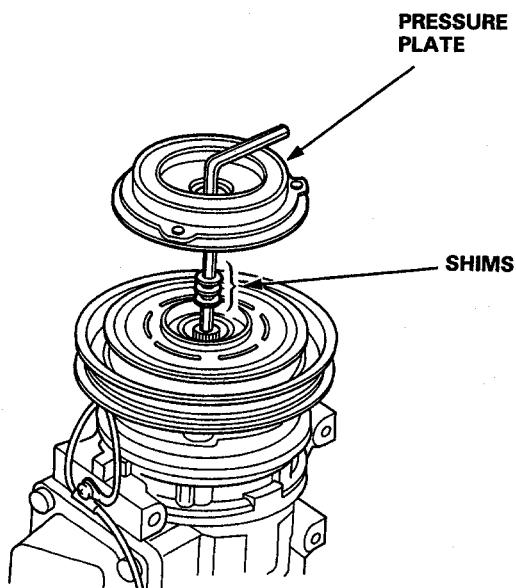
1. Remove the center bolt.



3. Use circlip pliers to remove snap ring B, then remove the pulley.



2. Remove the pressure plate and shim(s) taking care not to lose the shims.

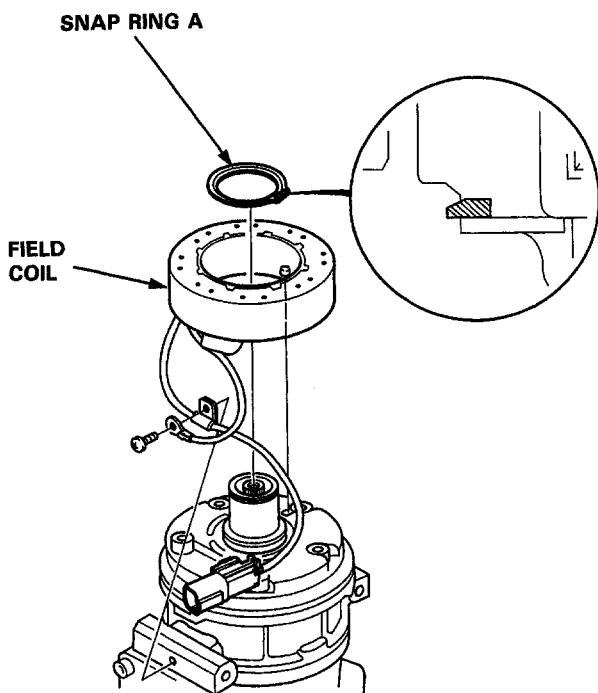


(cont'd)

Compressor

Clutch Overhaul (cont'd)

- Remove snap ring A and the field coil.

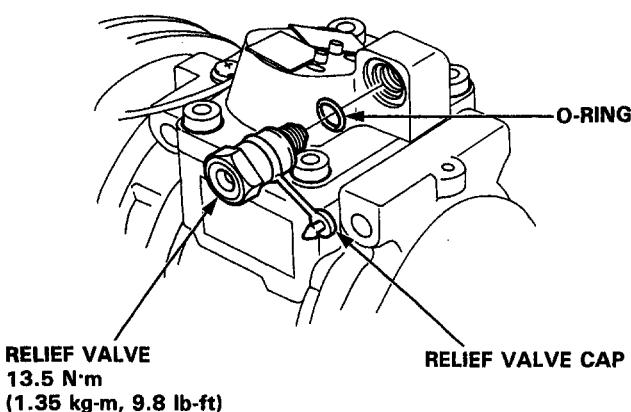


- Install parts in the reverse order of removal, and:

- Install the field coil with the wire side facing up (see above).
- Clean the pulley and compressor sliding surfaces with non-petroleum solvent.
- Check the pulley bearings for excessive play.
- Make sure the circlip fits in its groove properly.
- Apply locking agent to the threads on the center bolt.
- Make sure that the pulley turns smoothly, after it's reassembled.

Relief Valve Replacement

- Remove the relief valve and O-ring. Don't let any compressor oil run out.



- Clean off the mating surface.
- Apply compressor oil to the O-ring.
- Install and tighten the relief valve.
- Charge the system and check for leaks, then push the cap into the valve.



Component Removal/Replacement

Climate Control Unit

SRS wire harness is routed near the console.

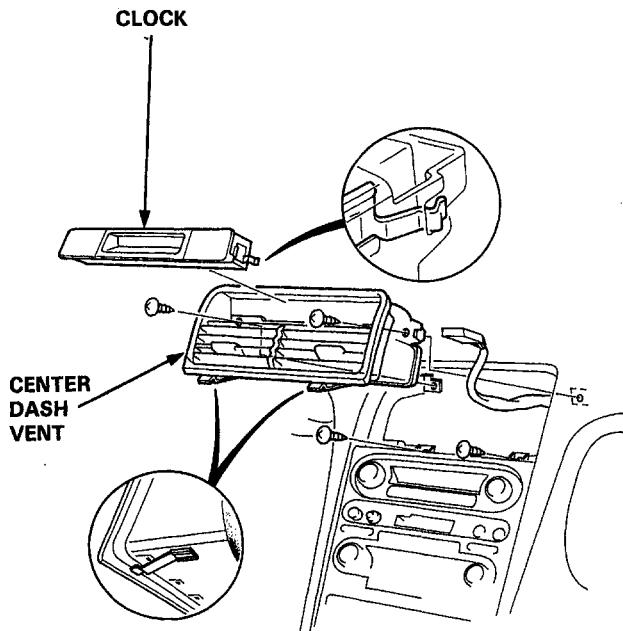
WARNING All SRS wire harnesses and connectors are colored yellow. Do not use electrical test equipment on these circuits.

CAUTION: Be careful not to damage the SRS wire harnesses when servicing the console.

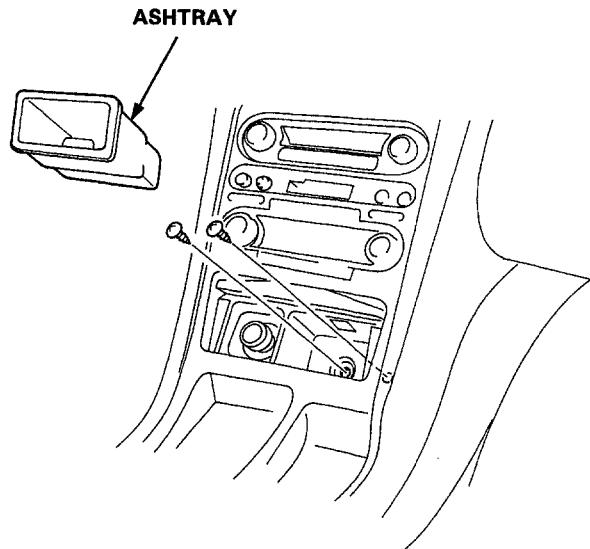
1. Carefully pry the clock out of the dash and disconnect it.

CAUTION: Be careful not to damage the center console panel and the dashboard.

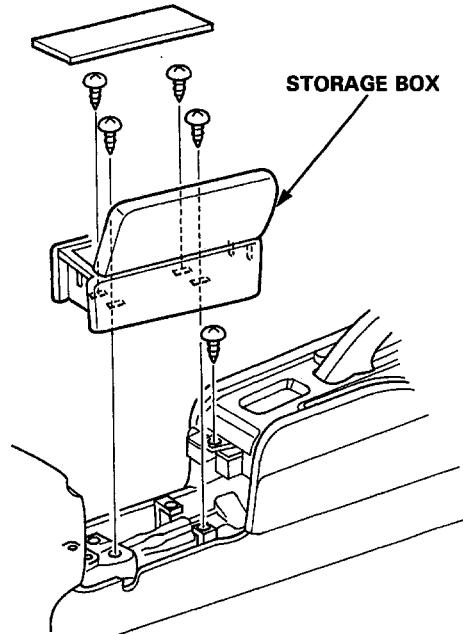
2. Remove the center dash vent (2 screws).
3. Remove the 2 screws from the top of the console panel.

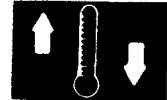


4. Remove the ashtray (lift up on the door to pop it out), then remove the 2 screws behind it.



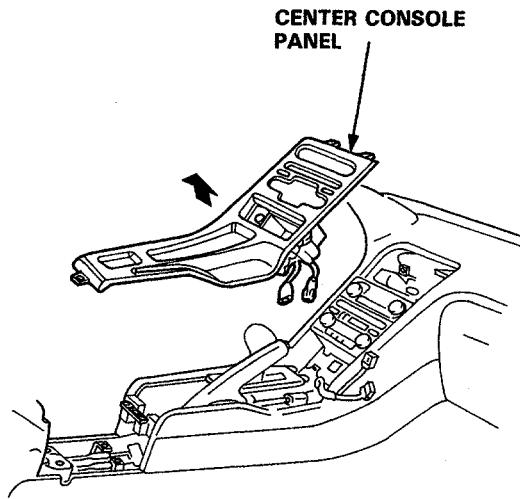
5. Remove the console storage box (lift out the bottom panel and remove 4 screws).
6. Remove the screw from the end of the console panel.



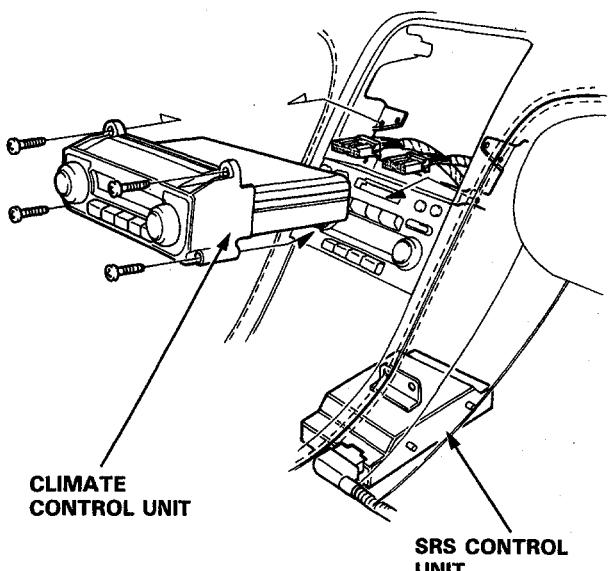


In-car Temperature Sensor

7. Pull the parking brake handle all the way up, lift the panel and disconnect the 2 connectors from it, then carefully lift the panel off past the shift lever. Remove the center console panel.



8. Remove the screws (4), then pull out the control unit, disconnect its connectors and remove it from the dashboard.



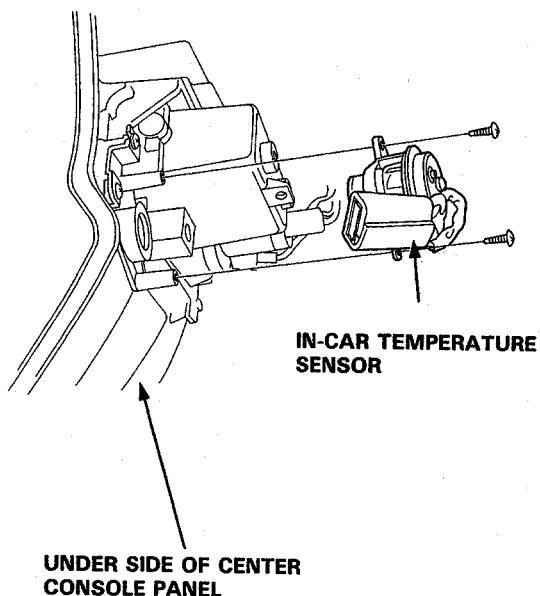
The in-car temperature sensor assembly includes a small fan (aspirator fan) to draw air past the sensor.

SRS wire harness is routed near the console.

WARNING All SRS wire harnesses and connectors are colored yellow. Do not use electrical test equipment on these circuit.

CAUTION: Be careful not to damage the SRS wire harnesses when servicing the console.

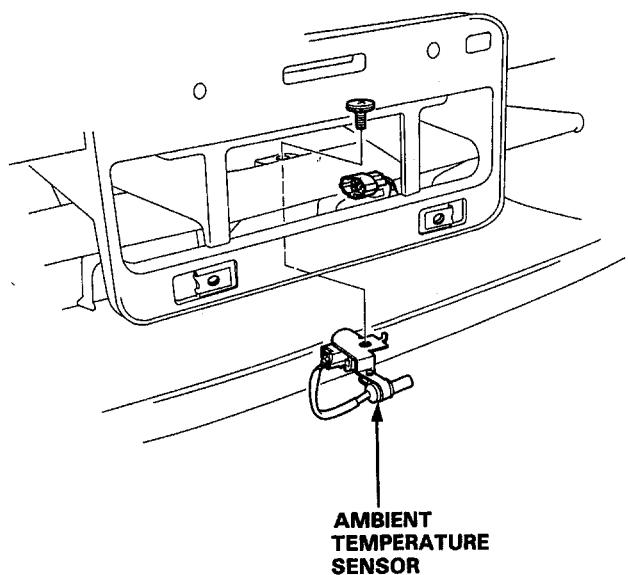
1. Remove the center console panel as described in step 1—7 in the first column (Climate Control Unit).
2. Remove the mounting screws (2) and remove the in-car temperature sensor from the under side of the console panel.
Be careful not to damage the console panel.



Component Removal/Replacement

Ambient Temperature Sensor

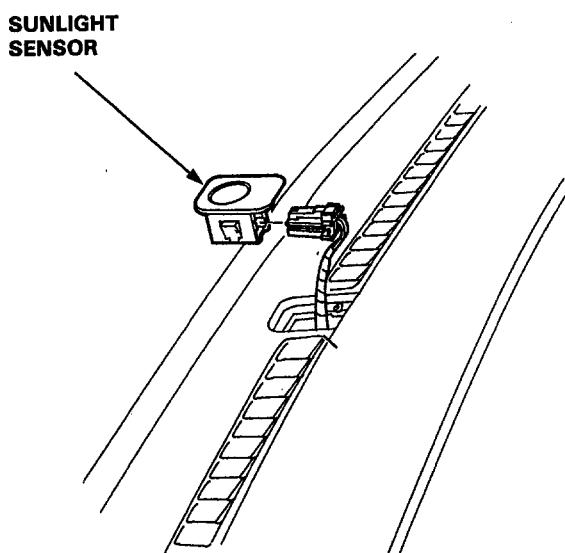
Remove the screw, disconnect the wire harness and then remove the ambient temperature sensor. Be careful not to damage the front grille and front bumper.



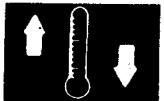
Sunlight Sensor

With a small screwdriver, carefully pry the sunlight sensor out of the dashboard and disconnect its wire harness.

Protect the dashboard; cover it with a shop towel before you pry against it.

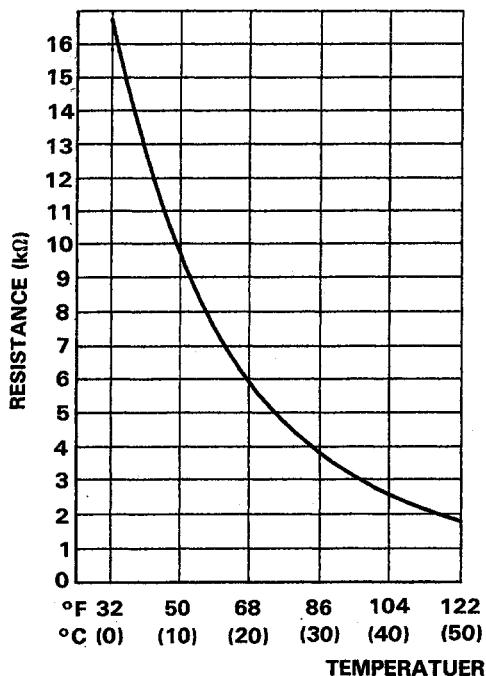


Component Tests

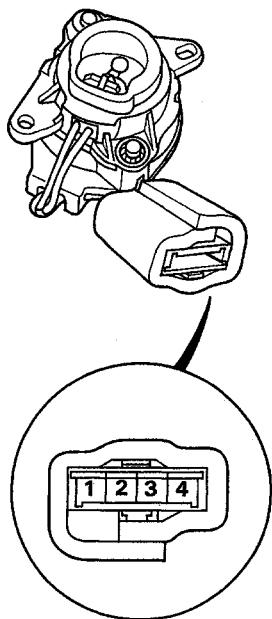


In-car Temperature Sensor

Compare the resistance reading between No. 1 and No. 2 terminals of the in-car temperature sensor with specifications shown in the following graph: It should be within specification.

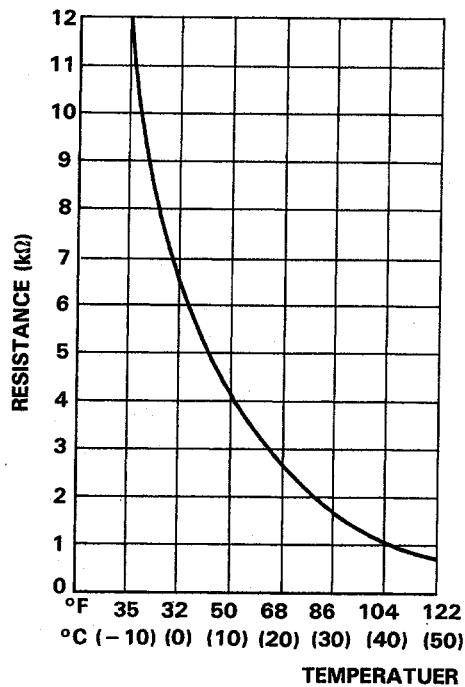


CAUTION: The sensor uses a thermistor which can be damaged if high current is applied to it during testing. Therefore, use a circuit tester that puts out a measuring current of 1 mA or less.

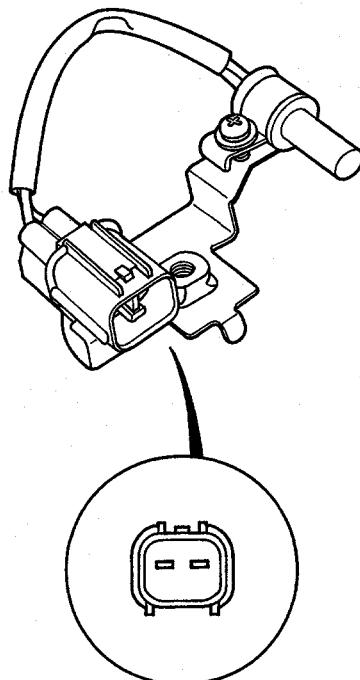


Ambient Temperature Sensor

Compare the resistance reading between terminals of the ambient temperature sensor with specifications shown in the following graph: It should be within specification.



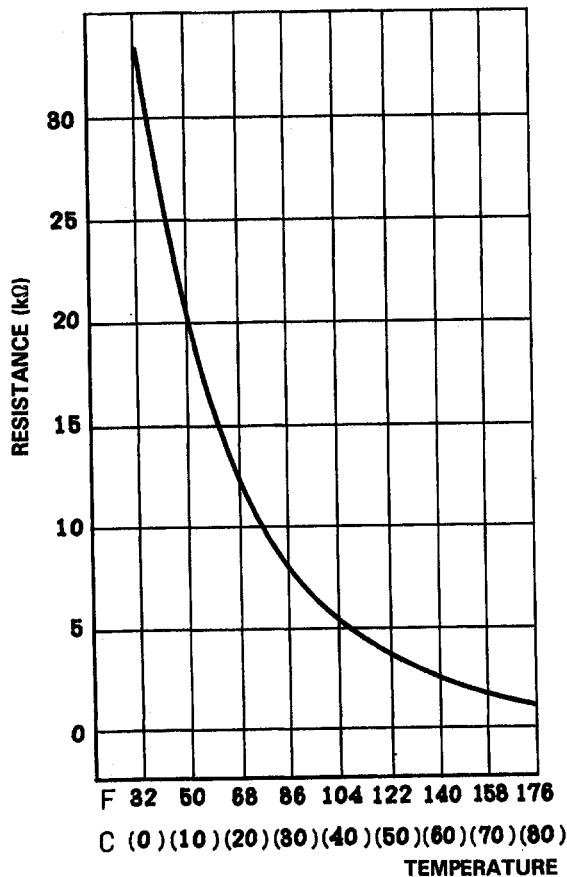
CAUTION: The sensor uses a thermistor which can be damaged if high current is applied to it during testing. Therefore, use a circuit tester that puts out a measuring current of 1 mA or less.



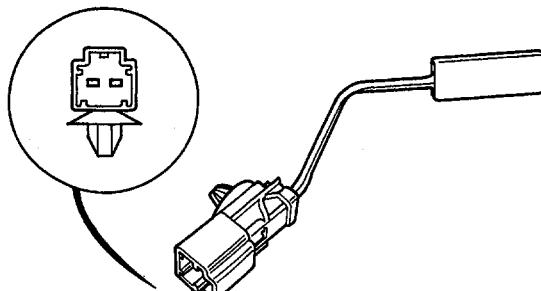
Component Tests

Coolant Temperature sensor

Compare the resistance reading between terminals of the coolant temperature sensor with specifications shown in the following graph: It should be within specification.

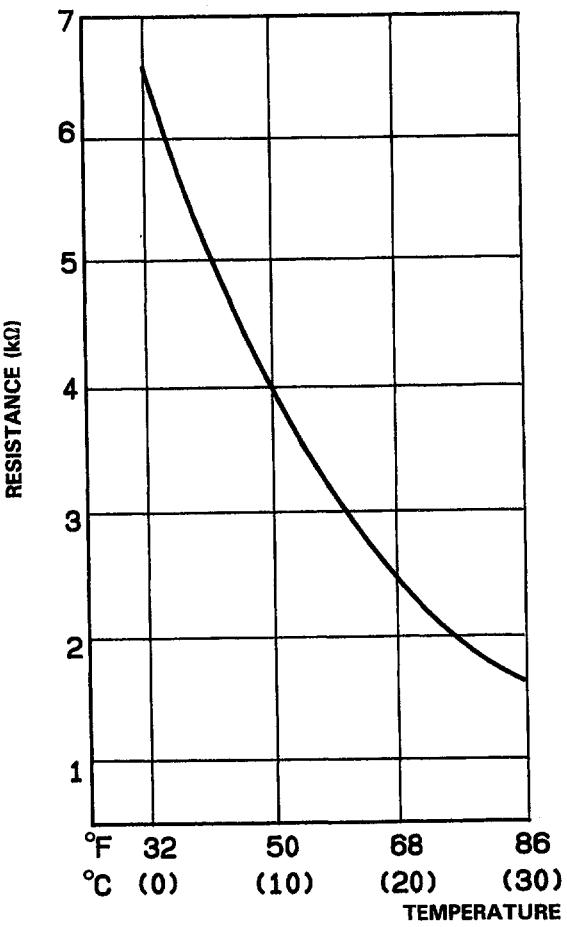


CAUTION: The sensor uses a thermistor which can be damaged if high current is applied to it during testing. Therefore, use a circuit tester that puts out a measuring current of 1 mA or less.

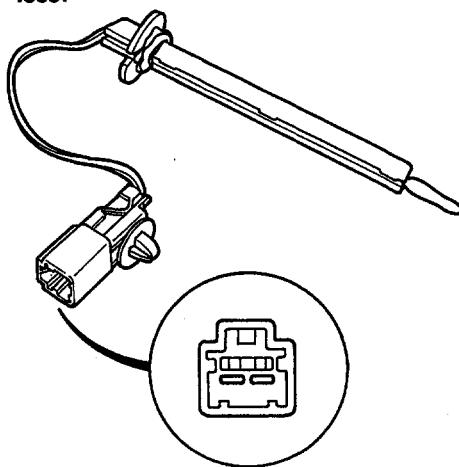


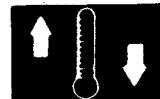
Evaporator Temperature Sensor

Compare the resistance reading between terminals of the evaporator temperature sensor with specification shown in the following graph: It should be within specification.



CAUTION: The sensor uses a thermistor which can be damaged if high current is applied to it during testing. Therefore, use a circuit tester that puts out a measuring current of 1 mA or less.

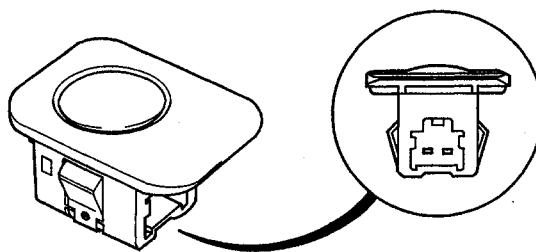




Sunlight Sensor

Measure the voltage between the terminals with the sensor out of direct sunlight.

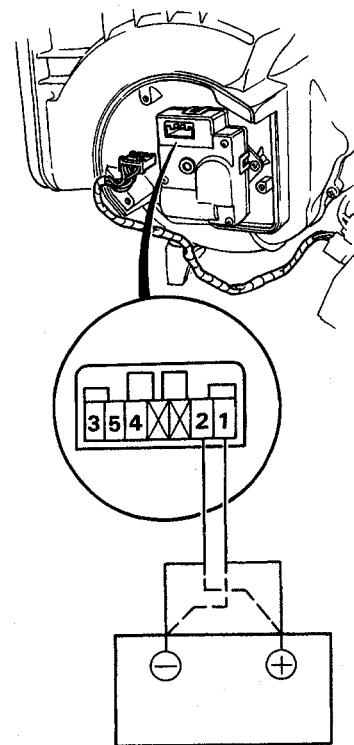
- With the connector connected (probe the back of it):
 1.4 ± 0.2 V
- With the connector disconnected: 0.1 ~ 0.2 V



Recirculation Control Motor

- Connect battery power to No. 1 terminal of the recirculation control motor, and connect to the No. 2 terminal to ground.

The motor should run. If it doesn't, reverse the connections; the motor should then run.



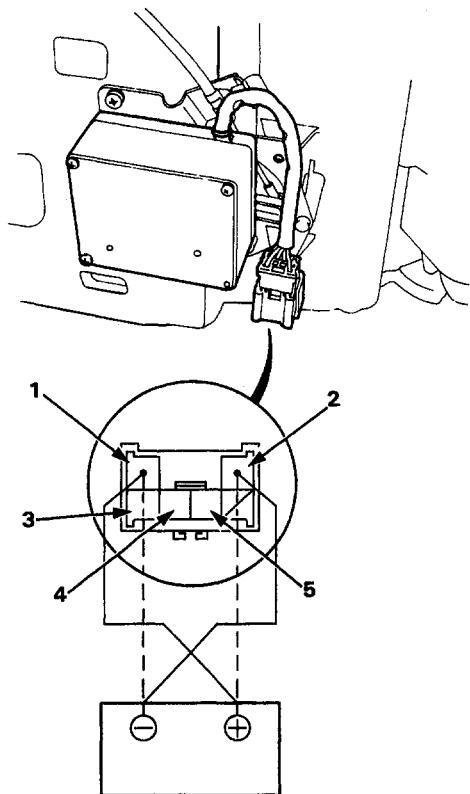
- Check for continuity between the terminals of the recirculation control motor according to this table.

Terminal Position	3	4	5
	<input type="radio"/>	<input type="radio"/>	
	<input type="radio"/>		<input type="radio"/>

Component Tests

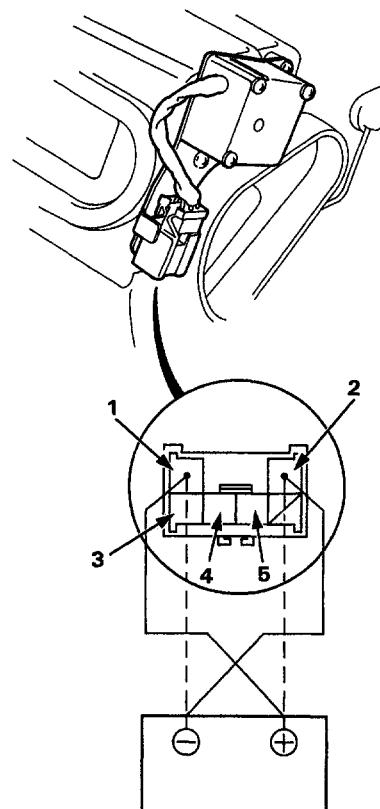
Air Mix Control Motor

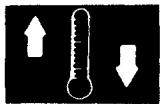
- Connect battery power to the No. 1 terminal of the air mix control motor, and connect to the No. 2 terminal to ground; the air mix control motor should run, and stop at HOT.
If it doesn't, reverse the connections; then the motor should run, and stop at COLD.
- Apply 5 V between the No. 3 terminal and the No. 5 terminal, then measure the voltage between the No. 3 terminal and the No. 4 terminal. The reading should be;
 4.7 ± 0.7 V at HOT position.
 0.3 ± 0.7 V at COLD position.



Vent Door Control Motor

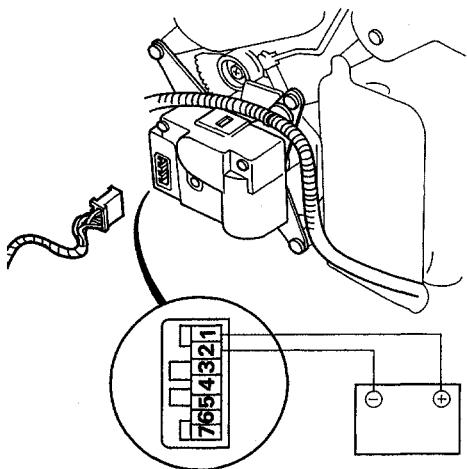
1. Connect battery power to the No. 1 terminal of the vent door control motor, and connect to the No. 2 terminal to ground; the vent door control motor should run, and stop at CLOSE.
If it doesn't, reverse the connections; then the motor should run, and stop at OPEN.
2. Apply 5 V between the No. 3 terminal and the No. 5 terminal, then measure the voltage between the No. 4 and the No. 5 terminals.
The reading should be;
 4.7 ± 0.7 V at OPEN position.
 0.3 ± 0.7 V at CLOSE position.



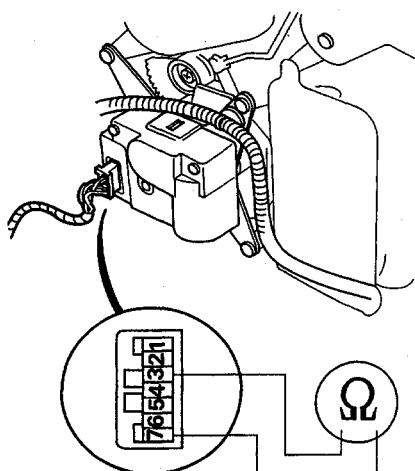


Mode Control Motor

1. Connect battery power to the No. 1 terminal of the mode control motor, and connect to the No. 2 terminal to ground. The motor should run, and stop at VENT.
If it doesn't reverse the connectinos; the motor should run, and stop at DEF.



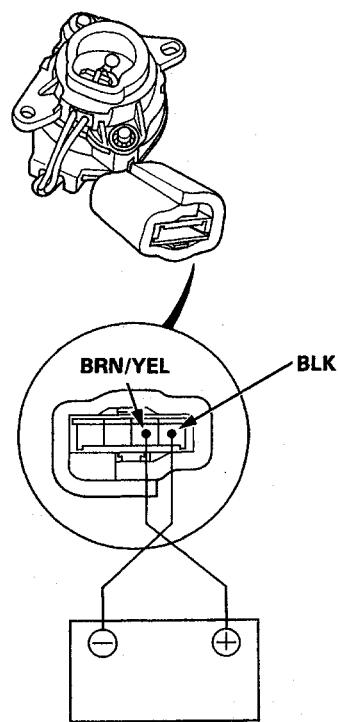
2. Plug the connector back in to the motor. Then operate the MODE switch on the control panel, and in each mode probe the back of the connector to check for continuity between terminals according to the table.



Terminal LED symbol	3	4	5	6	7
↔↔	○				○
↔↔	○		○		
↔↔	○		○		
↔↔↔	○	○			
↔↔↔↔	○	○	○	○	○

Aspirator Fan

Connect battery power to the BRN/YEL terminal of the connector, and connect the BLK terminal to ground. The fan should run.

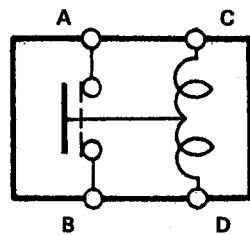
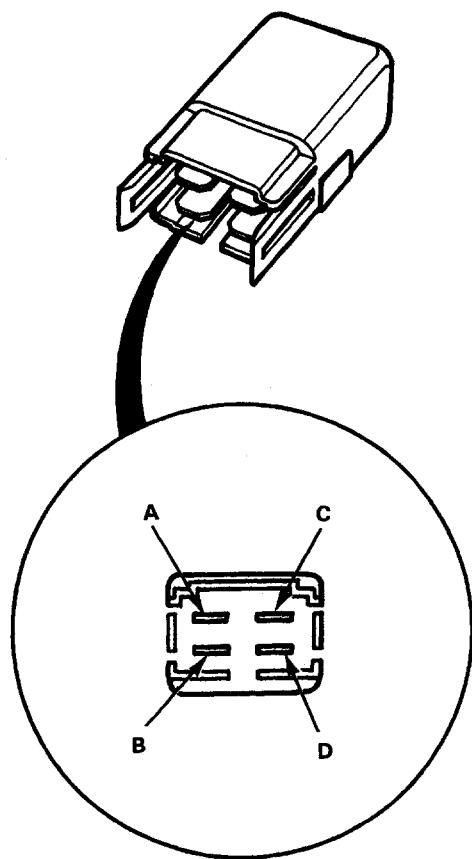


Component Tests

Relay

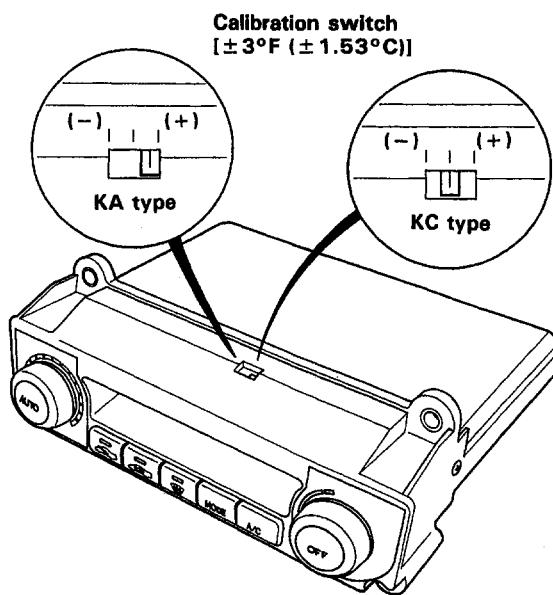
There should be continuity between the A and B terminals when the battery is connected to the C and D terminals.

There should be no continuity when the battery is disconnected.



Control Unit Adjustment

The calibration switch can raise or lower the set temperature by $\pm 3^{\circ}\text{F}$ ($\pm 1.53^{\circ}\text{C}$) in relation to the digitally displayed temperature.



A/C System Service



Discharge

WARNING

- Keep away from open flames. The refrigerant, although nonflammable, will produce a poisonous gas if burned.
- Work in a well-ventilated area. Refrigerant evaporates quickly, and can force all the air out of a small enclosed area.

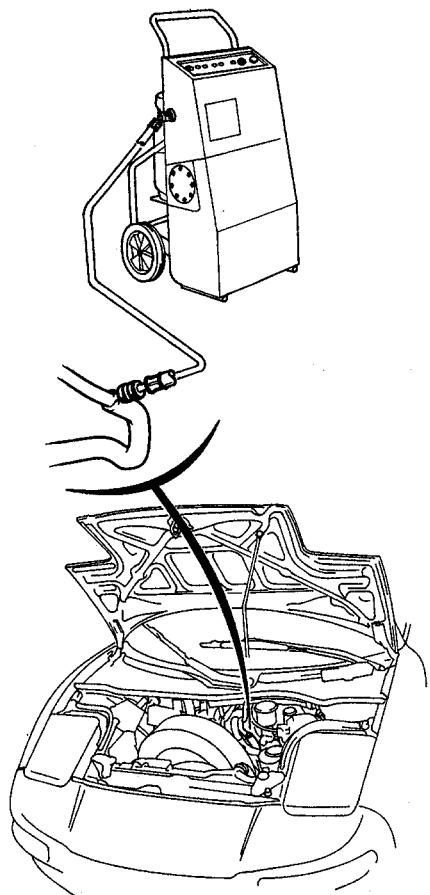
1. Connect a Refrigerant Recovery System to the A/C system.

2. Operate the Refrigerant Recovery System according to the manufacturer's instructions.

IMPORTANT: Do not vent refrigerant to the atmosphere. The chlorofluorocarbons (CFCs) used in conventional refrigerant (R-12) may damage the earth's ozone layer.

Always use UL-listed, refrigerant recovery/recycling equipment to extract the refrigerant before you open an A/C system to make repairs. Follow the equipment manufacturer's instructions.

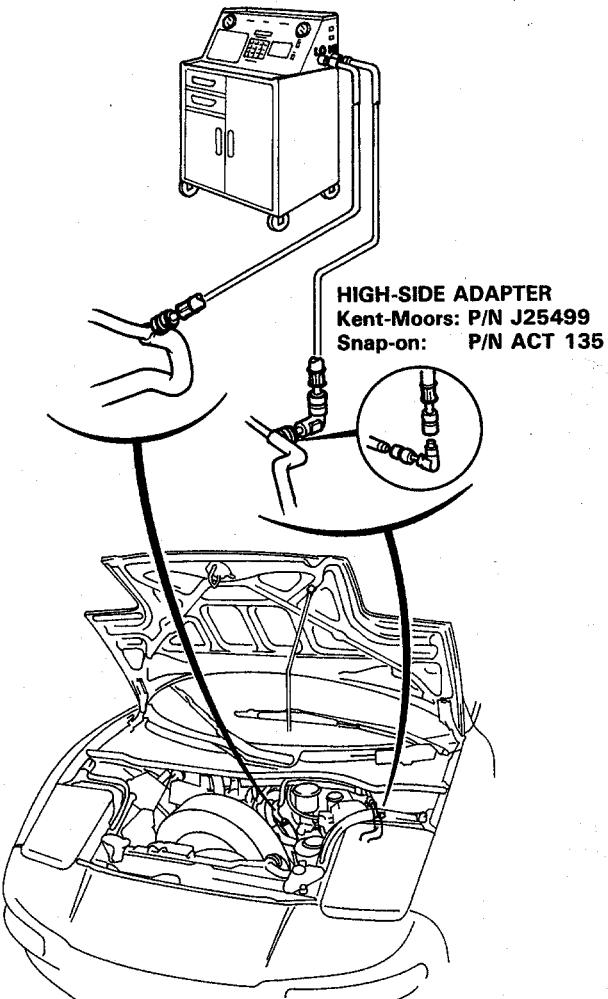
Refrigerant Recovery/Recycling System.



Evacuation

1. When an A/C System has been opened to the atmosphere, such as during installation or repair, it must be evacuated using a vacuum pump. (If the system has been open for several days, the receiver/dryer should be replaced).
2. Attach an Air Conditioning Service Station as shown. Follow the equipment manufacturer's instructions.

NOTE: If low pressure does not reach more than 700 mm hg (27 in-Hg) in 15 minutes, there is probably a leak in the system. Partially charge the system and check for leaks (see Leak Test).



A/C System Service

Leak Test

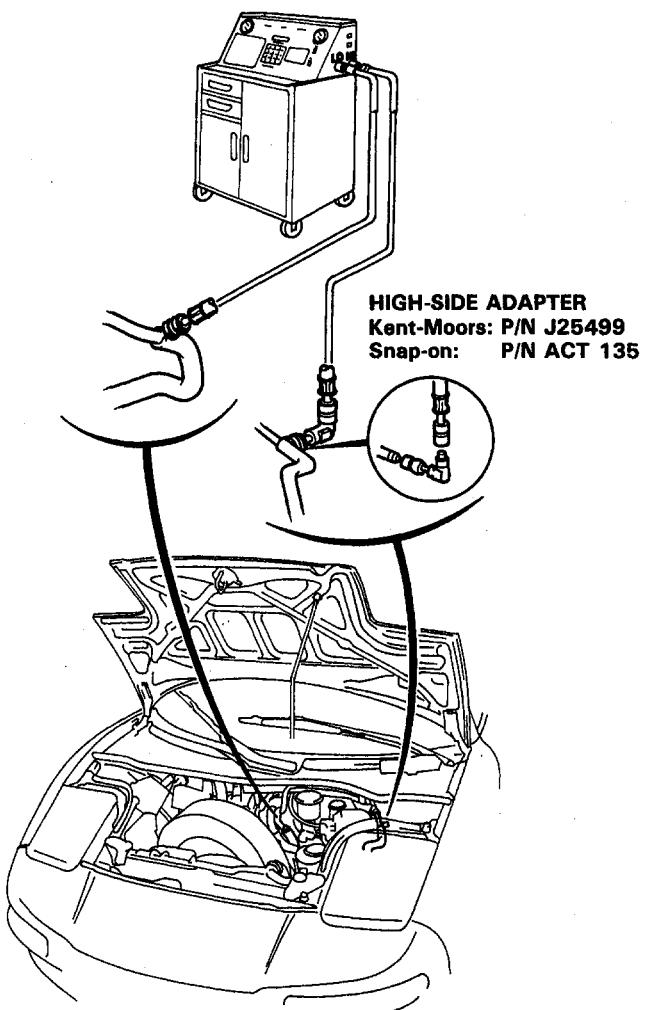
WARNING When handling refrigerant (R-12):

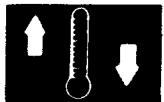
- Always wear eye protection.
- Do not let refrigerant get on your skin or in your eyes.
If it does:
 - Do not rub your eyes or skin.
 - Splash large quantities of cool water in your eyes or on your skin.
 - Rush to a physician or hospital for immediate treatment. Do not attempt to treat it yourself.
- Keep away from open flame. Refrigerant, although non-flammable, will produce poisonous gas if burned.
- Work in well-ventilated area. Refrigerant evaporates quickly, and can force all the air out of a small, enclosed area.

IMPORTANT: Do not vent refrigerant to the atmosphere. The chlorofluorocarbons (CFCs) used in conventional refrigerant (R-12) may damage the earth's ozone layer. Always use UL listed, refrigerant recovery/recycling equipment to extract the refrigerant before you open an A/C system to make repairs.

Follow the equipment manufacturer's instructions.

1. Attach an Air Conditioning Service Station as shown.
2. Open high pressure valve to charge the system to about 100 kPa (14 psi), then close the supply valve.
3. Check the system for leaks using a leak detector.
4. If you find leaks that require the system to be opened (to repair or replace hoses, fittings, etc.), discharge the system according to the Discharge Procedure on page 22-93.
5. After checking and repairing leaks, the system must be evacuated (see System Evacuation on page 22-93).





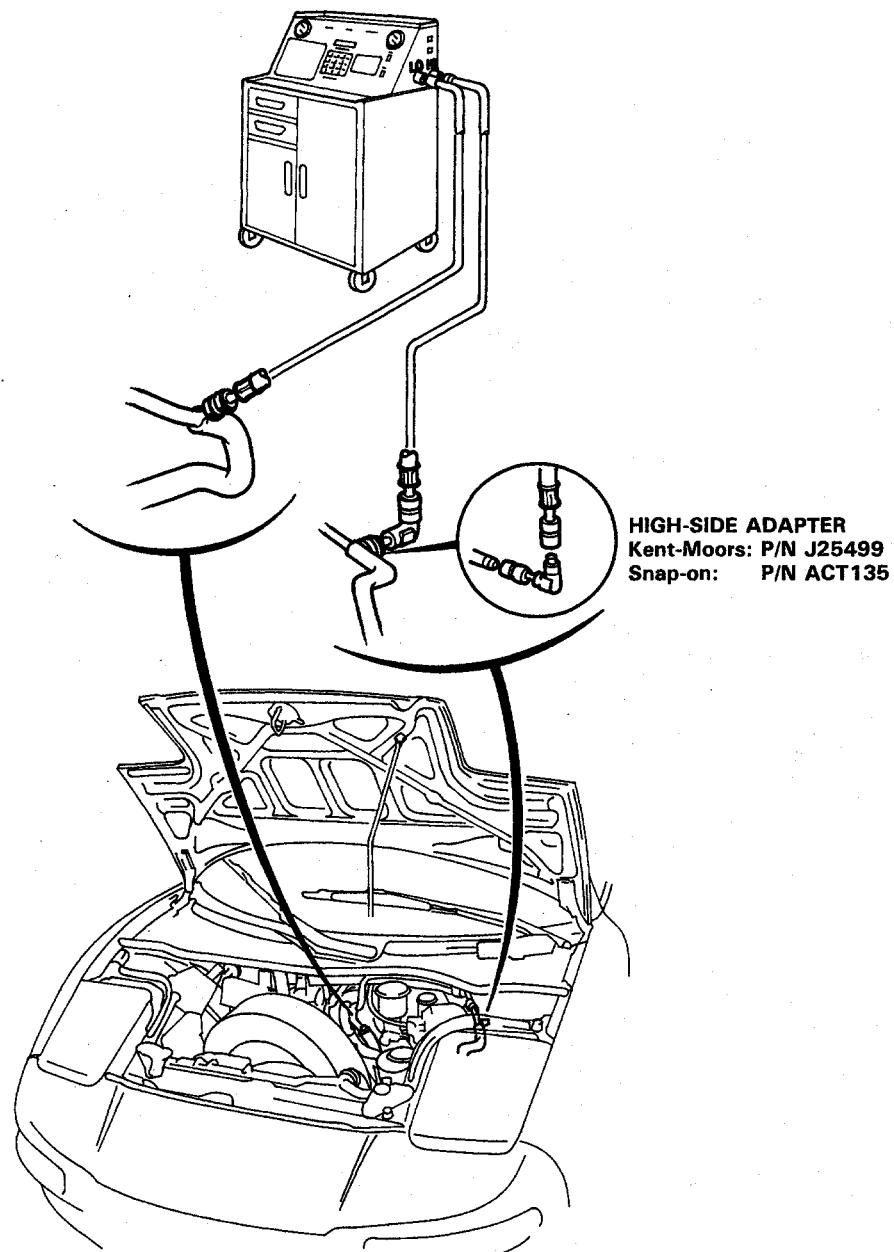
Charging Procedures

Refrigerant capacity: 900–950 g (32–34 oz)

WARNING Always wear eye protection when charging the system.

CAUTION: Do not overcharge the system; the compressor will be damaged.

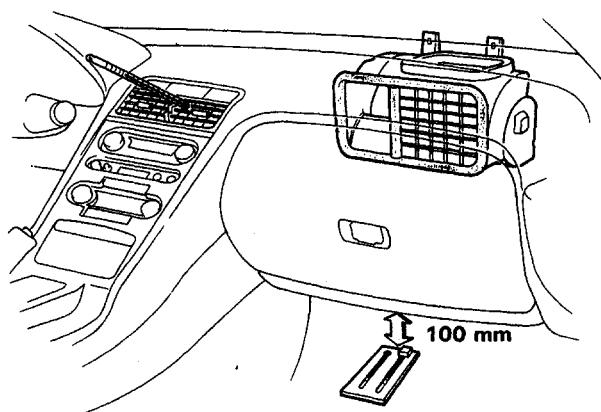
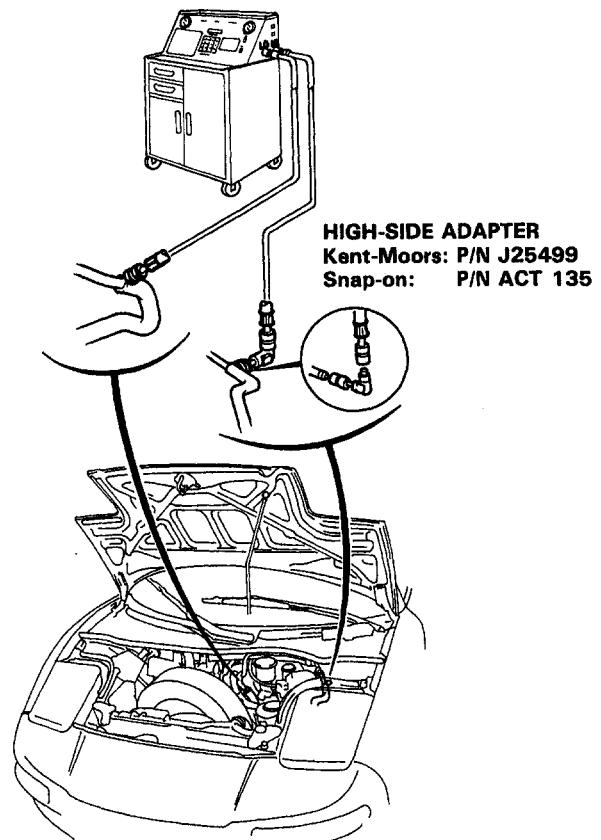
Attach an Air Conditioning Service Station as shown. Follow the equipment manufacturer's instructions.



Performance Test

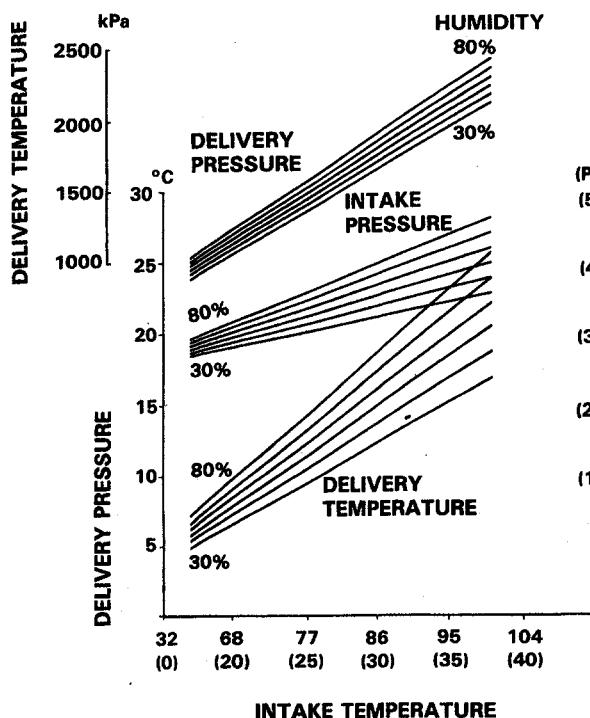
The performance test will help determine if the air conditioning system is operating within specifications.

1. Connect the hoses as shown.
2. Insert a thermometer in the vent outlet. Determine the relative humidity and air temperature by calling the local weather information line.
3. Test conditions:
 - Avoid direct sunlight.
 - Open engine cover.
 - Open front doors.
 - Set the temperature control dial to max cold and push the VENT and fresh air buttons.
 - Turn the fan switch to MAX.
 - Run the engine at 1,500 RPM.
 - No driver or passengers in vehicle.
4. After running the air conditioning for 10 minutes under the above conditions, read the delivery temperature from the thermometer in the dash vent and the high and low system pressure from the A/C gauges.
5. To complete the charts:
 - Mark the delivery temperature along the vertical line.
 - Mark the intake temperature (air temperature) along the bottom line.
 - Draw a line straight up from the air temperature to the humidity.
 - Mark a point one line above and one line below the humidity level. (10% above and 10% below the humidity level)
 - From each point, draw a horizontal line across to the delivery temperature.
 - The delivery temperature should fall between the two lines.
 - Complete the low side pressure test and high side pressure test in the same way.

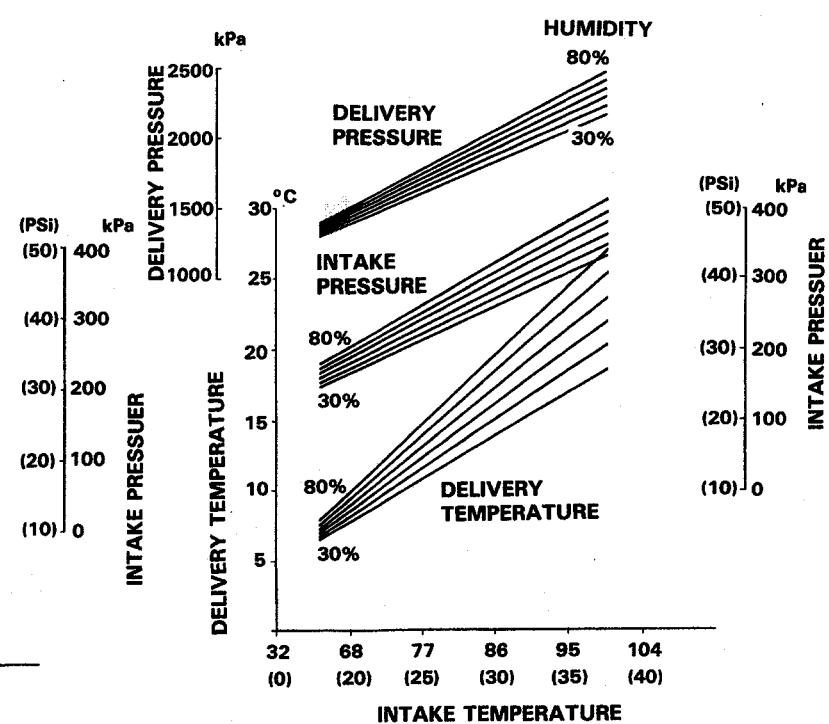




(Without fog lamp)



(With fog lamp)



Pressure Test

NOTE: Performance Test on page 22-96.

TEST RESULTS	RELATED SYMPTOMS	PROBABLE CAUSE	REMEDY
Discharge (high) pressure abnormally high	After stopping compressor, pressure drops to about 196 kPa (28 psi) quickly, and then falls gradually	Air in system	Evacuate system; then recharge Evacuation: page 22-93 Recharging: page 22-95
	No bubbles in sight glass when condenser is cooled by water	Excessive refrigerant in system	Discharge refrigerant as necessary
	Reduced or no air flow through condenser.	<ul style="list-style-type: none"> Clogged condenser or radiator fins Condenser or radiator fan not working properly 	<ul style="list-style-type: none"> Clean Check voltage and fan rpm
	Line to condenser is excessively hot	Restricted flow of refrigerant in system	Expansion valve
Discharge pressure abnormally low	Excessive bubbles in sight glass; condenser is not hot	Insufficient refrigerant in system	<ul style="list-style-type: none"> Check for leak Charge system
	High and low pressures are balanced soon after stopping compressor	<ul style="list-style-type: none"> Faulty compressor discharge or inlet valve Faulty compressor seal 	Replace compressor
	Outlet of expansion valve is not frosted, low pressure gauge indicates vacuum	Faulty expansion valve	Replace
Suction (low) pressure abnormally low	Excessive bubbles in sight glass; condenser is not hot	Insufficient refrigerant	Check for leaks. Charge as required.
	Expansion valve is not frosted and low pressure line is not cold. Low pressure gauge indicates vacuum	<ul style="list-style-type: none"> Frozen expansion valve Faulty expansion valve 	Replace expansion valve
	Discharge temperature is low and the air flow from vents is restricted	Frozen evaporator	Run the fan with compressor off then check capillary tube.
	Expansion valve frosted	Clogged expansion valve	Clean or Replace
	Receiver dryer is cool (should be warm during operation)	Clogged receiver dryer	Replace
Suction pressure abnormally high	Low pressure hose and check joint are cooler than around evaporator	<ul style="list-style-type: none"> Expansion valve open too long Loose expansion valve 	Repair or Replace.
	Suction pressure is lowered when condenser is cooled by water	Excessive refrigerant in system	Discharge refrigerant as necessary
	High and low pressure are equalized as soon as the compressor is stopped	<ul style="list-style-type: none"> Faulty gasket Faulty high pressure valve Foreign particle stuck in high pressure valve 	Replace compressor
Suction and discharge pressures abnormally high	Reduced air flow through condenser	<ul style="list-style-type: none"> Clogged condenser or radiator fins Condenser or radiator fan not working properly 	<ul style="list-style-type: none"> Clean condenser and radiator Check voltage and fan rpm
	No bubbles in sight glass when condenser is cooled by water	Excessive refrigerant in system	Discharge refrigerant as necessary.
Suction and discharge pressure abnormally low	Low pressure hose and metal end areas are cooler than evaporator	Clogged or kinked low pressure hose parts	Repair or Replace
	Temperature around expansion valve is too low compared with that around receiver-dryer	Clogged high pressure line	Repair or Replace
Refrigerant leaks	Compressor clutch is dirty	Compressor shaft seal leaking	Replace compressor
	Compressor bolt(s) are dirty	Leaking around bolt(s)	Tighten bolt(s) or replace compressor
	Compressor gasket is wet with oil	Gasket leaking	Replace compressor