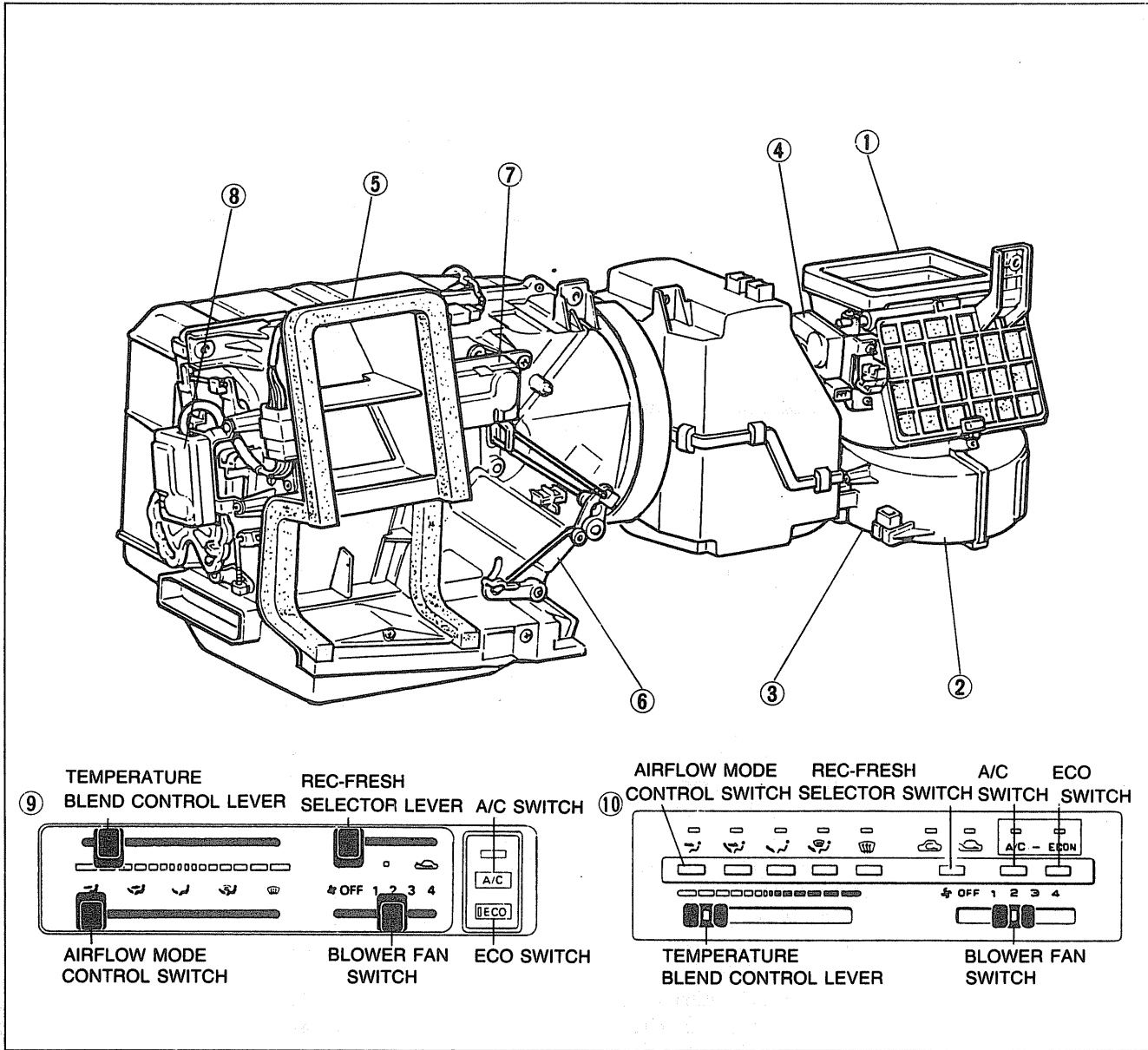


HEATER AND AIR CONDITIONER SYSTEMS

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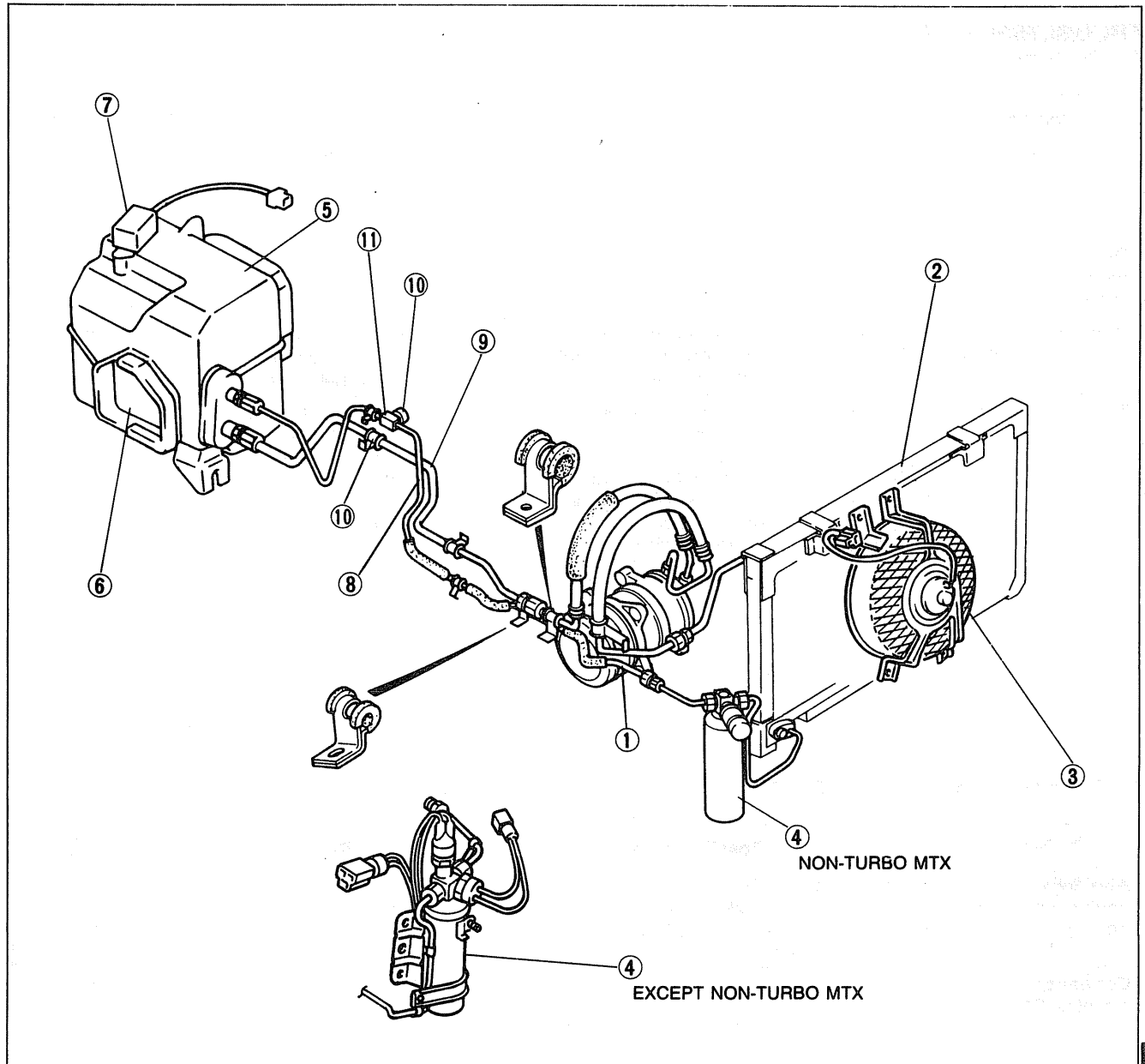
AIR DISTRIBUTION SYSTEM



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REFRIGERATION SYSTEM



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TROUBLESHOOTING

TROUBLESHOOTING GUIDE

Air Distribution System

Problem	Possible cause	Remedy	Reference page
Insufficient air	<ul style="list-style-type: none"> Obstruction in inlet of blower unit Clogged evaporator Air leakage 	Remove obstruction Clean evaporator Check for leakage at both sides of cooling unit	— U-57 —
Outlet air mode cannot be changed	<ul style="list-style-type: none"> Mode control wire is loose (wire control) Open or loose connection (logic control) 	Readjust wires Repair or reconnect	U-30 U-24
Temperature control cannot be done	<ul style="list-style-type: none"> Temperature control wire is loose (wire control) Open or loose connection (logic control) Trouble in refrigeration system 	Readjust wires Repair or reconnect Refer to below items	U-30 U-24 —
Blower does not operate	<ul style="list-style-type: none"> Open or loose connection in circuit Main fuse (40 A) is burned out Defective blower motor relay or IG relay Defective blower switch in switch panel Open circuit in blower motor Open circuit in resistor assembly 	Repair or reconnect Check if short circuit is made, then replace fuse Replace Replace Replace Replace	U-10

06U0UX-004

Additional Condenser Fan Control

Problem	Possible cause	Remedy	Reference page
Additional cooling fan does not run	<ul style="list-style-type: none"> Open or loose connection in system Open circuit in condenser fan motor Defective condenser fan relays Defective water thermostat 	Repair Replace Replace Replace	U-16
Condenser fan remains ON	<ul style="list-style-type: none"> Defective condenser fan relay 	Replace	U-56

06U0UX-005

Refrigeration System

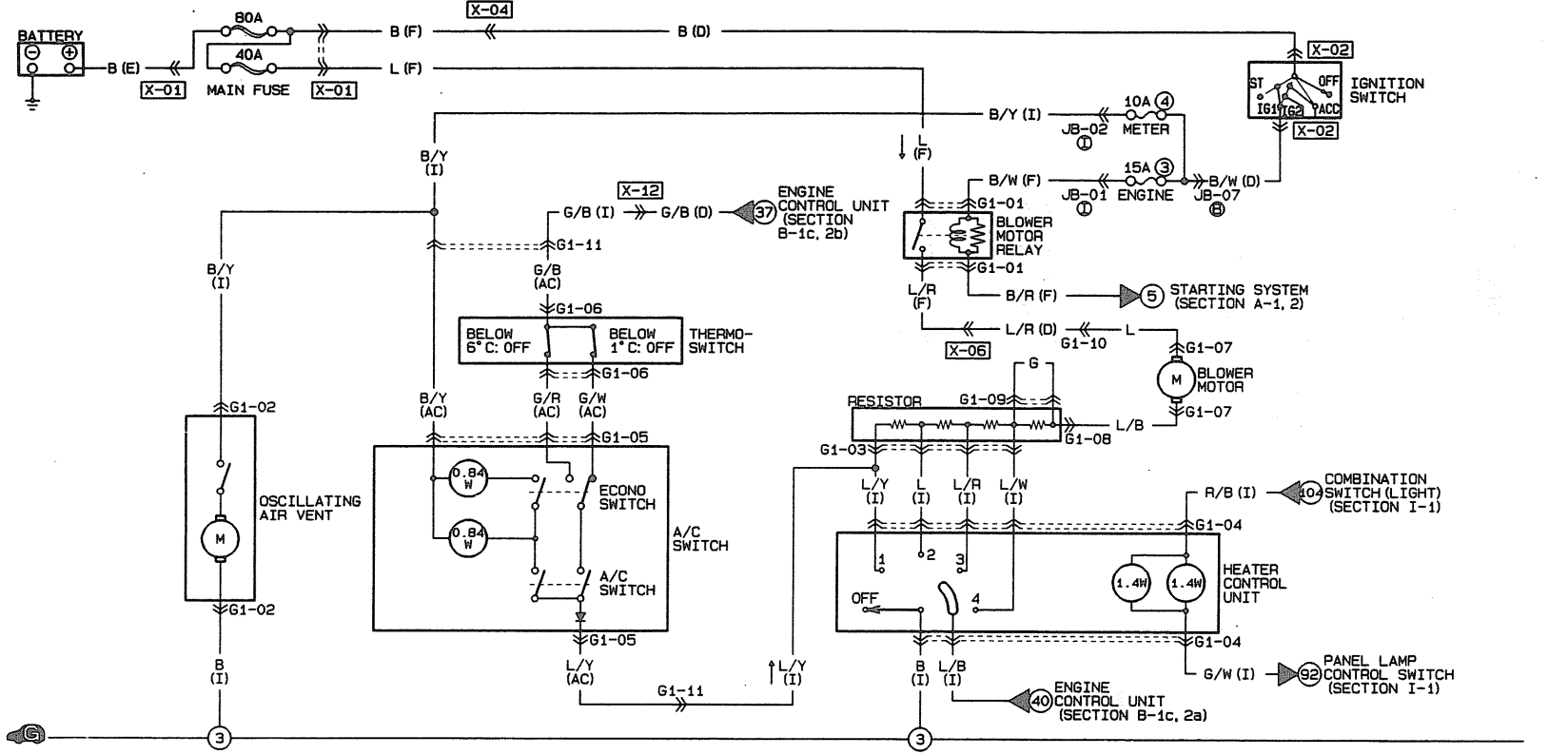
Problem	Possible cause	Remedy	Reference page
Compressor runs inconsistently	<ul style="list-style-type: none"> • Compressor drive belt loose • Clutch face dirty with oil • Excessive gap between the drive plate and pulley 	Readjust Clean or replace clutch Readjust gap	U-54 — U-53
Compressor does not run	<ul style="list-style-type: none"> • Open or loose connection in circuit • Defective A/C relay • Open or short circuit in magnetic clutch • Excessive gap between drive plate and pulley • Defective thermostatic switch • Defective refrigerant pressure switch • Defective engine control devices 	Repair or reconnect Replace Replace Readjust gap Replace Replace Replace	U-13
Insufficient cooling	<ul style="list-style-type: none"> • Internal malfunction of compressor • Faulty contact of sensing bulb of expansion valve • Faulty insulation of sensing bulb of expansion valve • Expansion valve stuck open • Insufficient refrigerant • Receiver-drier clogged • Expansion valve clogged • Frosted piping • Poor cooling of condenser • Defective condenser fan control circuit • Too much refrigerant • Air in the system 	Repair or replace Repair or replace Repair or replace Replace Charge refrigerant Replace Replace Clean or replace Check and clean Refer to above item (Condenser fan does not run) Discharge excess refrigerant Evacuate and charge system	U-18

06U0UX-006

Z WIRING DIAGRAM

WITHOUT LOGICAL MODE CONTROL
HEATER & AIR CONDITIONER

G-1a



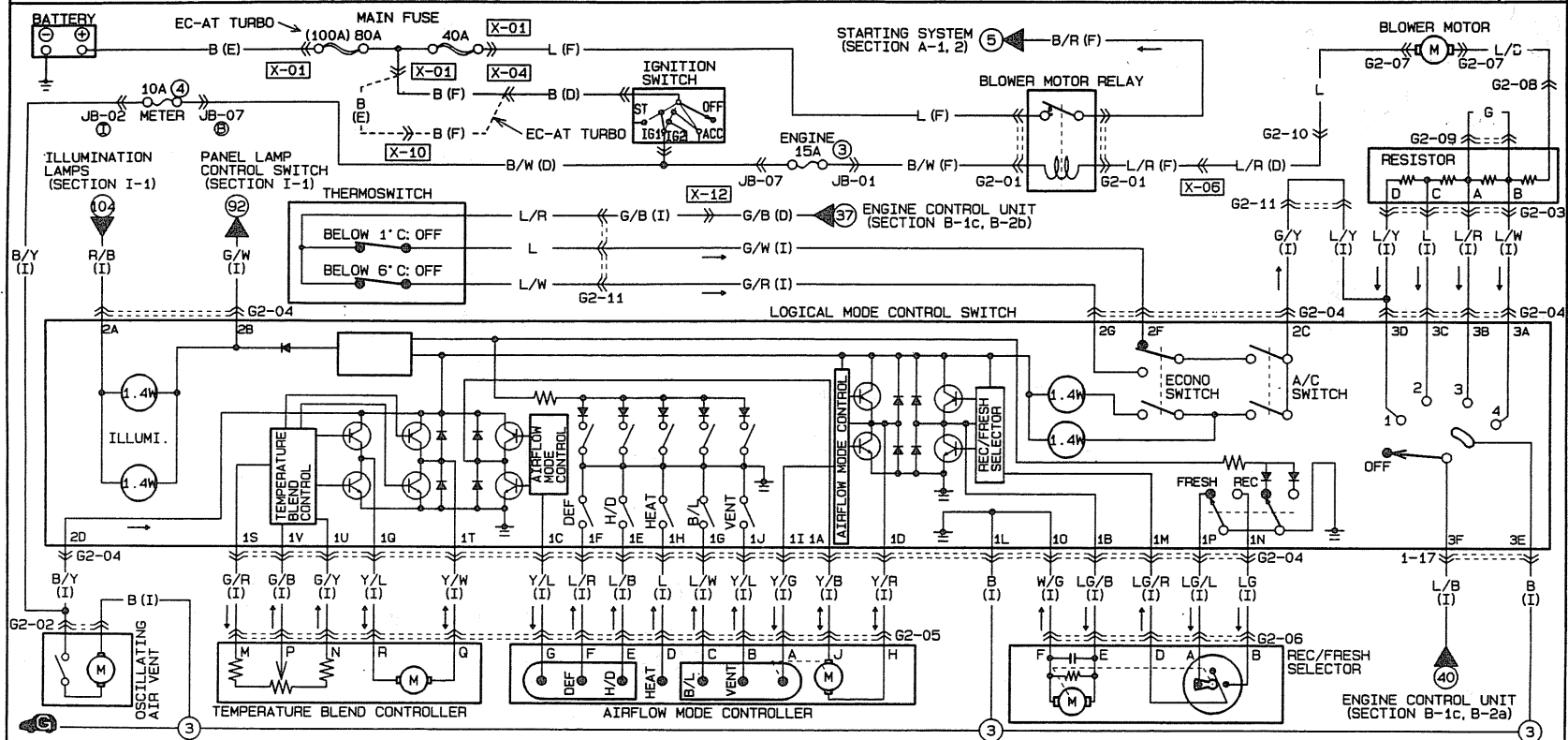
<p>G1-01 BLOWER MOTOR RELAY (F)</p>	<p>G1-02 OSCILLATING AIR VENT (I)</p>	<p>G1-03 RESISTOR (I)</p>	<p>G1-04 HEATER CONTROL UNIT (I)</p>	<p>G1-05 A/C SWITCH (AC)</p>	<p>G1-06 THERMOSWITCH (AC)</p>
<p>G1-07 BLOWER MOTOR</p>	<p>G1-08 RESISTOR</p>	<p>G1-09 RESISTOR</p>	<p>G1-10 CONNECTOR BETWEEN DASH (D) & BLOWER MOTOR</p>	<p>G1-11 CONNECTOR BETWEEN INSTRUMENT PANEL (I) & BLOWER MOTOR</p>	<p>G1-11 CONNECTOR BETWEEN INSTRUMENT PANEL (I) & BLOWER MOTOR</p>

NOTE *... NOT USED
Z-XXX

Z WIRING DIAGRAM

**WITH LOGICAL MODE CONTROL
HEATER & AIR CONDITIONER.**

G-1b

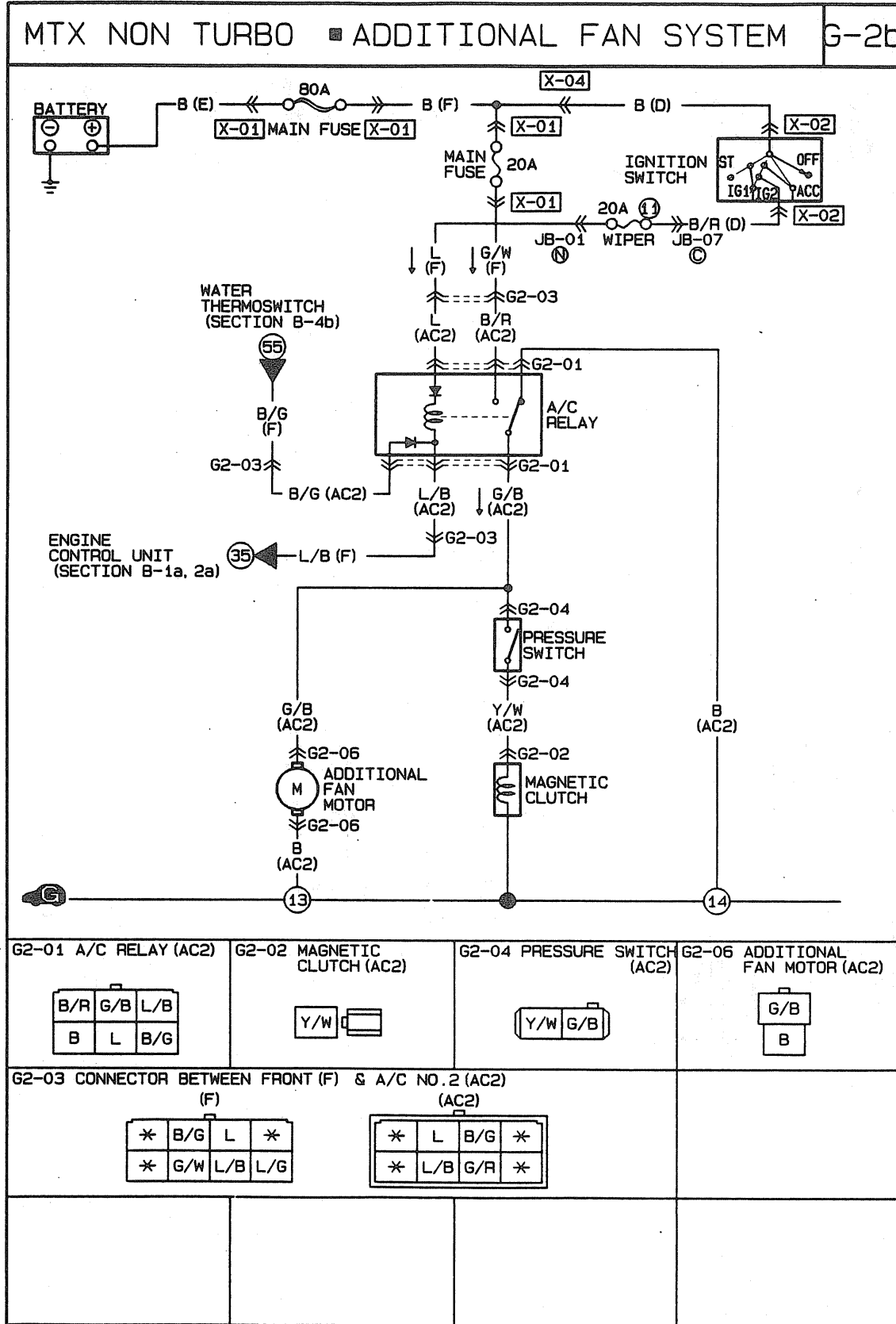


<p>G2-01 BLOWER MOTOR RELAY (F)</p> <table border="1"> <tr><td>L</td><td>B/W</td></tr> <tr><td>L/R</td><td>B/R</td></tr> </table>	L	B/W	L/R	B/R	<p>G2-02 OSCILLATING AIR VENT (I)</p> <table border="1"> <tr><td>B/Y</td></tr> <tr><td>B</td></tr> </table>	B/Y	B	<p>G2-03 RESISTOR (I)</p> <table border="1"> <tr><td>L</td><td>L/R</td></tr> <tr><td>L/Y</td><td>L/W</td></tr> </table>	L	L/R	L/Y	L/W	<p>G2-04 LOGICAL MODE CONTROL SWITCH (I)</p> <table border="1"> <tr> <td>1U</td><td>1S</td><td>1G</td><td>1O</td><td>1M</td> <td>1I</td><td>1G</td><td>1E</td><td>1C</td><td>1A</td> <td>2G</td><td>2C</td><td>2A</td> <td>3E</td><td>3C</td><td>3A</td> </tr> <tr> <td>G/Y</td><td>G/R</td><td>Y/L</td><td>W/G</td><td>LG/R</td> <td>Y/G</td><td>L/W</td><td>L/B</td><td>Y/L</td><td>Y/B</td> <td>G/R</td><td>G/Y</td><td>R/B</td> <td>B</td><td>L</td><td>L/W</td> </tr> <tr> <td>G/B</td><td>Y/W</td><td>*</td><td>LG/L</td><td>LG</td><td>B</td><td>L/Y</td><td>L</td><td>L/R</td><td>Y/R</td><td>LG/B</td> <td>*</td><td>G/W</td><td>B/Y</td><td>G/W</td> <td>L/B</td><td>L/Y</td><td>L/R</td> </tr> <tr> <td>1V</td><td>1T</td><td>1R</td><td>1P</td><td>1N</td><td>1L</td><td>1J</td><td>1H</td><td>1F</td><td>1D</td><td>1B</td> <td>2H</td><td>2F</td><td>2D</td><td>2B</td> <td>3F</td><td>3D</td><td>3B</td> </tr> </table>	1U	1S	1G	1O	1M	1I	1G	1E	1C	1A	2G	2C	2A	3E	3C	3A	G/Y	G/R	Y/L	W/G	LG/R	Y/G	L/W	L/B	Y/L	Y/B	G/R	G/Y	R/B	B	L	L/W	G/B	Y/W	*	LG/L	LG	B	L/Y	L	L/R	Y/R	LG/B	*	G/W	B/Y	G/W	L/B	L/Y	L/R	1V	1T	1R	1P	1N	1L	1J	1H	1F	1D	1B	2H	2F	2D	2B	3F	3D	3B
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<p>G2-05 TEMPERATURE BLEND CONTROLLER & AIRFLOW MODE CONTROLLER (I)</p> <table border="1"> <tr> <td>S</td><td>Q</td><td>O</td><td>M</td> <td>G</td><td>E</td><td>C</td><td>A</td> </tr> <tr> <td>*</td><td>Y/W</td><td>*</td><td>G/R</td> <td>Y/L</td><td>L/B</td><td>L/W</td><td>Y/G</td> </tr> <tr> <td>*</td><td>Y/L</td><td>G/B</td><td>G/Y</td> <td>*</td><td>Y/B</td><td>Y/R</td><td>L/R</td> </tr> <tr> <td>T</td><td>R</td><td>P</td><td>N</td> <td>L</td><td>J</td><td>H</td><td>F</td> </tr> <tr> <td></td><td></td><td></td><td></td> <td>D</td><td>B</td><td></td><td></td> </tr> </table>		S	Q	O	M	G	E	C	A	*	Y/W	*	G/R	Y/L	L/B	L/W	Y/G	*	Y/L	G/B	G/Y	*	Y/B	Y/R	L/R	T	R	P	N	L	J	H	F					D	B			<p>G2-06 REC/FRESH SELECTOR (I)</p> <table border="1"> <tr> <td>E</td><td>A</td> </tr> <tr> <td>LG/B</td><td>LG/L</td> </tr> <tr> <td>W/G</td><td>LG/R</td> </tr> <tr> <td>F</td><td>D</td> </tr> <tr> <td></td><td>B</td> </tr> </table>	E	A	LG/B	LG/L	W/G	LG/R	F	D		B	<p>G2-07 BLOWER MOTOR</p> <table border="1"> <tr><td>L/B</td></tr> <tr><td>L</td></tr> </table>	L/B	L	<p>G2-08 RESISTOR</p> <table border="1"> <tr><td>L/B</td></tr> </table>	L/B	<p>G2-09 RESISTOR</p> <table border="1"> <tr><td>SHORT CONNECTOR</td></tr> </table>	SHORT CONNECTOR																						
S	Q	O	M	G	E	C	A																																																																										
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<p>G2-10 CONNECTOR BETWEEN DASH (D) & BLOWER MOTOR</p> <table border="1"> <tr><td>L/R</td></tr> <tr><td>*</td><td>*</td></tr> </table>	L/R	*	*	<p>G2-11 CONNECTOR BETWEEN INSTRUMENT PANEL (I) & THERMOSWITCH</p> <table border="1"> <tr><td>G/R</td><td>L/Y</td></tr> <tr><td>G/B</td><td>G/W</td></tr> <tr><td>G/Y</td><td>L/W</td></tr> <tr><td>L</td><td>L/R</td></tr> </table>	G/R	L/Y	G/B	G/W	G/Y	L/W	L	L/R																																																																					
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NOTE: *... NOT USED
Z-XXX

CIRCUIT DIAGRAM

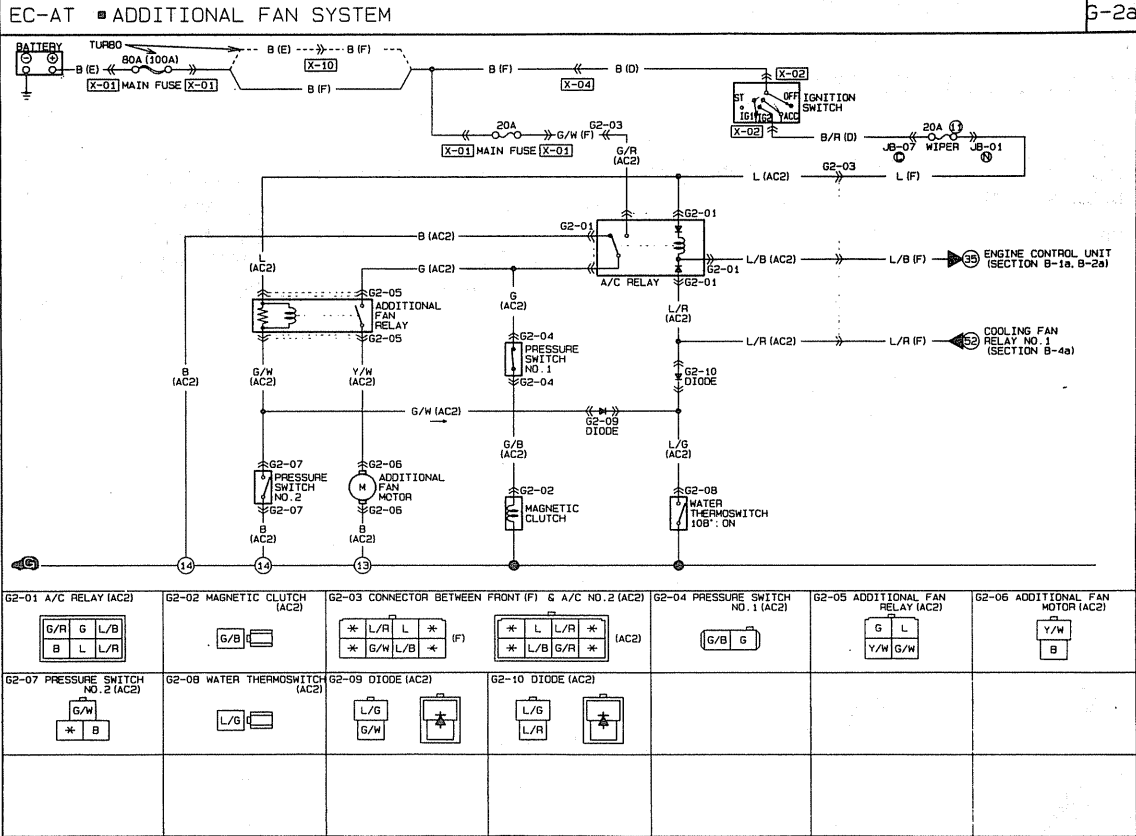
Z WIRING DIAGRAM



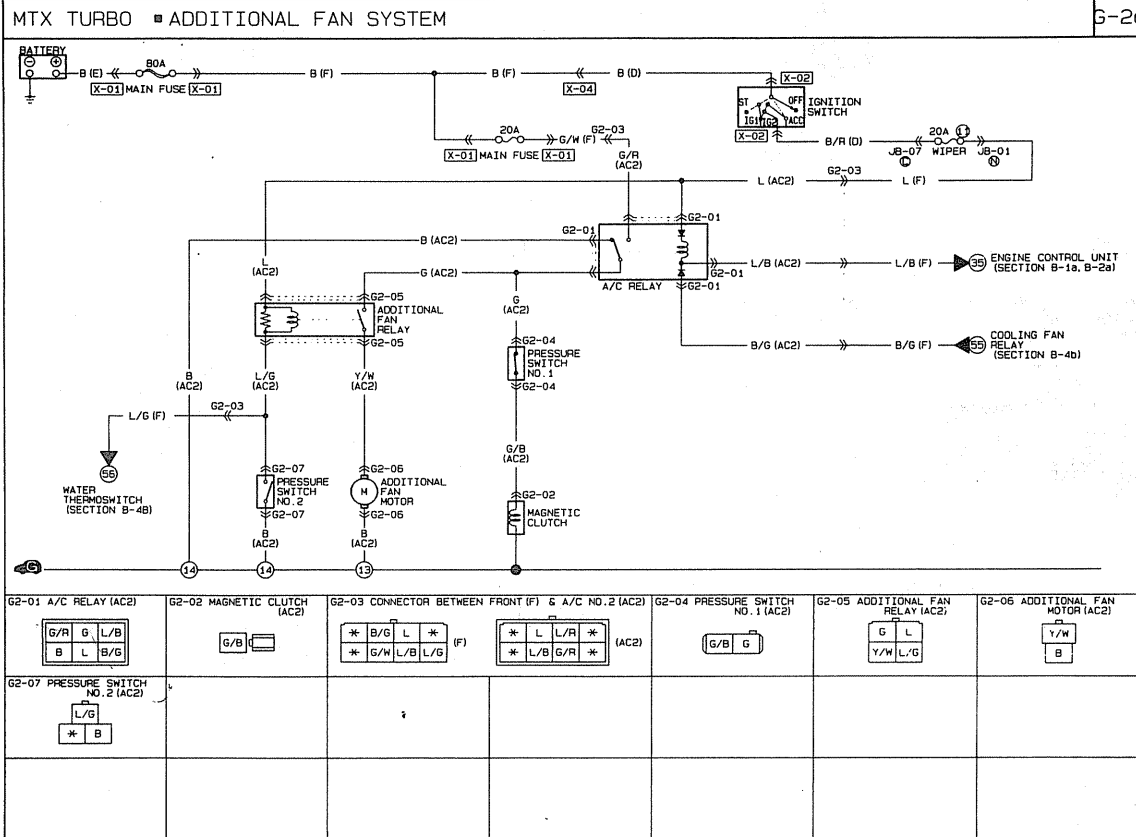
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Z-XXX

CIRCUIT DIAGRAM

Z WIRING DIAGRAM



Z WIRING DIAGRAM



Symptom: Blower Motor Does Not Operate.

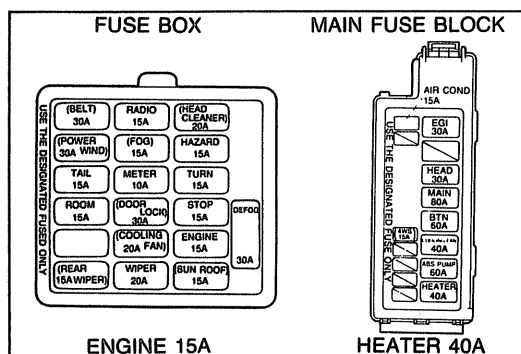
Normal operation of blower motor

Blower motor speed is controlled by the blower switch in the switch panel and by a resistor assembly in the blower unit.

When the blower switch is in the OFF position, the motor ground circuit is open and the blower motor does not operate. When the switch is in the first (Low) position, current flow from the blower motor is restricted by the three resistors in the resistor assembly, and the blower motor turns at low speed.

Changing the blower switch to the second (Mid), third (High), or fourth (Super-high) position causes the circuit resistance to decrease, and the blower motor speed becomes correspondingly faster.

06U0UX-007



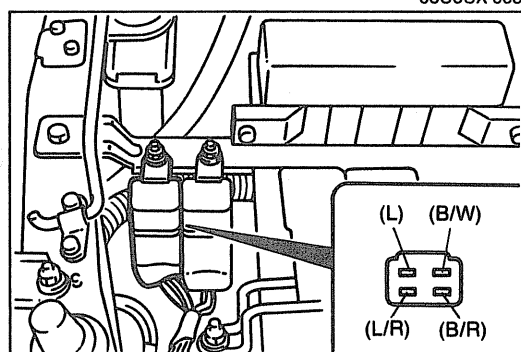
06U0UX-008

Step 1

1. Check the following fuses.

Fuse	Amperage	Location
HEATER	40A	In main fuse block
ENGINE	15A	In fuse box

2. If the fuses are OK, go to Step 2.
3. If a fuse is burned, check for a short circuit in the harness before replacing it.

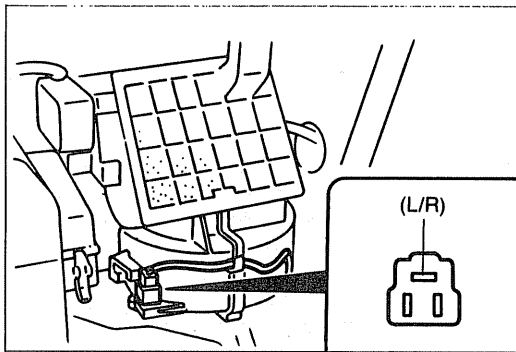


06U0UX-009

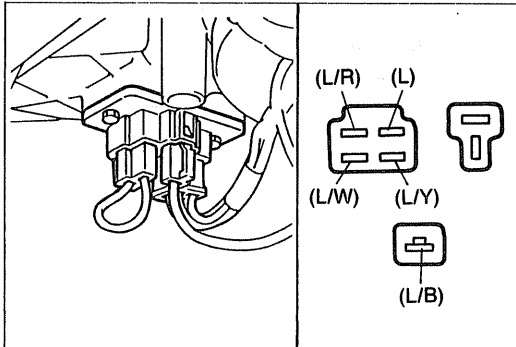
Step 2

1. Turn the ignition switch ON.
2. Measure the voltage at the terminal-wires of the blower motor relay connector.

Wire	Voltage	Action
(L)	0V	Repair wire harness (Fuse box—Blower motor relay)
	12V	Next, check wire (B/W)
(B/W)	0V	Repair wire harness (Main fuse block—Blower motor relay)
	12V	Next, check wire (B/R)
(B/R)	0V	Next, check wire (L/R)
	12V	Repair wire harness (Blower motor relay—Body ground)
(L/R)	0V	Repair blower relay
	12V	Go to Step 3



06U0UX-010



06U0UX-011

Step 3

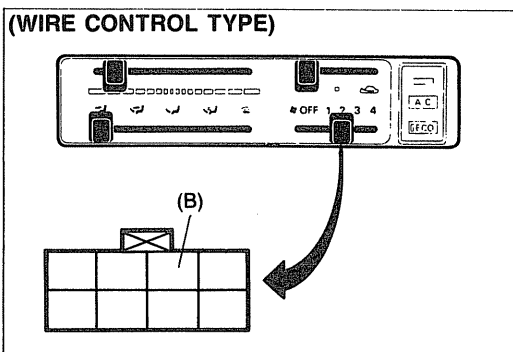
1. Turn the ignition switch ON.
2. Measure the voltage at the terminal-wire of the blower motor connector.

Wire	Voltage	Action
(L/R)	0V	Repair wire harness. (Blower motor relay—Blower motor)
	12V	Go to Step 4

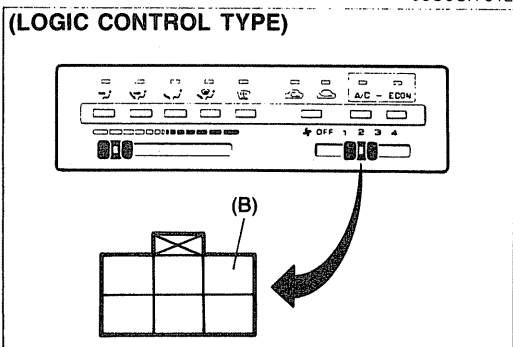
Step 4

1. Turn the ignition switch ON.
2. Measure the voltage at the terminal-wires of the resistor assembly.

Wire	Voltage	Action
(L/B)	12V	Next, check wire (L/Y)
	0V	Replace blower motor
(L/Y)	12V	Next, check wire (L)
	0V	Replace resistor assembly
(L)	12V	Next, check wire (L/R)
	0V	Replace resistor assembly
(L/R)	12V	Next, check wire (L/W)
	0V	Replace resistor assembly
(L/W)	12V	Go to Step 5
	0V	Replace resistor assembly



06U0UX-012

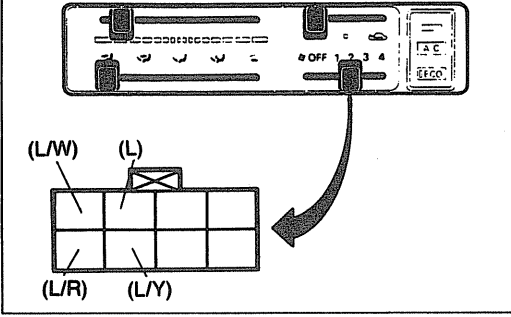


Step 5

1. Turn the ignition switch ON.
2. Turn the blower switch to the fourth position.
3. Measure the voltage at terminal-wire (B) of the blower switch connector.

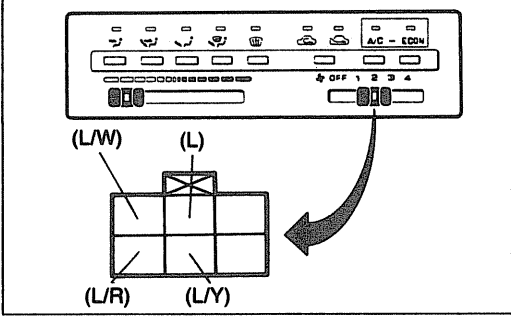
Wire	Voltage	Action
(B)	0V	Go to Step 6
	12V	Repair wire harness (Blower switch—Body ground)

(WIRE CONTROL TYPE)



06U0UX-013

(LOGIC CONTROL TYPE)



Step 6

1. Turn the ignition switch ON.
2. Measure the voltage at the terminal-wires of the blower switch connector.

Wire	Voltage	Action
(L/Y)	0V	Repair wire harness (Resistor assembly—Blower switch)
	12V	Next, check wire (L)
(L)	0V	Repair wire harness (Resistor assembly—Blower switch)
	12V	Next, check wire (L/R)
(L/R)	0V	Repair wire harness (Resistor assembly—Blower switch)
	12V	Next, check wire (L/W)
(L/W)	0V	Repair wire harness (Resistor assembly—Blower switch)
	12V	Replace blower switch

Symptom: Magnetic Clutch Does Not Operate.

Note

- If the blower fan motor also does not operate, see “Blower motor does not operate”; page U-10.

Normal operation of magnetic clutch

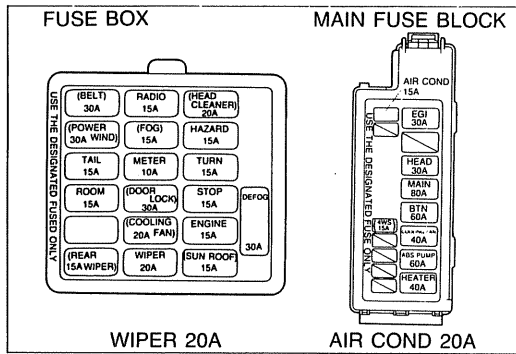
The magnetic clutch is supplied with battery voltage as shown:

1. A/C and blower switches are turned ON.
2. ECU receives signal that A/C and blower switches are ON and creates ground circuit.
3. A/C relay is magnetized and contact is closed.
4. Battery voltage is applied to magnetic clutch and clutch locks.

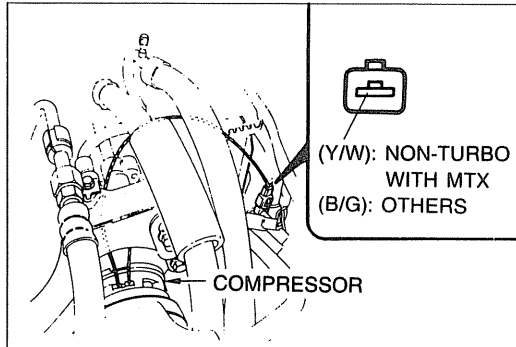
Note

- The ECU also controls the additional fan and magnetic clutch operation depending on engine load. (Refer to Section F.)

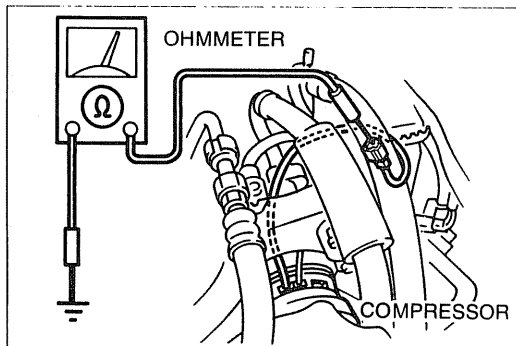
06U0UX-014



06U0UX-015



06U0UX-016



06U0UX-017

Step 1

1. Check the following fuses.

Fuse	Amperage	Location
WIPER	20A	In fuse box
AIR COND	20A	In main fuse block

2. If the fuses are OK, go to Step 2.
3. If a fuse is burned, check for a short circuit in the harness before replacing it.

Step 2

1. Run the engine at idle.
2. Turn the A/C switch and blower switch ON.
3. Measure the voltage at terminal-wire of the magnetic clutch connector.

Model	Wire	Voltage	Action
Non-Turbo with MTX	(Y/W)	12V	Go to Step 3
		0V	Go to Step 4
Others	(B/G)	12V	Go to Step 3
		0V	Go to Step 4

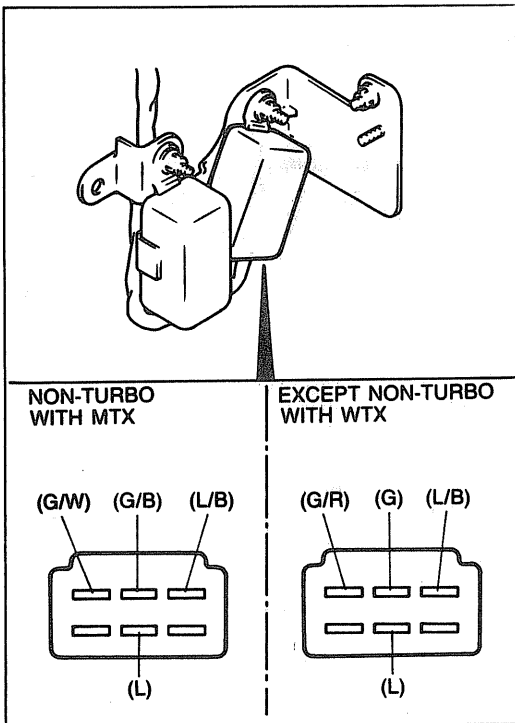
Step 3

1. Disconnect the magnetic clutch connector.
2. Check for continuity between the magnetic clutch connector and a body ground.

Note

- Set the ohmmeter to x1,000 range.

3. If there is no continuity, replace the magnetic clutch.
4. If there is continuity, adjust the magnetic clutch clearance or check the compressor for internal trouble.



16U0UX-001

Step 4

1. Start the engine.
2. Turn the A/C switch and blower switch ON.
3. Measure the voltage at the following terminal-wires of the A/C relay connector.

(Non-Turbo with MTX)

Wire	Voltage	Action
(G/B)	12V	Go to Step 5
	0V	Next, check wire (G/W)
(B/R)	12V	Next, check wire (L)
	0V	Repair wire (B/R) (AIR COND 20A fuse—A/C relay)
(L)	12V	Next, check wire (L/B)
	0V	Repair wire (L) (WIPER 20A fuse—A/C relay)
(L/B)	12V	Check ECU terminal voltage
	0V	Replace A/C relay

(Except Non-Turbo with MTX)

Wire	Voltage	Action
(G)	12V	Go to Step 5
	0V	Next, check wire (G/R)
(G/R)	12V	Next, check wire (L)
	0V	Repair wire (G/R) (AIR COND 20A fuse—A/C relay)
(L)	12V	Next, Check wire (L/B)
	0V	Repair wire (L) (WIPER 20A fuse—A/C relay)
(L/B)	12V	Check ECU terminal voltage
	0V	Replace A/C relay

Step 5

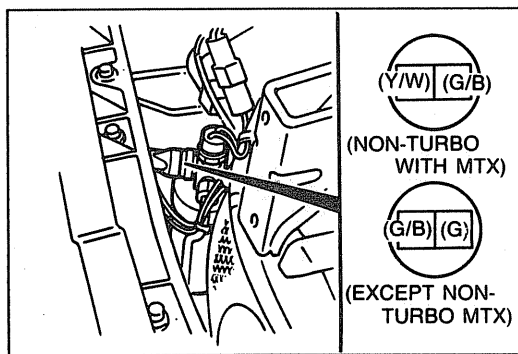
1. Measure the voltage at the following terminal-wires of the refrigerant pressure switch No.1 connector.

(Non-Turbo with MTX)

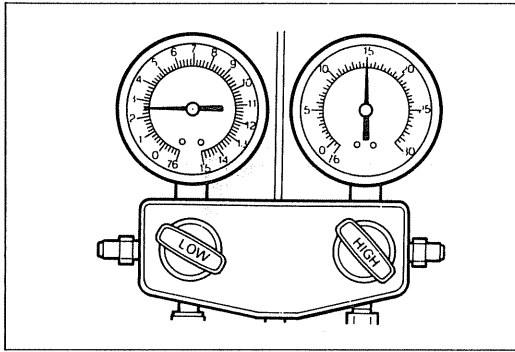
Wire	Voltage	Action
(G/B)	12V	Next, check wire (Y/W)
	0V	Repair wire (G/B) (A/C relay—Refrigerant pressure switch No.1)
(Y/W)	12V	Repair wire (Y/W) (Refrigerant pressure switch—Magnet clutch No.1)
	0V	Go to Step 6

(Except Non-Turbo with MTX)

Wire	Voltage	Action
(G)	12V	Next, check wire (G/B)
	0V	Repair wire (G) (A/C relay—Refrigerant pressure switch No.1)
(G/B)	12V	Repair wire (G/B) (Refrigerant pressure switch No.1—Magnet clutch)
	0V	Go to Step 6



06U0UX-019



06U0UX-020

Step 6

1. Measure the refrigerant pressure. (Refer to page U-37)

Normal pressure

Low-pressure side: 196—294 kPa

(2.0—3.0 kg/cm², 28—43 psi)

High-pressure side: 1,373—1,570 kPa

(14.0—16.0 kg/cm², 199—228 psi)

2. If not as specified, check the refrigerant system by referring to the troubleshooting information on page U-18.
3. If correct, replace the refrigerant pressure switch.

Symptom: Additional (Condenser) Fan Does Not Operate.

Note

- If the magnetic clutch also does not operate, see “Magnetic clutch does not operate”; page U-13

Normal Operation of Additional Fan

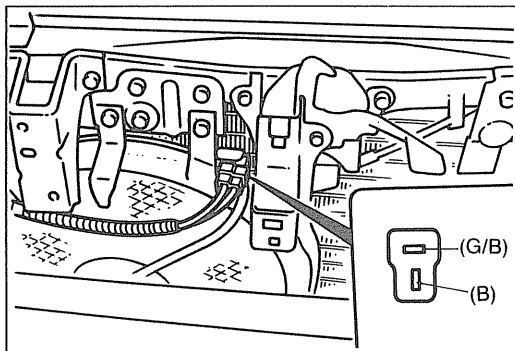
The additional fan is supplied with battery voltage as shown:

1. A/C and blower switches are turned ON.
2. ECU receives signal that A/C and blower switches are ON and creates ground circuit.
3. A/C relay is magnetized and contact is closed.
4. Additional fan relay is magnetized and contact is closed. (except Non-Turbo with MTX)
5. Battery voltage is applied to additional fan and fan operates.

Note

- The ECU also controls the additional fan and magnetic clutch operation depending on engine load. (Refer to Section F)

06U0UX-021



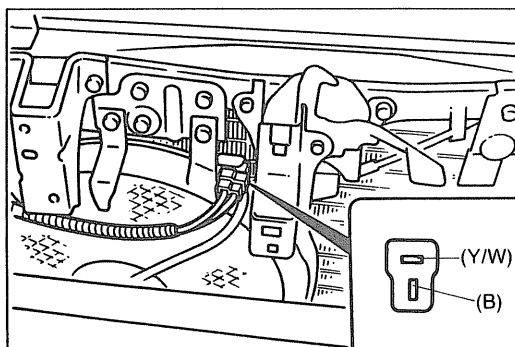
06U0UX-022

(Non-Turbo with MTX)

Remedy

1. Measure the voltage at the terminal-wires of the additional fan connector.

Wire	Voltage	Action
(G/B)	12V	Next, check wire (B)
	0V	Repair wire (G/B) (A/C relay—Additional fan)
(B)	12V	Repair wire (B) (Additional fan—Body ground)
	0V	Replace additional fan



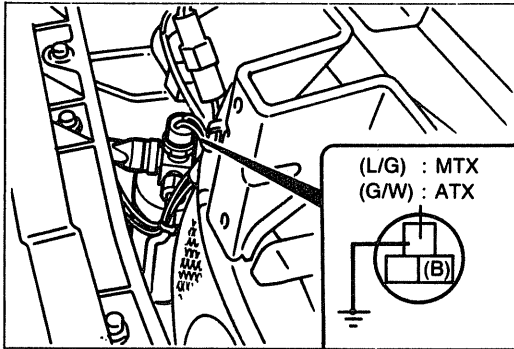
06U0UX-023

(Except Non-Turbo with MTX)

Step 1

1. Turn the ignition switch ON.
2. Turn the A/C switch and blower switch ON.
3. Measure the voltage at the terminal-wires of the additional fan connector.

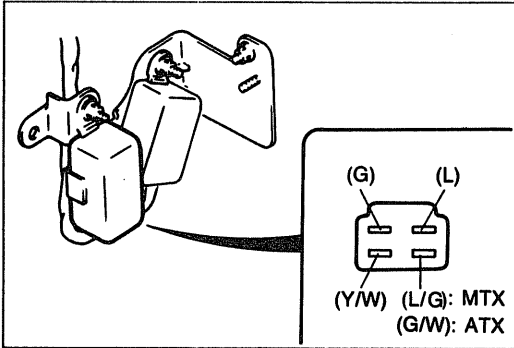
Wire	Voltage	Action
(Y/W)	12V	Next, check wire (B)
	0V	Go to Step 2
(B)	12V	Repair wire (B) (Additional fan—Body ground)
	0V	Replace additional fan



Step 2

1. Turn the ignition switch ON.
2. Turn the A/C switch and blower switch ON.
3. Ground terminal-wire (MTX; L/G, ATX; G/W) at pressure switch No.2.

Additional fan operates	Action
No	Go to step 3
Yes	Check (B) wire of pressure switch No.2 for open circuit to ground



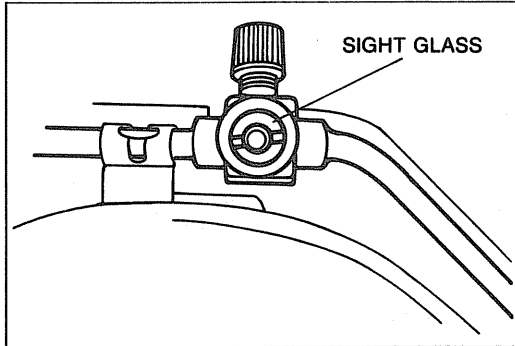
Step 3

1. Turn the ignition switch ON.
2. Turn the A/C switch and blower switch ON.
3. Measure the voltage at the terminal-wire of the additional fan relay connector.

Wire	Voltage	Action
(L)	12V	Next, check wire (L/G or G/W)
	0V	Repair wire (L) (WIPER 20A fuse—Additional fan relay)
(MTX; L/G) (ATX; G/W)	12V	Repair wire (L/G or G/W) (Additional fan relay—pressure switch No.2)
	0V	Next, check wire (G)
(G)	12V	Next, check wire (Y/W)
	0V	Repair wire (G) (A/C relay—Additional fan relay)
(Y/W)	12V	Repair wire (Y/W) (Additional fan relay—Additional fan)
	0V	Replace additional fan relay

**Symptom: Insufficient cooling.
No cooling.
Intermittent cooling.**

06U0UX-026



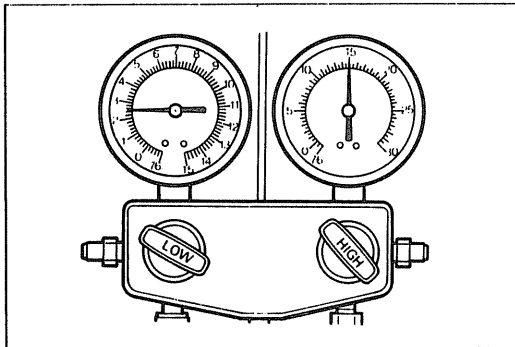
05U0UX-020

Step 1 Checking refrigerant charge

1. Run the engine at a fast idle.
2. Operate the air conditioner at maximum cooling for a few minutes.
3. Observe the sight glass to determine the amount of refrigerant and the related action as shown below.

Item	Symptom	Amount of refrigerant	Action
1	Bubbles present in sight glass	Insufficient refrigerant	Check refrigerant pressure, go to Step 2
2	No bubbles present in sight glass	Too much or proper amount of refrigerant	Turn air conditioner OFF, and watch bubbles (Refer to Items 3 and 4)
3	Immediately after air conditioner turned off, refrigerant in sight glass stays clear	Too much refrigerant	Check refrigerant pressure, go to Step 2
4	When air conditioner turned OFF, refrigerant foams, and then sight glass becomes clear	Proper amount of refrigerant	Refrigerant amount normal

9MU0UX-073



06U0UX-027

Step 2 Checking refrigerant pressure

1. Connect the A/C manifold gauge set.
2. Operate the engine at 2,000 rpm and set the air conditioner to maximum cooling.
3. Measure the refrigerant pressure. (Refer to page U-37.)

Normal pressure

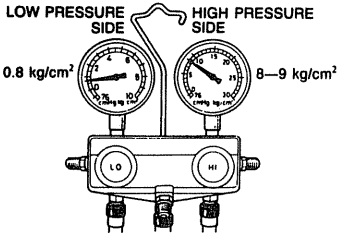
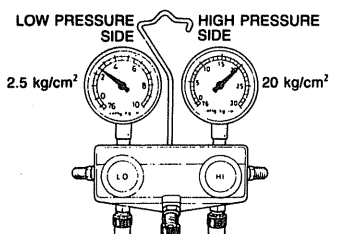
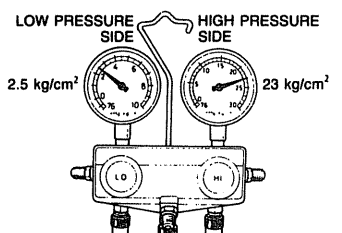
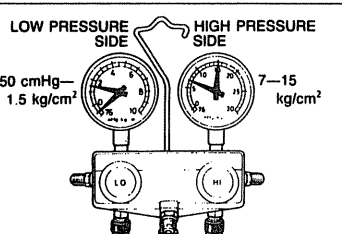
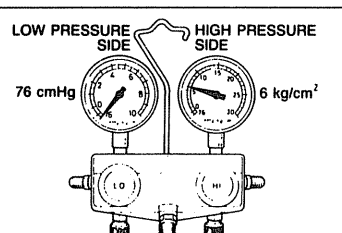
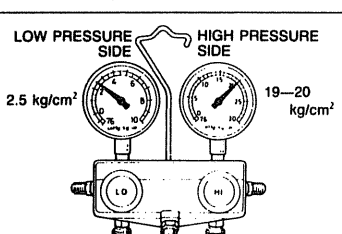
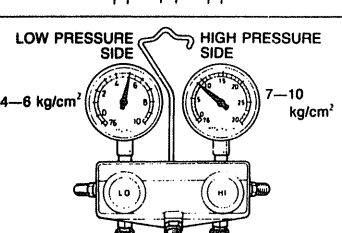
Low-pressure side:

196—294 kPa (2.0—3.0 kg/cm², 28—43 psi)

High-pressure side:

1,373—1,570 kPa (14.0—16.0 kg/cm², 199—228 psi)

4. If the pressures are not as specified, refer to the chart on the next page and check the system.

Measured pressure	Possible cause	Action
 <p>LOW PRESSURE SIDE: 0.8 kg/cm² HIGH PRESSURE SIDE: 8—9 kg/cm²</p>	<p>Low side: Below 78.5 kPa (0.8 kg/cm², 11.4 psi) High side: 785—883 kPa (8—9 kg/cm², 114—128 psi)</p>	<p>Insufficient refrigerant</p> <p style="text-align: right;">Case 1 (Refer to page U-20)</p>
 <p>LOW PRESSURE SIDE: 2.5 kg/cm² HIGH PRESSURE SIDE: 20 kg/cm²</p>	<p>Low side: Above 245 kPa (2.5 kg/cm², 35.6 psi) High side: Above 1,962 kPa (20 kg/cm², 284 psi)</p>	<p>Excessive refrigerant or insufficient condenser cooling</p> <p style="text-align: right;">Case 2 (Refer to page U-21)</p>
 <p>LOW PRESSURE SIDE: 2.5 kg/cm² HIGH PRESSURE SIDE: 23 kg/cm²</p>	<p>Low side: Above 245 kPa (2.5 kg/cm², 35.6 psi) High side: Above 2,256 kPa (23 kg/cm², 327 psi)</p>	<p>Air in system</p> <p style="text-align: right;">Case 3 (Refer to page U-21)</p>
 <p>LOW PRESSURE SIDE: 50 cmHg—1.5 kg/cm² HIGH PRESSURE SIDE: 7—15 kg/cm²</p>	<p>Low side: 50 cmHg (2.0 inHg) of Vacuum—147 kPa (1.5 kg/cm², 21.3 psi) High side: 687—1,472 kPa (7—15 kg/cm², 100—213 psi)</p>	<p>Moisture in system</p> <p style="text-align: right;">Case 4 (Refer to page U-22)</p>
 <p>LOW PRESSURE SIDE: 76 cmHg HIGH PRESSURE SIDE: 6 kg/cm²</p>	<p>Low side: 76 cmHg (3.0 inHg) of Vacuum High side: Below 589 kPa (6 kg/cm², 85 psi)</p>	<p>No refrigerant circulation</p> <p style="text-align: right;">Case 5 (Refer to page U-22)</p>
 <p>LOW PRESSURE SIDE: 2.5 kg/cm² HIGH PRESSURE SIDE: 19—20 kg/cm²</p>	<p>Low side: Above 245 kPa (2.5 kg/cm², 35.6 psi) High side: 1,864—1,962 kPa (19—20 kg/cm², 270—284 psi)</p>	<p>Expansion valve stuck open</p> <p style="text-align: right;">Case 6 (Refer to page U-23)</p>
 <p>LOW PRESSURE SIDE: 4—6 kg/cm² HIGH PRESSURE SIDE: 7—10 kg/cm²</p>	<p>Low side: 392—589 kPa (4—6 kg/cm², 57—85 psi) High side: 687—981 kPa (7—10 kg/cm², 100—142 psi)</p>	<p>Faulty compressor</p> <p style="text-align: right;">Case 7 (Refer to page U-23)</p>

Case 1: Insufficient refrigerant**Measured pressure**

Low-pressure side: Less than 78.5 kPa (0.8 kg/cm², 11.4 psi)

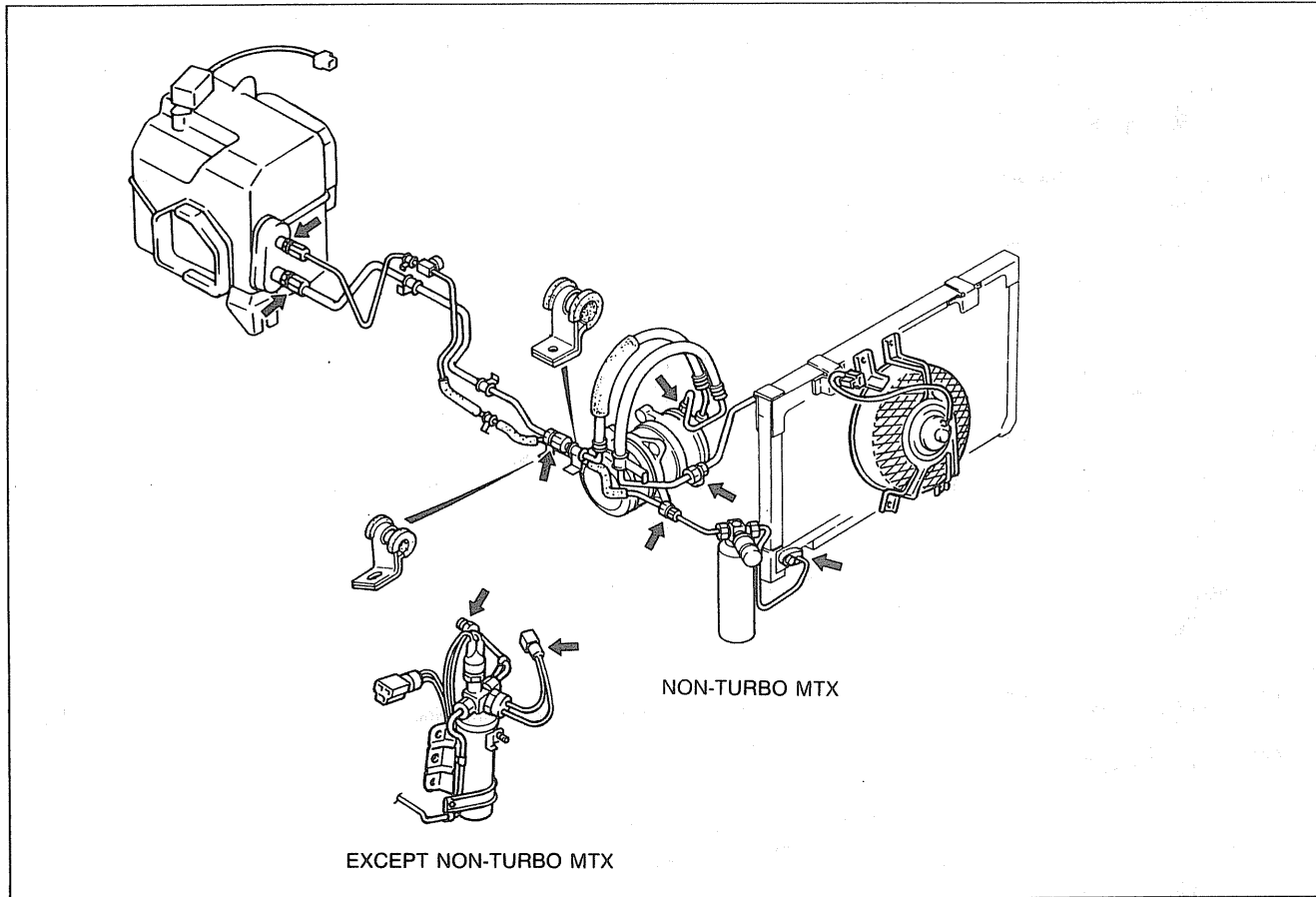
High-pressure side: 785—883 kPa (8—9 kg/cm², 114—128 psi)

Condition

- Outlet air from vents not cold.
- Bubbles seen in sight glass.

Step 1

1. Check for oil stains on the pipes, hoses and other parts. (Refer to illustration below.)
2. If oil staining is found at the connection of pipes or hoses, replace the O-ring; then, evacuate, charge, and test the system.
3. If oil staining is not found, go to Step 2.



05U0UX-023

Step 2

1. Check for leakage from the following connections with a gas leak tester.
 - Inlet and outlet of condenser.
 - Inlet and outlet of receiver/drier.
 - Inlet and outlet of compressor.
 - Sight glass.
 - Inlet and outlet of cooling unit.
2. If leakage is evident, go to Step 3.
3. If leakage cannot be found, evacuate, charge, and test the system. (System OK, but refrigerant leaked gradually over time.)

Step 3

1. Check tightening torque of the connection where leak was detected.
2. If the connection is loose, tighten the connection to the specified torque; then evacuate, charge, and test the system.
3. If the connection is properly tightened, replace the O-ring; then evacuate, charge, and test the system.

Case 2: Excessive refrigerant or insufficient condenser cooling

Measured pressure

Low-pressure side: Above 245 kPa (2.5 kg/cm², 35.6 psi)

High-pressure side: Above 1,962 kPa (20 kg/cm², 284 psi)

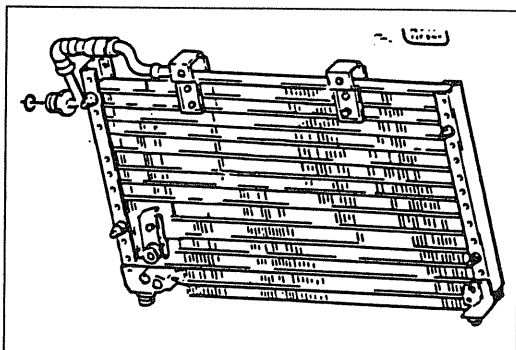
Condition

Insufficient cooling

Note

- If the condenser fan does not operate when the air conditioner is operating, see “Additional (condenser) fan does not operate”; page U-16, before proceeding.

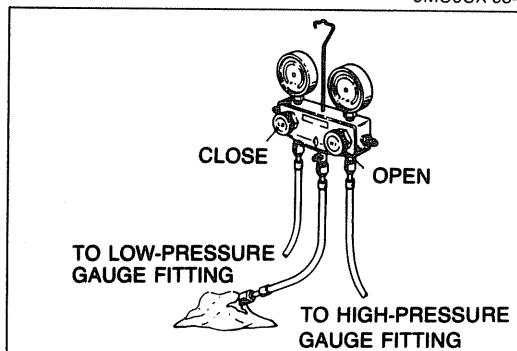
06U0UX-029



9MU0UX-084

Step 1

1. Check the condenser for bent fins or damage. Repair or replace if necessary.
2. If the condenser is OK, go to Step 2.



06U0UX-030

Step 2

1. Discharge the excessive refrigerant. (Refer to page U-42.)

Warning

- Always wear gloves and eye protection when discharging the refrigerant.

2. Verify that the refrigerant pressure is normal.

Case 3: Air in system

Measured pressure

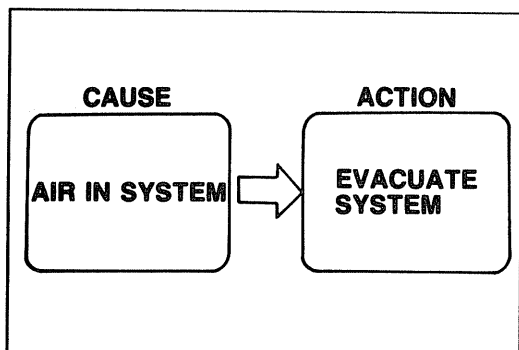
Low-pressure side: Above 245 kPa (2.5 kg/cm², 35.6 psi)

High-pressure side: Above 2,256 kPa (23 kg/cm², 327 psi)

Condition

Insufficient cooling

05U0UX-085



06U0UX-031

Step 1

Discharge the refrigeration system. (Refer to page U-42.)

Step 2

Evacuate the system to remove all air from it. (Refer to page U-42.)

Step 3

Charge the system with refrigerant. (Refer to page U-43.)

Step 4

After charging, measure the refrigerant pressure. (Refer to page U-40.)

Step 5

If low- and high-pressure sides are still too high, replace the receiver/drier.

Case 4: Moisture in system

Measured pressure

Low-pressure side: 50 cmHg (2.0 inHg) [Vacuum]

High-pressure side: 687—1,472 kPa (7—15 kg/cm², 100—213 psi)

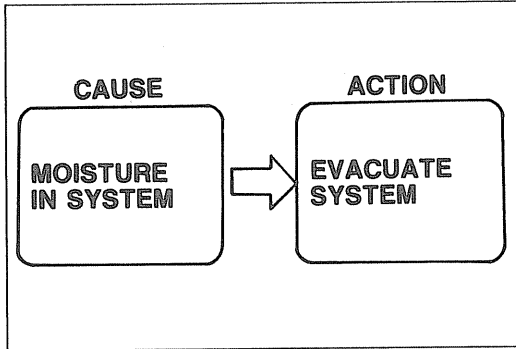
Condition

Intermittent cooling

(Moisture in refrigeration system freezes in expansion valve and causes temporary blocking.)

After time, ice melts and condition returns to normal.)

05U0UX-086



06U0UX-032

Step 1

Discharge the refrigeration system. (Refer to page U-42.)

Step 2

Evacuate the system to remove all air and moisture from it. (Refer to page U-42.)

Step 3

Charge the system with refrigerant. (Refer to page U-43.)

Step 4

After charging, measure the refrigerant pressure.

(Refer to page U-40.)

Step 5

If low- and high-pressure sides are still too high, replace the receiver/drier.

Case 5: No refrigerant circulation

Measured pressure

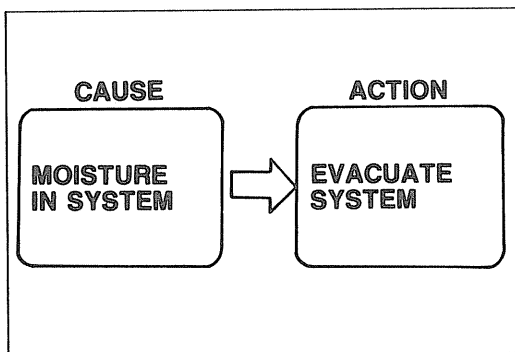
Low-pressure side: 76 cmHg (3.0 inHg) [Vacuum]

High-pressure side: Below 589 kPa (6 kg/cm², 85 psi)

Condition

Refrigerant flow obstructed by moisture or dirt, causing freezing or blockage of expansion valve

05U0UX-087



05U0UX-028

Step 1

Turn the air conditioner OFF for about 10 minutes. Turn the air conditioner ON to determine whether the blockage is due to moisture or dirt.

a) If caused by moisture

System will operate normally after being OFF for 10 minutes. (Ice melts and relieves blockage.)

Refer to "Moisture in system".

b) If caused by dirt

System remains abnormal after being OFF 10 minutes.

Go to Step 2.

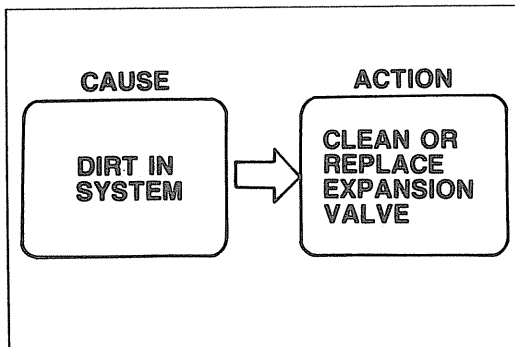
Step 2

1. Remove the expansion valve. (Refer to page U-38.)

2. Blow out the dirt with compressed air.

3. If unable to remove the dirt, replace the expansion valve.

4. Evacuate, charge, and test the system.



06U0UX-033

Case 6: Expansion valve stuck open

Measured pressure

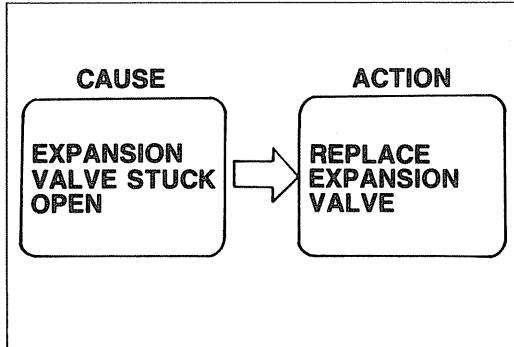
Low-pressure side: Above 245 kPa (2.5 kg/cm², 35.6 psi)

High-pressure side: 1,864—1,962 kPa (19—20 kg/cm², 270—284 psi)

Condition

Insufficient cooling

05U0UX-088



06U0UX-034

1. Check whether there is frost or heavy dew on the suction pipe (between cooling unit and compressor).
2. If neither is found, refer to "Excessive refrigerant or insufficient condenser cooling"; page U-21.
3. If either is found, replace the expansion valve. (Refer to page U-38.)

Case 7: Faulty compressor

Measured pressure

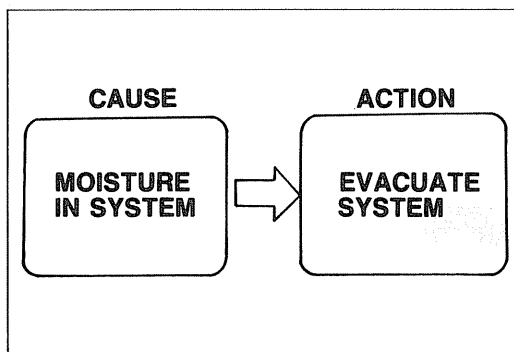
Low-pressure side: 392—589 kPa (4—6 kg/cm², 57—85 psi)

High-pressure side: 687—981 kPa (7—10 kg/cm², 100—142 psi)

Condition

No cooling

05U0UX-089



06U0UX-035

1. Run the engine at a first idle.
2. Verify that the magnetic clutch is ON when the A/C switch and blower switch are ON.
3. If the magnetic clutch remains OFF, refer to "Magnetic clutch does not operate"; page U-13.

U

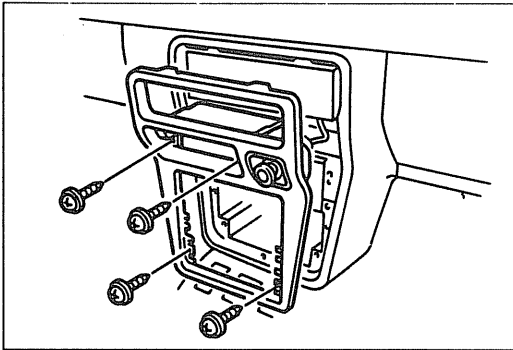
CONTROL SWITCH PANEL

CONTROL SWITCH PANEL

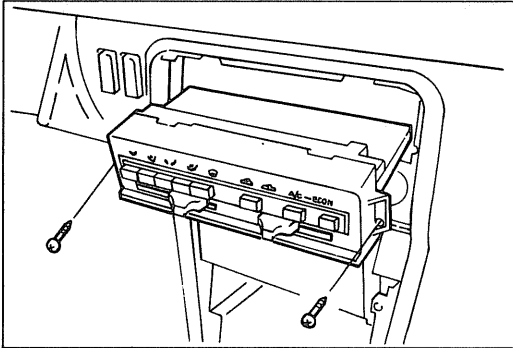
LOGIC CONTROL TYPE

Removal

1. Remove the ashtray and radio box.
2. Remove the screws and disconnect the cigar-lighter connector, then remove the center panel.



96U16X-043



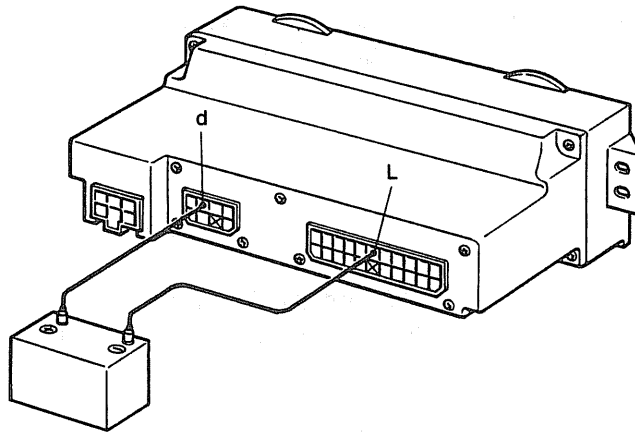
96U16X-044

3. Remove the screws and disconnect the connectors, then remove the control switch panel.

Installation

Install in the reverse order of removal.

Inspection



NOTE

- REMOVE THE LOGICON SWITCH FROM THE VEHICLE.
- SUPPLY 12V AS SHOWN IN THE FIGURE.
- CHECK EACH CIRCUIT.

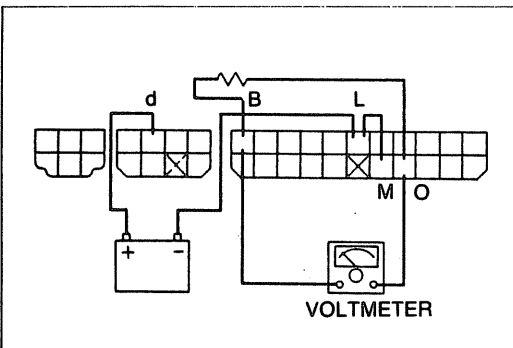
b d f h
a c X G

B D F H J L N P R T V
A C E G I X M O Q S U

96U16X-045

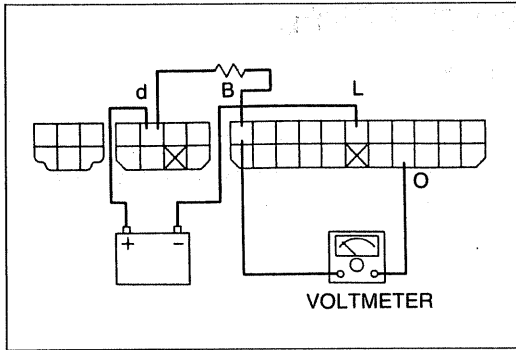
Checking REC-FRESH air selector circuit

1. Connect a jumper wire between M terminal and L terminal. Connect a resistance (at least 1 kΩ) between B terminal and O terminal, and check the voltage between these terminals using a voltmeter.



86U15X-208

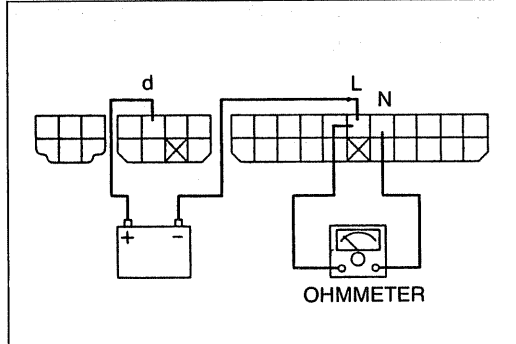
Terminals	Voltage
B-O	Approx. 12V



96U16X-046

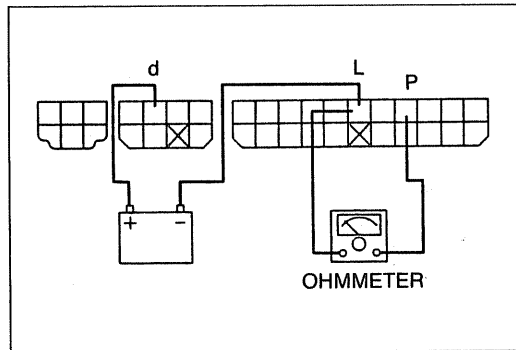
2. Connect a resistance (at least $1\text{k}\Omega$) between d terminal and B terminal, and check the voltage between B terminal and O terminal using a voltmeter.

Terminals	Voltage
B—O	Less than 1V



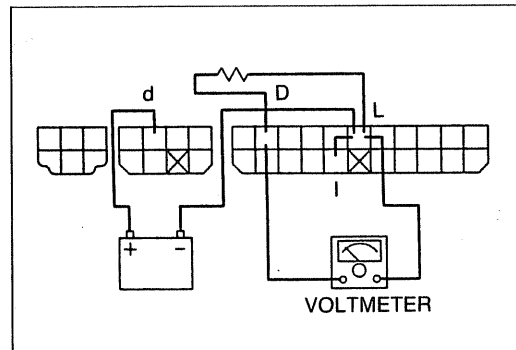
86U15X-210

3. Check for continuity between N terminal and L terminal with the REC-FRESH selector switch in FRESH position (out) using an ohmmeter.



86U15X-211

4. Check for continuity between P terminal and L terminal with the REC-FRESH air selector switch in REC position (in) using ohmmeter.

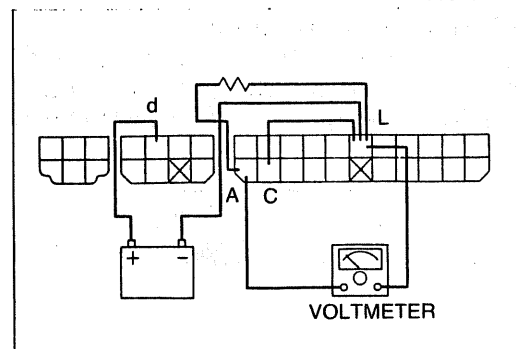


86U15X-212

Checking mode control circuit

1. Connect a jumper wire between I terminal and L terminal. Connect a resistance (at least $1\text{k}\Omega$) between D terminal and L terminal, and check the voltage between these terminals using a voltmeter.

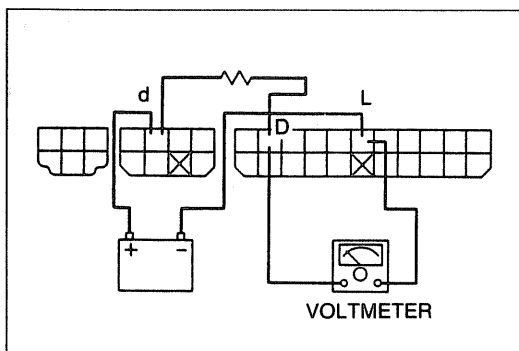
Terminals	Voltage
D—L	Approx. 12V



96U16X-047

2. Connect a jumper wire between C terminal and L terminal. Connect a resistance (at least $1\text{k}\Omega$) between A terminal and L terminal, and check the voltage between these terminals using a voltmeter.

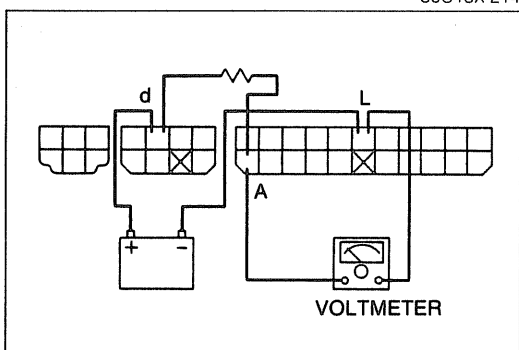
Terminals	Voltage
A—L	Approx. 12V



86U15X-214

3. Connect a resistance (at least 1 k Ω) between d terminal and D terminal, and check the voltage between D terminal and L terminal using a voltmeter.

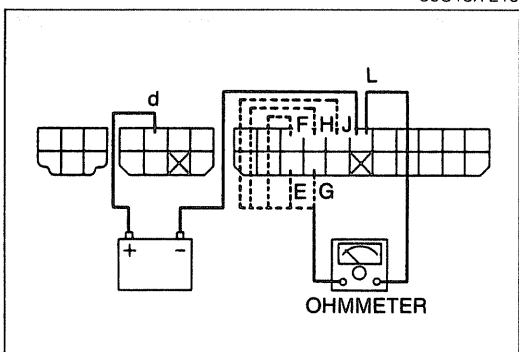
Terminals	Voltage
D—L	Less than 1V



86U15X-215

4. Connect a resistance (at least 1 k Ω) between d terminal and A terminal, and check the voltage between A terminal and L terminal using a voltmeter.

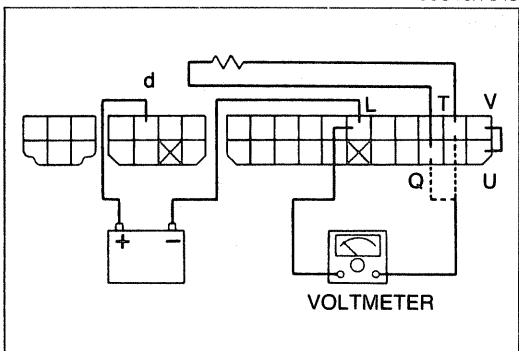
Terminal	Voltage
A—L	Less than 1V



96U16X-048

5. Check for continuity between terminals in following positions with an ohmmeter.

Conditions	Terminals	Continuity
Push the VENT switch	J—L	Yes
Push the BI-LEVEL switch	G—L	Yes
Push the HEAT switch	H—L	Yes
Push the HEAT-DEF switch	E—L	Yes
Push the DEF switch	F—L	Yes

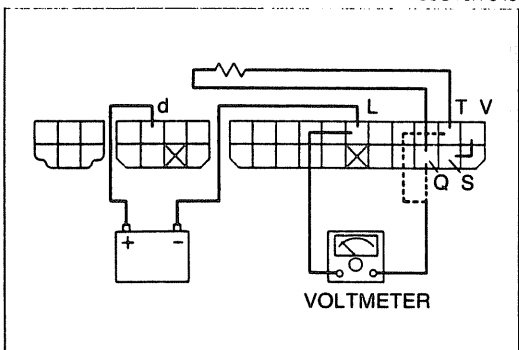


96U16X-049

Checking air mix control circuit

1. Connect a resistance (at least 1k Ω) between Q terminal and T terminal.
Set temperature control lever to center position between MAX-HOT and MAX-COLD.
Connect a jumper wire between V terminal and U terminal, and check the voltage between terminals as shown.

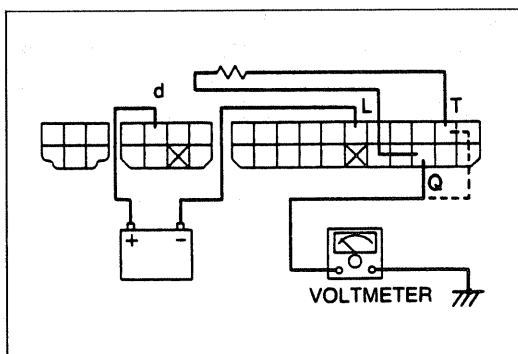
Terminals	Voltage
T—L	Approx. 12V
Q—L	Less than 1V



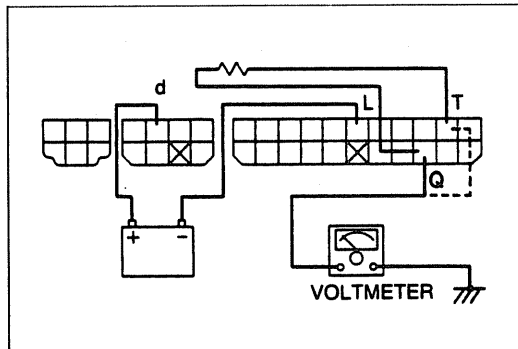
96U16X-050

2. Connect a resistance (at least 1k Ω) between Q terminal and T terminal.
Set temperature control lever to center position between MAX-HOT and MAX-COLD.
Connect a jumper wire between V terminal and S terminal, and check the voltage between terminals as shown.

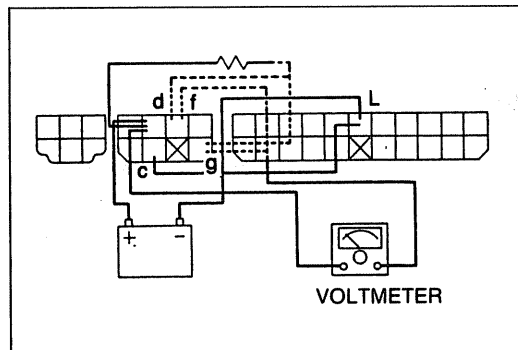
Terminals	Voltage
Q—L	Approx. 12V
T—L	Less than 1V



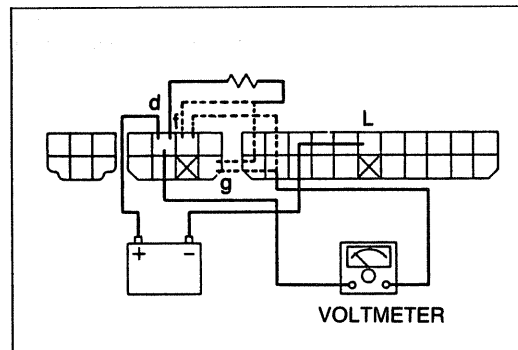
96U16X-051



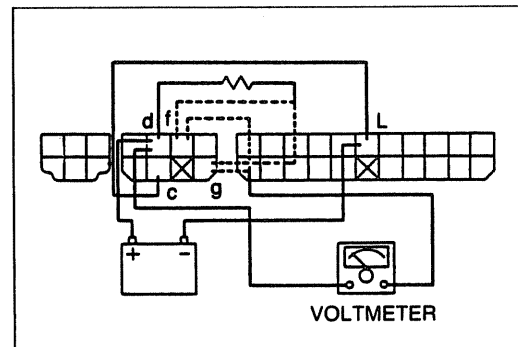
96U16X-052



06U0UX-036



06U0UX-037



06U0UX-038

3. Connect a resistance (at least $1k\Omega$) between Q terminal and T terminal.

Set temperature control lever to MAX-HOT, and check that Q terminal voltage is higher than T terminal voltage.

4. Connect a resistance (at least $1k\Omega$) between Q terminal and T terminal.

Set temperature control lever to MAX-COLD, and check that T terminal voltage is higher than Q terminal voltage.

Checking A/C switch and ECO switch circuit

1. Turn the A/C switch off.

Connect a jumper wire between terminal c and terminal L. Connect a resistance (at least $1k\Omega$) between each terminals, and check the voltage between these terminals.

Terminals	Voltage
d—g	0V
d—f	0V

2. Turn the A/C switch on.

Connect a resistance (at least $1k\Omega$) between each terminal, and check the voltage between these terminals.

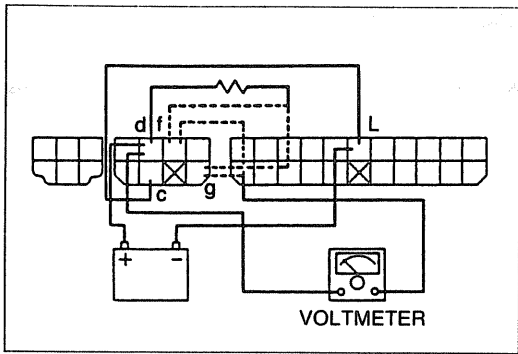
Terminals	Voltage
d—g	0V
d—f	0V

3. Turn the A/C switch on and the ECO switch off.

Connect a jumper wire between terminal c and L terminal. Connect a resistance (at least $1k\Omega$) between each terminals, and check the voltage between these terminals.

Terminals	Voltage
d—g	0V
d—f	Approx. 12V

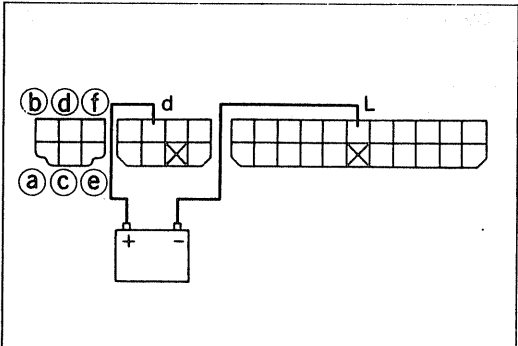
CONTROL SWITCH PANEL



06U0UX-039

- Turn the A/C switch and the ECO switch on.
Connect a jumper wire between terminal c and L terminal.
Connect a resistance (at least 1 kΩ) between each terminal, and check the voltage between these terminals.

Terminals	Voltage
d—g	Approx. 12V
d—f	0V



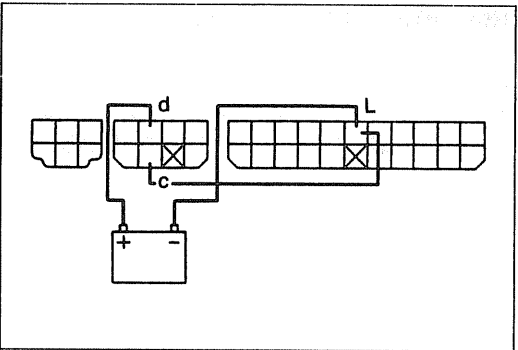
86U15X-225

Checking fan speed control lever

Check for continuity between each terminal of 6 pin connector.

Fan switch condition	(a)	(b)	(c)	(d)	(e)	(f)
OFF						
1				○—○		
2			○—○			
3		○—○			○—○	
4	○—○				○—○	○—○

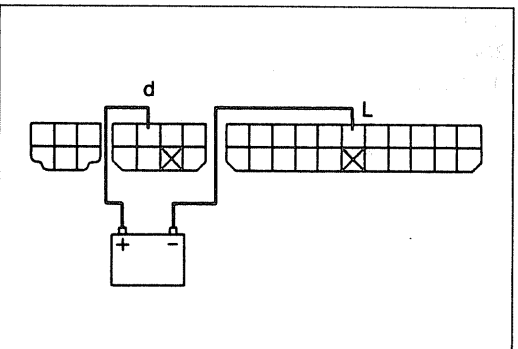
○—○: indicates continuity



86U15X-226

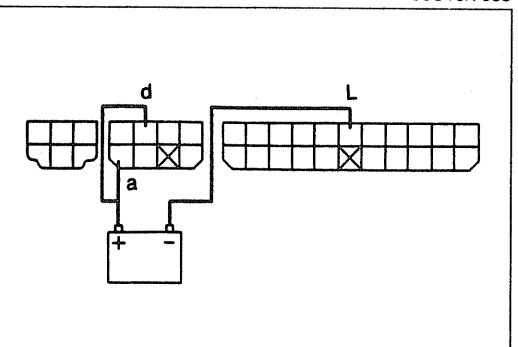
Checking dim indicator circuits (Indicator circuit)

- Connect a jumper wire between terminal c and terminal L.
Check for illumination at A/C switch indicator with A/C switch on.
Check for illumination at ECO switch indicator with ECO switch on.



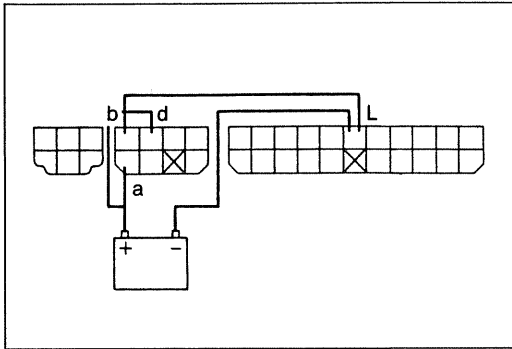
96U16X-053

- Check that the mode control switch and REC-FRESH select switch indicators illuminate when the respective switches are ON.



86U15X-228

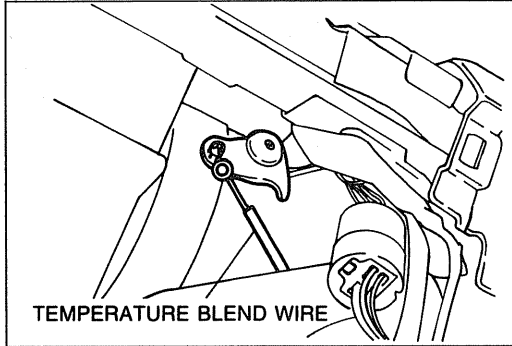
- Apply 12V to terminal a, and check that the indicators are dim.



86U15X-229

Checking illumination circuit

1. Connect a jumper wire between terminal b and terminal L.
2. Apply 12V to terminal a, and check that the indicators are dim.

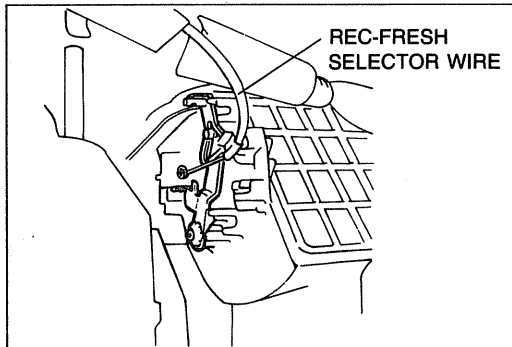


06U0UX-040

WIRE CONTROL TYPE

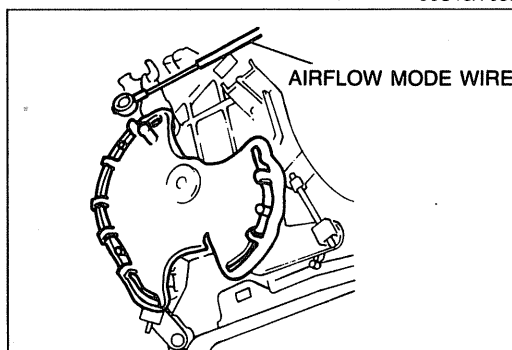
Removal

1. Remove the under cover and glove box. (Refer to Section S)
2. Disconnect the temperature blend wire.



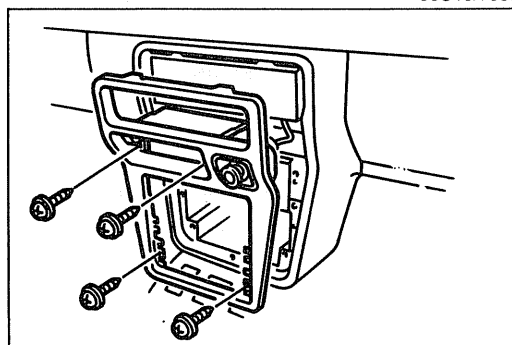
96U16X-055

3. Disconnect the REC-FRESH selector wire.



96U16X-056

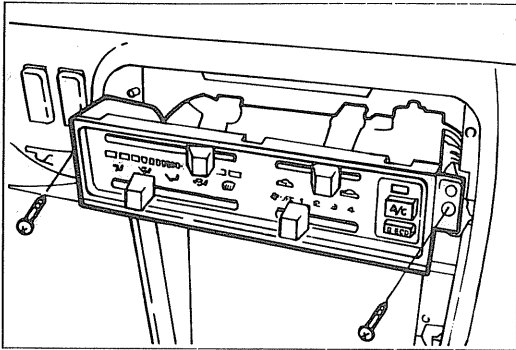
4. Remove the duct and undercover of driver side.
5. Disconnect the airflow mode wire.



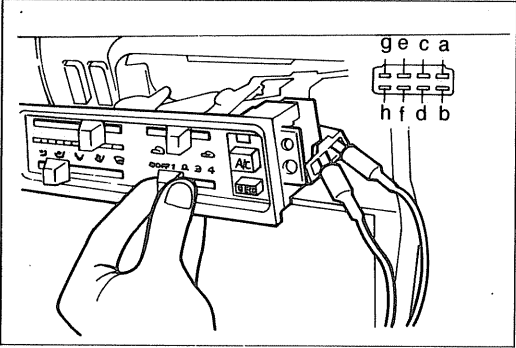
96U16X-057

6. Remove the ashtray and radio box.
7. Remove the screws and disconnect the cigar-lighter connector, then remove the center panel.

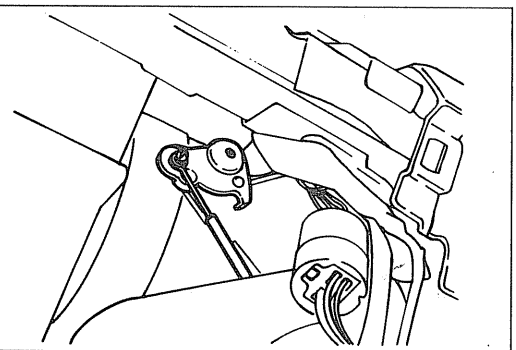
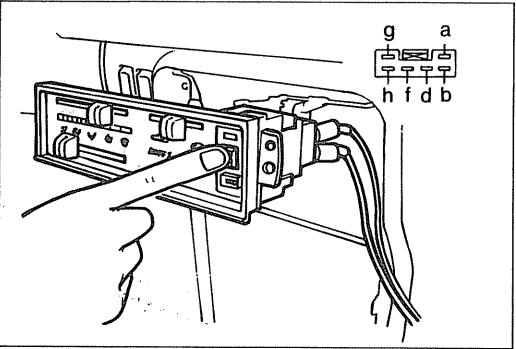
CONTROL SWITCH PANEL



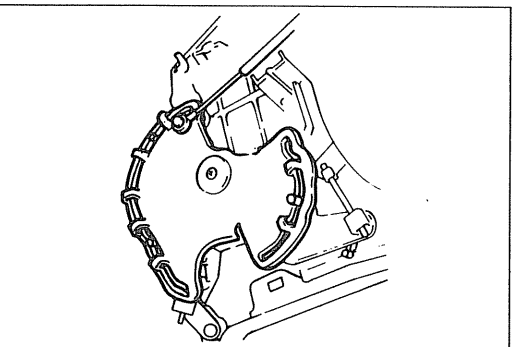
96U16X-058



96U16X-059



96U16X-167



96U16X-168

8. Remove the screws and the control switch panel.

Inspection

Check for continuity between terminals in following positions with an ohmmeter.

Positions	Continuity							
	a	b	c	d	e	f	g	h
1				○—○			○—○	
2			○—○		○—○		○—○	
3		○—○			○—○		○—○	
4	○—○				○—○		○—○	
OFF							○—○	

○—○ : indicates continuity

Positions	Continuity					
	a	b	d	f	g	h
A/C switch ON		○—○	○—○	○—○		○—○
ECO and A/C switch ON		○—○	○—○	○—○	○—○	
OFF			○—○			○—○

○—○ : indicates continuity

Adjustments

Temperature blend wire

1. Set temperature control lever at MAX-COLD position.
2. Connect and clamp the wire with the shutter lever on the heater unit all the way to the right side.

Caution

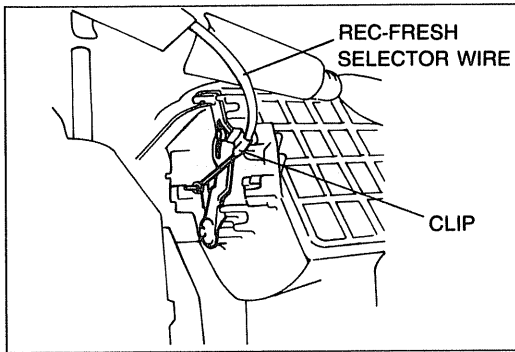
- Move the temperature control lever to be sure the wire is attached. Also, be sure it can move the full stroke between HOT and COLD.

Airflow mode wire

1. Set mode control lever to DEF position.
2. Connect and clamp the wire with the shutter lever on the heater unit at its closest point.

Caution

- Move the mode lever to be sure the wire is attached. Also, be sure it can move the full stroke between DEF and VENT.



96U16X-169

REC-FRESH selector wire

1. Set the selector lever to REC position.
2. Connect and clamp the wire with the shutter lever on the blower unit at its closest point.

Caution

- Move the rec-fresh lever to be sure the wire is attached. Also, be sure it can move the full stroke between REC and FRESH.

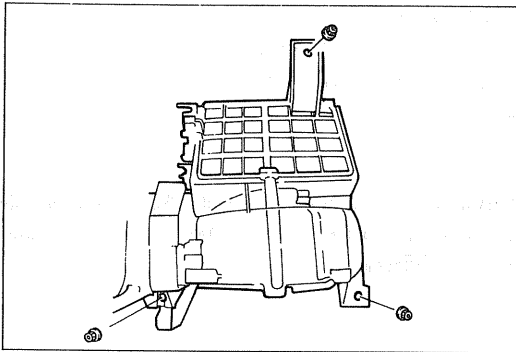
Installation

Install in the reverse order of removal.

96U16X-060

U

BLOWER UNIT



06U0UX-041

BLOWER UNIT

BLOWER UNIT

Removal

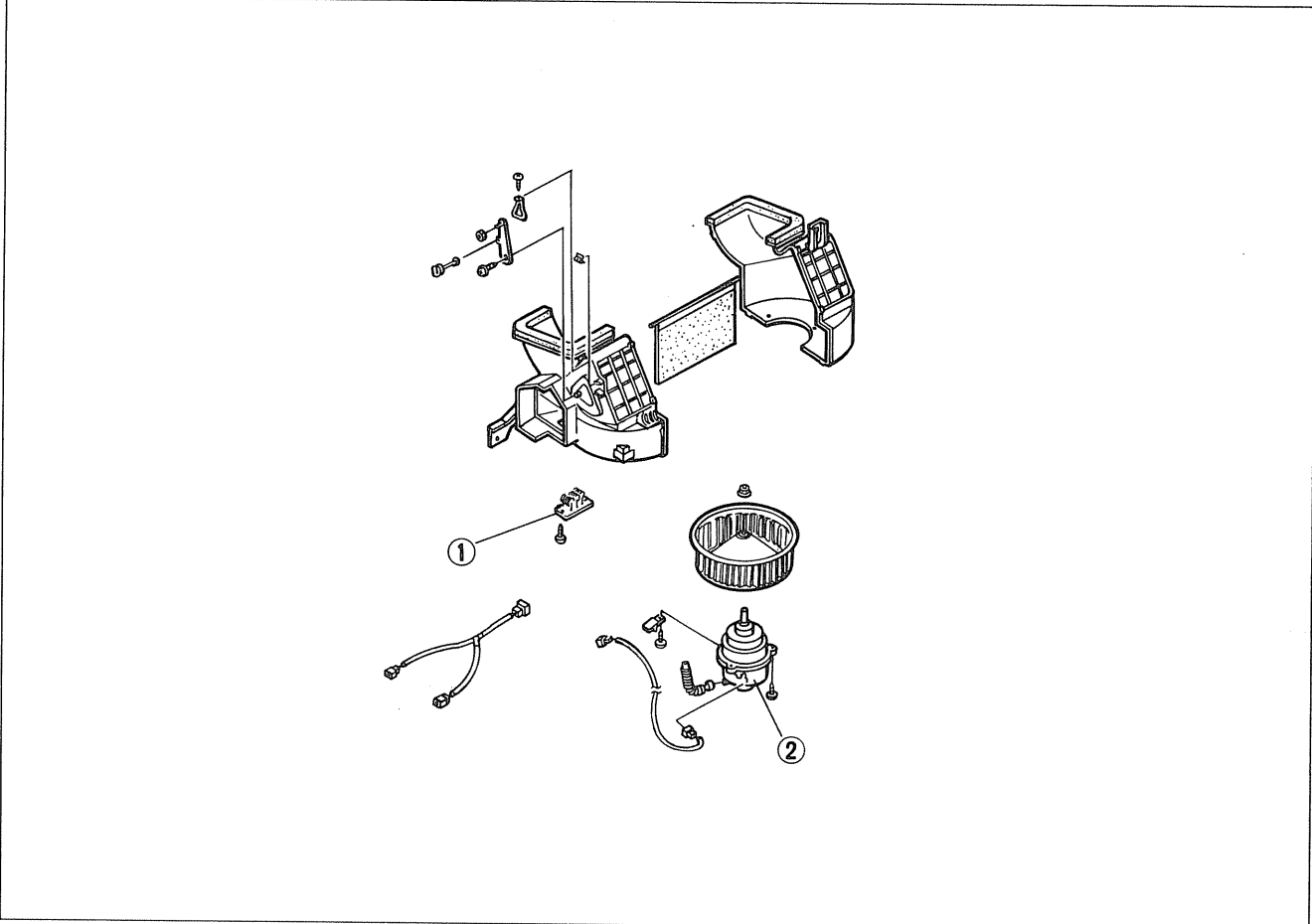
1. Remove the undercover and glove box. (Refer to Section S)
2. Remove the nuts, then remove the blower unit.

Installation

Install in the reverse order of removal.

Disassembly / Assembly

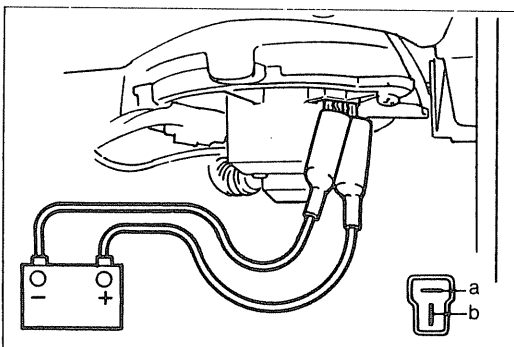
Disassemble and assemble as shown.



06U0UX-042

1. Resistor assembly

2. Blower fan motor

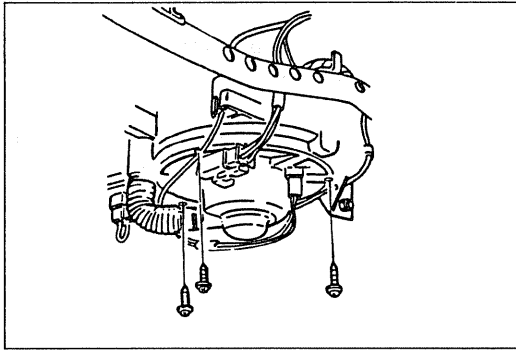


06U0UX-043

BLOWER FAN MOTOR

Inspection

1. Remove the undercover and glove box. (Refer to Section S)
2. Disconnect the blower fan motor connector.
3. Check that the blower fan motor runs when connecting battery voltage to terminal a and grounding terminal b.
4. If blower fan motor does not run, replace it.



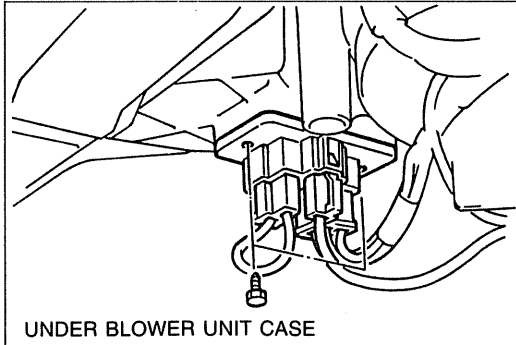
06U0UX-044

Removal

1. Remove the undercover and glove box. (Refer to Section S)
2. Disconnect the blower fan motor connector.
3. Remove the screws and the blower fan motor.

Installation

Install in the reverse order of removal.



UNDER BLOWER UNIT CASE

06U0UX-045

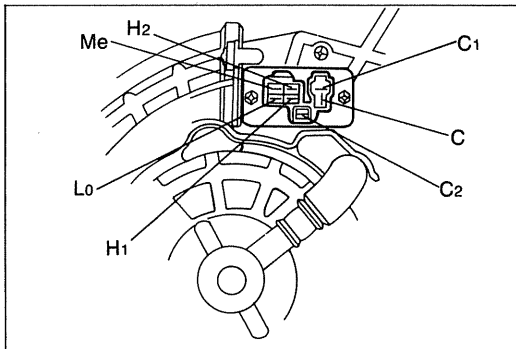
RESISTOR ASSEMBLY

Removal

1. Remove the undercover and glove box. (Refer to Section S)
2. Disconnect the resistor assembly connectors.
3. Remove the screws and the resistor assembly.

Installation

Install in the reverse order of removal.

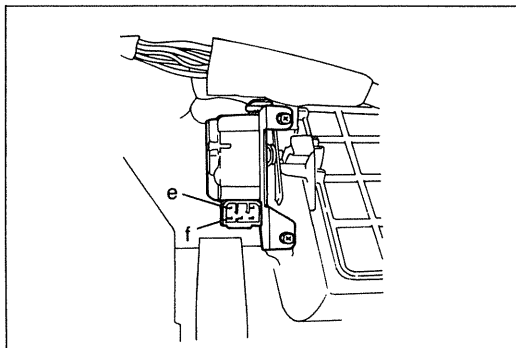


96U16X-066

Inspection

Check the resistance or continuity between terminals with an ohmmeter.

Terminals	Resistance or continuity
C1—C2	0Ω
C —C1	0.05Ω
C2—H1	0.05Ω
C2—H2	0.38Ω
C2—Me	1.00Ω
C2—Lo	2.38Ω



06U0UX-046

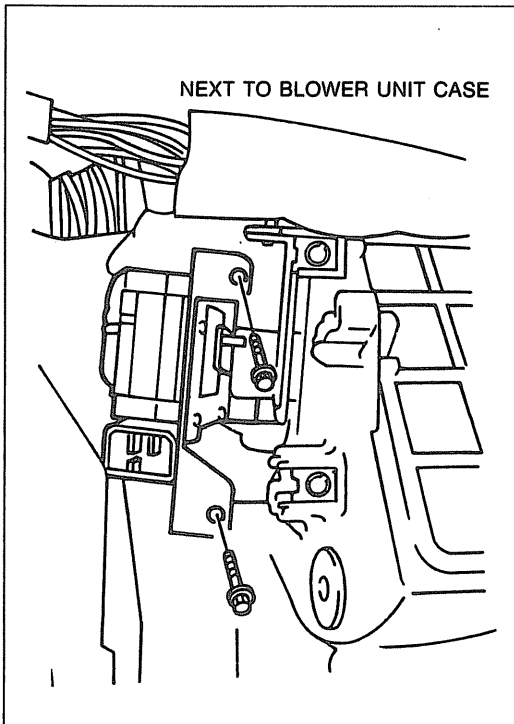
REC-FRESH SELECTOR DOOR ACTUATOR

Inspection

1. Remove the undercover and glove box. (Refer to Section S)
2. Disconnect the REC-FRESH selector door actuator connector.
3. Check the actuator operation by applying battery voltage.

Terminals		Motor operation
12V	Ground	
e	f	Motor rotates to REC position
f	e	Motor rotates to FRESH position

4. If not as specified, replace the actuator.



06U0UX-047

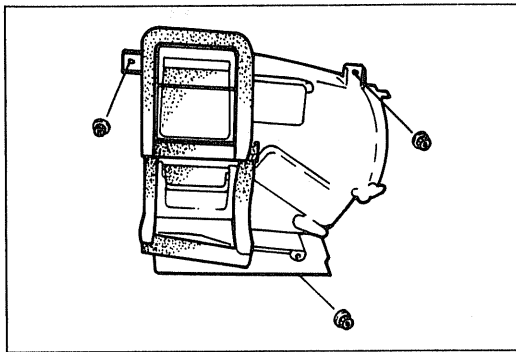
Removal

1. Remove the undercover and glove box. (Refer to Section S)
2. Disconnect the REC-FRESH selector door actuator connector.
3. Remove the screws and the REC-FRESH selector door actuator.

Installation

Install in the reverse order of removal.

HEATER UNIT



06U0UX-048

HEATER UNIT

HEATER UNIT Removal

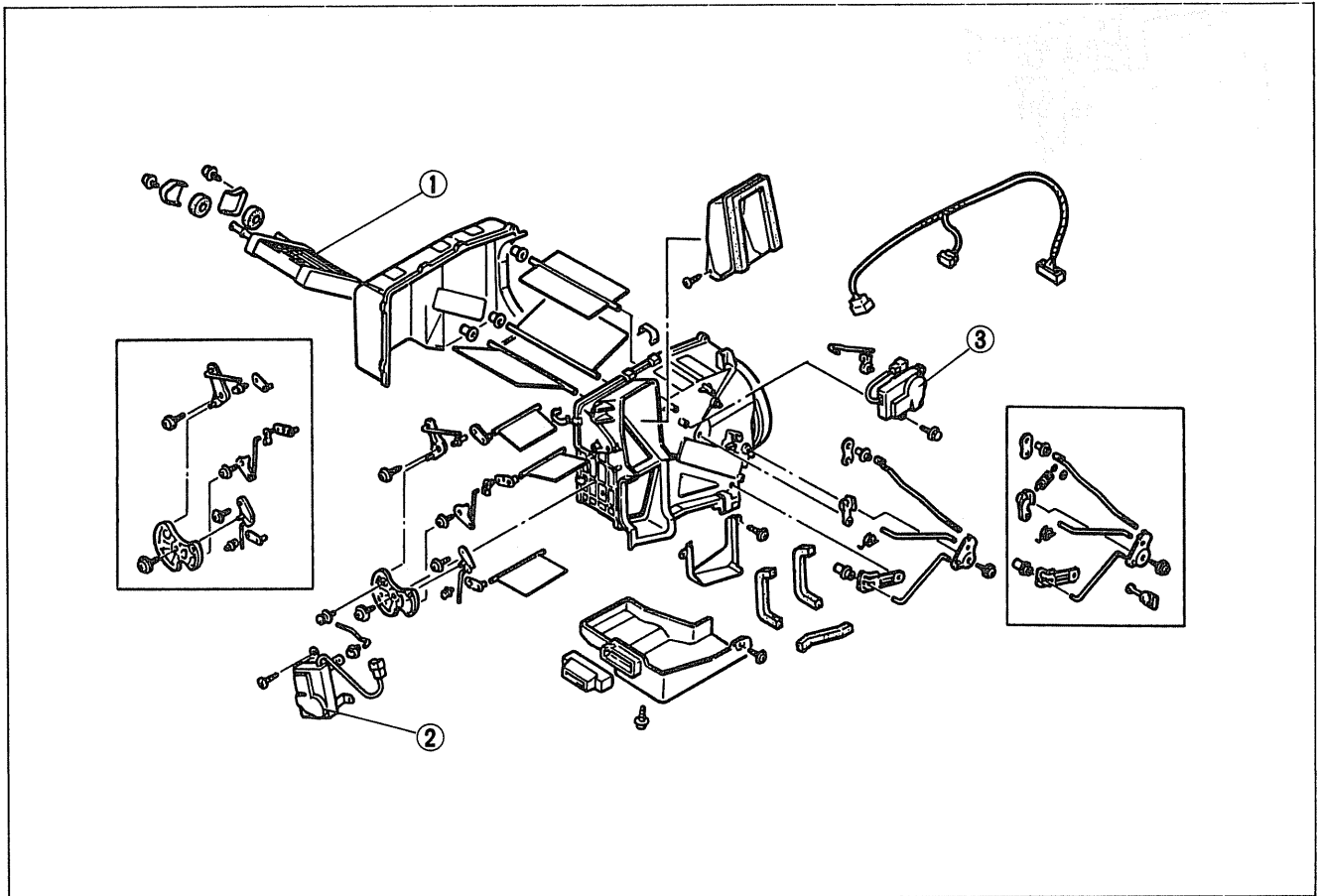
1. Drain the engine coolant. (Refer to Section E)
2. Remove the instrument panel. (Refer to Section S)
3. Remove the nuts and the heater unit.

INSTALLATION

Install in the reverse order of removal.

Disassembly / Assembly

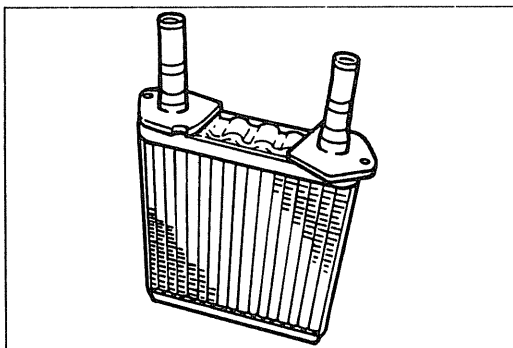
Disassemble and assemble as shown.



06U0UX-049

1. Heater core
2. Airflow mode control door actuator

3. Temperature blend door actuator

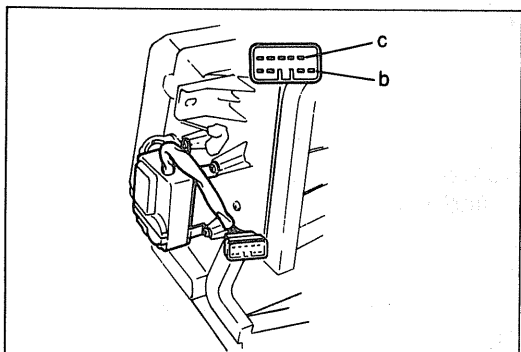


96U16X-071

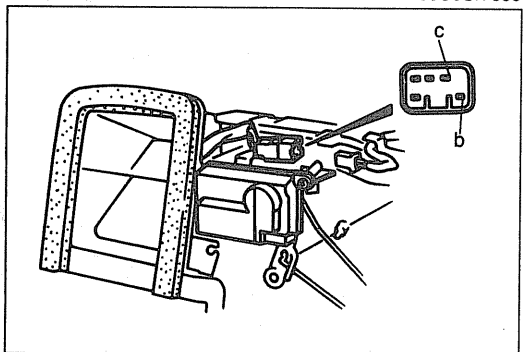
HEATER CORE Inspection

Check for the following and repair or replace parts as necessary.

1. Cracks, damage, or water leakage.
2. Bent fins.
3. Distorted or bent inlet.



06U0UX-050



06U0UX-051

AIRFLOW MODE CONTROL DOOR ACTUATOR

Inspection

1. Remove the instrument panel. (Refer to Section S.)
2. Disconnect the actuator connector.
3. Check actuator operation by applying battery voltage.

Terminals		Motor operation
12V	Ground	
c	b	Motor rotates to VENT position (Link moves upward)
b	c	Motor rotates to HEAT position (Link moves downward)

If not as specified, replace the actuator.

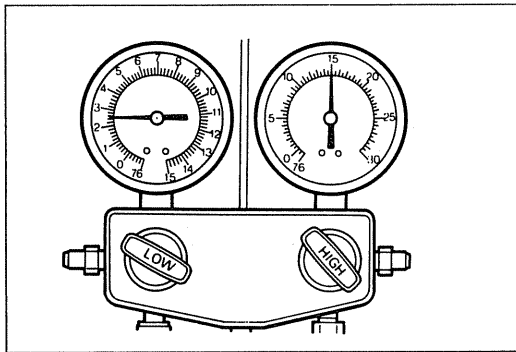
TEMPERATURE BLEND DOOR ACTUATOR

Inspection

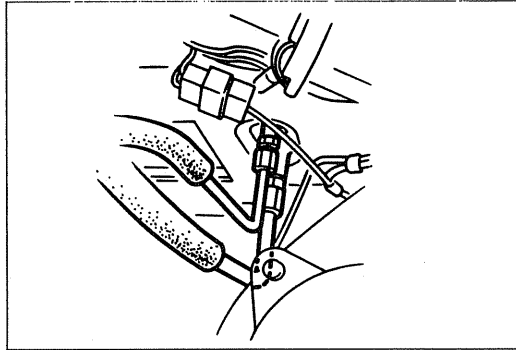
1. Remove the instrument panel. (Refer to Section S.)
2. Disconnect the actuator connector.
3. Check actuator operation by applying battery voltage.

Terminals		Motor operation
12V	Ground	
b	c	Motor rotates to VENT position (Link moves upward)
c	b	Motor rotates to HEAT position (Link moves downward)

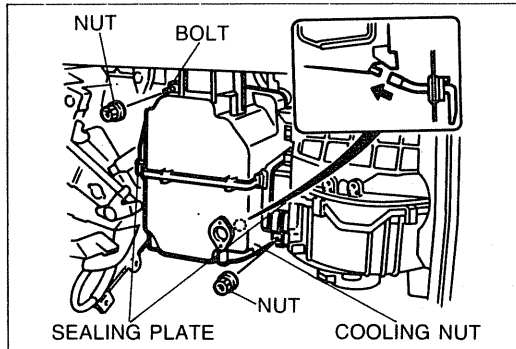
If not as specified, replace the actuator.



06U0UX-052



06U0UX-053



96U16X-076

COOLING UNIT

ON-VEHICLE INSPECTION

1. Connect the manifold gauge set. (Refer to page U-40.)
2. Operate the engine at 2,000 rpm and set the air conditioner to MAX-COOLING.
3. Check the low and high pressures.

Normal pressure:

LOW PRESSURE:

196—294 kPa (2—3 kg/cm², 28—43 psi)

HIGH PRESSURE:

1373—1570 kPa (14.0—16.0 kg/cm², 199—228 psi)

If the pressures are not as specified, replace the expansion valve. (Refer to Cooling Unit Disassembly.)

COOLING UNIT

Removal

1. Discharge the refrigerant system. (Refer to page U-42.)
2. Remove the undercover and glove box. (Refer to Section S.)
3. Disconnect the low-pressure pipe from the cooling unit outlet fitting.
4. Disconnect the high-pressure pipe from the cooling unit inlet fitting.

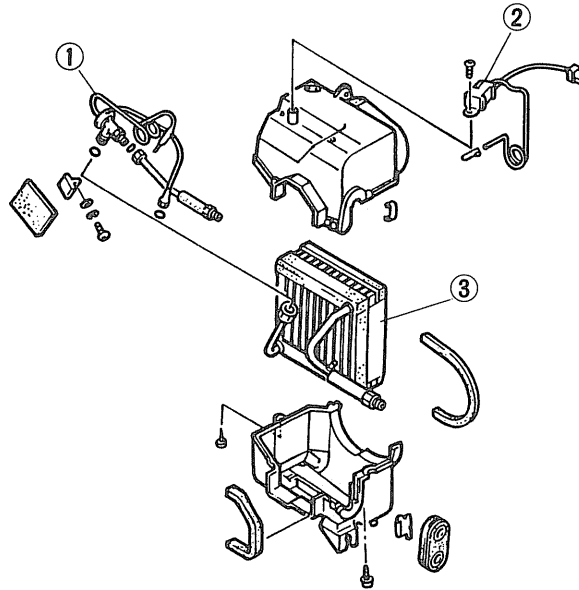
Note

- Immediately plug all open fittings to keep moisture out of the system.

5. Remove the sealing plate at both sides of the cooling unit.
6. Remove the drain hose from the cooling unit.
7. Remove the nuts and the cooling unit.

Disassembly / Assembly

Disassemble and assemble as shown.



1. Expansion valve

2. Thermostatic switch

3. Evaporator

06U0UX-054

Installation

Install in the reverse order of the removal, noting the following.

Note

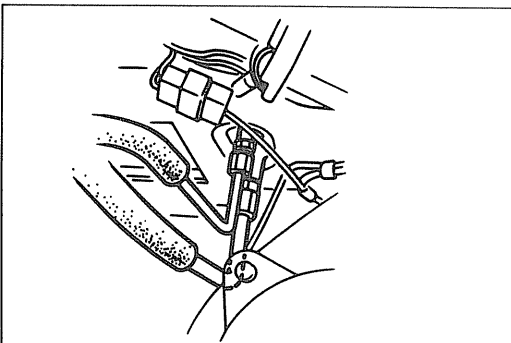
- Adjust and position the cooling unit so that its connections match those of the heater unit and the blower unit.
- If the evaporator is replaced, add compressor oil to the compressor.

Compressor oil: 50 cc (3.05 cu in)

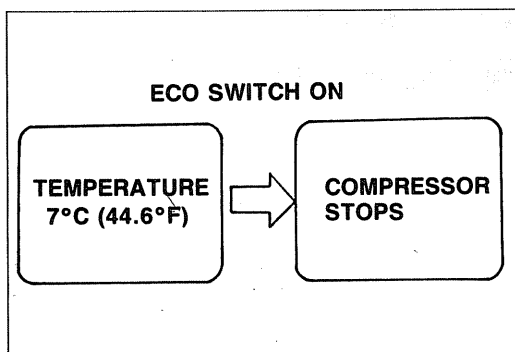
Tightening torque

Low- and high-pressure pipe

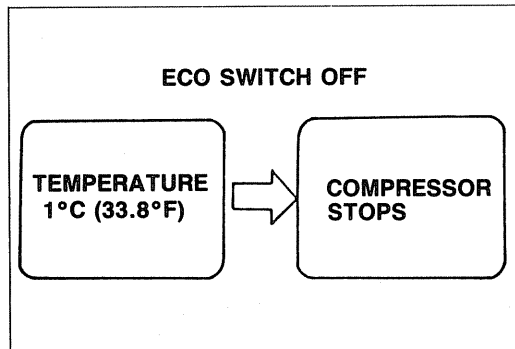
15—25 N·m (1.5—2.5 m·kg, 11—18 ft·lb)



96U16X-078



06U0UX-055



96U16X-080

THERMOSWITCH

On-Vehicle Inspection

1. Remove the undercover and glove box. (Refer to Section S.)
2. Run the engine at idle speed and set the air conditioning system to MAX-COOLING.
3. Press the ECO switch ON.
4. Block the air inlet of the blower unit with a thick piece of paper to hasten evaporator cooling.
5. After a few minutes, check that the compressor stops.

Note

- The compressor stops when the temperature at the evaporator becomes 7°C (44.6°F).

6. Press the ECO switch OFF, and check that the compressor operate.
7. After a few minutes, check that the compressor stops again.

Note

- The compressor stops when the temperature at the evaporator becomes 1°C (33.8°F).

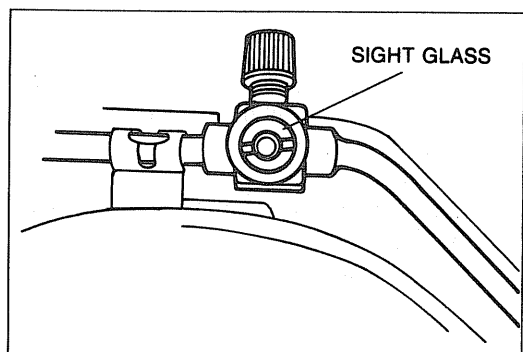
Removal

1. Remove the cooling unit. (Refer to page U-37.)
2. Disassemble the cooling unit, and remove the thermoswitch. (Refer to page U-38.)

Installation

Install in the reverse order of removal.

06U0UX-056



96U16X-082

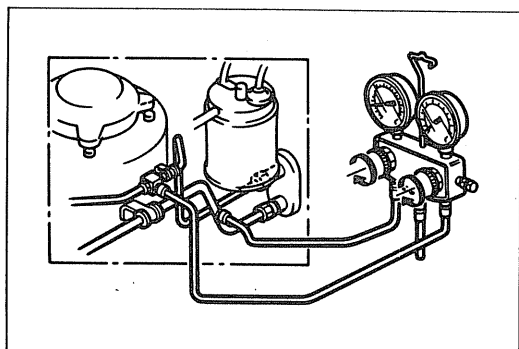
REFRIGERATION SYSTEM

CHECKING REFRIGERANT CHARGE

1. Run the engine at a fast idle.
2. Operate the air conditioner at MAX-COOLING for a few minutes.
3. Determine the amount of refrigerant as shown below by observing the sight glass.

Item	Symptom	Amount of refrigerant	Remedy
1	Bubbles present in sight glass	Insufficient refrigerant	Check for leakage with a gas leak tester
2	No bubbles present in sight glass	No (or insufficient) refrigerant	Refer to items 3 and 4
3	No temperature difference between compressor inlet and outlet	System is empty or nearly empty	Evacuate and charge the system Then check for leakage with a gas leak tester
4	Temperature between compressor inlet and outlet is noticeably different	Proper amount of (or too much) refrigerant	Refer to items 5 and 6
5	Immediately after air conditioner is turned off, refrigerant in sight glass stays clear	Too much refrigerant	Discharge excess refrigerant (to the specified amount)
6	When the air conditioner is turned off, refrigerant foams and then sight glass becomes clear	Proper amount of refrigerant	Refrigerant amount is normal

96U16X-083



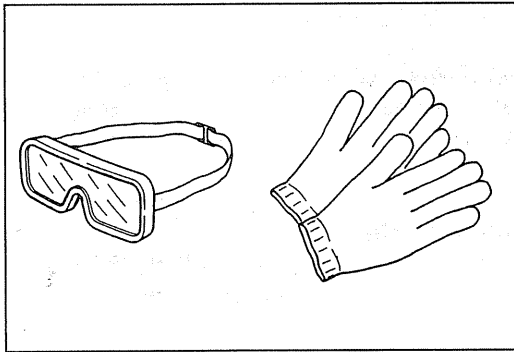
96U16X-084

INSTALLATION OF MANIFOLD GAUGE SET

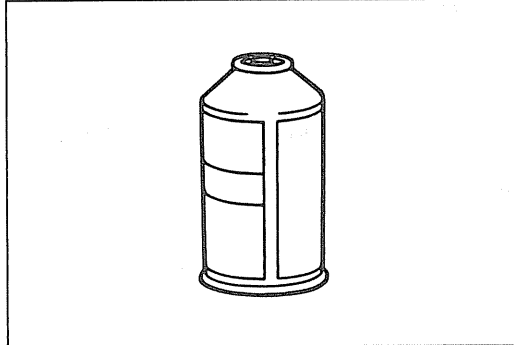
Note

- Fittings for attaching the manifold gauge set are located on the high- and low-pressure pipes.

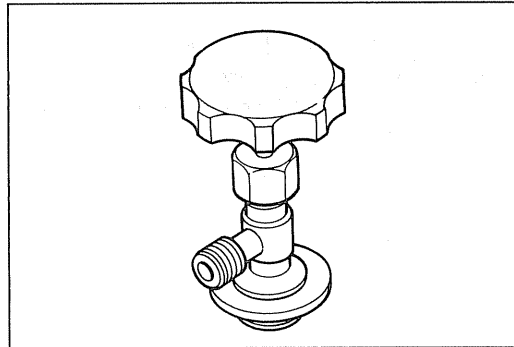
1. Close both hand valves of the manifold gauge set.
2. Install the charging hoses of the gauge set to the fittings. Connect the low-pressure hose to the low-pressure gauge fitting and the high-pressure hose to the high-pressure gauge fitting.
3. Tighten the hose nuts by hand only.



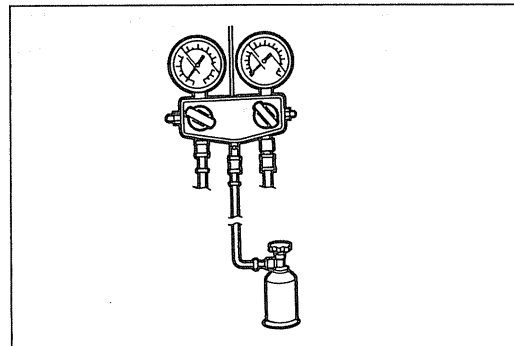
96U16X-085



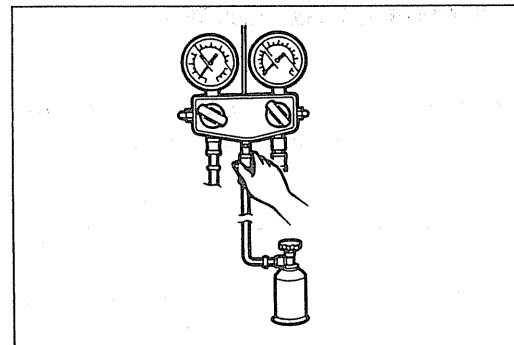
96U16X-086



96U16X-087



96U16X-088



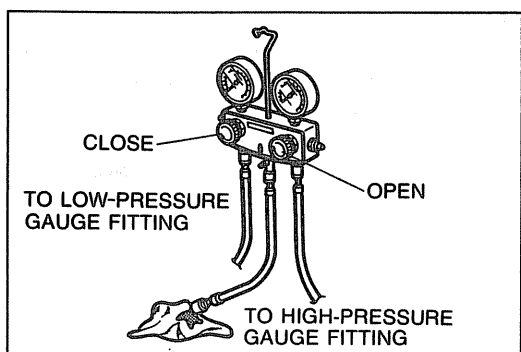
16U0UX-002

SAFETY PRECAUTIONS

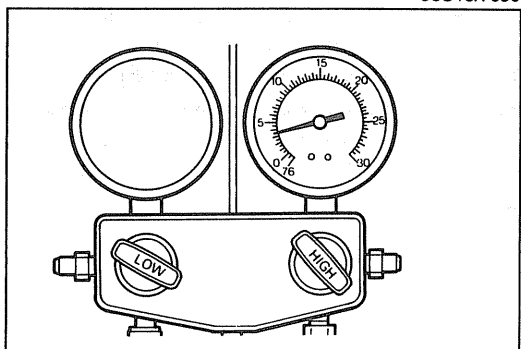
1. The R-12 liquid refrigerant is highly volatile. A drop of it on the skin of your hand could result in localized frostbite. When handling the refrigerant, be sure to wear gloves.
2. If the refrigerant splashes into your eyes, wash them with clean water immediately. It is standard practice to wear goggles or glasses to protect your eyes, and gloves to protect your hands.
3. The R-12 container is a highly pressurized vessel. Never leave it in a hot place, and be sure that the temperature where it is stored is below **52°C (125.6°F)**.
4. A halide leak detector is often used to check the system for refrigerant leakage. Remember that R-12, upon coming into contact with the flame (this detector looks like a small propane torch), produces phosgene, a toxic gas.

REFRIGERANT CONTAINER SERVICE VALVE

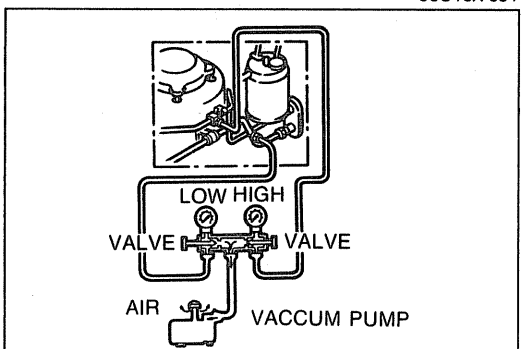
1. Turn the handle fully counterclockwise before connecting the valve to the refrigerant container.
2. Turn the outlet valve counterclockwise until it reaches its highest position.
3. Connect the center hose to the valve fitting. Turn the outlet valve fully clockwise by hand.
4. Turn the handle clockwise to make a hole in the sealed can.
5. Turn the handle fully counterclockwise to fill the center hose with air. Do not open the high- or low-pressure manual valves.
6. Loosen the hose nut connected to the center fitting of the manifold gauge. Allow air to escape for a few seconds then retighten the nut.



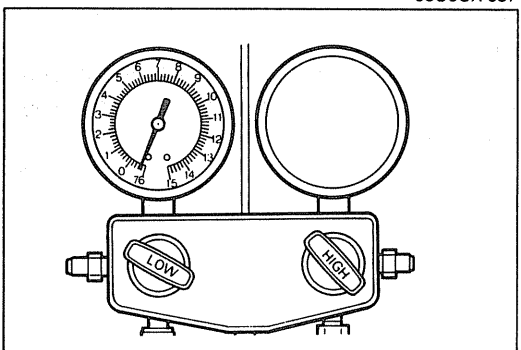
96U16X-090



96U16X-091



06U0UX-057



16U0UX-009

DISCHARGING

1. Connect the manifold gauge set to the refrigeration system.
2. Place the free end of the center hose on a shop towel.
3. Slowly open the high-pressure manual valve to allow the refrigerant to escape.

Caution

- **Open the valve only slightly.**
If refrigerant is allowed to escape too fast, the compressor oil will be drawn out of the system.

4. Check the shop towel to make sure no oil is being discharged. If oil is present, partially close the manual valve.
5. After the manifold gauge reading drops below **343 kPa (3.5 kg/cm², 50 psi)**, slowly open the low pressure manual valve.
6. As the system pressure drops, gradually open both the high- and low-pressure manual valves until both gauges read **0 kPa (0 kg/cm², 0 psi)**.

EVACUATION

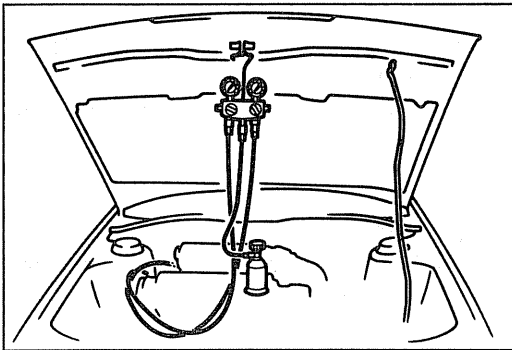
Whenever the refrigeration system has been exposed to the atmosphere, it must be purged of moisture and air.

1. Connect the manifold gauge set. (Refer to page U-40.)
2. Connect the center hose of the gauge set to the vacuum pump inlet.
3. Start the vacuum pump and open both manual valves.

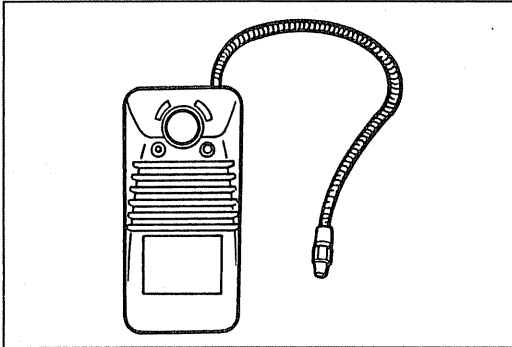
4. When the low-pressure gauge indicates approximately **750 mmHg (29.5 inHg)**, close both manual valves and stop the vacuum pump.
5. Check that the pressure does not change after 5 minutes or more in this condition. If the pressure changes, check the system for leaks, and repair if necessary.

6. If no leaks are found, disconnect the hose from the vacuum pump.

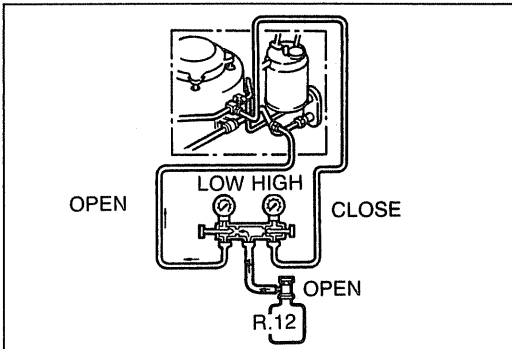
16U0UX-010



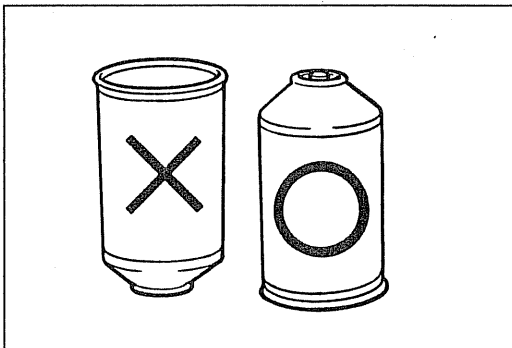
96U16X-095



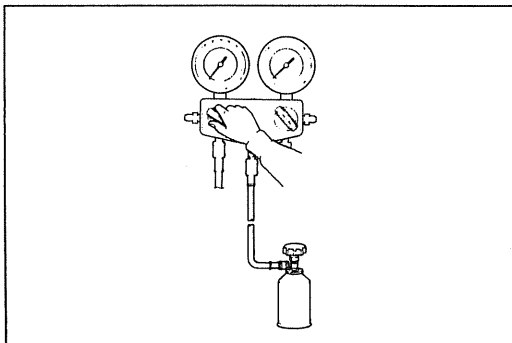
96U16X-096



96U16X-097



96U16X-098



16U0UX-006

LEAK TEST

After finishing the evacuation of the system, check for leaks.

1. Connect the refrigerant container to the service valve.
2. Open the high-pressure manual valve to charge the system with refrigerant gas.

3. When the low-pressure gauge reads **98 kPa (1 kg/cm², 14 psi)**, close the high-pressure manual valve.
4. Using a gas leak detector, check the system for leaks. If a leak is found, repair the faulty component or connection, then evacuate the system again.

CHARGING

1. Close the high- and low-pressure manual valves fully after the system is evacuated.
2. Install the refrigerant container service valve.
3. Open the low-pressure manual valve to charge the system with refrigerant gas.

Note

- **When charging of the system becomes slow, run the engine at fast idle and operate the air conditioner.**

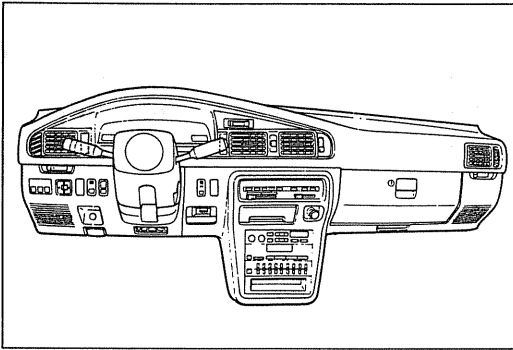
Caution

- **Be sure to keep the container in the upright position to prevent liquid refrigerant from being charged into the system through the suction side and possibly damaging the compressor.**
- **Never open the high-pressure manual valve while charging the system with the A/C ON. Doing so may cause the refrigerant can to explode.**

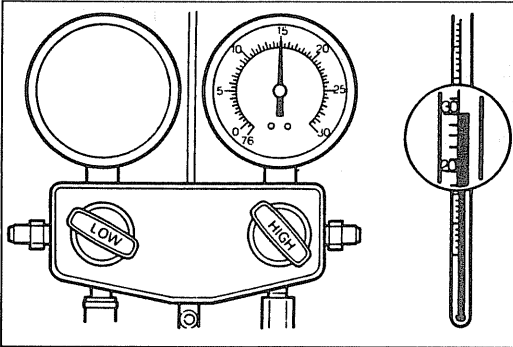
4. Charge the system to the specified amount, then close the low-pressure manual valve.

Specified amount: 900 g (31.8 oz)

5. Close the low-pressure manual valve and the service valve of the refrigerant container.
6. Carry out a "Performance TEST". (Refer to page U-44.)
7. Stop the air conditioner and the engine.
8. Quickly disconnect both hoses from the gauge fittings.
9. Put the cap nuts on the gauge fittings.



06U0UX-059



96U16X-101

PERFORMANCE TEST

After finishing repairs, conduct a performance test of the air conditioning system as follows.

1. Connect the manifold gauge set. (Refer to page U-40.)
2. Start the engine and keep the engine speed at 2,000 rpm.
3. Operate the air conditioner at MAX-COOLING.
4. Open all windows and doors.
5. Place a dry-bulb thermometer in the center ventilator outlet.
6. Place a dry and wet thermometer close to the blower inlet.
7. Wait until the air conditioner stabilizes.

Stabilized condition

Blower inlet temperature: 25—35°C (77—95°F)

High pressure:

1,373—1,570 kPa (14.0—16.0 kg/cm², 199—228 psi)

Note

- If the high pressure is too high, pour water on the condenser. If the high pressure is too low, cover the front of the condenser.

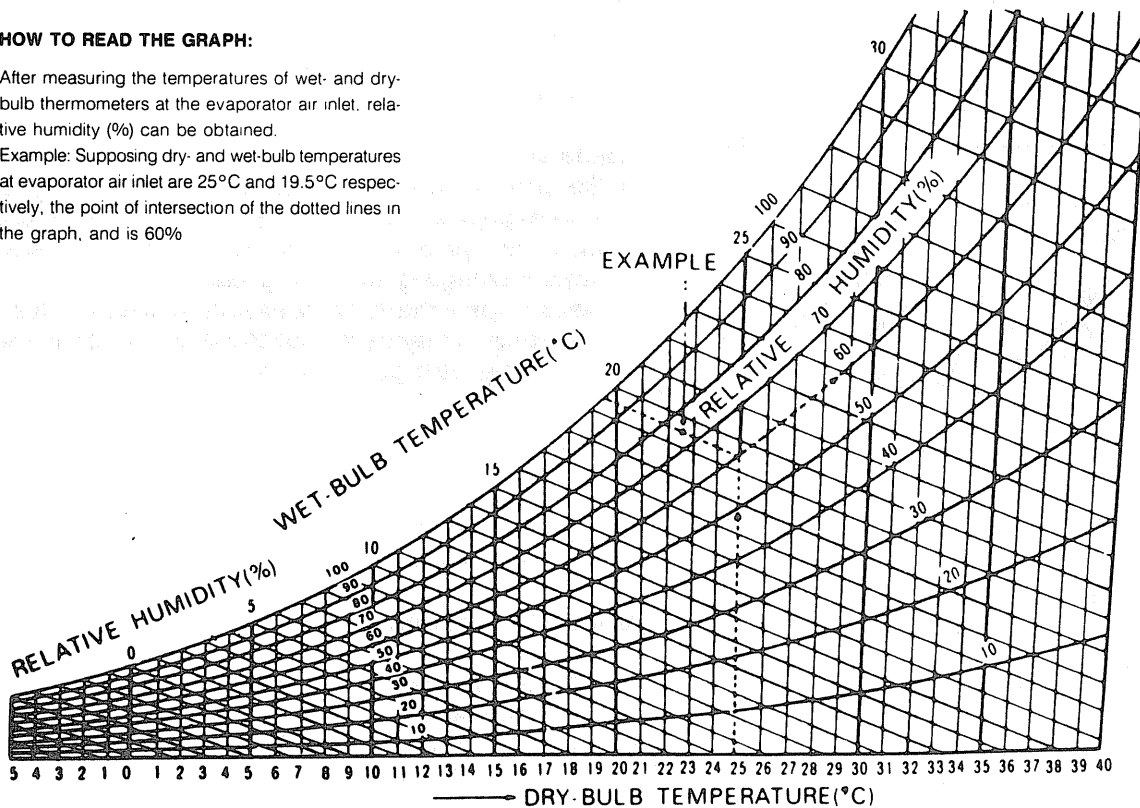
8. After the air conditioner stabilizes, read the dry and wet thermometer at the air inlet.
9. Calculate the relative humidity from the below chart by comparing the wet and dry bulb readings.

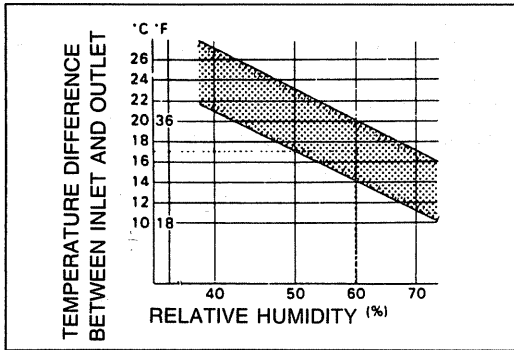
96U16X-102

HOW TO READ THE GRAPH:

After measuring the temperatures of wet- and dry-bulb thermometers at the evaporator air inlet, relative humidity (%) can be obtained.

Example: Supposing dry- and wet-bulb temperatures at evaporator air inlet are 25°C and 19.5°C respectively, the point of intersection of the dotted lines in the graph, and is 60%


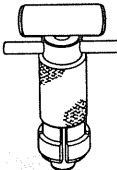
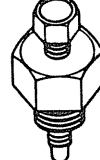
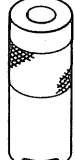




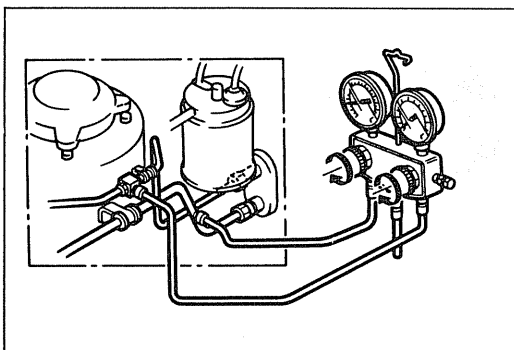
96U16X-103

10. Read the dry thermometer at the air outlet, and calculate the difference between the inlet dry bulb and outlet dry bulb temperatures.
11. Verify that the intersection of the relative humidity and temperature difference is in the shaded zone.

COMPRESSOR Preparation SST

<p>49 9202 010</p> <p>Holder bar, pressure plate</p> 	<p>For removal and installation of shaft nut</p>	<p>49 9202 030</p> <p>Remover, seal plate</p> 	<p>For removal of shaft plate</p>
<p>49 9202 020</p> <p>Remover, pressure plate</p> 	<p>For removal of pressure plate</p>	<p>49 9202 040</p> <p>Remover, shaft seal</p> 	<p>For removal of shaft seal</p>

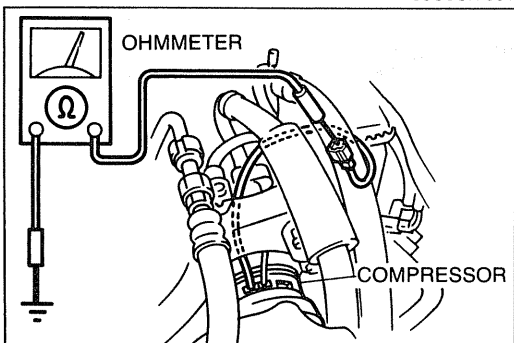
06U0UX-060



06U0UX-061

On-vehicle Inspection

1. Install the manifold gauge set. (Refer to page U-40.)
2. Run the engine at fast idle.
3. Check the compressor for the following.
 - (1) High and low pressure normal.
Normal pressure: (Refer to page U-37.)
 - (2) Metallic sound from compressor. (Replace compressor.)
 - (3) Leakage from shaft seal.
 Repair or replace if necessary.

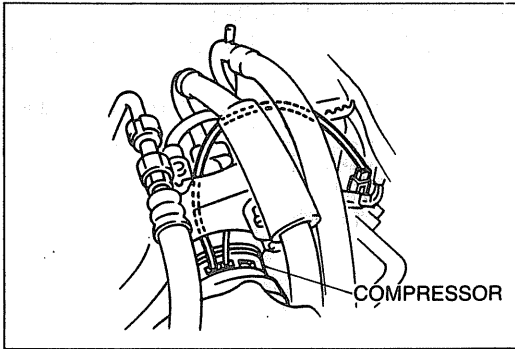


96U16X-105

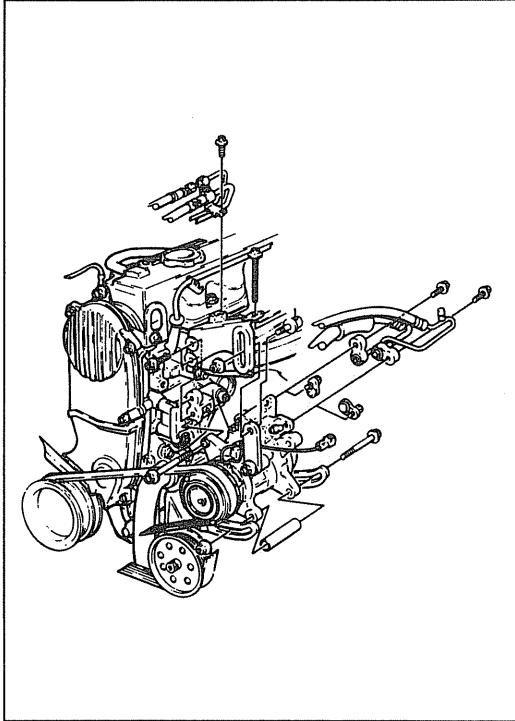
4. Check the magnetic clutch for the following.
 - (1) Pressure plate and rotor for signs of oil.
 - (2) Clutch bearings for noise and grease leakage.
5. Check the resistance of the stator coil between the clutch connector and a ground with an ohmmeter.

Resistance: 2.7—3.1Ω at 20°C (68°F)

If as not specified, replace the magnetic clutch.



96U16X-106

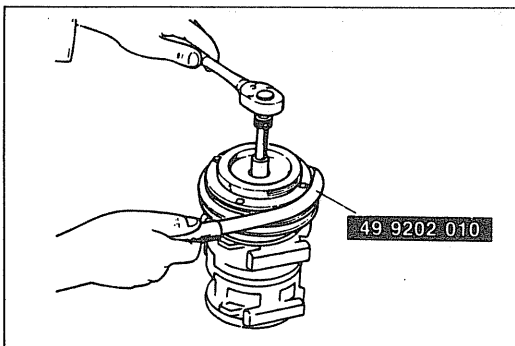
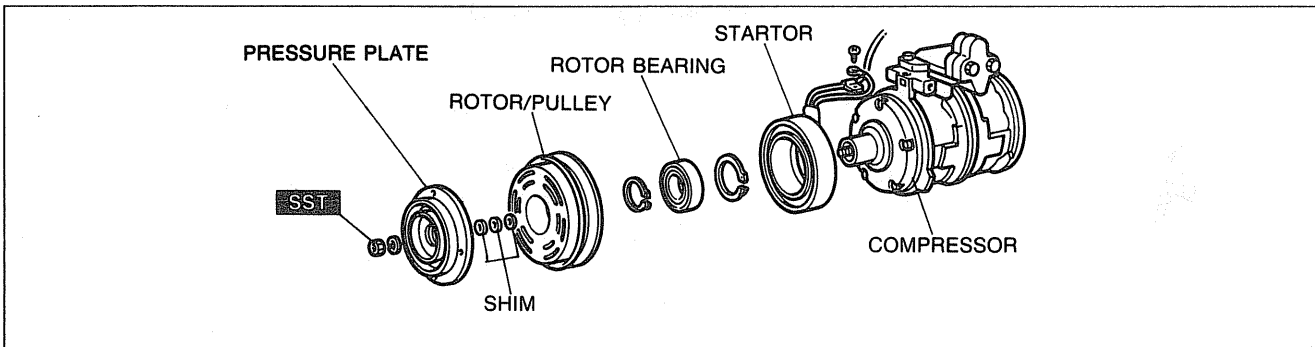


06U0UX-062

Removal

1. Run the engine at fast idle with the air conditioner ON for 10 minutes, then stop the engine.
2. Disconnect the negative battery cable.
3. Disconnect the magnetic clutch connector.

4. Discharge the refrigeration system. (Refer to page U-42.)
5. Disconnect the suction and discharge hoses from the compressor.
6. Loosen the compressor mounting bolts.
7. Remove the compressor drive belt and then the compressor.

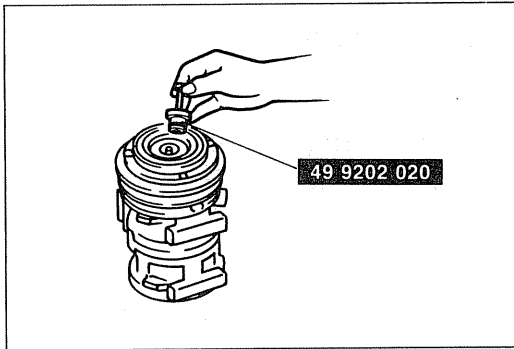


96U16X-108

Disassembly

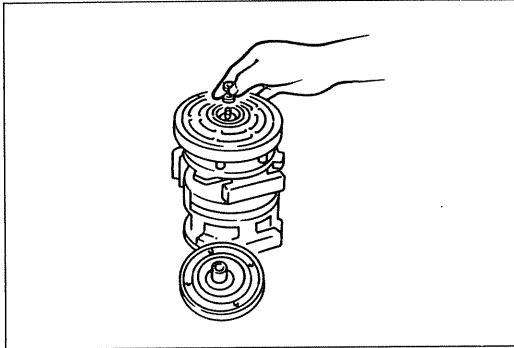
Removal of magnetic clutch

1. Hold the pulley with the **SST** and remove the shaft nut.



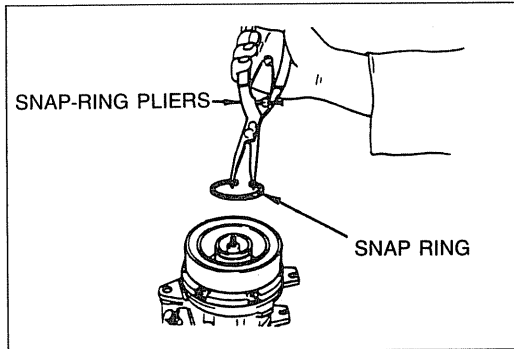
96U16X-109

2. Remove the pressure plate with the **SST**.
 - a) Turn the bolt of the **SST** counterclockwise until it reaches its most upward position.
 - b) Install the **SST** to the threaded portion of pressure plate.
 - c) Turn the **SST** bolt clockwise to remove the pressure plate.



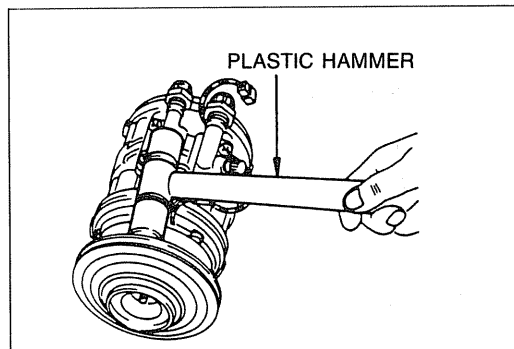
96U16X-110

3. Remove the shims from the shaft.



96U16X-111

4. Remove the snap ring.

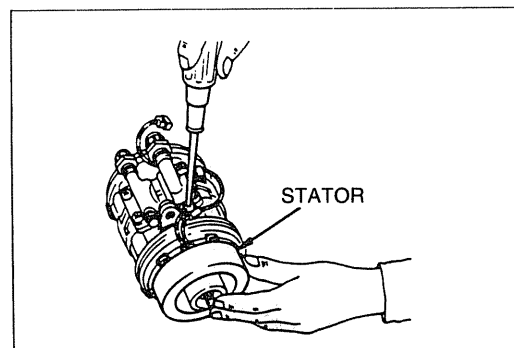


96U16X-112

5. Remove the rotor by tapping it with a plastic hammer.

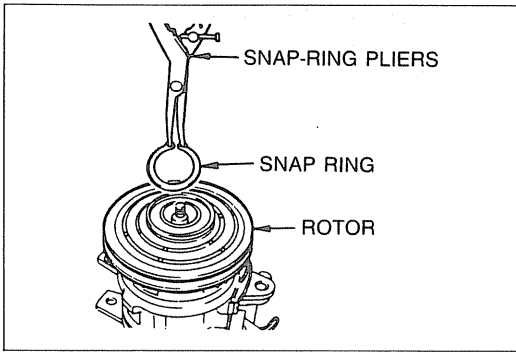
Note

- Do not damage the pulley when tapping the rotor.



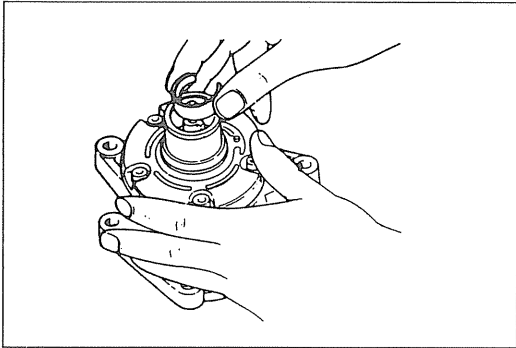
96U16X-113

6. Disconnect the stator lead wires from the compressor housing.



96U16X-114

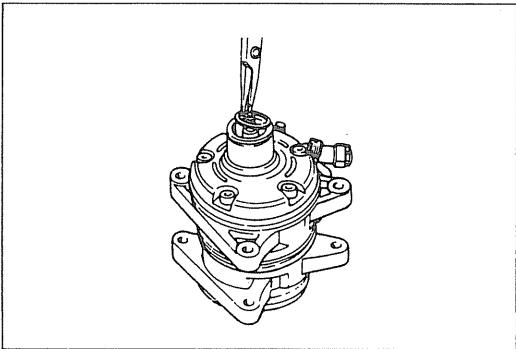
7. Remove the stator snap ring.
8. Remove the stator from the compressor housing.



96U16X-115

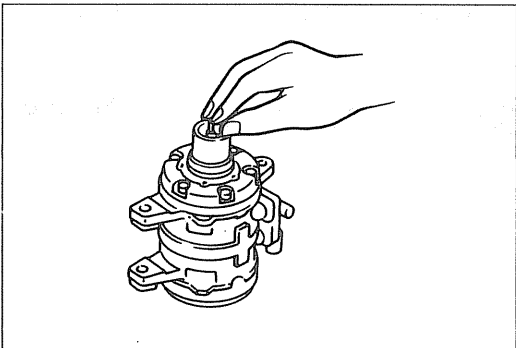
Removal of shaft seal

1. Remove the felt.



96U16X-116

2. Remove the snap ring.

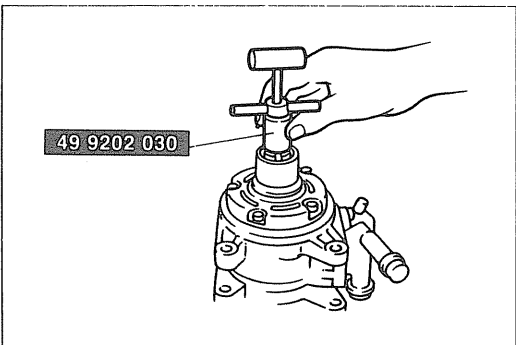


96U16X-117

3. Remove the shaft key.

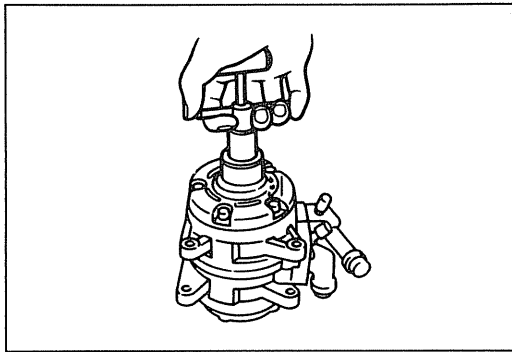
Caution

- Do not damage the shaft or the key.



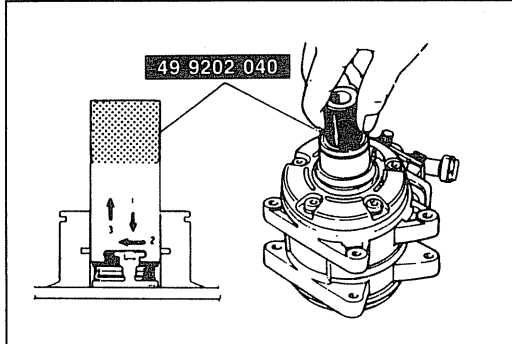
96U16X-118

4. Set the **SST** over the shaft and push the sliding collar downward.



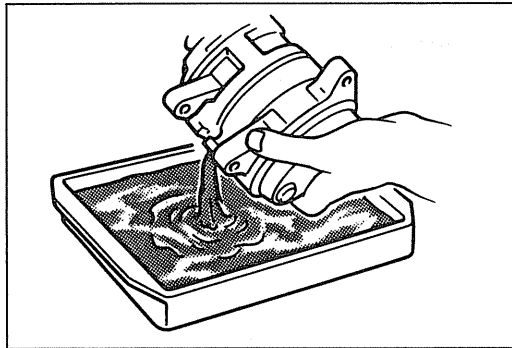
96U16X-119

5. Pull up the **SST** handle to remove the shaft plate.



96U16X-120

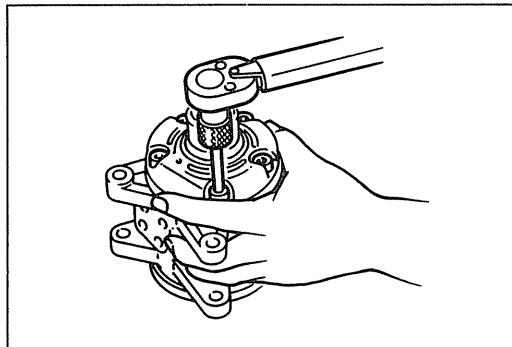
6. Remove the shaft seal.
 a) Set the **SST** over the shaft.
 b) Push down on the **SST** and turn it clockwise.
 c) Lift out the shaft seal.



96U16X-121

Removal of front housing

1. Remove the manifold block.
 2. Drain the compressor oil into a container.



16U0SX-004

3. Remove the front housing bolts.

Caution

- Do not drop or strike the compressor during disassembly or the center compressor block may separate.

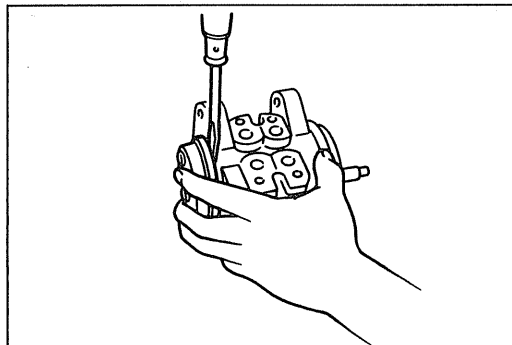
4. Using a hammer and punch, remove the front housing.

Caution

- Do not scratch the sealing surface of the front housing.

Removal of rear housing

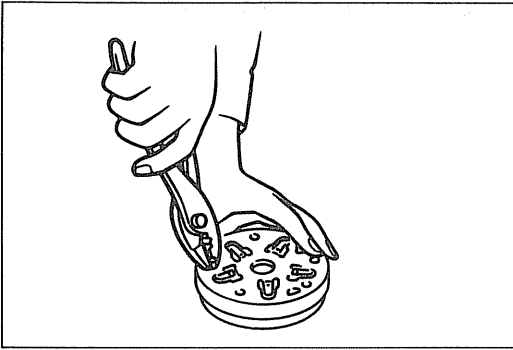
1. Pry off the rear housing.



96U16X-123

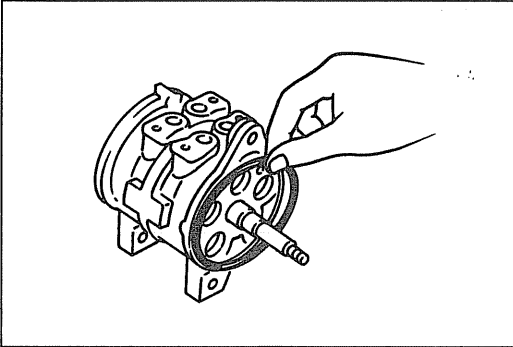
Caution

- Do not scratch the sealing surface of the rear housing.



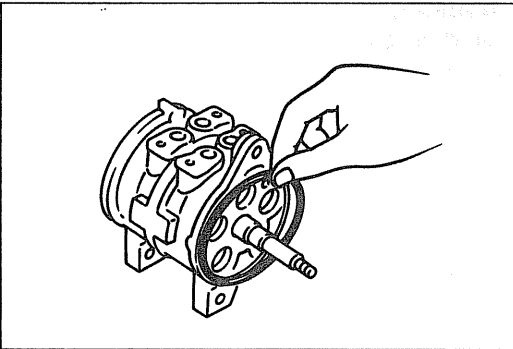
96U16X-124

2. Remove the locating pins from the rear housing.



96U16X-125

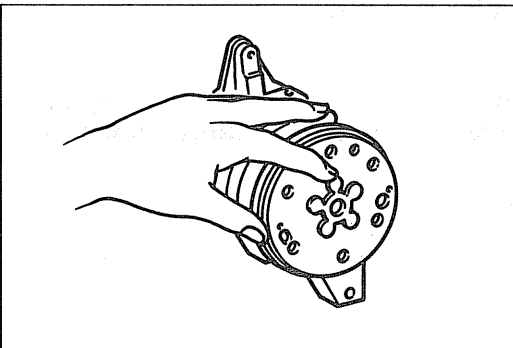
3. Remove the suction and discharge valve plate assemblies from the front and rear housing.



96U16X-126

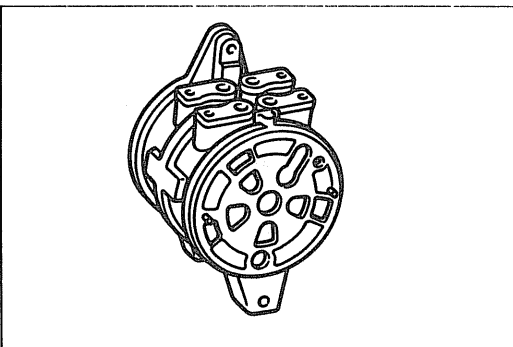
Assembly Installation of rear housing

1. Lubricate new O-rings with compressor oil and install them to the front and rear of the cylinder block.



96U16X-127

2. Install the rear suction reed valve over the rear locating pins of the cylinder block.

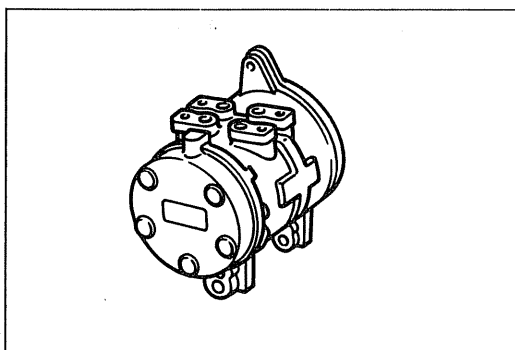


96U16X-128

3. Install the rear valve plate along with the discharge valve and metal gasket over the locating pins on the rear of the cylinder block.

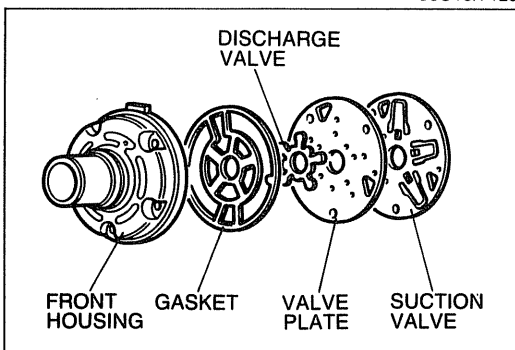
Note

- The rear valve plate is marked "R".



96U16X-129

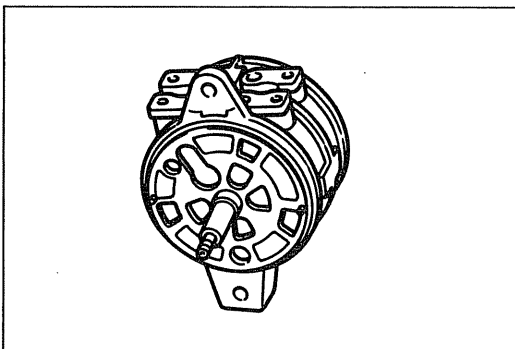
4. Install the rear housing to the cylinder block.



96U16X-130

Installation of front housing

1. Install the front suction valve over the locating pins on the front of the cylinder block.

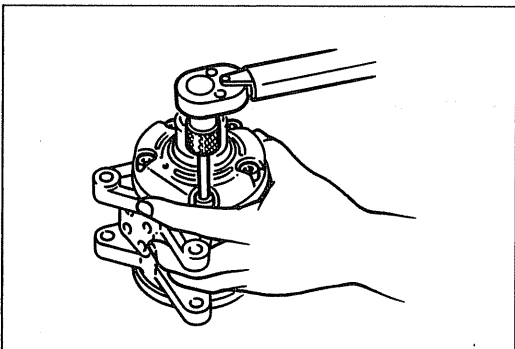


96U16X-131

2. Install the front valve plate along with the discharge valve and metal gasket over the locating pins on the front of the cylinder block.

Note

- The front valve plate is marked "F".

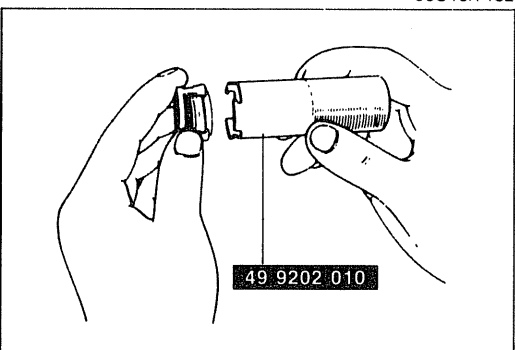


96U16X-132

3. Align the front housing on the locating pins of the cylinder block. Install and gradually tighten the bolts.

Tightening torque:

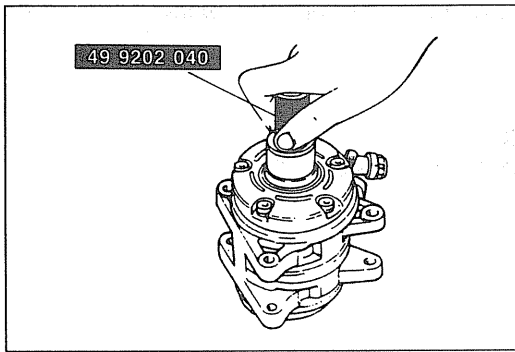
25—26 N·m (2.5—2.7 m·kg, 18—20 ft·lb)



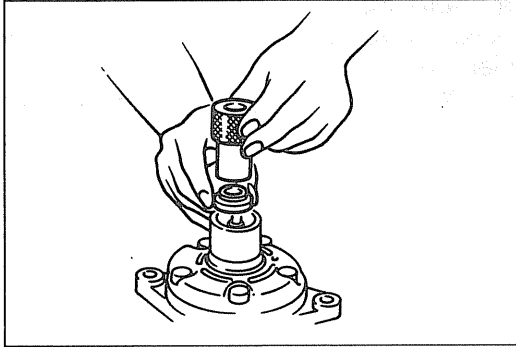
96U16X-133

Installation of shaft seal

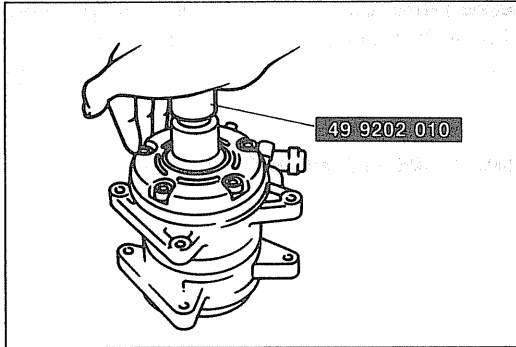
1. Apply compressor oil to the shaft seal and to the **SST**. Then fit the shaft seal onto the **SST**.



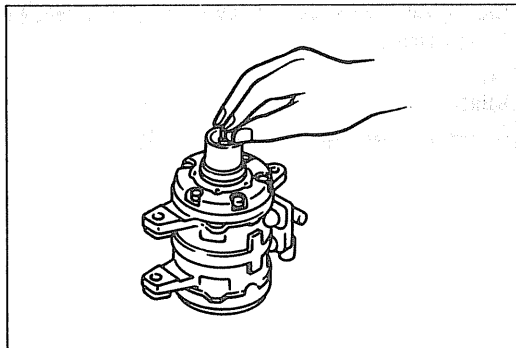
96U16X-134



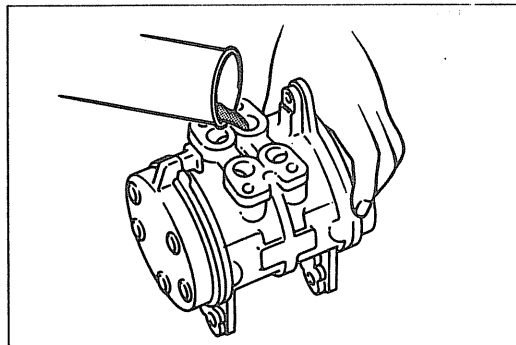
96U16X-135



96U16X-136



96U16X-137



96U16X-138

2. Apply compressor oil to the front housing bore. Insert the **SST** into the bore, and turn it counterclockwise while lightly pressing down on it. Remove the **SST** from the bore.

3. Set the shaft plate in the bore.

4. Press the shaft plate in using the **SST**.

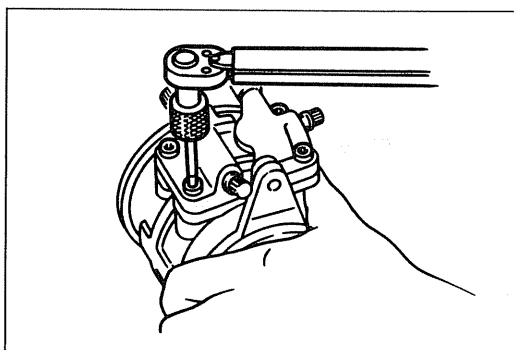
5. Install the shaft key into the shaft groove.

Caution

- Do not damage the shaft or key.

6. Pour new compressor oil into the compressor.

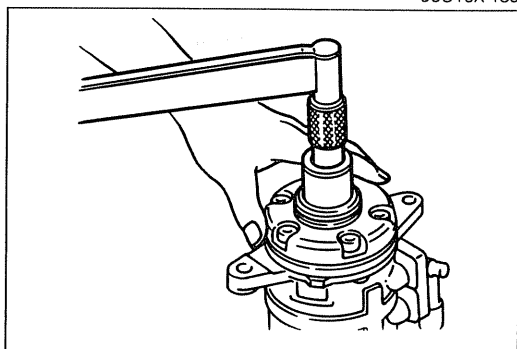
Compressor oil:
60—100 cc (3.7—6.1 cu in)



96U16X-139

- Lubricate new O-rings with compressor oil and install them onto the manifold block. Then install the manifold block onto the compressor.

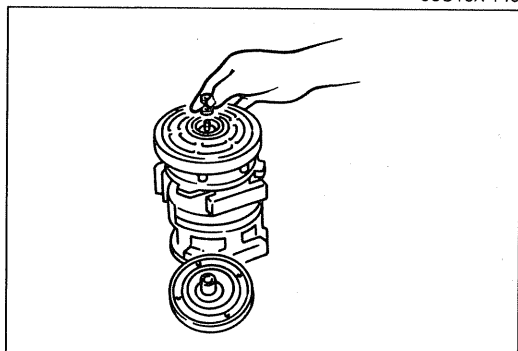
Tightening torque:
25—26 N·m (2.5—2.7 m·kg, 18—20 ft·lb)



96U16X-140

- Screw the shaft nut onto the shaft and check the rotating torque.

Rotating torque: 2.9 N·m (0.3 m·kg, 2.2 ft·lb) or less

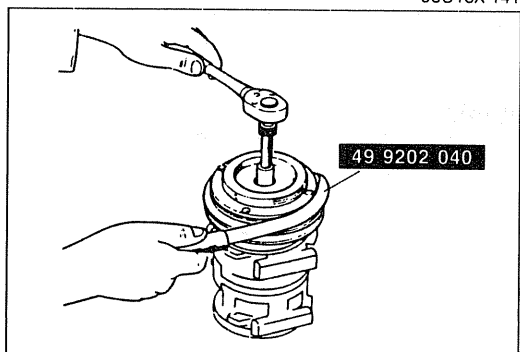


96U16X-141

Assembly of magnetic clutch

- Assemble in the reverse order of disassembly.
- Adjust the clearance between the pressure plate and rotor by installing shims on the compressor shaft.

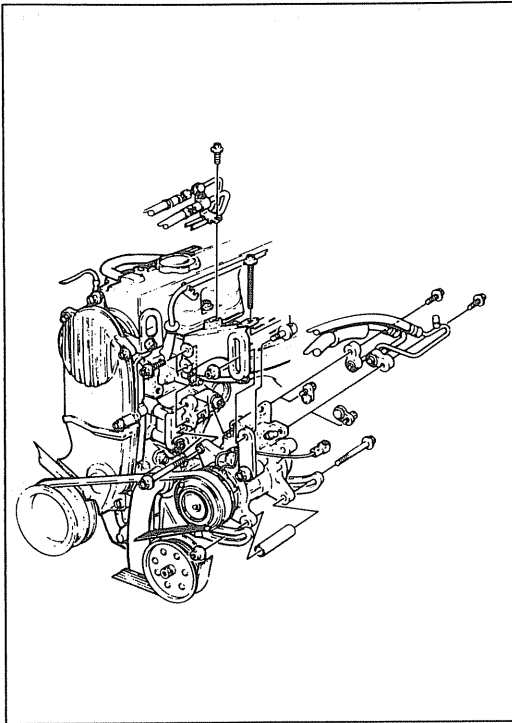
Standard clearance: 0.4—0.7mm (0.016—0.028 in)



96U16X-142

- Tighten the shaft nut while holding the pulley with the **SST**.

Tightening torque:
15—17 N·m (1.5—1.7 m·kg, 132—144 in·lb)



16U0UX-069

Installation

1. Mount the compressor.

Tightening torque:

31—46 N·m (3.2—4.7 m·kg, 23—34 ft·lb)

2. Connect the suction and discharge hoses to the compressor.

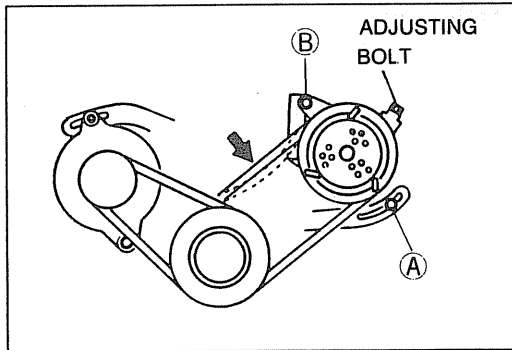
Tightening torque:

Discharge hose:

20—25 N·m (2.0—2.5 m·kg, 14—18 ft·lb)

Suction hose:

29—34 N·m (3.0—3.5 m·kg, 22—25 ft·lb)



16U0UX-006

3. Install the drive belt. And check the drive belt deflection by applying moderate pressure **98 N (10 kg, 2.2 lb)** midway between the pulleys.

Drive belt deflection:

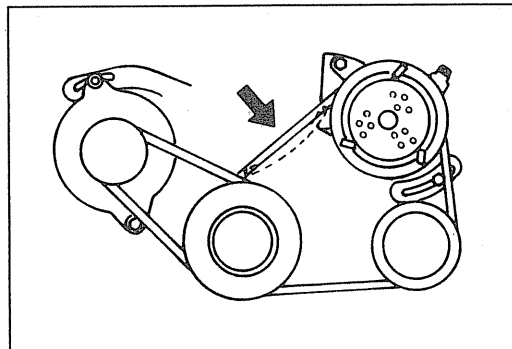
New : 7—9mm (0.27—0.35 in)

Used: 8—10mm (0.31—0.39 in)

Tightening torque of lock bolt:

(A) : 37—52 N·m (3.8—5.3 m·kg, 27—38 ft·lb)

(B) : 37—52 N·m (3.8—5.3 m·kg, 27—38 ft·lb)



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4. Check the drive belt tension at allowed part using a tension gauge.

Standard belt tension:

New : 687—883 N (70—90 kg, 154—198 lb)

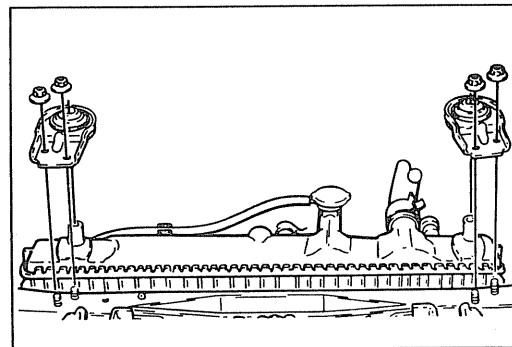
Used: 589—785 N (60—80 kg, 132—176 lb)

5. Connect the magnetic clutch connector.
6. Connect the negative battery cable.
7. Evacuate, charge and test the refrigeration system.

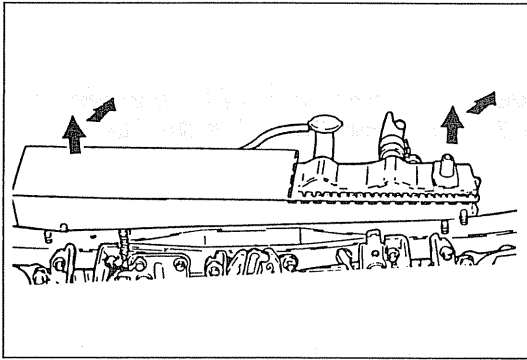
CONDENSER

Removal

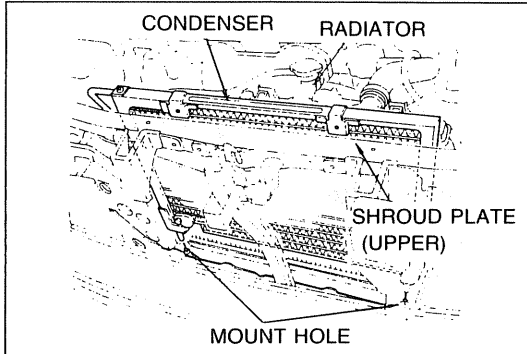
1. Discharge the air conditioning system. (Refer to page U-42.)
2. Remove the radiator grill. (Refer to Section S.)
3. Disconnect the hose.
4. Disconnect the pipe.
5. Remove the radiator support brackets.



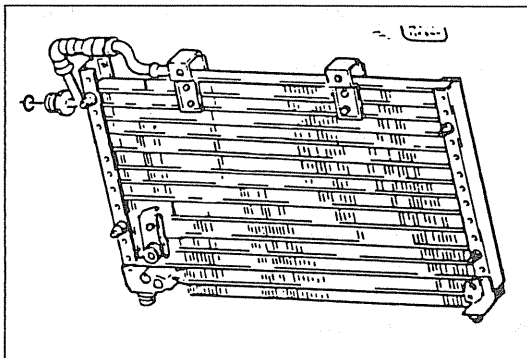
06U0UX-063



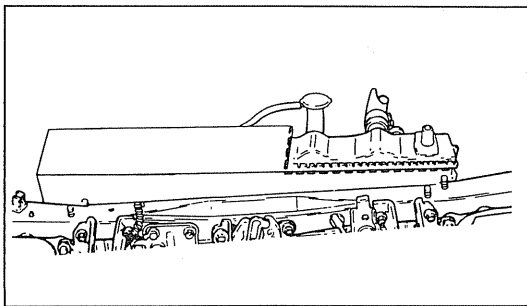
96U16X-148



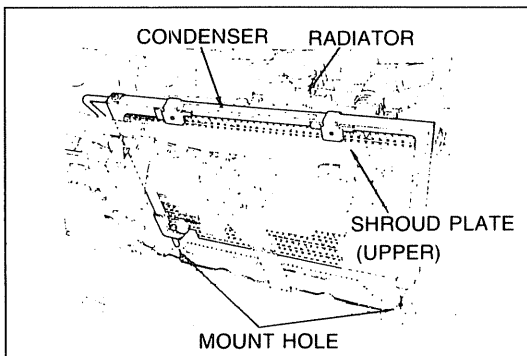
96U16X-149



96U16X-150



96U16X-151



96U16X-152

6. Lift up on both ends of the radiator and carefully push it toward engine.
7. Slide cardboard over the front of the radiator to prevent damage to the radiator.

8. Remove the condenser installation bolts.
9. Push the condenser toward engine, and remove it by lifting up on both ends of the condenser.

Inspection

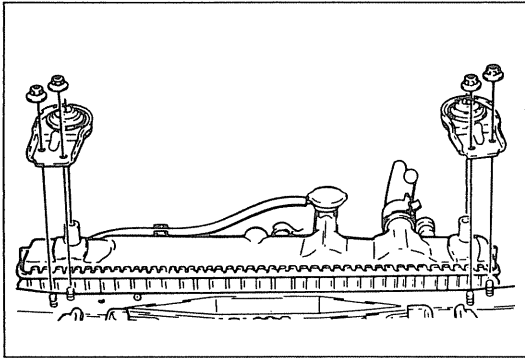
Check for the following and repair or replace parts as necessary.

1. Cracks, damage, or refrigerant leakage.
2. Bent fins.
3. Distorted or damaged condenser inlet or outlet.

Installation

1. Slide cardboard over the front of the radiator to prevent damage to the radiator.

2. Slide the condenser between the radiator and radiator support.
3. Set the condenser into the mount holes. Install and tighten the radiator installation bolts.

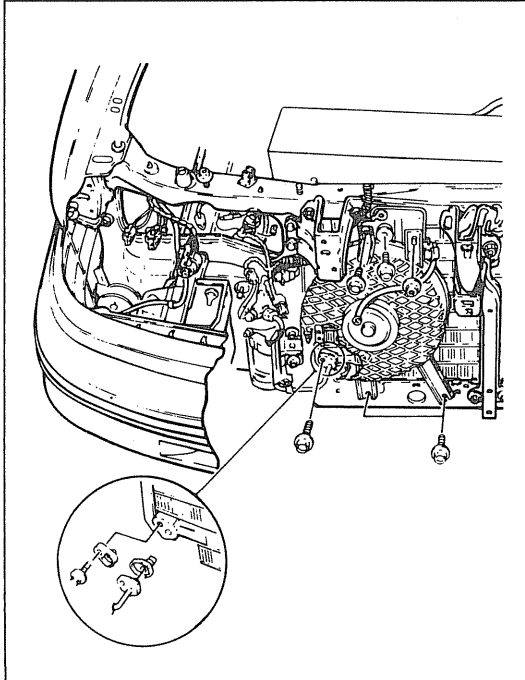


96U16X-153

4. Remove the cardboard, and reinstall the radiator.

Caution

Be sure to install the radiator brackets to proper position referring to the page E-7-1 of Section E.



96U16X-154

5. Connect the flexible hose and liquid pipe.

Tightening torque:

Flexible hose:

15—25 N·m (1.5—2.5 m·kg, 11—18 ft·lb)

Liquid pipe:

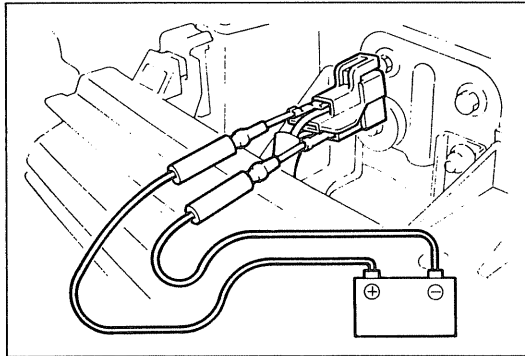
15—22 N·m (1.5—2.2 m·kg, 11—16 ft·lb)

6. If the condenser is replaced, add the compressor oil.

Compressor oil: 30 cc (1.83 cu in)

7. Evacuate, charge, and test the refrigeration system.

96U16X-155



96U16X-156

ADDITIONAL (CONDENSER) FAN

On-vehicle Inspection

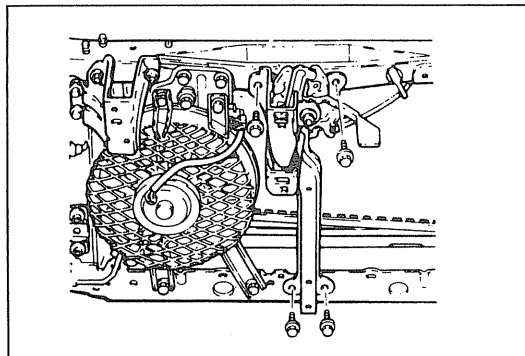
1. Disconnect the condenser fan connector.
2. Check that the condenser fan motor runs when connecting battery voltage to terminal-wire (Y/W) and grounding terminal-wire (B).

Connection		Motor operation
12V	Ground	
(Y/W)	(B)	Runs

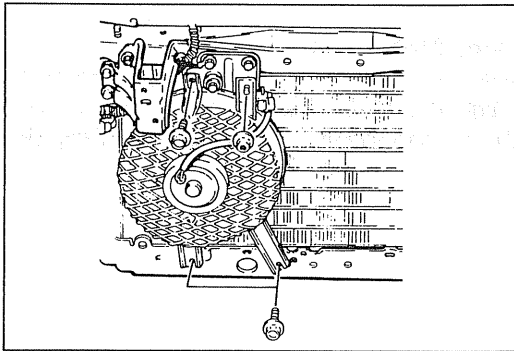
If not as specified, replace the condenser fan.

Removal

1. Remove the radiator grille. (Refer to Section S.)
2. Remove the hood lock and stay.



06U0UX-064

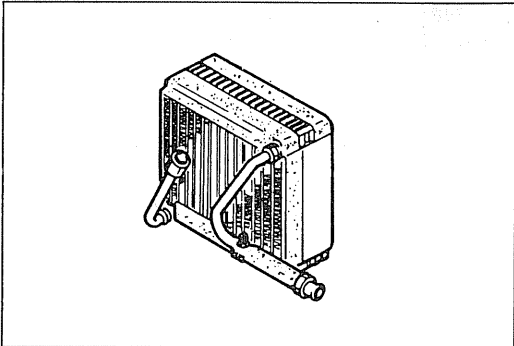


96U16X-158

3. Disconnect the condenser fan connector.
4. Remove the condenser fan.

Installation

Install in the reverse order of removal.



96U16X-159

EVAPORATOR

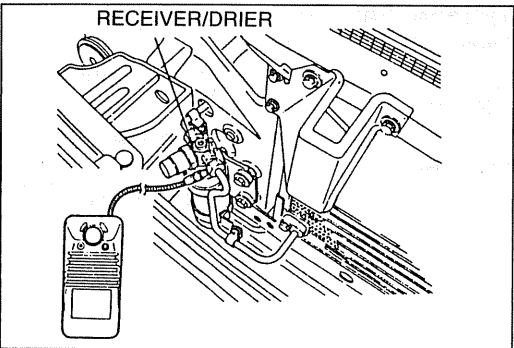
Inspection

1. Check the evaporator fins for blockage. If the fins are clogged, clean them with compressed air.

Caution

- **Never use the water to clean the evaporator.**

2. Check the fittings for cracks or damage. Replace if necessary.

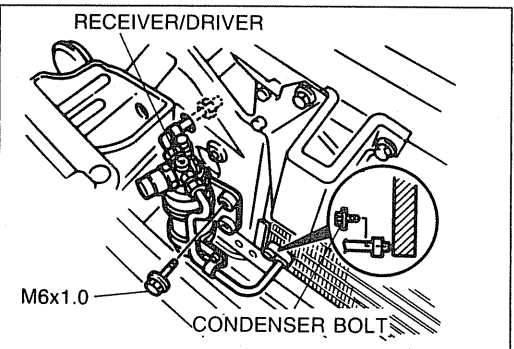


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RECEIVER/DRIER

On-vehicle Inspection

Check for leakage at the pipe fittings using a gas leak tester.



06U0UX-065

Removal

1. Discharge the refrigeration system. (Refer to page U-42.)
2. Remove the radiator grill. (Refer to Section S.)
3. Disconnect the pipes from the receiver/drier.

Note

- **Immediately plug the open fittings to keep moisture out of the system.**

4. Remove the receiver/drier from the bracket.

Installation

1. Install the receiver/drier onto the bracket.
2. Connect the pipes to the receiver/drier.

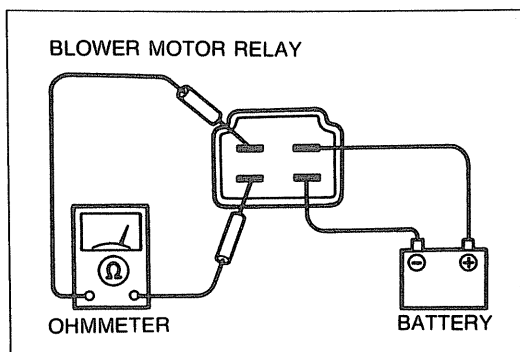
Tightening torque:

15—25 N·m (1.5—2.5 m·kg, 11—18 ft·lb)

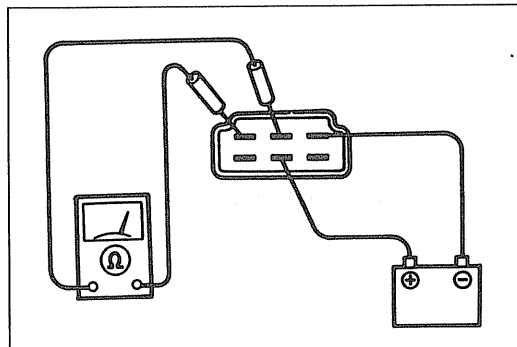
4. If the receiver/drier is replaced, add compressor oil to the compressor.

Compressor oil: 10 cc (0.61 cu in)

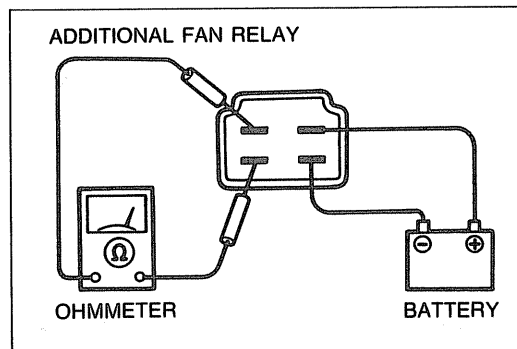
5. Install the radiator grille.
6. Evacuate, charge, and test the refrigeration system.



06U0UX-066



06U0UX-067



06U0UX-068

RELAY**Inspection of Blower Motor Relay**

1. Connect the blower motor relay, battery, and an ohmmeter as shown in the figure.
2. First check that there is continuity, then disconnect the battery and check that there is no continuity.
3. If the continuity is not specified, replace the relay.

Inspection of A/C Relay

1. Connect the A/C relay, battery, and an ohmmeter as shown in the figure.
2. First check that there is continuity, then disconnect the battery and check that there is no continuity.
3. If the continuity is not specified, replace the relay.

**Inspection of Additional Fan Relay
(Turbo with MTX and all EC-AT)**

1. Connect the additional fan relay, battery, and an ohmmeter as shown in the figure.
2. First check that there is continuity, then disconnect the battery and check that there is no continuity.
3. If the continuity is not specified, replace the relay.