HEATER & AIR CONDITIONER

SECTION HA

CONTENTS

Supplemental Restraint System (SRS) “AIR BAG” and “SEAT BELT PRE-TENSIONER”

NGHA0060

The supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER” used along with a seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. The Supplemental Restraint System consists of driver air bag module (located in the center of the steering wheel), front passenger air bag module (located on the instrument panel on passenger side), seat belt pre-tensioners, a diagnosis sensor unit, warning lamp, wiring harness and spiral cable.
Information necessary to service the system safely is included in the **RS section** of this Service Manual.

WARNING:

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance should be performed by an authorized NISSAN dealer.**
- **Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the RS section.**
- **Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harness connectors.**

Precautions for Working with HFC-134a (R-134a)

=NGHA0061

WARNING:

- **CFC-12 (R-12) refrigerant and HFC-134a (R-134a) refrigerant are not compatible. If the refrigerants are mixed, compressor failure is likely to occur. Refer to "Contaminated Refrigerant", HA-3. To determine the purity of HFC-134a (R-134a) in the vehicle and recovery tank, use Refrigerant Recovery/Recycling Recharging equipment (ACR4) (J-39500–NI) and Refrigerant Identifier.**
- **Use only specified lubricant for the HFC-134a (R-134a) A/C system and HFC-134a (R-134a) components. If lubricant other than that specified is used, compressor failure is likely to occur.**
- **The specified HFC-134a (R-134a) lubricant rapidly absorbs moisture from the atmosphere. The following handling precautions must be observed:**

a) When removing refrigerant components from a vehicle, immediately cap (seal) the component to minimize the entry of moisture from the atmosphere.

b) When installing refrigerant components to a vehicle, do not remove the caps (unseal) until just before connecting the components. Connect all refrigerant loop components as quickly as possible to minimize the entry of moisture into system.

c) Only use the specified lubricant from a sealed container. Immediately reseal containers of lubricant. Without proper sealing, lubricant will become moisture saturated and should not be used.

d) Avoid breathing A/C refrigerant and lubricant vapor or mist. Exposure may irritate eyes, nose and throat. Remove R-134a from the A/C system, using certified service equipment meeting requirements of SAE J2210 (R-134a recycling equipment), or J2209 (R-134a recovery equipment). If accidental system discharge occurs, ventilate work area before resuming service. Additional health and safety information may be obtained from refrigerant and lubricant manufacturers.

e) Do not allow lubricant (Nissan A/C System Oil Type R) to come in contact with styrofoam parts. Damage may result.

Contaminated Refrigerant

NGHA0267

If a refrigerant other than pure R-134a is identified in a vehicle, your options are:

- Explain to the customer that environmental regulations prohibit the release of contaminated refrigerant into the atmosphere.
- Explain that recovery of the contaminated refrigerant could damage your service equipment and refrigerant supply.
- Suggest the customer return the vehicle to the location of previous service where the contamination may have occurred.
- If you choose to perform the repair, recover the refrigerant using only dedicated equipment and containers. **Do not recover contaminated refrigerant into your existing service equipment.** If your facility does not have dedicated recovery equipment, you may contact a local refrigerant product retailer for available service. This refrigerant must be disposed of in accordance with all federal and local regulations. In addition, replacement of all refrigerant system components on the vehicle is recommended.
- If the vehicle is within the warranty period, the air conditioner warranty is void. Please contact Nissan Customer Affairs for further assistance.

General Refrigerant Precautions

NGHA0062

WARNING:

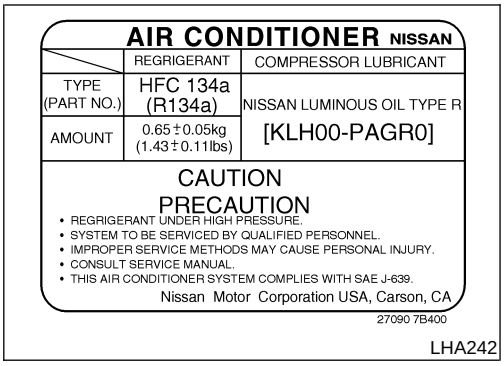
- **Do not release refrigerant into the air. Use approved recovery/recycling equipment to capture the refrigerant every time an air conditioning system is discharged.**
- **Always wear eye and hand protection (goggles and gloves) when working with any refrigerant or air conditioning system.**
- **Do not store or heat refrigerant containers above 52°C (125°F).**
- **Do not heat a refrigerant container with an open flame; if container warming is required, place the bottom of the container in a warm pail of water.**
- **Do not intentionally drop, puncture, or incinerate refrigerant containers.**
- **Keep refrigerant away from open flames: poisonous gas will be produced if refrigerant burns.**
- **Refrigerant will displace oxygen, therefore be certain to work in well ventilated areas to prevent suffocation.**
- **Do not pressure test or leak test HFC-134a (R-134a) service equipment and/or vehicle air conditioning systems with compressed air during repair. Some mixtures of air and R-134a have been**

shown to be combustible at elevated pressures. These mixtures, if ignited, may cause injury or property damage. Additional health and safety information may be obtained from refrigerant manufacturers.

Precautions for Leak Detection Dye

NGHA0287

- The A/C system contains a fluorescent leak detection dye used for locating refrigerant leaks. An ultraviolet (UV) lamp is required to illuminate the dye when inspecting for leaks.
- Always wear fluorescence enhancing UV safety glasses to protect your eyes and enhance the visibility of the fluorescent dye.
- A compressor shaft seal should not be repaired because of dye seepage. The compressor shaft seal should only be repaired after confirming the leak with an electronic refrigerant leak detector (J-41995).
- Always remove any dye from the leak area after repairs are complete to avoid a misdiagnosis during a future service.
- Do not allow dye to come into contact with painted body panels or interior components. If dye is spilled, clean immediately with the approved dye cleaner. Fluorescent dye left on a surface for an extended period of time **cannot be removed**.
- Do not spray the fluorescent dye cleaning agent on hot surfaces (engine exhaust manifold, etc.).
- Do not use more than one refrigerant dye bottle (1/4 ounce /7.4 cc) per A/C system.
- Leak detection dyes for R-134a and R12 A/C systems are different. Do not use R-134a leak detection dye in R-12 A/C system or R-12 leak detection dye in R-134a A/C systems or A/C system damage may result.
- The fluorescent properties of the dye will remain for over three (3) years unless a compressor failure occurs.



LHA242

A/C Identification Label

NGHA0288

Vehicles with factory installed fluorescent dye have this identification label on the under side of hood.

NOTE:
Vehicles with factory installed fluorescent dye have a green label.

Precautions for Refrigerant Connection

NGHA0063

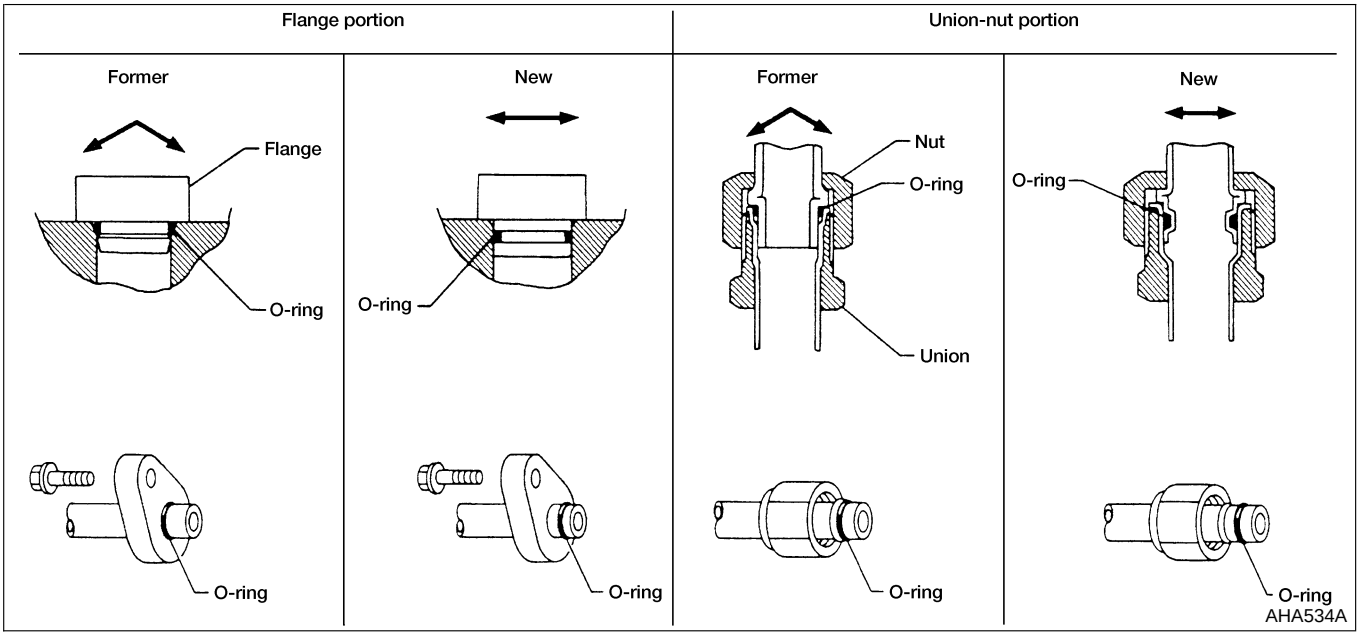
A new type refrigerant connection has been introduced to all refrigerant lines except the following portion.

- Thermal expansion valve connections.

FEATURES OF NEW TYPE REFRIGERANT CONNECTION

NGHA0063S01

- The O-ring is relocated in a groove for proper installation. This eliminates the chance of the O-ring being caught in, or damaged by, the mating part. The sealing direction of the O-ring is now set vertically in relation to the contacting surface of the mating part to improve sealing characteristics.
- The reaction force of the O-ring will not occur in the direction that causes the joint to pull out, thereby facilitating piping connections.


Flange portion
Union-nut portion
Former
New
Former
New
Flange
O-ring
O-ring
Nut
O-ring
Union
O-ring
O-ring
O-ring
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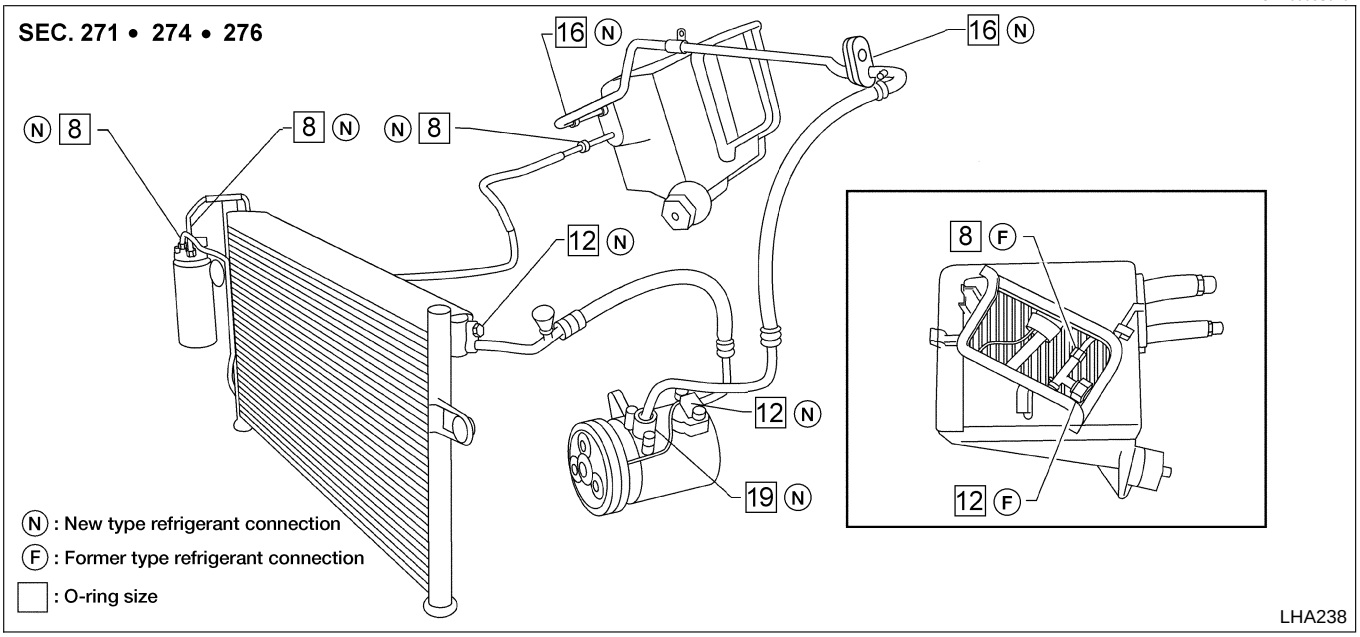
O-ring
AHA534A

O-RING AND REFRIGERANT CONNECTION

=NGHA0063S02

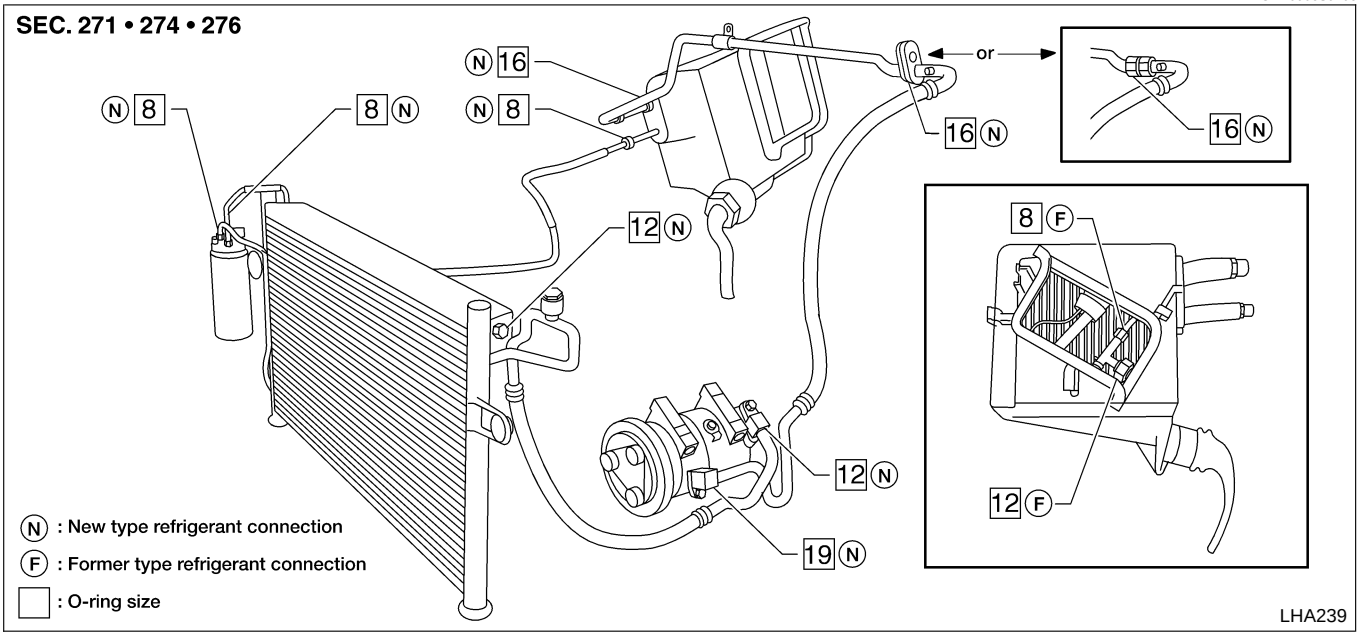
KA24DE Models

NGHA0063S0202



VG33E and VG33ER Models

NGHA0063S0203

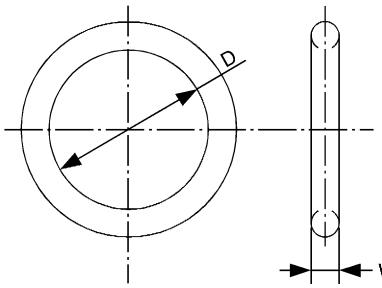


CAUTION:

Refrigerant connections in some systems use different O-ring configurations. Do not confuse O-rings since they are not interchangeable. If a wrong O-ring is installed, refrigerant will leak at or around the connection.

O-Ring Part Numbers and Specifications

=NGHA0063S0201

	Connection type	O-ring size	Part number*	D mm (in)	W mm (in)
 SHA814E	New	8	92471 N8210	6.8 (0.268)	1.85 (0.0728)
	Former		92470 N8200	6.07 (0.23990)	1.78 (0.0701)
	New	12	92472 N8210	10.9 (0.429)	2.43 (0.0957)
	Former		92475 71L00	11.0 (0.433)	2.4 (0.094)
	New	16	92473 N8210	13.6 (0.535)	2.43 (0.0957)
	New	19	92474 N8210	16.5 (0.650)	2.43 (0.0957)

*: Always check with the Parts Department for the latest parts information.

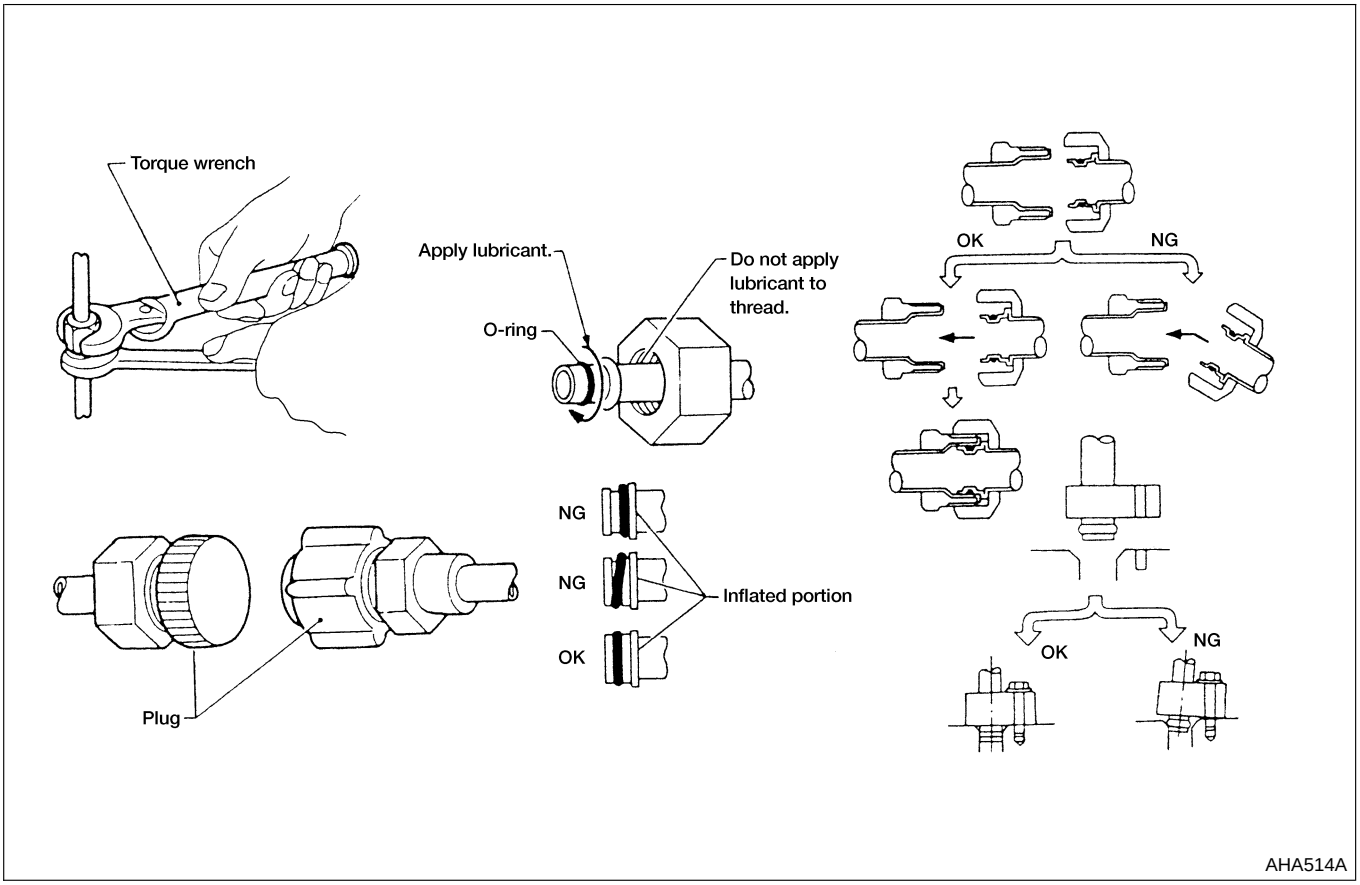
WARNING:

Make sure all refrigerant is discharged into the recycling equipment and the pressure in the system is less than atmospheric pressure. Then gradually loosen the discharge side hose fitting and remove it.

CAUTION:

When replacing or cleaning refrigerant cycle components, observe the following.

- **When the compressor is removed, store it in the same position as it is when mounted on the car. Failure to do so will cause lubricant to enter the low pressure chamber.**
- **When connecting tubes, always use a torque wrench and a back-up wrench.**
- **After disconnecting tubes, immediately plug all openings to prevent entry of dirt and moisture.**
- **When installing an air conditioner in the vehicle, connect the pipes as the final stage of the operation. Do not remove the seal caps of pipes and other components until just before required for connection.**
- **Allow components stored in cool areas to warm to working area temperature before removing seal caps. This prevents condensation from forming inside A/C components.**
- **Thoroughly remove moisture from the refrigeration system before charging the refrigerant.**
- **Always replace used O-rings.**
- **When connecting tube, apply lubricant to circle of the O-rings shown in illustration. Be careful not to apply lubricant to threaded portion.**
  Lubricant name: NISSAN A/C System Lubricant Type R
  Part number: KLH00-PAGR0
- **O-ring must be closely attached to inflated portion of tube.**
- **After inserting tube into union until O-ring is no longer visible, tighten nut to specified torque.**
- **After connecting line, conduct leak test and make sure that there is no leakage. When the gas leaking point is found, disconnect that line and replace the O-ring. Then tighten connections of seal seat to the specified torque.**



Precautions for Servicing Compressor

NGHA0064

- **Plug all openings to prevent moisture and foreign matter from entering.**
- **Do not keep the compressor in the upside down position or laid on its side for more than 10 minutes.**
- **When replacing or repairing compressor, follow "Maintenance of Lubricant Quantity in Compressor" exactly. Refer to "Maintenance of Lubricant Quantity in Compressor", HA-66.**
- **Keep friction surfaces between clutch and pulley clean. If the surface is contaminated, with lubricant, wipe it off by using a clean waste cloth moistened with thinner.**
- **After compressor service operation, turn the compressor shaft by hand more than five turns in both directions. This will equally distribute lubricant inside the compressor. After the compressor is installed, let the engine idle and operate the compressor for one hour.**
- **After replacing the compressor magnet clutch, apply voltage to the new one and check for normal operation.**

Precautions for Service Equipment

NGHA0065

RECOVERY/RECYCLING EQUIPMENT

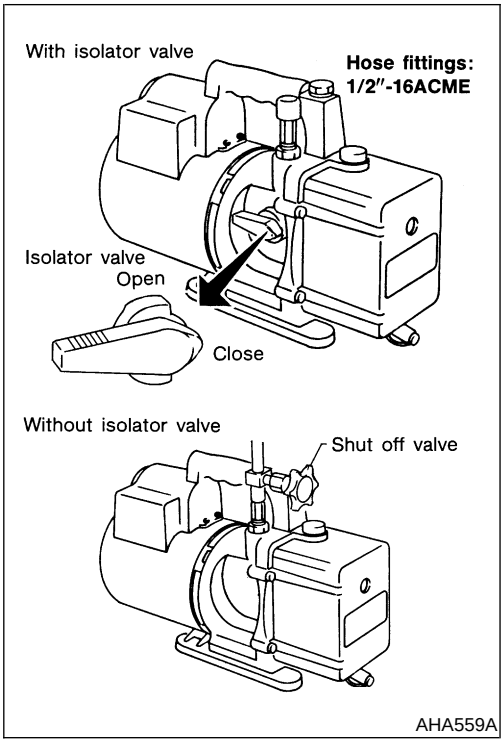
NGHA0065S01

Follow the manufacturer's instructions for machine operation and machine maintenance. Never introduce any refrigerant other than that specified into the machine.

ELECTRONIC LEAK DETECTOR

NGHA0065S02

Follow the manufacturer's instructions for tester operation and tester maintenance.



VACUUM PUMP

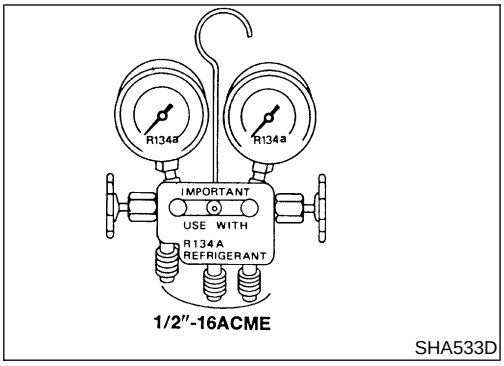
NGHA0065S03

The lubricant contained inside the vacuum pump is not compatible with the specified lubricant for HFC-134a (R-134a) A/C systems. The vent side of the vacuum pump is exposed to atmospheric pressure. So the vacuum pump lubricant may migrate out of the pump into the service hose. This is possible when the pump is switched off after evacuation (vacuuming) and hose is connected to it.

To prevent this migration, use a manual valve situated near the hose-to-pump connection, as follows.

- Usually vacuum pumps have a manual isolator valve as part of the pump. Close this valve to isolate the service hose from the pump.
- For pumps without an isolator, use a hose equipped with a manual shut-off valve near the pump end. Close the valve to isolate the hose from the pump.
- If the hose has an automatic shut off valve, disconnect the hose from the pump: when the hose is connected, the valve is open and lubricating oil may migrate.

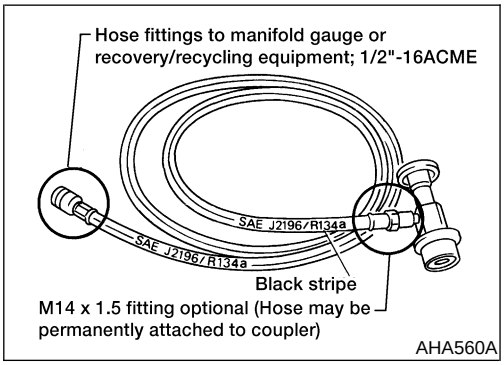
Some one-way valves open when vacuum is applied and close under a no vacuum condition. Such valves may restrict the pump's ability to pull a deep vacuum and are not recommended.



MANIFOLD GAUGE SET

NGHA0065S04

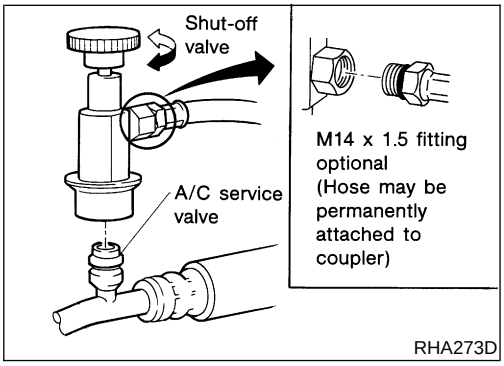
Be certain that the gauge face indicates R-134a or 134a. Make sure the gauge set has 1/2″-16 ACME threaded connections for service hoses. Confirm the set has been used only with refrigerant HFC-134a (R-134a) along with specified lubricant.



SERVICE HOSES

NGHA0065S05

Be certain that the service hoses display the markings described (colored hose with black stripe). All hoses must include positive shut off devices (either manual or automatic) near the end of the hoses opposite the manifold gauge.

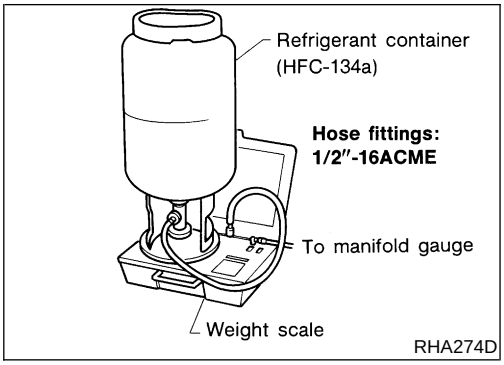


SERVICE COUPLERS

NGHA0065S06

Never attempt to connect HFC-134a (R-134a) service couplers to an CFC-12 (R-12) A/C system. The HFC-134a (R-134a) couplers will not properly connect to the CFC-12 (R-12) system. However, if an improper connection is attempted, discharging and contamination may occur.

Shut-off valve rotation	A/C service valve
Clockwise	Open
Counterclockwise	Close



REFRIGERANT WEIGHT SCALE

NGHA0065S07

Verify that no refrigerant other than HFC-134a (R-134a) and specified lubricants have been used with the scale. If the scale controls refrigerant flow electronically, the hose fitting must be 1/2″-16 ACME.

CALIBRATING ACR4 WEIGHT SCALE

NGHA0065S10

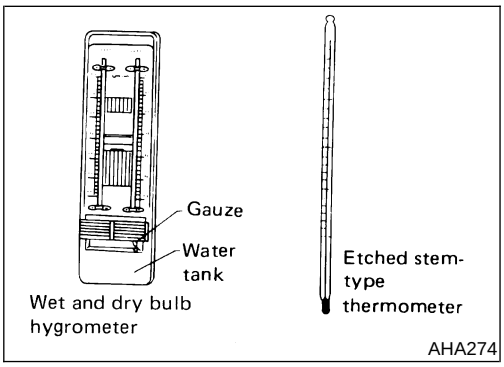
Calibrate the scale every 3 months.
To calibrate the weight scale on the ACR4 (J-39500–NI):

1. Press **Shift/Reset** and **Enter** at the same time.
2. Press **8787. "A1"** will be displayed.
3. Remove all weight from the scale.
4. Press **0**, then press **Enter. "0.00"** will be displayed and changed to **"A2"**.
5. Place a known weight (dumbbell or similar weight), between 10 and 19 lbs., on the center of the weight scale.
6. Enter the known weight using 4 digits (Example 10 lbs = 10.00, 10.5 lbs = 10.50).
7. Press **Enter** — the display returns to the vacuum mode.
8. Press **Shift/Reset** and **Enter** at the same time.
9. Press **6** — the known weight on the scale is displayed.
10. Remove the known weight from the scale. "0.00" will be displayed.
11. Press **Shift/Reset** to return the ACR4 to the program mode.

CHARGING CYLINDER

NGHA0065S08

Using a charging cylinder is not recommended. Refrigerant may be vented into air from cylinder's top valve when filling the cylinder with refrigerant. Also, the accuracy of the cylinder is generally less than that of an electronic scale or of quality recycle/recharge equipment.



THERMOMETER AND HYGROMETER

NGHA0065S09

An etched stem-type thermometer and a hygrometer can be used to check the air conditioning system performance. A hygrometer is used because the air conditioning performance depends on the humidity.

Wiring Diagrams and Trouble Diagnosis

NGHA0066

When you read wiring diagrams, refer to the following:

- Refer to ***GI-10***, “HOW TO READ WIRING DIAGRAMS”.
- Refer to ***EL-10***, “POWER SUPPLY ROUTING”.

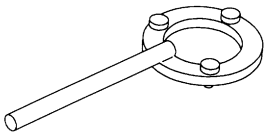
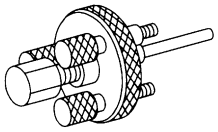
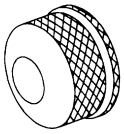
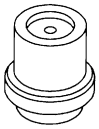
When you perform trouble diagnosis, refer to the following:

- Refer to ***GI-33***, “How to Follow Test Groups in Trouble Diagnoses”.
- Refer to ***GI-22***, “HOW TO PERFORM EFFICIENT DIAGNOSIS FOR AN ELECTRICAL INCIDENT”.

Special Service Tools

=NGHA0286

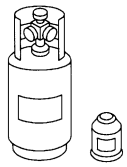
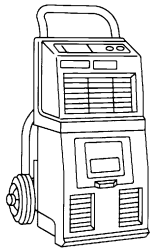
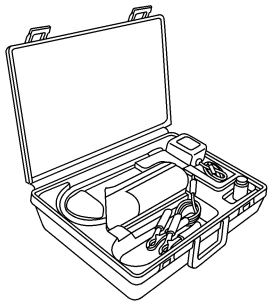
The actual shapes of Kent-Moore tools may differ from those of special service tools illustrated here.

Tool number (Kent-Moore No.) Tool name	Description	
KV99231260 (J-38874) Clutch disc wrench	 NT204	Removing shaft nut and clutch disc
KV99232340 (J-38874) Clutch disc puller	 NT206	Removing clutch disc
KV99234330 (J-39024) Pulley installer	 NT207	Installing pulley
KV99233130 (J-39023) Pulley puller	 NT208	Removing pulley

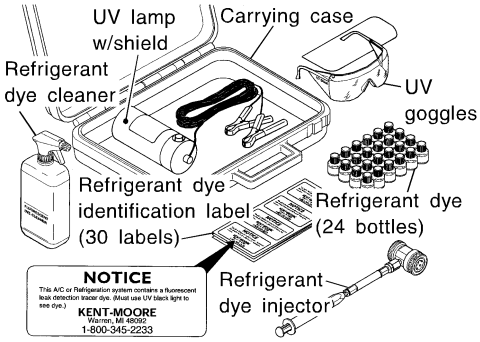
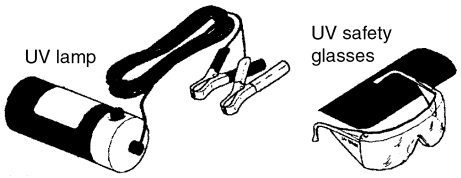
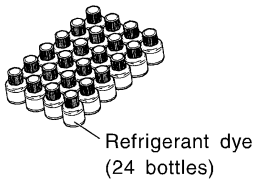
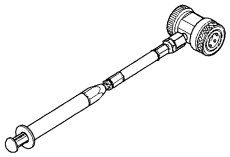
HFC-134a (R-134a) Service Tools and Equipment

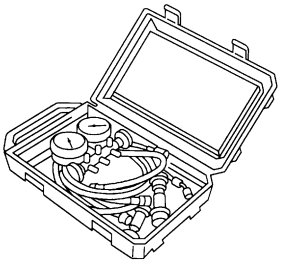
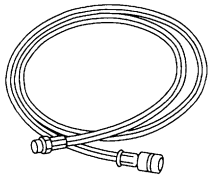
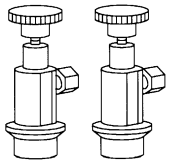
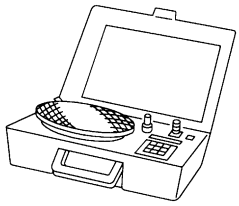
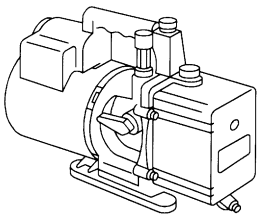
=NGHA0068

Never mix HFC-134a (R-134a) refrigerant and/or its specified lubricant with CFC-12 (R-12) refrigerant and/or its lubricant.
Separate and non-interchangeable service equipment must be used for handling each type of refrigerant/lubricant.
Refrigerant container fittings, service hose fittings and service equipment fittings (equipment which handles refrigerant and/or lubricant) are different between CFC-12 (R-12) and HFC-134a (R-134a). This is to avoid mixed use of the refrigerants/lubricant.
Adapters that convert one size fitting to another must never be used: refrigerant/lubricant contamination will occur and compressor failure will result.

Tool number (Kent-Moore No.) Tool name	Description	
HFC-134a (R-134a) refrigerant	 NT196	Container color: Light blue Container marking: HFC-134a (R-134a) Fitting size: Thread size ● large container 1/2″-16 ACME
KLH00-PAGR0 (—) NISSAN A/C System Lubricant Type R	 NT197	Type: Polyalkylene glycol oil (PAG), type R Application: HFC-134a (R-134a) vane rotary compressors (NISSAN only) Lubricity: 40 mℓ (1.4 US fl oz, 1.4 Imp fl oz)
(J-39500-NI) Recovery/Recycling Recharging equipment (ACR4)	 NT195	Function: Refrigerant Recovery and Recycling and Recharging
(J-41995) Electrical leak detector	 AHA281A	Power supply: ● DC 12 V (Cigarette lighter) Function: Checks for refrigerant leaks.

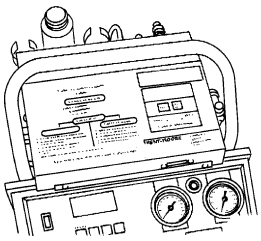
HFC-134a (R-134a) Service Tools and Equipment (Cont'd)

Tool number (Kent-Moore No.) Tool name	Description	
(J-43926) Refrigerant dye leak detection kit Kit includes: (J-42220) UV lamp and UV safety glasses (J-41459) Refrigerant dye injector (J-41447) qty. 24 R-134a refrigerant dye (J-43872) Refrigerant dye cleaner	 SHA437F	Power supply: DC 12V (Battery terminal)
(J-42220) Fluorescent dye leak detector	UV lamp  LHA177	Power supply: DC 12V (Battery terminal) For checking refrigerant leak when fluorescent dye is installed in A/C system. Includes: UV lamp and UV safety glasses
(J-41447) R134a Fluorescent Leak Detection Dye (Box of 24, 1/4 ounce bottles)	Dye  SHA439F	Application: For R-134a PAG oil Container: 1/4 ounce (7.4 cc) bottle (Includes self-adhesive dye identification labels for affixing to vehicle after charging system with dye.)
(J-41459) R134a Dye Injector Use with J-41447, 1/4 ounce bottle	Dye injector  SHA440F	For injecting 1/4 ounce of Fluorescent Leak Detection Dye into A/C system.
(J-43872) Dye cleaner	 SHA441F	For cleaning dye spills.

Tool number (Kent-Moore No.) Tool name	Description	
(J-39183) Manifold gauge set (with hoses and couplers)	 NT199	Identification: ● The gauge face indicates R-134a. Fitting size: Thread size ● 1/2″-16 ACME
Service hoses ● High side hose (J-39501-72) ● Low side hose (J-39502-72) ● Utility hose (J-39476-72)	 NT201	Hose color: ● Low hose: Blue with black stripe ● High hose: Red with black stripe ● Utility hose: Yellow with black stripe or green with black stripe Hose fitting to gauge: ● 1/2″-16 ACME
Service couplers ● High side coupler (J-39500-20) ● Low side coupler (J-39500-24)	 NT202	Hose fitting to service hose: ● M14 x 1.5 fitting is optional or permanently attached.
(J-39650) Refrigerant weight scale	 NT200	For measuring of refrigerant Fitting size: Thread size ● 1/2″-16 ACME
(J-39649) Vacuum pump (Including the isolator valve)	 NT203	Capacity: ● Air displacement: 4 CFM ● Micron rating: 20 microns ● Oil capacity: 482 g (17 oz) Fitting size: Thread size ● 1/2″-16 ACME

Commercial Service Tool

=NGHA0067

Tool name	Description	Note
Refrigerant Identifier Equipment	 NT765	Checking refrigerant purity and for system contamination

For details of handling methods, refer to the Instruction Manual attached to the service tool.

Refrigeration System

REFRIGERATION CYCLE

NGHA0069

Refrigerant Flow

NGHA0069S01

The refrigerant flows in the standard pattern. Refrigerant flows through the compressor, condenser, liquid tank, expansion valve, evaporator, and back to the compressor. The refrigerant evaporation through the evaporator coil is controlled by an externally equalized expansion valve, located inside the evaporator case.

Freeze Protection

NGHA0069S02

The compressor cycles on and off to maintain the evaporator temperature within a specified range. When the evaporator coil temperature falls below a specified point, the thermo control amplifier interrupts the compressor operation. When the evaporator coil temperature rises above the specification, the thermo control amplifier allows compressor operation.

Refrigerant System Protection

NGHA0069S03

Dual Pressure Switch

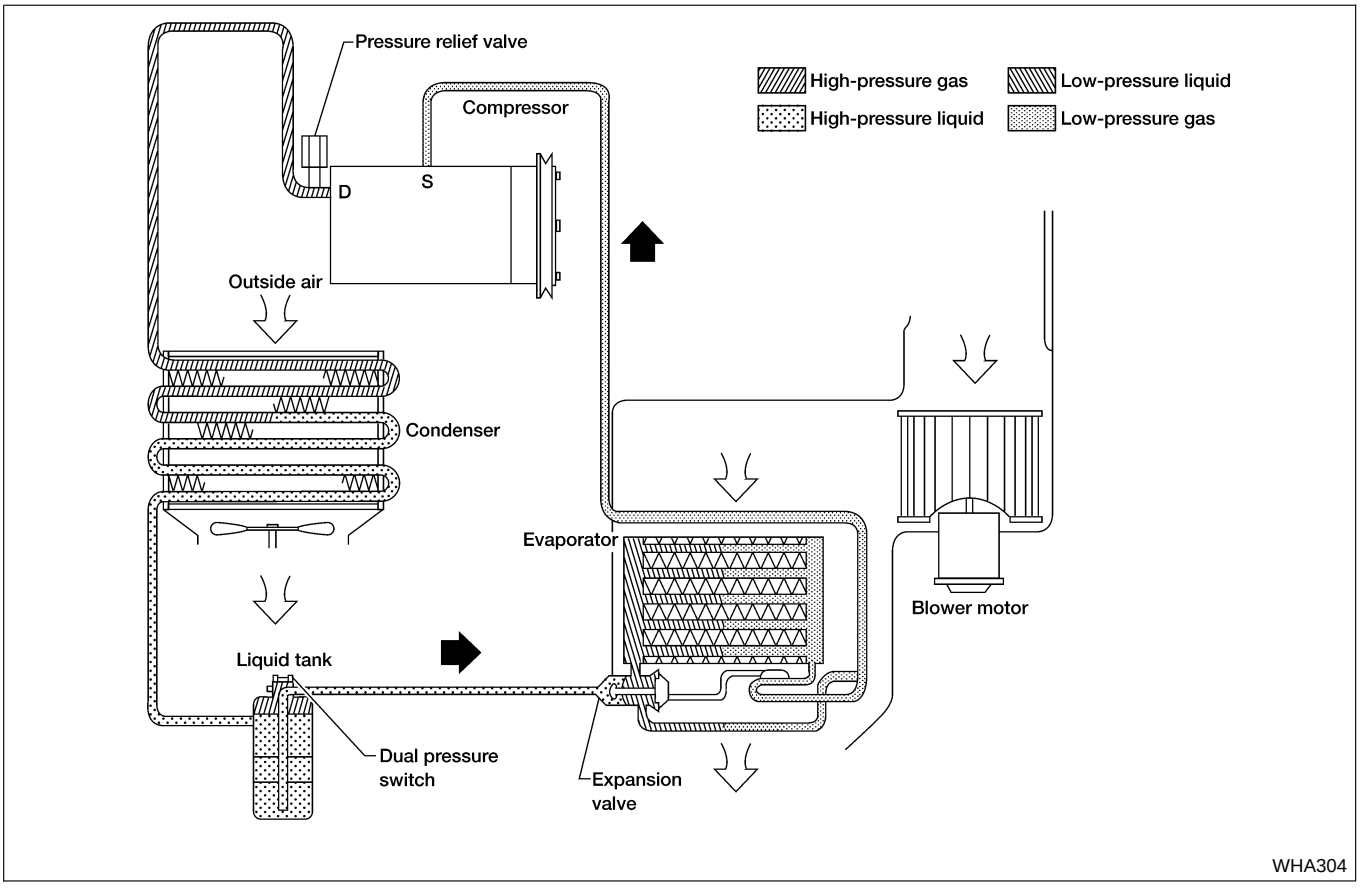
NGHA0069S0301

The refrigerant system is protected against excessively high or low pressure. The protection is effected by a dual pressure switch located on the liquid tank. If the pressure falls out of specifications, the switch opens to interrupt compressor operation.

Pressure Relief Valve

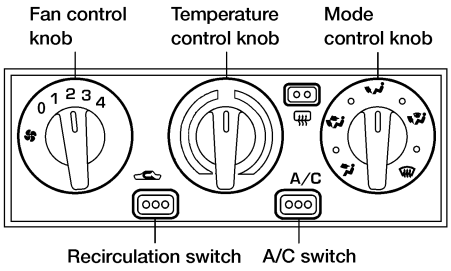
NGHA0069S0302

The refrigerant system is also protected by a pressure relief valve located on the flexible high pressure hose near the compressor. When the pressure of refrigerant in the system increases to an abnormal level [more than 3,727 kPa (38 kg/cm^2, 540 psi)], the release port on the pressure relief valve automatically opens and releases refrigerant into the atmosphere.



Control Operation

NGHA0072



WHA303

FAN CONTROL KNOB

NGHA0072S01

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

MODE CONTROL KNOB

NGHA0072S03

This knob controls the direction of air flow through the front discharge outlets.

TEMPERATURE CONTROL KNOB

NGHA0072S04

This knob allows adjustment of the outlet air temperature.

RECIRCULATION (REC) SWITCH

NGHA0072S06

OFF position: Outside air is drawn into the passenger compartment.
ON position: Interior air is recirculated inside the vehicle. The indicator lamp will also light.

AIR CONDITIONER SWITCH

NGHA0072S05

The air conditioner switch controls the A/C system. When the switch is depressed with the fan ON, the A/C relay is activated by the ECM allowing compressor operation. The indicator lamp will also light.
The air conditioner cooling function operates only when the engine is running and ambient air temperature is above 2°C (35°F).

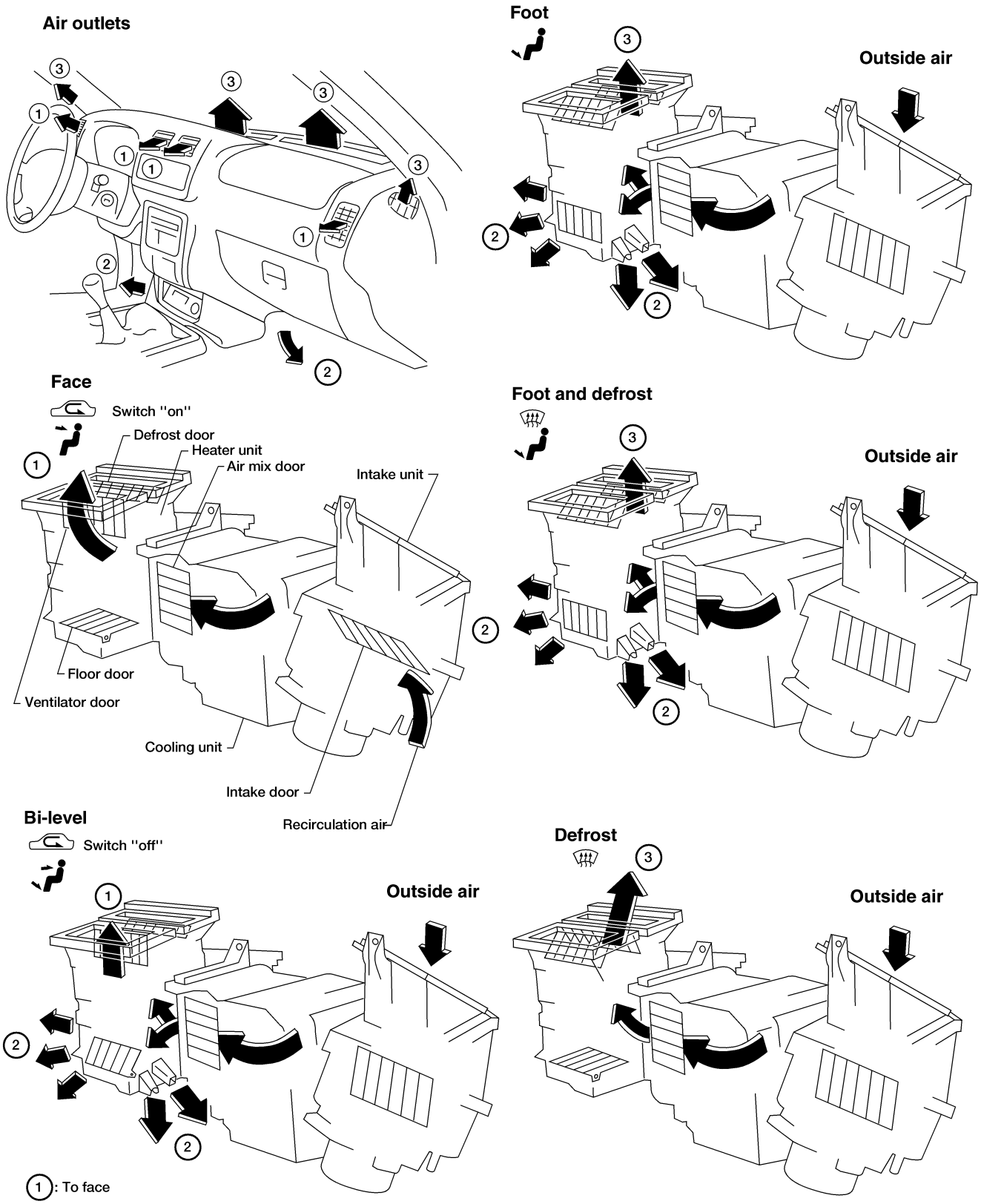
REAR WINDOW DEFOGGER SWITCH

NGHA0072S07

OFF position: Rear window defogger is not operating.
ON position: Rear window defogger is operating.

Discharge Air Flow

NGHA0073



For air flow %, refer to "DESCRIPTION".

AHA290A

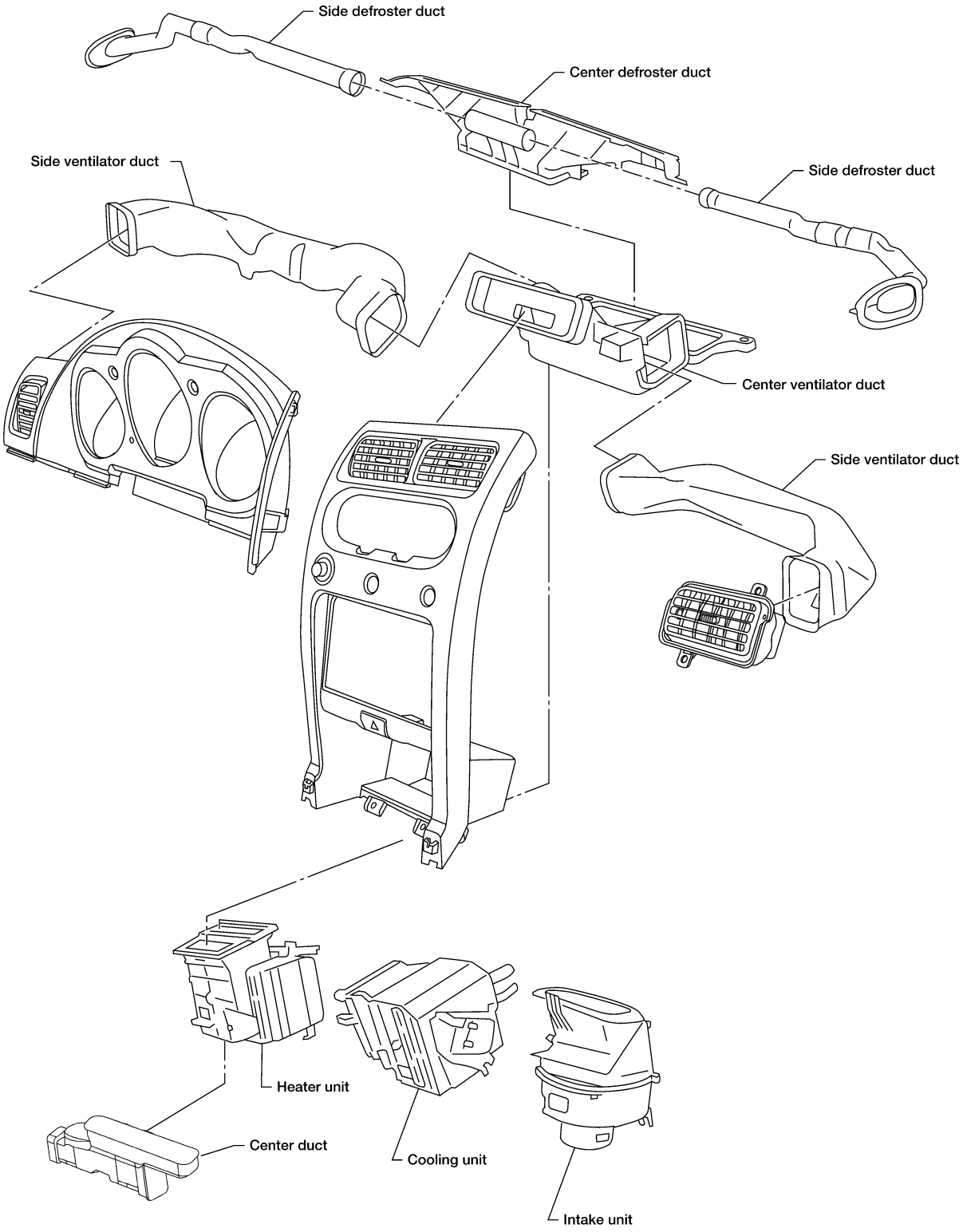
Component Layout

NGHA0272

FRONT

NGHA0272S01

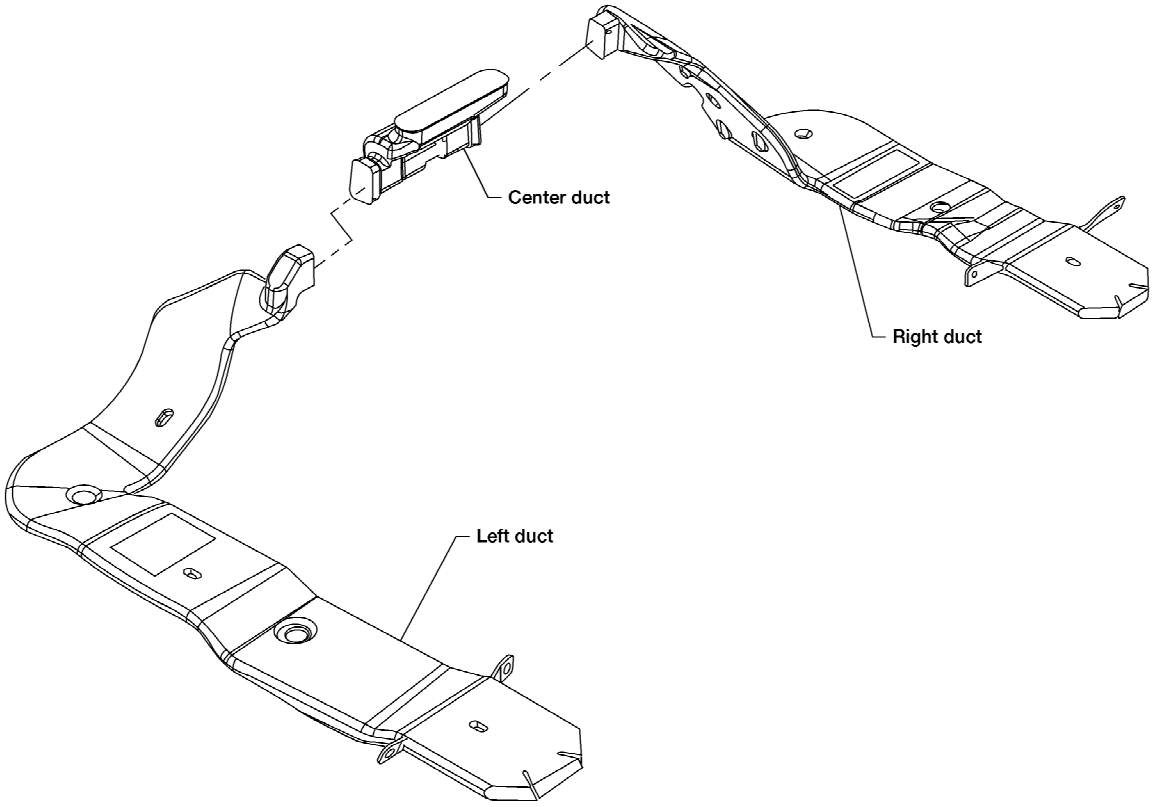
SEC. 270 • 271 • 272 • 273 • 685



WHA333

REAR

NGHA0272S02



AHA571A

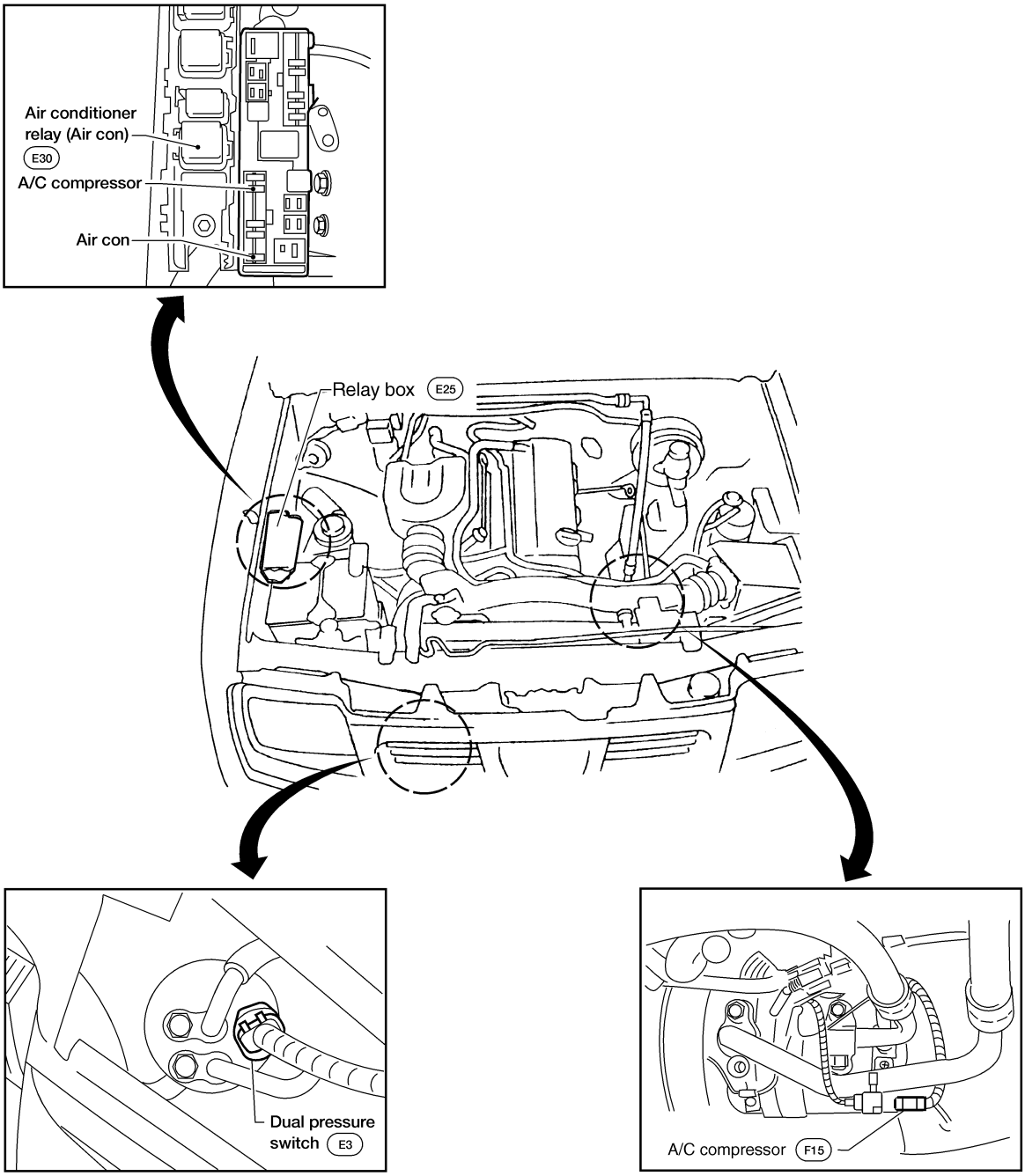
Component Location

NGHA0085

NGHA0085S01

NGHA0085S0101

ENGINE COMPARTMENT
KA24DE Models

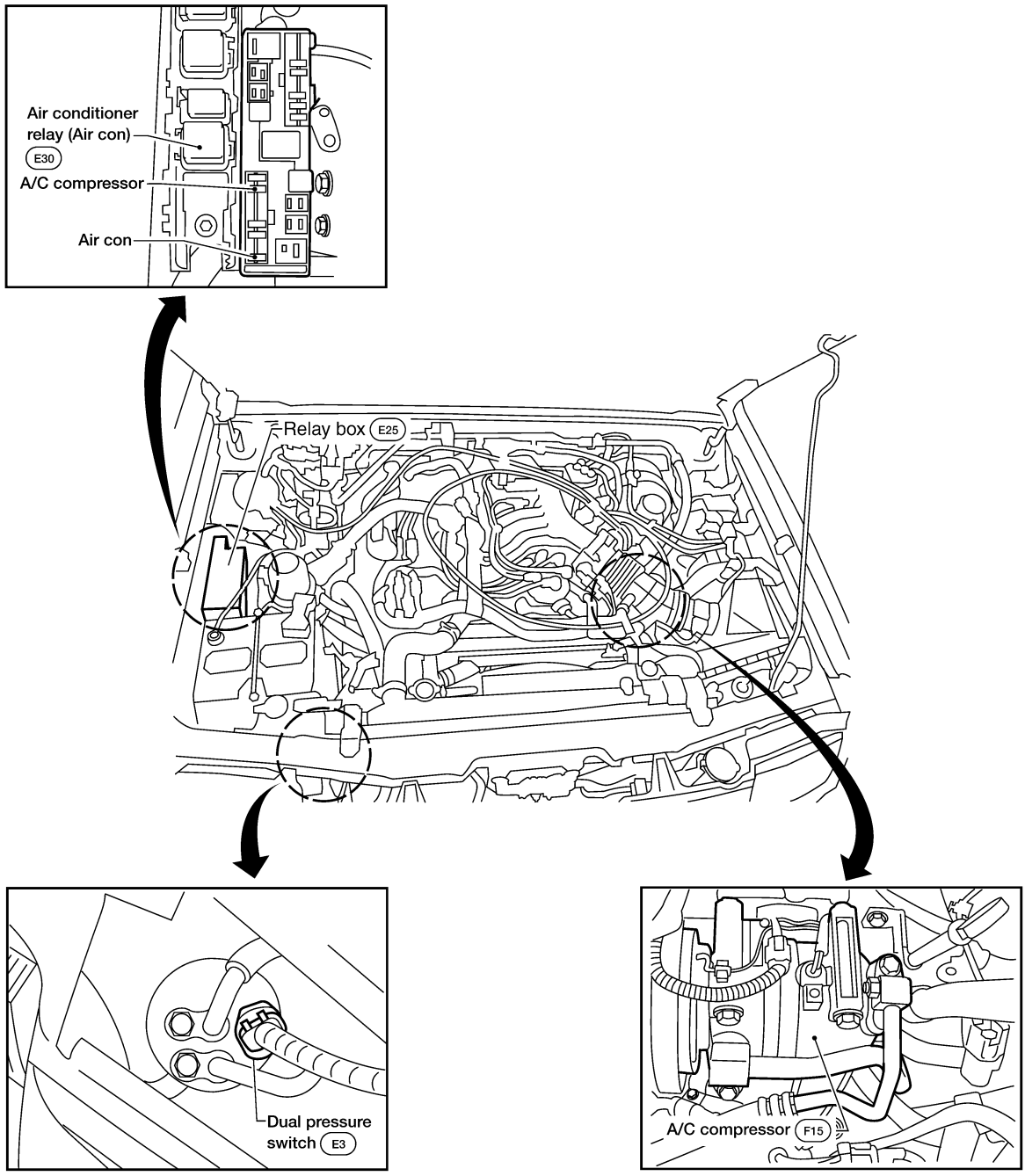


AHA452A

ENGINE COMPARTMENT
VG33E Models

NGHA0085S05

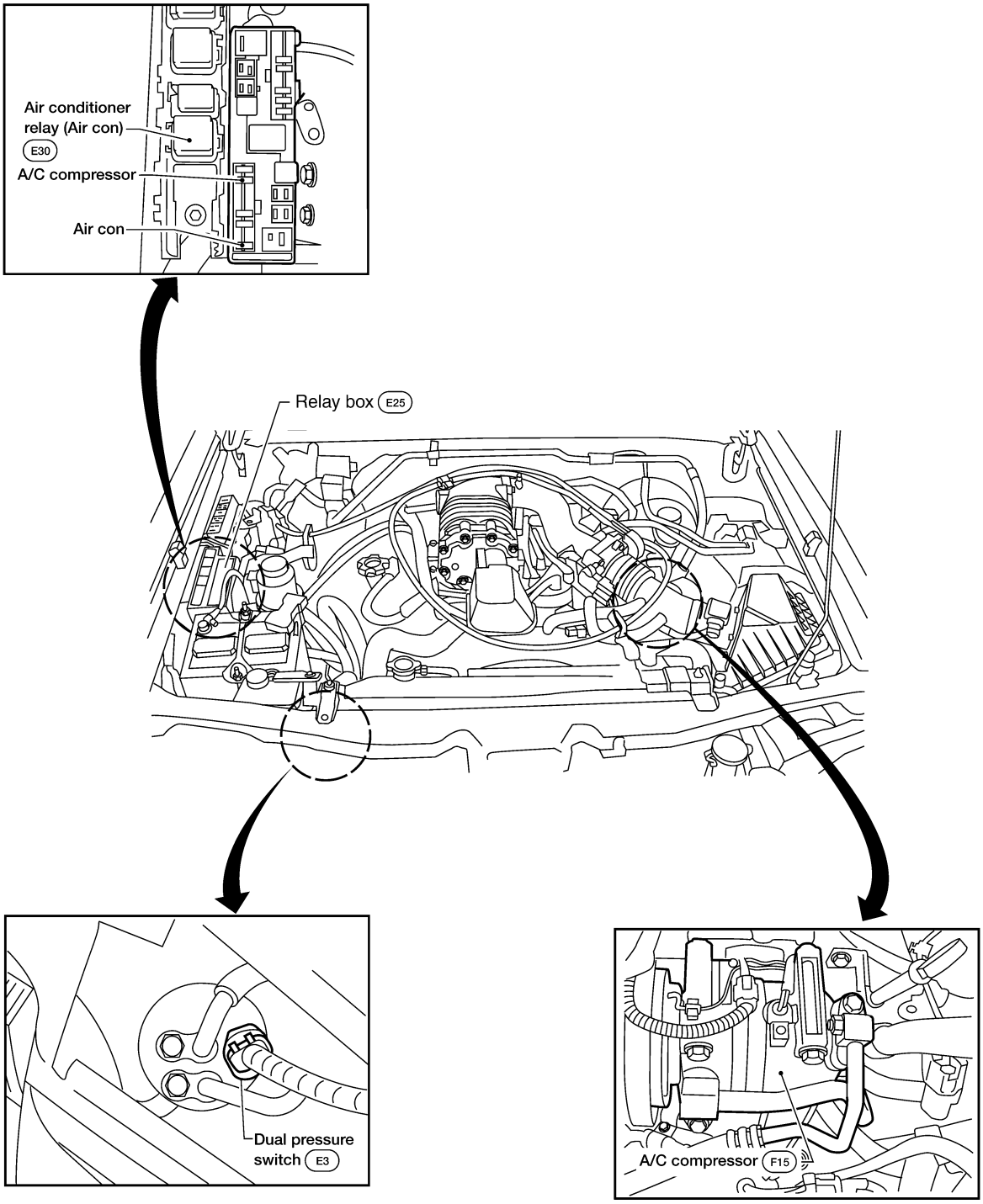
=NGHA0085S0501



WHA305

VG33ER Models

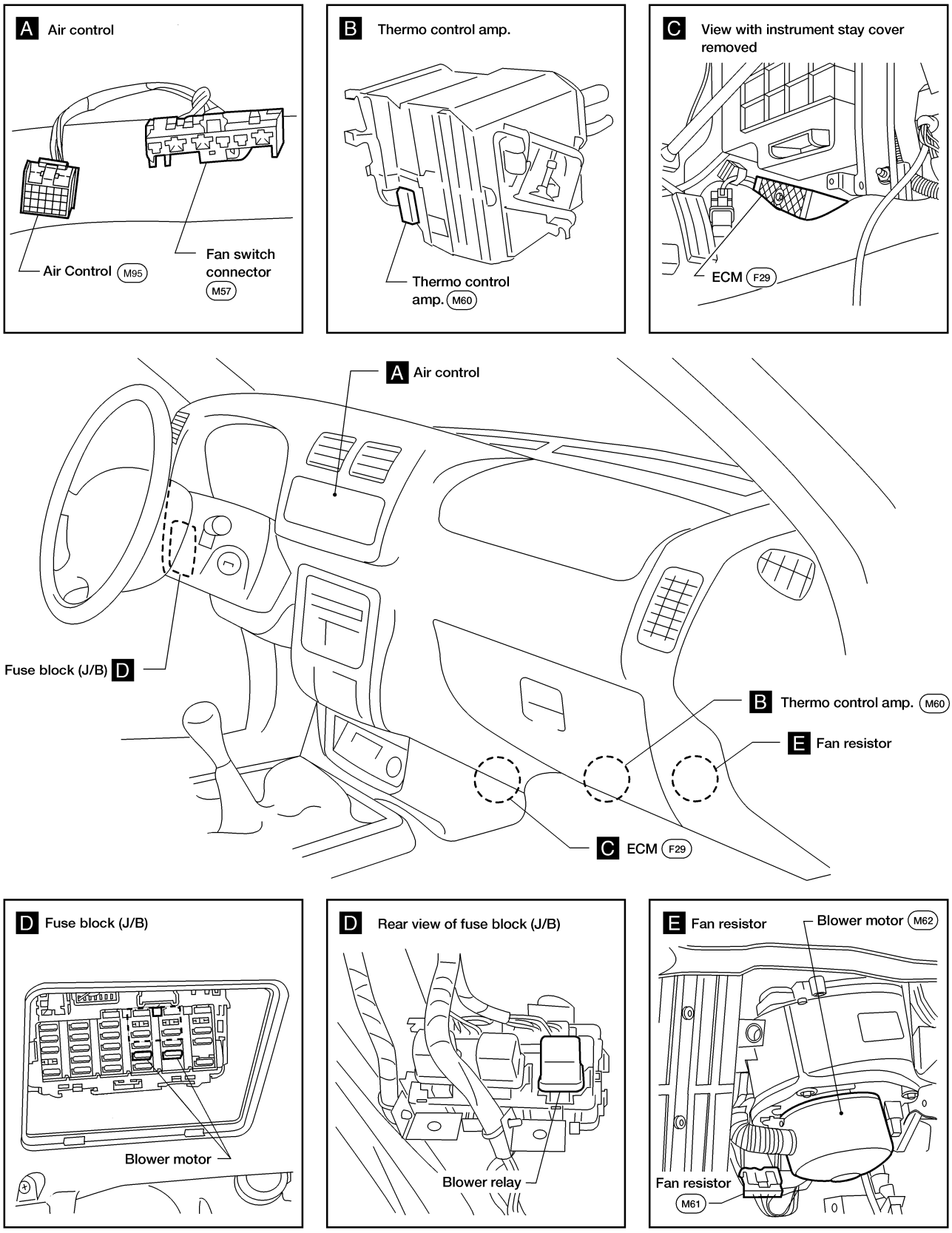
=NGHA0085S0502



WHA306

PASSENGER COMPARTMENT

NGHA0085S02

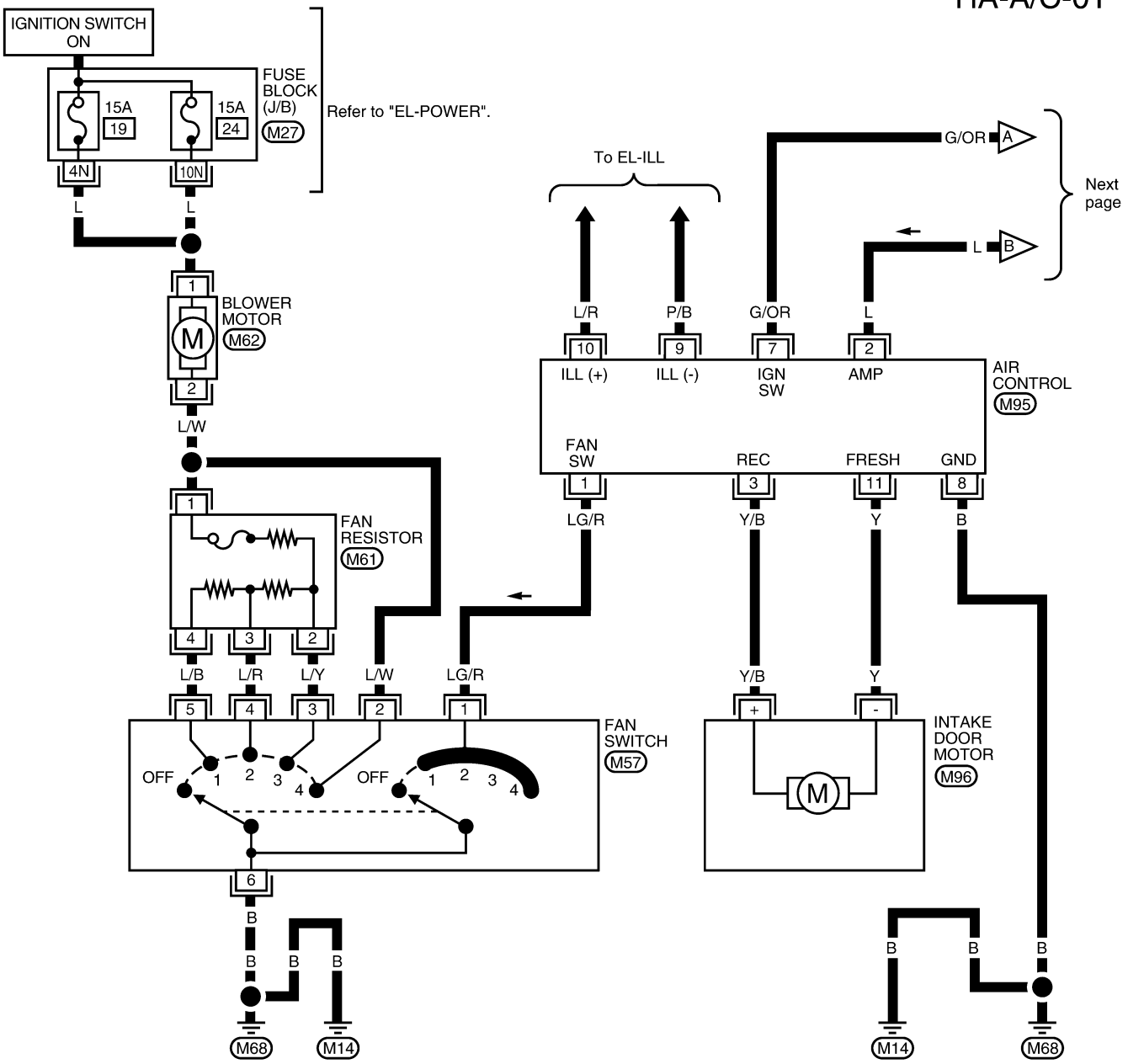


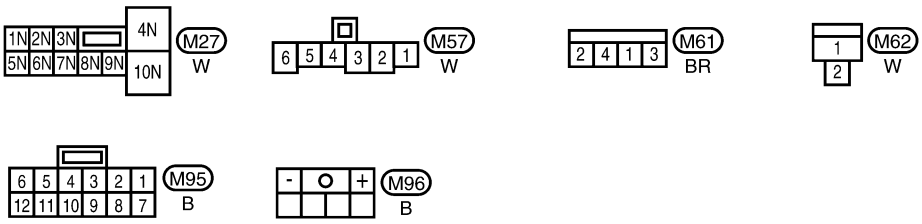
LHA231

Wiring Diagram — A/C —

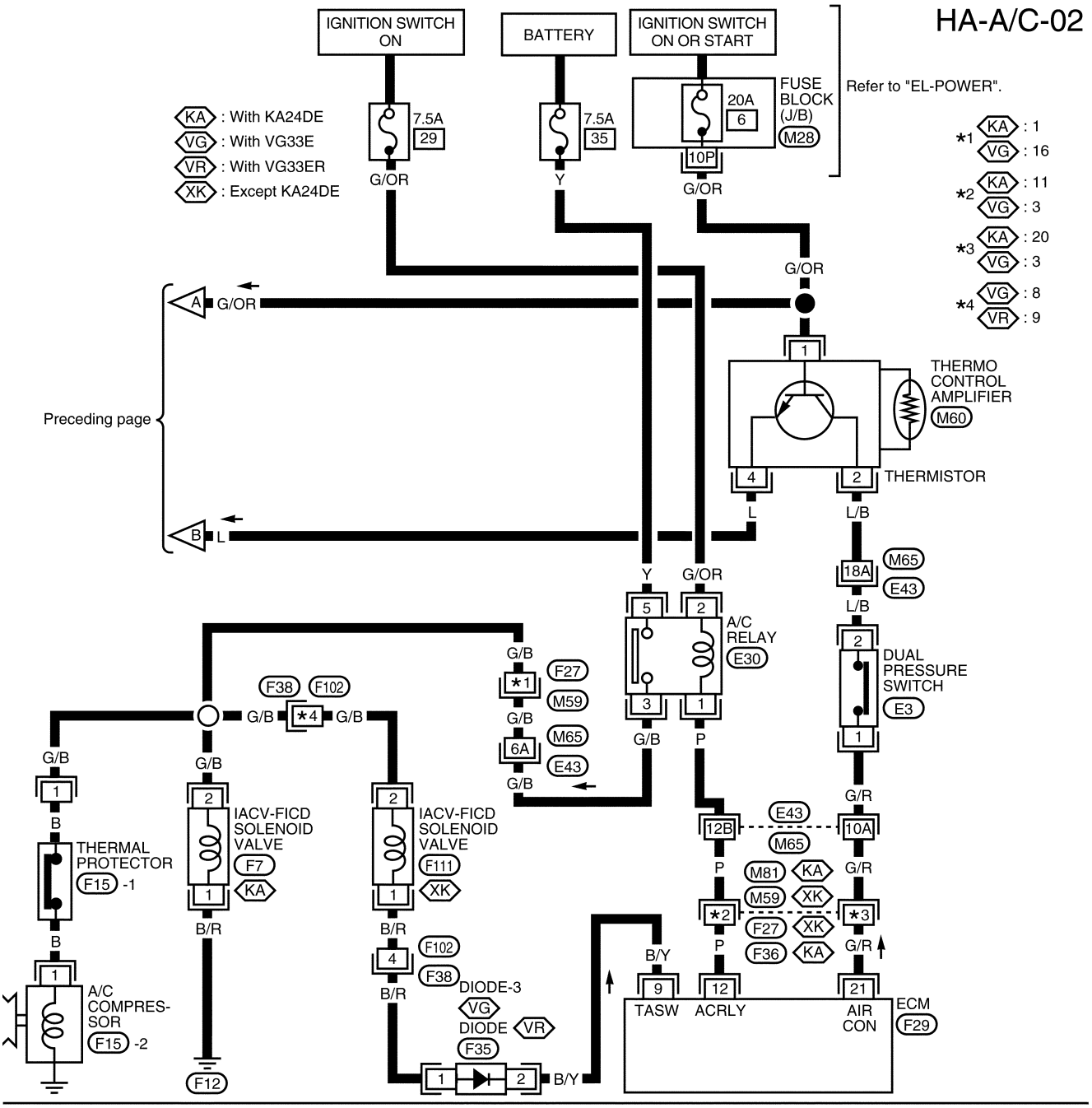
NGHA0274

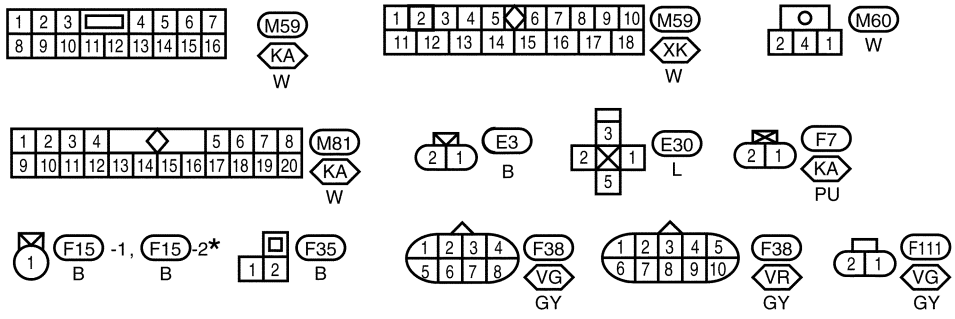
HA-A/C-01





WHA302





Refer to the following.
E43 - SUPER MULTIPLE JUNCTION (SMJ)
F29 - ELECTRICAL UNITS

*: This connector is not shown in "HARNESS LAYOUT" of EL section.

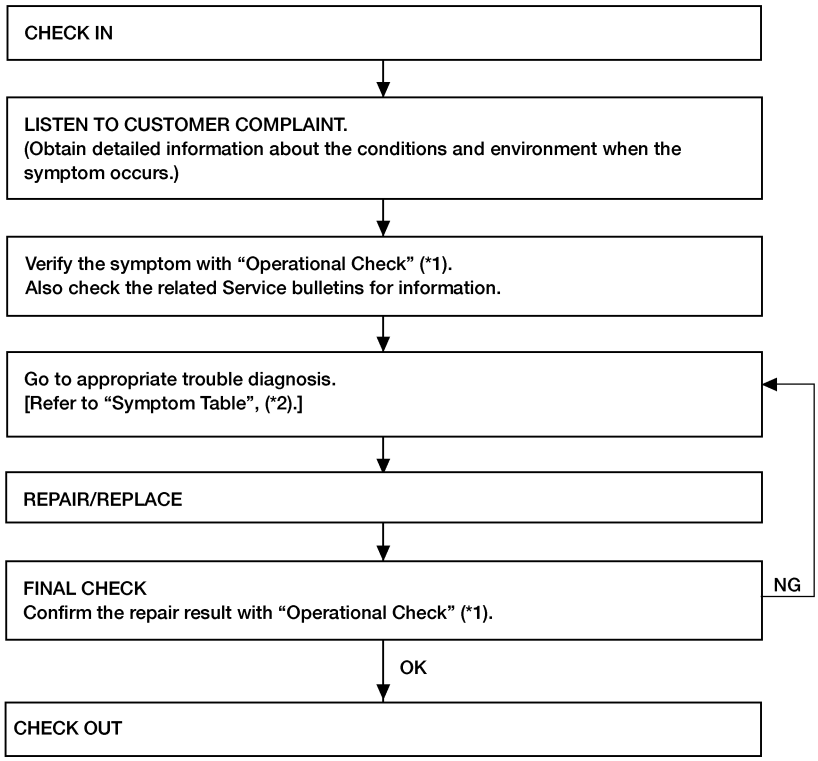
WHA336

How to Perform Trouble Diagnoses for Quick and Accurate Repair

NGHA0075

WORK FLOW

NGHA0075S01



LHA244

*1: HA-29 *2: HA-28

Symptom Table

NGHA0235

Symptom	Reference page	
• Blower motor does not rotate.	• Go to “TROUBLE DIAGNOSIS PROCEDURE FOR BLOWER MOTOR”.	HA-31
• Mode door does not change positions.	• Go to “TROUBLE DIAGNOSIS PROCEDURE FOR MODE DOOR”.	HA-38
• Intake door position does not change.	• Go to “TROUBLE DIAGNOSIS PROCEDURE FOR INTAKE DOOR”.	HA-40
• Magnet clutch does not engage when A/C switch and fan switch are ON.	• Go to “TROUBLE DIAGNOSIS PROCEDURE FOR MAGNET CLUTCH ”.	HA-43
• Insufficient cooling	• Go to “TROUBLE DIAGNOSIS PROCEDURE FOR INSUFFICIENT COOLING”.	HA-53
• Insufficient heating	• Go to “TROUBLE DIAGNOSIS PROCEDURE FOR INSUFFICIENT HEATING”.	HA-61
• Noise	• Go to “TROUBLE DIAGNOSIS PROCEDURE FOR NOISE”.	HA-63

Operational Check

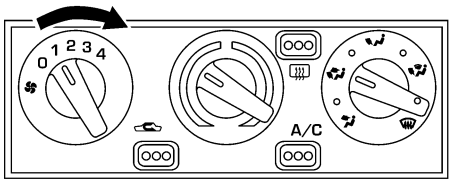
=NGHA0076

The purpose of the operational check is to confirm that the system operates as it should. The systems which are checked are the blower, mode (discharge air), intake air, temperature decrease, temperature increase, and compressor.

CONDITIONS:

NGHA0076S01

Engine running at normal operating temperature.



WHA317

PROCEDURE:

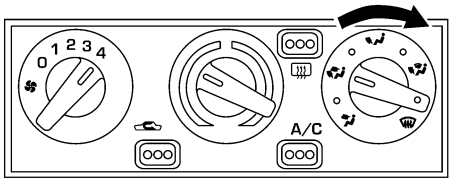
NGHA0076S02

1. Check Blower Motor

NGHA0076S0208

1) Turn fan control knob to 1-speed.
   Blower should operate on 1-speed.
2) Then turn fan control knob to 2-speed, and continue checking blower speed until all four speeds are checked.
3) Leave blower on 4-speed.

If NG, go to “TROUBLE DIAGNOSIS PROCEDURE FOR BLOWER MOTOR”, HA-31.
If OK, continue with the check.



WHA318

2. Check Discharge Air

NGHA0076S0202

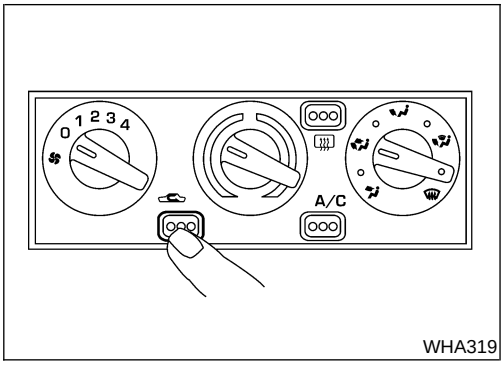
1) Turn mode control knob to each mode position.
2) Confirm that discharge air comes out according to the air distribution table at left.
   Refer to “Discharge Air Flow”, HA-19.

If NG, go to “TROUBLE DIAGNOSIS PROCEDURE FOR MODE DOOR”, HA-38.
If OK, continue with next check.

Discharge air flow

Switch mode/ indicator	Air outlet/distribution		
	Face	Foot	Defrost
	100%	—	—
	60%	40%	—
	—	80%	20%
	—	60%	40%
	—	—	100%

AHA983



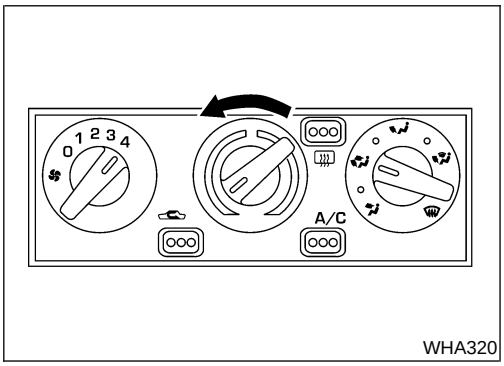
WHA319

3. Check Recirculation

NGHA0076S0203

1) Press recirculation switch.
   Recirculation indicator should light.
2) Listen for intake door position to change (you should hear blower sound change slightly).

If NG, go to "TROUBLE DIAGNOSIS PROCEDURE FOR INTAKE DOOR", HA-40.
If OK, continue with next check.



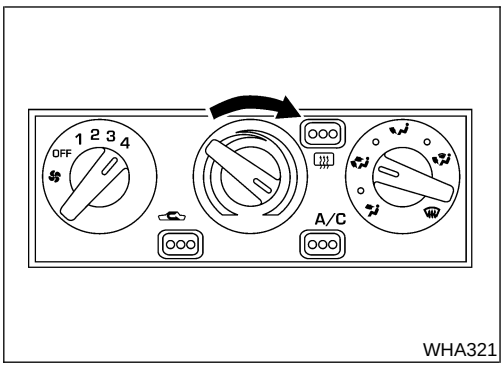
WHA320

4. Check Temperature Decrease

NGHA0076S0204

1) Turn temperature control knob to full cold.
2) Check for cold air at discharge air outlets.

If NG, go to "TROUBLE DIAGNOSIS PROCEDURE FOR INSUFFICIENT COOLING", HA-53.
If OK, continue with next check.



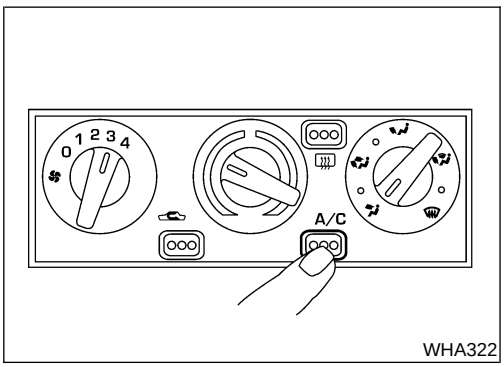
WHA321

5. Check Temperature Increase

NGHA0076S0205

1) Turn temperature control knob to full hot.
2) Check for hot air at discharge air outlets.

If NG, go to "TROUBLE DIAGNOSIS PROCEDURE FOR INSUFFICIENT HEATING", HA-61.
If OK, continue with next check.



WHA322

6. Check A/C Switch

NGHA0076S0206

1) Turn fan control knob to the desired (1 to 4 speed) position.
2) Push the A/C switch to turn ON the air conditioner.
   The indicator lamp should come on when air conditioner is ON.
3) Confirm that the compressor clutch engages (audio or visual inspection).
4) Check for cold air at the appropriate discharge air outlets.

If NG, go to "TROUBLE DIAGNOSIS PROCEDURE FOR MAGNET CLUTCH", HA-43.
If OK, continue with next check.
If all operational checks are OK (symptom cannot be duplicated), go to ***GI-23***, "Incident Simulation Tests" and perform tests as outlined to simulate driving conditions environment. If symptom appears, refer to "Symptom Table", HA-28 and perform applicable trouble diagnoses procedures.

Blower Motor

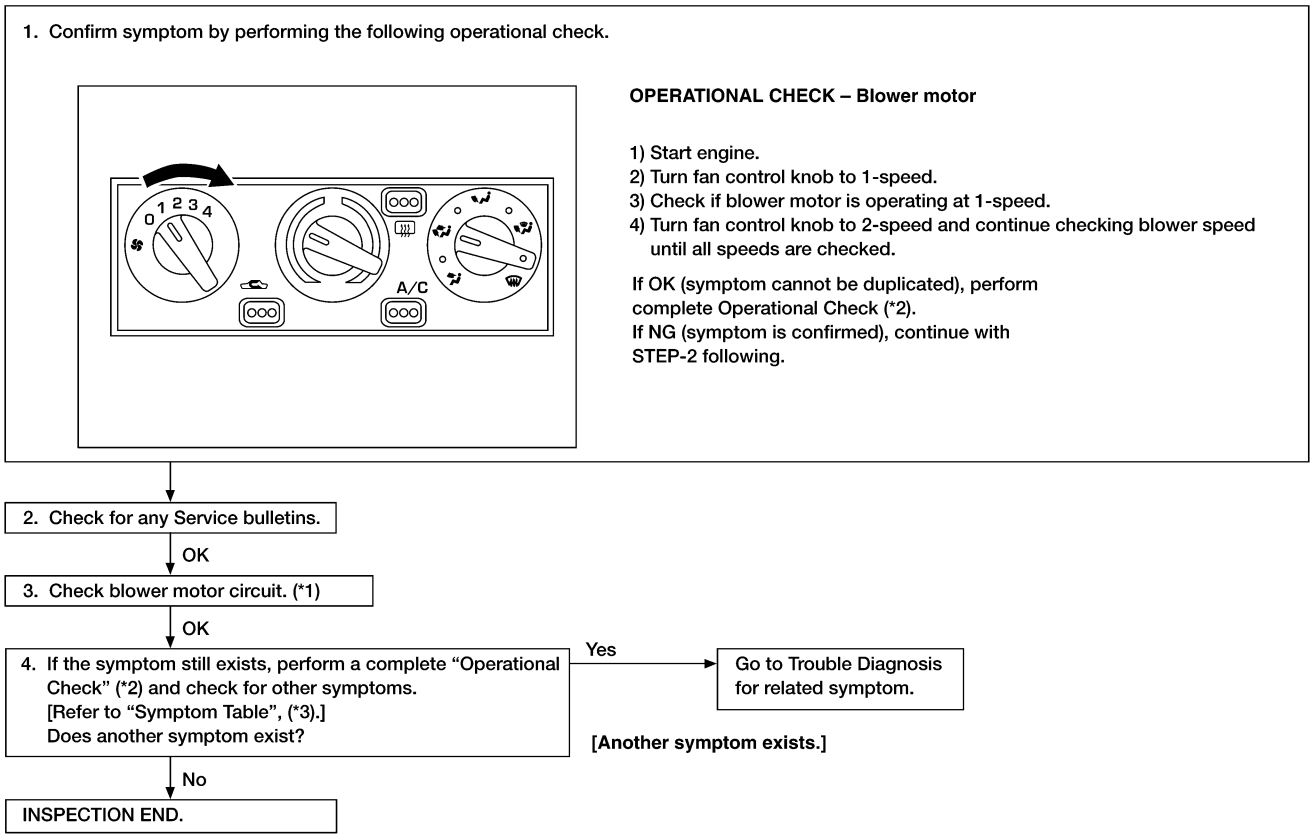
TROUBLE DIAGNOSIS PROCEDURE FOR BLOWER MOTOR

=NGHA0138

Symptom:

- **Blower motor does not rotate.**

Inspection Flow



WHA323

*1: HA-32 *2: HA-29 *3: HA-28

BLOWER MOTOR CIRCUIT

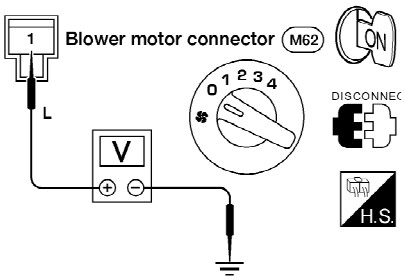
=NGHA0089

SYMPTOM:

- **Blower motor does not rotate.**

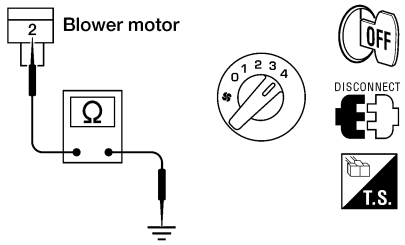
1	DIAGNOSTIC PROCEDURE	
Check if blower motor rotates properly at each fan speed.		
Does not rotate at any speed	▶	GO TO 2.
Does not rotate at 1-3 speed	▶	GO TO 6.
Does not rotate at 4 speed	▶	GO TO 7.

2	CHECK FUSES.	
Check 15A fuse [No. 19, located in the fuse block (J/B)] and 15A fuse [No. 24, located in the fuse block (J/B)]. For fuse layout, refer to ***EL-10***, "POWER SUPPLY ROUTING".		
Are fuses OK?		
YES	▶	GO TO 3.
NO	▶	GO TO 9.

3	CHECK BLOWER MOTOR POWER SUPPLY CIRCUIT	
1. Disconnect blower motor harness connector. 2. Check voltage between blower motor harness connector M62 terminal 1 and ground.		
 AHA485A		
Does battery voltage exist?		
Yes	▶	GO TO 4.
No	▶	**Check the following.** If NG, repair harness or connector. ● Harness for open between blower motor and fuse block (J/B). ● Harness connectors M27 and M62

4	CHECK BLOWER MOTOR GROUND CIRCUIT

1. Disconnect blower motor harness connector.
2. Turn fan control switch to 4-speed.
3. Check continuity between blower motor harness connector M62 terminal 2 (L) and ground.



WHA332

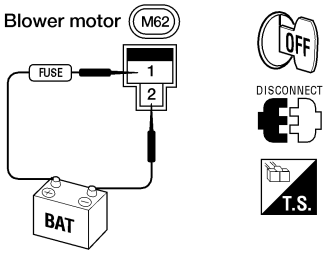
Continuity should exist.

OK or NG

OK	▶	GO TO 5.
NG	▶	**Check the following. If NG, repair harness or connector.** ● Harness for open or short between blower motor and ground. ● Harness connectors M57 and M62

5	CHECK BLOWER MOTOR

1. Disconnect blower motor harness connector.
2. Apply 12 volts to blower motor terminal 1 and ground to blower motor terminal 2.



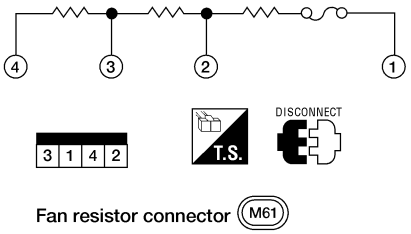
AHA455A

Does blower motor rotate?

Yes	▶	Reconnect blower motor connector and go to "TROUBLE DIAGNOSIS PROCEDURE FOR BLOWER MOTOR", HA-31.
No	▶	Replace blower motor.

6 CHECK FAN RESISTOR

1. Disconnect fan resistor harness connector M61.
2. Check resistance between fan resistor terminals.



AHA458A

Terminal No.		Resistance (Ω)
(+)	(–)	
1	2	Approx. 0.2-0.3
	3	Approx. 0.8-1.0
	4	Approx. 2.0-2.4

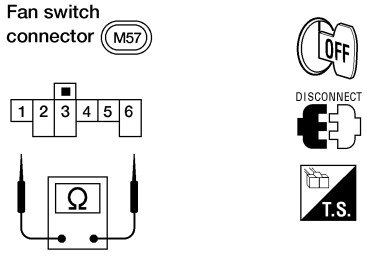
AHA459A

OK or NG

OK	▶	GO TO 7.
NG	▶	Replace fan resistor.

7	CHECK FAN SWITCH

Disconnect fan switch harness connector M57 and check continuity between terminals at each fan switch position.



AHA456A

Terminal	Position				
	OFF	1	2	3	4
1		○	○	○	○
2					○
3				○	
4			○		
5		○			
6		○	○	○	○

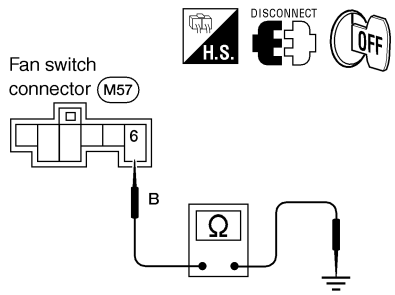
AHA457A

OK or NG

OK	▶	GO TO 8.
NG	▶	Replace fan switch.

8	CHECK FAN SWITCH GROUND

1. Disconnect fan switch harness connector M57.
2. Check continuity between fan switch harness connector terminal 6 and ground.



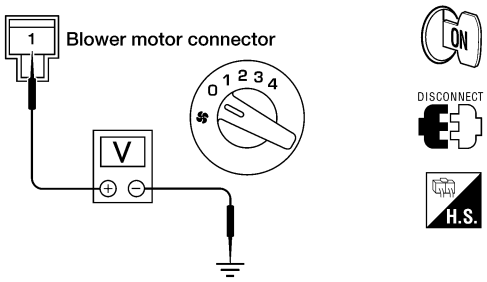
AHA078A

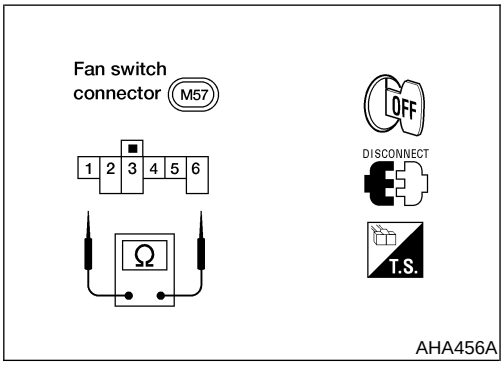
Continuity should exist.

OK or NG

OK	▶	**Check the following.** If NG, repair harness or connectors. ● Harness connectors M57, M61 and M62 ● Harness for open or short between blower motor and fan switch, fan resistor
NG	▶	Repair harness or connector.

9	REPLACE FUSE	
1. Replace fuses. 2. Activate the blower motor system. **Do the fuses blow when the front blower motor is activated?**		
Yes	▶	GO TO 10.
No	▶	**INSPECTION END**

10	CHECK BLOWER MOTOR POWER SUPPLY CIRCUIT FOR A SHORT	
1. Disconnect battery cable and blower motor harness connector M62. 2. Check continuity between front blower motor harness connector M62 terminal 1 (L) and ground.		
 **Continuity should not exist.** WHA311		
Does continuity exist?		
Yes	▶	**Check the following. If NG, repair harness or connector.** Harness connectors M27 and M62 Harness for short between blower motor and fuse block (J/B).
No	▶	Check front blower motor. Refer to "Blower Motor", HA-37. If necessary, clear intake unit. If OK, replace front blower motor.



AHA456A

Terminal	Position				
	OFF	1	2	3	4
1		○	○	○	○
2					○
3				○	
4			○		
5		○			
6		○	○	○	○

AHA457A

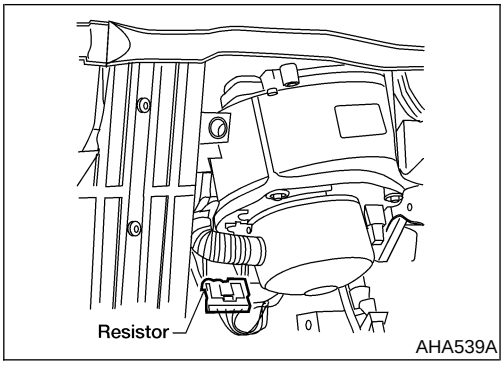
ELECTRICAL COMPONENTS INSPECTION

NGHA0246

Fan Switch

NGHA0246S01

Check continuity between terminals at each switch position.

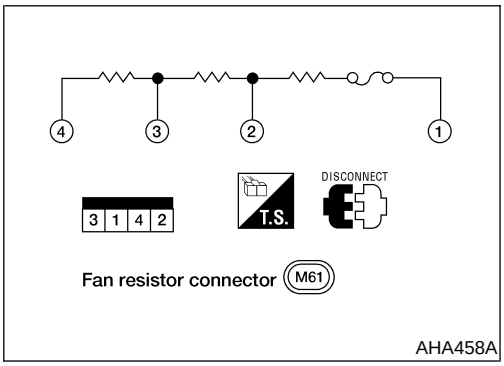


Blower Motor

NGHA0246S02

Confirm smooth rotation of the blower motor.

- Check that there are no foreign particles inside the intake unit.



Fan Resistor

NGHA0246S04

Terminal No.		Resistance (Approx.) Ω
(+)	(–)	
1	2	0.2 - 0.3
	3	0.8 - 1.0
	4	2.0 - 2.4

Check resistance between terminals.

Mode Door

TROUBLE DIAGNOSIS PROCEDURE FOR MODE DOOR

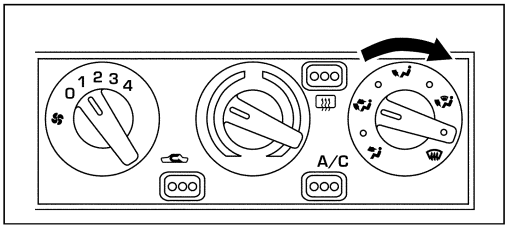
=NGHA0240

Symptom:

- **Mode door does not change.**

Inspection Flow

1. Confirm symptom by performing the following operational check.



OPERATIONAL CHECK – Discharge air.

1) Turn mode control knob.

Discharge air flow

Mode control knob	Air outlet/distribution		
	Face	Foot	Defroster
	100%	–	–
	60%	40%	–
	–	80%	20%
	–	60%	40%
	–	–	100%

2) Confirm that discharge air comes out according to the air distribution table at left.
Refer to “Discharge Air Flow” in “DESCRIPTION” (*1).

NOTE:
Confirm that the compressor clutch is engaged (visual inspection) and intake door position is at FRESH when the DEF ( ) or D/F ( ) button is pressed.
If OK (symptom cannot be duplicated), perform complete operational check (*3).
If NG (symptom is confirmed), continue with STEP-2 following.

2. Check for any service bulletins.

3. Check mode door control linkage adjustment. (*2)

OK

If the symptom still exists, perform a complete operational check (*3) and check for other symptoms.
[Refer to symptom table, (*4).]
Does another symptom exist?

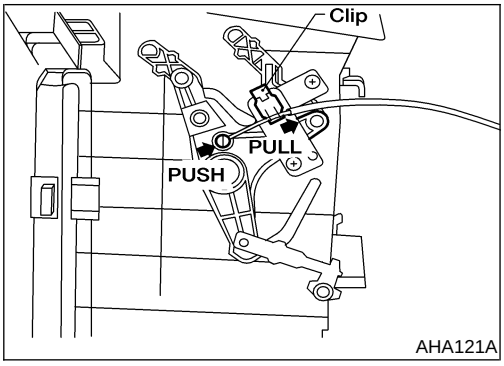
No → INSPECTION END

Yes → Go to Trouble Diagnosis for related symptom.

[Another symptom exists.]

WHA325

*1: HA-19
*2: HA-39
*3: HA-29
*4: HA-28



MODE DOOR CONTROL LINKAGE ADJUSTMENT

NGHA0242

Mode door control linkage

- Turn mode door control knob to position.
- Set side link in DEF mode.
- Pull on outer cable in direction of arrow and then clamp it.
- **After positioning mode door control cable, check that it operates properly.**

Intake Door Motor

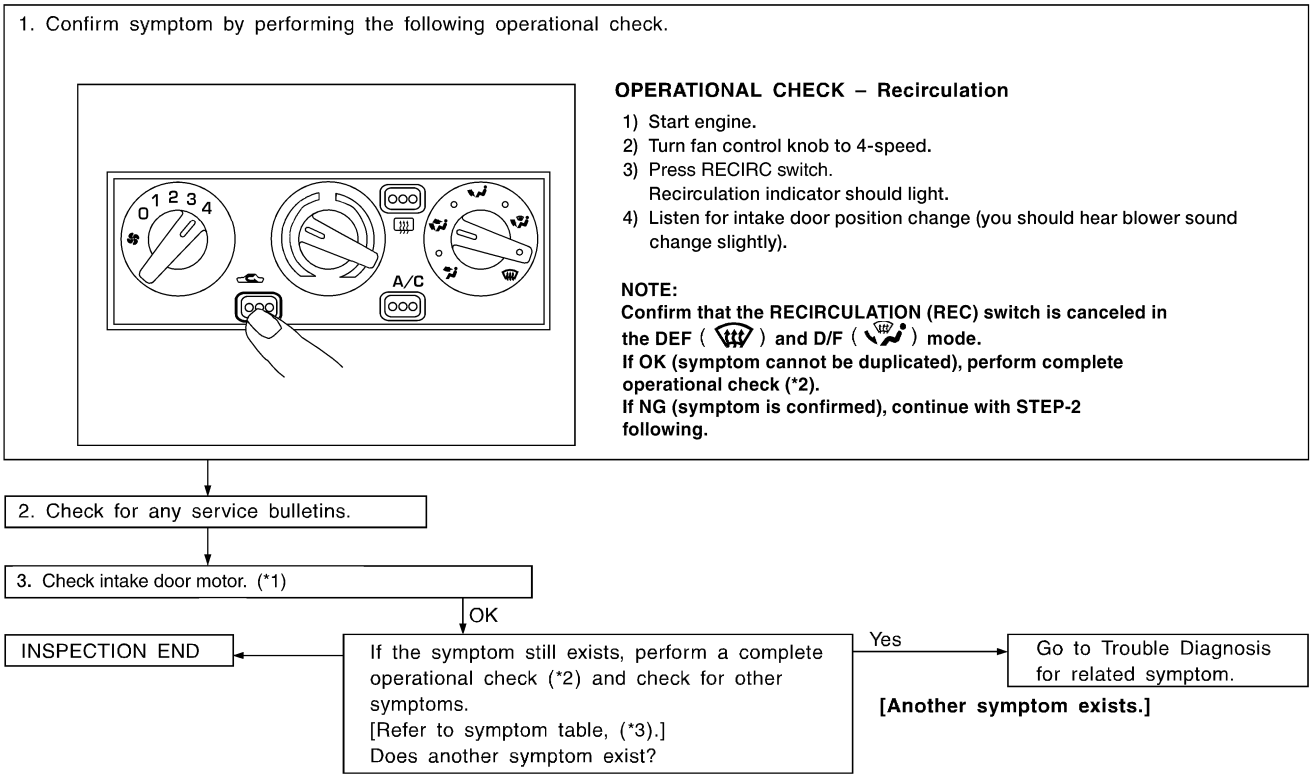
TROUBLE DIAGNOSIS PROCEDURE FOR INTAKE DOOR

=NGHA0135

Symptom:

- **Intake door position does not change in VENT, B/L or FOOT mode.**

Inspection Flow



WHA326

*1: HA-42 *2: HA-29 *3: HA-28

INTAKE DOOR CIRCUIT

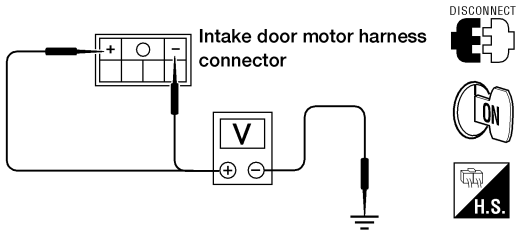
NGHA0293

SYMPTOM:

- Intake door does not operate.

1	CHECK POWER FOR INTAKE DOOR MOTOR

1. Disconnect intake door motor harness connector.
2. Turn ignition switch ON.
3. Check voltage between intake door motor harness connector M96 terminals + (Y/B), – (Y) and ground as shown.



RECIRC switch	Terminal No. (+)	Terminal No. (–)	Voltage V
OFF (FRE)	(+)	Body ground	12
	(-)		0
ON (REC)	(+)		0
	(-)		12

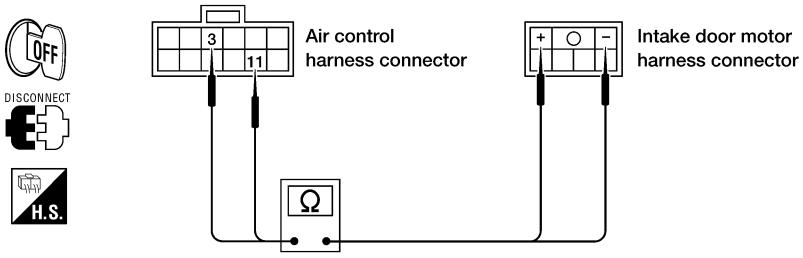
LHA268

OK or NG

OK	▶	GO TO 3.
NG	▶	GO TO 2.

2	CHECK INTAKE DOOR CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect air control harness connector.
3. Check continuity between air control harness connector M95 terminals 3 (Y/B), 11 (Y) and intake door motor harness connector M96 terminals + (Y/B), – (Y).



Continuity should exist.

WHA312

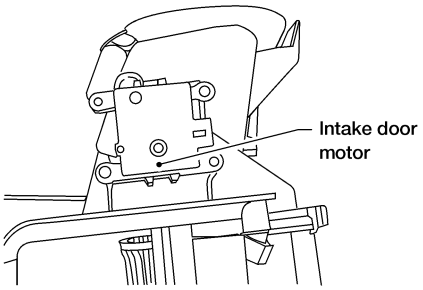
NOTE:
Mode control knob should be in position.

OK or NG

OK	▶	Check harness for short.
NG	▶	Replace air control.

3	CHECK INTAKE DOOR MOTOR

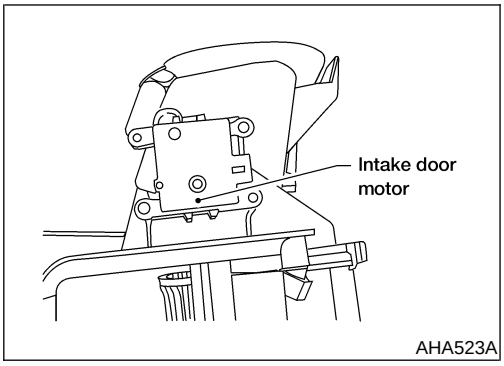
1. Reconnect intake door motor connector M96.
2. Turn ignition switch ON.
3. Observe intake door operation when the RECIRC switch is turned ON and OFF.
4. Intake door should change position.



AHA523A

OK or NG

OK	▶	Check harness and connectors for open or short.
NG	▶	Replace intake door motor.



AHA523A

CONTROL LINKAGE ADJUSTMENT

NGHA0093

Intake Door Motor

NGHA0093S05

1. Install intake door motor on intake unit.
   Ensure that the intake door motor lever is fitted into the slit portion of the intake door link.
2. Connect the intake door motor harness connector before installing the intake door motor.
3. Turn ignition switch on and press the recirculation switch.
4. Turn the mode control knob to VENT, B/L or FOOT mode.
5. Check that intake door motor operates properly when RECIRCULATION switch is turned ON and OFF.

Magnet Clutch

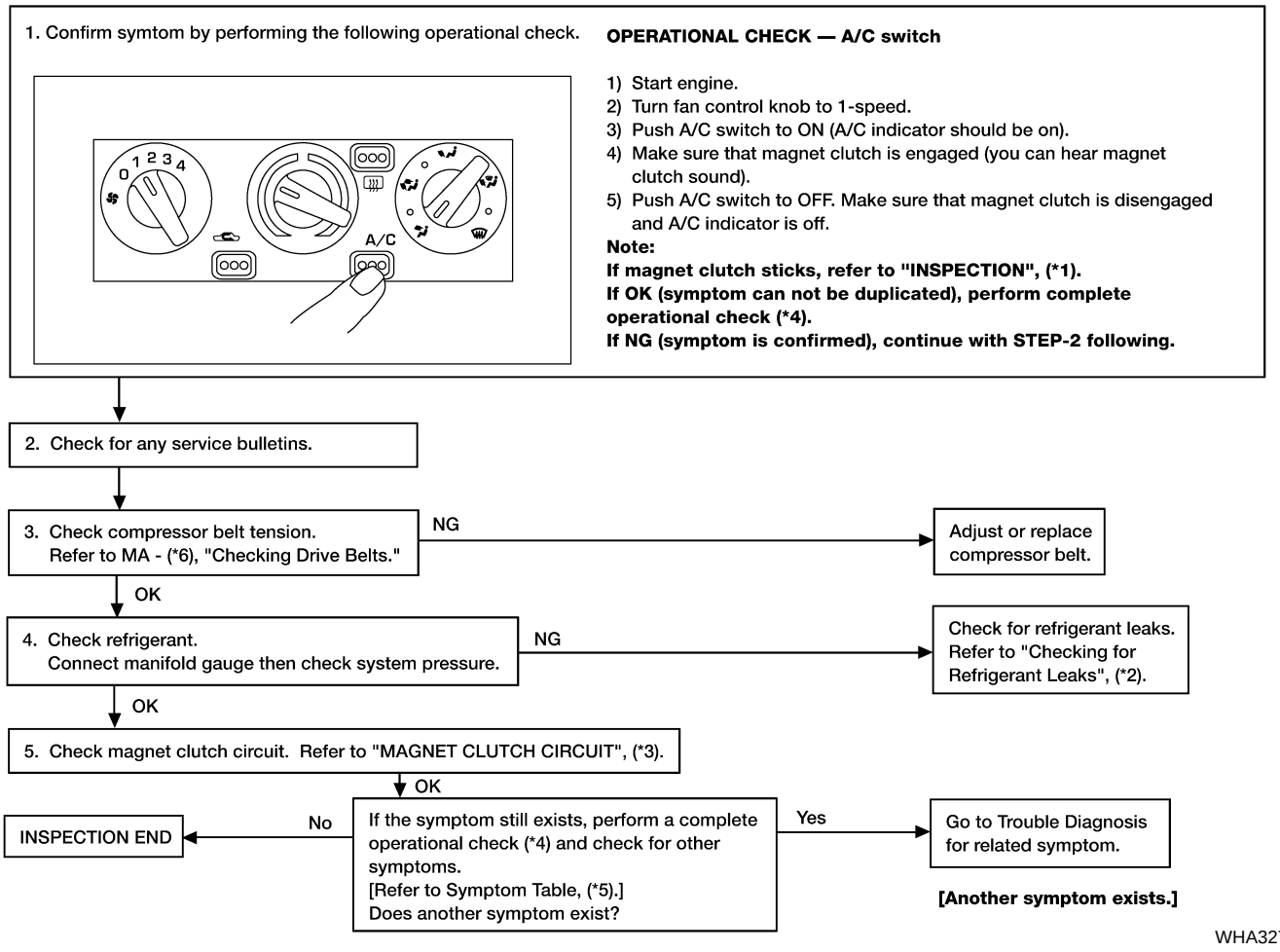
TROUBLE DIAGNOSIS PROCEDURE FOR MAGNET CLUTCH

=NGHA0119

Symptom:

- **Magnet clutch does not engage when A/C switch and fan switch are ON.**

Inspection Flow



*1: HA-74
*2: HA-79
*3: HA-44
*4: HA-29
*5: HA-28
*6: ***MA-16*** (KA24DE models) or ***MA-26*** (VG33E and VG33ER models)

MAGNET CLUTCH CIRCUIT

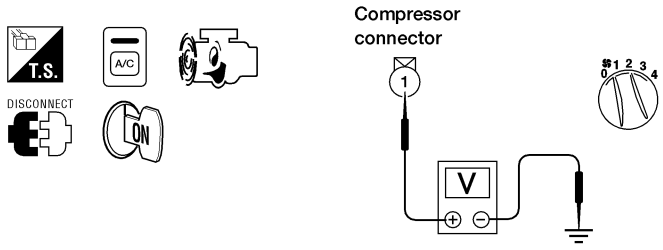
=NGHA0091

SYMPTOM:

- **Magnet clutch does not engage when A/C switch and fan switch are ON.**

1	CHECK A/C COMPRESSOR POWER SUPPLY CIRCUIT

1. Disconnect A/C compressor harness connector F15–2.
2. Press the A/C switch ON.
3. Does approx. 12 volts exist between A/C compressor connector F15–2 terminal 1 (B) and ground?



Battery voltage should exist.

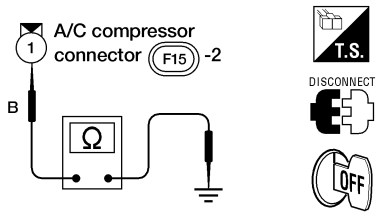
WHA232

Yes or No

Yes	▶	GO TO 2.
No	▶	GO TO 3.

2	CHECK A/C COMPRESSOR GROUND

Check continuity between A/C compressor connector F15–2 terminal 1 and ground.



AHA466A

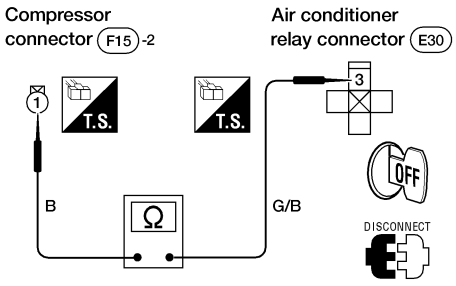
Continuity should exist.

OK or NG

OK	▶	Refer to "TROUBLE DIAGNOSIS PROCEDURE FOR MAGNET CLUTCH", HA-43.
NG	▶	• Check thermal protector. Refer to "Thermal Protector", HA-51. • Check magnet clutch coil. If NG, replace magnet clutch. Refer to "MAGNET CLUTCH MOUNTING", HA-72.

3	CHECK CIRCUIT CONTINUITY

1. Disconnect A/C relay.
2. Check circuit continuity between A/C relay connector E30 terminal 3 and A/C compressor connector F15–2 terminal 1.



AHA084A

Continuity should exist.

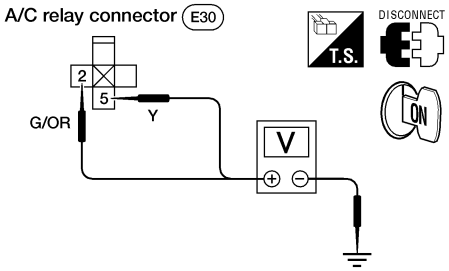
3. Also, check harness for short.

OK or NG

OK	▶	GO TO 4.
NG	▶	Repair harness or connector.

4	CHECK A/C RELAY POWER SUPPLY CIRCUIT

1. Disconnect A/C relay.
2. Does approx. 12 volts exist between A/C relay connector E30 terminals 2, 5 and ground?



AHA467A

Yes or No

Yes	▶	GO TO 5.
No	▶	GO TO 11.

5	CHECK A/C RELAY

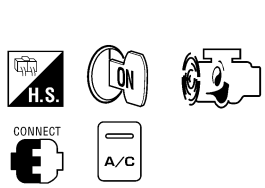
Refer to "A/C Relay", HA-51.

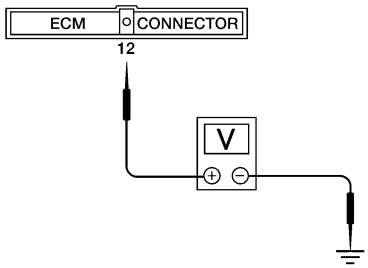
OK or NG

OK	▶	GO TO 6.
NG	▶	Replace A/C relay.

6	CHECK A/C RELAY GROUND CONTROL CIRCUIT

1. Reconnect A/C relay.
2. Engine running and A/C OFF.
3. Does approx. 12 volts exist between ECM harness connector F29 terminal 12 (P) and ground?





Battery voltage should exist.

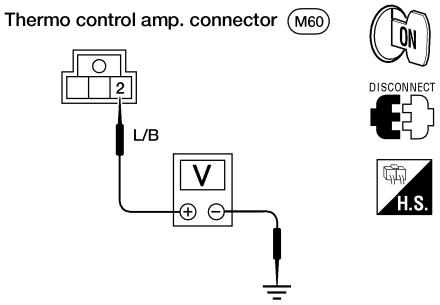
WHA307

Yes or No

Yes	▶	GO TO 7.
No	▶	**Check the following. If NG, repair harness or connectors.** Harness for open or short between A/C relay and ECM

7	CHECK ECM OUTPUT VOLTAGE

Does approx. 5 volts exist between thermo control amp. harness connector M60 terminal 2 and ground?



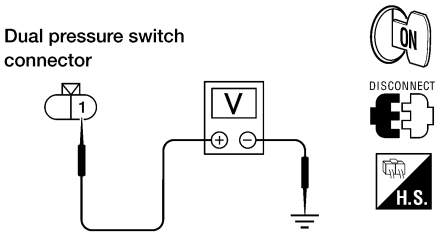
AHA089A

Yes or No

Yes	▶	GO TO 14.
No	▶	GO TO 8.

8	CHECK CIRCUIT CONTINUITY

1. Disconnect dual pressure switch harness connector E3.
2. Check voltage from terminal 1 to ground.



WHA308

Do approx. 5 volts exist?

3. Also, check harness for short.

Yes or No

Yes	▶	GO TO 9.
No	▶	Repair harness or connector.

9	CHECK DUAL PRESSURE SWITCH

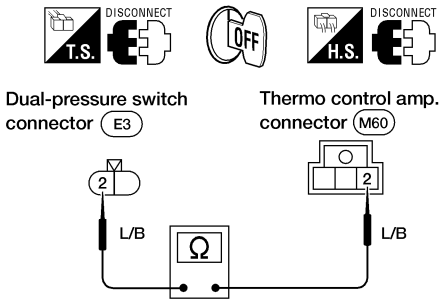
Refer to "Dual Pressure Switch, HA-51.

OK or NG

OK	▶	GO TO 10.
NG	▶	Replace dual pressure switch.

10	CHECK CIRCUIT CONTINUITY

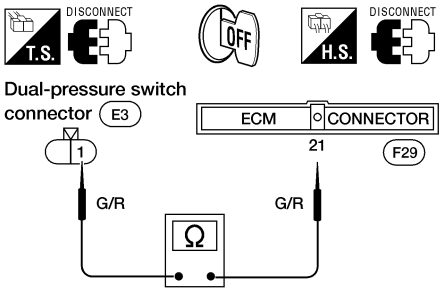
1. Disconnect dual pressure switch harness connector E3.
2. Check circuit continuity between thermo control amp. harness connector M60 terminal 2 and dual pressure switch connector E3 terminal 2.



AHA267A

Continuity should exist.

3. Also check circuit continuity between dual pressure switch connector E3 terminal 1 and ECM connector F29 terminal 21.



AHA268A

Continuity should exist.

OK or NG

OK	▶	Check ECM. Refer to ***EC-39***, "Air Conditioning Cut Control".
NG	▶	Repair harness or connector.

11	CHECK FUSES

Check 7.5A fuse (No. 29, located in the fuse and fusible link box) and 7.5A fuse (No. 35, located in the fuse and fusible link box). For fuse layout, refer to ***EL-10***, "POWER SUPPLY ROUTING".

Are fuses OK?

YES	▶	**Check the following. If NG, repair harness or connectors.** ● Harness for open between fuse and fusible link box and A/C relay ● Harness for open between fuse and fusible link box and thermo control amplifier
NO	▶	GO TO 12.

12	REPLACE FUSE

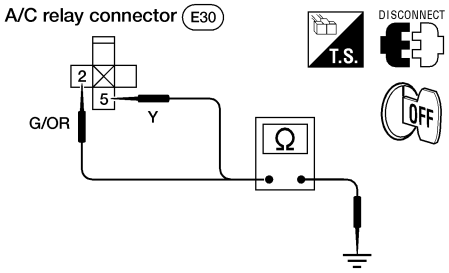
Replace fuse.

Does fuse blow when A/C is activated?

Yes	▶	GO TO 13.
No	▶	**INSPECTION END**

13	CHECK A/C RELAY POWER SUPPLY CIRCUITS FOR SHORT

1. Disconnect battery cable and A/C relay.
2. Check for continuity on A/C relay connector E30 terminals 2, 5 to ground.



AHA470A

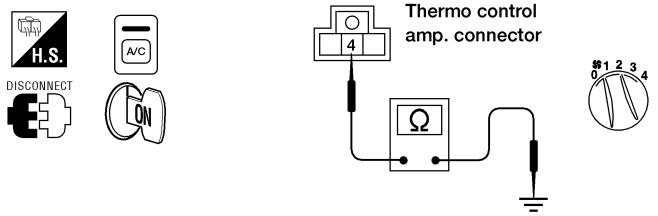
Continuity should not exist.

OK or NG

OK	▶	**Check the following.** If NG, repair harness or connectors. ● Harness connectors M95, M60 and E30. ● Harness for open or short between fuse and fusible link box and A/C relay, A/C switch, or thermo control amplifier.
NG	▶	Repair harness or connector.

14	THERMO CONTROL AMP. GROUND CIRCUIT

1. Turn ignition switch OFF, A/C switch ON and fan switch ON.
2. Disconnect thermo control amp. connector M60.
3. Check continuity between thermo control amp. connector M60 terminal 4 (L) and ground.



Continuity should exist.

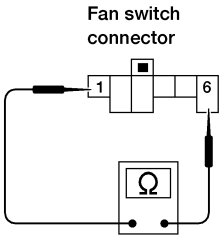
LHA233

OK or NG

OK	▶	GO TO 11.
NG	▶	GO TO 15.

15	CHECK FAN SWITCH

1. Disconnect fan switch connector M57.
2. Turn fan control knob to ON (any speed position except off).
3. Check continuity between fan switch terminals 1 and 6.

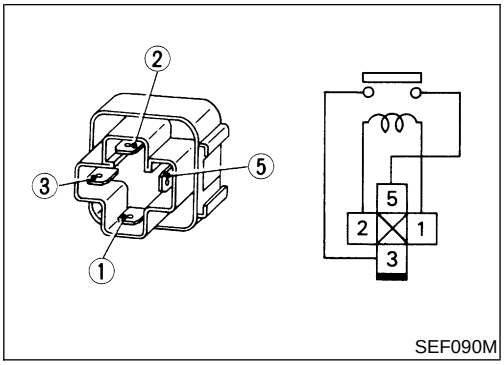


Continuity should exist.

LHA235

OK or NG

OK	▶	**Check the following. If NG, repair harness or connectors.** ● Harness connectors M57 and M95. ● Harness for open or short between fan switch and A/C switch. If OK, replace air control.
NG	▶	Replace fan switch.



SEF090M

ELECTRICAL COMPONENTS INSPECTION

=NGHA0092

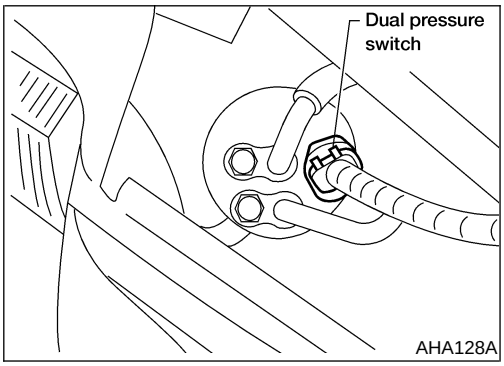
A/C Relay

NGHA0092S07

Check continuity between terminals 3 and 5.

Conditions	Continuity
12V direct current supply between terminals 1 and 2	Yes
No current supply	No

If NG, replace relay.



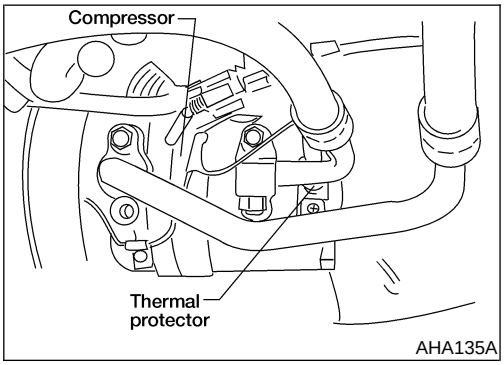
AHA128A

Dual Pressure Switch

NGHA0092S09

Check continuity between terminals.

	Terminals	High-pressure side line pressure kPa (kg/cm^2, psi)	Operation	Continuity
Low-pressure side	1 - 2	Increasing to 157 - 216 (1.6 - 2.2, 23 - 31)	ON	Yes
		Decreasing to 157 - 196 (1.6 - 2.0, 23 - 28)	OFF	No
High-pressure side		Increasing to 2,648 - 2,844 (27 - 29, 384 - 412)	OFF	No
		Decreasing to 1,373 - 1,765 (14 - 18, 199 - 256)	ON	Yes



AHA135A

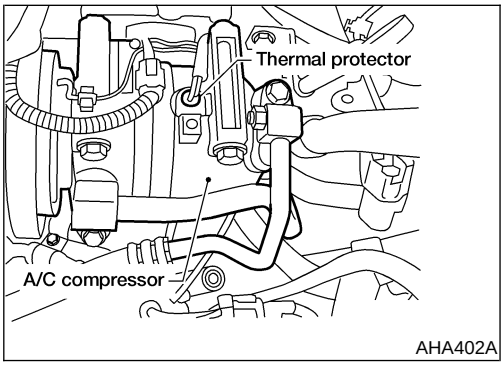
Thermal Protector

NGHA0092S11

KA24DE Models

NGHA0092S1101

Temperature of compressor °C (°F)	Operation
Increasing to approx. 145 - 155 (293 - 311)	Turn OFF
Decreasing to approx. 130 - 140 (266 - 284)	Turn ON

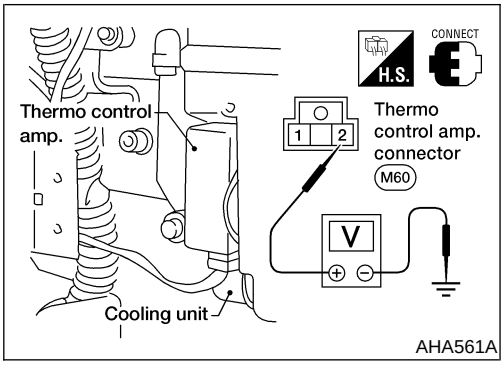


AHA402A

VG33E and VG33ER Models

NGHA0092S1102

Temperature of compressor °C (°F)	Operation
Increasing to approx. 145 - 155 (293 - 311)	Turn OFF
Decreasing to approx. 130 - 140 (266 - 284)	Turn ON



Thermo Control Amp.

NGHA0092S12

1) Run engine and operate A/C system.
2) Connect the voltmeter from harness side.
3) Check the thermo control amp. operation as shown in the table.

Evaporator outlet air temperature °C (°F)	Thermo amp. operation	Tester (Approx.)
Decreasing to 2.5 - 3.5 (37 - 38)	Turn OFF	12V
Increasing to 4.0 - 5.0 (39 - 41)	Turn ON	0V

Insufficient Cooling

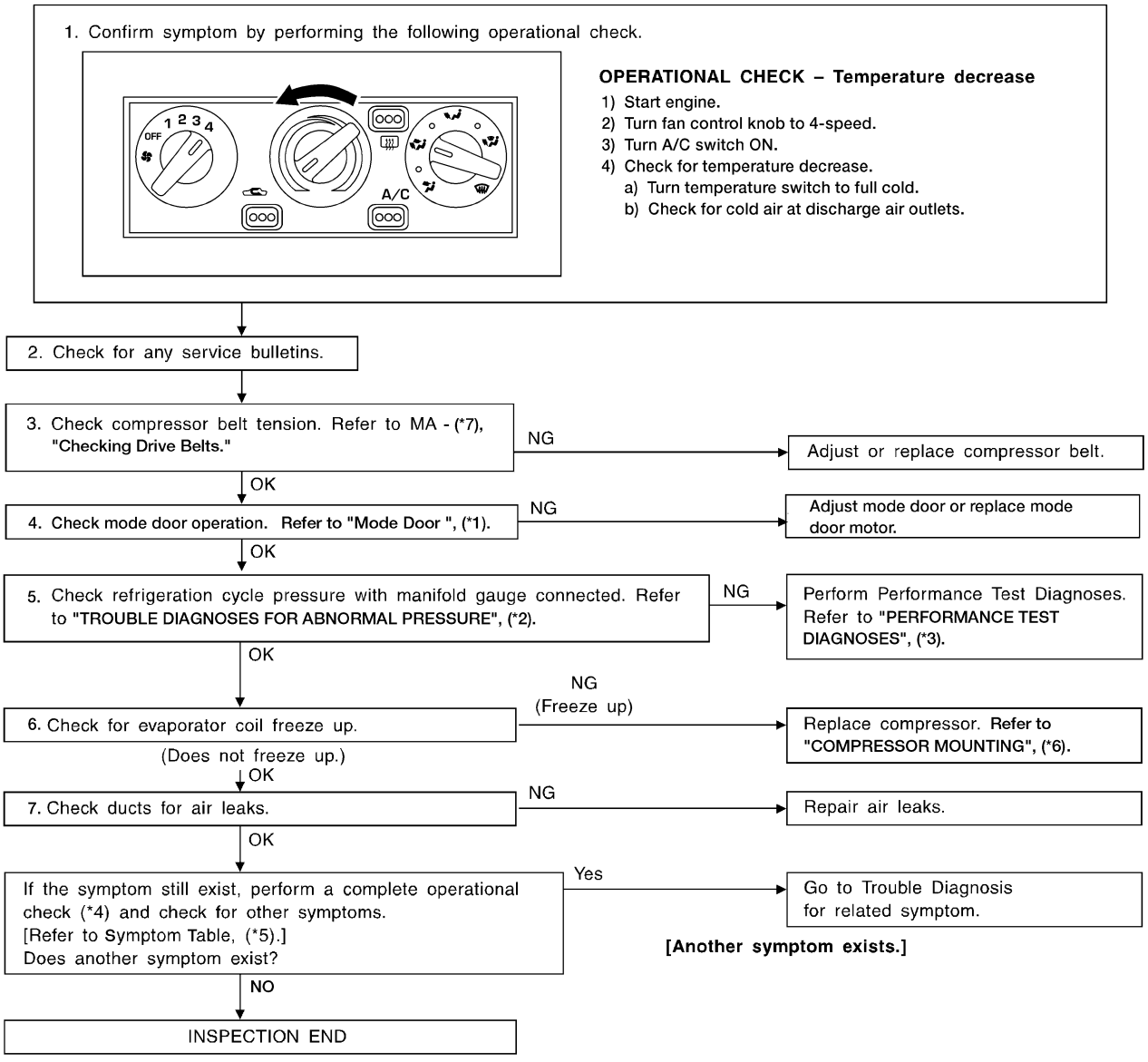
TROUBLE DIAGNOSIS PROCEDURE FOR INSUFFICIENT COOLING

=NGHA0150

Symptom:

- **Insufficient cooling**

Inspection Flow

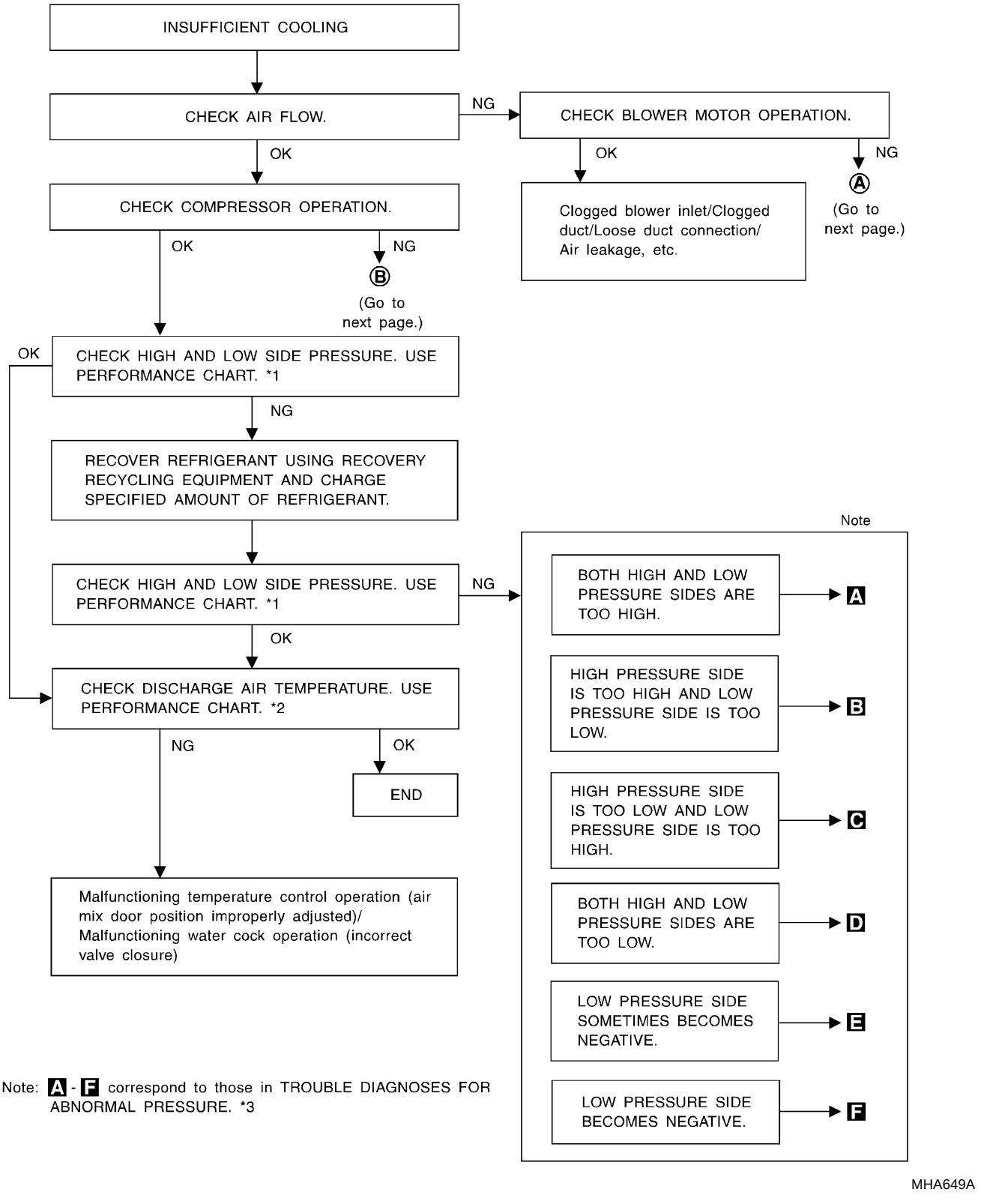


WHA328

*1: HA-38
*2: HA-57
*3: HA-54
*4: HA-29
*5: HA-28
*6: HA-70
*7: ***MA-16*** (KA24DE models) or ***MA-26*** (VG33E and VG33ER models)

PERFORMANCE TEST DIAGNOSES

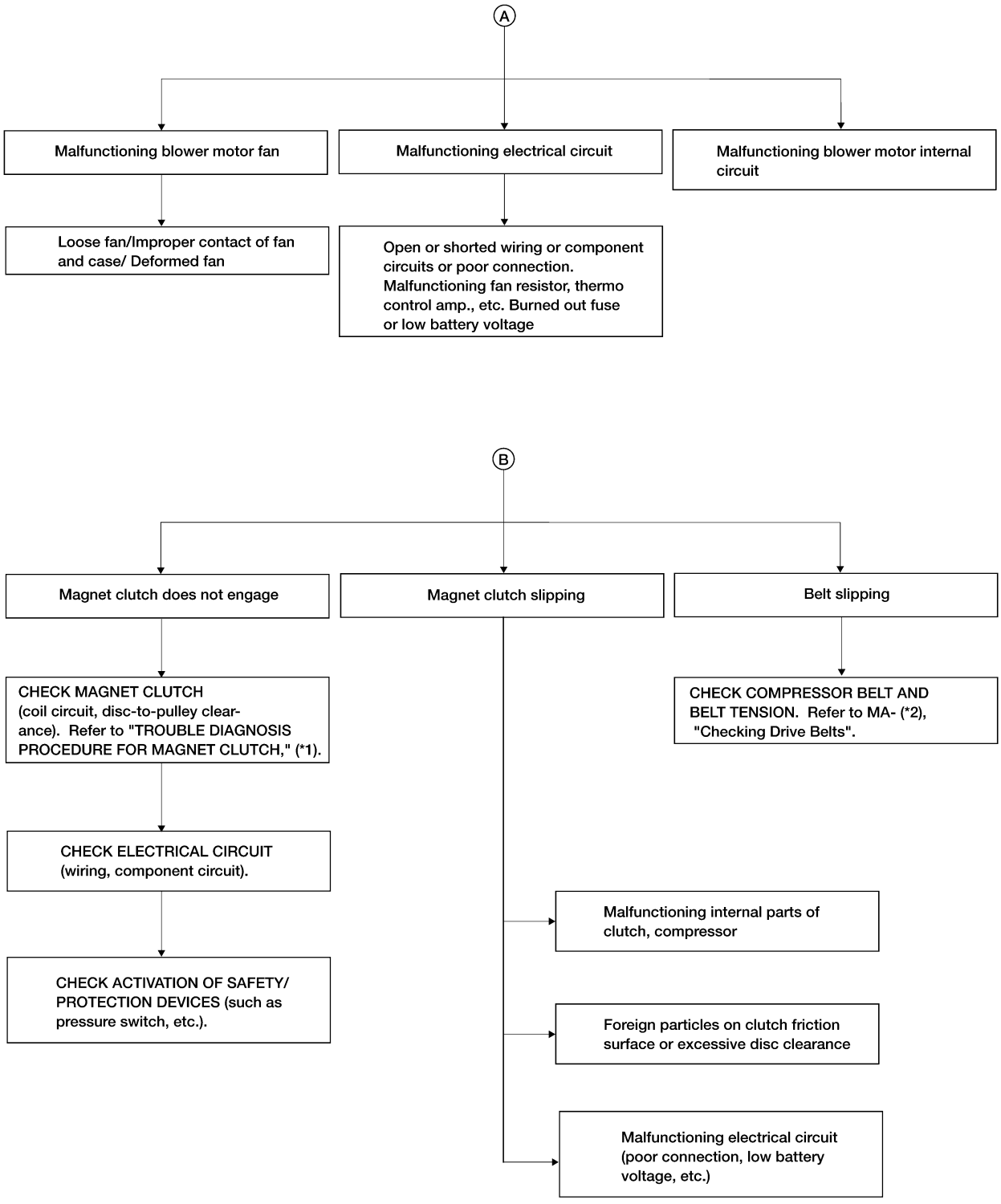
=NGHA0082



Note: A - F correspond to those in TROUBLE DIAGNOSES FOR ABNORMAL PRESSURE. *3

MHA649A

*1: HA-56 *2: HA-56 *3: HA-57



LHA260

*1: HA-43

*2: ***MA-16*** (KA24DE models) or ***MA-26*** (VG33E and VG33ER models)

PERFORMANCE CHART

=NGHA0289

Test Condition

NGHA0289S01

Testing must be performed as follows:

Vehicle location	Indoors or in the shade (in a well-ventilated place)
Doors	Closed
Door windows	Open
Hood	Open
TEMP. switch	Max. COLD
Mode switch	(Ventilation) set
REC switch	(Recirculation) set
(blower) speed	4-speed
Engine speed	1,500 rpm
Operate the air conditioning system for 10 minutes before taking measurements.	

Test Reading

NGHA0289S02

Recirculating-to-discharge Air Temperature Table

NGHA0289S0201

Inside air (Recirculating air) at blower assembly inlet		Discharge air temperature at center ventilator °C (°F)
Relative humidity %	Air temperature °C (°F)	
50 - 60	20 (68)	6.6 - 8.3 (44 - 47)
	25 (77)	10.4 - 12.4 (51 - 54)
	30 (86)	14.2 - 16.7 (58 - 62)
	35 (95)	18.2 - 21 (65 - 70)
	40 (104)	22.0 - 25.2 (72 - 77)
60 - 70	20 (68)	8.3 - 9.8 (47 - 50)
	25 (77)	12.4 - 14.4 (54 - 58)
	30 (86)	16.7 - 18.9 (62 - 66)
	35 (95)	21.0 - 23.6 (70 - 74)
	40 (104)	25.2 - 28.1 (77 - 83)

Ambient Air Temperature-to-operating Pressure Table

NGHA0289S0202

Ambient air		High-pressure (Discharge side) kPa (kg/cm^2, psi)	Low-pressure (Suction side) kPa (kg/cm^2, psi)
Relative humidity %	Air temperature °C (°F)		
50 - 70	20 (68)	961 - 1,187 (9.8 - 12.1, 139 - 172)	108 - 157 (1.1 - 1.6, 16 - 23)
	25 (77)	1,295 - 1,599 (13.2 - 16.3, 186 - 228)	161.8 - 215.8 (1.65 - 2.2, 23.5 - 31.3)
	30 (86)	1,285 - 1,599 (13.1 - 16.0, 186 - 228)	167 - 216 (1.7 - 2.2, 24 - 31)
	35 (95)	1,520 - 1,863 (15.5 - 19.0, 220 - 279)	235 - 284 (2.4 - 2.9, 34 - 41)
	40 (104)	1,765 - 2,158 (18 - 22, 256 - 313)	289.3 - 353.1 (2.95 - 3.6, 41.9 - 51.2)

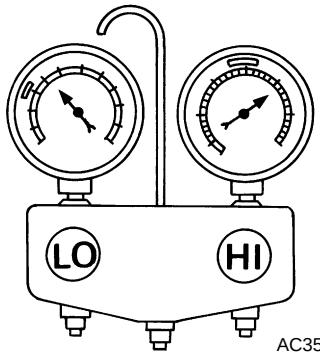
TROUBLE DIAGNOSES FOR ABNORMAL PRESSURE

NGHA0278

Whenever system's high and/or low side pressure is abnormal, diagnose using a manifold gauge. The marker above the gauge scale in the following tables indicates the standard (normal) pressure range. Since the standard (normal) pressure, however, differs from vehicle to vehicle, refer to "Ambient Air Temperature-to-Operating Pressure Table", HA-56.

Both High and Low-pressure Sides are Too High.

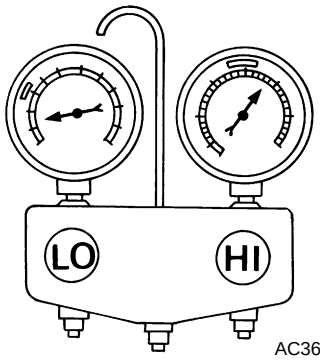
NGHA0278S01

Gauge indication	Refrigerant cycle	Probable cause	Corrective action
Both high and low-pressure sides are too high. A  AC359A	• Pressure is reduced soon after water is splashed on condenser.	Excessive refrigerant charge in refrigeration cycle	Reduce refrigerant until specified pressure is obtained.
	Air suction by cooling fan is insufficient.	Insufficient condenser cooling performance ↓ 1. Condenser fins are clogged. 2. Improper fan rotation of cooling fan	• Clean condenser. • Check and repair cooling fan as necessary.
	• Low-pressure pipe is not cold. • When compressor is stopped high-pressure value quickly drops by approximately 196 kPa (2 kg/cm^2, 28 psi). It then decreases gradually thereafter.	Poor heat exchange in condenser (After compressor operation stops, high pressure decreases too slowly.) ↓ Air in refrigeration cycle	Evacuate repeatedly and recharge system.
	Engine tends to overheat.	Engine cooling systems malfunction.	Check and repair each engine cooling system.
	• An area of the low-pressure pipe is colder than areas near the evaporator outlet. • Plates are sometimes covered with frost.	• Excessive liquid refrigerant on low-pressure side • Excessive refrigerant discharge flow • Expansion valve is open a little compared with the specification. ↓ 1. Improper thermal valve installation 2. Improper expansion valve adjustment	Replace expansion valve.

Insufficient Cooling (Cont'd)

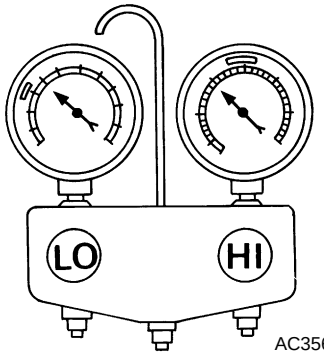
High-pressure Side is Too High and Low-pressure Side is Too Low.

NGHA0278S02

Gauge indication	Refrigerant cycle	Probable cause	Corrective action
High-pressure side is too high and low-pressure side is too low. B  AC360A	Upper side of condenser and high-pressure side are hot, however, liquid tank is not so hot.	High-pressure tube or parts located between compressor and condenser are clogged or crushed.	● Check and repair or replace malfunctioning parts. ● Check lubricant for contamination.

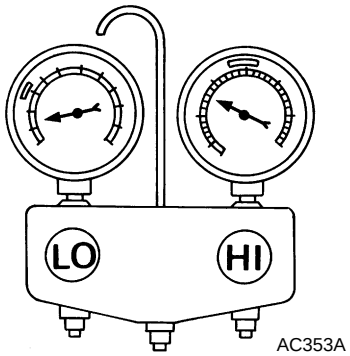
High-pressure Side is Too Low and Low-pressure Side is Too High.

NGHA0278S03

Gauge indication	Refrigerant cycle	Probable cause	Corrective action
High-pressure side is too low and low-pressure side is too high. C  AC356A	High and low-pressure sides become equal soon after compressor operation stops.	Compressor pressure operation is improper. ↓ Damaged inside compressor packings	Replace compressor.
	No temperature difference between high and low-pressure sides	Compressor pressure operation is improper. ↓ Damaged inside compressor packings.	Replace compressor.

Both High- and Low-pressure Sides are Too Low.

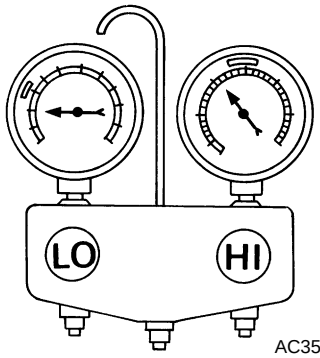
NGHA0278S04

Gauge indication	Refrigerant cycle	Probable cause	Corrective action
Both high- and low-pressure sides are too low. D  AC353A	• There is a big temperature difference between receiver drier outlet and inlet. Outlet temperature is extremely low. • Liquid tank inlet and expansion valve are frosted.	Compressor discharge capacity does not change. (Compressor stroke is set at maximum.)	• Replace liquid tank. • Check lubricant for contamination.
	• Temperature of expansion valve inlet is extremely low as compared with areas near liquid tank. • Expansion valve inlet may be frosted. • Temperature difference occurs somewhere in high-pressure side	High-pressure pipe located between receiver drier and expansion valve is clogged.	• Check and repair malfunctioning parts. • Check lubricant for contamination.
	• Expansion valve and liquid tank are warm or only cool when touched.	Low refrigerant charge ↓ Leaking fittings or components	Check refrigerant for leaks. Refer to "Checking for Refrigerant Leaks", HA-79.
	There is a big temperature difference between expansion valve inlet and outlet while the valve itself is frosted.	Expansion valve closes a little compared with the specification. ↓ 1. Improper expansion valve adjustment 2. Malfunctioning thermal valve 3. Outlet and inlet may be clogged.	• Remove foreign particles by using compressed air. • Check lubricant for contamination.
	An area of the low-pressure pipe is colder than areas near the evaporator outlet.	Low-pressure pipe is clogged or crushed.	• Check and repair malfunctioning parts. • Check lubricant for contamination.
	Air flow volume is not enough or is too low.	Evaporator is frozen. Compressor discharge capacity does not change. (Compressor stroke is set at maximum length.)	• Check thermo control amp. operation. • Replace compressor

Insufficient Cooling (Cont'd)

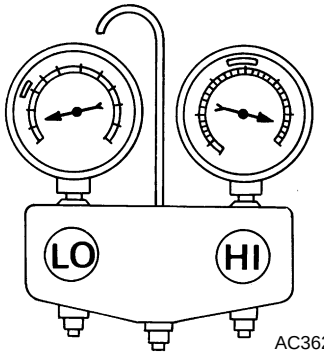
Low-pressure Side Sometimes Becomes Negative.

NGHA0278S05

Gauge indication	Refrigerant cycle	Probable cause	Corrective action
Low-pressure side sometimes becomes negative. E  AC354A	• Air conditioning system does not function and does not cyclically cool the compartment air. • The system constantly functions for a certain period of time after compressor is stopped and restarted.	Refrigerant does not discharge cyclically. ↓ Moisture is frozen at expansion valve outlet and inlet. ↓ Water is mixed with refrigerant.	• Drain water from refrigerant or replace refrigerant. • Replace liquid tank.

Low-pressure Side Becomes Negative.

NGHA0278S06

Gauge indication	Refrigerant cycle	Probable cause	Corrective action
Low-pressure side becomes negative. F  AC362A	Liquid tank or front/rear side of expansion valve's pipe is frosted or dewed.	High-pressure side is closed and refrigerant does not flow. ↓ Expansion valve or liquid tank is frosted.	Leave the system at rest until no frost is present. Start it again to check whether or not the problem is caused by water or foreign particles. • If water is the cause, initially cooling is okay. Then the water freezes causing a blockage. Drain water from refrigerant or replace refrigerant. • If due to foreign particles, remove expansion valve and remove particles with dry and compressed air (not shop air). • If either of the above methods cannot correct the problem, replace expansion valve. • Replace liquid tank. • Check lubricant for contamination.

Insufficient Heating

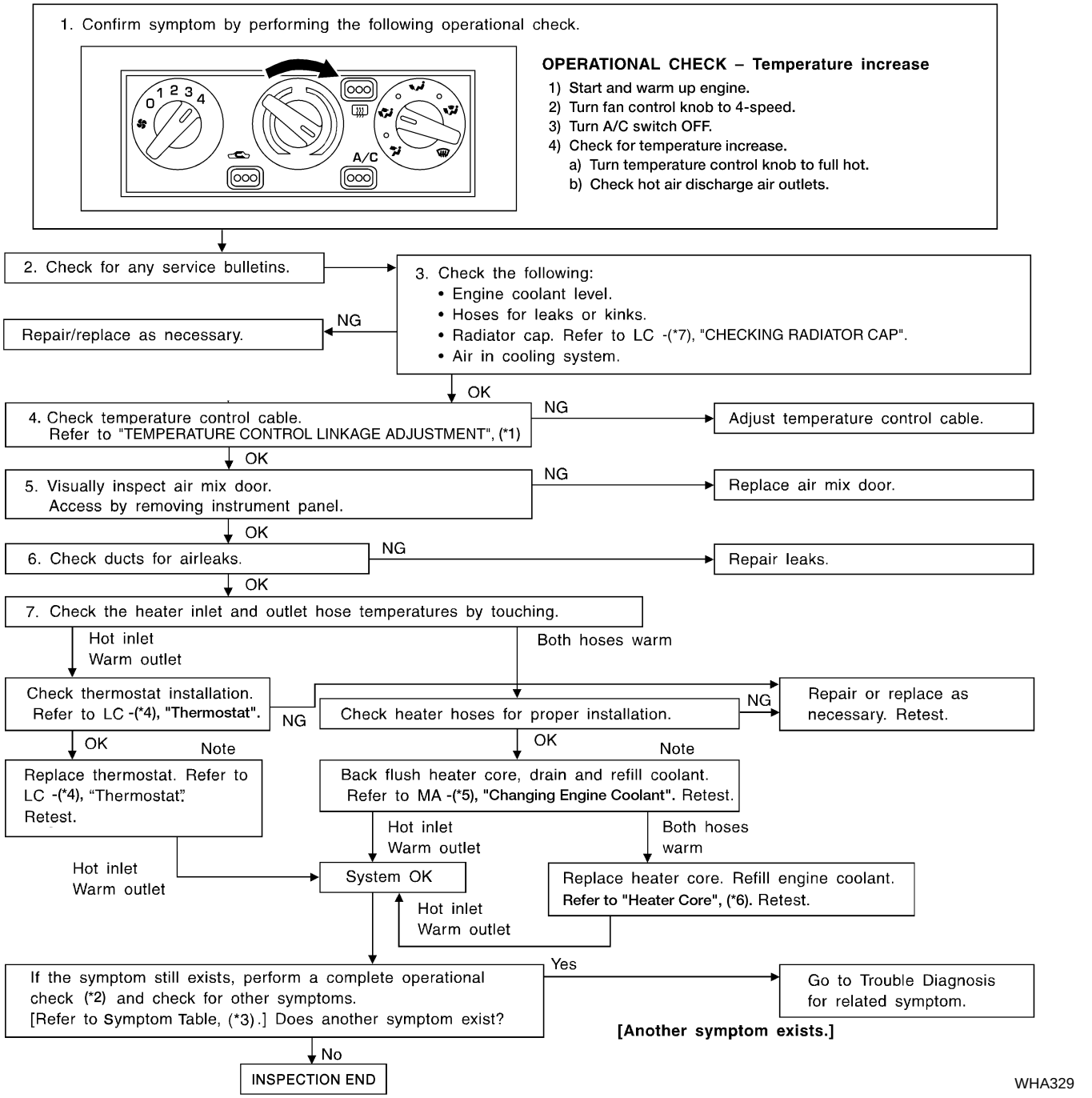
TROUBLE DIAGNOSIS PROCEDURE FOR INSUFFICIENT HEATING

=NGHA0140

Symptom:

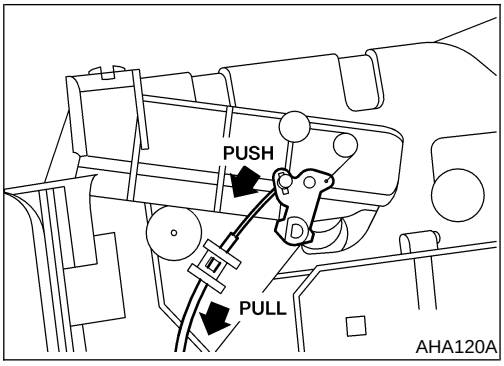
- **Insufficient heating**

Inspection Flow



WHA329

*1: HA-62
*2: HA-29
*3: HA-28
*4: ***LC-13*** (KA24DE models) or ***LC-31*** (VG33E and VG33ER models)
*5: ***MA-17*** (KA24DE models) or ***MA-28*** (VG33E and VG33ER models)
*6: HA-84
*7: ***LC-12*** (KA24DE models) or ***LC-28*** (VG33E and VG33ER models)



TEMPERATURE CONTROL LINKAGE ADJUSTMENT

NGHA0279

Temperature Control Cable

NGHA0279S01

- **When adjusting ventilator door rod and defrost door rod, first disconnect mode control cable from side link. Reconnect and readjust mode control cable.**
- Turn temperature control switch to max. COLD position. Set air mix door lever in full hot mode. Pull on outer cable in direction of arrow and then clamp it.
- **After positioning temperature control cable, check that it operates properly.**

Noise

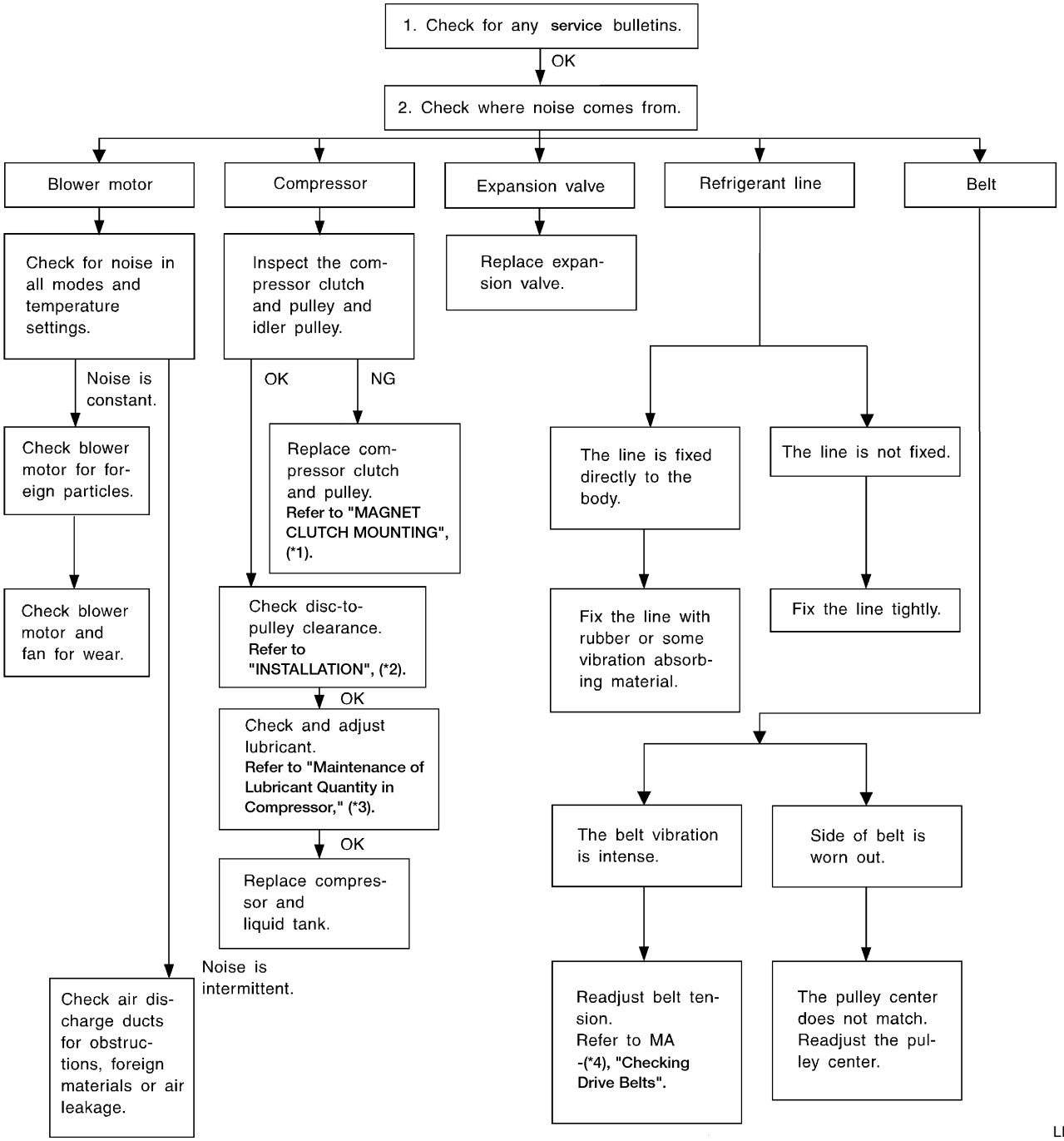
TROUBLE DIAGNOSIS PROCEDURE FOR NOISE

=NGHA0080

Symptom:

- **Noise**

Inspection Flow



LHA262

*1: HA-72
*2: HA-75
*3: HA-66
*4: ***MA-16*** (KA24DE models) or ***MA-26*** (VG33E and VG33ER models)

HFC-134a (R-134a) Service Procedure

NGHA0094

SETTING OF SERVICE TOOLS AND EQUIPMENT

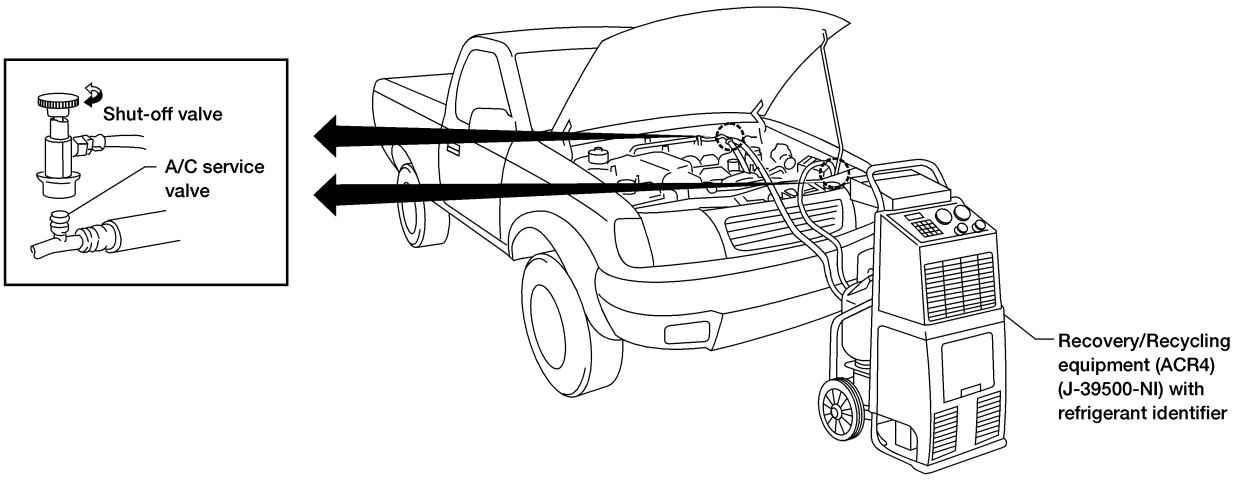
NGHA0094S01

WARNING:

Avoid breathing A/C refrigerant and lubricant vapor or mist. Exposure may irritate eyes, nose and throat. Remove R-134a form the A/C system using certified service equipment meeting requirements of SAE J2210 (R-134a recycling equipment) or J2209 (R-134a recovery equipment). If accidental system discharge occurs, ventilate work area before resuming service. Additional health and safety information may be obtained from refrigerant and lubricant manufacturers.

Discharging Refrigerant

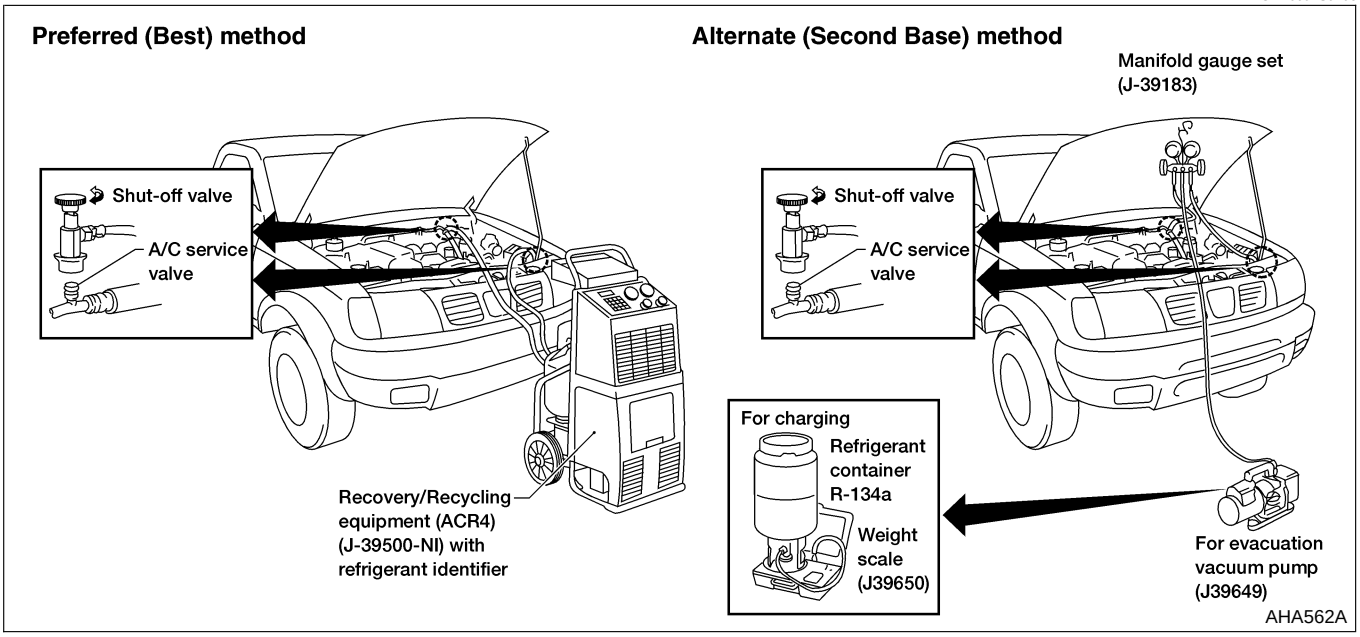
NGHA0094S0101



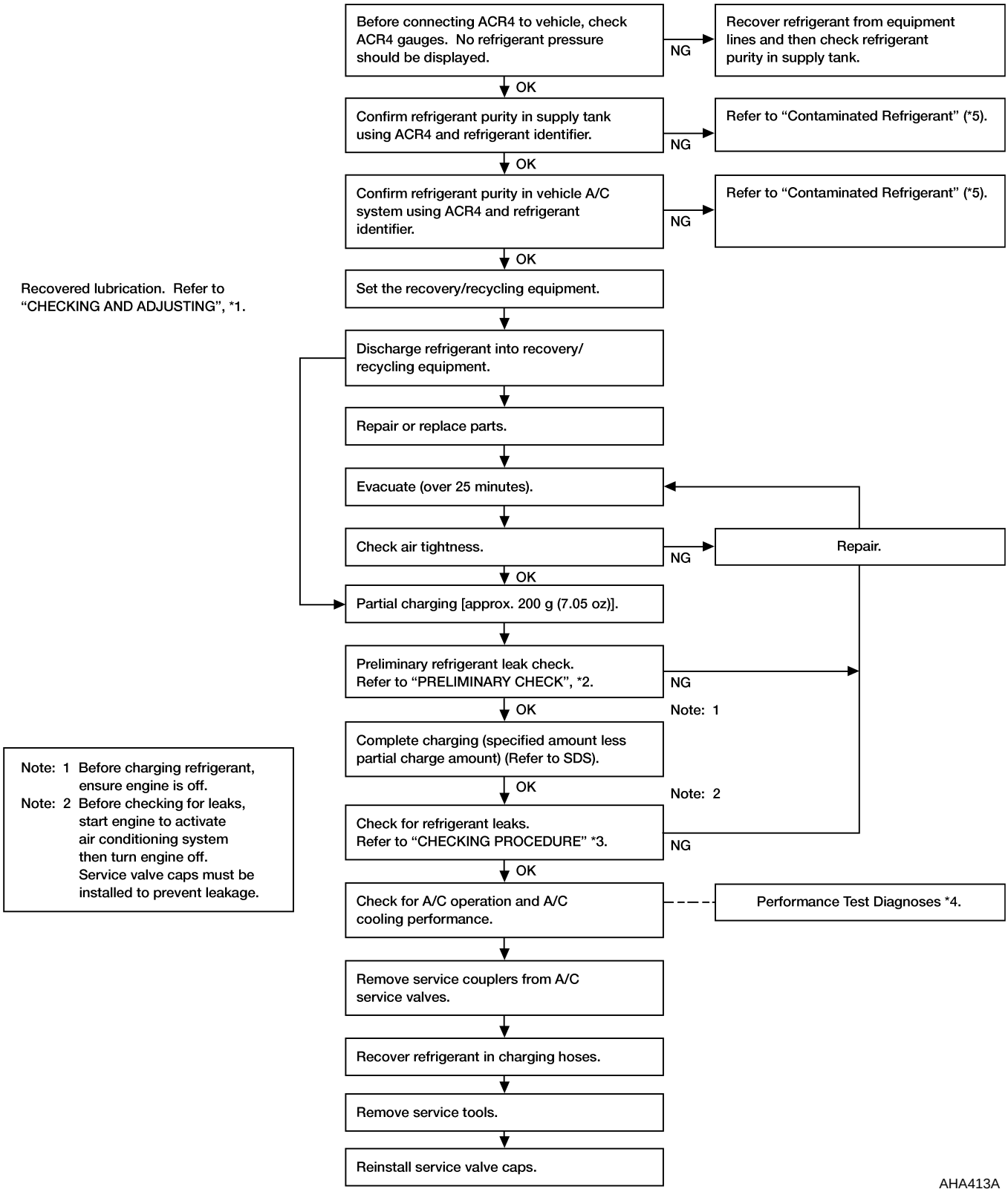
AHA508A

Evacuating System and Charging Refrigerant

NGHA0094S0103



AHA562A



*1 HA-66
*2 HA-79
*3 HA-80
*4 HA-54
*5 HA-3

Maintenance of Lubricant Quantity in Compressor

NGHA0095

The lubricant in the compressor circulates through the system with the refrigerant. Add lubricant to compressor when replacing any component or after a large gas leakage occurred. It is important to maintain the specified amount.
If lubricant quantity is not maintained properly, the following malfunctions may result:

- Lack of lubricant: May lead to a seized compressor
- Excessive lubricant: Inadequate cooling (thermal exchange interference)

LUBRICANT

NGHA0095S01

Name: NISSAN A/C System Lubricant Type R
Part number: KLH00-PAGR0

CHECKING AND ADJUSTING

NGHA0095S02

Adjust the lubricant quantity according to the flowchart shown below.

1	LUBRICANT RETURN OPERATION	
Can lubricant return operation be performed? ● A/C system works properly. ● There is no evidence of a large amount of lubricant leakage.		
Yes or No		
Yes	▶	GO TO 2.
No	▶	GO TO 3.

2	PERFORM LUBRICANT RETURN OPERATION, PROCEEDING AS FOLLOWS	
1. Start engine, and set the following conditions: ● **Test condition** **Engine speed: Idling to 1,200 rpm** **A/C switch: ON** **RECIRCULATION switch: OFF** **Fan speed: Max. position** **Temp. control: Optional [Set so that intake air temperature is 25 to 30°C (77 to 86°F).]** 2. Perform lubricant return operation for about 10 minutes. 3. Stop engine. **CAUTION:** **If excessive lubricant leakage is noted, do not perform the lubricant return operation.**		
	▶	GO TO 3.

3	CHECK COMPRESSOR	
Should the compressor be replaced?		
Yes or No		
Yes	▶	Refer to “Lubricant Adjusting Procedure for Compressor Replacement”, HA-68.
No	▶	GO TO 4.

4	CHECK ANY PART	
Is there any part to be replaced? (Evaporator, condenser, liquid tank or in case there is evidence of a large amount of lubricant leakage.)		
Yes or No		
Yes	▶	Refer to "Lubricant Adjusting Procedure for Components Replacement Except Compressor", HA-68.
No	▶	Perform "PERFORMANCE TEST DIAGNOSES", HA-54.

Lubricant Adjusting Procedure for Components Replacement Except Compressor

=NGHA0095S0201

After replacing any of the following major components, add the correct amount of lubricant to the system.

Amount of lubricant to be added

Part replaced	Lubricant to be added to system	Remarks
	Amount of lubricant mℓ (US fl oz, Imp fl oz)	
Evaporator	75 (2.5, 2.6)	—
Condenser	75 (2.5, 2.6)	—
Liquid tank	5 (0.2, 0.2)	Add if compressor is not replaced. *1
In case of refrigerant leak	30 (1.0, 1.1)	Large leak
	—	Small leak *2

*1: If compressor is replaced, addition of lubricant is included in the flow chart.

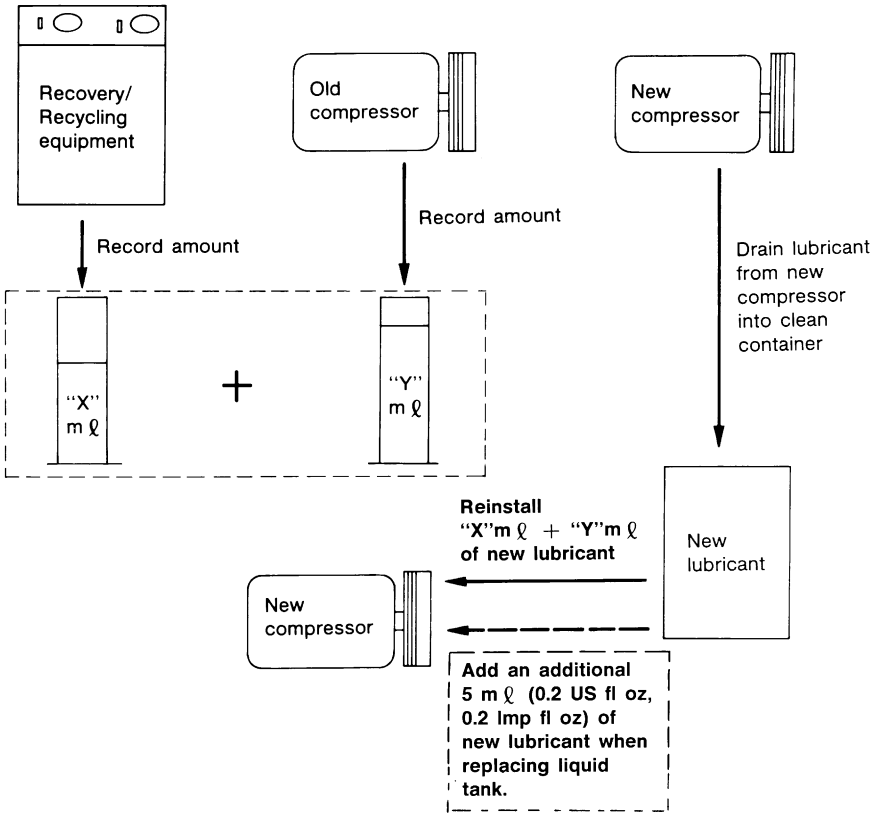
*2: If refrigerant leak is small, no addition of lubricant is needed.

Lubricant Adjusting Procedure for Compressor Replacement

NGHA0095S0202

1) Before connecting ACR4 to vehicle, check ACR4 gauges. No refrigerant pressure should be displayed, recover refrigerant from equipment lines and then check refrigerant purity.
2) Confirm refrigerant purity in supply tank using ACR4 and refrigerant identifier.
3) Confirm refrigerant purity in vehicle A/C system using ACR4 and refrigerant identifier.
4) Discharge refrigerant into the refrigerant recovery/recycling equipment. Measure lubricant discharged into the recovery/recycling equipment.
5) Drain the lubricant from the old (removed) compressor into a graduated container and record the amount of lubricant drained.
6) Drain the lubricant from the new compressor into a separate, clean container.
7) Measure an amount of new lubricant installed equal to amount drained from old compressor. Add this lubricant to new compressor through the suction port opening.
8) Measure an amount of new lubricant equal to the amount recovered during discharging. Add this lubricant to new compressor through the suction port opening.
9) If the liquid tank also needs to be replaced, add an additional 5 mℓ (0.2 US fl oz, 0.2 Imp fl oz) of lubricant at this time.
   Do not add this 5 mℓ (0.2 US fl oz, 0.2 Imp fl oz) of lubricant if only replacing the compressor.

Lubricant adjusting procedure for compressor replacement



RHA065DD

Compressor

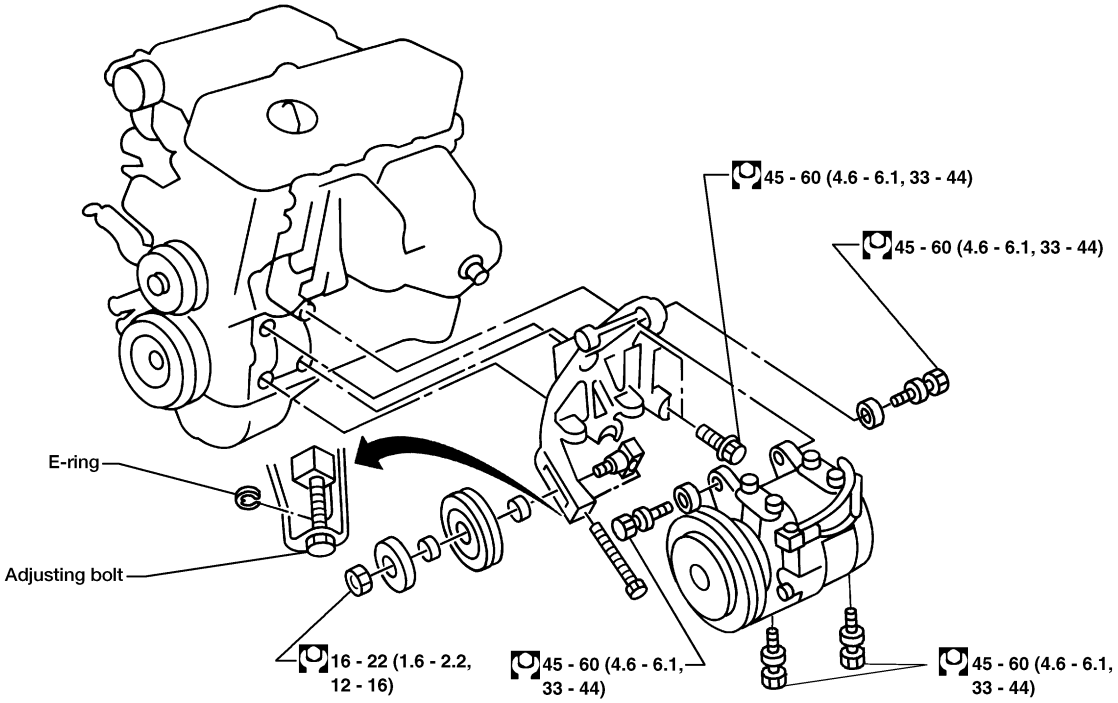
COMPRESSOR MOUNTING

NGHA0096

KA24DE Models

NGHA0096S01

SEC. 274•275



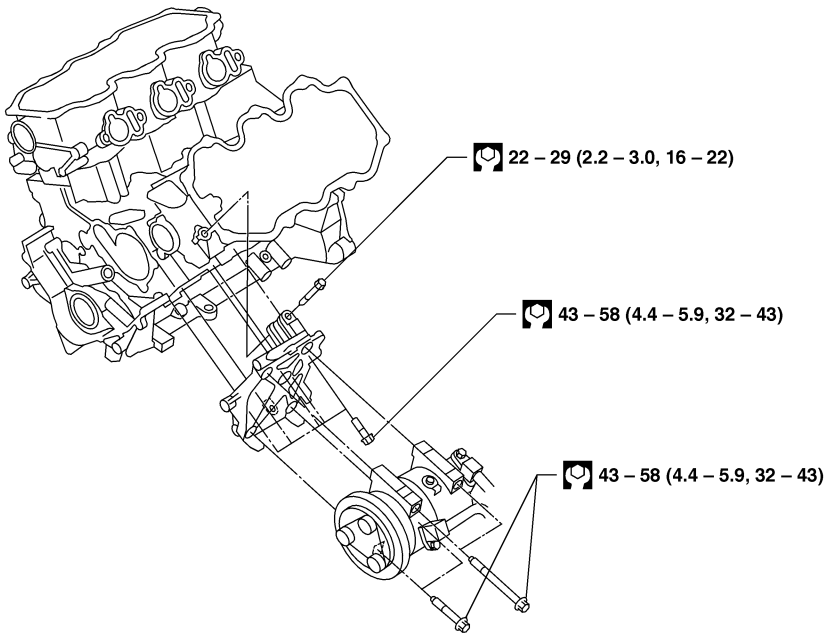
: N·m (kg-m, ft-lb)

LHA236

VG33E and VG33ER Models

NGHA0096S02

SEC. 274 · 275



: N·m (kg-m, ft-lb)

LHA237

Magnet Clutch

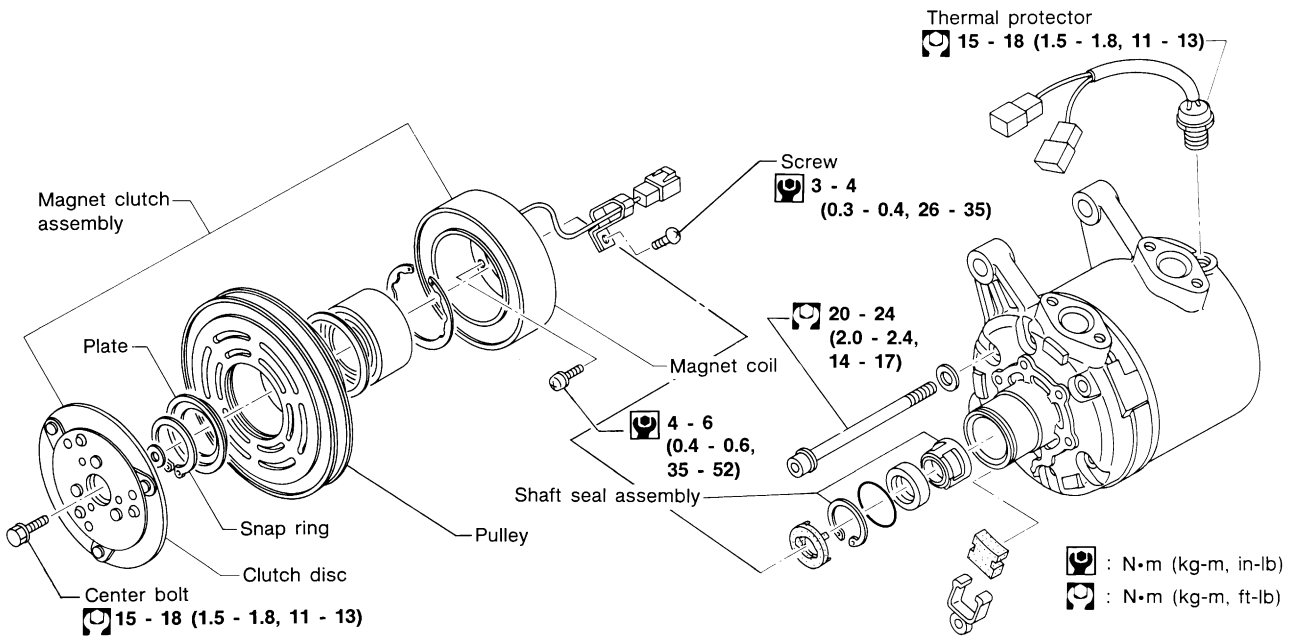
MAGNET CLUTCH MOUNTING

KA24DE Models

NGHA0098

NGHA0098S04

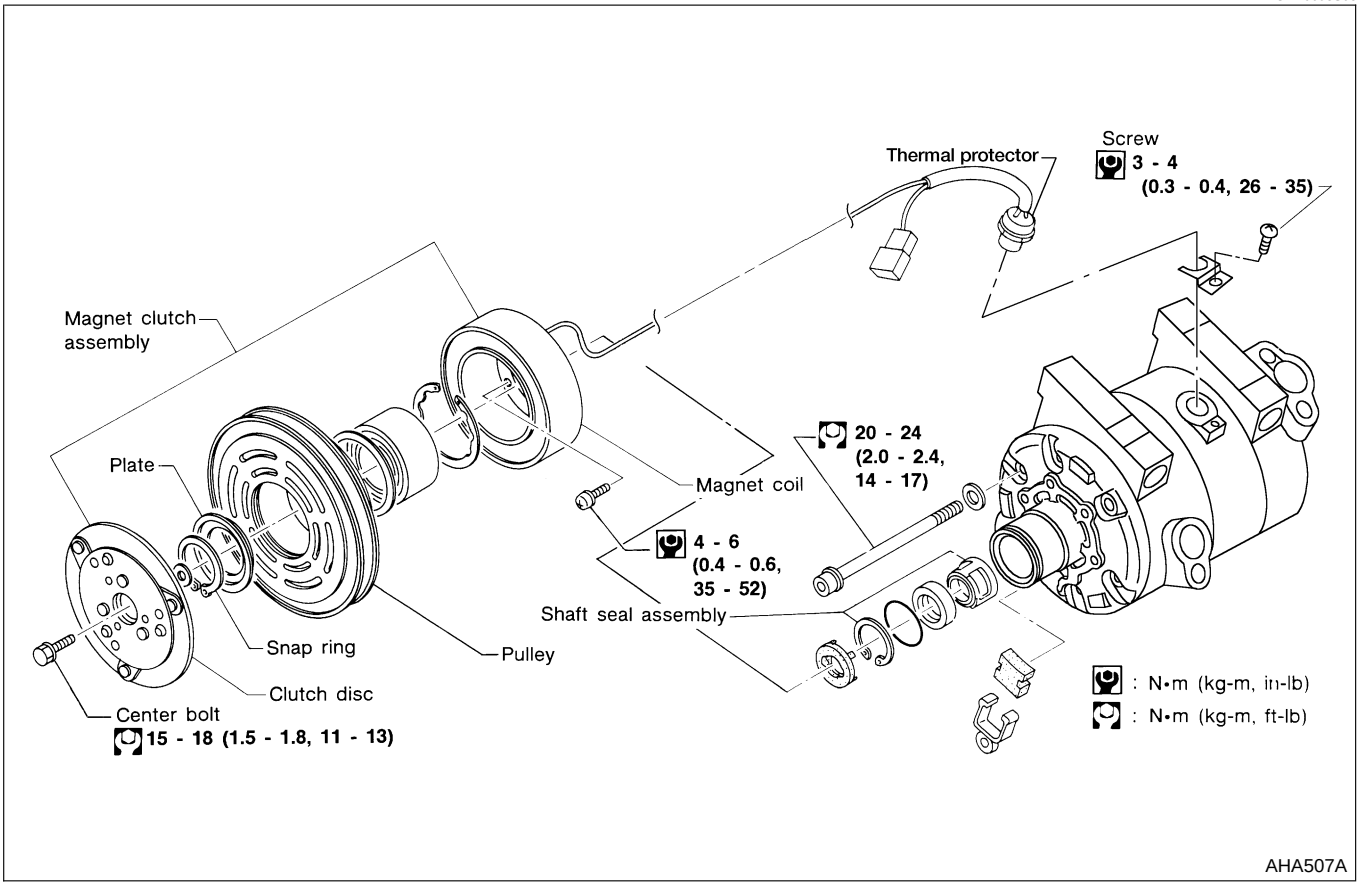
SEC. 274

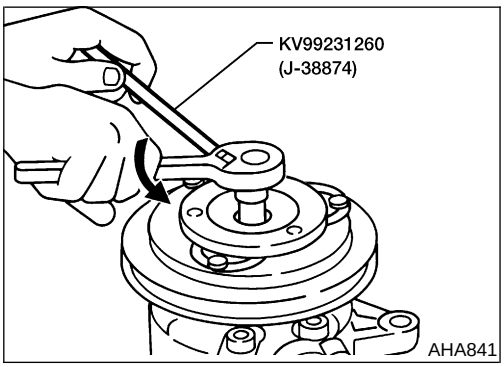


AHA510A

VG33E and VG33ER Models

NGHA0098S05

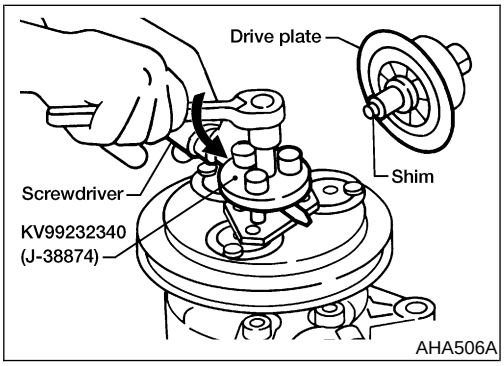




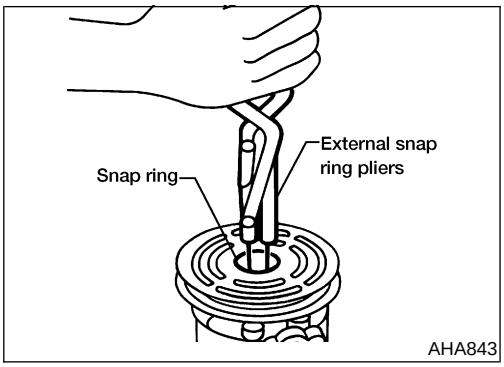
REMOVAL

NGHA0280

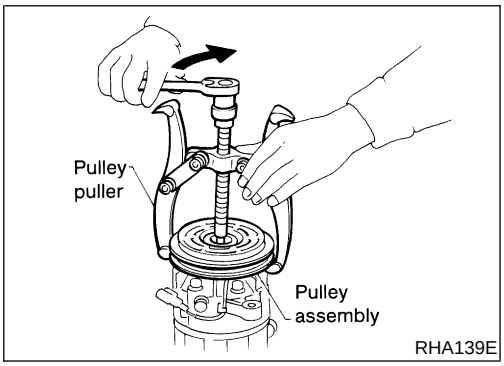
- When removing center bolt, hold clutch disc with clutch disc wrench.



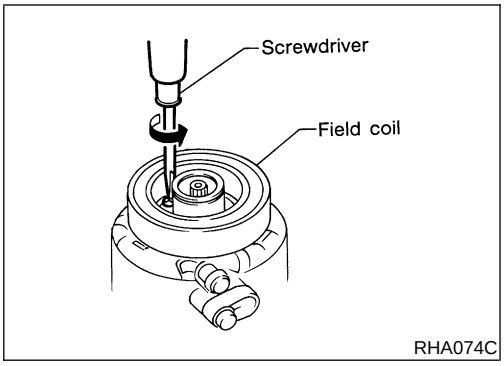
- Remove the drive plate using the clutch disc puller.
  Insert holder's three pins into the drive plate. Rotate the holder clockwise to hook it onto the plate. Then, tighten the center bolt to remove the drive plate.
  While tightening the center bolt, insert a round bar (screwdriver, etc.) between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



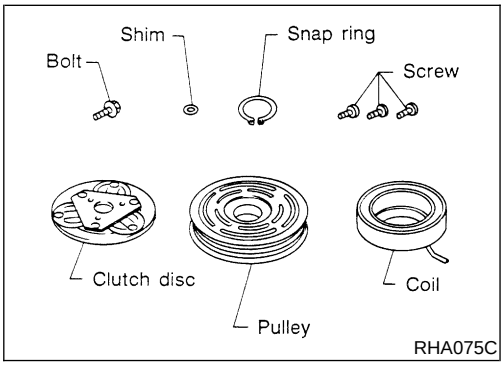
- Remove the snap ring using external snap ring pliers.



- For pulley removal use pulley puller.
  Use a commercially available pulley puller. Position the center of the puller on the end of the drive shaft. Remove the pulley assembly with the puller.
  For Pressed Pulleys:
  To prevent deformation of the pulley groove, the puller claws should be hooked under (not into) the pulley groove.
- Remove the field coil harness clip using a screwdriver.



- Remove the three field coil fixing screws and remove the field coil.



INSPECTION

NGHA0281

Clutch Disc

NGHA0281S01

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

Pulley

NGHA0281S02

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

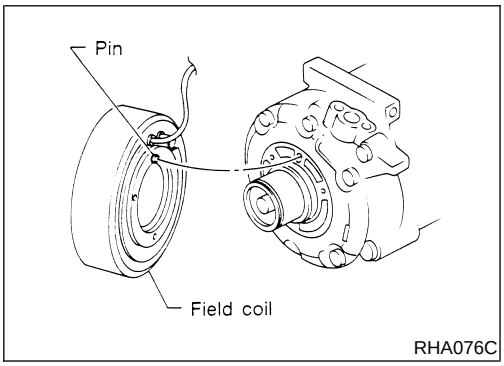
Coil

NGHA0281S03

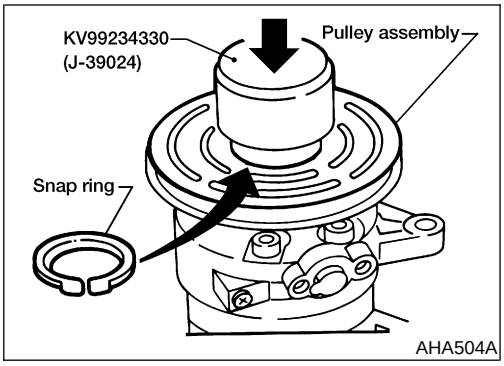
Check coil for loose connection or cracked insulation.

INSTALLATION

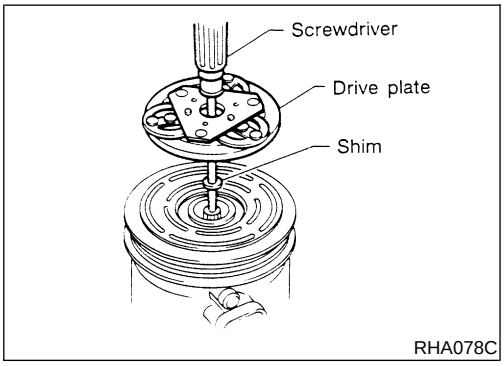
NGHA0282



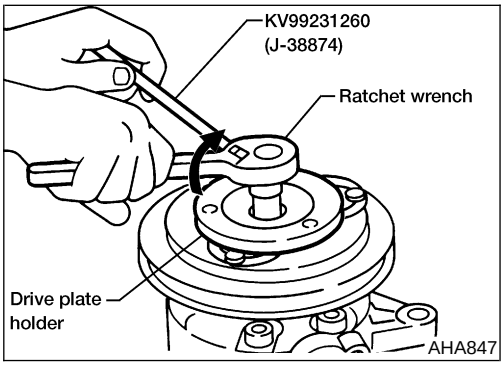
- Install the field coil.
- **Be sure to align the coil's pin with the hole in the compressor's front head.**
- Install the field coil harness clip using a screwdriver.



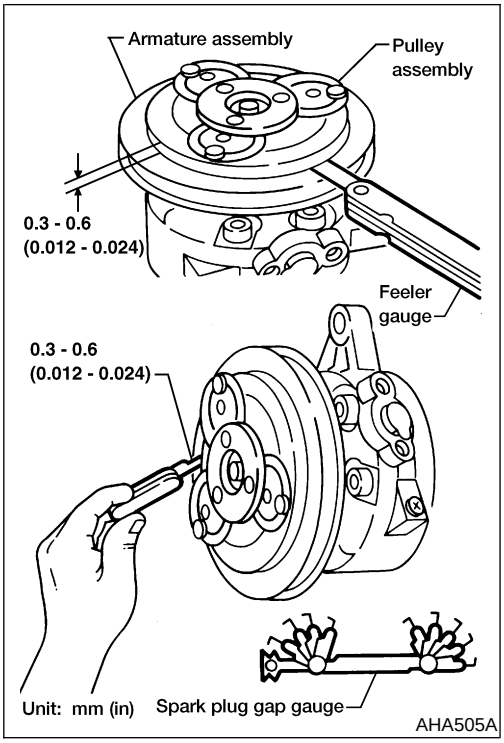
- Install the pulley assembly using the installer and a hand press, and then install the snap ring using snap ring pliers.



- Install the drive plate on the drive shaft, together with the original shim(s). Press the drive plate 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 all the way around the clutch disc.

  Disc-to-pulley clearance:

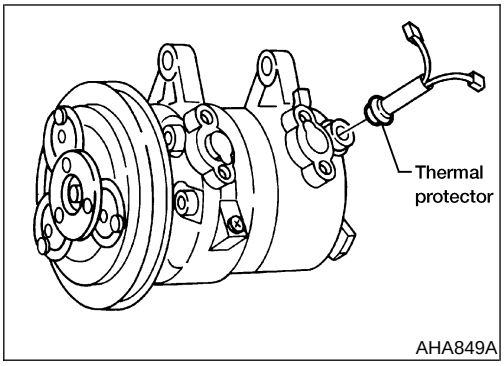
  0.3 - 0.6 mm (0.012 - 0.024 in)

  If the specified clearance is not obtained, replace adjusting spacer and recheck.

Break-in Operation

NGHA0282S01

When replacing magnet clutch assembly, always conduct the break-in operation. This is done by engaging and disengaging the clutch about 30 times. Break-in operation raises the level of transmitted torque.



Thermal Protector

INSPECTION

NGHA0284

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

Refrigerant Lines

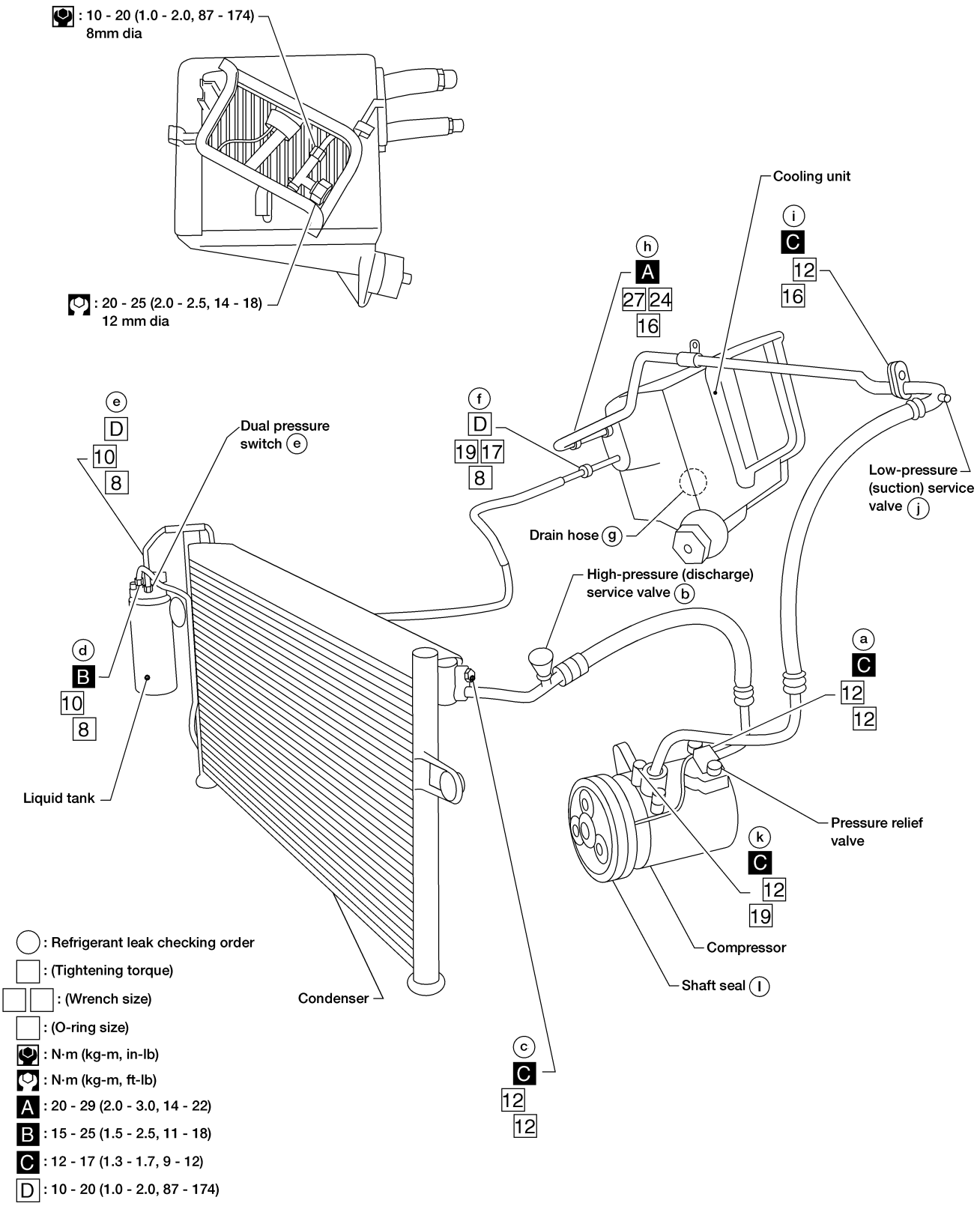
REMOVAL AND INSTALLATION

KA24DE Models

NGHA0101

NGHA0101S02

SEC. 271 • 274 • 276

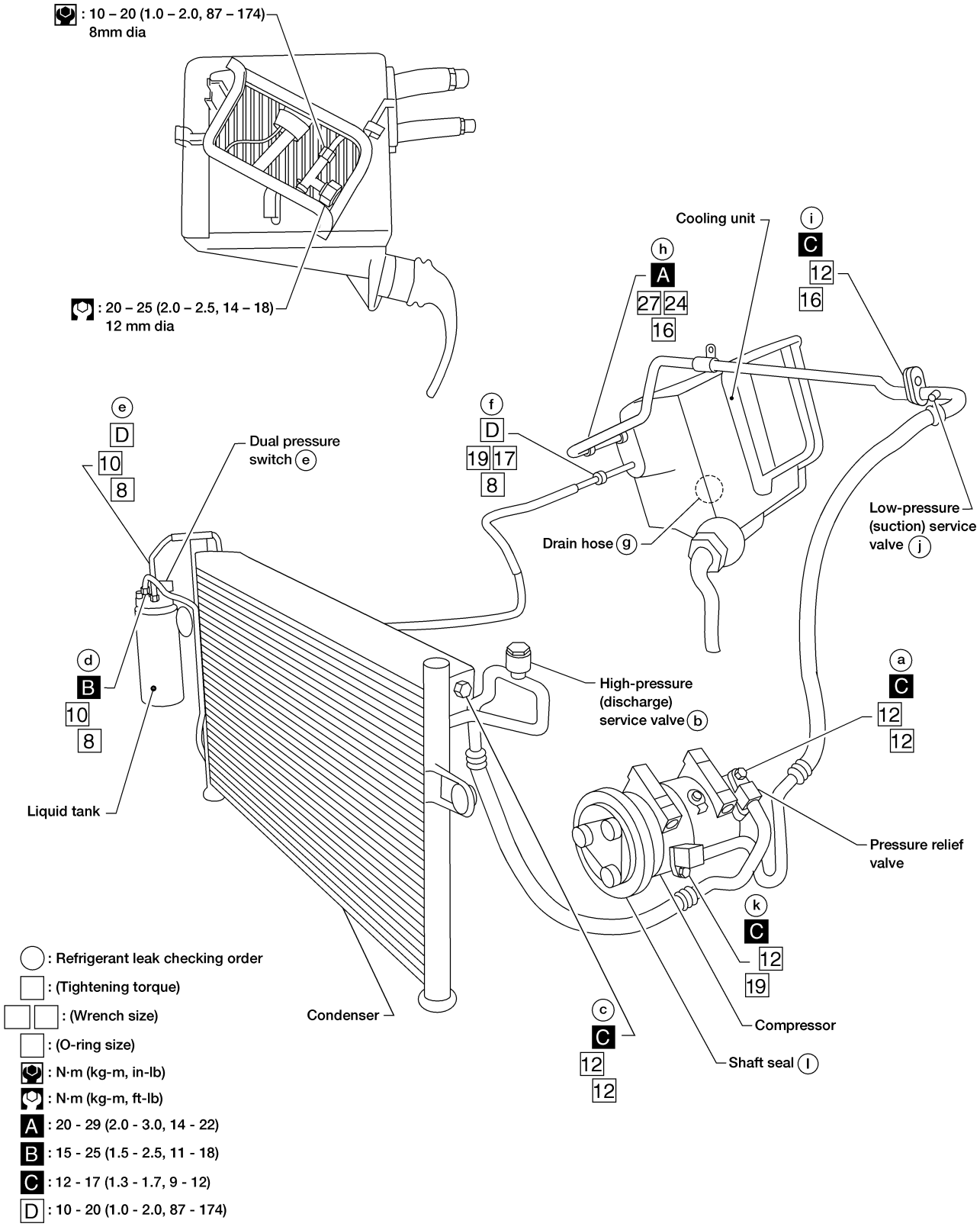


LHA240

VG33E and VG33ER Models

NGHA0101S03

SEC. 271 • 274 • 276



WHA310

Checking for Refrigerant Leaks

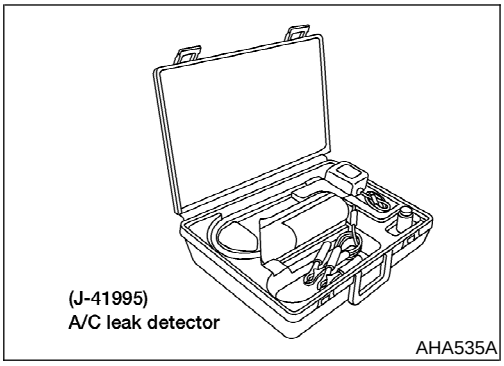
NGHA0102

PRELIMINARY CHECK

NGHA0102S01

- Perform a visual inspection of all refrigeration parts, fittings, hoses and components for signs of A/C lubricant leakage, damage and corrosion. A/C lubricant leakage may indicate an area of refrigerant leakage. Allow extra inspection time in these areas when using either an electronic refrigerant leak detector or fluorescent dye leak detector.
- If dye is observed, confirm the leak with an electronic refrigerant leak detector. It is possible a prior leak was repaired and not properly cleaned.
- When searching for leaks, do not stop when one leak is found but continue to check for additional leaks at all system components and connections.
- When searching for refrigerant leaks using an electronic leak detector, move the probe along the suspected leak area at 25 - 50 mm (1 - 2 in)/sec. and no further than 6 mm (1/4 in) from the component.

NOTE:
Moving the electronic leak detector probe slower and closer to the suspected leak area will improve the chances of finding a leak.



Electronic Refrigerant Leak Detector

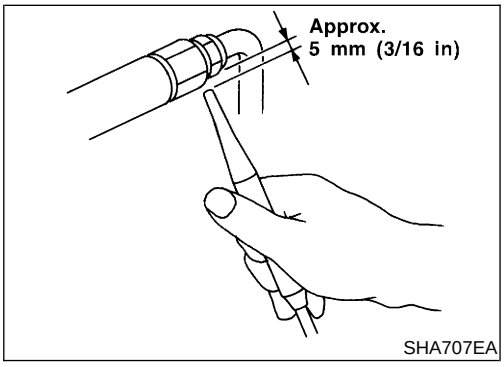
NGHA0291

PRECAUTIONS FOR HANDLING LEAK DETECTOR

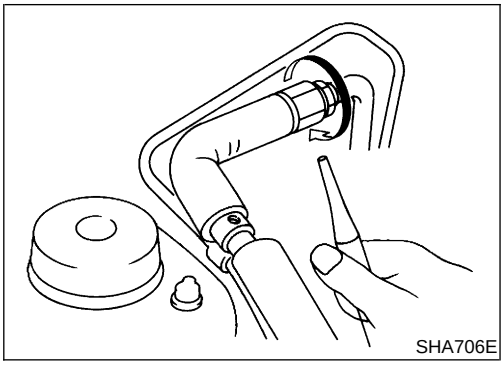
NGHA0291S01

When performing a refrigerant leak check, use a J-41995 A/C leak detector or equivalent. Ensure that the instrument is calibrated and set properly per the operating instructions.
The leak detector is a delicate device. In order to use the leak detector properly, read the operating instructions and perform any specified maintenance.

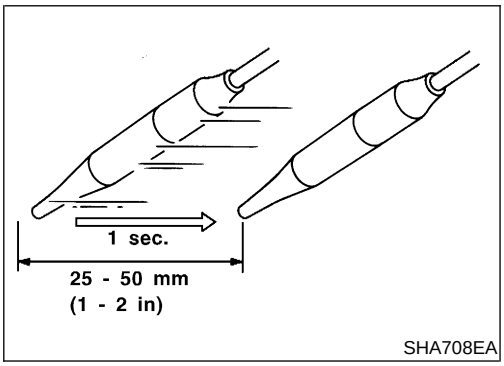
- **Other gases in the work area or substances on the A/C components, for example, anti-freeze, windshield washer fluid, solvents and lubricants, may falsely trigger the leak detector. Make sure the surfaces to be checked are clean. Clean with a dry cloth or blow off with shop air.**
- **Do not allow the sensor tip of the detector to contact any substance. This can also cause false readings and may damage the detector.**



1. Position probe approximately 5 mm (3/16 in) away from point to be checked.


SHA706E

2. When testing, circle each fitting completely with probe.



SHA708EA

3. Move probe along component approximately 25 - 50 mm (1 - 2 in)/sec.

CHECKING PROCEDURE

NGHA0291S02

To prevent inaccurate or false readings, make sure there is no refrigerant vapor, shop chemicals or smoke in the vicinity of the vehicle. Perform the leak test in a calm area (low air/wind movement) so that the leaking refrigerant is not dispersed.

1. Turn engine off.
2. Connect a suitable A/C manifold gauge set to the A/C service ports.
3. Check if the A/C refrigerant pressure is at least 345 kPa (3.52 kg/cm^2, 50 psi) above 16°C (61°F). If less than specification, recover/evacuate and recharge the system with the specified amount of refrigerant. Refer to "HFC-134a (R-134a) Service Procedure", HA-64.

NOTE:
At temperatures below 16°C (61°F), leaks may not be detected since the system may not reach 345 kPa (3.52 kg/cm^2, 50 psi).

4. Conduct the leak test from the high side (compressor discharge **a** to evaporator **f**) to the low side (evaporator drain hose **g** to compressor suction **k**). Refer to "Refrigerant Lines", HA-77. Perform a leak check for the following areas carefully. Clean the component to be checked and move the leak detector probe completely around the connection/component.

- **Compressor**
  Check the fitting of high and low pressure hoses, relief valve and shaft seal.
- **Liquid tank**
  Check the pressure switch, tube fitting, weld seams and the fusible plug mounts.
- **Service valves**
  Check all around the service valves. Ensure service valve caps are secured on the service valves (to prevent leaks).

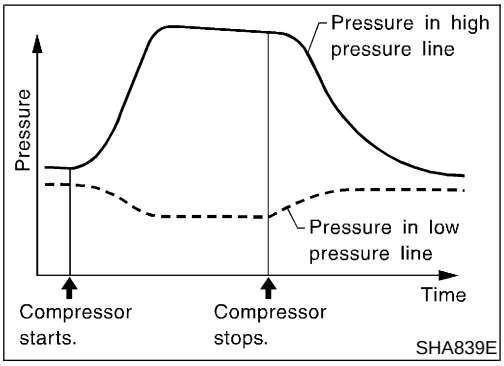
NOTE:
After removing A/C manifold gauge set from service valves, wipe any residue from valves to prevent any false readings by leak detector.

- **Cooling unit (Evaporator)**
  With engine OFF, turn blower fan on "High" for at least 15 seconds to dissipate any refrigerant trace in the cooling unit. Wait a minimum of 10 minutes accumulation time (refer to the manufacturer's recommended procedure for actual wait time) before inserting the leak detector probe into the drain hose. (keep the probe inserted for at least ten seconds.) Use caution not to contaminate the probe tip with water or dirt that may be in the drain hose.

5. If a leak detector detects a leak, verify at least once by blowing compressed air into area of suspected leak, then repeat check as outlined above.
6. Do not stop when one leak is found. Continue to check for additional leaks at all system components and connection.
   If no leaks are found, perform steps 7 through 10.
7. Start engine.
8. Set the heater A/C control as follows:

a. A/C switch ON
b. Face mode
c. Recirculation switch ON
d. Max cold temperature
e. Fan speed high

9. Run engine at 1,500 rpm for at least 2 minutes.
10. Turn engine off and perform leak check again following steps 4 through 6 above.



Refrigerant leaks should be checked immediately after stopping the engine. Begin with the leak detector at the compressor. The pressure on the high pressure side will gradually drop after refrigerant circulation stops and pressure on the low pressure side will gradually rise, as shown in the graph. Some leaks are more easily detected when pressure is high.

11. Before connecting ACR4 to vehicle, check ACR4 gauges. No refrigerant pressure should be displayed. If pressure is displayed, recover refrigerant from equipment lines and then check refrigerant purity.
12. Confirm refrigerant purity in supply tank using ACR4 and refrigerant identifier. Refer to "Contaminated Refrigerant", HA-3.
13. Confirm refrigerant purity in vehicle A/C system using ACR4 and refrigerant identifier. Refer to "Contaminated Refrigerant", HA-3.
14. Discharge A/C system using approved refrigerant recovery equipment. Refer to "Discharging Refrigerant", HA-64. Repair

the leaking fitting or component as necessary.

15. Evacuate and recharge A/C system. Refer to "Evacuating System and Charging Refrigerant", HA-64. Perform the leak test to confirm no refrigerant leaks.
16. Conduct A/C performance test to ensure system works properly.

Fluorescent Dye Leak Detector

NGHA0292

PRECAUTIONS FOR FLUORESCENT DYE LEAK DETECTION

NGHA0292S04

- The fluorescent dye leak detector is not a replacement for an electronic refrigerant leak detector. The fluorescent dye leak detector should be used in conjunction with an electronic refrigerant leak detector (J-41995) to pinpoint refrigerant leaks.
- For your safety and your customer's satisfaction, read and follow all manufacturer's operating instructions and precautions prior to performing the work.
- Refer to "Precautions for Leak Detection Dye", HA-4 .

CHECKING SYSTEM FOR LEAKS USING THE FLUORESCENT LEAK DETECTOR

NGHA0292S01

1. Check A/C system for leaks using the UV lamp and safety glasses (J-42220) in a low sunlight area (area without windows preferable). Illuminate all components, fittings and lines. The dye will appear as a bright green/yellow area at the point of leakage. Fluorescent dye observed at the evaporator drain opening indicates an evaporator core assembly (tubes, core or TXV) leak.
2. If the suspected area is difficult to see, use an adjustable mirror or wipe the area with a clean shop rag or cloth, then check the cloth with the UV lamp for dye residue.
3. Confirm any suspected leak areas with an approved electronic refrigerant leak detector.
4. After the leak is repaired, remove any residual dye using dye cleaner (J-43872) to prevent future misdiagnosis.
5. Perform a system performance check and verify the leak repair with an approved electronic refrigerant leak detector.

DYE INJECTION

NGHA0292S02

(This procedure is only necessary when re-charging the system or when the compressor has seized and was replaced.)
Refer to "Precautions for Leak Detection Dye", HA-4 .

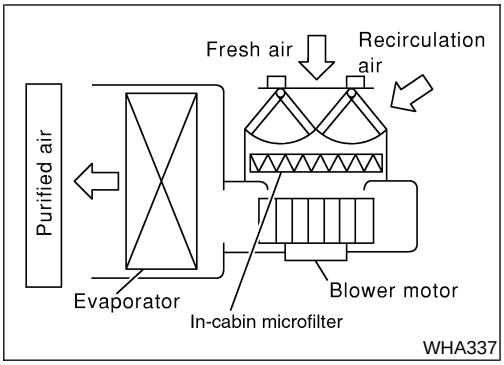
1. Check A/C system static (at rest) Pressure. Pressure must be at least 345 kPa (3.52 kg/cm^2, 50 psi).
2. Pour one bottle (1/4 ounce /7.4 cc) of the A/C refrigerant dye into the injector tool (J-41459).
3. Connect the injector tool to the A/C LOW PRESSURE side service fitting.
4. Start engine and switch A/C ON.
5. When the A/C operating (compressor running), inject one bottle (1/4 ounce /7.4 cc) of fluorescent dye through the low-pressure service valve using dye injector tool J-41459 (refer to the manufacturer's operating instructions).

6. With the engine still running, disconnect the injector tool from the service fitting.

CAUTION:
Be careful not to allow dye to spray or drip when disconnecting the injector from the system.

NOTE:
If repairing the A/C system or replacing a component, pour the dye directly into the open system connection and proceed with the service procedures.

7. Operate the A/C system for a minimum of 20 minutes to mix the dye with the system oil. Depending on the leak size, operating conditions and location of the leak, it may take from minutes to days for the dye to penetrate a leak and become visible.



WHA337

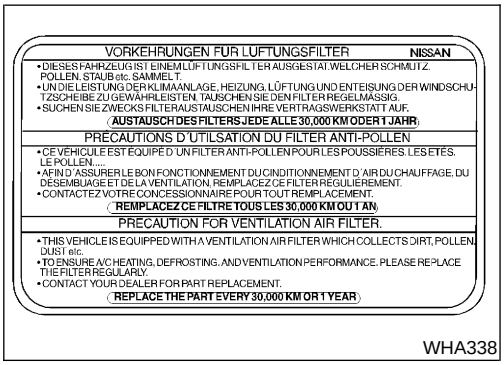
In-cabin Microfilter

NGHA0294

FUNCTION

NGHA0294S01

Air inside passenger compartment is kept clean at either recirculation or fresh mode by installing in-cabin microfilter into blower unit.


VORKEHRUNGEN FÜR LÜFTUNGSFILTER NISSAN

• DIESES FAHRZEUG IST EINEM LÜFTUNGSFILTER AUSGESTATTET, WELCHER SCHMUTZ, POLLEN, STAUB etc. SAMMELT.
• UM DIE LEISTUNG DER KLIMAANLAGE, HEIZUNG, LÜFTUNG UND ENTEISUNG DER WINDSCHUTZSCHEIBE ZU GEWÄHRLEISTEN, TAUSCHEN SIE DEN FILTER REGELMÄSSIG.
• SUCHEN SIE ZWECKS FILTERAUSTAUSCHEN IHRE VERTRAGSWERKSTATT AUF.

(AUSTAUSCH DES FILTERS JEDE ALLE 30,000 KM ODER 1 JAHR)

PRECAUTIONS D'UTILSATION DU FILTER ANTI-POLLEN

• CE VÉHICULE EST ÉQUIPÉ D'UN FILTER ANTI-POLLEN POUR LES POUSSIÈRES, LES ÉTÉS, LE POLLEN,...
• AFIN D'ASSURER LE BON FONCTIONNEMENT DU CINDITIONNEMENT D'AIR DU CHAUFFAGE, DU DESEMBUAGE ET DE LA VENTILATION, REMPLACEZ CE FILTER RÉGULIÈREMENT.
• CONTACTEZ VOTRE CONCESSIONNAIRE POUR TOUT REMPLACEMENT.

(REMPLACEZ CE FILTRE TOUS LES 30,000 KM OU 1 AN)

PRECAUTION FOR VENTILATION AIR FILTER.

• THIS VEHICLE IS EQUIPPED WITH A VENTILATION AIR FILTER WHICH COLLECTS DIRT, POLLEN, DUST etc.
• TO ENSURE A/C HEATING, DEFROSTING, AND VENTILATION PERFORMANCE, PLEASE REPLACE THE FILTER REGULARLY.
• CONTACT YOUR DEALER FOR PART REPLACEMENT.

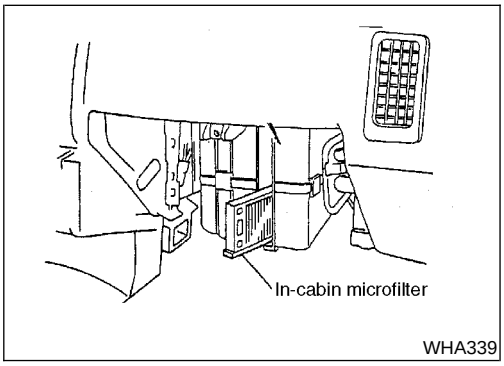
(REPLACE THE PART EVERY 30,000 KM OR 1 YEAR)

WHA338

REPLACEMENT TIMING

NGHA0294S02

Replace in-cabin microfilter. Refer to "SCHEDULE 1", ***MA-8*** or "SCHEDULE 2", ***MA-8***. Caution label is affixed inside the glove box.



WHA339

REPLACEMENT PROCEDURES

NGHA0294S03

1. Remove glove box assembly. Refer to "INSTRUMENT PANEL", ***BT-20***..
2. Remove in-cabin microfilter cover.
3. Take out the in-cabin microfilter from blower unit.
4. Replace with new in-cabin microfilter and reinstall cover on blower unit.
5. Reinstall glove box assembly.

Belt

TENSION ADJUSTMENT

NGHA0103

- **Refer to *MA-16* (KA24DE models) or *MA-26* (VG33E and VG33ER models), “Checking Drive Belts”.**

IACV-FICD Solenoid Valve

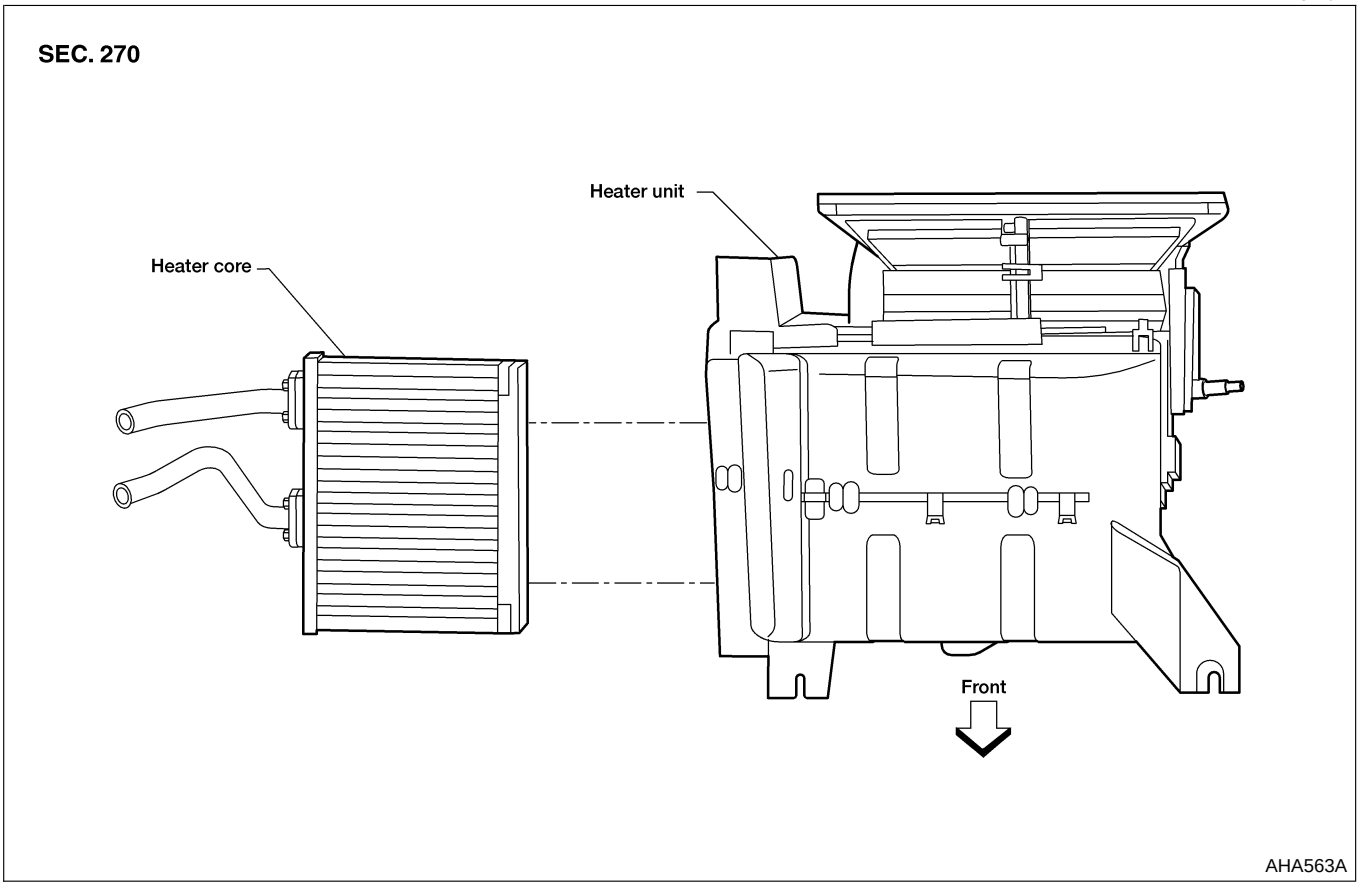
INSPECTION

NGHA0104

- **Refer to *EC-592* (KA24DE models) *EC-1165* (VG33E models), or *EC-1197* (VG33ER models), “Component Description”.**

Heater Core

NGHA0171



REMOVAL

NGHA0171S01

1. Drain cooling system. Refer to ***MA-17***, (KA24DE models) or ***MA-28*** (VG33E and VG33ER models), “Changing Engine Coolant”.

2. Disconnect the two heater hoses from the engine compartment side.
3. Remove the cooling unit. Refer to "Evaporator Core", HA-85.
4. Remove the steering member assembly. Refer to "Removal and Installation", ***BT-20***.
5. Remove the heater unit.
6. Remove the heater core.

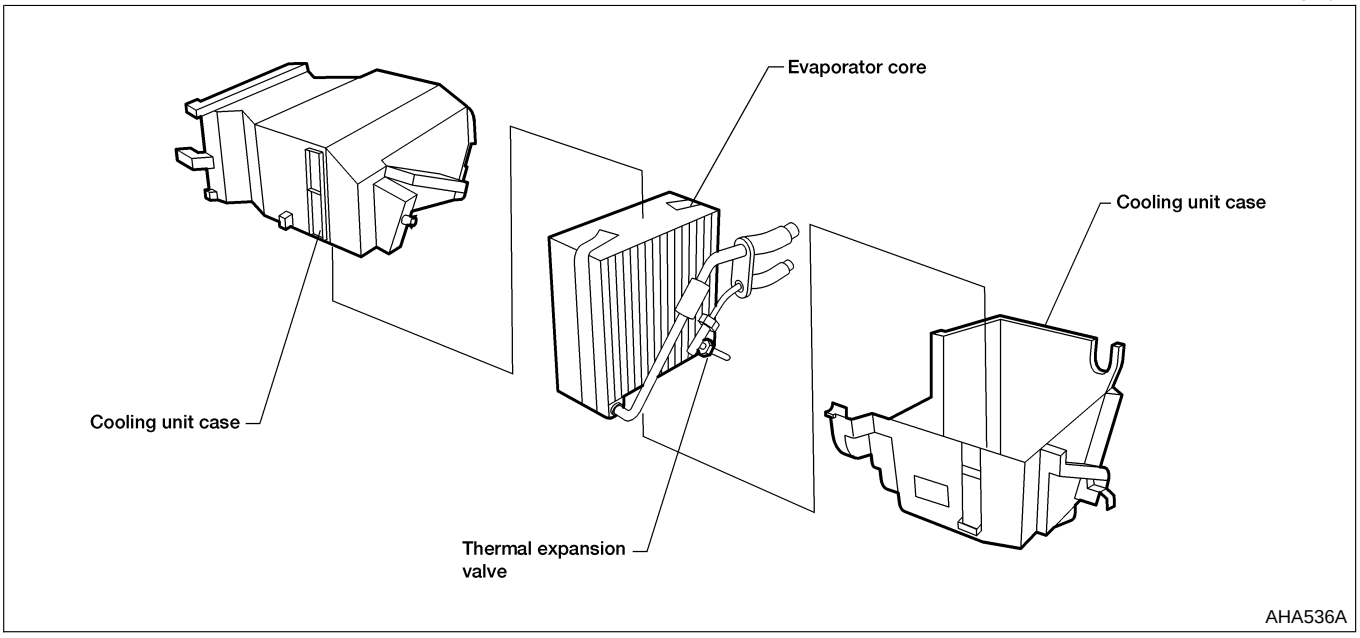
INSTALLATION

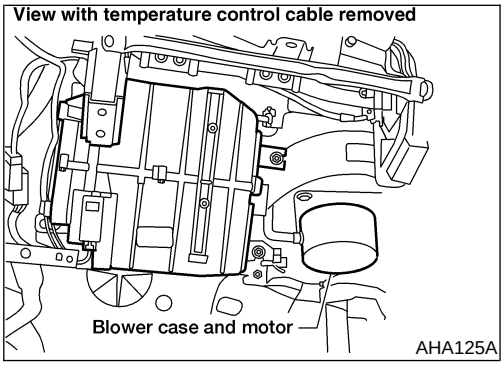
NGHA0171S02

Installation is the reverse order of removal. Inspect system for coolant leaks. Refer to ***MA-17*** (KA24DE models) or ***MA-28*** (VG33E and VG33ER models), "Changing Engine Coolant".

Evaporator Core

NGHA0172





REMOVAL

NGHA0172S01

1. Discharge the A/C system. Refer to "Discharging Refrigerant", HA-64.
2. Disconnect the two evaporator core refrigerant lines from the engine compartment side.

- Cap the refrigerant lines to prevent moisture from entering the system.

3. Remove the glove box and mating trim. Refer to ***BT-20***, "Removal and Installation".
4. Disconnect the thermal amp. connector.
5. Remove the cooling unit.

6. Separate the cooling unit case, and remove the evaporator.

INSTALLATION

NGHA0172S02

Installation is the reverse order of removal.

Recharge the A/C system.

Inspect system for refrigerant leaks. Refer to "Checking Refrigerant Leaks", HA-79.

Manual

GENERAL SPECIFICATIONS

=NGHA0169

Compressor

NGHA0169S01

Model	DKV-14C
Type	Vane rotary
Displacement cm^3 (cu in)/rev.	140 (8.54)
Direction of rotation	Clockwise (Viewed from drive end)
Drive belt	A type

Lubricant

NGHA0169S02

Model	ZEXEL make DKV-14C
Name	Nissan A/C System Lubricant PAG Type R
Part No.*	KLH00–PAGR0
Capacity (total in system) mℓ (US fl oz, Imp fl oz)	200 (6.8, 7.0)

*: Always check with the Parts Department for the latest parts information.

Refrigerant

NGHA0169S03

Type		R-134a
Capacity	kg (lb)	0.60 - 0.70 (1.32 - 1.54)
	g (oz)	600 - 700 (21.16 - 24.69)

INSPECTION AND ADJUSTMENT

NGHA0170

Engine Idling Speed (When A/C is ON)

NGHA0170S01

- Refer to ***EC-59*** (KA24DE models), ***EC-648*** (VG33E models), or ***EC-1197*** (VG33ER models) “Idle Speed/Ignition Timing/Idle Mixture Ratio Adjustment”.

Belt Tension

NGHA0170S02

- Refer to ***MA-16*** (KA24DE models) or ***MA-26*** (VG33E or VG33ER models), “Checking Drive Belts”.

Magnet Clutch

NGHA0170S03

Model	DKV-14C
Clutch disc-pulley clearance mm (in)	0.3 - 0.6 (0.012 - 0.024)

NOTES