<SUPPLEMENT-I>

HEATER & AIR CONDITIONER

SECTION HA

MODIFICATION NOTICE:

- Wiring diagrams have been changed.
- Auto air conditioner has been added to LHD models for Europe.

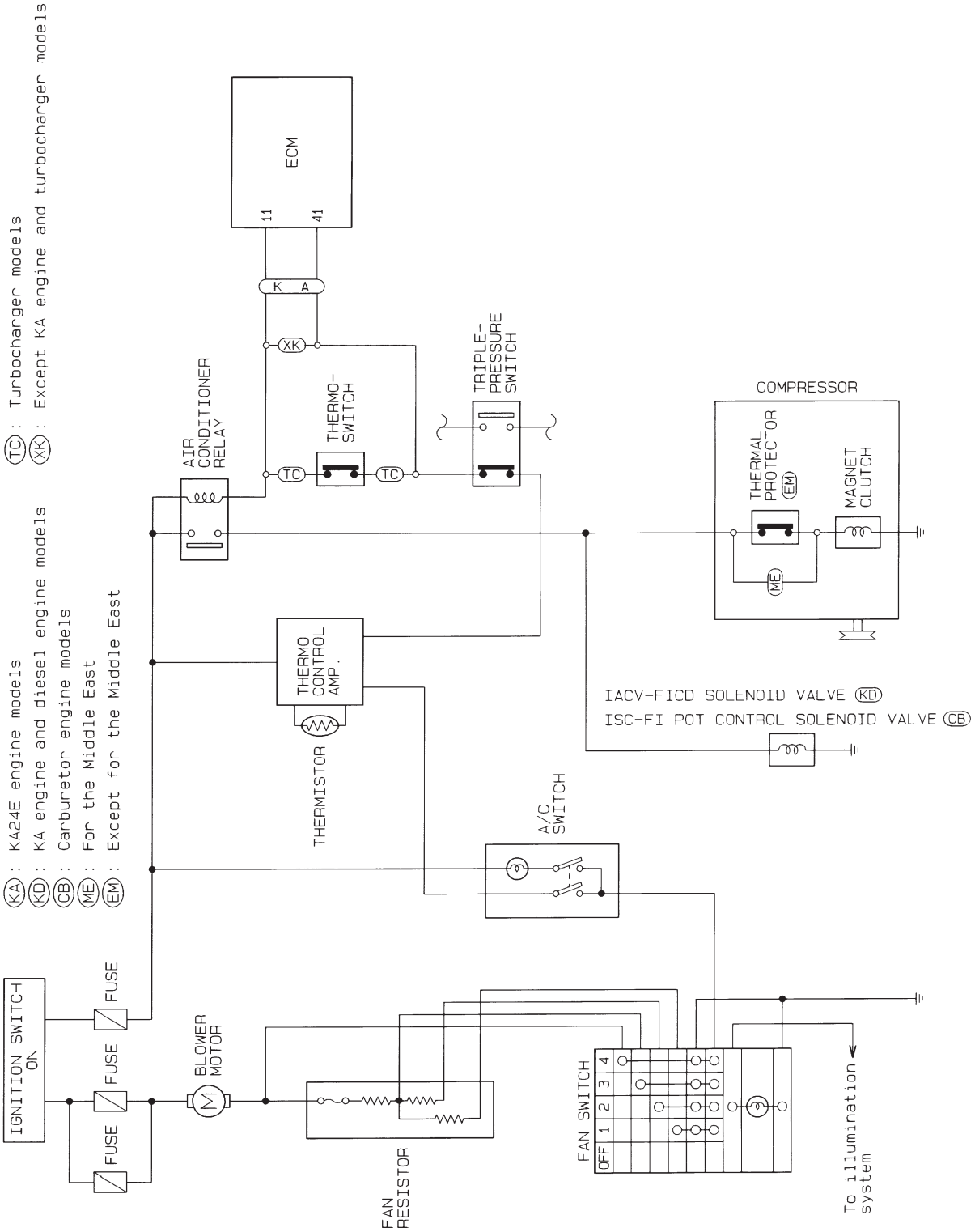
CONTENTS

MANUAL

AUTO

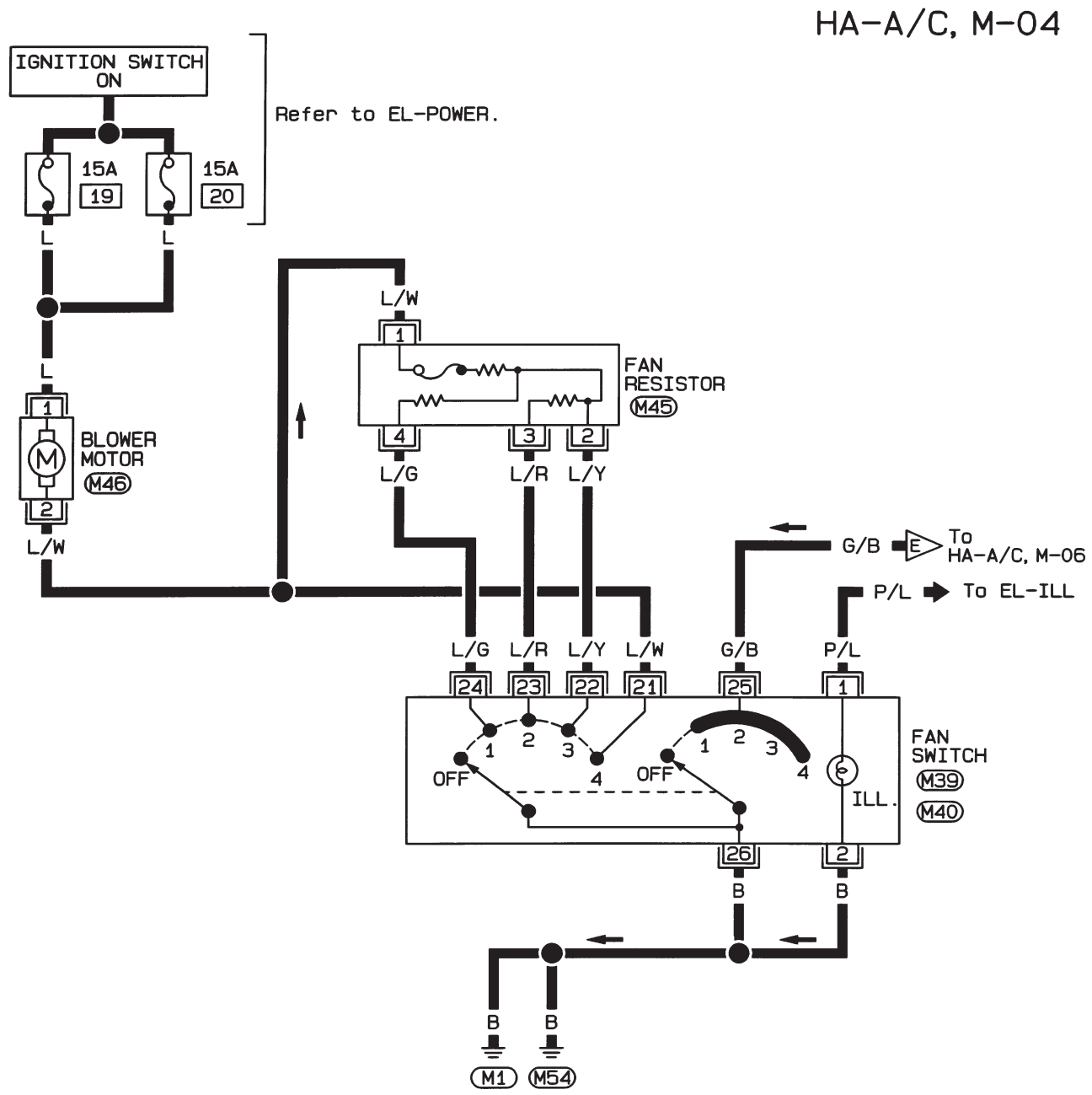
MANUAL AND AUTO

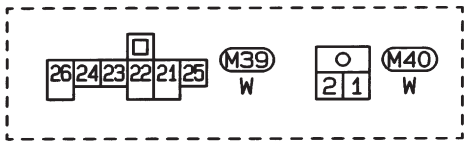
Circuit Diagram — Air Conditioner

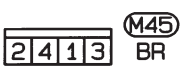


HHA148

Wiring Diagram — A/C —

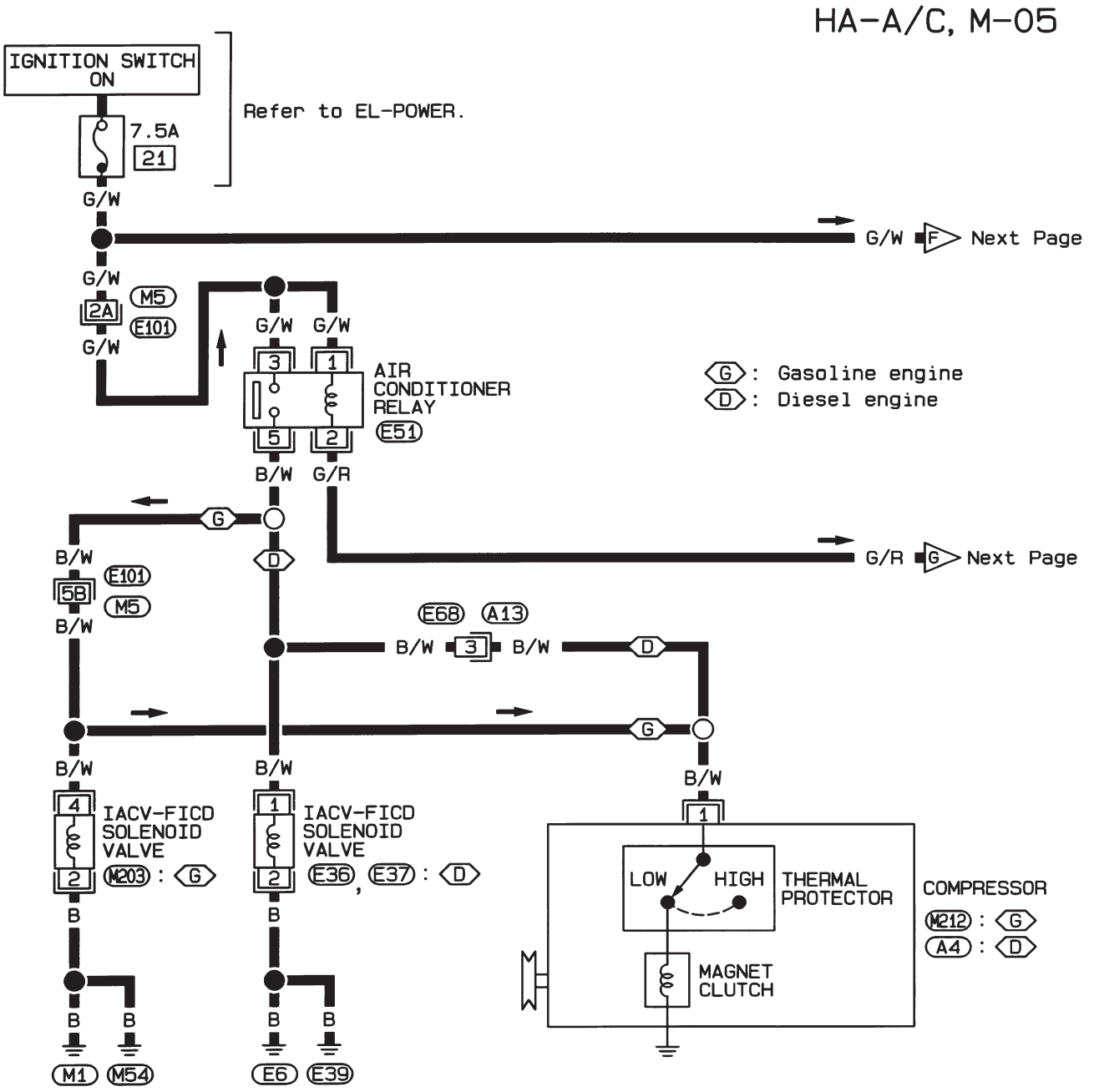


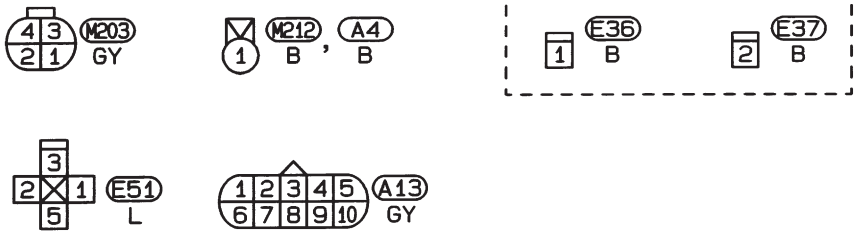




HHA133

Wiring Diagram — A/C — (Cont'd)



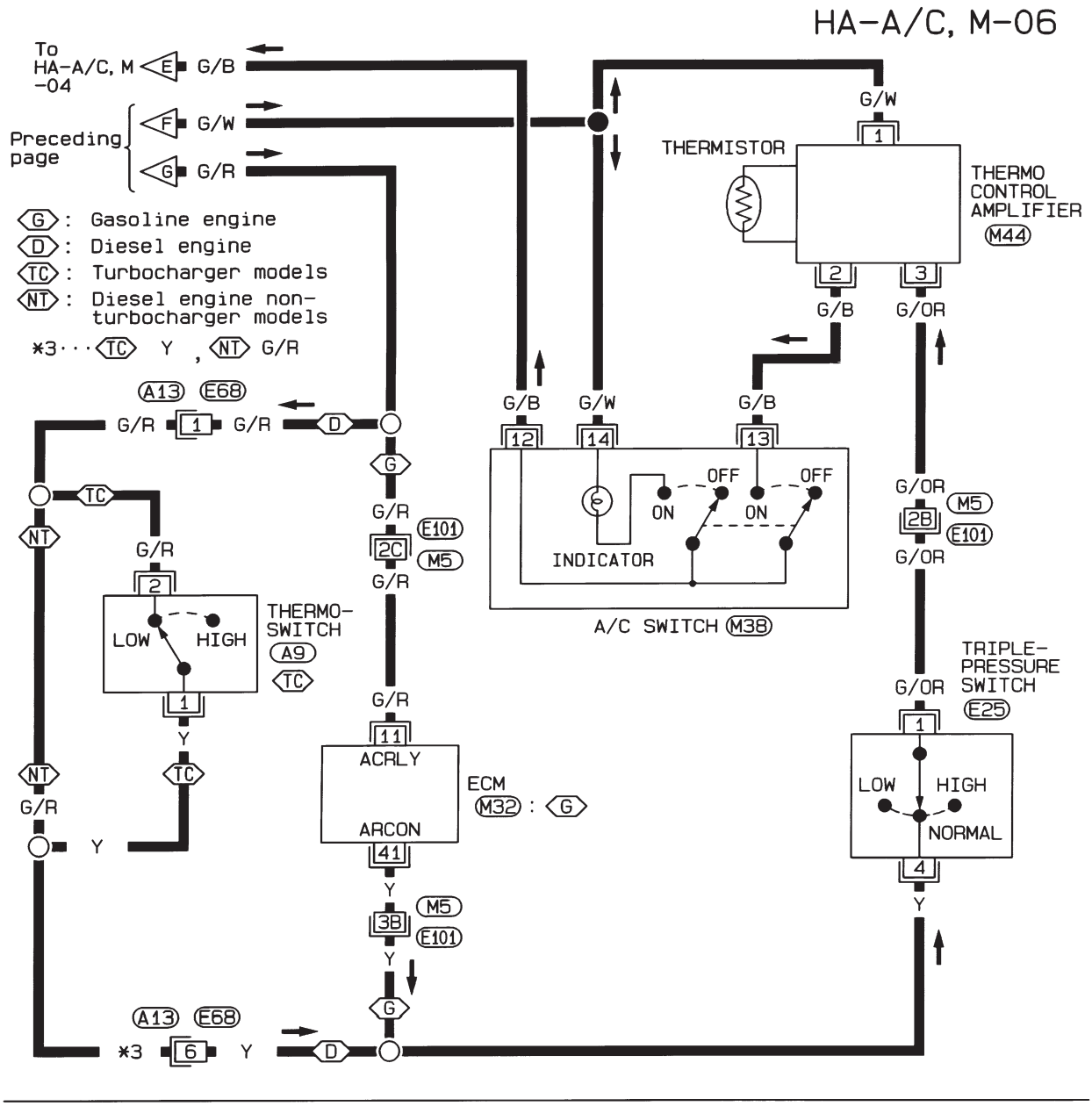


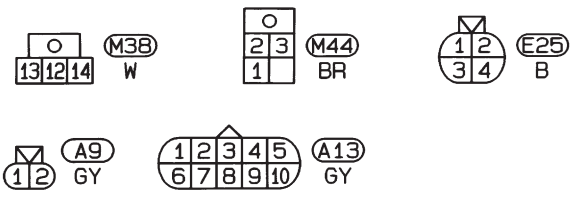
Refer to last page (Foldout page).

M5, E101

HHA134

Wiring Diagram — A/C — (Cont'd)





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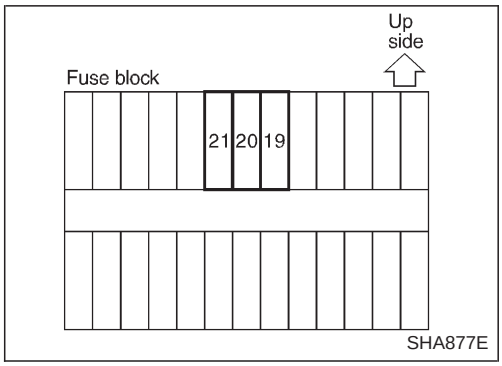
M5 , E101

M32

HHA149



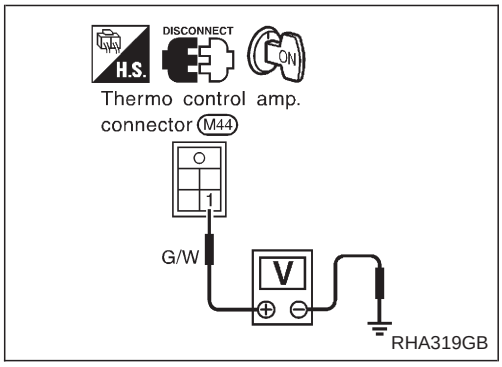
Main Power Supply and Ground Circuit Check

POWER SUPPLY FUSE CHECK FOR A/C SYSTEM

Check the following fuses.

- 15A fuse (No. 19 and 20) for blower motor.
- 7.5A fuse (No. 21) for thermo control amp.

For detailed circuit, refer to ''Wiring Diagram''.



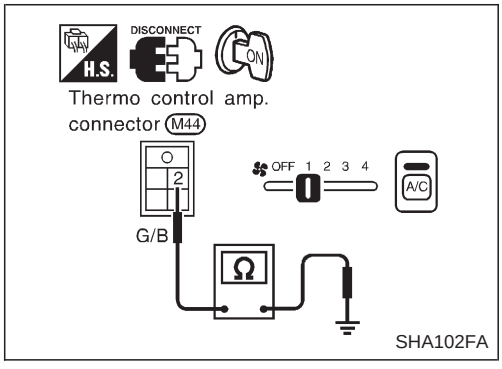
THERMO CONTROL AMP. CHECK

Power supply circuit check

Check power supply circuit for thermo control amp. with ignition switch ON.

1. Disconnect thermo control amp. harness connector.
2. Connect voltmeter from harness side.
3. Measure voltage across terminal No. ① and body ground.

Voltmeter terminal		Voltage
⊕	⊖	
①	Body ground	Approx. 12V



Ground circuit check

Check body ground circuit for thermo control amp. with ignition switch ON, air conditioner switch ON and fan switch ON.

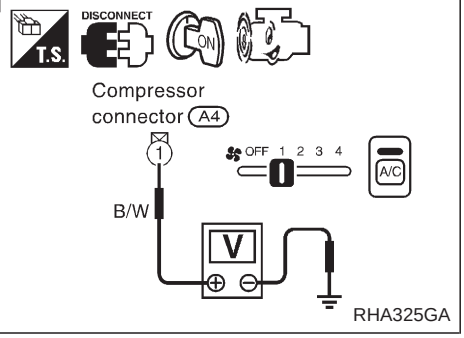
1. Disconnect thermo control amp. harness connector.
2. Connect ohmmeter from harness side.
3. Check for continuity between terminal No. ② and body ground.

Ohmmeter terminal		Continuity
⊕	⊖	
②	Body ground	Yes

If the ground circuit is NG, check the following.

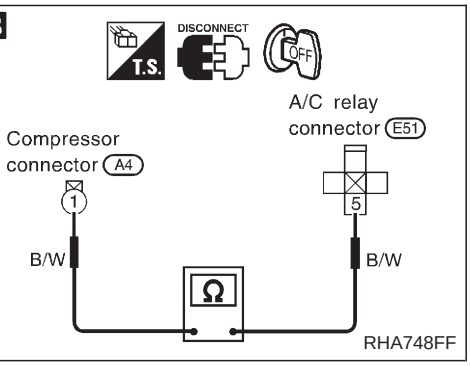
- A/C switch (Refer to HA-1009.)
- Fan switch (Refer to HA-1009.)
- Harness for open or short between thermo control amp. and A/C switch
- Harness for open or short between A/C switch and fan switch
- Fan switch ground circuit

A



RHA325GA

B



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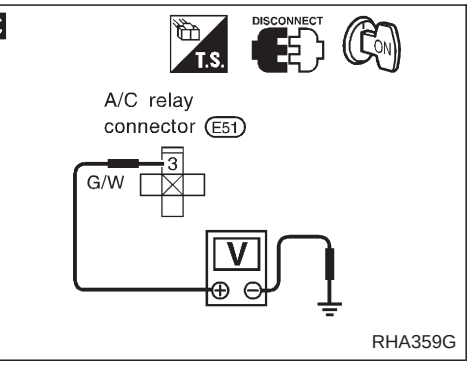
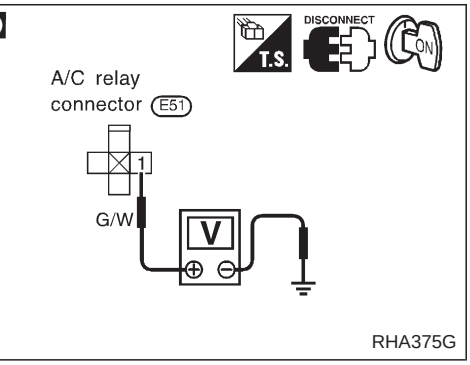
C



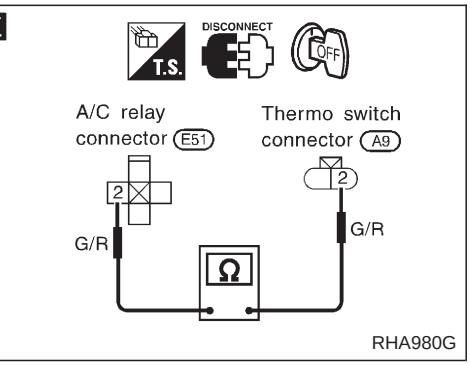
RHA359G

D



RHA375G

E



RHA980G

Diagnostic Procedure

SYMPTOM: Magnet clutch does not engage when A/C switch and fan switch are ON.

- **Perform PRELIMINARY CHECK 1 before referring to the following flow chart.**

A

CHECK POWER SUPPLY FOR COMPRESSOR.
Disconnect compressor harness connector.
Do approx. 12 volts exist between compressor harness terminal No. ① and body ground?

Yes → Check the following.
- Magnet clutch coil
- Thermal protector

NG → Replace magnet clutch. Refer to HA-1087.

No

B

Note

Check circuit continuity between A/C relay harness terminal No. ⑤ and compressor harness terminal No. ①.
Continuity should exist.
If OK, check harness for short.

OK

C

CHECK POWER SUPPLY FOR A/C RELAY.
Do approx. 12 volts exist between A/C relay harness terminal No. ③ and body ground?

No → Check power supply circuit and 7.5A fuse (No. 21, located in the fuse block). (Refer to "POWER SUPPLY ROUTING" in EL section and Wiring Diagram.)

Yes

D

CHECK POWER SUPPLY FOR A/C RELAY.
Do approx. 12 volts exist between A/C relay harness terminal No. ① and body ground?

Yes → Check power supply circuit and 7.5A fuse (No. 21, located in the fuse block). (Refer to "POWER SUPPLY ROUTING" in EL section and Wiring Diagram.)

No

CHECK A/C RELAY AFTER DISCONNECTING IT.
Refer to HA-1009.

NG → Replace A/C relay.

OK

Reconnect A/C relay.

E

Note

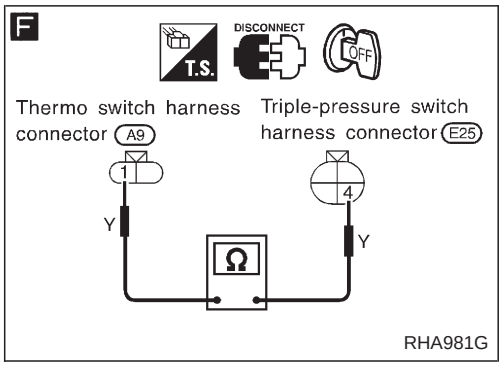
Check circuit continuity between A/C relay harness terminal No. ② and thermo switch harness terminal No. ②.
Continuity should exist.
If OK, check harness for short.

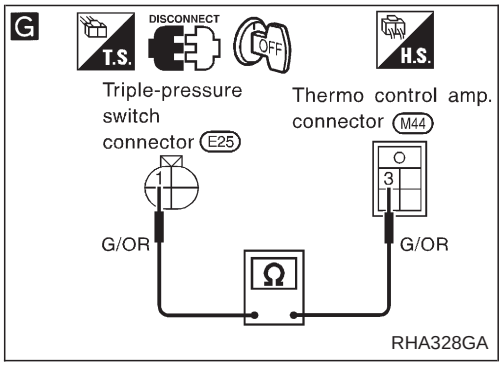
OK

Ⓐ
(Go to next page.)

Note:
If the result is NG or No after checking circuit continuity, repair harness or connector.

Diagnostic Procedure (Cont'd)





Ⓐ

F Note

Check circuit continuity between thermo switch harness terminal No. ① and triple-pressure switch harness terminal No. ④.
Continuity should exist.
If OK, check harness for short.

OK ↓

CHECK THERMO SWITCH.
Refer to HA-1010.

↓

CHECK TRIPLE-PRESSURE SWITCH.
Refer to HA-1010.

NG → Check refrigerant charge amount.

OK ↓

Check refrigerant charge amount. → OK ↓ Replace triple-pressure switch.

G Note

Check circuit continuity between triple-pressure switch harness terminal No. ① and thermo control amp. harness terminal No. ③.
Continuity should exist.
If OK, check harness for short.

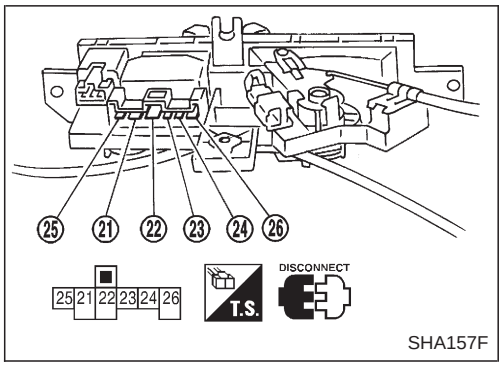
OK ↓

CHECK POWER SUPPLY AND GROUND CIRCUIT FOR THERMO CONTROL AMP.
Refer to HA-1010.

OK ↓

Replace thermo control amp.

Note:
If the result is NG or No after checking circuit continuity, repair harness or connector.



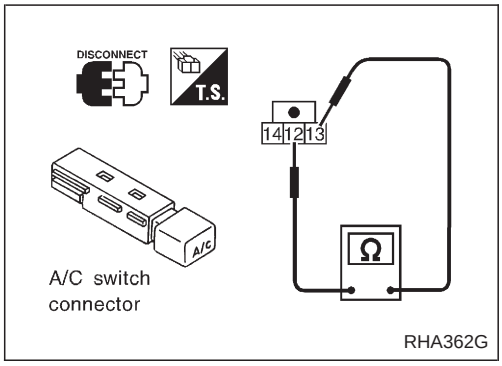
SHA157F

Electrical Components Inspection

FAN SWITCH

Check continuity between terminals at each switch position.

Knob position	Continuity between terminals
OFF	
1	㉔ — ㉖ — ㉕
2	㉓ — ㉖ — ㉕
3	㉒ — ㉖ — ㉕
4	㉑ — ㉖ — ㉕

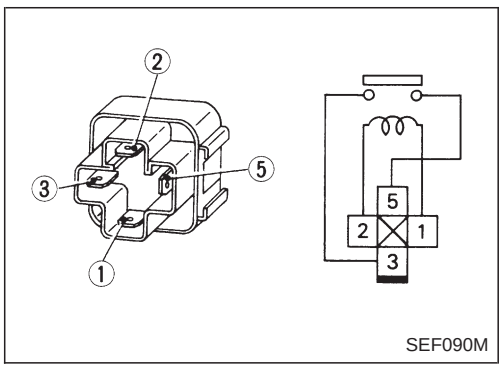


RHA362G

A/C SWITCH

Check continuity between terminals at each switch position.

Switch condition	Terminal No.		Continuity
A/C	⊕	⊖	
ON	⑬	⑫	Yes
OFF			No



SEF090M

A/C RELAY

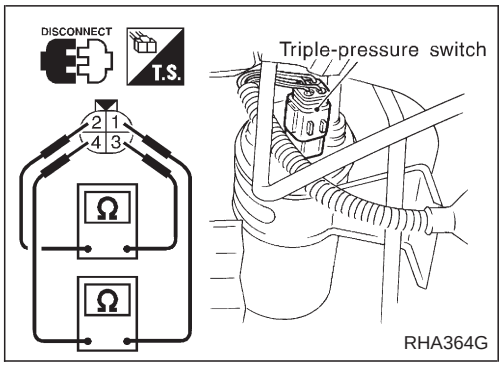
Check continuity between terminal Nos. ③ and ⑤.

Conditions	Continuity
12V direct current supply between terminal Nos. ① and ②	Yes
No current supply	No

If NG, replace relay.

Electrical Components Inspection (Cont'd)

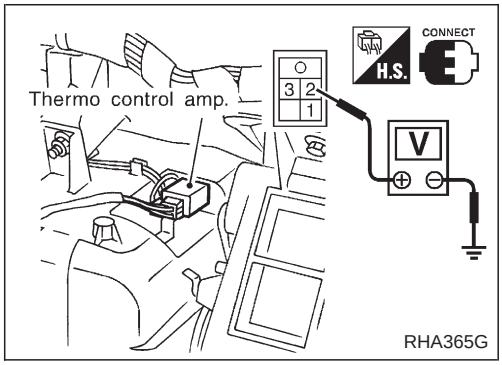
TRIPLE-PRESSURE SWITCH



	Terminals	High-pressure side line pressure kPa (bar, kg/cm^2, psi)	Operation	Continuity
Low-pressure side	① - ④	Increasing to 152.0 - 201.0 (1.520 - 2.010, 1.55 - 2.05, 22.0 - 29.2)	ON	Exists.
		Decreasing to 152.0 - 201.0 (1.520 - 2.010, 1.55 - 2.05, 22.0 - 29.2)	OFF	Does not exist.
Medium-pressure side*	② - ③	Increasing to 1,422 - 1,618 (14.22 - 16.18, 14.5 - 16.5, 206 - 235)	ON	Exists.
		Decreasing to 1,128 - 1,422 (11.28 - 14.22, 11.5 - 14.5, 164 - 206)	OFF	Does not exist.
High-pressure side	① - ④	Decreasing to 2,059 - 2,256 (20.6 - 22.6, 21 - 23, 299 - 327)	ON	Exists.
		Increasing to 2,648 - 2,844 (26.5 - 28.4, 27 - 29, 384 - 412)	OFF	Does not exist.

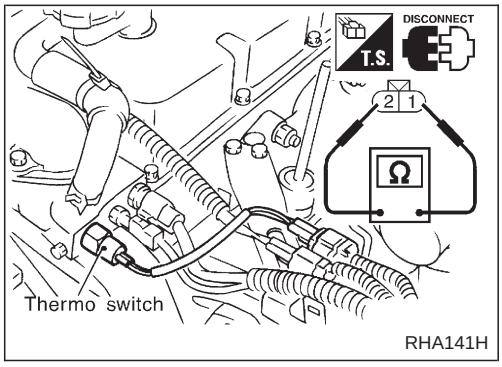
* For cooling fan motor operation

THERMO CONTROL AMP.



Evaporator outlet air temperature °C (°F)	Thermo amp. operation	Tester
Decreasing to 0.1 - 0.9 (32 - 34)	Turn OFF	Approx. 12V
Increasing to 2.5 - 3.5 (37 - 38)	Turn ON	Approx. 0V

THERMO SWITCH



Water temperature °C (°F)	Terminal No. ⊕	Terminal No. ⊖	Continuity
Over 105 (221)	①	②	No
Less than 100 (212)			Yes

Introduction

The automatic temperature control (ATC) system provides automatic regulation of the discharged air temperature and the discharged air volume (Blower speed).
The air outlet door, intake door and compressor magnet clutch are controlled by the manual operation of each switch.

Features

Air mix door control (Automatic temperature control)

The air mix door is automatically controlled so that in-vehicle temperature will reach, and be maintained at the operator selected ‘‘set temperature’’. For a given set temperature, the air mix door position will depend on: Ambient temperature, in-vehicle temperature, amount of sunload, set temperature and A/C switch signals.

Fan speed control

When the fan control switch is in the Auto position, the blower speed is automatically controlled, depending on: Ambient temperature, in-vehicle temperature, amount of sunload, set temperature, and A/C switch signals. It is also controlled by the manual operation of the fan control switch.

Starting fan speed control

When engine coolant temperature is low, the air outlet door position is detected by the microswitch and if this is set in B/L, FOOT or FOOT/DEF blower speed is controlled to prevent a large amount of cold air from being discharged into the floor area.

Outlet door control

This can be selected by operation of the mode switch.

Intake door control

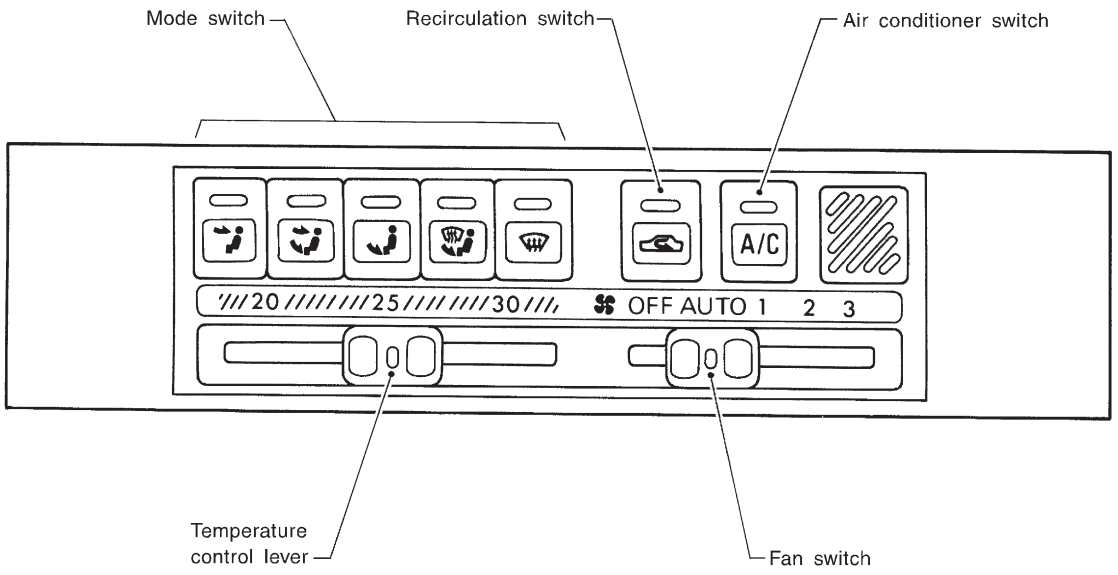
This can be selected by changing the REC switch position.

Compressor magnet clutch control

When the A/C switch is ON, the thermistor detects evaporator temperature. The thermo control amplifier controls clutch ON/OFF operation depending on the evaporator temperature.

Control Operation

Auto air conditioner



RHA602DA

FAN SWITCH

This switch turns the fan ON and OFF, and controls fan speed.

MODE SWITCHES

These switches allows outlet air to flow.

TEMPERATURE CONTROL LEVER

This lever allows the temperature of the outlet air to be adjusted.

RECIRCULATION SWITCH

OFF position:
Outside air is drawn into the passenger compartment.
ON position:
Interior air is recirculated inside the vehicle.

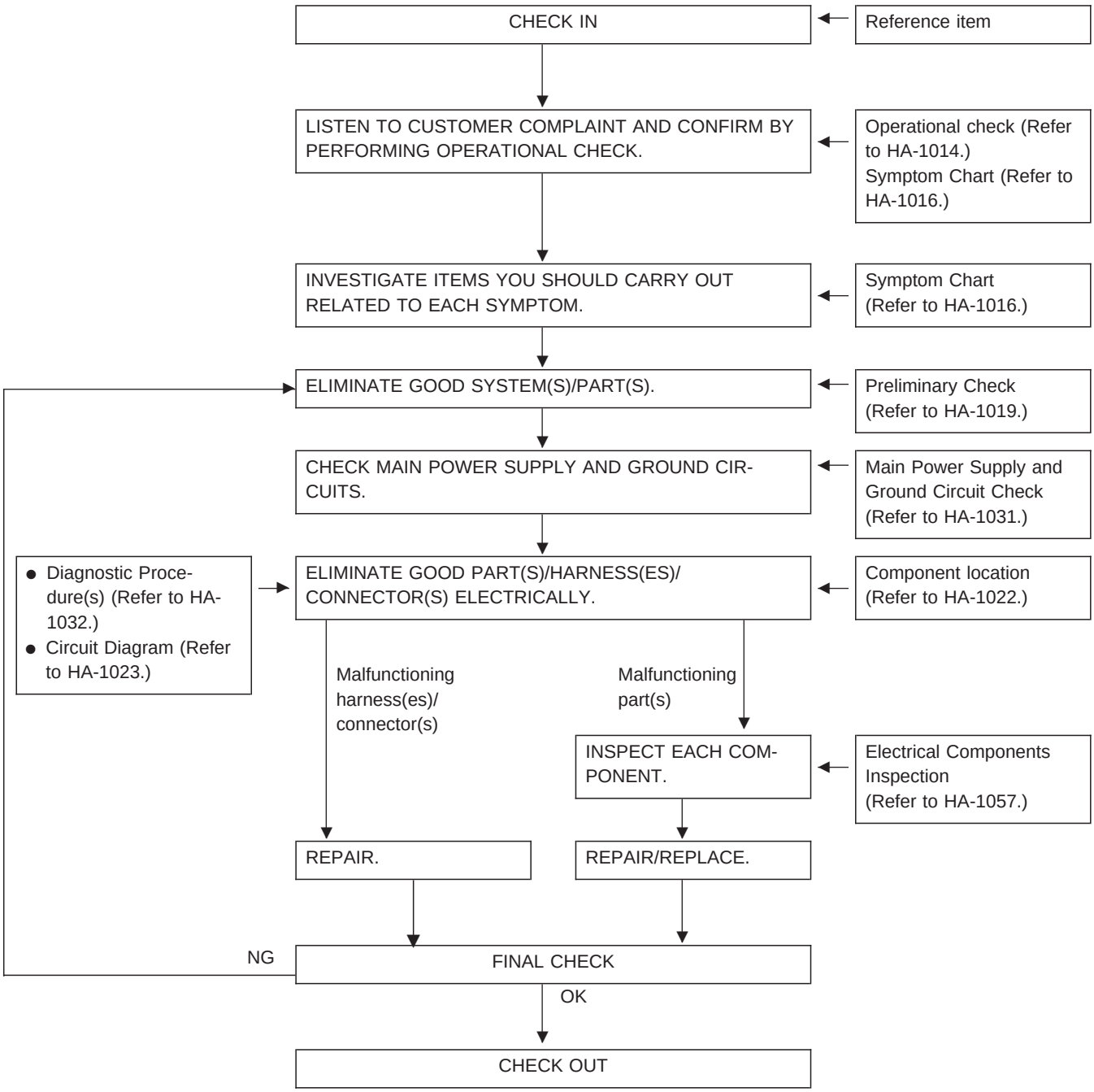
AIR CONDITIONER SWITCH

Start the engine, move the fan switch to the desired (Auto to 3) position and press the air conditioner switch to turn ON the air conditioner. The indicator light will come on when the air conditioner is ON. To stop the air conditioner, push the switch again to return it to the original position.

The air conditioner cooling function operates only when the engine is running.

How to Perform Trouble Diagnoses for Quick and Accurate Repair

WORK FLOW

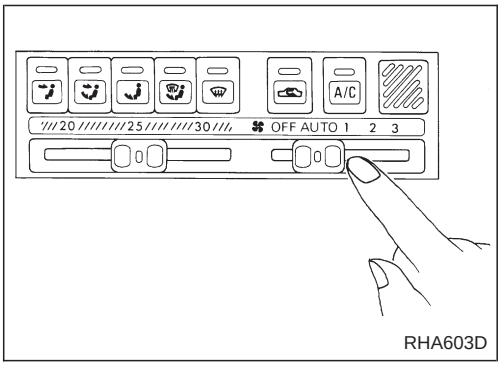


Operation Check

The purpose of the operational check is to confirm that the system is as it should be. The systems which will be checked are the blower, mode (discharge air), intake air, temperature decrease, temperature increase and A/C switch.

CONDITIONS:

Engine running and at normal operating temperature.

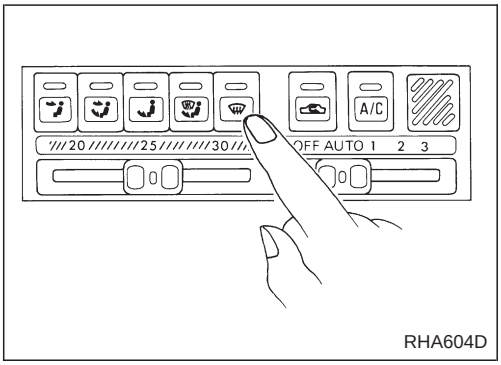


RHA603D

PROCEDURE:

1. Check blower

1) Slide FAN switch to AUTO.
   Blower should operate at speed AUTO.
2) Then slide switch to speed 1.
3) Continue checking blower speed until all speeds are checked.
4) Leave blower on speed 3.



RHA604D

2. Check discharge air

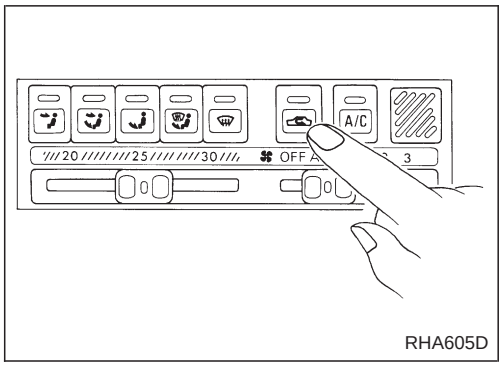
1) Press button.
   VENT indicator should light.
2) Confirm that all discharge air comes out of face vents.
3) Press button.
   B/L indicator should light.
4) Confirm that discharge air comes out of face vents and foot vents.
5) Press button.
   FOOT indicator should light.
6) Confirm that discharge air comes out of foot vents.
7) Press button.
   F/D indicator should light.
8) Confirm that discharge air comes out of foot vents with some air from defroster vents.
9) Press button.
   DEF indicator should light.
10) Confirm that all discharge air comes out of defroster vents.

Discharge air flow

Mode control knob	Air outlet/distribution		
	Face	Foot	Defroster
	100%	–	–
	70%	30%	–
	40%	60%	–
	40%	30%	30%
	–	–	100%

RHA937G

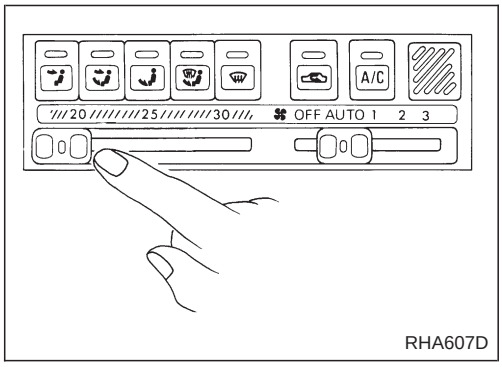
Operation Check (Cont'd)



RHA605D

3. Check recirculation

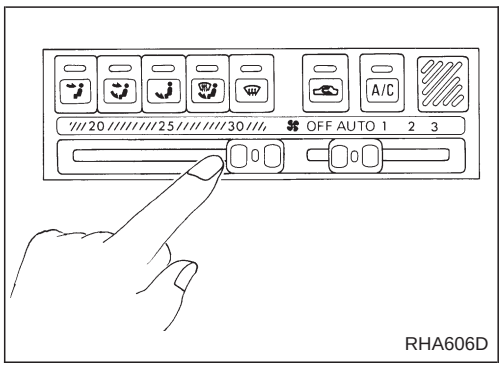
1) Press button.
   RECIRCULATION indicator should light.
2) Listen for intake door position change (you should hear sound change slightly).



RHA607D

4. Check temperature decrease

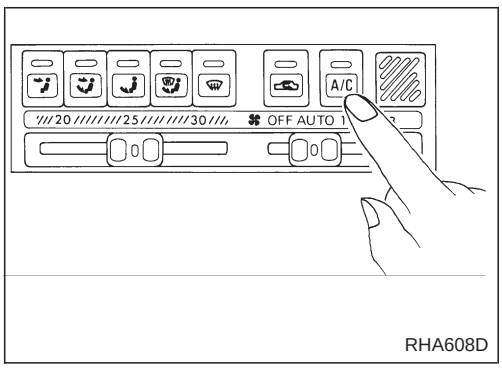
1) Slide temperature lever to full cold.
2) Check for cold air at discharge air outlets.



RHA606D

5. Check temperature increase

1) Slide temperature lever to full hot.
2) Check for hot air at discharge air outlets.



RHA608D

6. Check A/C switch

Move fan control lever to the desired position (AUTO to 3) and press air conditioner button to turn ON air conditioner.
Indicator light will come on when air conditioner is ON.

Symptom Chart

DIAGNOSTIC TABLE

PROCEDURE	Preliminary Check			Diagnostic Procedure															Main Power Supply and Ground Circuit Check			
REFERENCE PAGE	HA-1019	HA-1020	HA-1021	HA-1032	HA-1034	HA-1035	HA-1037	HA-1038	HA-1039	HA-1042	HA-1043	HA-1045	HA-1046	HA-1049	HA-1050	HA-1051	HA-1052	HA-1054	HA-1031	HA-1031	HA-1031	HA-1031
SYMPTOM	Preliminary check 1	Preliminary check 2	Preliminary check 3	Diagnostic Procedure 1	Diagnostic Procedure 2	Diagnostic Procedure 3	Diagnostic Procedure 4	Diagnostic Procedure 5	Diagnostic Procedure 6	Diagnostic Procedure 7	Diagnostic Procedure 8	Diagnostic Procedure 9	Diagnostic Procedure 10	Diagnostic Procedure 11	Diagnostic Procedure 12	Diagnostic Procedure 13	Diagnostic Procedure 14	Diagnostic Procedure 15	15A Fuses	7.5A Fuse	Push control unit	Auto amp.
A/C does not blow cold air.		○		○									○						○	○	○	○
Blower motor does not rotate at all. (Fan switch [AUTO] [1] [2] [3])		❶		❷															○	○		
Blower motor does not rotate at all when the fan speed is in AUTO. (It operates in 1, 2, or 3-speed.)					❶														○	○		○
Blower motor fan speed does not change when fan speed is in AUTO. (Fan speed is fixed in Hi or MH.)						❶													○	○		○
Blower motor fan speed does not change when fan speed is in AUTO. (Fan speed is fixed in LO.)							❶												○	○		○
Starting fan speed control does not operate.								❶												○		○
There is too much difference between setting temp. on P.T.C. and in-vehicle temp.		❶							❷											○		○
Air mix door motor does not operate normally.		❶								❷										○		○
Air outlet does not change.											❷									○		
Intake door does not change in VENT, B/L or FOOT mode.	❶											❶								○		
Magnetic clutch does not engage when A/C switch and fan switch are ON.													❶							○		
Ambient sensor circuit is open or shorted.														❶						○		○
In-vehicle sensor circuit is open or shorted.															❶					○		○
Sunload sensor circuit is open or shorted.																❶				○		○
Thermal transmitter circuit is open or shorted.																	❶			○		○
Illumination or indicators of push control unit do not come on.																		○		○		
Noise			❶																			

❶, ❷: The number means checking order.
○: As for the order of inspection, refer to each flow chart. (It depends on malfunctioning portion.)

Symptom Chart (Cont'd)

Electrical Components Inspection

		Push control unit																										Com-pressor						
Blower motor	Fan resistor	A/C switch	REC switch	VENT switch	B/L switch	FOOT switch	F/D switch	DEF switch	Fan switch	PTC	Air mix door motor	PBR	Mode door motor	Intake door motor	Auto amp.	Ambient sensor	In-vehicle sensor	Sunload sensor	Thermal transmitter	A/C relay	A/C switch relay	LO relay	ML relay	MH relay	HI relay	Thermo control amp.	Triple-pressure switch	Magnet clutch	Thermal protector	ECM	Illumination system	A/C mode switch	Aspirator motor	Harness
—	—	—	—	—	—	—	—	—	—	HA-1066	HA-1077	HA-1078	HA-1061	HA-1061	HA-1070	HA-1068	HA-1067	HA-1069	Refer to EL section.	HA-1058	HA-1070	HA-1058	HA-1058	HA-1058	HA-1058	HA-1058	HA-1058	HA-1087	HA-1090	Refer to EC section.	Refer to EL section.	HA-1070	HA-1068	—
○	○	○							○	○	○	○	○	○	○	○	○	○		○							○	○	○	○				○
○	○								○																									○
○	○								○						○							○	○	○	○									○
○	○								○						○									○	○									○
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		○	○	○	○	○	○	○	○																						○			○

Checking Resistor

Checking resistors are used for trouble diagnoses of blower motor operation and air mix door motor operation. Use checking resistor when inspecting portions with C/R *1, C/R *2 in flow chart.

CAUTION:

Select checking resistors which have resistance values corresponding with those indicated in table below, and connect to respective sensors.

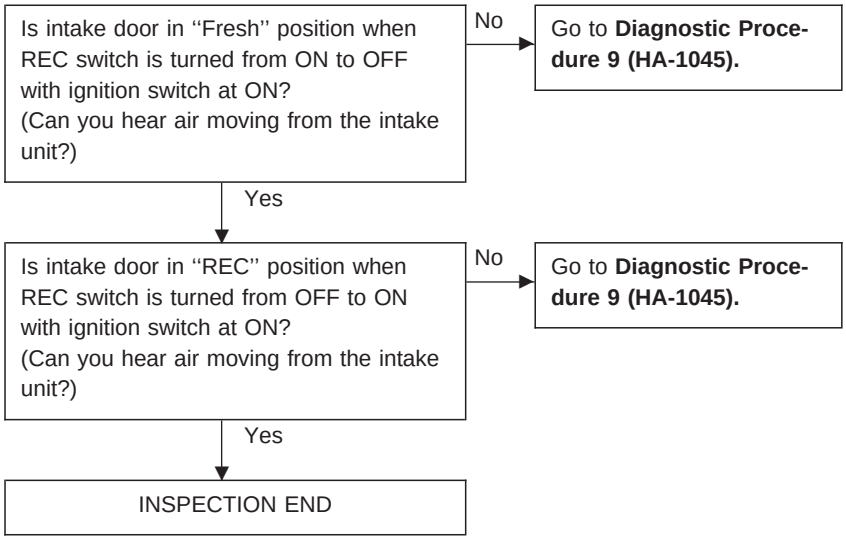
	Checking resistor	Ambient sensor	In-vehicle sensor	Wattage
Blower motor operation check	C/R *1	1,000Ω	1,500Ω	1/4W
Air mix door motor operation check	C/R *2		2,490Ω	

1. Disconnect ambient sensor and in-vehicle sensor harness connectors.
2. Connect checking resistors to ambient sensor harness connector and in-vehicle sensor harness connector when inspecting portions with C/R *1, C/R *2 in flow chart in trouble diagnoses.
3. Turn ignition switch ON.
4. Turn A/C switch ON.
5. Turn VENT switch ON.
6. Keep sunload sensor away from sunlight by covering it.

Preliminary Check

PRELIMINARY CHECK 1

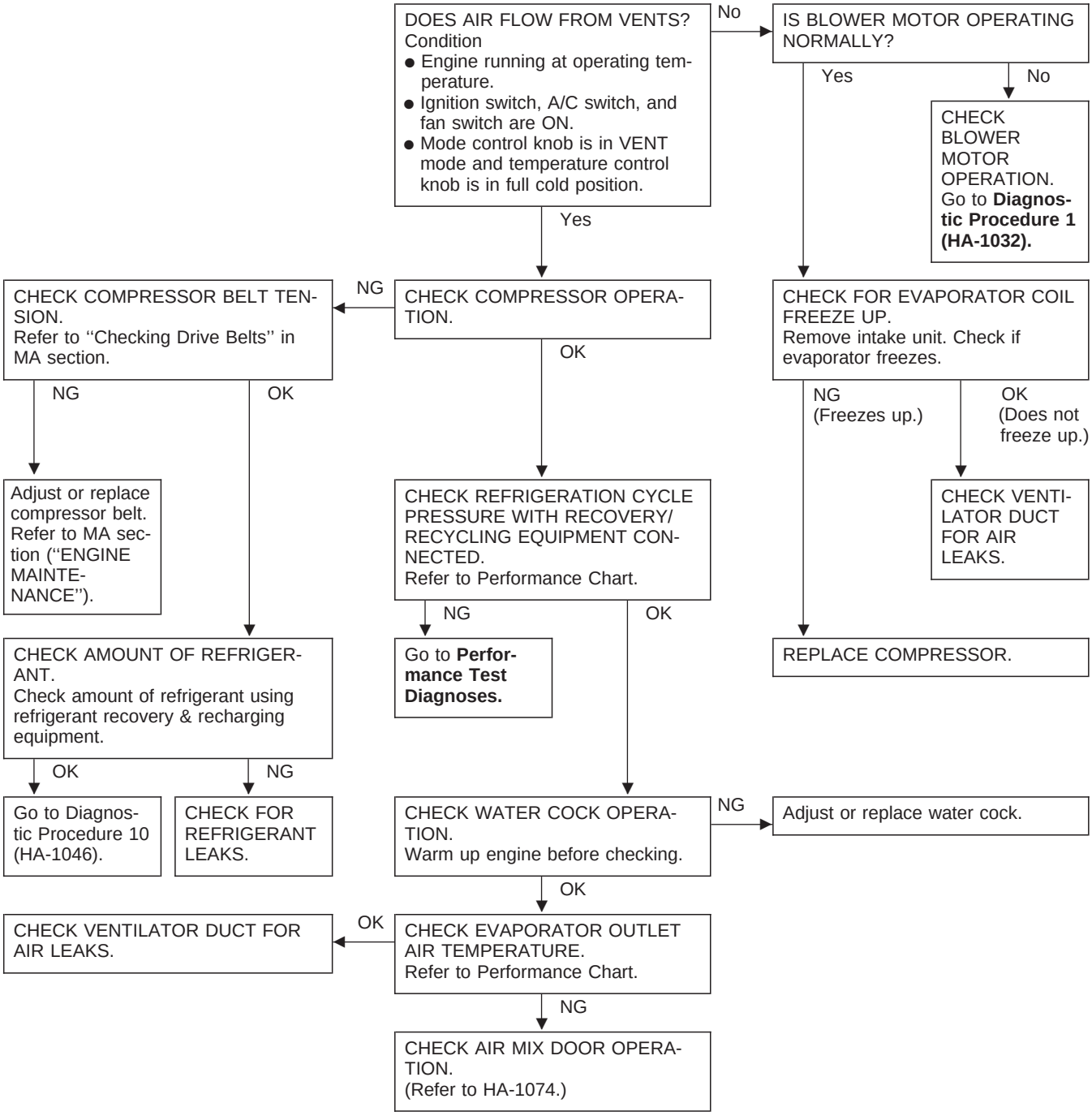
Intake door is not set at ''FRESH''.



Preliminary Check (Cont'd)

PRELIMINARY CHECK 2

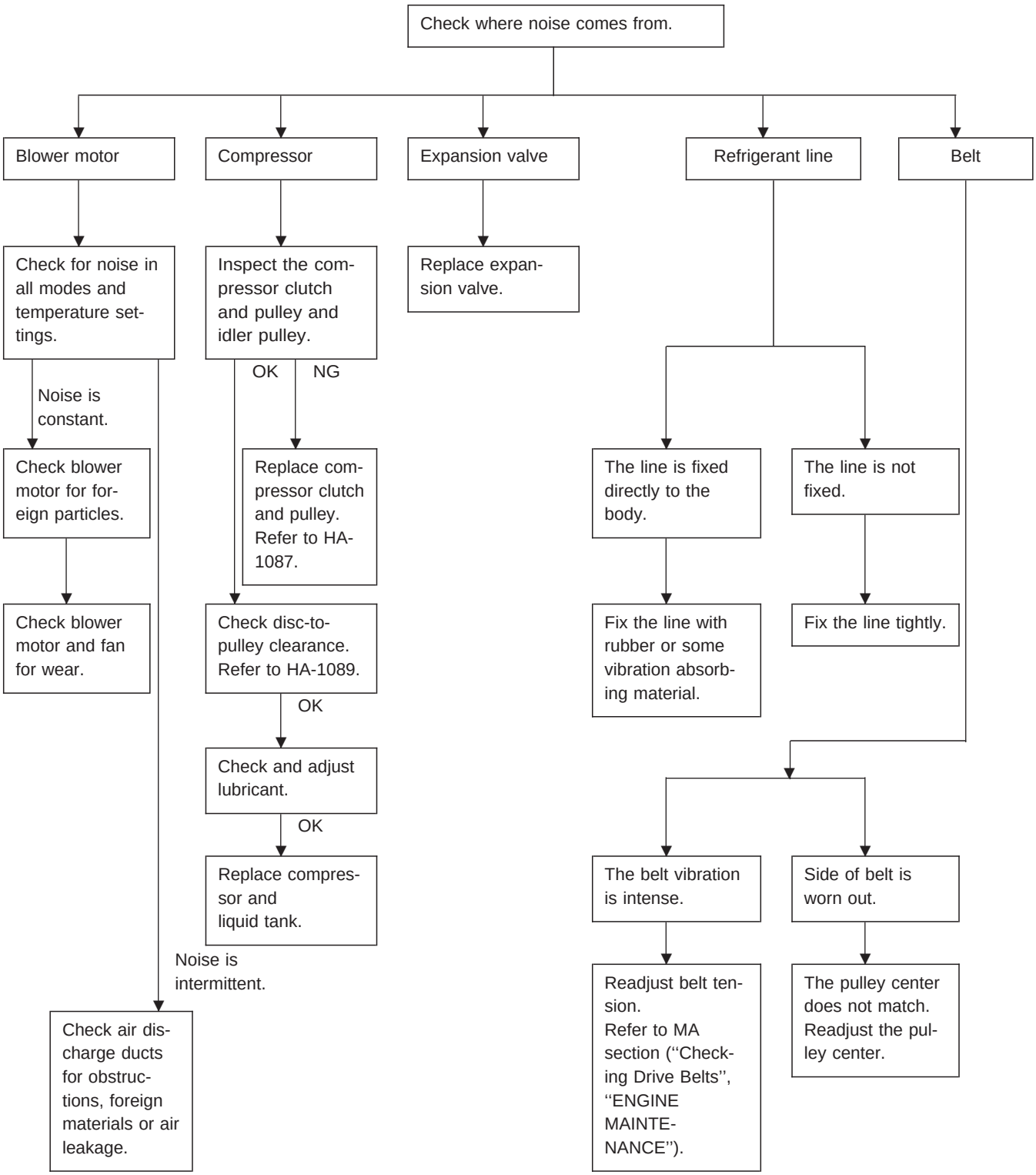
A/C does not blow cold air.



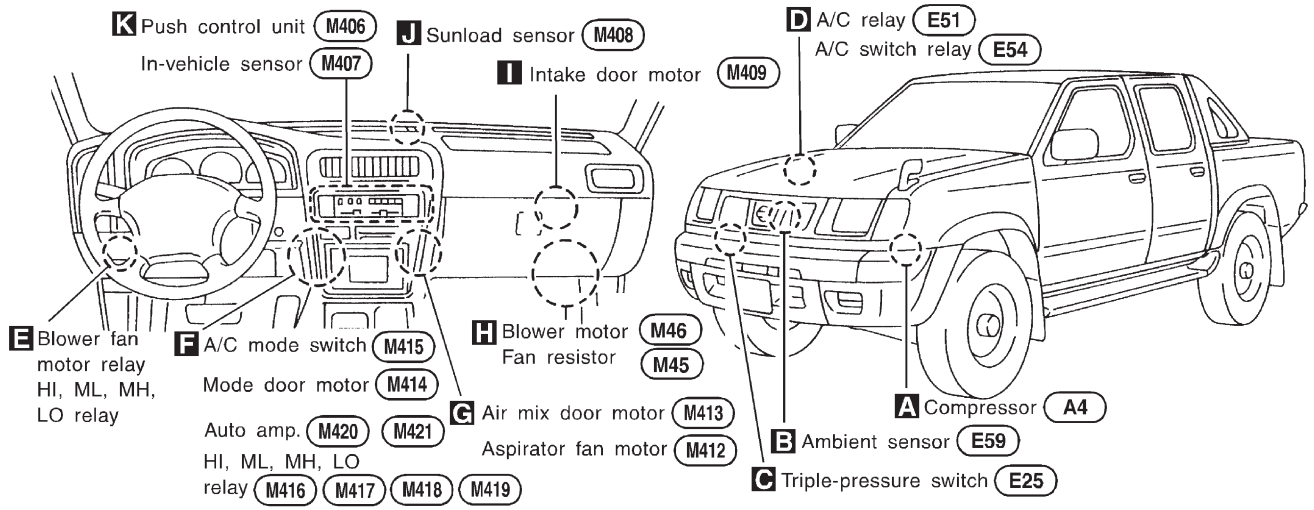
Preliminary Check (Cont'd)

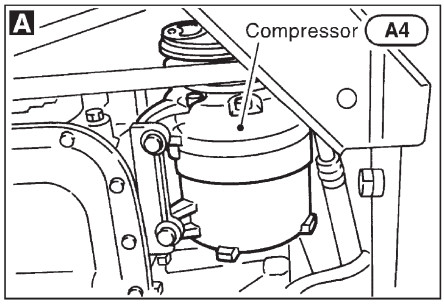
PRELIMINARY CHECK 3

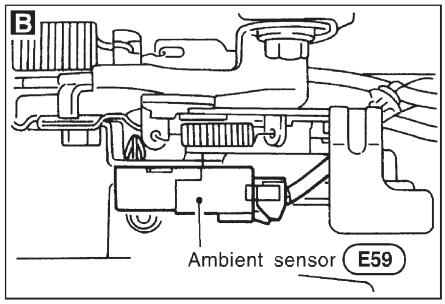
Noise

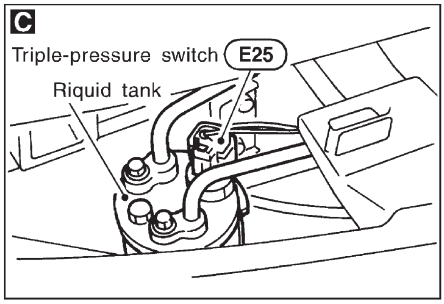


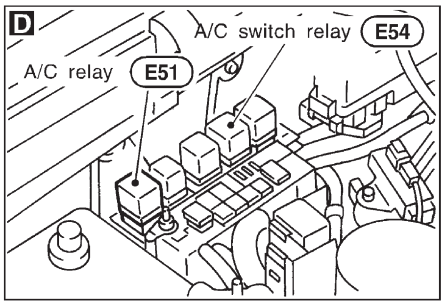
Component Location

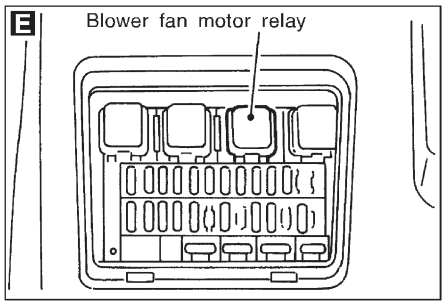


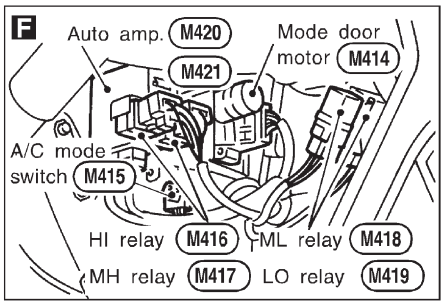


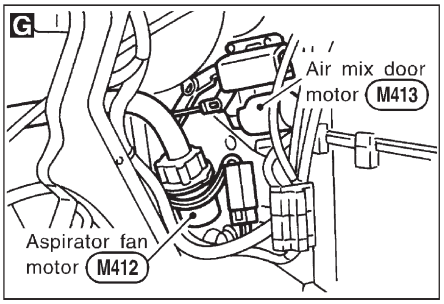


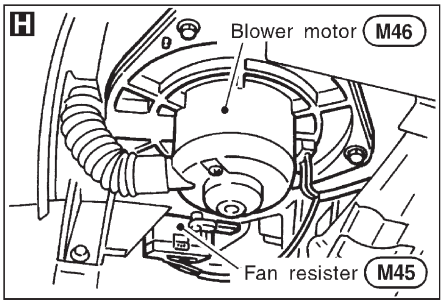


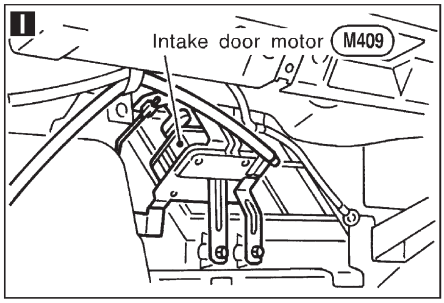


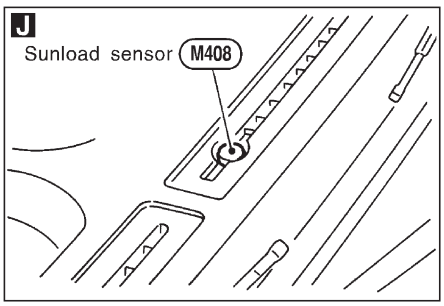


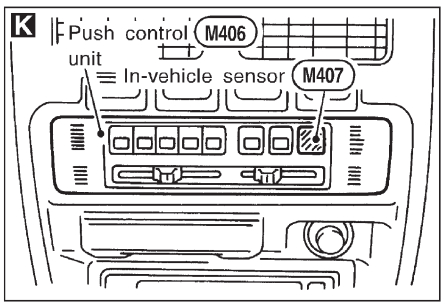






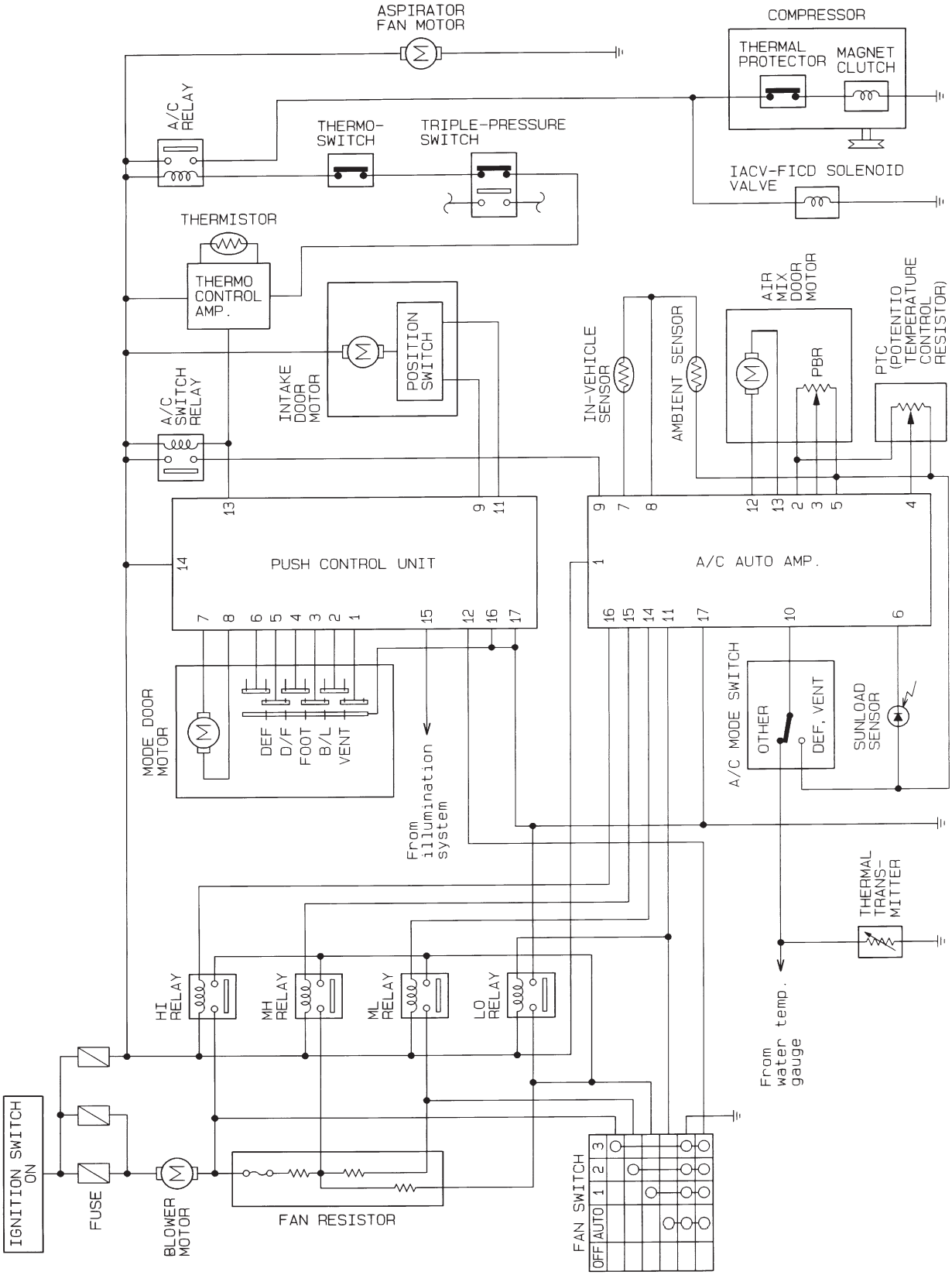






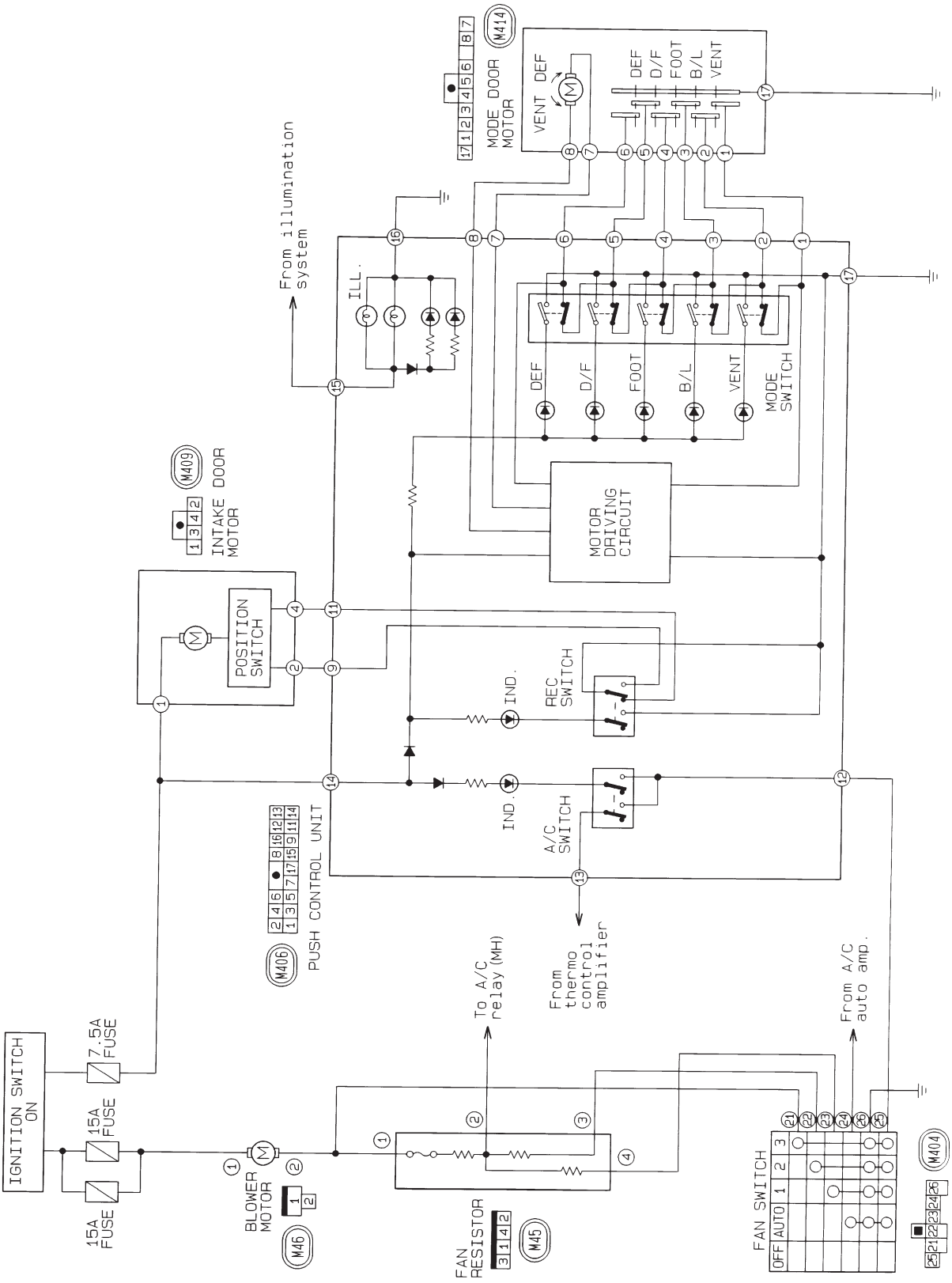
RHA938G

Circuit Diagram — Auto Air Conditioner/LHD Models



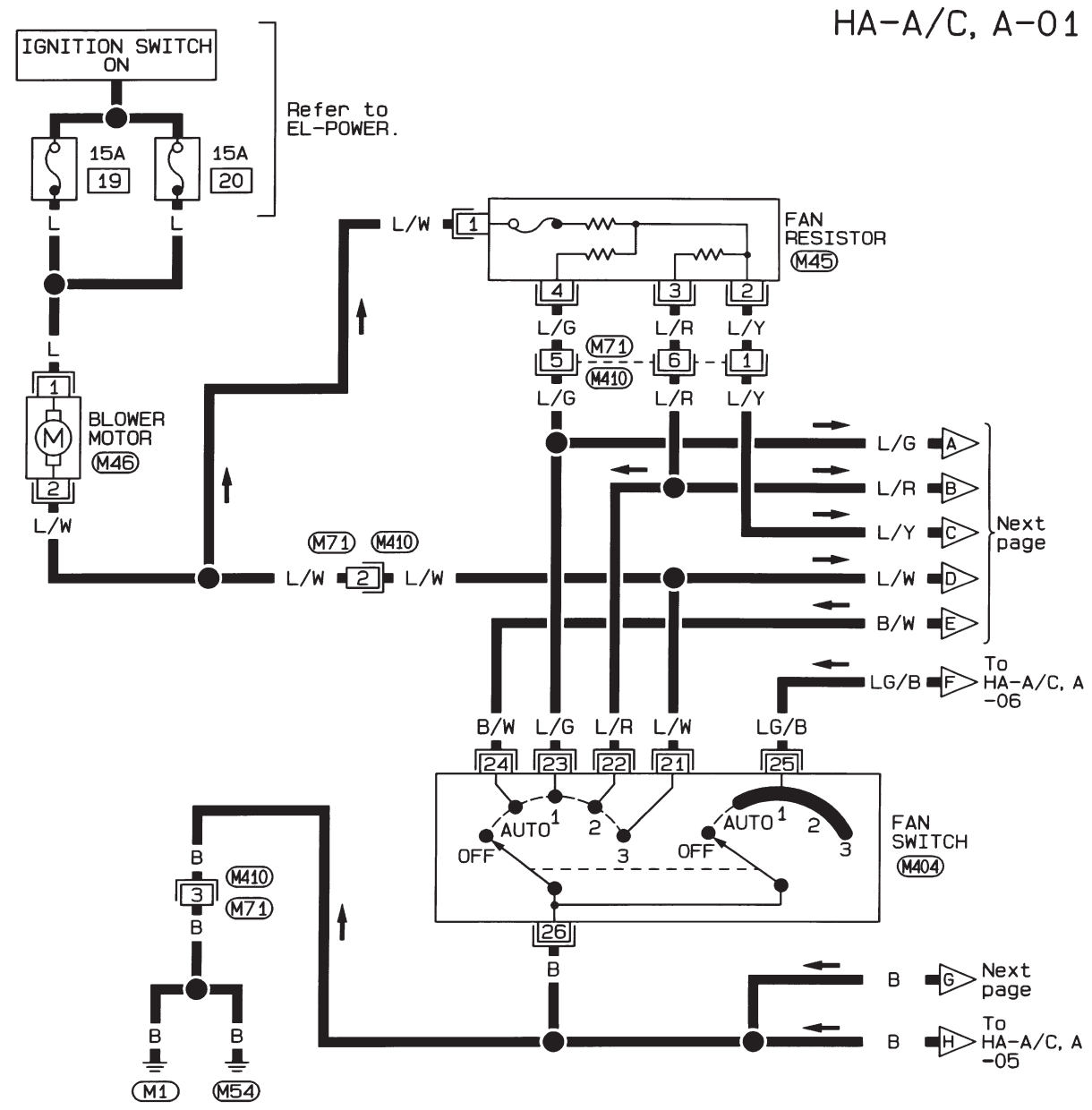
HHA141

Circuit Diagram — Push Control Unit/LHD Models



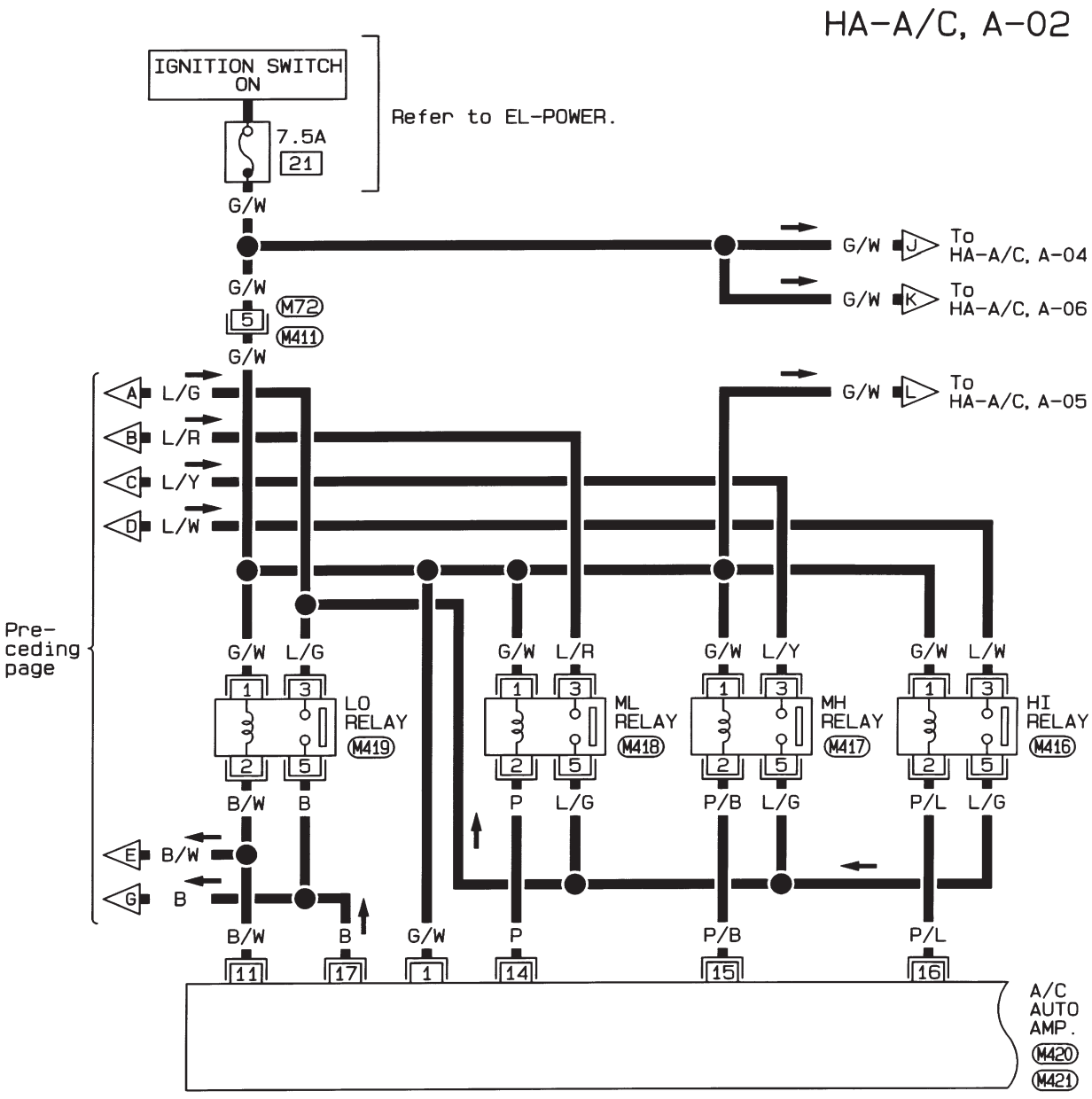
HHA150

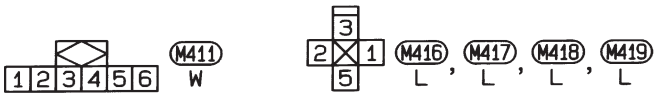
Wiring Diagram — A/C, A —/LHD Models

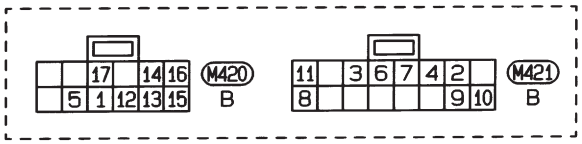


HHA142

Wiring Diagram — A/C, A —/LHD Models (Cont'd)



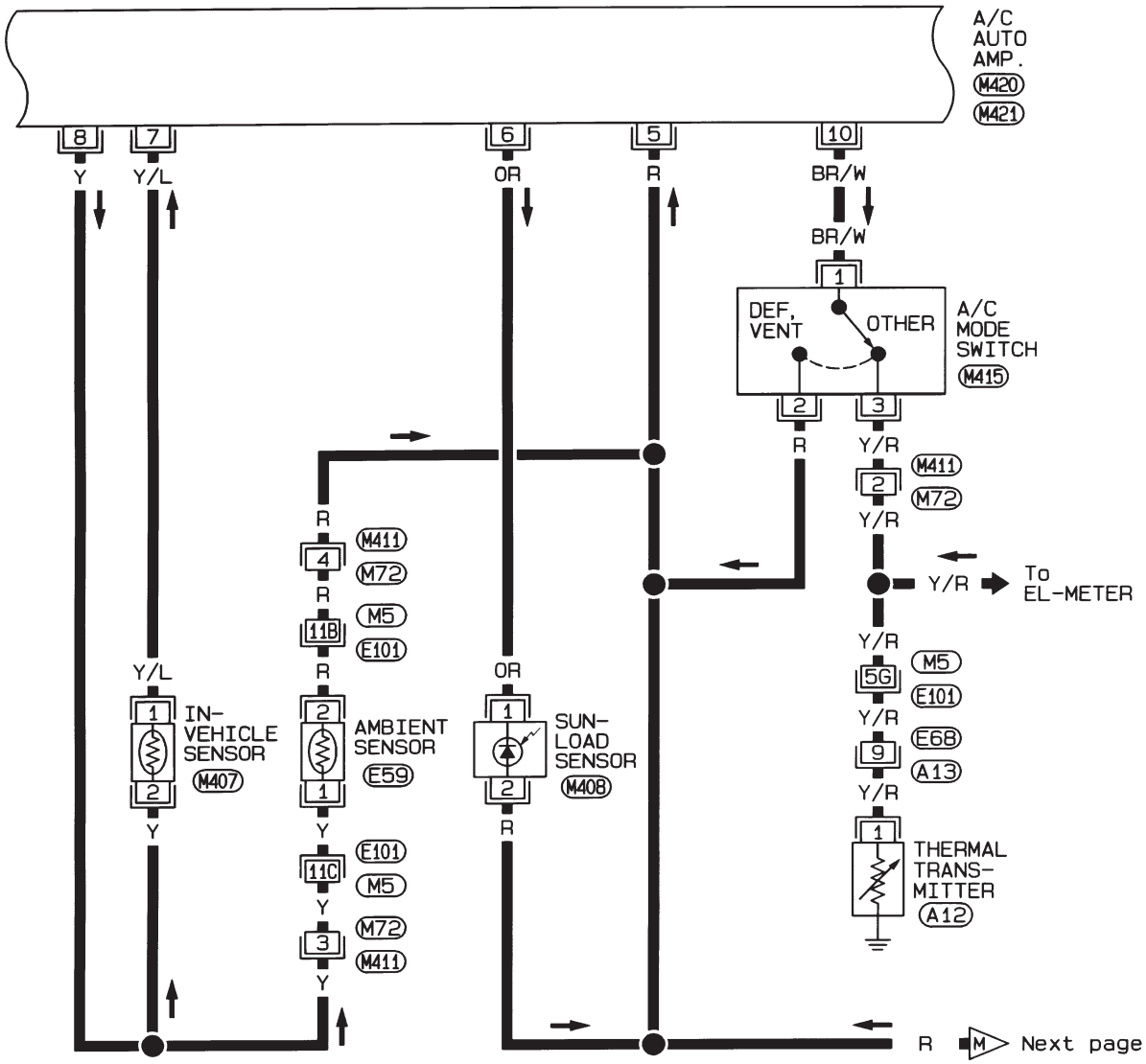


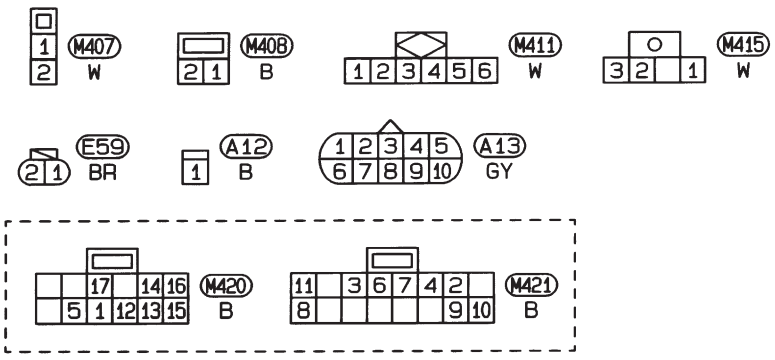


HHA143

Wiring Diagram — A/C, A —/LHD Models (Cont'd)

HA-A/C, A-03



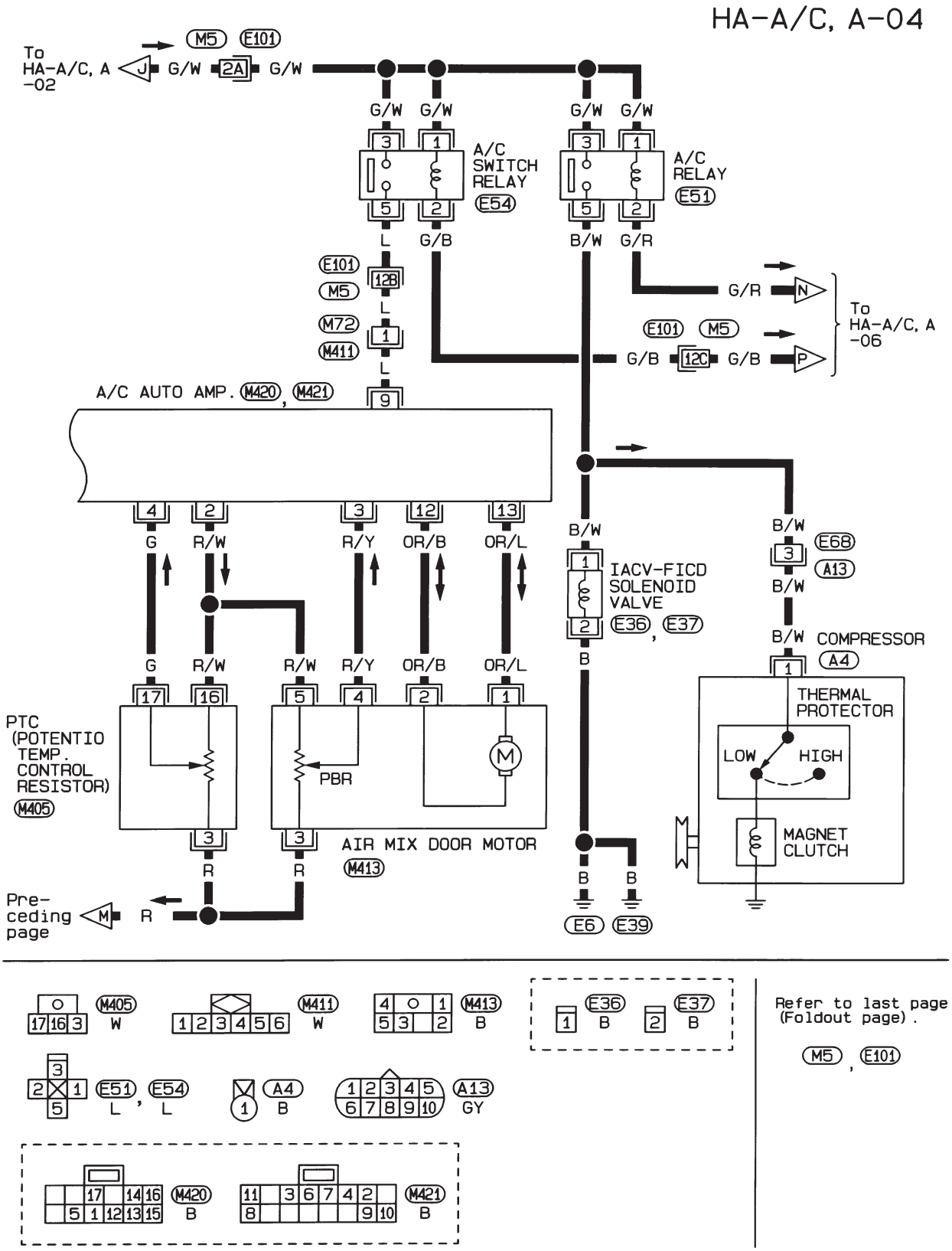


Refer to last page (Foldout page).

M5, E101

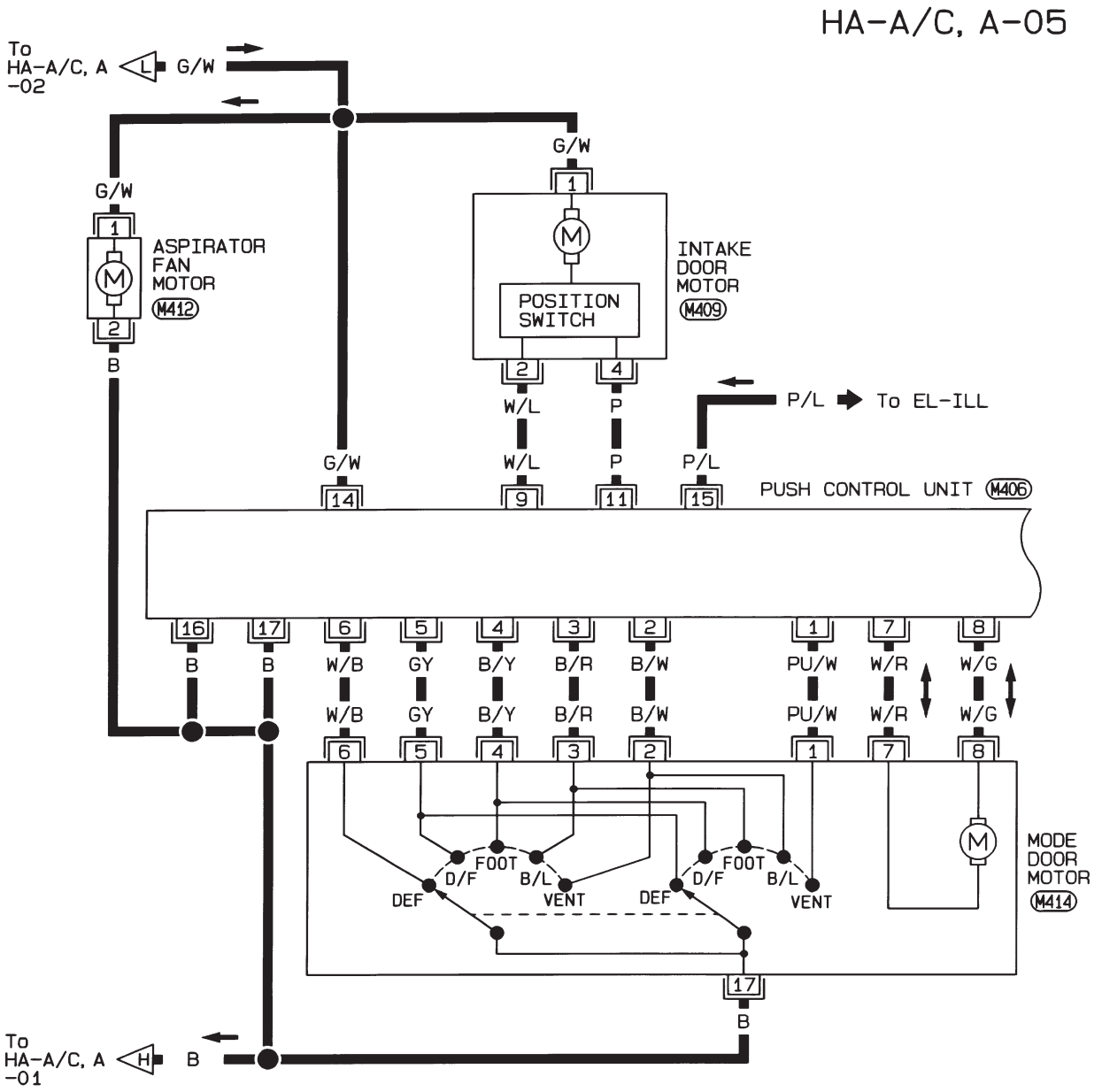
HHA144

Wiring Diagram — A/C, A —/LHD Models (Cont'd)



HHA145

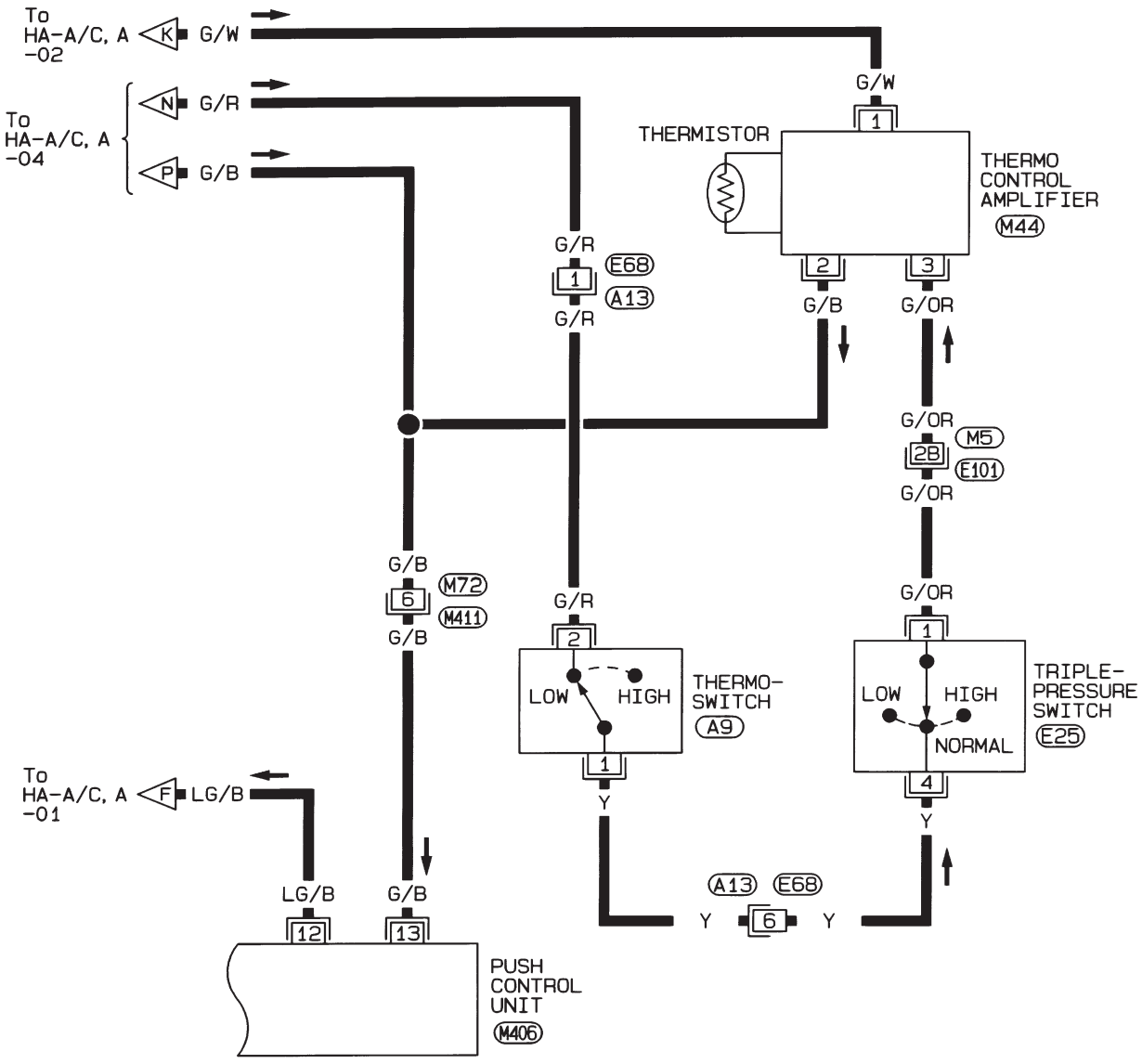
Wiring Diagram — A/C, A —/LHD Models (Cont'd)

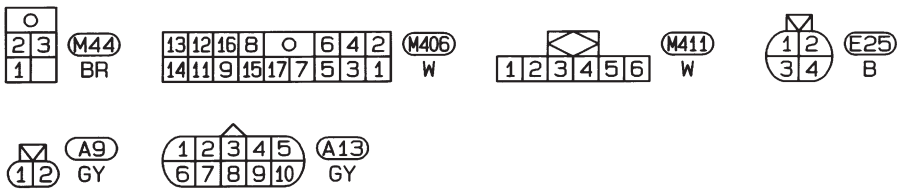


HHA146

Wiring Diagram — A/C, A —/LHD Models (Cont'd)

HA-A/C, A-06





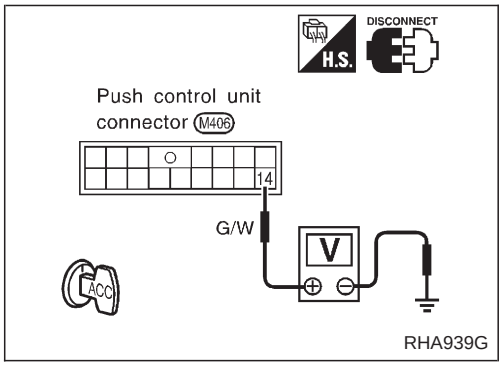
Refer to last page (Foldout page).
M5, E101

HHA147

Main Power Supply and Ground Circuit Check

POWER SUPPLY CIRCUIT CHECK FOR AUTO A/C SYSTEM

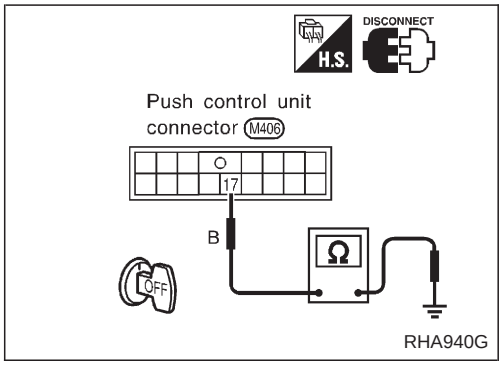
Check power supply circuit for auto air conditioning system.
Refer to ''POWER SUPPLY ROUTING'' in EL section and Wiring Diagram.



PUSH CONTROL UNIT CHECK

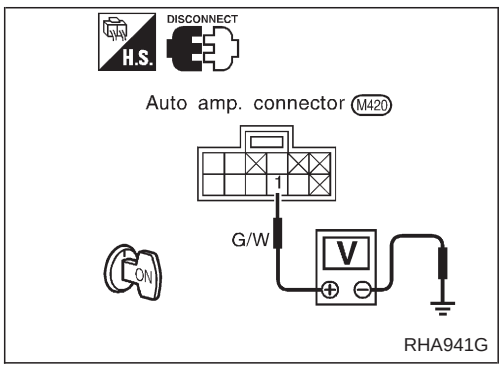
Check power supply circuit for push control unit with ignition switch at ACC.
1. Disconnect push control unit harness connector.
2. Connect voltmeter from harness side.
3. Measure voltage across terminal No. ⑭ and body ground.

Voltmeter terminal		Voltage
⊕	⊖	
⑭	Body ground	Approx. 12V



Check body ground circuit for push control unit with ignition switch ON.
1. Disconnect push control unit harness connector.
2. Connect ohmmeter from harness side.
3. Check for continuity between terminal No. ⑰ and body ground.

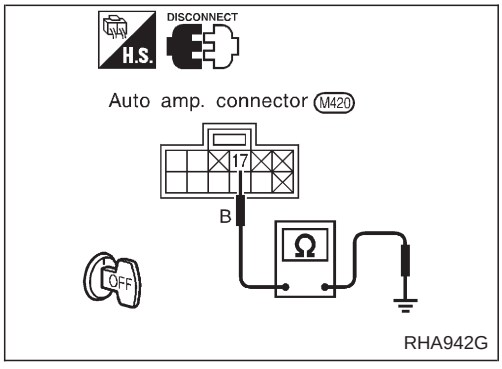
Ohmmeter terminal		Continuity
⊕	⊖	
⑰	Body ground	Yes



AUTO AMP. CHECK

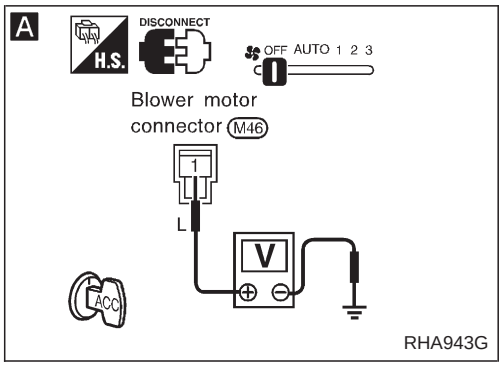
Check power supply circuit for auto amp. with ignition switch ON.
1. Disconnect auto amp. harness connector.
2. Connect voltmeter from harness side.
3. Measure voltage across terminal No. ① and body ground.

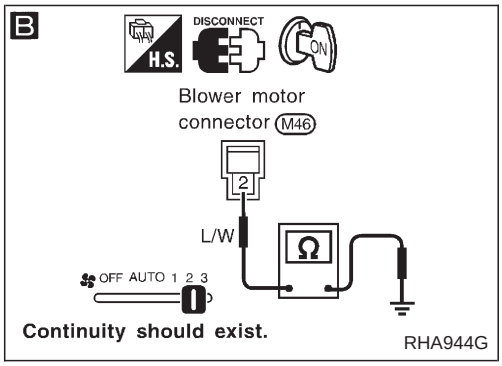
Voltmeter terminal		Voltage
⊕	⊖	
①	Body ground	Approx. 12V

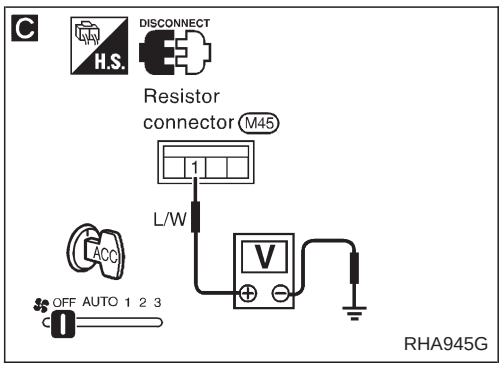


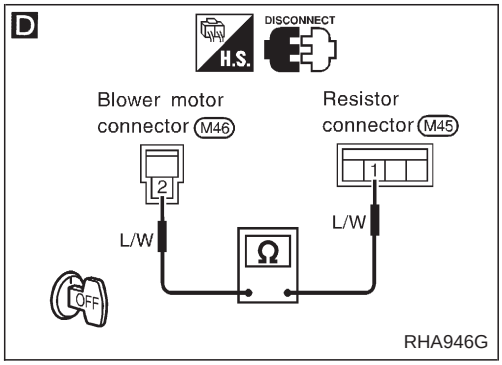
Check body ground circuit for auto amp. with ignition switch OFF.
1. Disconnect auto amp. harness connector.
2. Connect ohmmeter from harness side.
3. Check for continuity between terminal No. ⑰ and body ground.

Ohmmeter terminal		Continuity
⊕	⊖	
⑰	Body ground	Yes









Diagnostic Procedure 1

SYMPTOM: Blower motor does not rotate at all. (Fan switch "AUTO", "1", "2", "3")

- **Perform PRELIMINARY CHECK 2 before referring to the following flow chart.**

A

CHECK POWER SUPPLY FOR BLOWER MOTOR.
Disconnect blower motor harness connector.
Do approx. 12 volts exist between blower motor harness terminal No. ① and body ground?

NG → Check 15A fuses (No. 19, 20) at fuse block. (Refer to "POWER SUPPLY ROUTING" in EL section and Wiring Diagram.)

OK ↓

B

Check circuit continuity between blower motor harness terminal No. ② and body ground.

NG → Reconnect blower motor harness connector.

OK ↓

CHECK BLOWER MOTOR.

NG ↓

Replace blower motor.

C

CHECK BLOWER MOTOR CIRCUIT BETWEEN BLOWER MOTOR AND RESISTOR.
Do approx. 12 volts exist between resistor harness terminal No. ① and body ground?

NG → Disconnect blower motor and resistor harness connectors.

D

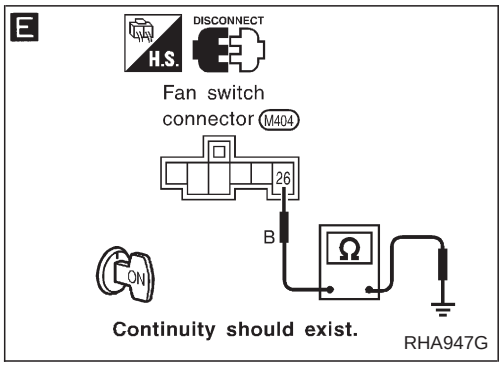
Note: Check circuit continuity between blower motor harness terminal No. ② and resistor harness terminal No. ①.

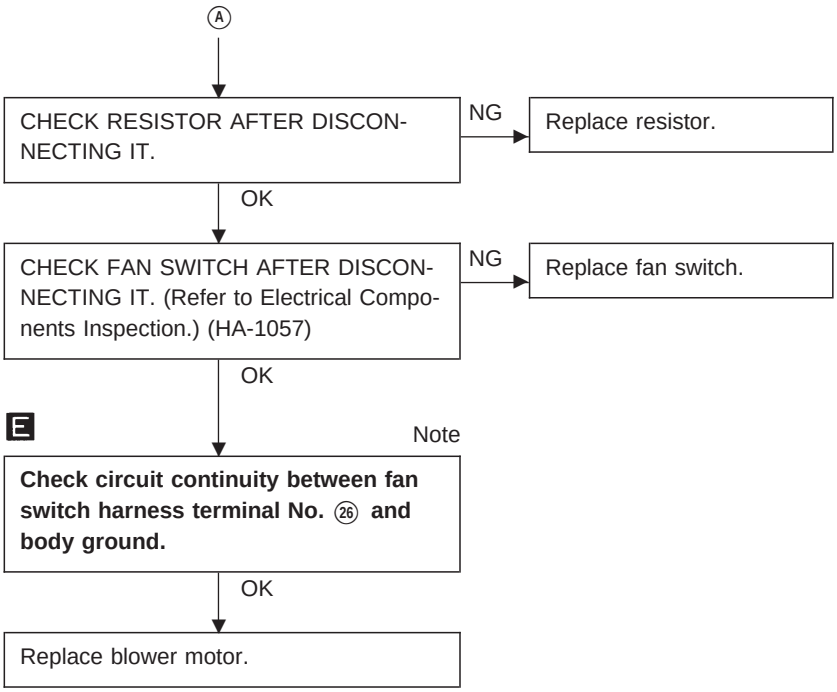
OK ↓

Ⓐ
(Go to next page.)

Note:
If the result is NG or No after checking circuit continuity, repair harness or connector.

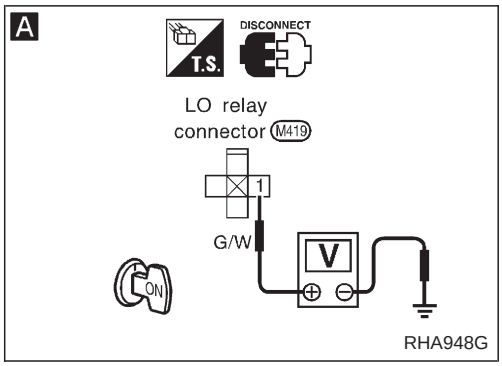
Diagnostic Procedure 1 (Cont'd)





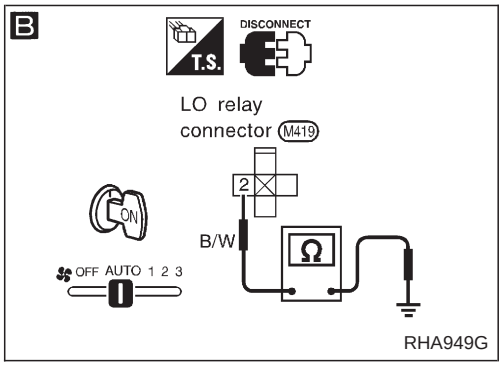
Note:
If the result is NG or No after checking circuit continuity, repair harness or connector.

A



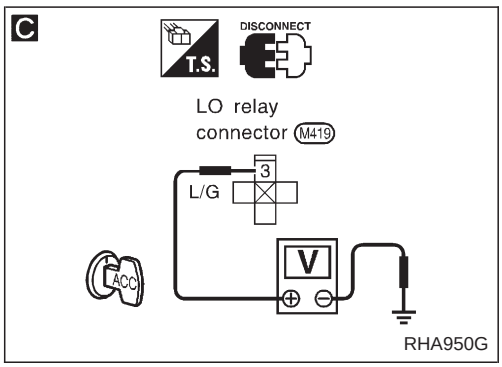
RHA948G

B



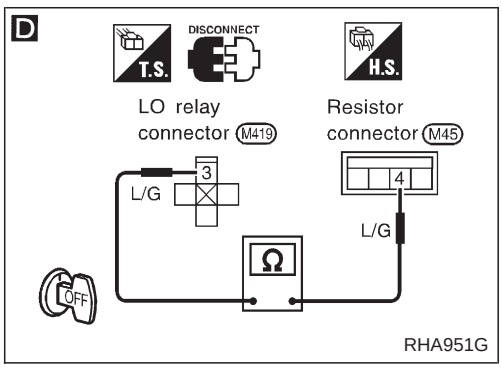
RHA949G

C



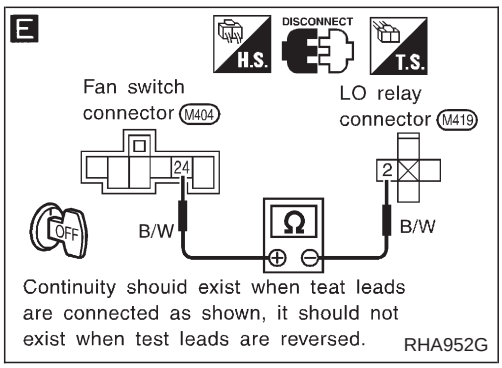
RHA950G

D



RHA951G

E



Continuity shouid exist when teat leads are connected as shown, it should not exist when test leads are reversed.

RHA952G

Diagnostic Procedure 2

SYMPTOM: Blower motor does not rotate at all when the fan speed is in AUTO. (It operates in 1, 2, or 3-speed only.)

A

CHECK POWER SUPPLY FOR A/C (LO) RELAY.
Disconnect LO relay harness connector.
Do approx. 12 volts exist between LO relay harness terminal No. ① and body ground?

NG → Check 7.5A fuse (No. 21) at fuse block.
(Refer to "POWER SUPPLY ROUTING" in EL section and Wiring Diagram.)

OK ↓

B

Check circuit continuity between LO relay harness terminal No. ② and body ground.

NG → CHECK FAN SWITCH AFTER DISCONNECTING IT.
(Refer to Electrical Components Inspection.) (HA-1057)

OK ↓

OK → NG → Replace fan switch.

E

Note

Check circuit continuity between LO relay harness terminal No. ② and fan switch harness terminal No. ㉔.

OK ↓

C

CHECK POWER SUPPLY FOR LO RELAY.
Do approx. 12 volts exist between LO relay harness terminal No. ③ and body ground?

NG → D

Note

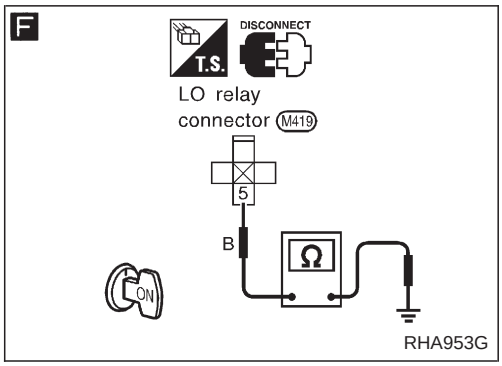
Check circuit continuity between resistor harness terminal No. ④ and LO relay harness terminal No. ③.

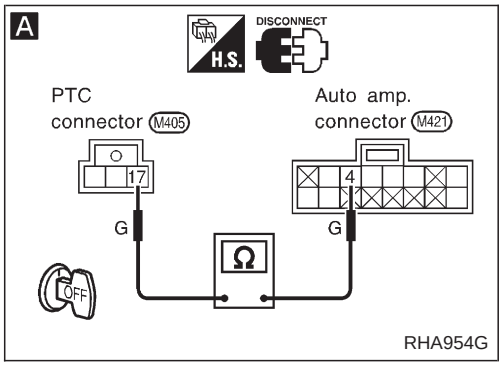
OK ↓

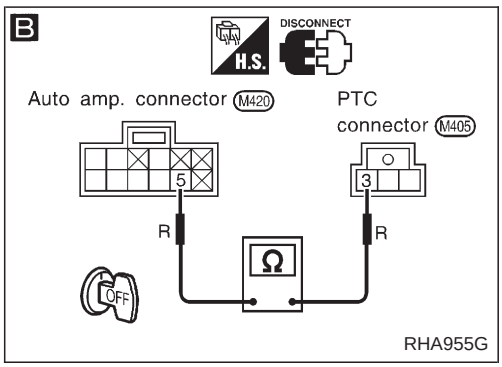
Ⓐ
(Go to next page.)

Note:
If the result is NG or No after checking circuit continuity, repair harness or connector.

Diagnostic Procedure 2 (Cont'd)







Ⓐ

F Note

Check circuit continuity between LO relay harness terminal No. ⑤ and body ground.

OK

CHECK LO RELAY AFTER DISCONNECTING IT. — NG → Replace LO relay.

Diagnostic Procedure 3

SYMPTOM: Blower motor fan speed does not change when fan speed is in AUTO. (Fan speed is fixed in HI or MH.)

C/R *1

CHECK AUTO AMP. AND PTC.
Connect checking resistor.
(Refer to HA-1018.)
Does blower motor fan speed change when you move PTC from 20°C (68°F) to 30°C (86°F)?

NG → A Note

CHECK PTC CIRCUIT BETWEEN PTC AND AUTO AMP.
Disconnect PTC and auto amp. harness connectors.
Check circuit continuity between PTC harness terminal No. ⑰ and auto amp. harness terminal No. ④.

OK

B Note

Check circuit continuity between PTC harness terminal No. ③ and auto amp. harness terminal No. ⑤.

OK

CHECK PTC.
(Refer to HA-1066.)

NG

Replace PTC.

OK

Reconnect PTC harness connector.

OK

CHECK SENSOR CIRCUIT.

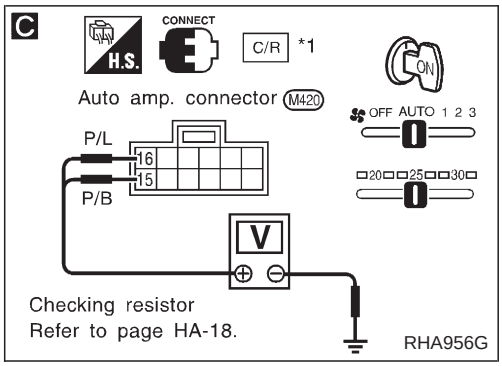
	How to repair
Ambient sensor circuit	Go to Diagnostic Procedure 11.
In-vehicle sensor circuit	Go to Diagnostic Procedure 12.

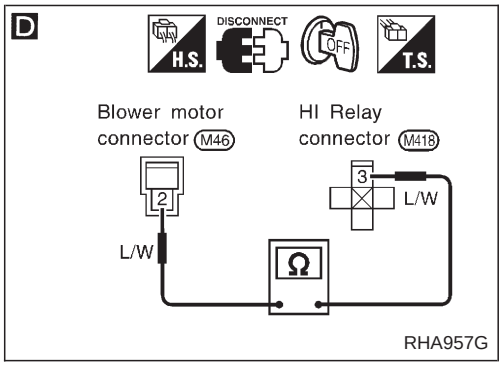
Ⓐ

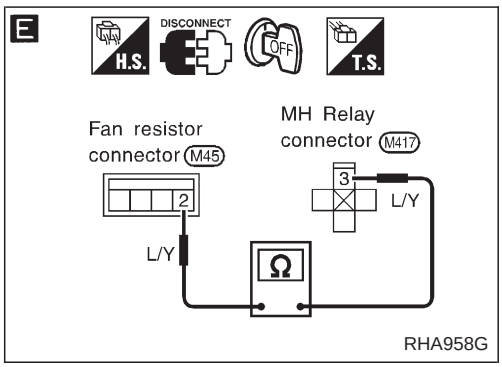
(Go to next page.)

Note:
If the result is NG or No after checking circuit continuity, repair harness or connector.

Diagnostic Procedure 3 (Cont'd)







Ⓐ

C

CHECK AUTO AMP.
Connect checking resistor.
(Refer to HA-1018.)
Do approx. 12 volts exist between auto amp. harness terminal No. ⑮, ⑯ and body ground?

NG → Replace auto amp.

OK ↓

CHECK HI OR MH RELAY AFTER DISCONNECTING IT. (Refer to HA-1058.)

NG → Replace HI relay or MH relay.

OK ↓

D Note

Does continuity exist between blower motor harness terminal No. ② and HI relay or MH relay terminal No. ③?

Yes ↓

E Note

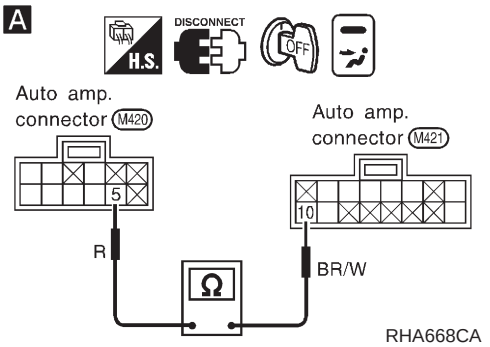
Does continuity exist between resistor harness terminal No. ② and MH relay harness terminal No. ③?

Yes ↓

Replace auto amp.

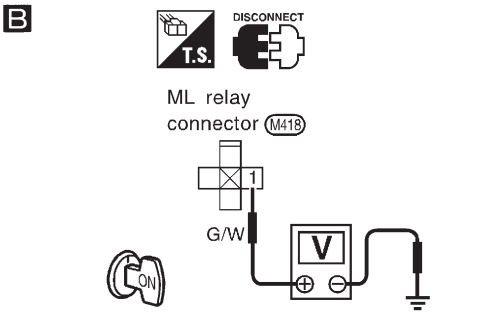
Note:
If the result is NG or No after checking circuit continuity, repair harness or connector.

A



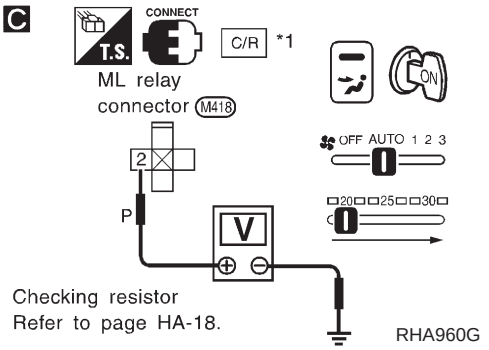
RHA668CA

B



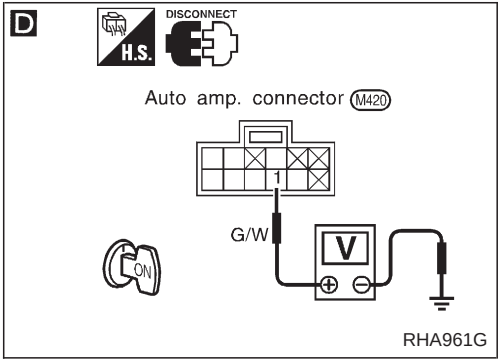
RHA959G

C



RHA960G

D



RHA961G

Diagnostic Procedure 4

SYMPTOM: Blower motor fan speed does not change when fan speed is in AUTO. (Fan speed is fixed in LO.)

A

CHECK THERMAL TRANSMITTER.
Disconnect auto amp. harness connector.
Is resistance between auto amplifier terminal No. ⑩ and ⑤ lower than approx. 940Ω?

OK → B

NG →

CHECK THERMAL TRANSMITTER CIRCUIT.
Go to **Diagnostic Procedure 14. (HA-1052)**

B

CHECK POWER SUPPLY FOR ML RELAY.
Disconnect ML relay.
Do approx. 12 volts exist between ML relay harness terminal No. ① and body ground?

OK →

Reconnect ML relay.

NG →

Check 7.5A fuse (No. 21) at fuse block.
(Refer to ''POWER SUPPLY ROUTING'' in EL section and Wiring Diagram.)

C

CHECK AUTO AMP.
Connect checking resistor.
(Refer to HA-1018.)
Do approx. 0 volts exist between ML relay harness terminal No. ② and body ground when you move PTC from 20°C (68°F) to 30°C (86°F)?

NG →

Replace ML relay.

OK →

D

CHECK POWER SUPPLY FOR AUTO AMP.
Disconnect auto amp. harness connector.
Do approx. 12 volts exist between auto amp. harness terminal No. ① and body ground?

NG →

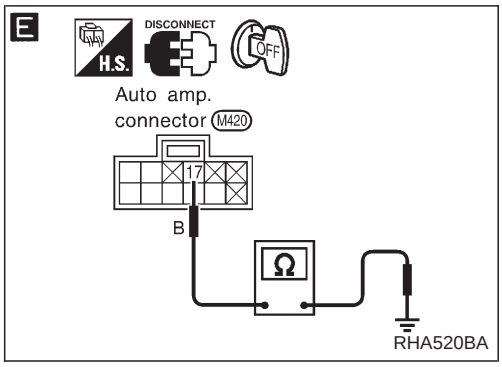
Check 7.5A fuse (No. 21) at fuse block.
(Refer to ''POWER SUPPLY ROUTING'' in EL section and Wiring Diagram.)

OK →

Ⓐ

(Go to next page.)

Diagnostic Procedure 4 (Cont'd)



Ⓐ

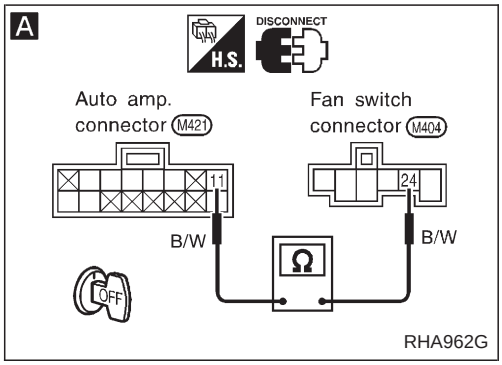
E

Note

CHECK BODY GROUND CIRCUIT FOR AUTO AMP.
Does continuity exist between auto amp. harness terminal No. (17) and body ground?

OK

Replace auto amp.



Diagnostic Procedure 5

SYMPTOM: Starting fan speed control does not operate.

CHECK THERMAL TRANSMITTER CIRCUIT.
Go to **Diagnostic Procedure 14. (HA-1052)**

NG → Replace auto amp. or engine thermal transmitter or microswitch.

OK

A

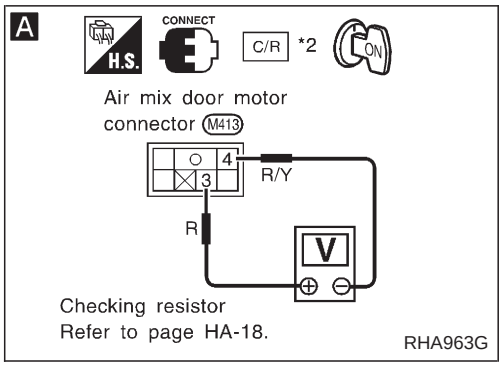
Note

CHECK BODY GROUND CIRCUIT FOR AUTO AMP.
Disconnect auto amp. and fan switch harness connector.
Check circuit continuity between auto amp. harness terminal No. (11) and fan switch harness terminal No. (24).

OK

Replace auto amp.

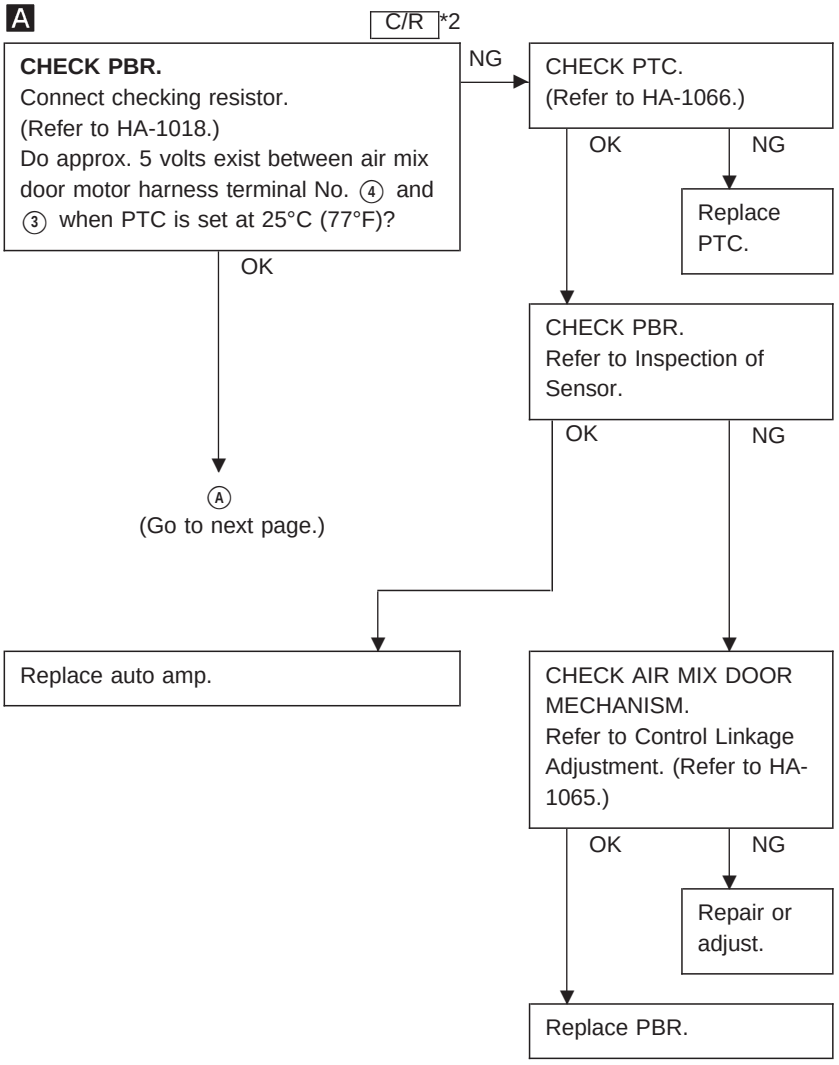
Note:
If the result is NG or No after checking circuit continuity, repair harness or connector.



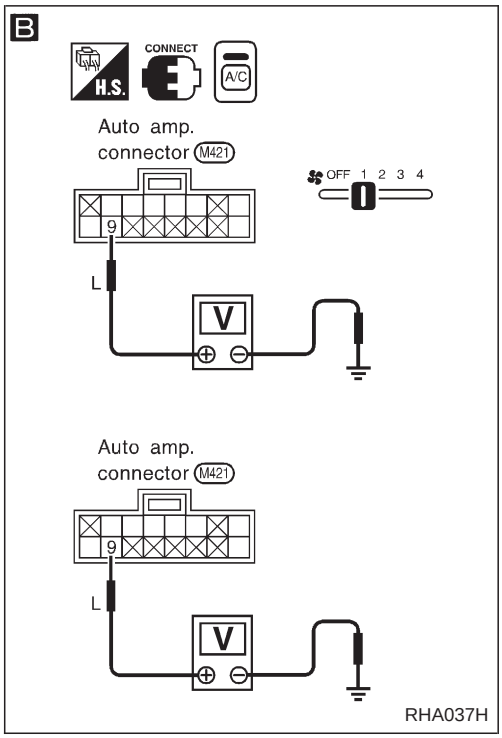
Diagnostic Procedure 6

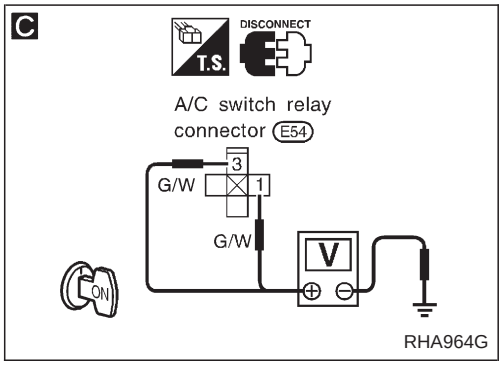
SYMPTOM: There is too much difference between setting temp. on PTC and in-vehicle temperature.

- **Perform PRELIMINARY CHECK 2 before referring to the following flow chart.**



Diagnostic Procedure 6 (Cont'd)





Ⓐ

CHECK ASPIRATOR MOTOR OPERATION.
Does aspirator motor rotate?
(Refer to HA-1068.)

NG → Ⓒ (Go to next page.)

OK ↓

CHECK IN-VEHICLE SENSOR AND AMBIENT SENSOR.
(Refer to Control System Input Components.) (HA-1066)

NG → Replace in-vehicle sensor or ambient sensor.

OK ↓

CHECK SUNLOAD SENSOR.
Go to **Diagnostic Procedure 13. (HA-1051)**

NG → Replace sunload sensor or auto amp.

OK ↓

B

CHECK AUTO AMP. OPERATION.
Do approx. 12 volts exist between auto amp. harness terminal No. ⑨ and body ground when A/C switch is ON?
Do approx. 0 volts exist between auto amp. harness terminal No. ⑨ and body ground when A/C switch is OFF?

NG → **C**

CHECK POWER SUPPLY FOR A/C SWITCH RELAY.
Disconnect A/C switch relay.
Do approx. 12 volts exist between A/C switch relay harness terminal No. ③, ① and body ground?

OK → Ⓑ (Go to next page.)

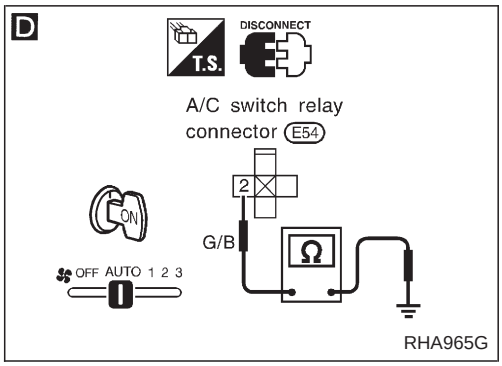
NG → Check 7.5A fuses (No. 21) at fuse block. (Refer to "POWER SUPPLY ROUTING" in EL section and Wiring Diagram.)

OK ↓

Replace auto amp.

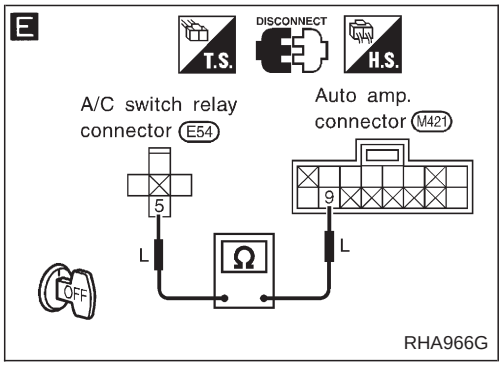
Diagnostic Procedure 6 (Cont'd)

D



RHA965G

E



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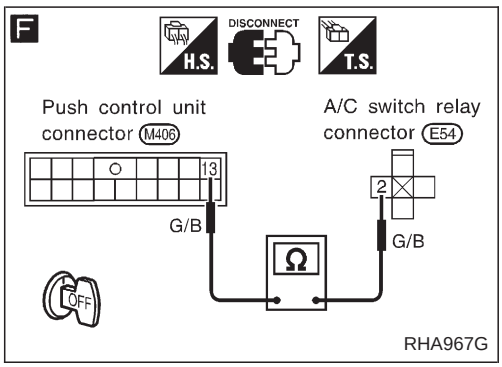
F



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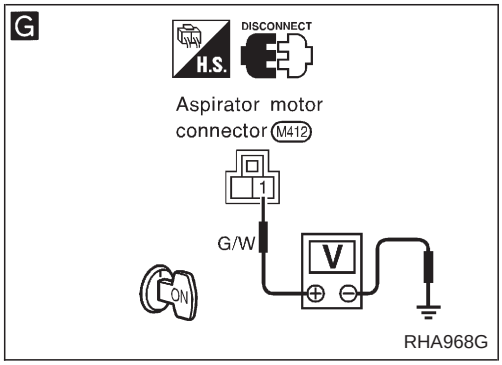
G



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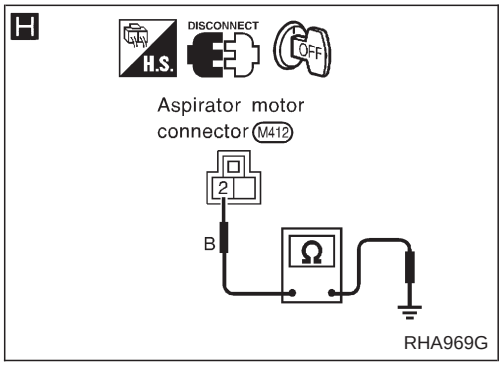
H



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Ⓑ

D

CHECK COIL SIDE CIRCUIT OF A/C SWITCH RELAY.
Does continuity exist between A/C switch relay harness terminal No. ② and body ground?

NG → **F** Note: Check circuit continuity between A/C switch relay harness terminal No. ② and push control unit harness terminal No. ⑬.

OK ↓

CHECK A/C SWITCH RELAY AFTER DISCONNECTING IT.

OK ↓

NG → Replace A/C switch relay.

E Note: Check circuit continuity between A/C switch relay harness terminal No. ⑤ and auto amp. harness terminal No. ⑨.

Ⓒ

G

CHECK POWER SUPPLY FOR ASPIRATOR MOTOR.
Disconnect aspirator motor harness connector.
Do approx. 12 volts exist between aspirator motor harness terminal No. ① and body ground?

NG → Check 7.5A fuse (No. 21) at fuse block.
(Refer to "POWER SUPPLY ROUTING" in EL section and Wiring Diagram.)

OK ↓

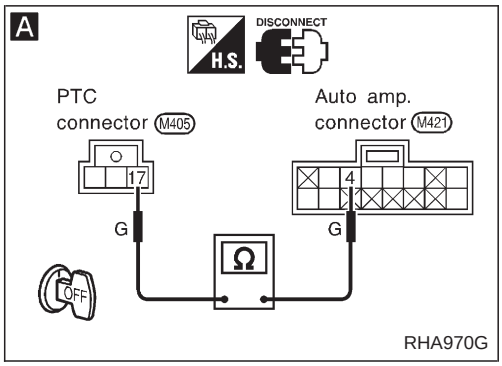
H Note

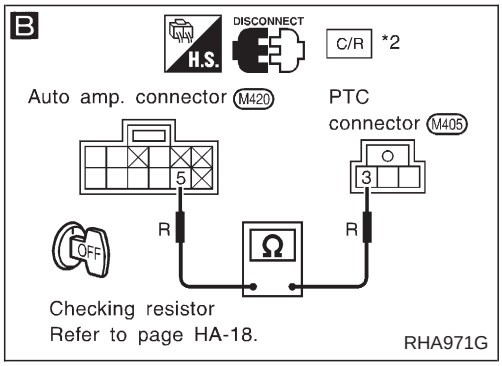
CHECK BODY GROUND CIRCUIT FOR ASPIRATOR MOTOR.
Does continuity exist between aspirator motor harness terminal No. ② and body ground?

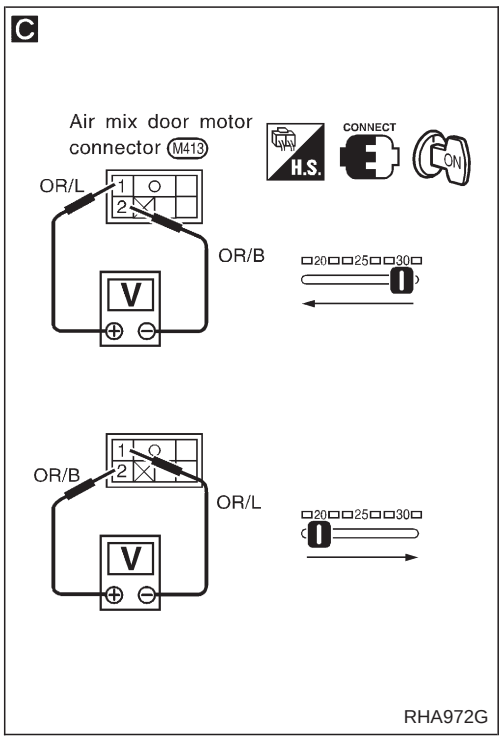
OK ↓

Replace aspirator motor.

Note:
If the result is NG or No after checking circuit continuity, repair harness or connector.







Diagnostic Procedure 7

SYMPTOM: Air mix door motor does not operate normally.

- **Perform PRELIMINARY CHECK 2 before referring to the following flow chart.**

C/R *2

CHECK AUTO AMP. AND PTC.
Connect checking resistor.
(Refer to page HA-1018.)
Does air outlet temperature change when you move PTC from 20°C (68°F) to 30°C (86°F)?

NG → A

OK ↓

CHECK SENSOR CIRCUIT.

	How to repair
Ambient sensor circuit	Go to Diagnostic Procedure 11.
In-vehicle sensor circuit	Go to Diagnostic Procedure 12.

OK ↓

CHECK PTC.
(Refer to HA-1066.)

NG → Replace PTC.

OK ↓

C

CHECK FOR OUTPUT OF AUTO AMP.
Connect checking resistor.
Do approx. 10.5 volts exist between air mix door motor harness terminals No. ② and ① when you move PTC from 20°C (68°F) to 30°C (86°F) or when you move PTC from 30°C (86°F) to 20°C (68°F)?

Air mix door operation	Terminal No. ②	Terminal No. ①	Voltage
Cold → Hot	⊕	⊖	Approx. 10.5V
Hot → Cold	⊖	⊕	
Stop	—	—	0V

NG → Disconnect auto amp. and air mix door motor harness connectors.

Note
Check circuit continuity between auto amp. harness terminal No. ⑫ (⑬) and air mix door motor harness terminal No. ② (①).

OK ↓

Replace auto amp.

OK ↓

Replace air mix door motor.

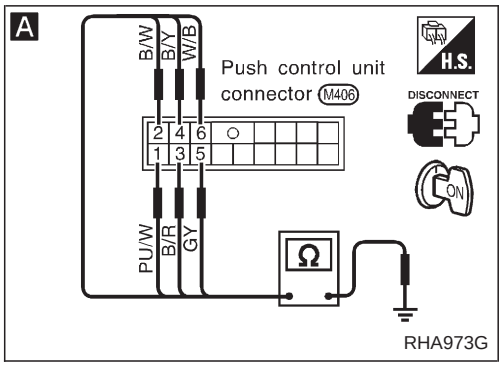
A Note
CHECK PTC CIRCUIT BETWEEN PTC AND AUTO AMP.
Disconnect PTC and auto amp. harness connectors.
Check circuit continuity between PTC harness terminal No. ⑰ and auto amp. harness terminal No. ④.

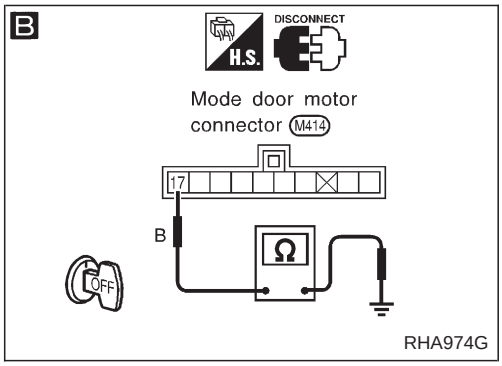
OK ↓

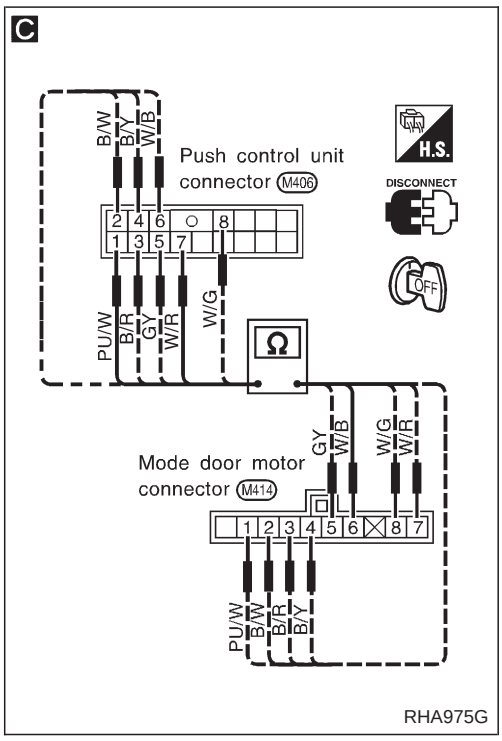
B Note
Check circuit continuity between PTC harness terminal No. ③ and auto amp. harness terminal No. ⑤.

OK ↓

Note:
If the result is NG or No after checking circuit continuity, repair harness or connector.







Diagnostic Procedure 8

SYMPTOM: Air outlet does not change.

- **Main Power Supply and Ground Circuit Check before referring to the following flow chart.**

A

CHECK MODE DOOR MOTOR POSITION SWITCH.

1. Turn VENT switch ON with ignition switch at ON position.
2. Turn ignition switch OFF. Disconnect push control unit connector.
3. Check if continuity exists between each terminal on push control unit harness connector and body ground.
4. Using above procedures, check for continuity in any other mode, as indicated in chart.

Mode switch	Terminal No. ⊕	Terminal No. ⊖	Continuity
VENT	① or ②	Body ground	Yes
B/L	② or ③		
FOOT	③ or ④		
F/D	④ or ⑤		
DEF	⑤ or ⑥		

NG → Disconnect mode door motor harness connector.

B

Note

CHECK BODY GROUND CIRCUIT FOR MODE DOOR MOTOR.

Does continuity exist between mode door motor harness terminal No. ⑰ and body ground?

OK

C

Note

Check circuit continuity between each terminal on push control unit and on mode door motor.

Terminal No. ⊕ (Push control unit)	Terminal No. ⊖ (Mode door motor)	Continuity
①	①	Yes
②	②	
③	③	
④	④	
⑤	⑤	
⑥	⑥	
⑦	⑦	
⑧	⑧	

OK

Ⓐ

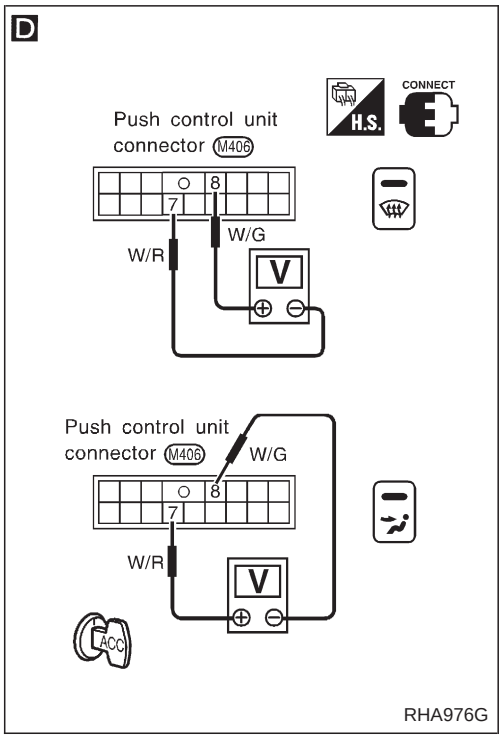
(Go to next page.)

OK

CHECK SIDE LINK.

Note:
If the result is NG or No after checking circuit continuity, repair harness or connector.

Diagnostic Procedure 8 (Cont'd)



Ⓐ

Reconnect push control unit and mode door motor harness connectors.

D

CHECK FOR OUTPUT OF PUSH CONTROL UNIT.

Do approx. 12 volts exist between push control unit harness terminal No. ⑦ and ⑧ when mode is switched from "VENT" to "DEF" or when mode is switched from "DEF" to "VENT"?

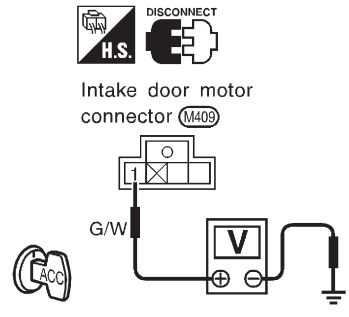
NG → Replace control amp. built-in push control unit.

Terminal No.		Mode door motor	
⑦	⑧	Mode door operation	Direction of linkage rotation
—	—	Stop	Stop
⊖	⊕	VENT → DEF	Clockwise
⊕	⊖	DEF → VENT	Counter-clockwise

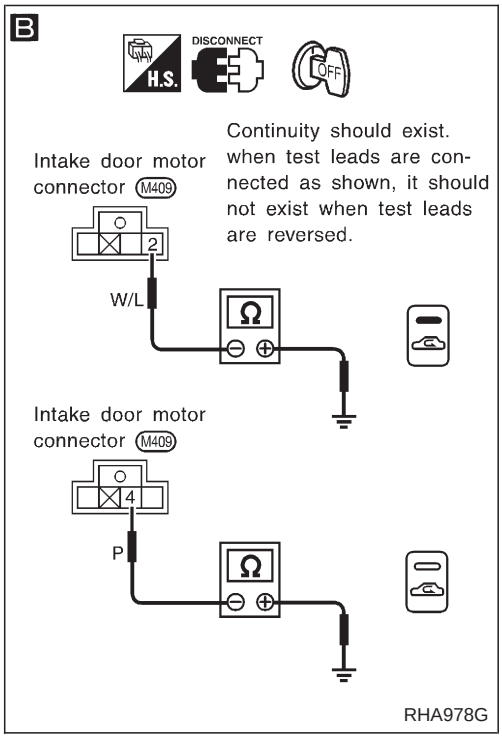
OK

Replace mode door motor.

A



B



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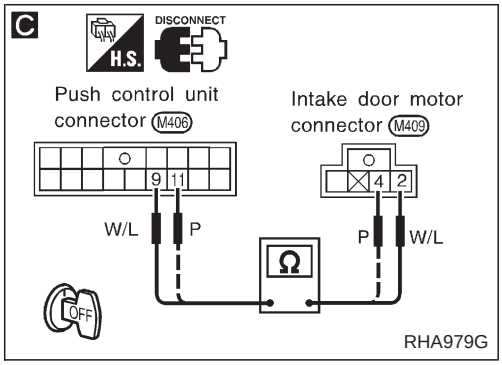


Diagnostic Procedure 9

SYMPTOM: Intake door does not change.

- **Perform PRELIMINARY CHECK 1 and Main Power Supply and Ground Circuit Check before referring to the following flow chart.**

A

CHECK POWER SUPPLY FOR INTAKE DOOR MOTOR.
Disconnect intake door motor harness connector.
Do approx. 12 volts exist between intake door motor harness terminal No. 39 and body ground?

NG → Check 7.5A fuses (No. 21) at fuse block. (Refer to "POWER SUPPLY ROUTING" in EL section and Wiring Diagram.)

OK ↓

B

CHECK BODY GROUND CIRCUIT FOR INTAKE DOOR MOTOR.
Does continuity exist between intake door motor harness terminal No. 2 and body ground when REC switch is ON?
Does continuity exist between intake door motor harness terminal No. 4 and body ground when REC switch is OFF?

NG → Disconnect push control unit harness connector.

C

Note: Check circuit continuity between push control unit harness terminal No. 9 (11) and intake door motor harness terminal No. 2 (4)?

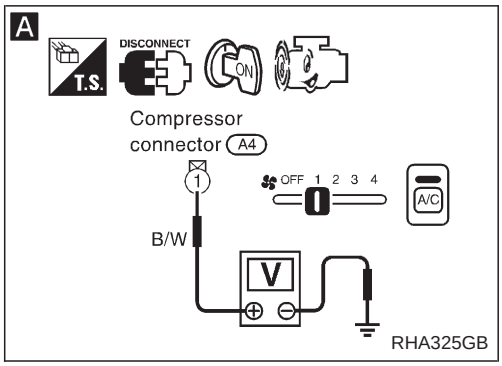
OK → Replace control amp. built-in push control unit.

OK ↓

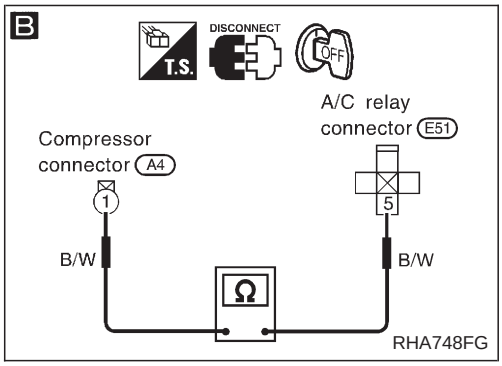
Replace intake door motor.

Note:
If the result is NG or No after checking circuit continuity, repair harness or connector.

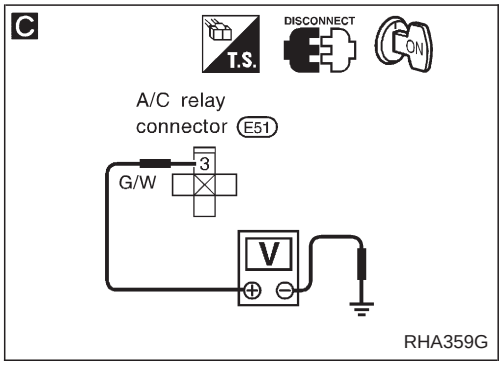
A



B



C



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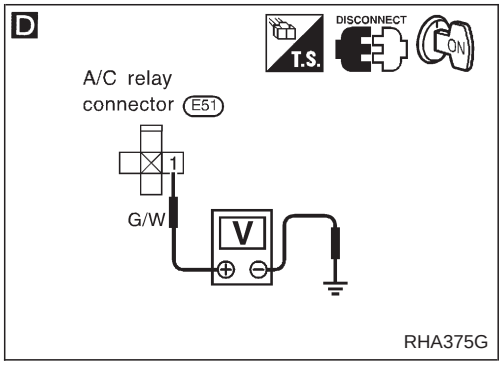
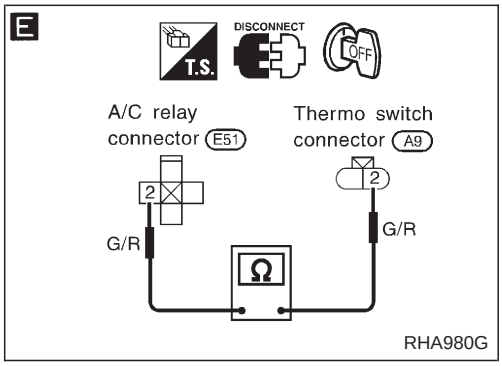


E



Diagnostic Procedure 10

SYMPTOM: Magnet clutch does not engage when A/C switch and fan switch are ON.

A

CHECK POWER SUPPLY FOR COMPRESSOR.
Disconnect compressor harness connector.
Do approx. 12 volts exist between compressor harness terminal No. ① and body ground?

Yes → Check the following.
- Magnet clutch coil
- Thermal protector

NG → Replace magnet clutch. Refer to HA-1087.

No

B

Note

Check circuit continuity between A/C relay harness terminal No. ⑤ and compressor harness terminal No. ①.
Continuity should exist.
If OK, check harness for short.

OK

C

CHECK POWER SUPPLY FOR A/C RELAY.
Do approx. 12 volts exist between A/C relay harness terminal No. ③ and body ground?

No → Check power supply circuit and 7.5A fuse (No. 21), located in the fuse block). (Refer to "POWER SUPPLY ROUTING" in EL section and Wiring Diagram.)

Yes

D

CHECK POWER SUPPLY FOR A/C RELAY.
Do approx. 12 volts exist between A/C relay harness terminal No. ① and body ground?

Yes → Check power supply circuit and 7.5A fuse (No. 21), located in the fuse block). (Refer to "POWER SUPPLY ROUTING" in EL section and Wiring Diagram.)

No

CHECK A/C RELAY AFTER DISCONNECTING IT.
Refer to HA-1058.

NG → Replace A/C relay.

OK

Reconnect A/C relay.

E

Note

Check circuit continuity between A/C relay harness terminal No. ② and thermo switch harness terminal No. ②.
Continuity should exist.
If OK, check harness for short.

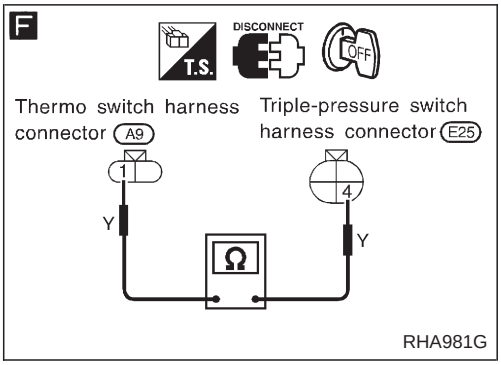
OK

Ⓐ
(Go to next page.)

Note:
If the result is NG or No after checking circuit continuity, repair harness or connector.

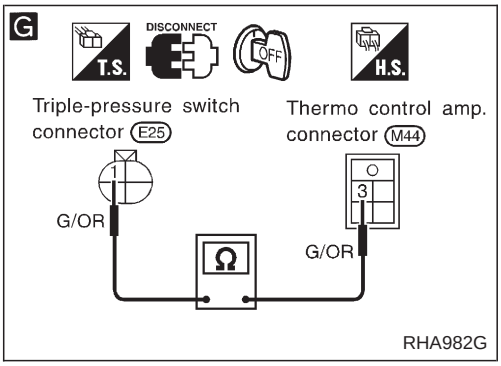
Diagnostic Procedure 10 (Cont'd)

F



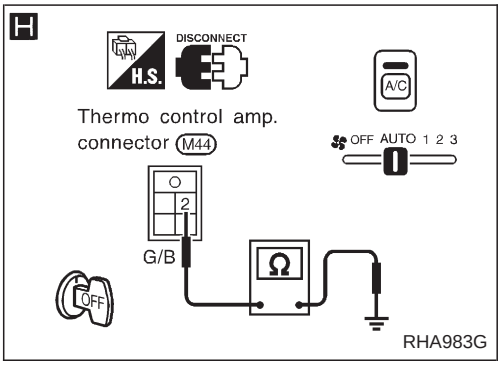
RHA981G

G



RHA982G

H



RHA983G

Ⓐ

F Note

Check circuit continuity between thermo switch harness terminal No. ① and triple-pressure switch harness terminal No. ④.
Continuity should exist.
If OK, check harness for short.

OK ↓

CHECK THERMO SWITCH.
Refer to HA-1059.

OK ↓

CHECK TRIPLE-PRESSURE SWITCH.
Refer to HA-1058.

NG → Check refrigerant charge amount.

OK ↓

Replace triple-pressure switch.

OK ↓

G Note

Check circuit continuity between triple-pressure switch harness terminal No. ① and thermo control amp. harness terminal No. ③.
Continuity should exist.
If OK, check harness for short.

OK ↓

CHECK POWER SUPPLY FOR THERMO CONTROL AMP.
(Refer to Main Power Supply and Ground Circuit Check.) (HA-1031)

H

CHECK BODY GROUND CIRCUIT FOR THERMO CONTROL AMP.
Disconnect thermo control amp. harness connector.
Does continuity exist between thermo control amp. harness terminal No. ② and body ground?

OK → Replace fan switch.

NG ↓

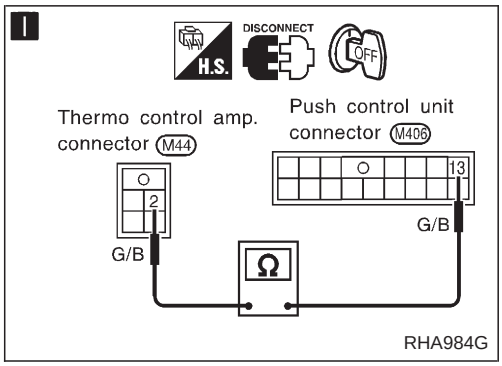
Disconnect push control unit harness connector.

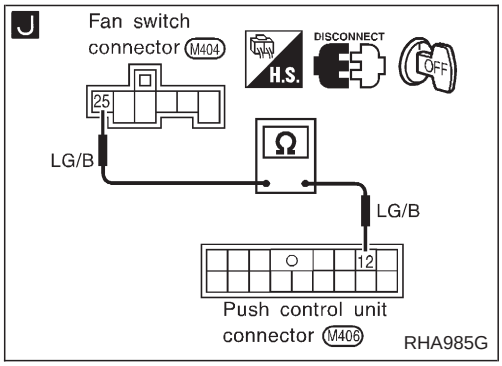
Ⓑ

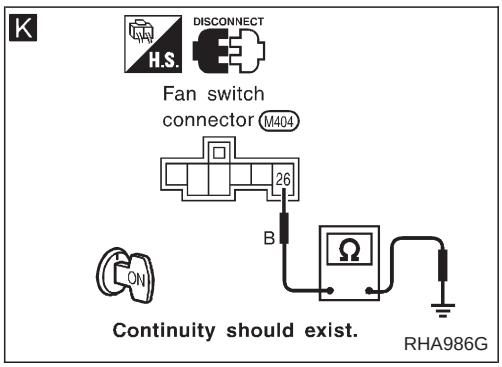
(Go to next page.)

Note:
If the result is NG or No after checking circuit continuity, repair harness or connector.

Diagnostic Procedure 10 (Cont'd)







Ⓑ

I — Note

Check circuit continuity between thermo control amp. harness terminal No. ② and push control unit harness terminal No. ⑬.

OK ↓

CHECK A/C SWITCH OF PUSH CONTROL UNIT.
(Refer to Electrical Components Inspection.) (HA-1057)

NG → Replace control amp. built into push control unit.

OK ↓

Disconnect fan switch harness connector.

J — Note

Check circuit continuity between push control unit harness terminal No. ⑫ and fan switch harness terminal No. ㉕.

OK ↓

K — Note

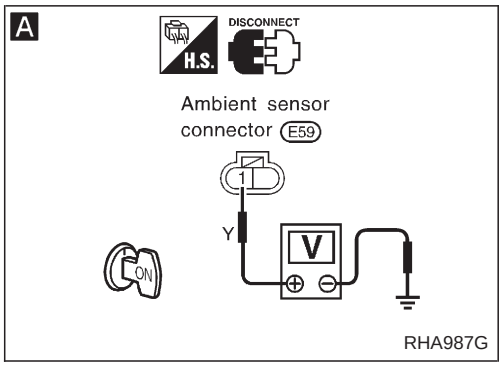
Check circuit continuity between fan switch harness terminal No. ㉖ and body ground.

OK ↓

CHECK FAN SWITCH.
(Refer to Electrical Components Inspection.) (HA-1057)

Note:
If the result is NG or No after checking circuit continuity, repair harness or connector.

A



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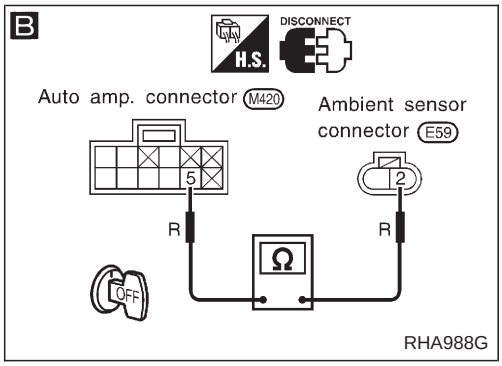
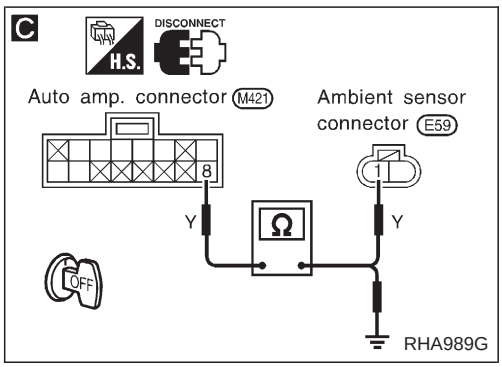


C



Diagnostic Procedure 11

SYMPTOM: Ambient sensor circuit is open or shorted.

A

CHECK AMBIENT SENSOR CIRCUIT BETWEEN AMBIENT SENSOR AND AUTO AMP.
Disconnect ambient sensor harness connector.
Do approx. 5 volts exist between ambient sensor harness terminal No. ① and body ground?

NG → Disconnect auto amp. harness connector.

C
Note
Check circuit continuity between auto amp. harness terminal No. ⑧ and ambient sensor harness terminal No. ①, and between auto amp. harness terminal No. ⑧ and body ground.

OK → Replace auto amp.

OK → Disconnect auto amp. harness connector.

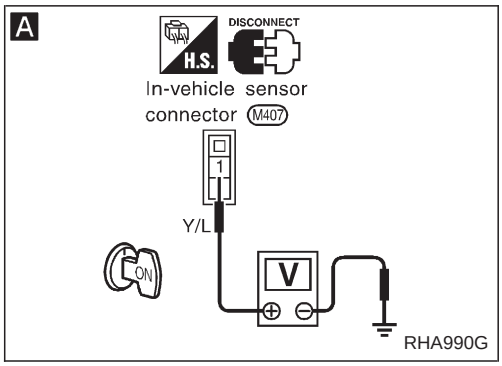
B
Note
Check circuit continuity between ambient sensor harness terminal No. ② and auto amp. harness terminal No. ⑤.

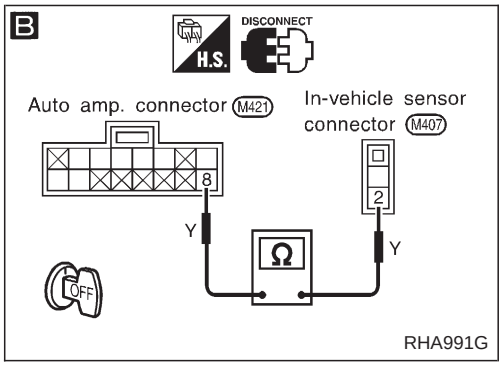
OK → CHECK AMBIENT SENSOR.
(Refer to HA-1068.)

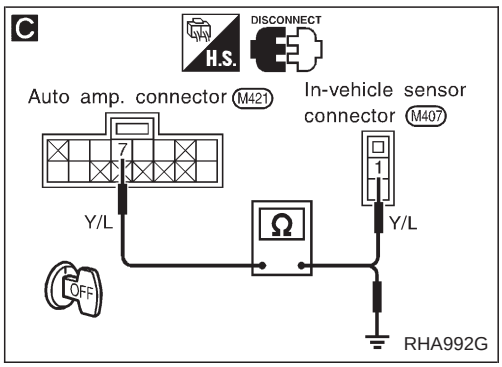
NG → Replace ambient sensor.

OK → Replace auto amp.

Note:
If the result is NG or No after checking circuit continuity, repair harness or connector.







Diagnostic Procedure 12

SYMPTOM: In-vehicle sensor circuit is open or shorted.

A

CHECK IN-VEHICLE SENSOR CIRCUIT BETWEEN IN-VEHICLE SENSOR AND AUTO AMP.
Disconnect in-vehicle sensor harness connector.
Do approx. 5 volts exist between in-vehicle sensor harness terminal No. ① and body ground?

NG → Disconnect auto amp. harness connector.

C

Note

Check circuit continuity between auto amp. harness terminal No. ⑦ and in-vehicle sensor harness terminal No. ①, and between auto amp. harness terminal No. ⑦ and body ground.

OK → Replace auto amp.

OK → Disconnect auto amp. harness connector.

B

Note

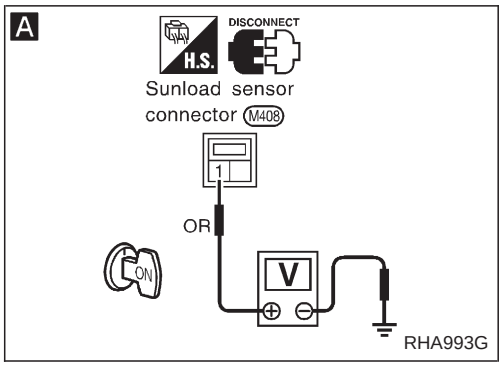
Check circuit continuity between in-vehicle sensor harness terminal No. ② and auto amp. harness terminal No. ⑧.

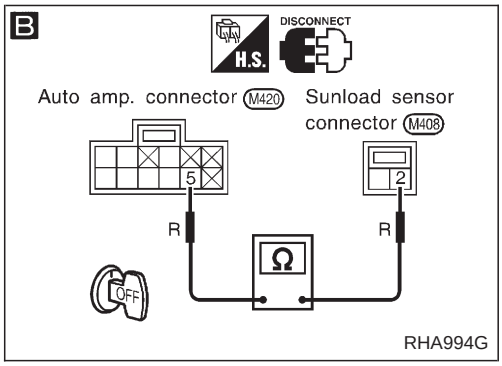
OK → CHECK IN-VEHICLE SENSOR. (Refer to HA-1067.)

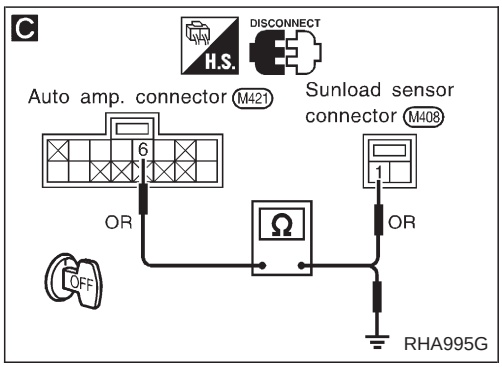
NG → Replace in-vehicle sensor.

OK → Replace auto amp.

Note:
If the result is NG or No after checking circuit continuity, repair harness or connector.







Diagnostic Procedure 13

SYMPTOM: Sunload sensor circuit is open or shorted.

A

CHECK SUNLOAD SENSOR CIRCUIT BETWEEN SUNLOAD SENSOR AND AUTO AMP.
Disconnect sunload sensor harness connector.
Do approx. 5 volts exist between sunload sensor harness terminal No. ① and body ground?

NG → Disconnect auto amp. harness connector.

C

Note

Check circuit continuity between auto amp. harness terminal No. ⑥ and sunload sensor harness terminal No. ① and between auto amp. harness terminal No. ⑥ and body ground.

OK → Replace auto amp.

OK → Disconnect auto amp. harness connector.

B

Note

Check circuit continuity between sunload sensor harness terminal No. ② and auto amp. harness terminal No. ⑤.

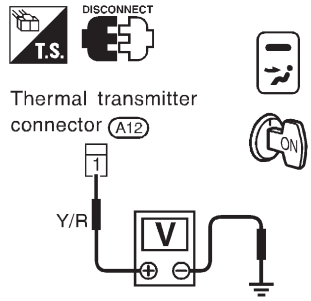
OK → CHECK SUNLOAD SENSOR. (Refer to HA-1069.)

NG → Replace sunload sensor.

OK → Replace auto amp.

Note:
If the result is NG or No after checking circuit continuity, repair harness or connector.

A



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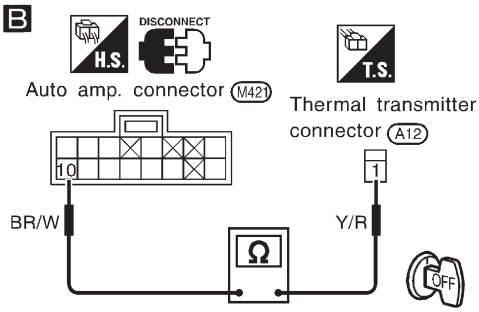
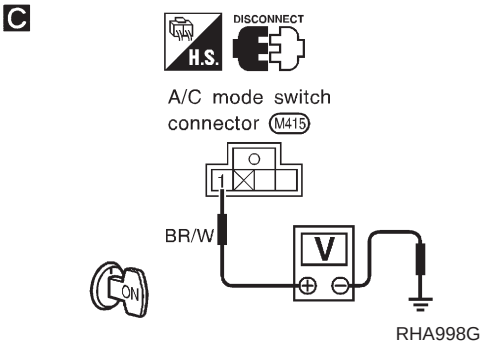
B



RHA997G

C



RHA998G

Diagnostic Procedure 14

SYMPTOM: Thermal transmitter circuit is open or shorted.

A

CHECK THERMAL TRANSMITTER CIRCUIT.
Disconnect thermal transmitter harness connector.
Do approx. 5 volts exist between thermal transmitter harness terminal No. ① and body ground?

NG → Disconnect microswitch harness connector.

C

Do approx. 5 volts exist between microswitch harness terminal No. ① and body ground?

OK → Ⓐ
NG → Ⓑ

(Go to next page.)

OK

Disconnect auto amp. harness connector.

B

Note

Check circuit continuity between thermal transmitter harness terminal No. ① and auto amp. harness terminal No. ⑩.

OK

CHECK THERMAL TRANSMITTER.
(Refer to ''THERMAL TRANSMITTER CHECK'' in EL section.)

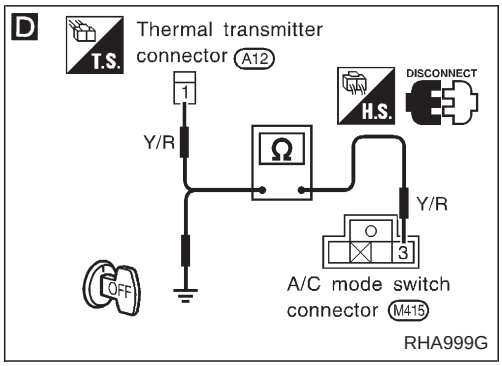
NG → Replace thermal transmitter.

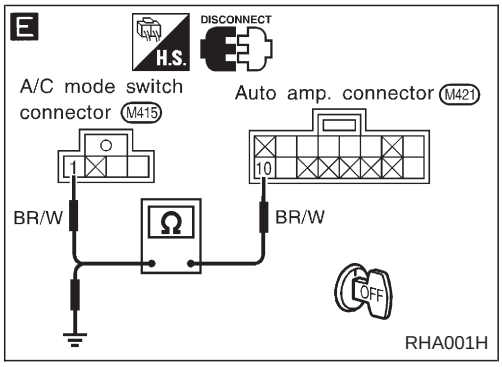
OK

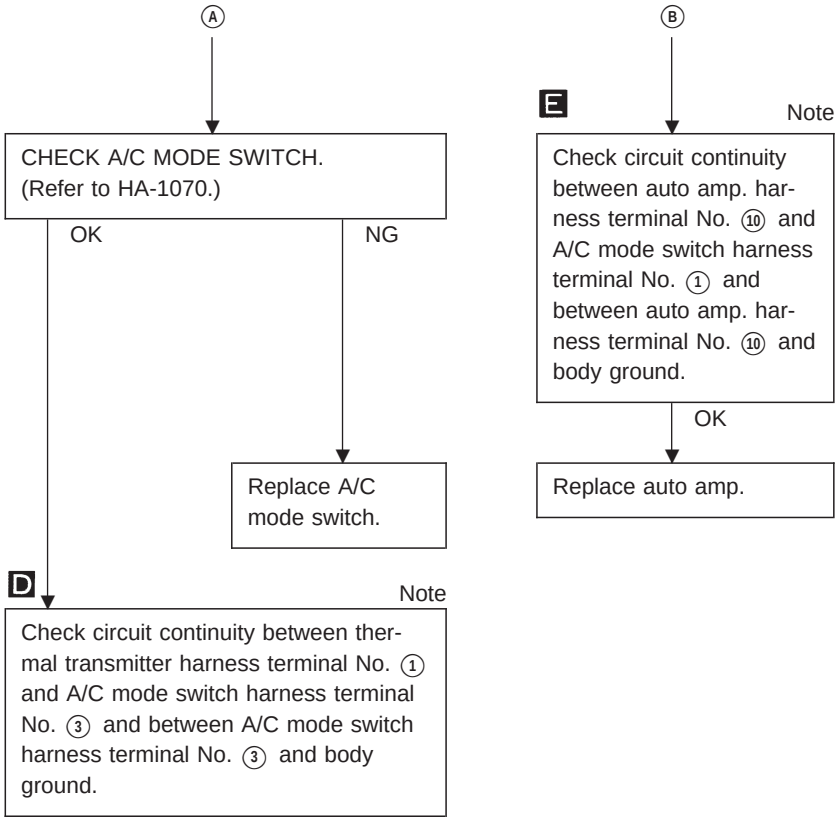
Replace auto amp.

Note:
If the result is NG or No after checking circuit continuity, repair harness or connector.

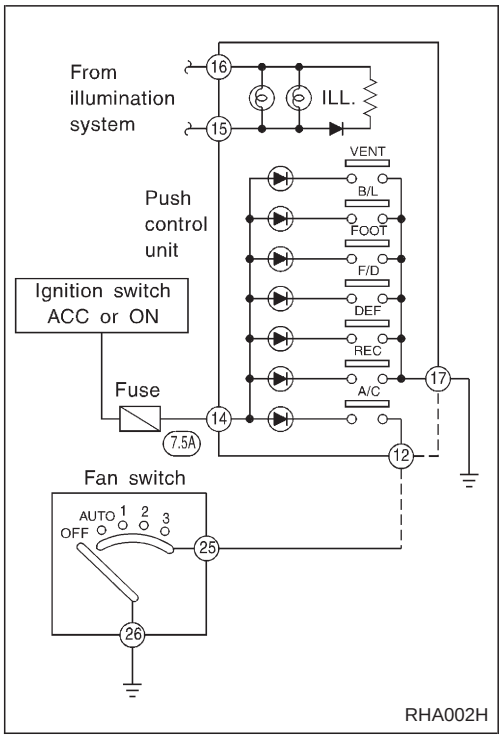
Diagnostic Procedure 14 (Cont'd)







Note:
If the result is NG or No after checking circuit continuity, repair harness or connector.



Diagnostic Procedure 15

SYMPTOM: Illumination or indicators of push control unit do not come on.

- **Perform Main Power Supply and Ground Circuit Check before referring to the following flow chart.**

Turn ignition switch and lighting switch ON.

CHECK ILLUMINATION AND INDICATORS.

- Turn A/C, REC and fan switches ON.
- Push VENT, B/L, FOOT, F/D and DEF switches in order.
- Check for incidents and follow the repairing methods as shown:

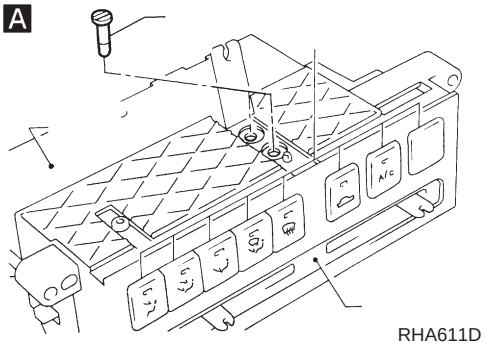
INCIDENTS								''How to repair''
ILL. / Push control unit	VENT	B/L	FOOT	F/D	DEF	REC	A/C	
×	○	○	○	○	○	○		Go to DIAGNOSTIC PROCEDURE 15-1.
	○	○	○	○	○	○	×	Go to DIAGNOSTIC PROCEDURE 15-2.
○	×	×	×	×	×	×		Go to DIAGNOSTIC PROCEDURE 15-3.
	△							Replace control amp. built into push control unit.
○	×	×	×	×	×	×	○	Replace push control amp. built into push control unit.
	×	×	×	×	×	×	○	Go to DIAGNOSTIC PROCEDURE 15-4.

○: Illumination or indicator comes on.
×: Illumination or indicator does not come on.
△: Some indicators for VENT, B/L, FOOT, F/D, DEF or REC come on.

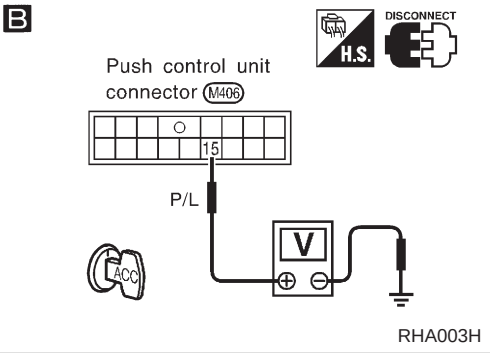
Diagnostic Procedure 15 (Cont'd)

DIAGNOSTIC PROCEDURE 15-1

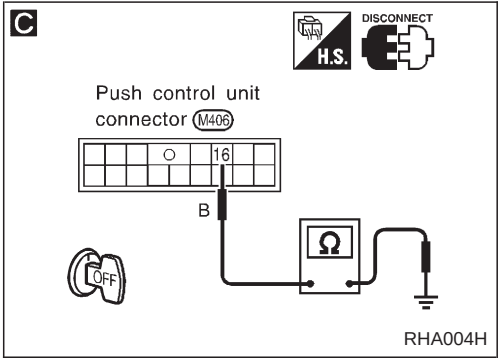
A



B



C



CHECK THE OTHER ILLUMINATION SYSTEMS EXCEPT FOR A/C SYSTEM.
Do the other illumination come on with ignition switch and lighting switch ON?

NG → CHECK ILLUMINATION SYSTEM.
Refer to Illumination/ Wiring Diagram in EL section.

OK ↓

Turn ignition switch and lighting switch OFF.

A

CHECK ILLUMINATION BULB.
Remove push control unit and disconnect harness connectors.
Remove illumination bulb(s) and check them.

NG → Replace illumination bulb(s).

OK ↓

B

CHECK POWER SUPPLY FOR ILLUMINATION WITH LIGHTING SWITCH ON.
Do approx. 12 volts exist between push control unit harness terminal No. (15) and body ground?

NG → CHECK POWER SUPPLY FOR A/C ILLUMINATION SYSTEM.
Refer to Illumination/ Wiring Diagram in EL section.

OK ↓

C

Note

CHECK BODY GROUND CIRCUIT FOR ILLUMINATION.
Does continuity exist between push control unit harness terminal No. (16) and body ground?

OK ↓

Replace control amp. built-in push control unit.

Note:
If the result is NG or No after checking circuit continuity, repair harness or connector.

Diagnostic Procedure 15 (Cont'd)

DIAGNOSTIC PROCEDURE 15-2

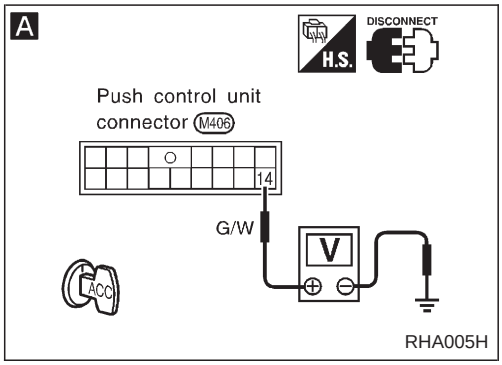
CHECK MAGNET CLUTCH OPERATION.
Does magnet clutch operate normally when engine ON, A/C switch, fan switch are ON?

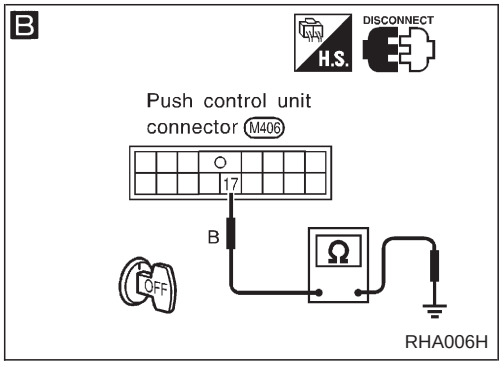
NG → Go to Diagnostic Procedure 10. (Refer to HA-1046.)

OK ↓

Replace control amp. built-in push control unit.

DIAGNOSTIC PROCEDURE 15-3





Turn ignition switch and lighting switch OFF.

↓

Disconnect push control unit harness connector.

↓

A

CHECK POWER SUPPLY FOR PUSH CONTROL UNIT.
Do approx. 12 volts exist between push control unit harness terminal No. (14) and body ground?

NG → Check 7.5A fuse (No. 21) at fuse block. (Refer to "POWER SUPPLY ROUTING" in EL section and Wiring Diagram.)

OK ↓

B

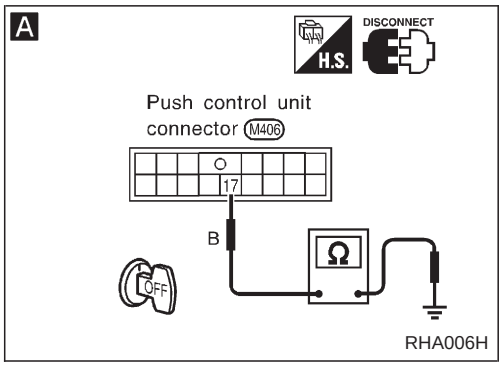
Note

CHECK BODY GROUND CIRCUIT FOR PUSH CONTROL UNIT.
Does continuity exist between push control unit harness terminal No. (17) and body ground?

OK ↓

Replace control amp. built-in push control unit.

Note:
If the result is NG or No after checking circuit continuity, repair harness or connector.



DIAGNOSTIC PROCEDURE 15-4

Turn ignition switch and lighting switch OFF.

↓

Disconnect push control unit harness connector.

↓

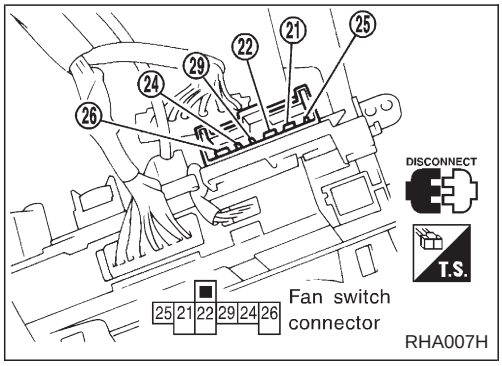
A Note

CHECK BODY GROUND CIRCUIT FOR PUSH CONTROL UNIT.
Does continuity exist between push control unit harness terminal No. ⑰ and body ground?

↓ OK

Replace control amp. built-in push control unit.

Note:
If the result is NG or No after checking circuit continuity, repair harness or connector.

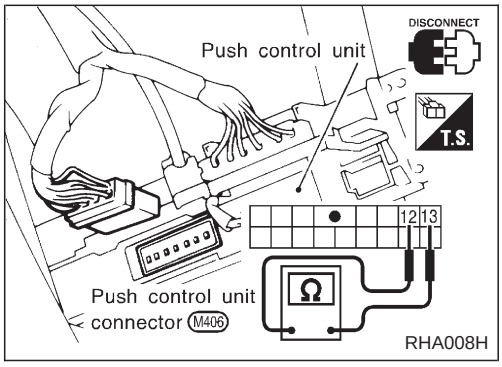


Electrical Components Inspection

FAN SWITCH

Check continuity between terminals at each switch position.

TERMINAL	LEVER POSITION				
	OFF	AUTO	1	2	3
㉑					○
㉒				○	
㉙			○		
㉔		○			
㉖		○	○	○	○
㉕		○	○	○	○



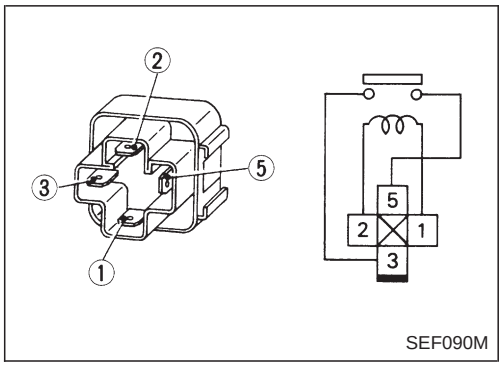
A/C SWITCH

Check continuity between terminals at each switch position.

Switch condition	Terminal No.		Continuity
A/C	⊕	⊖	
ON	⑬	⑫	Yes
ON			
OFF			

Electrical Components Inspection (Cont'd)

A/C RELAY, HI, MH, ML, and LO RELAYS



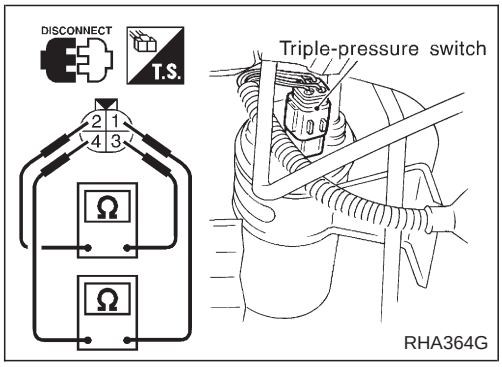
SEF090M

Check continuity between terminal Nos. ③ and ⑤.

Conditions	Continuity
12V direct current supply between terminal Nos. ① and ②	Yes
No current supply	No

If NG, replace relay.

TRIPLE-PRESSURE SWITCH

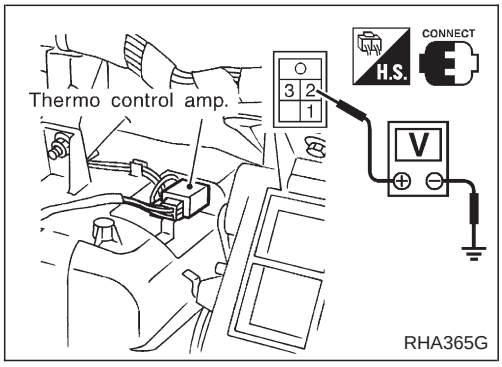


RHA364G

	Terminals	High-pressure side line pressure kPa (bar, kg/cm^2, psi)	Operation	Continuity
Low-pressure side	① - ④	Increasing to 152.0 - 201.0 (1.520 - 2.010, 1.55 - 2.05, 22.0 - 29.2)	ON	Exists.
		Decreasing to 152.0 - 201.0 (1.520 - 2.010, 1.55 - 2.05, 22.0 - 29.2)	OFF	Does not exist.
Medium-pressure side*	② - ③	Increasing to 1,422 - 1,618 (14.22 - 16.18, 14.5 - 16.5, 206 - 235)	ON	Exists.
		Decreasing to 1,128 - 1,422 (11.28 - 14.22, 11.5 - 14.5, 164 - 206)	OFF	Does not exist.
High-pressure side	① - ④	Decreasing to 2,059 - 2,256 (20.6 - 22.6, 21 - 23, 299 - 327)	ON	Exists.
		Increasing to 2,648 - 2,844 (26.5 - 28.4, 27 - 29, 384 - 412)	OFF	Does not exist.

* For cooling fan motor operation

THERMO CONTROL AMP.

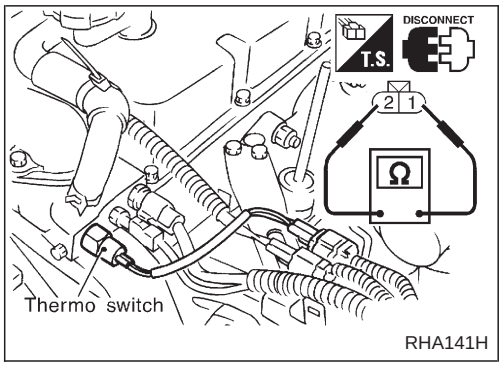


RHA365G

Evaporator outlet air temperature °C (°F)	Thermo amp. operation	Tester
Decreasing to 0.1 - 0.9 (32 - 34)	Turn OFF	Approx. 12V
Increasing to 2.5 - 3.5 (37 - 38)	Turn ON	Approx. 0V

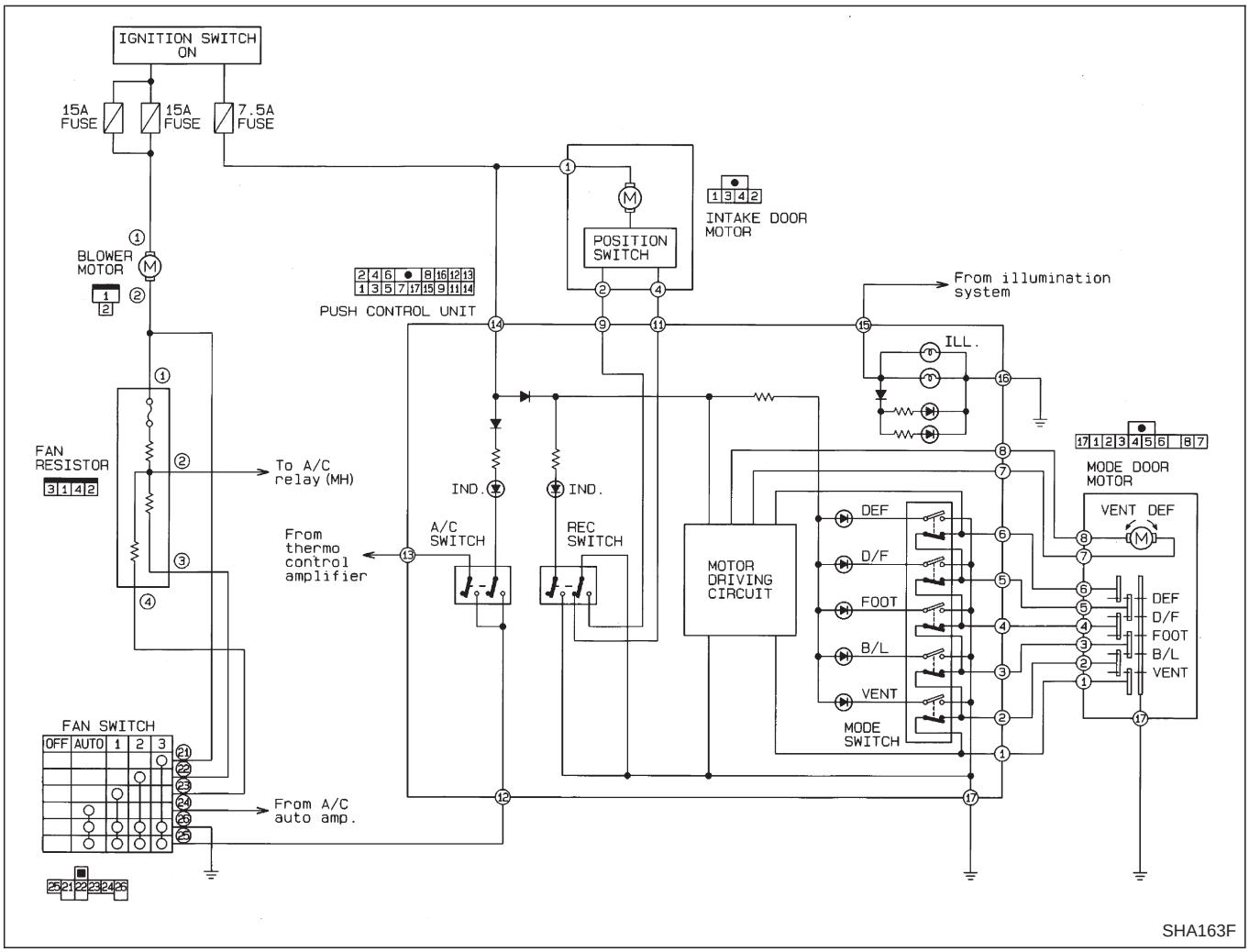
Electrical Components Inspection (Cont'd)

THERMO SWITCH



Water temperature °C (°F)	Terminal No.		Continuity
	⊕	⊖	
Over 105 (221)	①	②	No
Less than 100 (212)			Yes

Push Control System



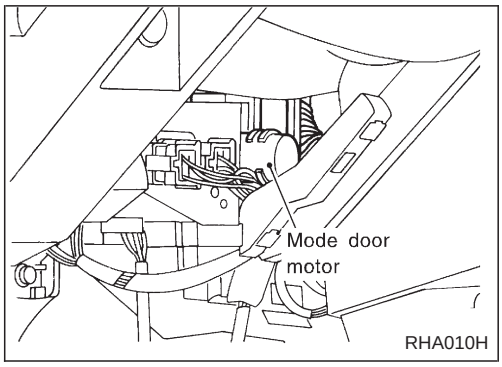
This push control system operates the intake and mode door motors to activate their corresponding doors.

SWITCHES AND THEIR CONTROL FUNCTIONS

Switch		Indicator illuminates: A/C							Air outlet	Intake air	Compressor
A/C		○									ON*1
Mode			○						VENT		
				○					B/L		
					○				FOOT		
						○			F/D	FRE	
							○		DEF	FRE	
								○		REC	

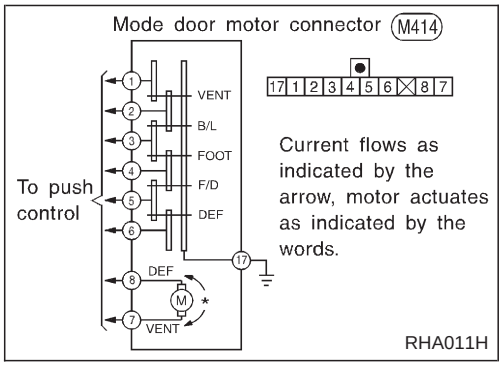
*1: Compressor is operated by thermo control amp.

Push Control System (Cont'd)

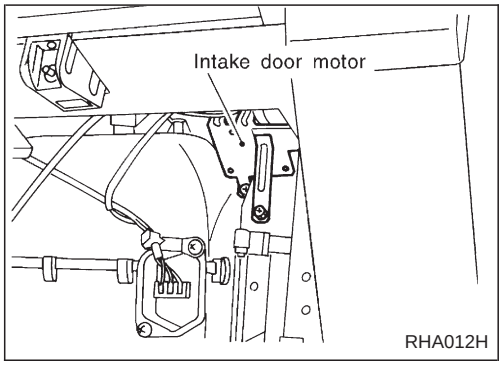


MODE DOOR MOTOR

The mode door motor is located on the left side of the heater unit. Through the side link it opens and closes the vent, foot and defroster doors.
When one mode switch is pushed, the position switch built into it reads the corresponding mode to determine the direction of motor rotation. As soon as the desired mode is set, the position switch stops the motor.

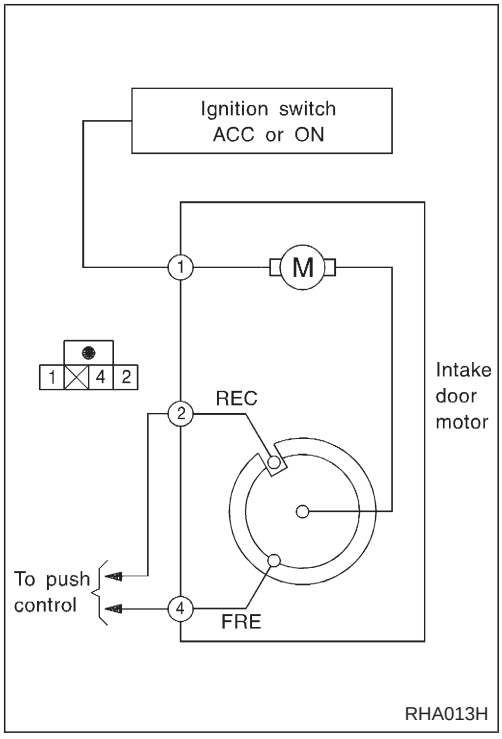


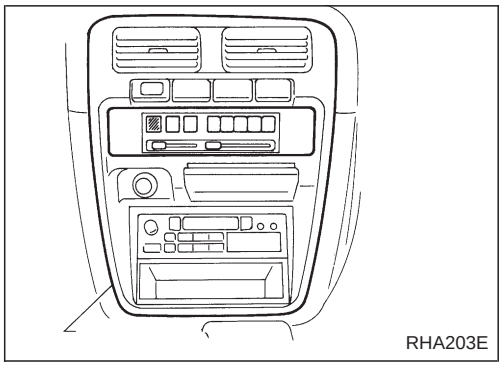
Terminal No.		Mode door motor	
⑦	⑧	Mode door operation	Direction of linkage rotation
—	—	Stop	Stop
⊖	⊕	VENT → DEF	Clockwise
⊕	⊖	DEF → VENT	Counterclockwise



INTAKE DOOR MOTOR

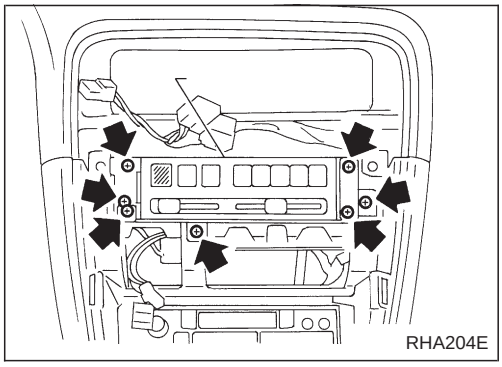
The intake door motor is installed on the intake unit. When the door position is determined by pushing the ''REC'' switch on the control panel, the motor rotates and the air inlet is changed.




RHA203E

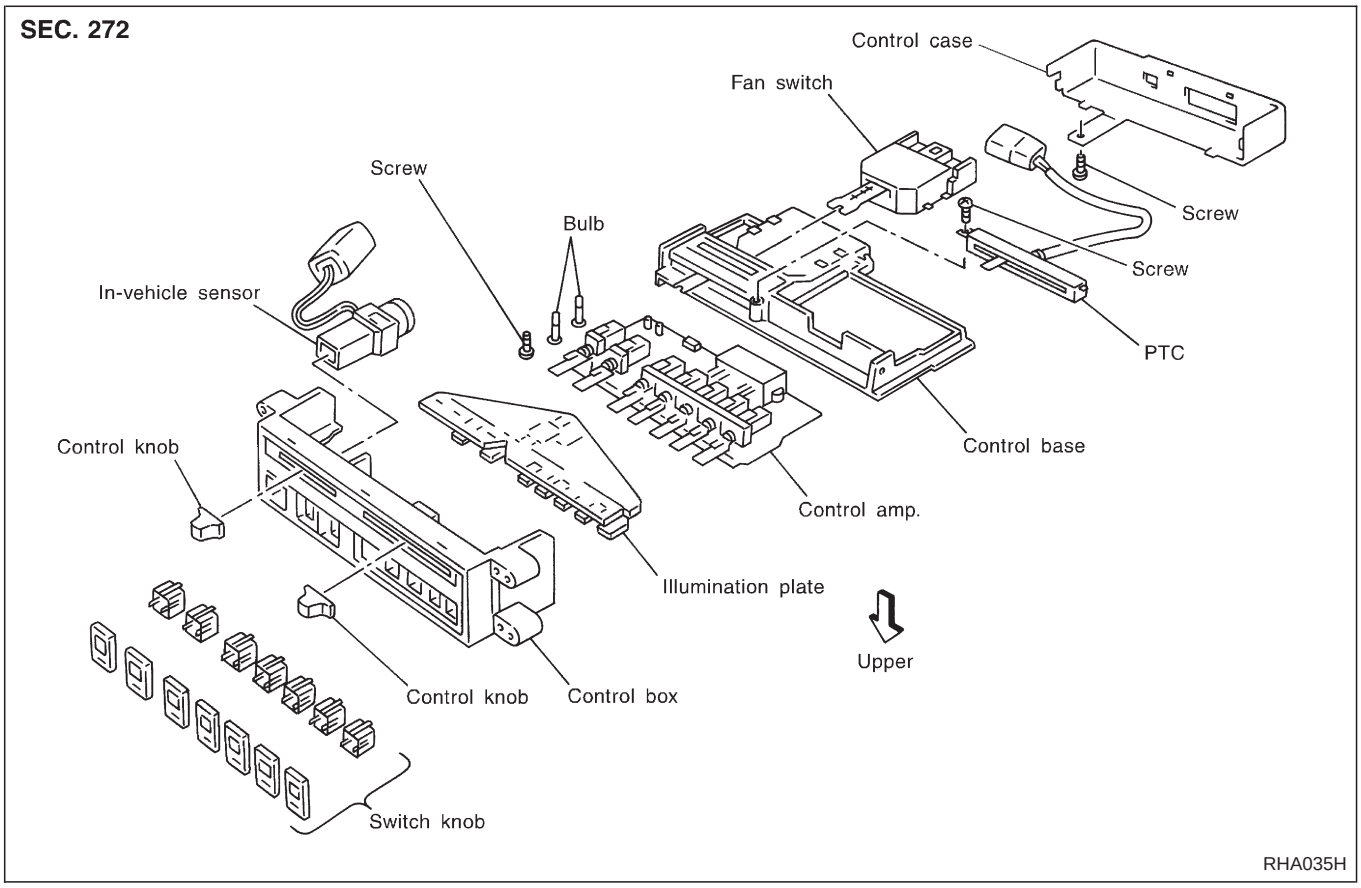
Removal and Installation

1. Remove cluster lid C.

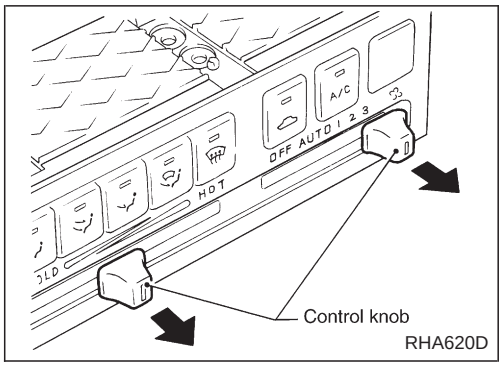

RHA204E

2. Remove audio (radio).
3. Remove seven screws of push control unit and BRKT.
4. Disconnect push control unit, in-vehicle sensor and PTC harness connectors.
5. Remove push control unit.
6. Installation is in the reverse order of removal.

Overhaul — Push control unit assembly

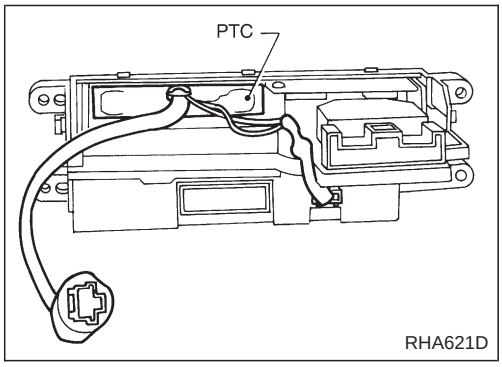


Overhaul — Push control unit assembly (Cont'd)

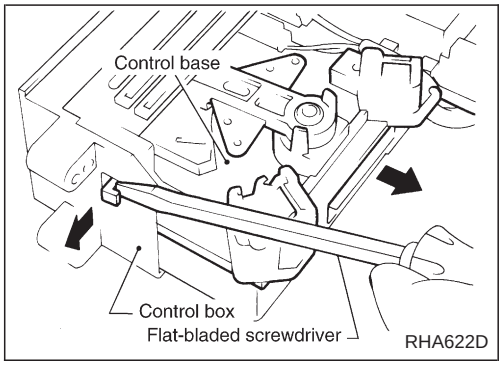


1. Remove control knobs.

Wrap knobs with a cloth and pull in direction indicated by arrow as shown in figure at left. Be careful not to scratch knobs during removal.

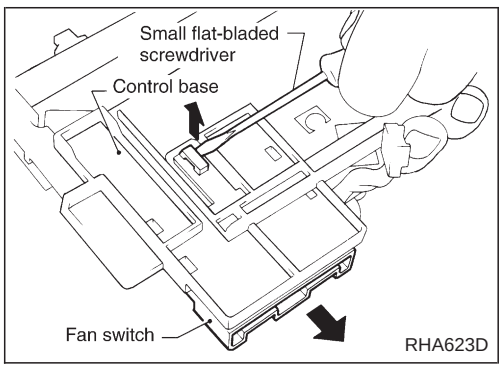


2. Remove PTC and disconnect illumination harness connectors.



3. Remove control base.

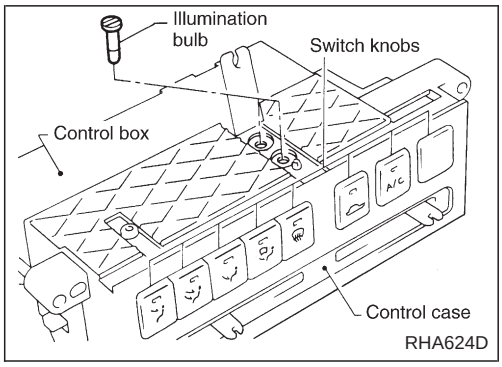
Undo hook at each end of control box and remove control base from control box by moving it in direction indicated by arrow.



4. Remove fan switch.

5. Remove illumination bulb.

Wrap finisher with a cloth and remove knobs using pliers or similar tool. Be careful not to scratch finisher's surface.



Overhaul — Push control unit assembly (Cont'd)

6. Remove control knobs.
7. Remove control case.

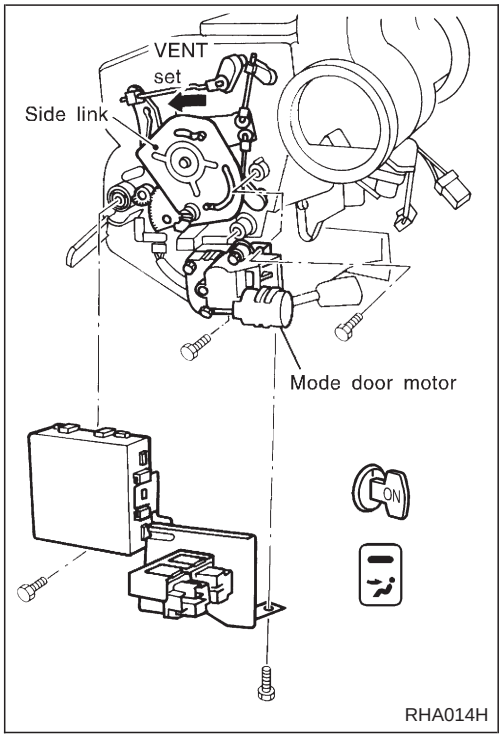
8. Remove illumination plate.

Be careful not to scratch control amp. when removing illumination plate.

9. Remove finisher plate.
10. Remove control amp.

Be careful not to damage substrate when removing.

11. Disconnect temperature control cable.
12. Installation is in reverse order of removal.

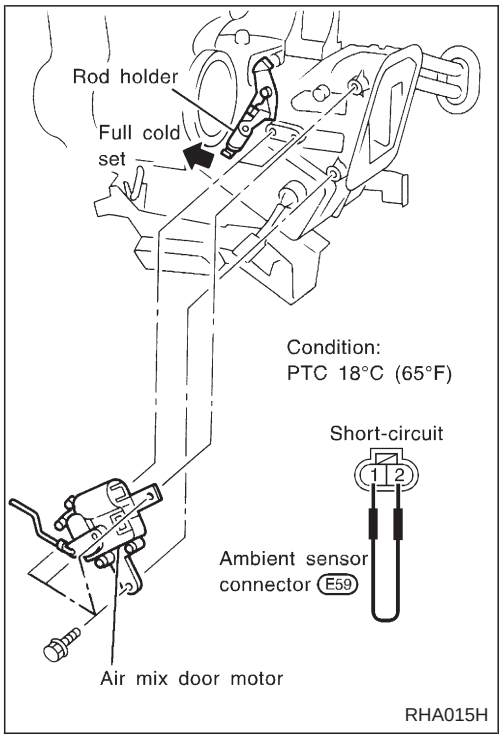


Control Linkage Adjustment

MODE DOOR

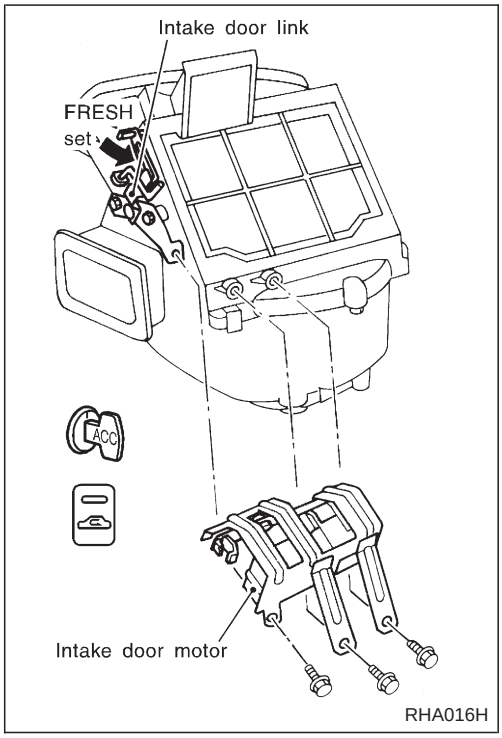
1. Remove auto amplifier and relay bracket.
2. Move side link by hand and hold mode door in VENT mode.
3. Install mode door motor on heater unit and connect it to the auto A/C harness.
4. Turn ignition switch to ON.
5. Turn VENT switch ON.
6. Attach mode door motor rod to side link rod holder.
7. Turn DEF switch ON. Check that side link operates at the fully-open position. Also turn VENT switch ON to check that side link operates at the fully-open position.

Control Linkage Adjustment (Cont'd)



AIR MIX DOOR

1. Install air mix door motor on heater unit and connect it to the auto A/C harness.
2. Disconnect ambient sensor harness connector and connect terminals No. ⑤ and ⑮ with a jumper cable.
3. Set PTC at 18°C (65°F) and air mix door motor at ''full cold''.
4. Move air mix door lever by hand and hold it at the full-cold position.
5. Attach air mix door lever to rod holder.
6. Check that air mix door operates properly when PTC is moved from 18 to 32°C (65 to 85°F).

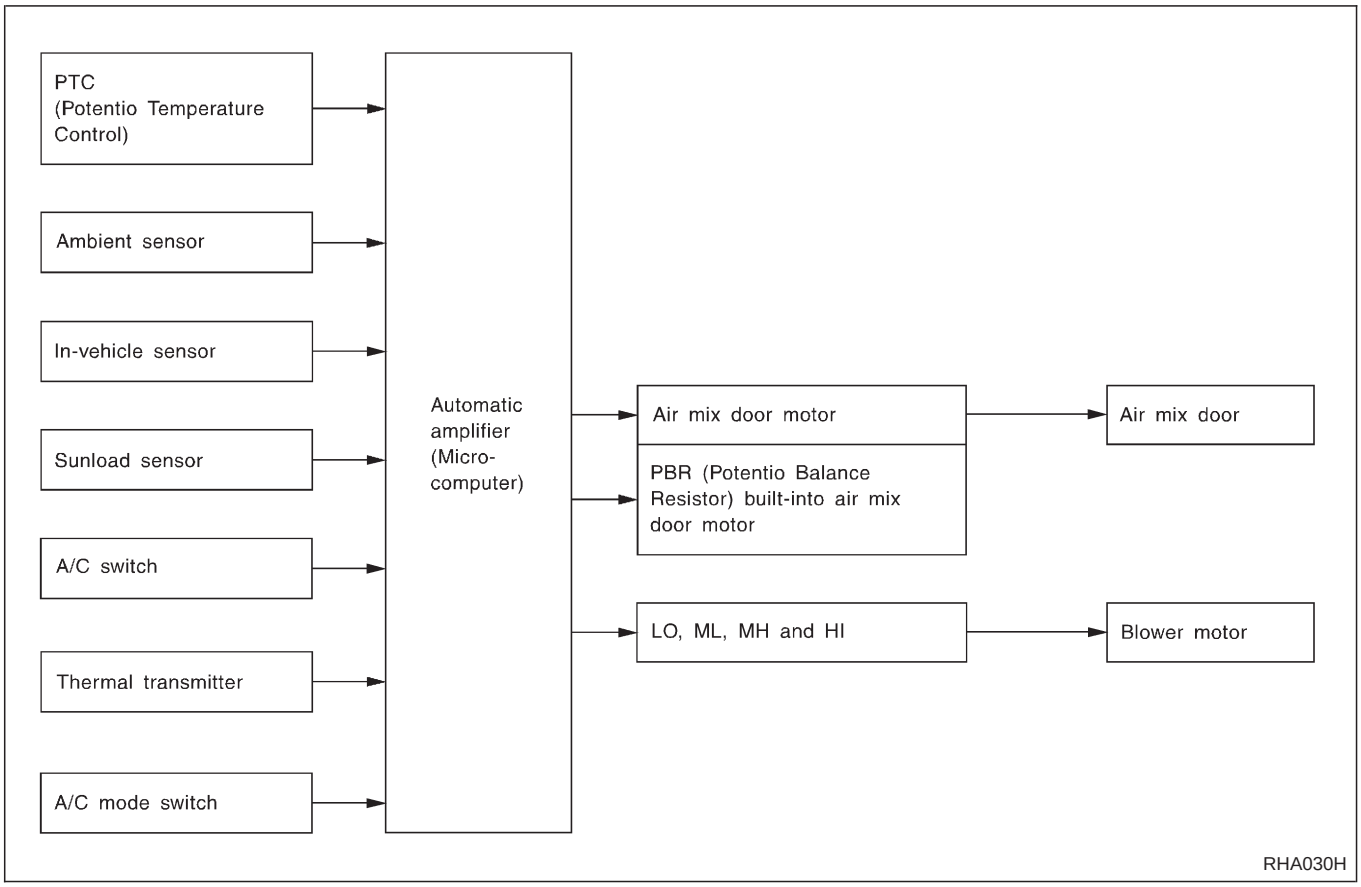


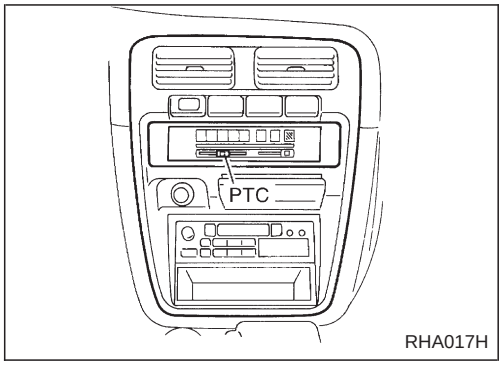
INTAKE DOOR

1. Connect intake door motor harness connector before installing to intake door motor.
2. Turn ignition switch to ON.
3. Turn REC switch OFF.
4. Set intake door lever in FRE and install intake door motor on intake unit.
5. Check that intake door operates properly when REC switch is turned ON and OFF.

Overview of Control System

The control system consists of a) input sensors and switches, b) the automatic amplifier (microcomputer), and c) outputs. The relationship of these components is shown in the diagram below.





Control System Input Components

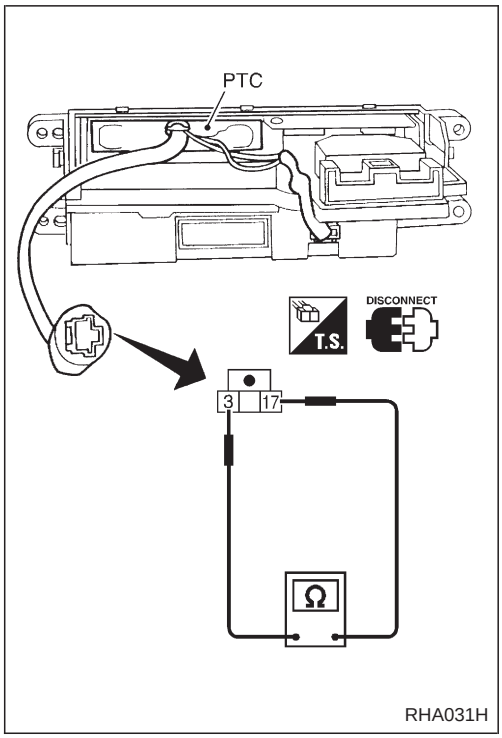
POTENTIO TEMPERATURE CONTROL (PTC)

The PTC is built into the control unit. It has a variable resistance which changes according to the set temperature. This resistance is connected to the temperature lever.

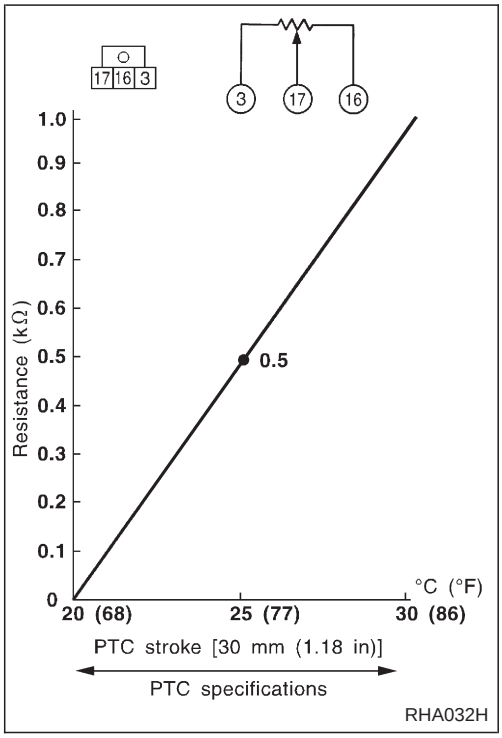
Control System Input Components (Cont'd)

PTC

After disconnecting PTC harness connector, measure resistance between terminals ③ and ⑰ at PTC harness side.



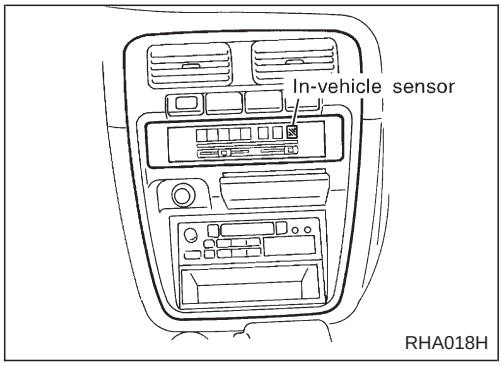
RHA031H



RHA032H

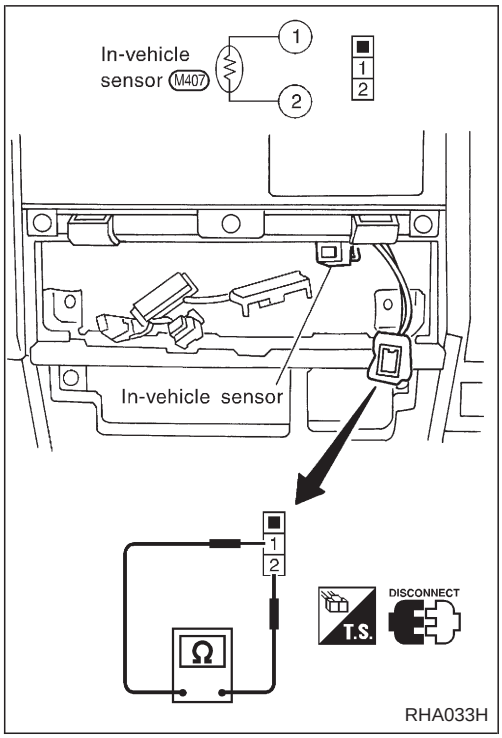
IN-VEHICLE SENSOR

The in-vehicle sensor is attached to the right side of the control unit. It converts variations in the temperature of the compartment air drawn in by the aspirator into a resistance value, which is then input into the auto amplifier.



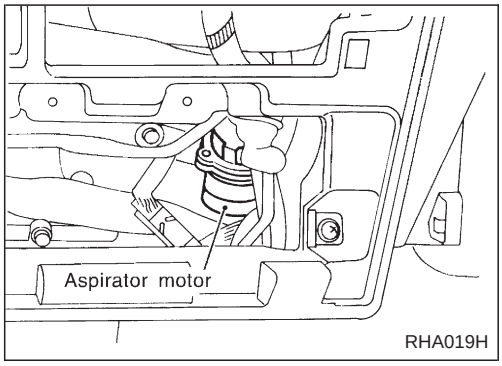
RHA018H

Control System Input Components (Cont'd)



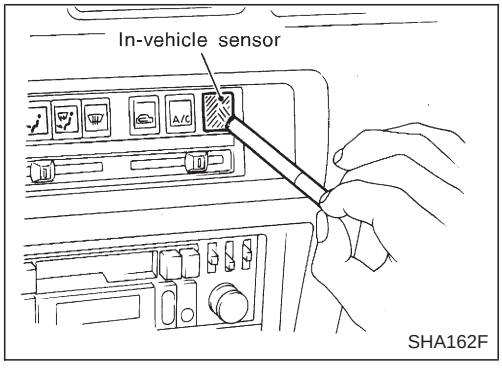
After disconnecting in-vehicle sensor harness connector, measure resistance between terminals ① and ② at sensor harness side, using the table below.

Temperature °C (°F)	Resistance kΩ
0 (32)	6.0
5 (41)	4.95
10 (50)	3.99
15 (59)	3.24
20 (68)	2.65
25 (77)	2.19
30 (86)	1.81
35 (95)	1.51
40 (104)	1.27

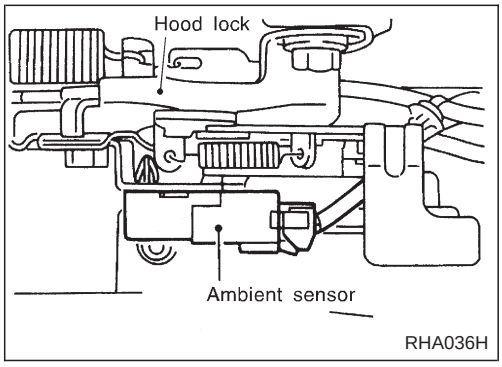


ASPIRATOR MOTOR

The aspirator motor is located in front of the heater unit. The aspirator motor continuously draws compartment air into the in-vehicle sensor while the ignition switch is ON.



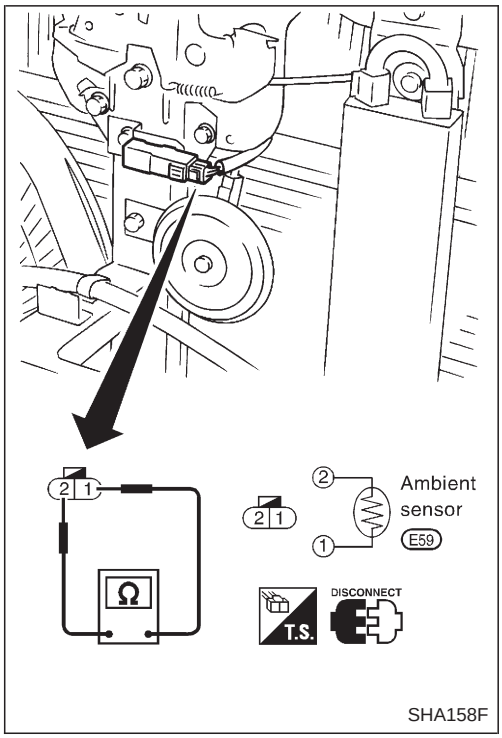
Check that smoke is properly sucked into in-vehicle sensor when a lighted cigarette is moved close to the sensor.



AMBIENT SENSOR

The ambient sensor is located on the hood lock stay. It detects the ambient temperature and converts it into a resistance value, which is then input into the auto amplifier.

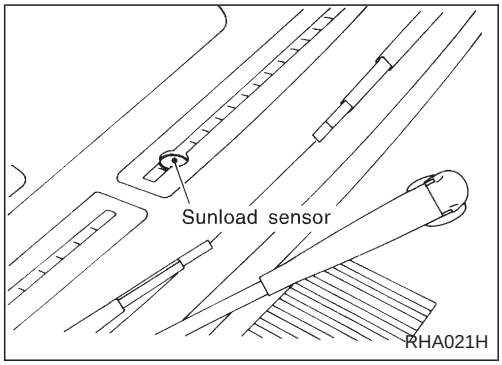
Control System Input Components (Cont'd)



SHA158F

After disconnecting ambient sensor harness connector, measure resistance between terminals ① and ② at sensor harness side, using the table below.

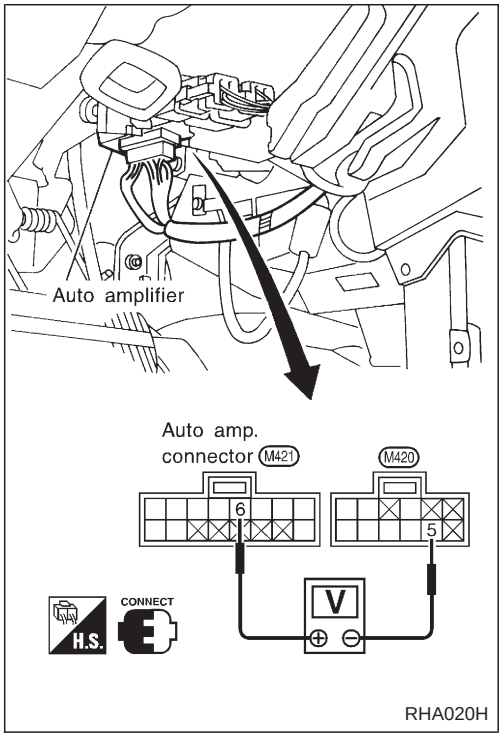
Temperature °C (°F)	Resistance kΩ
−20 (−4)	9.98
−10 (14)	5.57
0 (32)	3.26
10 (50)	1.98
20 (68)	1.25
25 (77)	1.00
30 (86)	0.81
40 (104)	0.54



RHA021H

SUNLOAD SENSOR

The sunload sensor is located on the center defroster grille. It detects sunload entering through the windshield by means of a photo diode and converts it into a current value which is then input to the auto amplifier.



RHA020H

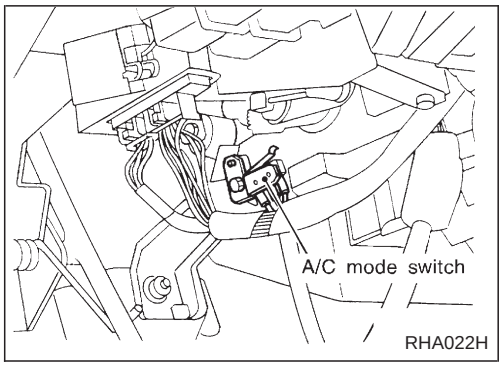
Measure voltage between terminals ⑤ and ⑥ at auto air conditioner harness side, using the table below.

Input current mA	Output voltage V
0	5.00
0.1	4.09
0.2	3.18
0.3	2.27
0.4	1.36
0.5	0.45

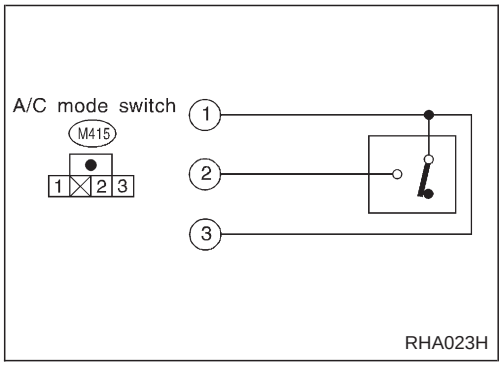
- **When checking sunload sensor, select a place where sun shines directly on it.**

Control System Input Components (Cont'd)

A/C MODE SWITCH



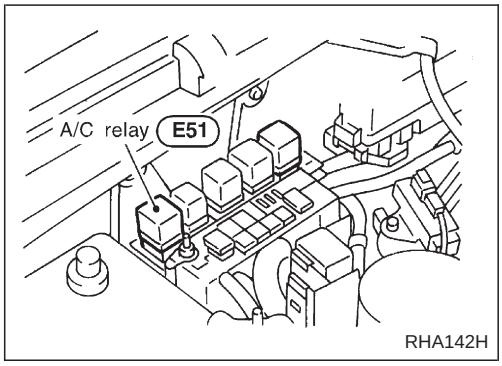
The A/C mode switch is installed around the side link of the heater unit and operates the link in response to the position of the mode switch.
The operation of this A/C mode switch is as shown below:



A/C mode switch operation

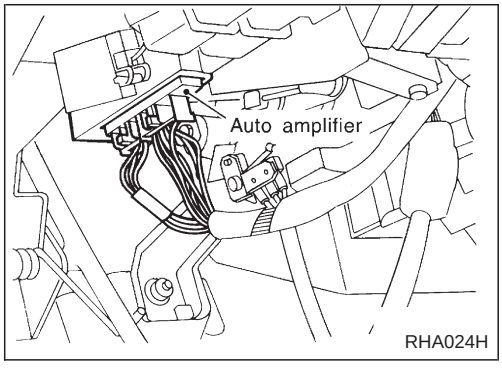
MODE		VENT	B/L	FOOT	FOOT/ DEF	DEF
Terminal No.	①	○	○	○	○	○
	②	○				○
	③		○	○	○	

A/C SWITCH RELAY



The A/C switch relay is located on the left side of the engine room. When the A/C switch and fan switch are ON, the A/C switch relay operates and transmits A/C operation signals to the auto amplifier.

Control System Auto Amplifier (Auto amp.)



The auto amplifier has a built-in microcomputer which processes the information sent from the various sensors needed for air conditioner operation. The air mix door motor and blower motor are then controlled.
Signals from the various switches and the Potentio Temperature Control (PTC) are directly entered into the auto amplifier.

Control System Auto Amplifier (Auto amp.) (Cont'd)

SUNLOAD INPUT PROCESS

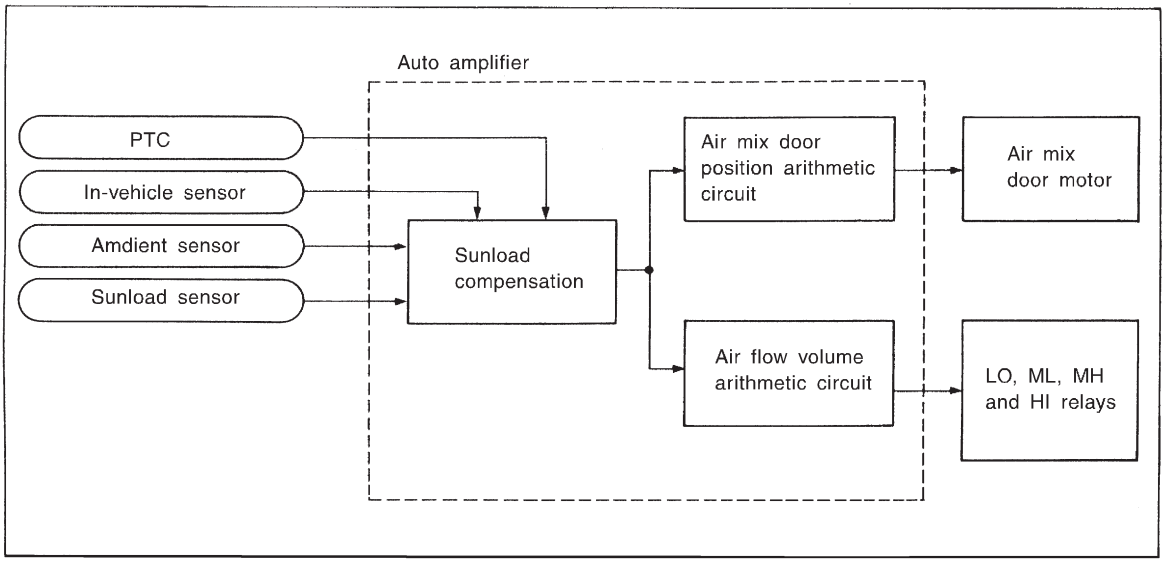
The auto amp. also includes a processing circuit which ''averages'' the variations in detected sunload over a period of time. This prevents drastic swings in the ATC system operation due to small of quick variations in detected sunload.

For example, consider driving along a road bordered by an occasional group of large trees. The sunload detected by the sunload sensor will vary whenever the trees obstruct the sunlight. The processing circuit averages the detected sunload over a period of time, so that the (insignificant) effect of the trees momentarily obstructing the sunlight does not cause any change in the ATC system operation. On the other hand, shortly after entering a long tunnel, the system will recognize the change in sunload, and the system will react accordingly.

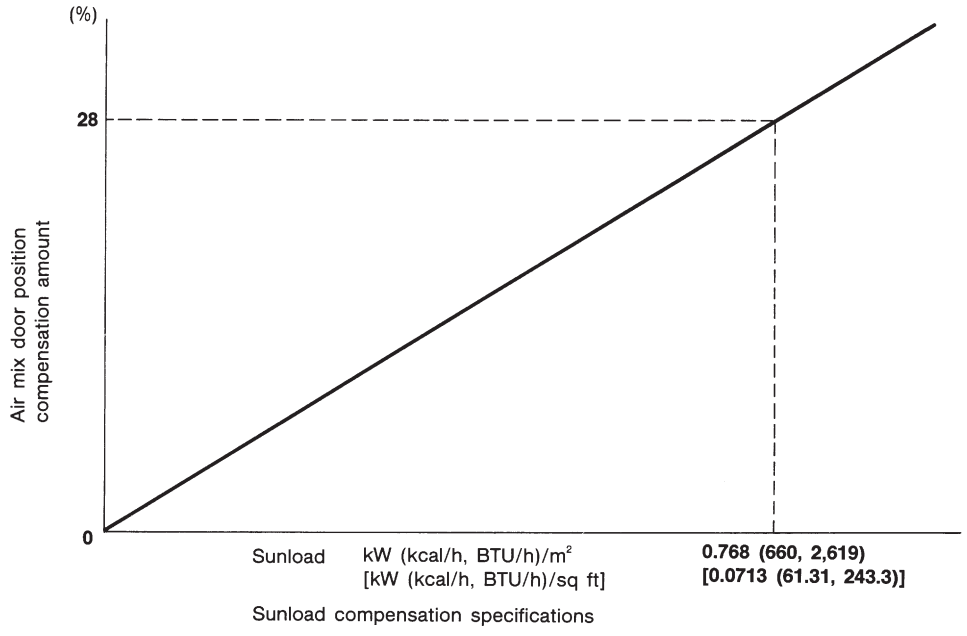
Control System Auto Amplifier (Auto amp.) (Cont'd)

SUNLOAD COMPENSATION

The auto amplifier compensates for sunload by altering the air mix door position and air flow volume according to the amount of sunload detected by the sunload sensor. When the amount of sunload is great, the air mix door is moved toward the ''COLD'' side. Along with this air mix door movement, air flow volume will also be changed.



SHA492CB



Sunload compensation specifications

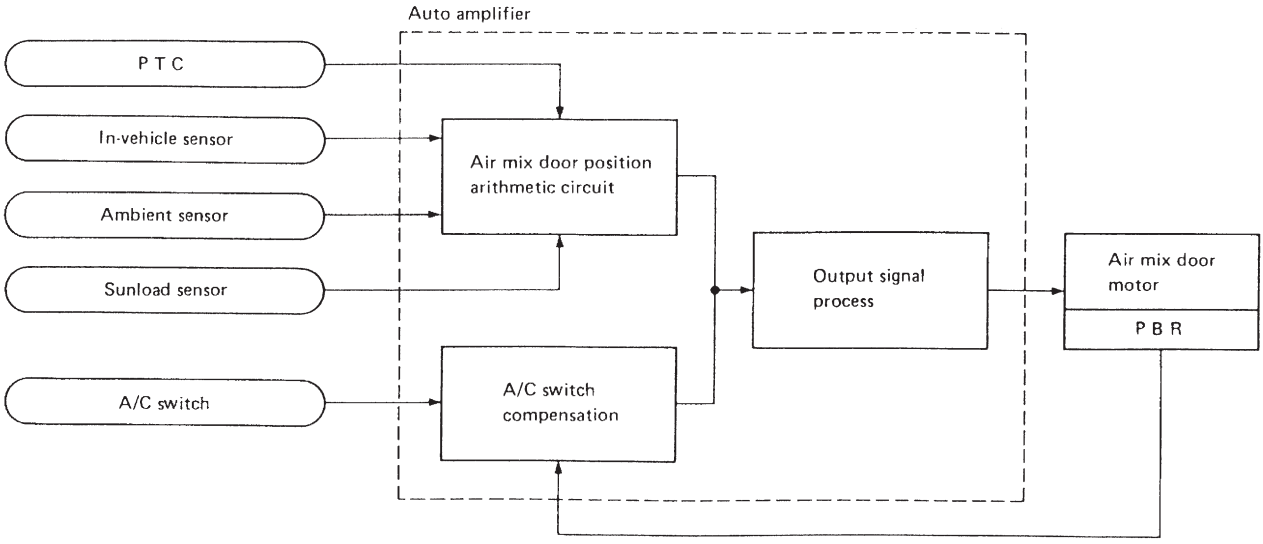
SHA493CA

Control System Auto Amplifier (Auto amp.) (Cont'd)

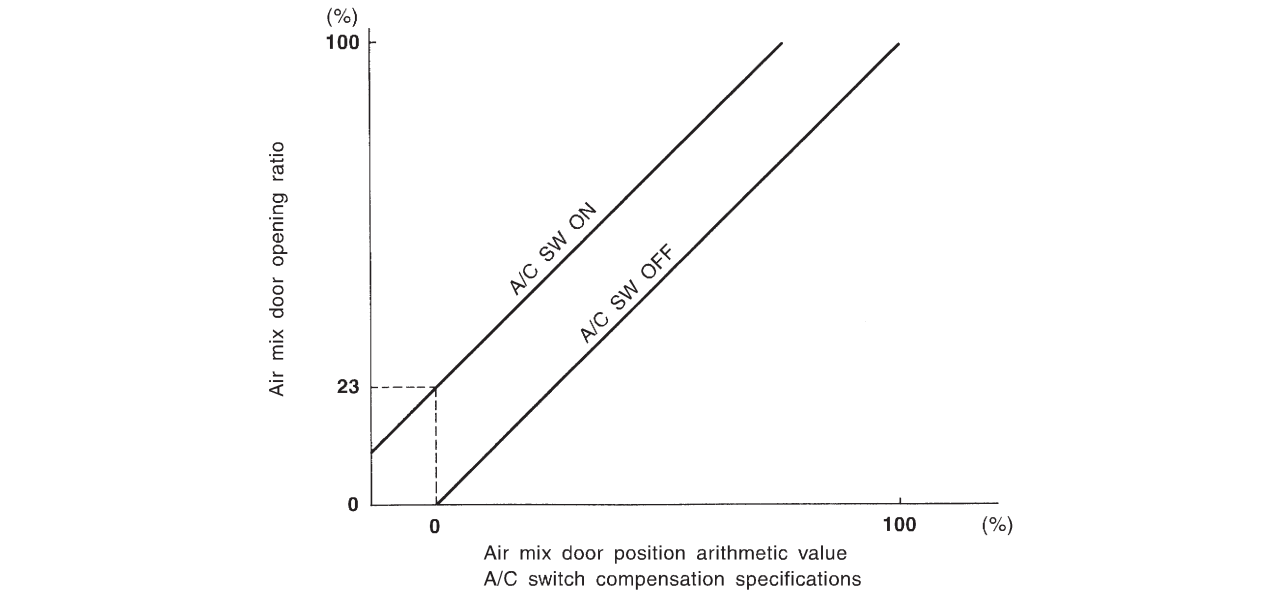
A/C SWITCH COMPENSATION

The auto amplifier alters the air mix door position and air flow volume according to a signal emitted from the A/C switch.

When the A/C switch is ''ON'', the auto amplifier compensates for the PBR's input signal and moves the air mix door toward the ''HOT'' side.



SHA494CB



SHA495CB

Control System Output Components

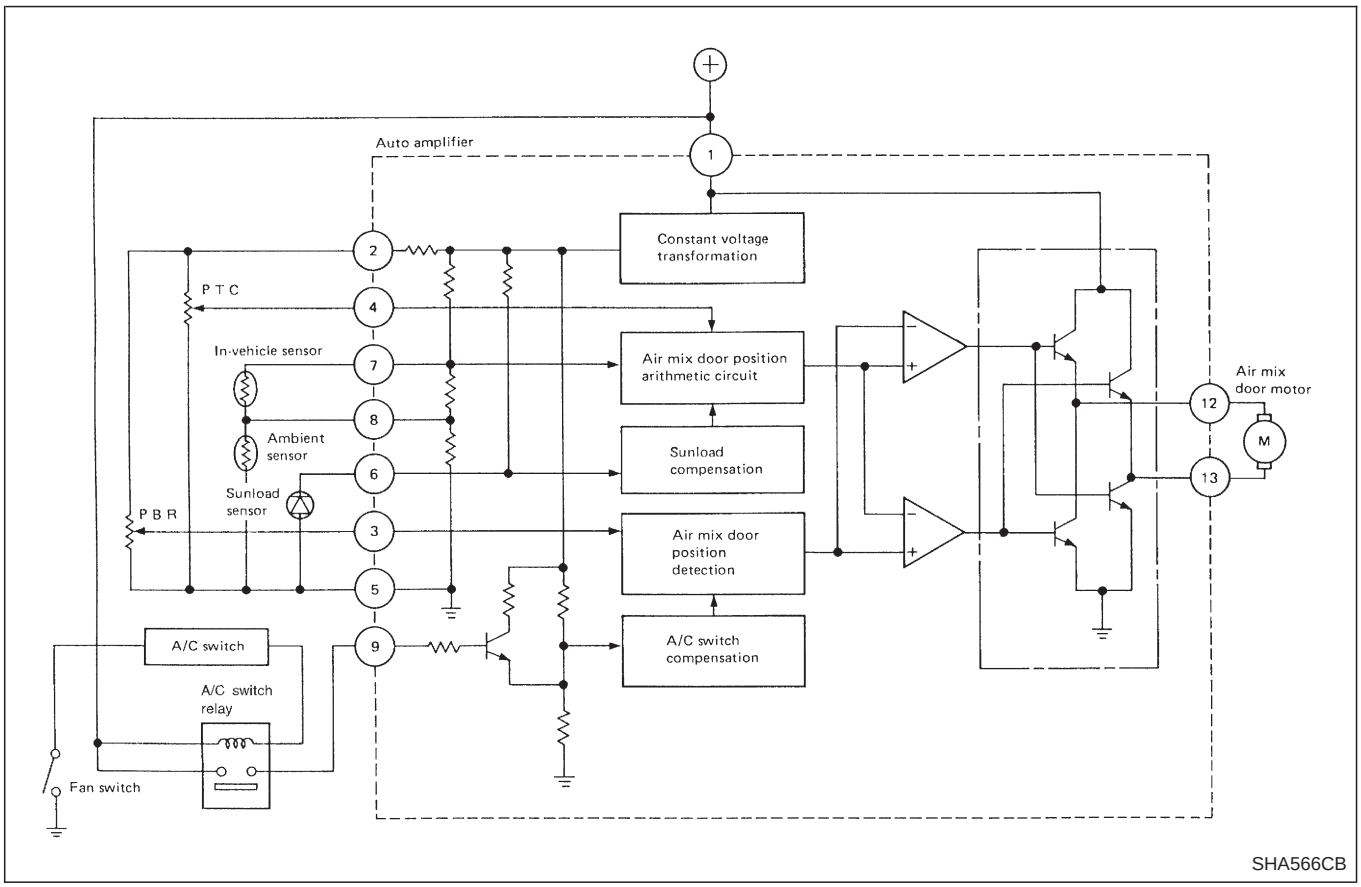
AIR MIX DOOR CONTROL (Automatic temperature control)

Component parts

Air mix door control system components are:
1) Auto amplifier
2) Ambient sensor
3) In-vehicle sensor
4) Sunload sensor
5) Air mix door motor (PBR)
6) A/C switch

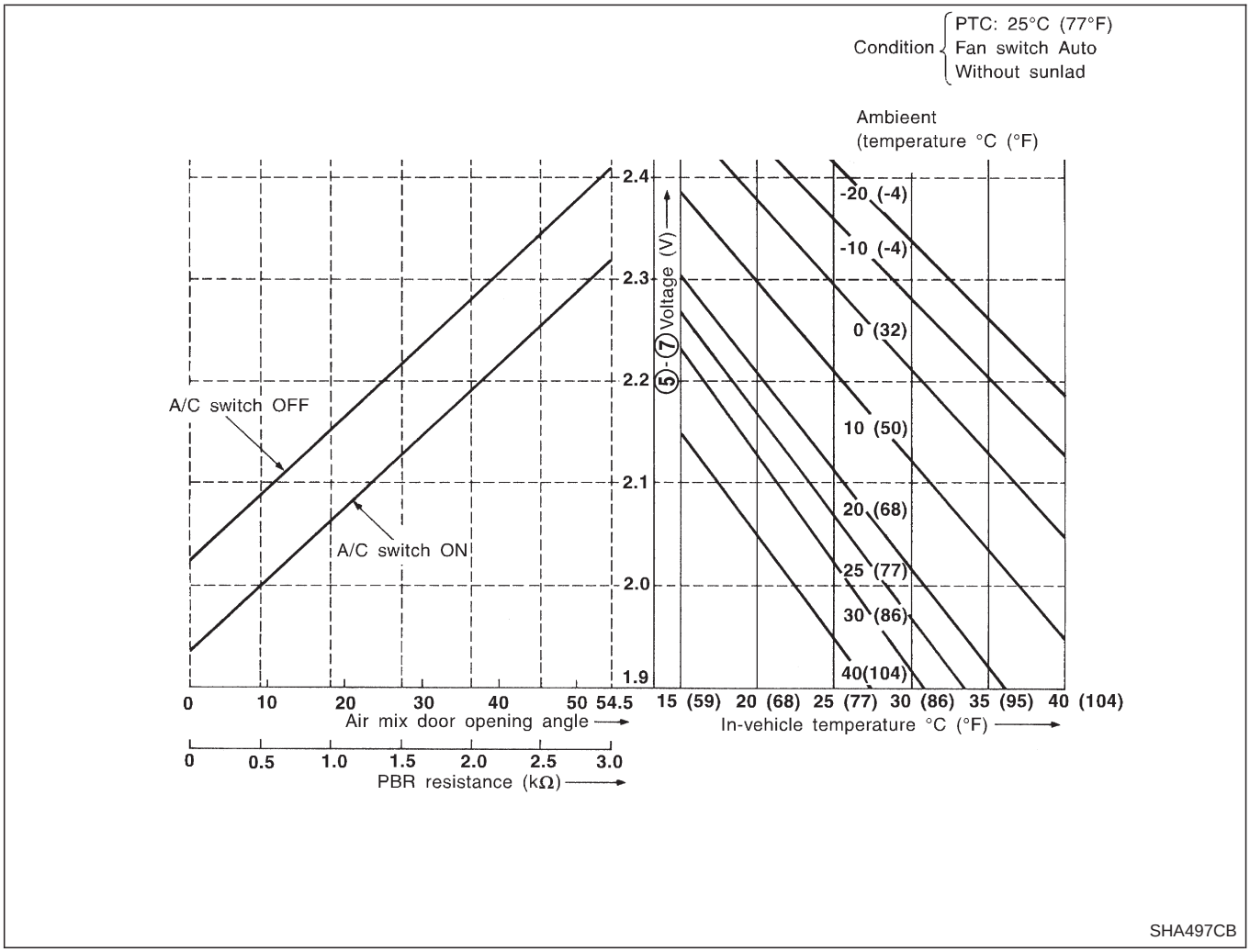
System operation

The air mix door is automatically controlled so that in-vehicle temperature is maintained to the set temperature. The temperature set by the PTC (Potentio Temperature Control) and the temperature detected by the in-vehicle sensor and ambient sensor are compensated by the sunload sensor signal. The auto amplifier then determines the air mix door position. The air mix door position detected by the PBR is compensated by the ON-OFF operation of the A/C switch. The air mix door position determined by the auto amplifier is compared with that detected by the PBR. The auto amplifier then transmits the signal to the air mix door motor in order to activate it.

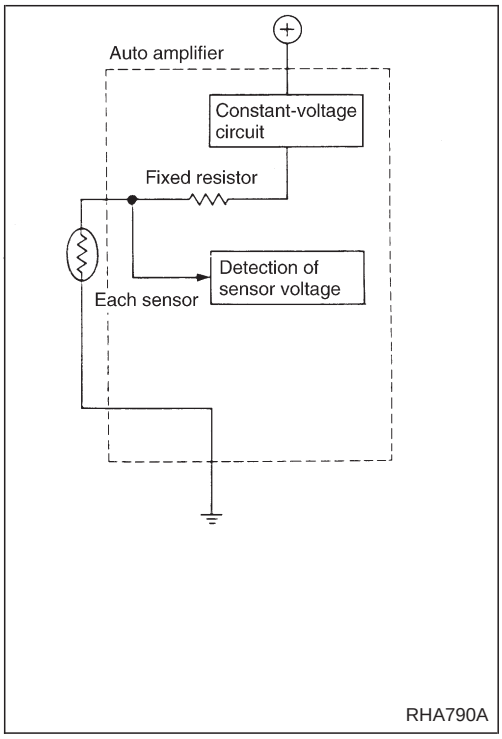


Control System Output Components (Cont'd)

Air mix door control specifications



SHA497CB



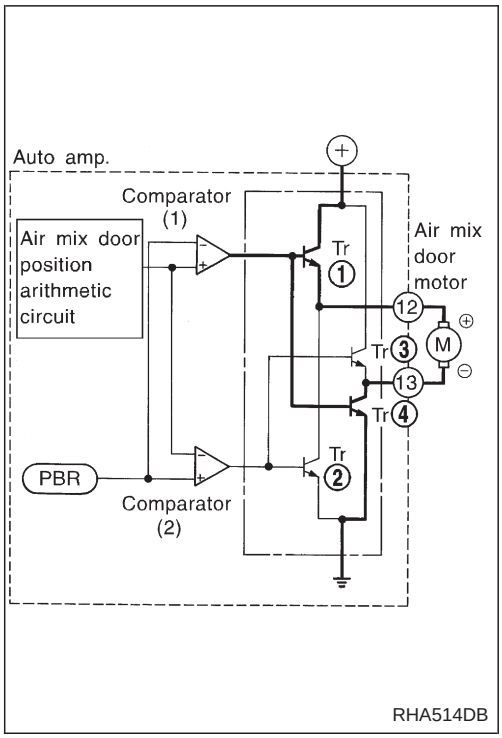
RHA790A

SENSOR INPUT PROCESS

The auto amplifier detects the voltage produced by each sensor, the PBR and fixed resistor. The fixed resistor is built into the auto amplifier. 12-volt power voltage is first converted to approximately 5 volts by the constant voltage circuit where it is then applied to the ground line of the auto amplifier via the fixed resistor and the sensor. In this manner, the auto amplifier monitors the voltages of the fixed resistor, each sensor and the PBR to determine sensor input.

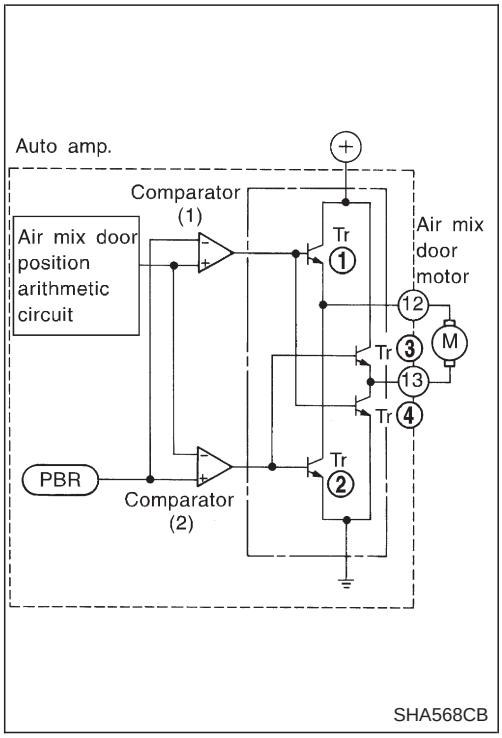
Control System Output Components (Cont'd)

OPERATION OF AIR MIX DOOR MOTOR



RHA514DB

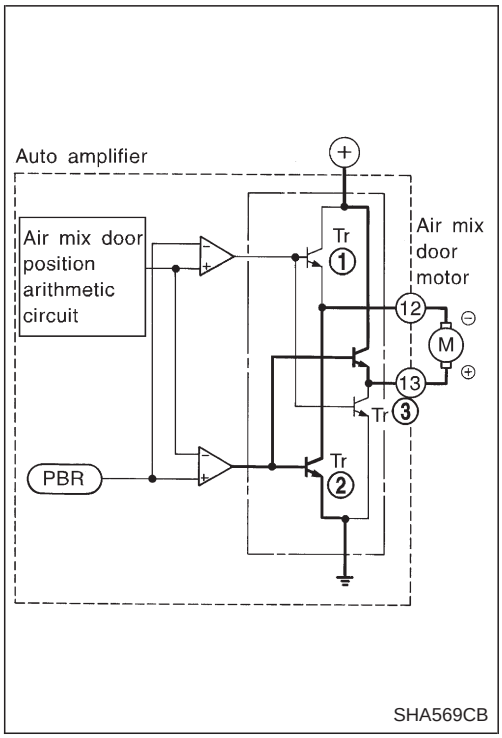
- Example ①
  When the temperature in the vehicle is lower than the set temperature.
  When the temperature in the vehicle is low, in-vehicle sensor resistance is great and the input voltage to the auto amplifier becomes great. As a result, the voltage from the air mix door position arithmetic circuit also becomes great.
  When this voltage is greater than the voltage from the PBR, comparator (1), Tr ① and Tr ④ turn ON.
  Accordingly terminal No. ⑫ becomes ⊕ and terminal No. ⑬ becomes ⊖. The air mix door motor rotates clockwise and the air mix door moves toward the ''HOT'' side.



SHA568CB

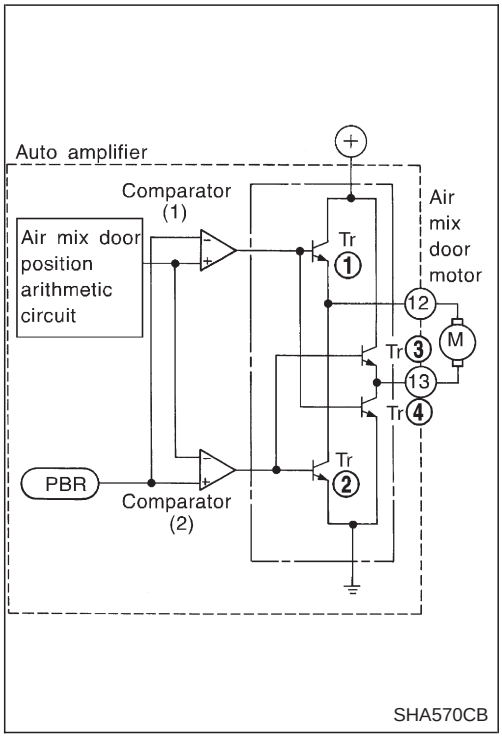
As the air mix door moves toward the ''HOT'' side, the voltage from the PBR becomes greater and consequently becomes equal to that from the air mix door position arithmetic circuit. As a result, comparator (1) turns OFF and the air mix door motor stops.

Control System Output Components (Cont'd)



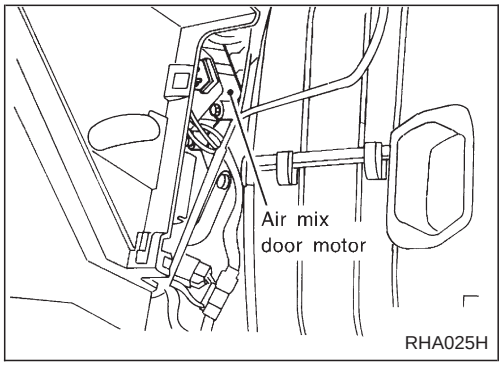
SHA569CB

- Example ②
  When the temperature in the vehicle is higher than the set temperature.
  When the temperature in the vehicle is high, in-vehicle sensor resistance is small and the input voltage to the auto amplifier becomes small. As a result, the voltage from the air mix door position arithmetic circuit also becomes small.
  When this voltage is smaller than the voltage from the PBR, comparator (2), Tr ② and Tr ③ turn ON.
  Accordingly terminal No. ⑬ becomes ⊕ and terminal No. ⑫ becomes ⊖. The air mix door motor rotates counterclockwise and the air mix door moves toward the ''COLD'' side.



SHA570CB

As the air mix door moves toward the ''COLD'' side, the voltage from the PBR becomes smaller and consequently becomes equal to that from the air mix door position arithmetic circuit. As a result, comparator (2) turns OFF and the air mix door motor stops.

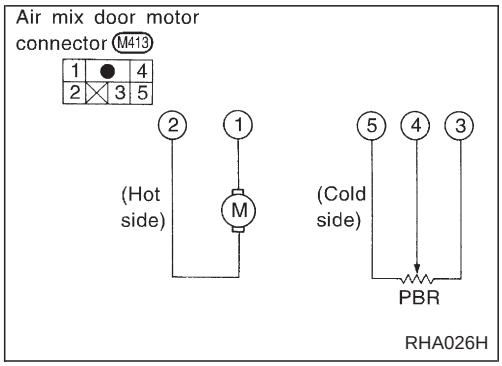


RHA025H

AIR MIX DOOR MOTOR

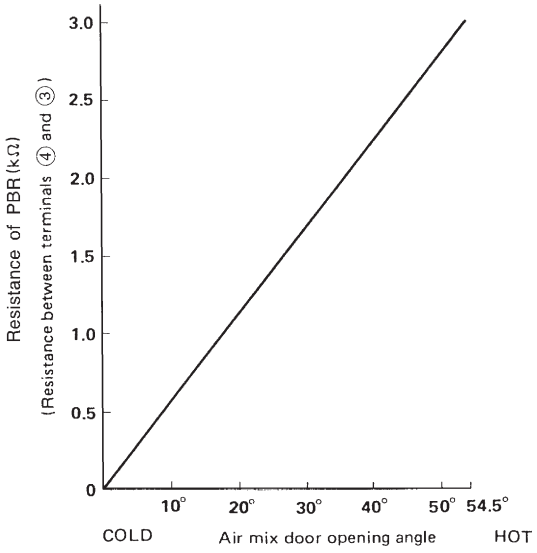
The air mix door motor is attached to the heater unit. It rotates so that the air mix door is opened to a position set by the auto amplifier. Motor rotation is conveyed through a shaft. The air mix door position is then fed back to the auto amplifier by the PBR built into the air mix door motor.

Control System Output Components (Cont'd)

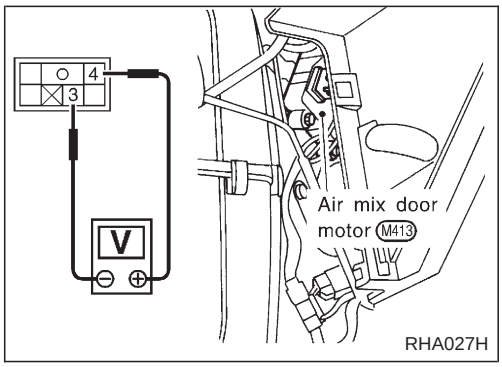


2	1	Air mix door operation	Direction of lever movement
⊕	⊖	COLD → HOT	Clockwise (Toward passenger compartment)
—	—	STOP	STOP
⊖	⊕	HOT → COLD	Counterclockwise (Toward engine compartment)

Characteristic PBR

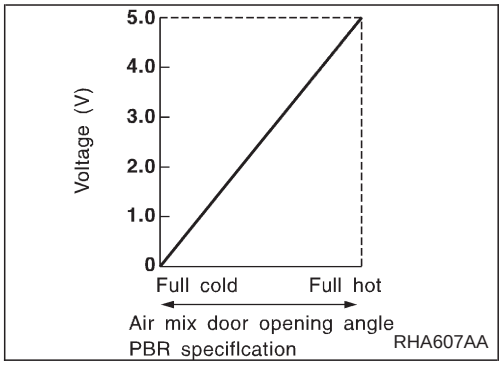


SHA504CA



PBR

Measure voltage between terminals ③ and ④ at vehicle harness side.



Ignition switch: ON

- Ensure tester pointer deflects smoothly when PTC is moved from 20°C (65°F) to 30°C (85°F) and vice versa.

Control System Output Components (Cont'd)

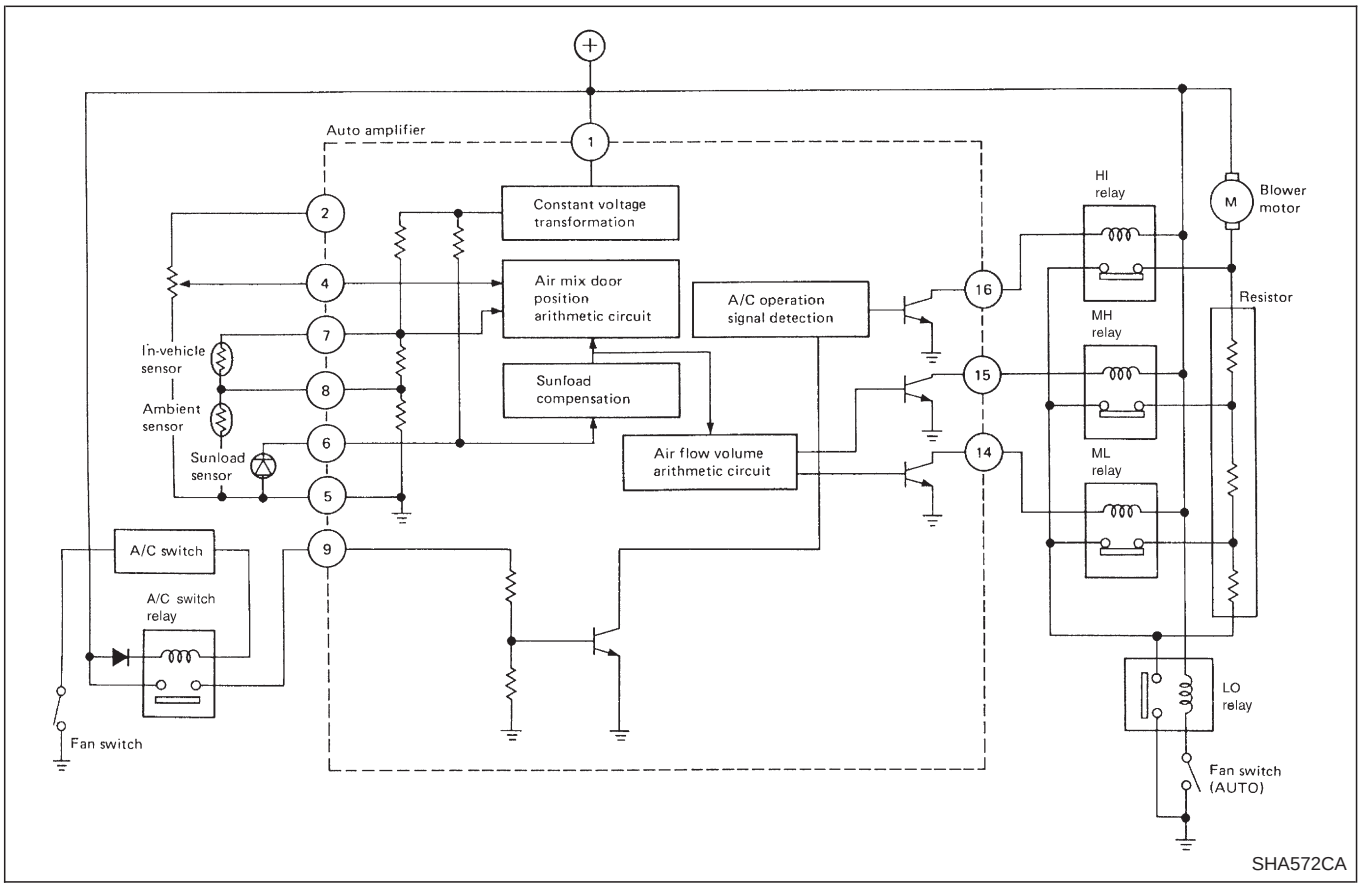
FAN SPEED CONTROL

Component parts

Fan speed control system components are:
1) Auto amplifier
2) In-vehicle sensor
3) Ambient sensor
4) Sunload sensor
5) A/C switch relay
6) A/C switch
7) Fan switch
8) Blower motor
9) Resistance
10) HI, MH, ML and LO relays

System operation

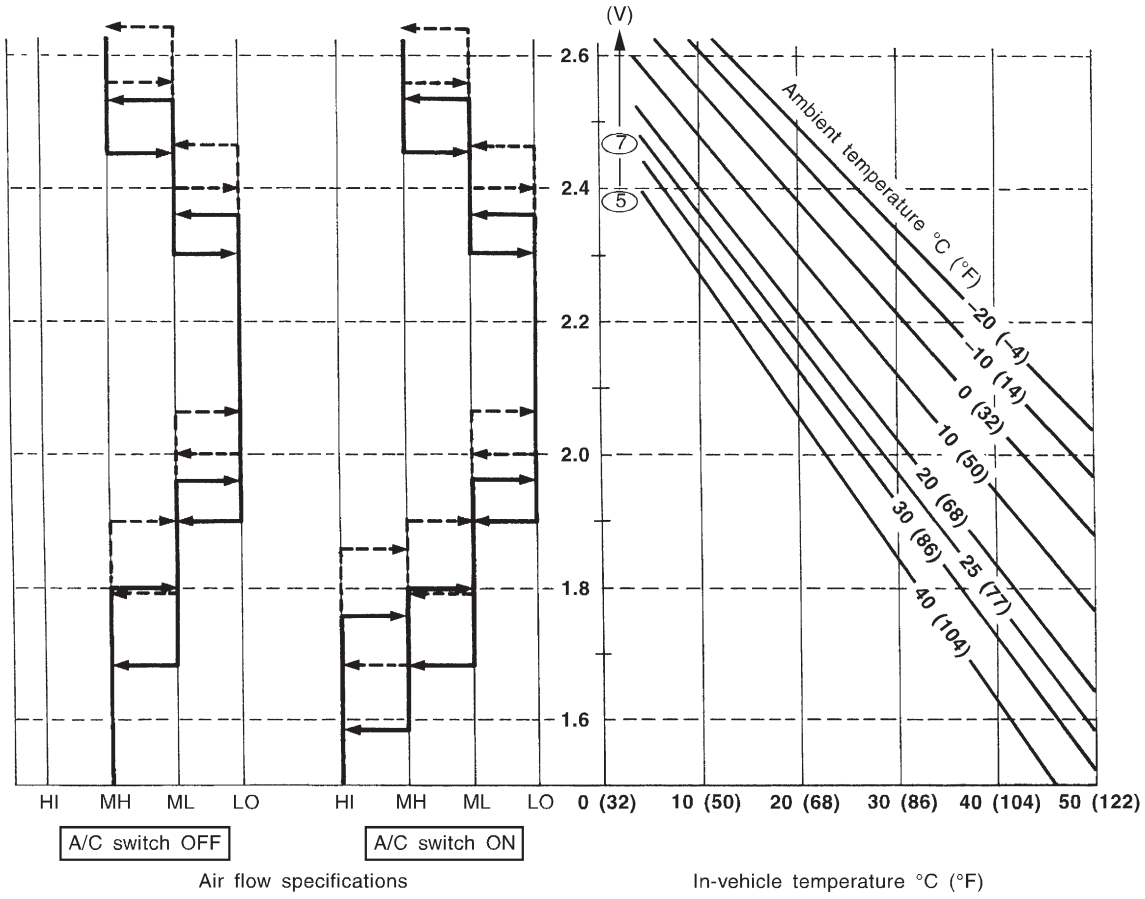
Blower fan speed is automatically controlled so that the in-vehicle temperature is maintained to the set temperature.
The temperature set by the PTC (Potentio Temperature Control) and the temperature detected by the in-vehicle sensor and ambient sensor are compensated by the sunload sensor signal. The auto amplifier then determines fan speed from the ON-OFF operation of the A/C switch. The fan speed decision by the auto amplifier activates the fan relay and the blower fan motor rotates. When the A/C switch is ON, fan speed is activated in 4 steps, HI, MH, ML, and LO. When the A/C switch is OFF, fan speed is activated in 3 steps, MH, ML, and LO.



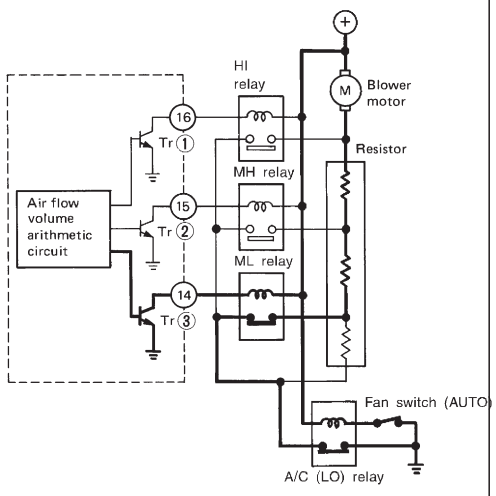
Control System Output Components (Cont'd)

Condition
PTC: 25°C (77°F)
Fan switch: Auto

——— : Without sunload
- - - - : With sunload 0.768 kW (660 kcal/h, 2,619 BTU/h)/m^2 [0.0713 kW (61.31 kca/h, 243.3 BTU/h)/sq ft]



SHA573CC

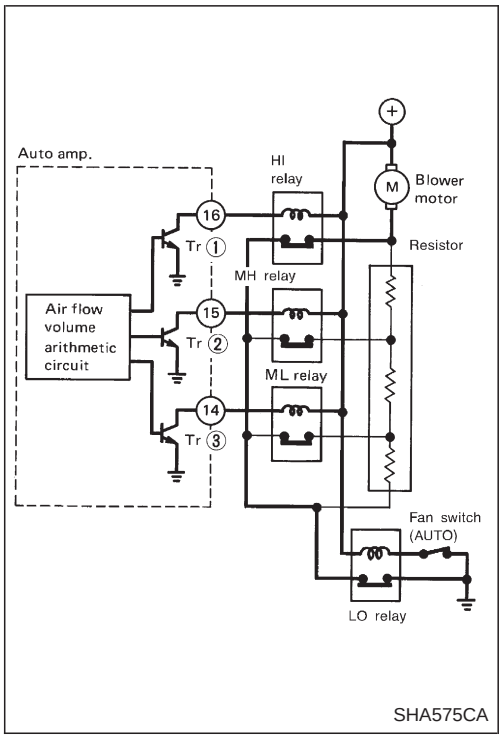


SHA574CA

Signals from each sensor, PTC, A/C switch etc. are sent to the air flow volume arithmetic circuit in the auto amplifier. Air flow volume is determined by this circuit.

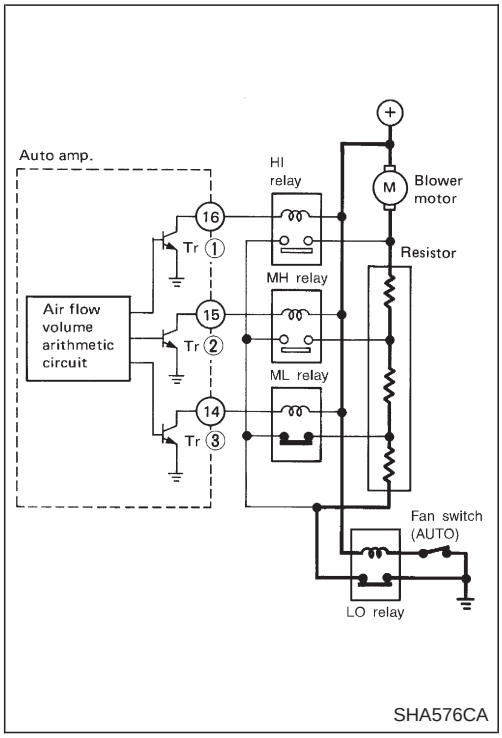
(1) When the air flow volume is set to ML
The air flow volume arithmetic circuit gives current to Tr ③, which turns the ML relay on. Thus, the blower motor rotates in the ML condition.

Control System Output Components (Cont'd)



SHA575CA

(2) When set to HI
The air flow volume arithmetic circuit gives current to Tr 1, which turns the HI relay on. Thus, the blower motor rotates in the HI condition. Also, Tr 2 and Tr 3 are receiving current and as a result the ML and MH relays are on.



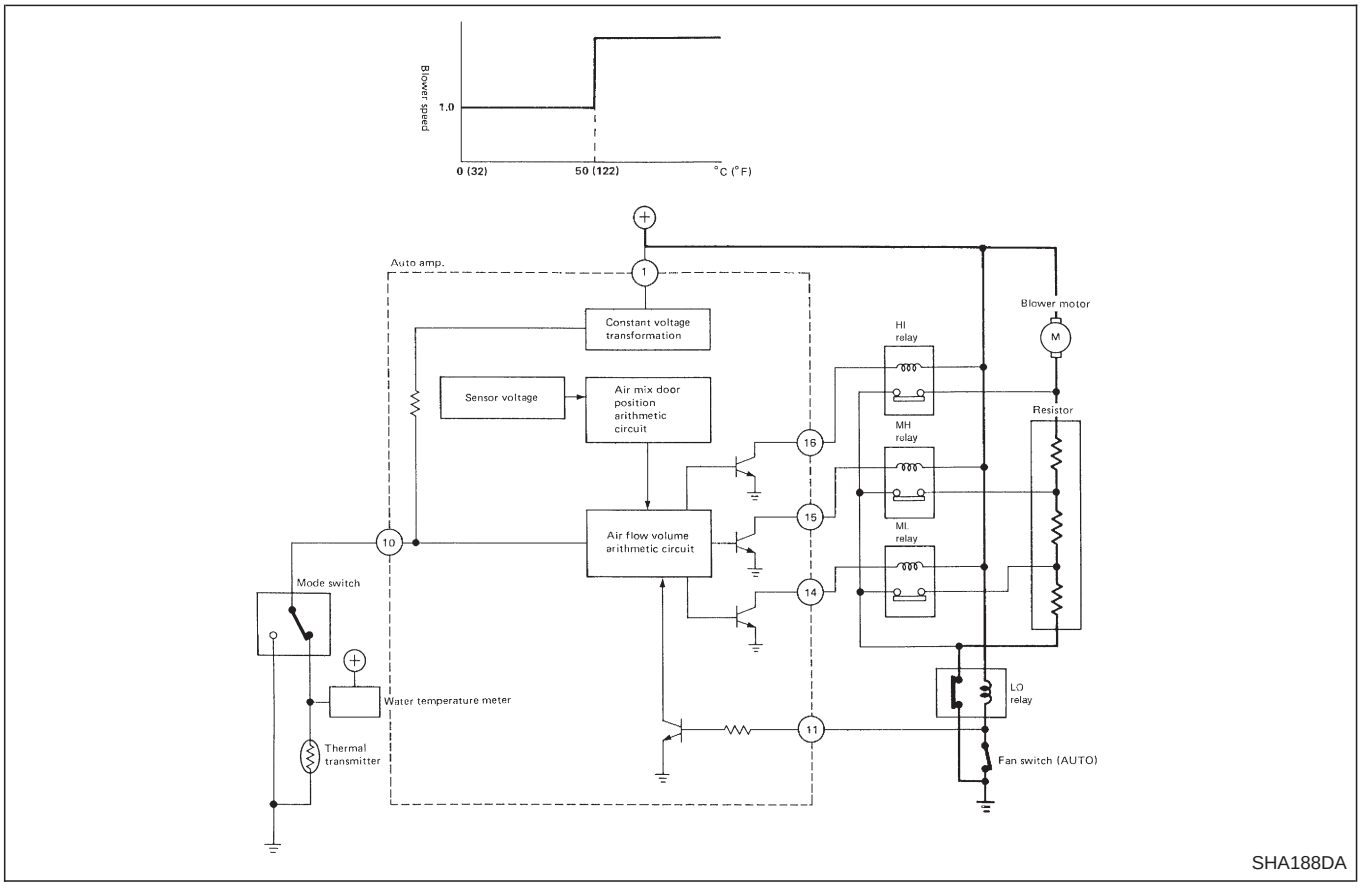
SHA576CA

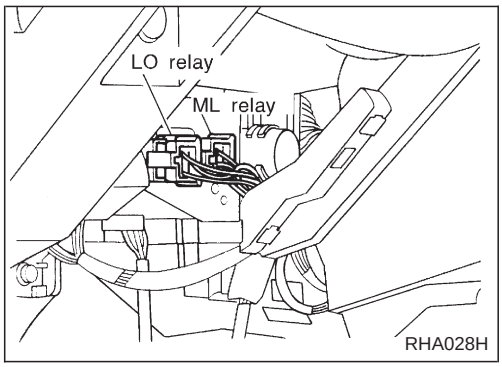
(3) When set to LO
The air flow volume arithmetic circuit does not give any current to Tr 1, 2 nor 3.
Only the LO relay turns on and so the blower motor rotates in the LO condition.

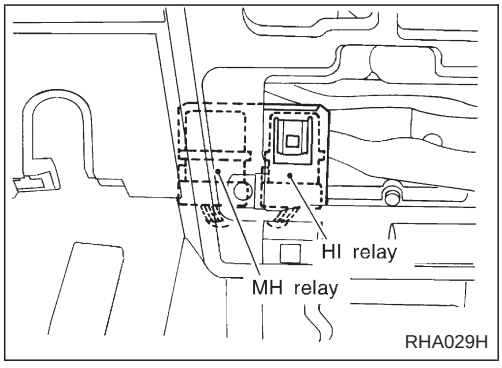
Control System Output Components (Cont'd)

STARTING FAN SPEED CONTROL

The starting fan control system is so designed to prevent excess cold air from being expelled after the engine is started when the engine coolant temperature is low.
The component parts related to this system are the water temperature sensor microswitch, HI, MH, ML and LO relays, blower motor, resistance and auto amplifier.
When the fan switch is set to AUTO, the microswitch to ON (either B/L, FOOT or FOOT/DEF) and the engine coolant temperature is below 50°C (122°F), the speed of the blower motor is fixed in the LO position.



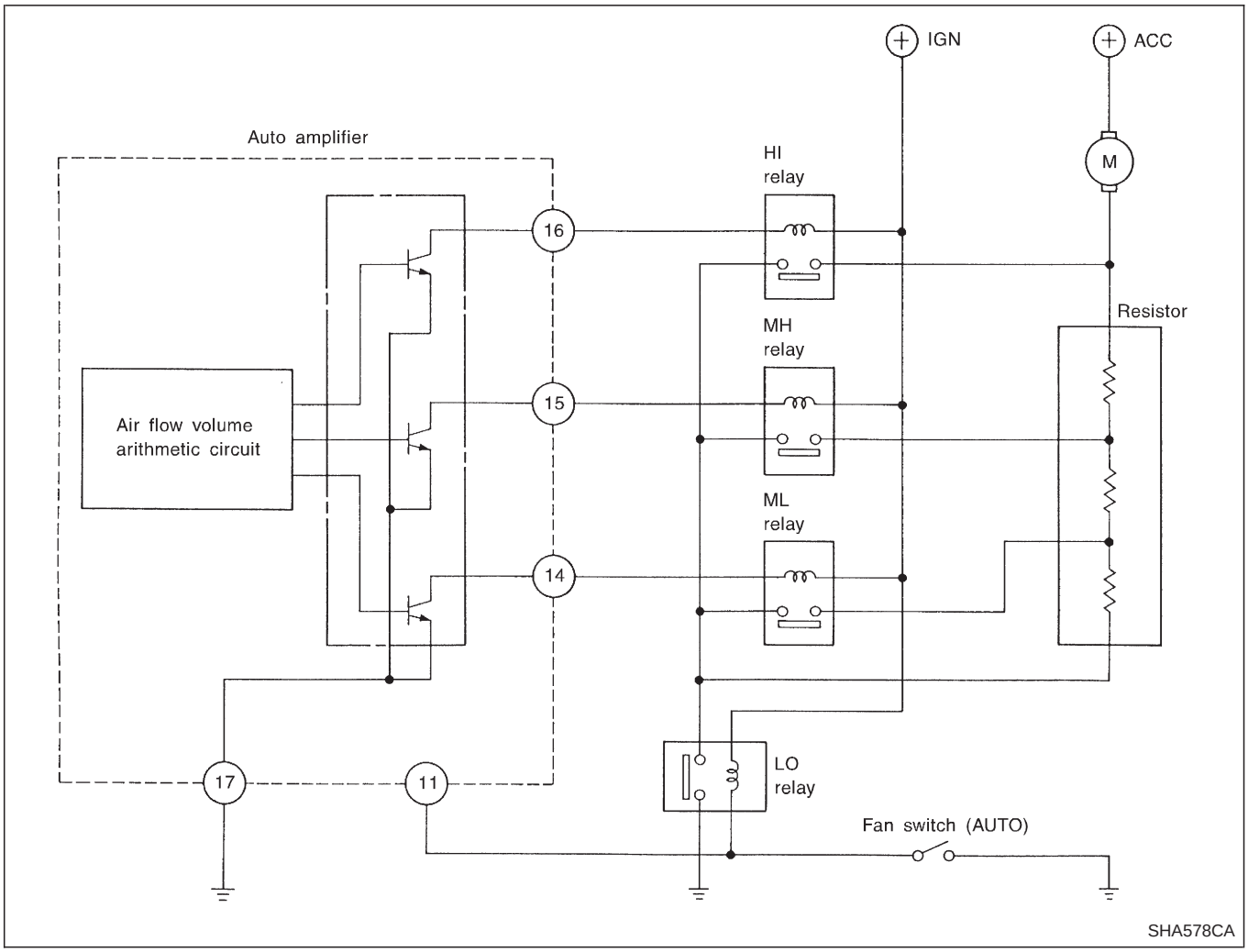




LO, ML, MH AND HI RELAYS

The LO and ML relays are located on the auto amplifier bracket, and the MH and HI relays are installed on the back side of the audio unit. Each fan relay operates according to the air flow volume determined by the auto amplifier. The blower motor then operates accordingly.

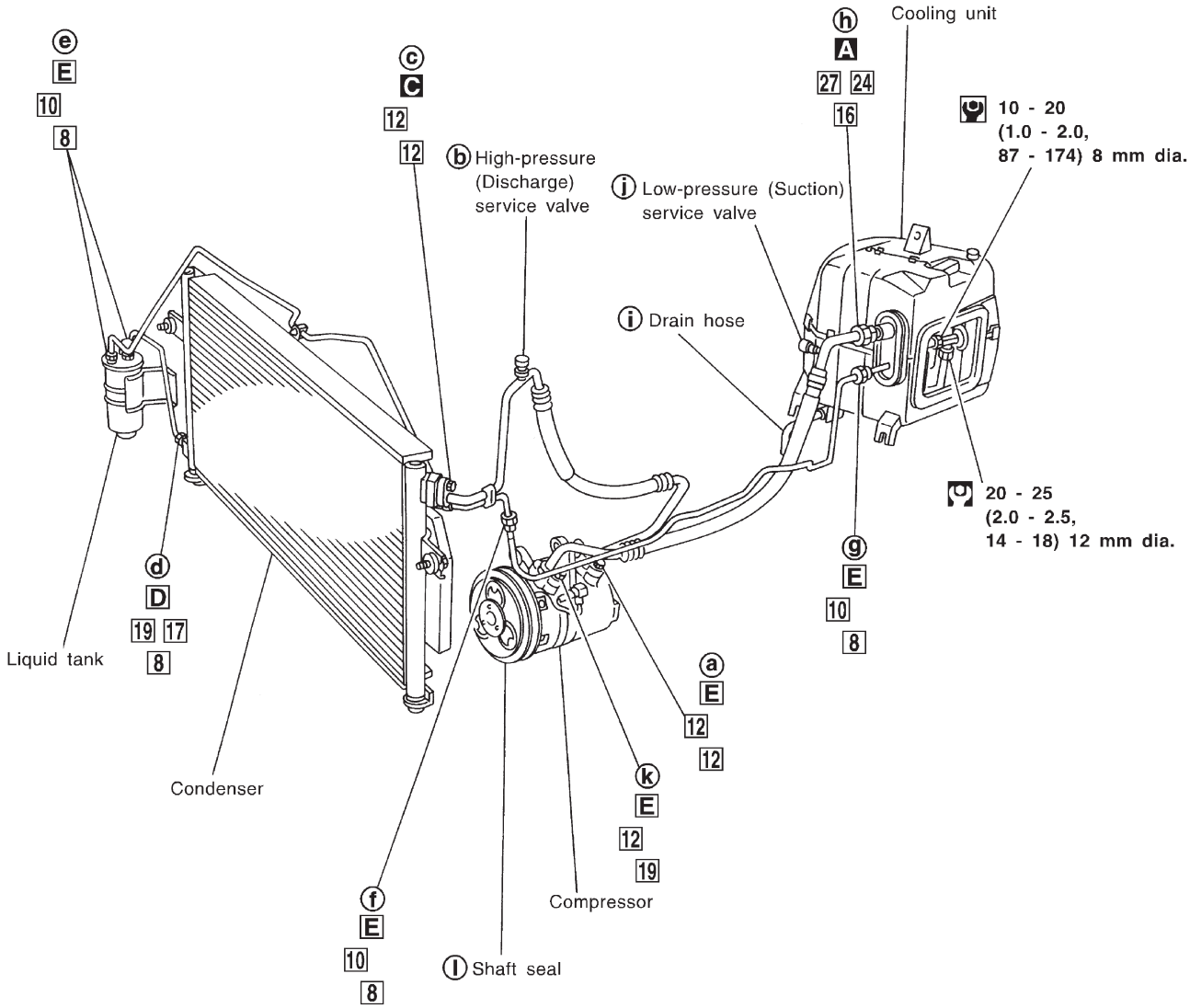
Control System Output Components (Cont'd)



Refrigerant Lines

- Refer to ‘‘Precautions for Refrigerant Connection’’.

RHD MODELS



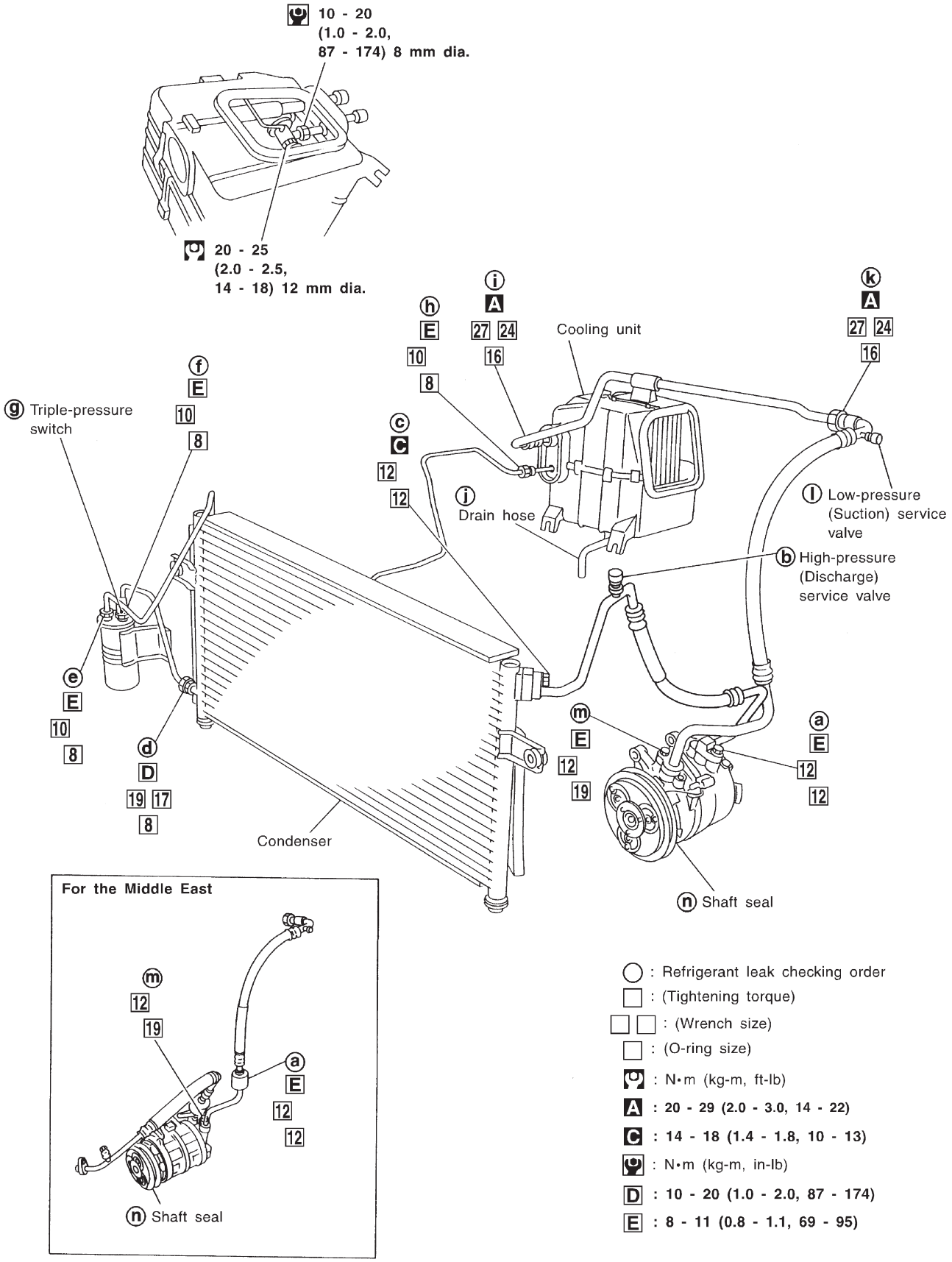
◯ : Refrigerant leak checking order
□ : (Tightening torque)
□ □ : (Wrench size)
□ : (O-ring size)
: N•m (kg-m, ft-lb)
A : 20 - 29 (2.0 - 3.0, 14 - 22)
C : 14 - 18 (1.4 - 1.8, 10 - 13)
: N•m (kg-m, in-lb)
D : 10 - 20 (1.0 - 2.0, 87 - 174)
E : 8 - 11 (0.8 - 1.1, 69 - 95)

RHA352G

Refrigerant Lines (Cont'd)

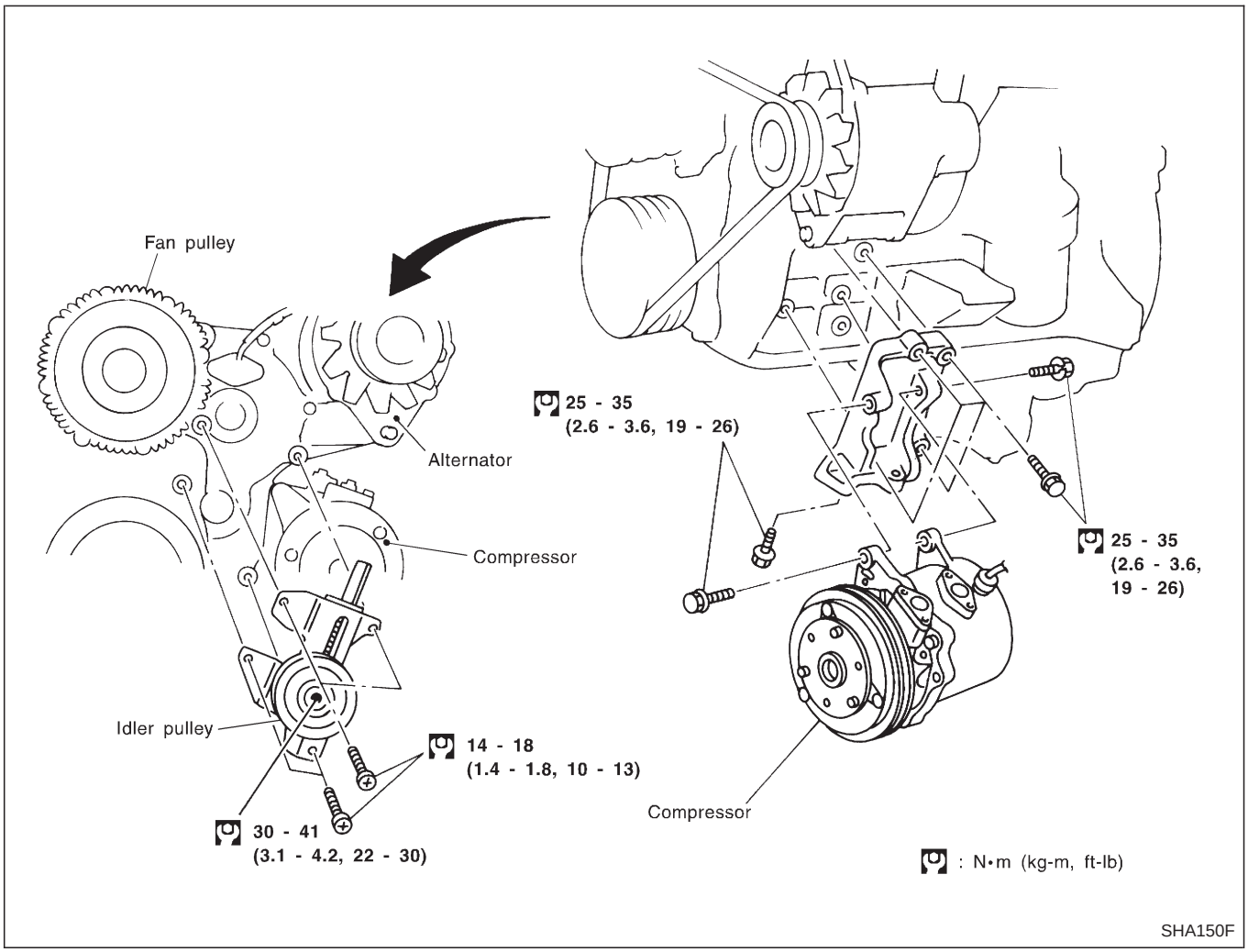
- Refer to "Precautions for Refrigerant Connection".

LHD MODELS

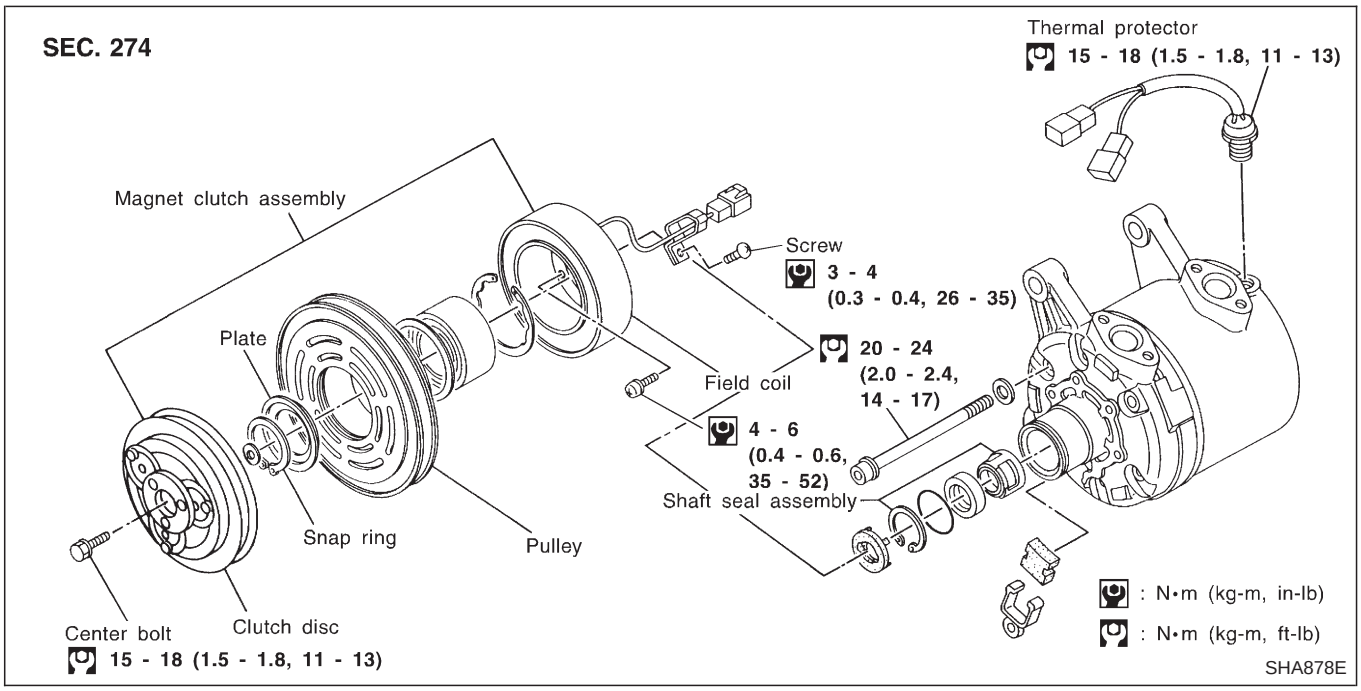


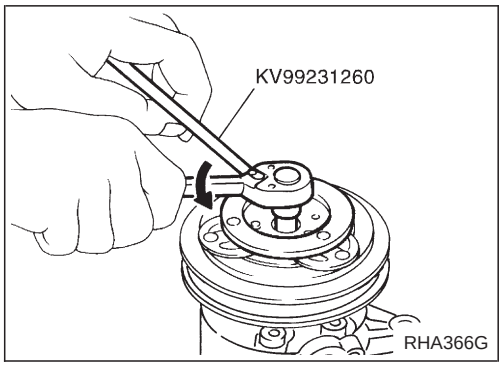
RHA372G

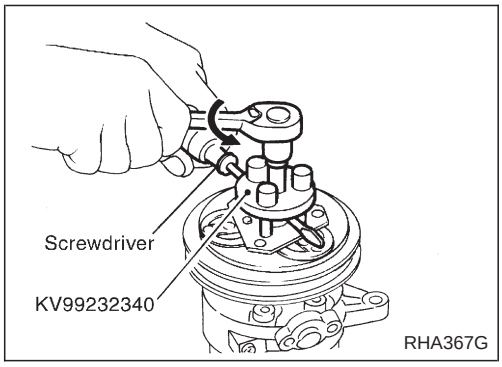
Compressor Mounting

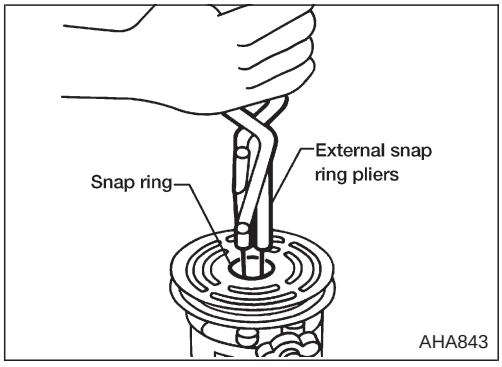


Compressor — DKV-14C (ZEXEL make)









Compressor Clutch — DKV-14C (ZEXEL make)

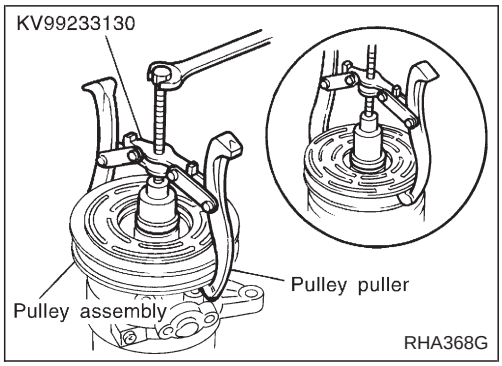
REMOVAL

- When removing center bolt, hold clutch disc with clutch disc wrench.

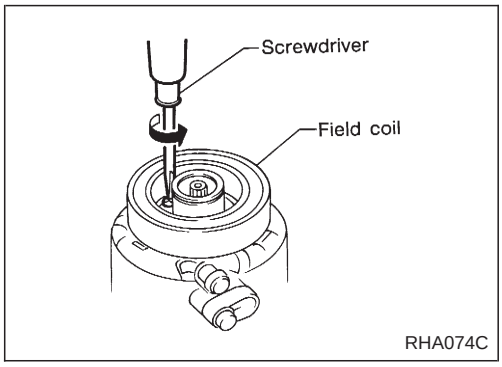
- Remove the clutch disc using Tool KV99232340.
  Insert holder's three pins into the clutch disc. Rotate the holder clockwise to hook it onto the plate. Then, tighten the center bolt to remove the clutch disc.
  When tightening the center bolt, insert a round bar (screwdriver, etc.) between two of the pins (as shown in the left-hand figure) to prevent clutch disc rotation. After removing the clutch disc, remove the shims from either the drive shaft or the clutch disc.

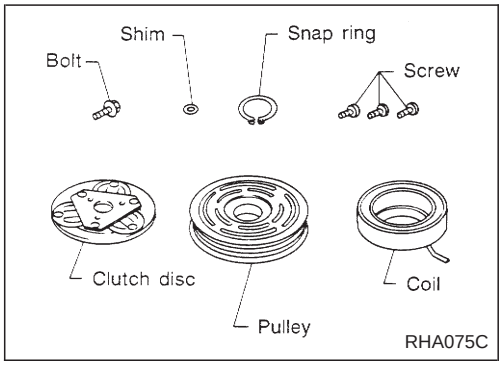
- Remove the snap ring using external snap ring pliers.

Compressor Clutch — DKV-14C (ZEXEL make) (Cont'd)



- Pulley removal
  Use any commercially available pulley puller. Position the center of it on the end of the drive shaft, and remove the pulley assembly.
  For pressed pulleys:
  To prevent deformation of the pulley groove, the puller claws should be hooked under (not into) the pulley groove.
  For machine latched pulleys:
  Align the pulley puller groove with the pulley groove, and then remove the pulley assembly.
- Remove the field coil harness clip using a screwdriver.
- Remove the three field coil fixing screws and remove the field coil.





INSPECTION

Clutch disc

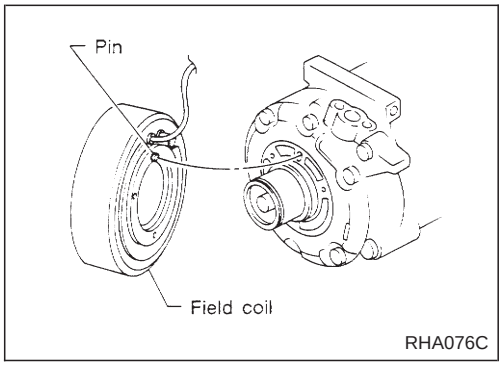
If the contact surface shows signs of damage due to excessive heat, replace clutch disc and pulley.

Pulley

Check the appearance of the pulley assembly. If the contact surface of the pulley shows signs of excessive grooving, replace both the pulley and clutch disc. The contact surfaces of the pulley assembly should be cleaned with a suitable solvent before reinstallation.

Coil

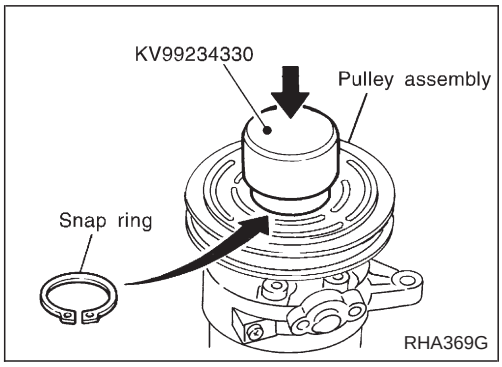
Check coil for loose connection or cracked insulation.



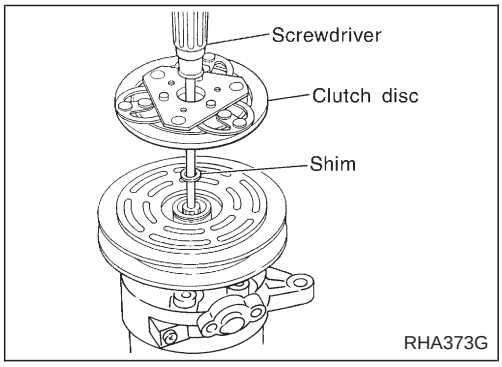
INSTALLATION

- Install the field coil.
- **Be sure to align the coil's pin with the hole in the compressor's front head.**
- Install the field coil harness clip using a screwdriver.

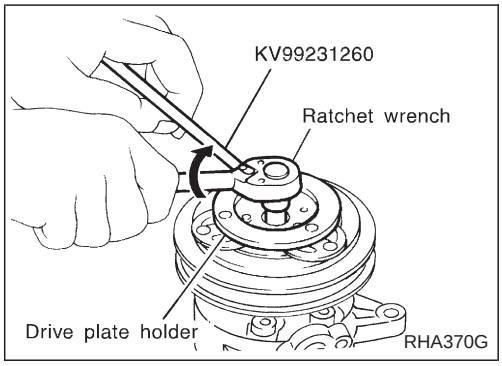
Compressor Clutch — DKV-14C (ZEXEL make) (Cont'd)



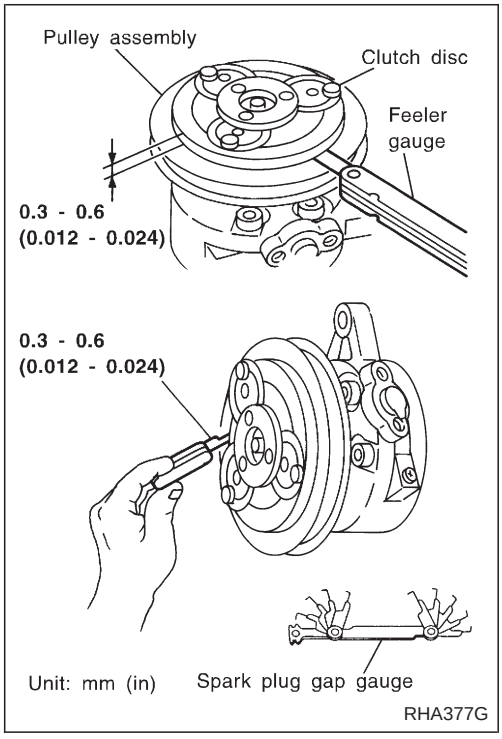
- Install the pulley assembly using the installer and a hand press, and then install the snap ring using snap ring pliers.



- Install the clutch disc on the drive shaft, together with the original shim(s). Press the clutch disc down by hand.



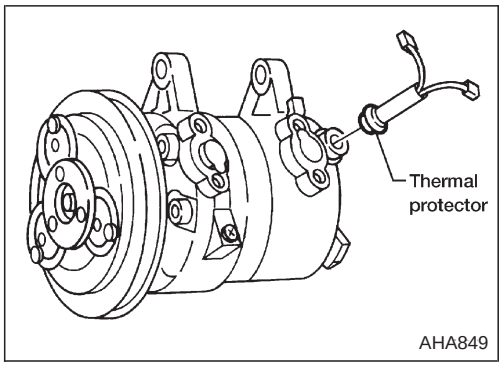
- Using the holder to prevent drive plate rotation, tighten the bolt to 12 to 15 N·m (1.2 to 1.5 kg-m, 9 to 11 ft-lb) torque.
- **After tightening the bolt, check that the pulley rotates smoothly.**



- Check clearance around the entire periphery of clutch disc.
  Disc-to-pulley clearance:
  0.3 - 0.6 mm (0.012 - 0.024 in)
  If the specified clearance is not obtained, replace adjusting spacer and readjust.

BREAK-IN OPERATION

When replacing compressor clutch assembly, always conduct the break-in operation. This is done by engaging and disengaging the clutch about thirty times. Break-in operation raises the level of transmitted torque.



Thermal Protector — DKV-14C (ZEXEL make)

INSPECTION

- When servicing, do not allow foreign matter to get into compressor.
- Check continuity between two terminals.

General Specifications

COMPRESSOR

Model		ZEXEL make DKV-14C
Type		Vane rotary
Displacement	cm^3 (cu in)/rev.	140 (8.54)
Cylinder bore x stroke	mm (in)	—
Direction of rotation		Clockwise (Viewed from drive end)
Drive belt		A Type

LUBRICANT

Type		KLH00-PAGR0
Capacity	mℓ (lmp fl oz)	
Total in system		200 (7.0)
Compressor (Service parts) charging amount		200 (7.0)

Inspection and Adjustment

REFRIGERANT

Type		HFC-134a (R-134a)
Capacity	kg (lb)	0.50 - 0.60 (1.10 - 1.32)

COMPRESSOR

Clutch disc-to-pulley clearance mm (in)	0.3 - 0.6 (0.012 - 0.024)

ENGINE IDLING SPEED (When A/C is ON.)

- **Refer to EC section.**

BELT TENSION

- **Refer to MA section (“Checking Drive Belts”, “ENGINE MAINTENANCE”).**