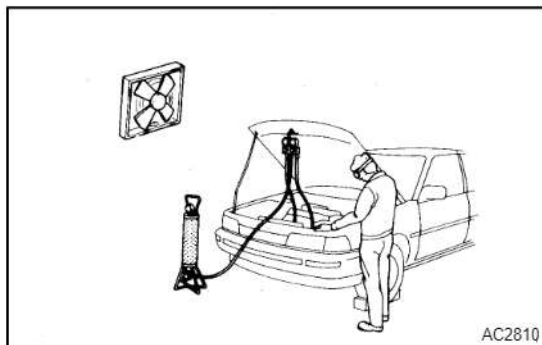


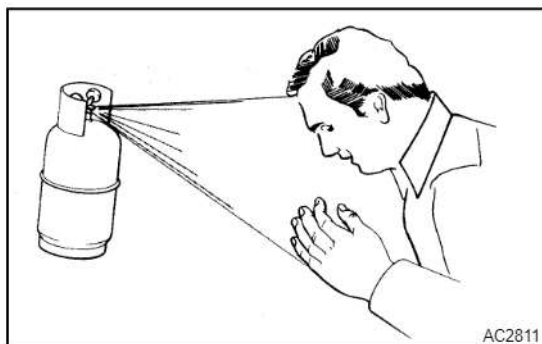


AC2810

AIR CONDITIONING SYSTEM PRECAUTION

AC001-11

1. **DO NOT HANDLE REFRIGERANT IN AN ENCLOSED AREA OR WEAR EYE PROTECTION**
2. **ALWAYS WEAR EYE PROTECTION**



AC2811

3. **BE CAREFUL NOT TO GET LIQUID REFRIGERANT IN YOUR EYES OR ON YOUR SKIN**

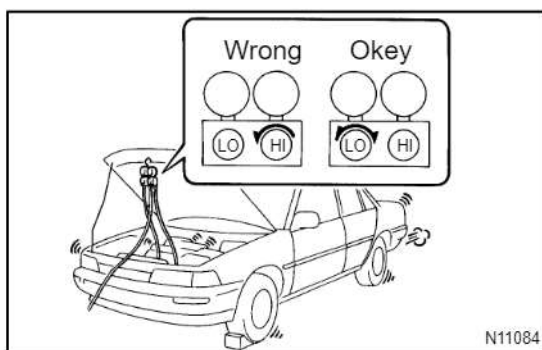
If liquid refrigerant gets in your eyes or on your skin.

- (a) Wash the area with lots of cool water.

CAUTION:

Do not rub your eyes or skin.

- (b) Apply clean petroleum jelly to the skin.
- (c) Go immediately to a physician or hospital for professional treatment.
4. **NEVER HEAT CONTAINER OR EXPOSE IT TO NAKED FLAME**
5. **BE CAREFUL NOT TO DROP CONTAINER AND NOT TO APPLY PHYSICAL SHOCKS TO IT**



N11084

6. **DO NOT OPERATE COMPRESSOR WITHOUT ENOUGH REFRIGERANT IN REFRIGERATION SYSTEM**

If there is not enough refrigerant in the refrigerant system oil lubrication will be insufficient and compressor burnout may occur, so that care to avoid this, necessary care should be taken.

7. **DO NOT OPEN PRESSURE MANIFOLD VALVE WHILE COMPRESSOR IS OPERATE**

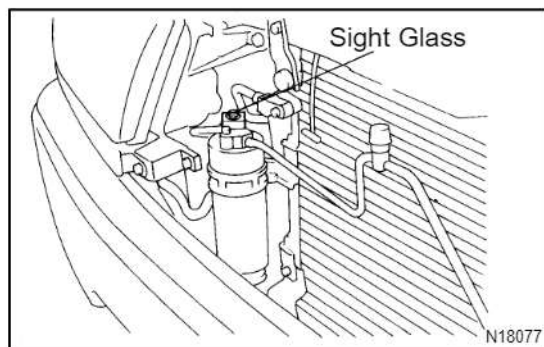
If the high pressure valve is opened, refrigerant flows in the reverse direction and could cause the charging cylinder to rupture, so open and close the only low pressure valve.

8. **BE CAREFUL NOT TO OVERCHARGE SYSTEM WITH REFRIGERANT**

If refrigerant is overcharged, it causes problems such as insufficient cooling, poor fuel economy, engine overheating etc.

9. SUPPLEMENTAL RESTRAINT SYSTEM (SRS)

The 4 RUNNER is equipped with an SRS (Supplemental Restraint System) such as the driver and front passenger airbag. Failure to carry out service operation in the correct sequence could cause the SRS to unexpectedly deploy during servicing, possibly leading to a serious accident. Before servicing (including removal or installation of parts, inspection or replacement), be sure to read the precautionary notices in the RS section.



ON-VEHICLE INSPECTION

1. INSPECT REFRIGERANT VOLUME

Observe the sight glass on the liquid tube.

Test conditions:

- Running engine at 1,500 rpm
- Blower speed control switch at "HI" position
- A/C switch ON
- Temperature control dial at "COOL" position
- Fully open the doors

Item	Symptom	Amount of refrigerant	Remedy
1	Bubbles present in sight glass	Insufficient*	(1) Check for gas leakage with gas leak detector and repair if necessary (2) Add refrigerant until bubbles disappear
2	No bubbles present in sight glass	None, sufficient or too much	Refer item 3 and 4
3	No temperature difference between compressor inlet and outlet	Empty or nearly empty	(1) Check for gas leakage with gas leak detector and repair if necessary (2) Add refrigerant until bubbles disappear
4	Temperature between compressor inlet and outlet is noticeably different	Correct or too much	Refer to items 5 and 6
5	Immediately after air conditioning is turned off, refrigerant in sight glass stays clear	Too much	(1) Discharge refrigerant (2) Evacuate air and charge proper amount or purified refrigerant
6	When air conditioning is turned off, refrigerant foams and then stays clear	Correct	-

*: Bubbles in the sight glass with ambient temperatures higher than usual can be considered normal if cooling is sufficient.

2. INSPECT REFRIGERANT PRESSURE WITH MANIFOLD GAUGE SET

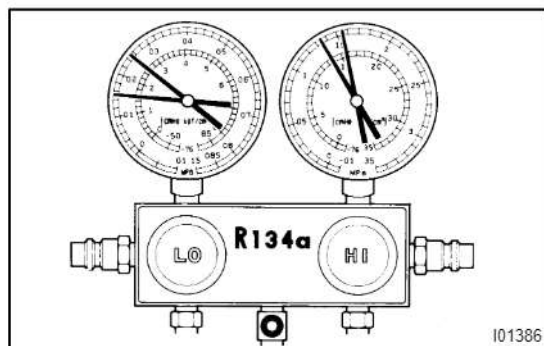
This is a method in which the trouble is located by using a manifold gauge set. Read the manifold gauge pressure when the these conditions are established.

Test conditions:

- Temperature at the air inlet with the switch set at RECURC is 30 - 35 °C (86 - 95 °F)
- Engine running at 1500 rpm
- Blower speed control switch at "HI" position
- Temperature control dial at "COOL" position

HINT:

It should be noted that the gauge indications may vary slightly due to ambient temperature conditions.



(1) Normally functioning refrigeration system.

Gauge reading:

Low pressure side:

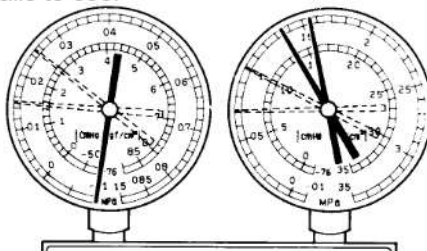
0.15 - 0.25 MPa (1.5 - 2.5 kgf/cm²)

High pressure side:

1.37 - 1.57 MPa (14 - 16 kgf/cm²)

(2) Moisture present in refrigeration system.

Condition : Periodically cools and then fails to cool

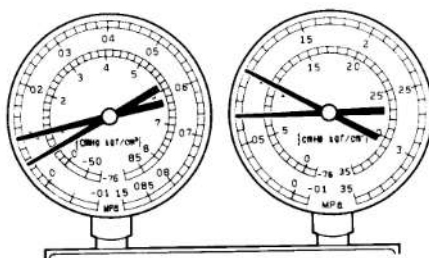


I01387

Symptom seen in refrigeration system	Probable cause	Diagnosis	Remedy
During operation, pressure on low pressure side sometimes become a vacuum and sometime normal	Moisture entered in refrigeration system freezes at expansion valve orifice and temporarily stops cycle, but normal state is restored after a time when the ice melts	• Drier in oversaturated state • Moisture in refrigeration system freezes at expansion valve orifice and blocks circulation of refrigerant	(1) Replace receiver (2) Remove moisture in cycle through repeatedly evacuating air (3) Charge proper amount of new refrigerant

(3) Insufficient cooling

Condition: Insufficient cooling

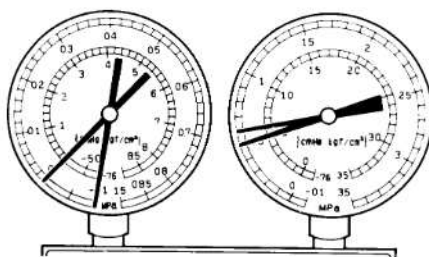


I01388

Symptom seen in refrigeration system	Probable cause	Diagnosis	Remedy
• Pressure low on both low and high pressure sides • Bubbles seen in sight glass continuously • Insufficient cooling performance	Gas leakage at some place in refrigeration system	• Insufficient refrigerant in system • Refrigerant leaking	(1) Check for gas leakage with gas leak detector and repair if necessary (2) Charge proper amount of refrigerant (3) If indicated pressure value is near 0 when connected to gauge, create the vacuum after inspecting and repairing the location of the leak

(4) Poor circulation of refrigerant

Condition: Insufficient cooling

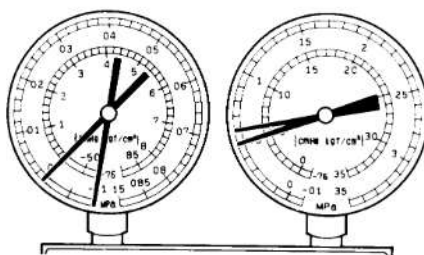


I01389

Symptom seen in refrigeration system	Probable cause	Diagnosis	Remedy
• Pressure low in both low and high pressure sides • Frost on tube from receiver to unit	Refrigerant flow obstructed by dirt in receiver	Receiver clogged	Replace receiver

(5) Refrigerant does not circulate

Condition: Does not cool (Cools from time to time in some cases)

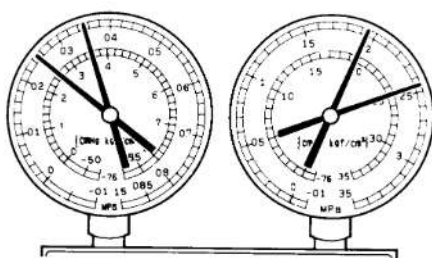


I01449

Symptom seen in refrigeration system	Probable cause	Diagnosis	Remedy
• Vacuum indicated on low pressure side, very low pressure indicated on high pressure side • Frost or dew seen on piping before and after receiver/ drier or expansion valve	• Refrigerant flow obstructed by moisture or dirt in refrigeration system • Refrigerant flow obstructed by gas leakage from expansion valve	Refrigerant does not circulate	(1) Check expansion valve (2) Clean out dirt in expansion valve by blowing with air (3) Replace receiver (4) Evacuate air and charge new refrigerant to proper amount (5) For gas leakage from expansion valve, replace expansion valve

(6) Refrigerant overcharged or insufficient cooling of condenser

Condition: Insufficient cooling

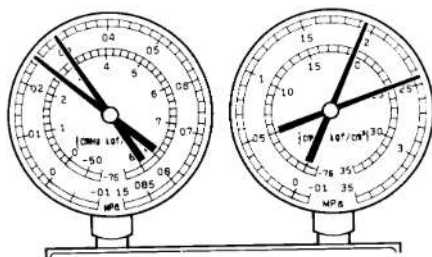


I01390

Symptom seen in refrigeration system	Probable cause	Diagnosis	Remedy
• Pressure too high on both low and high pressure sides • No air bubbles seen through the sight glass even when the engine rpm is lowered	• Unable to develop sufficient performance due to excessive • Insufficient cooling of condenser	• Excessive refrigerant in cycle→refrigerant overcharged • Condenser cooling insufficient→condenser fins clogged or cooling fan faulty	(1) Clean condenser (2) Check cooling fan with fluid coupling operation (3) If (1) and (2) are in normal state, check amount of refrigerant Charge proper amount of refrigerant

(7) Air present in refrigeration system

Condition: Insufficient cooling



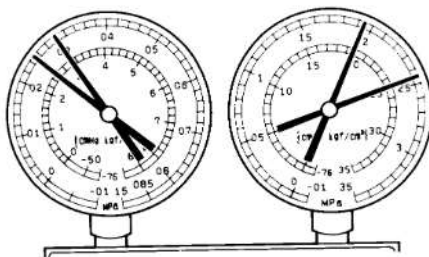
NOTE : These gauge indications are shown when the refrigeration system has been opened and the refrigerant charged without vacuum purging.

I01392

Symptom seen in refrigeration system	Probable cause	Diagnosis	Remedy
• Pressure too high on both low and high pressure sides • The low pressure piping hot to the touch • Bubbles seen in sight glass	Air entered in refrigeration system	• Air present in refrigeration system • Insufficient vacuum purging	(1) Check compressor oil to see if it is dirty or insufficient (2) Evacuate air and charge new refrigerant

(8) Expansion valve improperly

Condition: Insufficient cooling

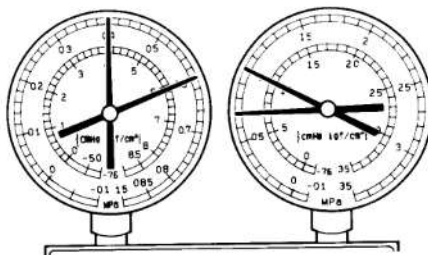


I01450

Symptom seen in refrigeration system	Probable cause	Diagnosis	Remedy
• Pressure too high on both low and high pressure sides • Frost or large amount of dew on piping on low pressure side	Trouble in expansion valve	• Excessive refrigerant in low pressure piping • Expansion valve opened too wide	Check expansion valve Replace if defective

(9) Defective compression compressor

Condition : Does not cool



I01393

Symptom seen in refrigeration system	Probable cause	Diagnosis	Remedy
- Pressure too high on low high pressure sides - Pressure too low to on high pressure side	Internal leak in compressor	- Compression defective - Valve leaking or broken sliding parts	Repair or replace compressor

3. INSPECT IDLE-UP SPEED

- (a) Warm up engine.
- (b) Inspect idle-up speed when the these conditions are established.
 - Warm up engine
 - Blower speed control switch at "HI" position
 - A/C switch ON
 - Temperature control dial at "COOL" position

Magnetic clutch condition	Idle-up speed
Magnetic clutch not engaged	700 ± 50 rpm
Magnetic clutch engaged	850 ± 50 rpm

If idle speed is not as specified, check Idle control system.

4. INSPECT FOR LEAKAGE OF REFRIGERANT

- (a) Perform in these conditions:
 - Stop engine.
 - Secure good ventilation (If not the gas leak detector may react to volatile gases which are not refrigerant, such as evaporated gasoline and exhaust gas.)
 - Repeat the test 2 or 3 times.
 - Make sure that there is some refrigerant remaining in the refrigeration system.
- When compressor is OFF: approx. 392 - 588 kPa
(4 - 6 kgf/cm², 57 - 85 psi)

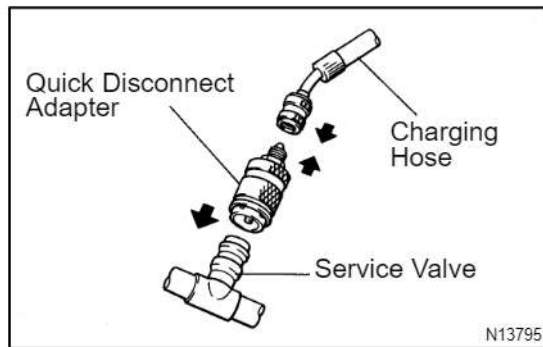
- (b) Bring the gas leak detector close to the drain hose before performing the test.

HINT:

- After the blower motor stopped, leave the cooling unit for more than 15 minutes.
- Expose the gas leak detector sensor the under the drain hose.
- When bring the gas leak detector close to the drain hose, make sure that the gas leak detector does not react to the volatile gases.

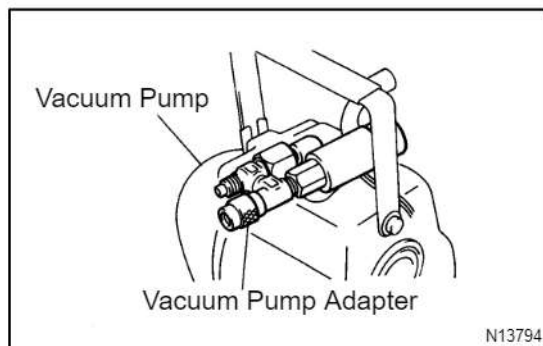
If such reaction is unavoidable, the vehicle must be lifted up.

- (c) If gas leak is not detected on the drain hose, remove the blower resistor from the cooling unit. Then insert the gas leak detector sensor into the unit and perform the test.
- (d) Disconnect the connector and leave the pressure switch for approx. 20 minutes. Then bring the gas leak detector close to the pressure switch and perform the test.
- (e) Bring the gas leak detector close to the refrigerant lines and perform the test.

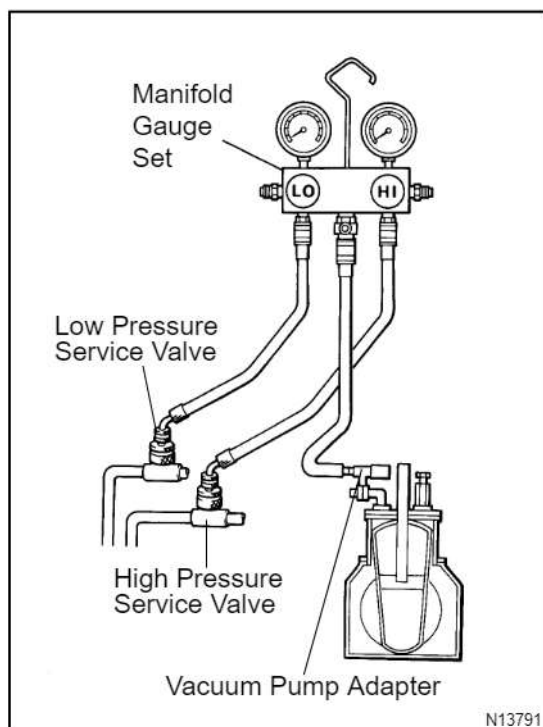


EVACUATING

1. **CONNECT QUICK DISCONNECT ADAPTER TO CHARGING HOSES**
2. **REMOVE CAPS FROM SERVICE VALVES ON REFRIGERANT LINES**
3. **SET ON MANIFOLD GAUGE SET**
 - (a) Close both hand valves of manifold gauge set.
 - (b) Connect the quick disconnect adapters to the service valves.



4. **EVACUATE AIR FROM REFRIGERATION SYSTEM**
 - (a) Connect the vacuum pump adapter to the vacuum pump.

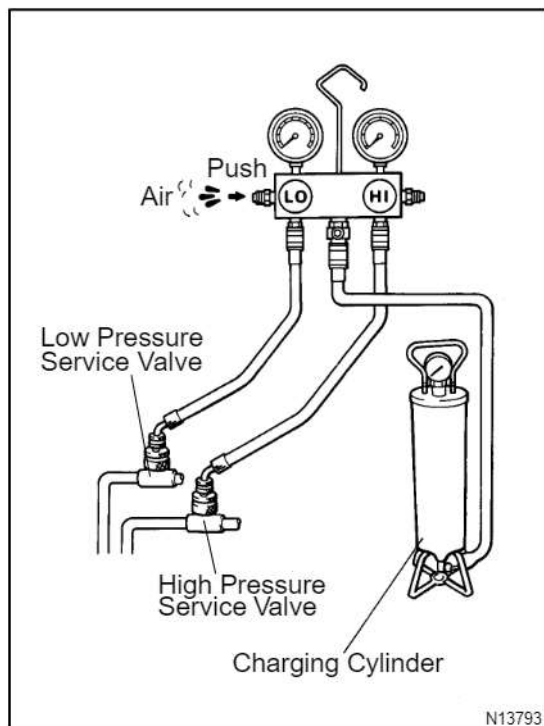


- (b) Connect the center hose of the manifold gauge set to the vacuum pump adapter.
- (c) Open both the high and low hand valves and run the vacuum pump.
- (d) After 10 minutes or more, check that the low pressure gauge indicates 750 mmHg (30 in. Hg) or more.

HINT:

If the reading 750 mmHg (30 in. Hg) or more, close both hand valves of manifold gauge set and stop the vacuum pump. Check the system for leaks and repair necessary.

- (e) Close both the high and low hand valves and stop the vacuum pump.
- (f) Leave the system in this condition for 5 minutes or more and check that there is no gauge indicator.



CHARGING

1. INSTALL CHARGING CYLINDER

HINT:

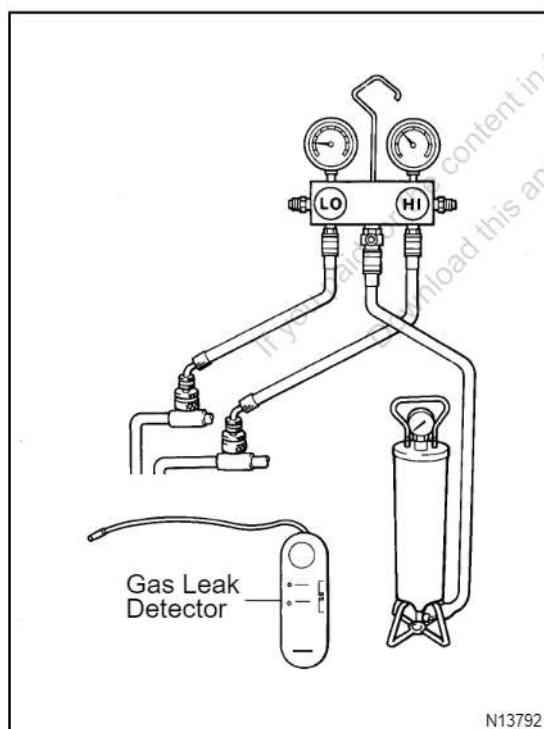
When handling the charging cylinder, always follow the directions given in the instruction manual.

- Charge the proper amount of refrigerant into the charging cylinder.
- Connect the center hose to the charging cylinder.

CAUTION:

Do not open both high and low hand valves of manifold gauge set.

- Open the valve of charging cylinder.
- Press the valve core on the side of manifold gauge and expel the air inside of the center hose.

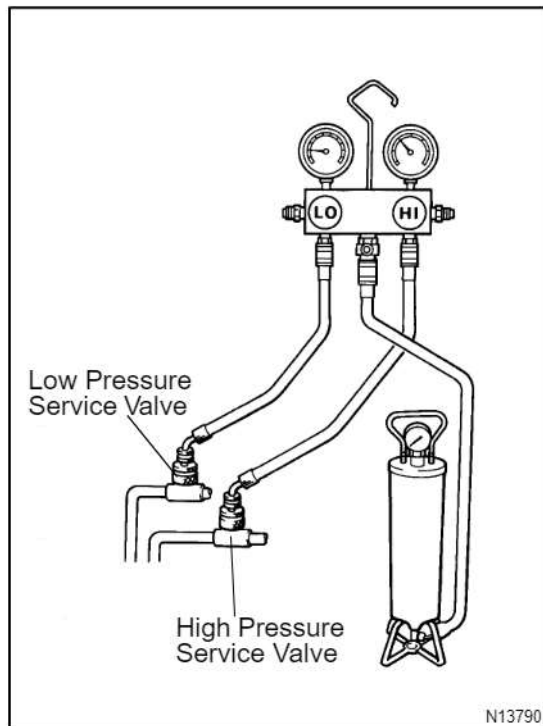


2. INSPECT REFRIGERATION SYSTEM FOR LEAKS

- Open the high pressure hand valve and charge refrigerant.
- When the low pressure gauge indicates 98 kPa (1 kgf/cm², 14 psi) close the high pressure hand valve.
- Using a gas leak detector, check the system for leakage.

CAUTION:

Use the refrigerant recovery/ recycling machine to recover the refrigerant whenever replacing parts.



3. CHARGE REFRIGERANT INTO REFRIGERANT SYSTEM

If there is no leak after refrigerant leak check, charge the proper amount of refrigerant into refrigeration system.

CAUTION:

- Never run the engine when charging the system through the high pressure side.
 - Do not open the low pressure hand valve when the system is being charged with liquid refrigerant.
- (a) Open the high pressure hand valve fully.
 - (b) Charge specified amount of refrigerant, then close the high pressure hand valve.

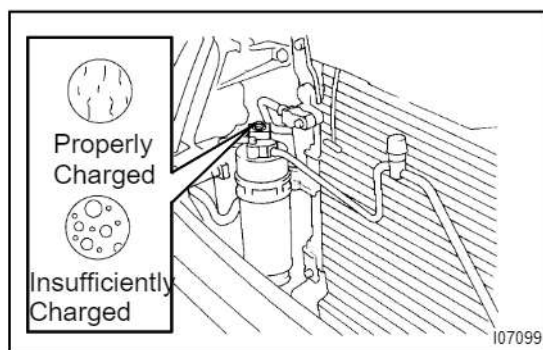
HINT:

A fully charged system is indicated by the sight glass being free of any bubbles.

- (c) Charge partially refrigeration system with refrigerant.
 - (1) Set vehicle in these condition:
 - Running engine at 1,500 rpm
 - Blower speed control set at "HI"
 - Temperature control set at "MAX. COOL"
 - Air inlet control set at "RECIRC"
 - Fully open doors (Sliding roof: closed)
 - (2) Open the low pressure hand valve.

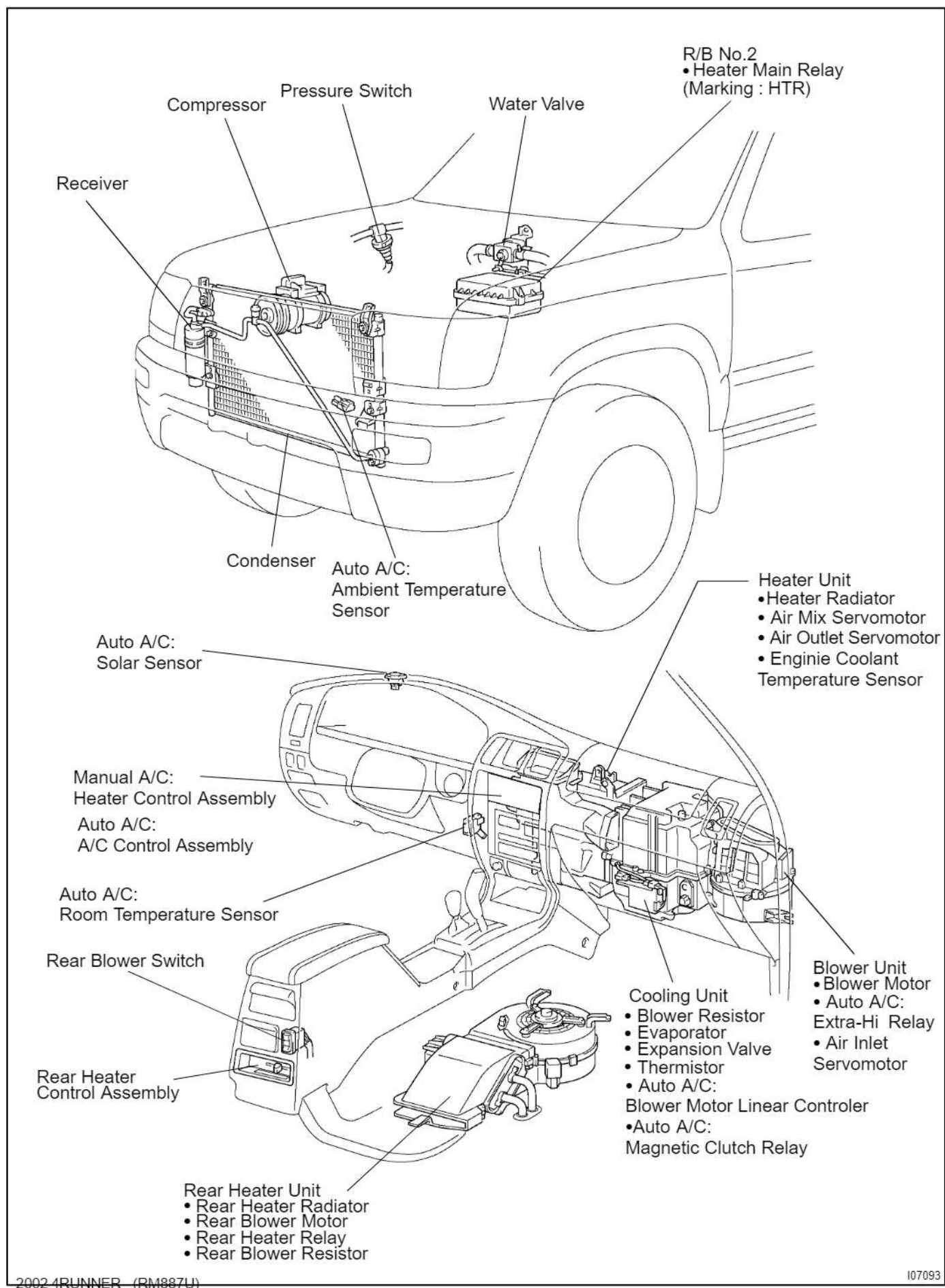
CAUTION:

Do not open the high pressure hand valve.



- (d) Charge refrigerant until bubbles disappear and check the pressure on the gauge through the sight glass.

LOCATION



TROUBLESHOOTING (Manual A/C)

AC22H-03

PROBLEM SYMPTOMS TABLE

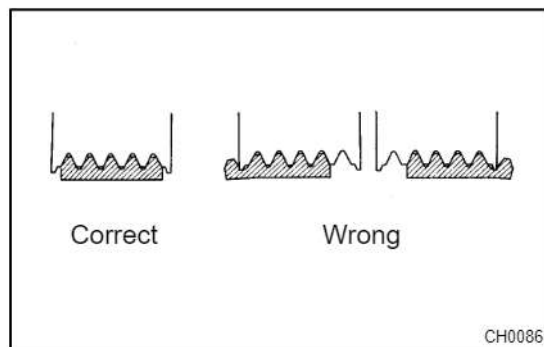
Use the table below to help you find the cause of the problem. The numbers indicate the priority of the likely cause of the problem. Check each part in order. If necessary, replace these parts.

Symptom	Suspect Area	See page
No blower operation	2. HTR Fuse 3. Heater main relay 4. Blower motor 5. Blower resistor 6. Blower speed control switch 7. Wire harness	- AC-80 AC-66 AC-67 AC-95 -
No air temperature control	1. Engine coolant volume 2. Heater control assembly 3. Water valve	- AC-89 AC-63
No compressor operation	1. Refrigerant volume 2. A.C Fuse 3. Magnetic clutch 4. Compressor 5. Pressure switch 6. Heater main relay 7. Blower speed control switch 8. Thermistor 9. Wire harness	AC-3 - AC-49 AC-49 AC-77 AC-80 AC-95 AC-24 -
Compressor operates intermittently	1. Refrigerant volume 2. Pressure switch 3. Thermistor 4. Wire harness	AC-3 AC-77 AC-24 -
No cool air comes out	1. Refrigerant volume 2. Refrigerant pressure 3. Drive belt 4. Magnetic clutch 5. Compressor 6. Pressure switch 7. Thermistor 8. Heater control assembly 9. Wire harness	AC-3 AC-3 AC-16 AC-49 AC-49 AC-77 AC-24 AC-89 -
Cool air comes out only at high engine rpm	1. Refrigerant volume 2. Drive belt 3. Magnetic clutch 4. Compressor 5. Condenser 6. Receiver 7. Expansion valve 8. Evaporator 9. Thermistor 10. Wire harness	AC-3 AC-16 AC-49 AC-49 AC-60 AC-57 AC-24 AC-29 AC-24 -

Insufficient cooling	1. Refrigerant volume	AC-3
	2. Drive belt	AC-16
	3. Magnetic clutch	AC-49
	4. Compressor	AC-49
	5. Condenser	AC-60
	6. Receiver	AC-57
	7. Expansion valve	AC-24
	8. Evaporator	AC-29
	9. Refrigerant lines	AC-21
	10. Pressure switch	AC-77
	11. Heater control assembly	AC-89
No engine idle-up when A/C switch ON	1. Idle control system	DI-105
	2. Wire harness	-
No warm air comes out	1. Engine coolant volume	-
	2. Heater control assembly	AC-89
	3. Water valve	AC-63
	4. Heater radiator	AC-35

Rear heater:

No blower operation	1. RR HTR Fuse	-
	2. Rear heater relay	AC-81
	3. Rear blower switch	AC-103
	4. Rear blower resistor	AC-70
	5. Rear blower motor	AC-41
	6. Wire harness	-
No air temperature control	1. Engine coolant volume	-
	2. Rear heater control assembly	AC-102
No warm air comes out	1. Engine coolant volume	-
	2. Rear heater control assembly	AC-100
	3. Rear heater radiator	AC-41

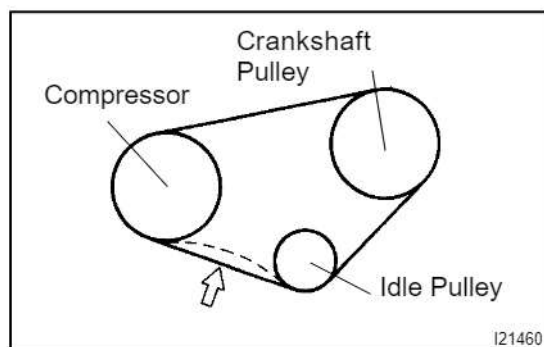


DRIVE BELT ON-VEHICLE INSPECTION

AC0C7-05

1. INSPECT DRIVE BELT'S INSTALLATION CONDITION

Check that the drive belt fits properly in the ribbed grooves.



2. INSPECT DRIVE BELT TENSION

Using a belt tension gauge, check the drive belt tension.

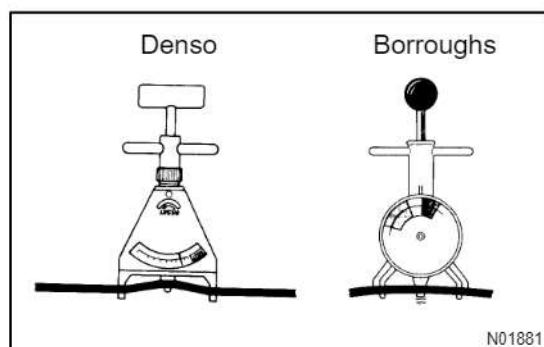
Drive belt tension:

New belt 160 ± 25 lbf

Used belt 100 ± 20 lbf

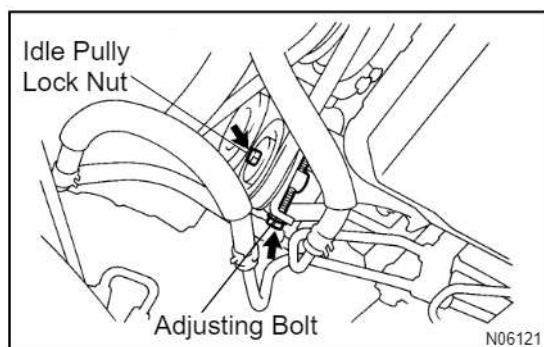
HINT:

- "New belt" refers to a belt which has been used less than 5 minutes on a running engine.
- "Used belt" refers to a belt which has been used on a running engine for 5 minutes or more.
- After installing the drive belt, check that it fits properly in the ribbed grooves.

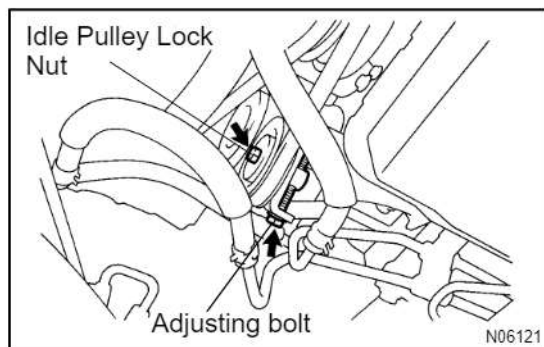


REMOVAL

1. REMOVE PS PUMP DRIVE BELT (See page [SR-33](#))
2. REMOVE ENGINE UNDER COVER

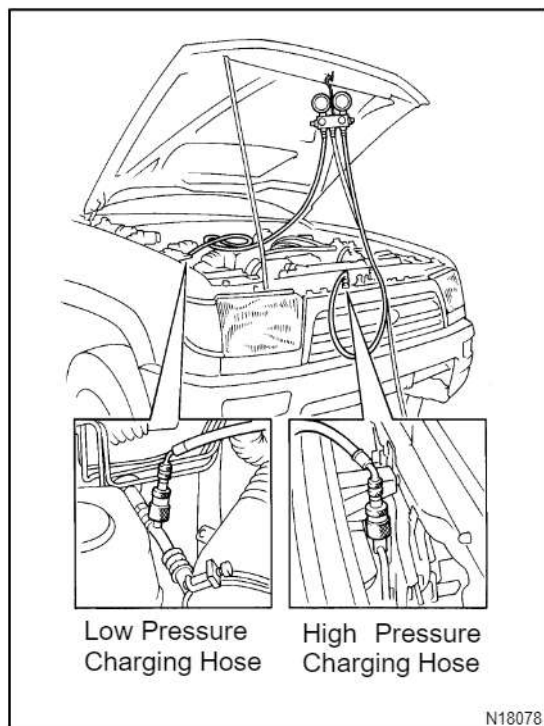


3. REMOVE DRIVE BELT
 - (a) Loosen the idle pully lock nut.
 - (b) Loosen the drive belt tension by adjusting bolt and remove the dirve belt.



INSTALLATION

1. **TIGHTEN IDLE PULLEY LOCK NUT TEMPORALLY**
Torque: 2.5 N·m (25 kgf·cm, 22 in·lbf)
2. **INSTALL DRIVE BELT**
3. **USING ADJUSTING BOLT, ADJUST DRIVE BELT TENSION**
Drive belt tension
New belt: 160 ± 25 lbf
Used belt: 100 ± 25 lbf
4. **TIGHTEN IDLE PULLEY LOCK NUT**
Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)
5. **INSTALL PS PUMP DRIVE BELT**
6. **INSTALL ENGINE UNDER COVER**



MANIFOLD GAUGE SET SET ON

AC0CA-03

1. CONNECT CHARGE HOSE TO MANIFOLD GAUGE SET

Tighten the nuts by hand.

CAUTION:

Do not connect the wrong hoses.

2. CONNECT QUICK DISCONNECT ADAPTERS TO CHARGING HOSES

Tighten the nuts by hand.

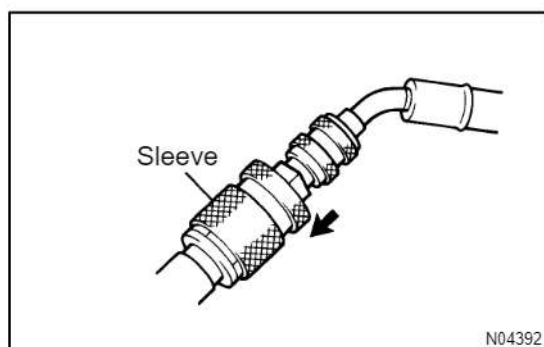
3. CLOSE BOTH HAND VALVES OF MANIFOLD GAUGE SET

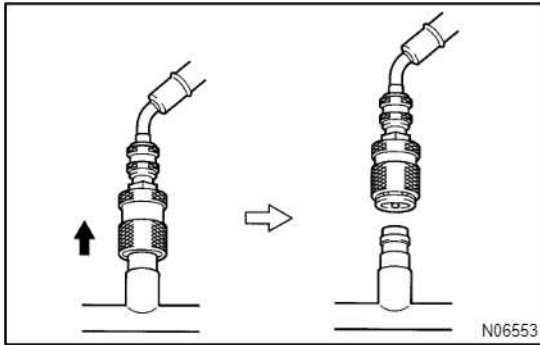
4. REMOVE CAPS FROM SERVICE VALVES ON REFRIGERANT LINE

5. CONNECT QUICK DISCONNECT ADAPTERS TO SERVICE VALVES

HINT:

Push the quick disconnect adapter onto the service valve, then slide, then slide the sleeve of the quick disconnect adapter downward to lock it.





SET OFF

1. CLOSE BOTH HAND VALVES OF MANIFOLD GAUGE SET
2. DISCONNECT QUICK DISCONNECT ADAPTERS FROM SERVICE VALVES ON REFRIGERANT LINE

HINT:

Slide the sleeve of the quick disconnect adapter upward to unlock the adapter and remove it from the service valve.

3. INSTALL CAPS TO SERVICE VALVES ON REFRIGERANT LINE

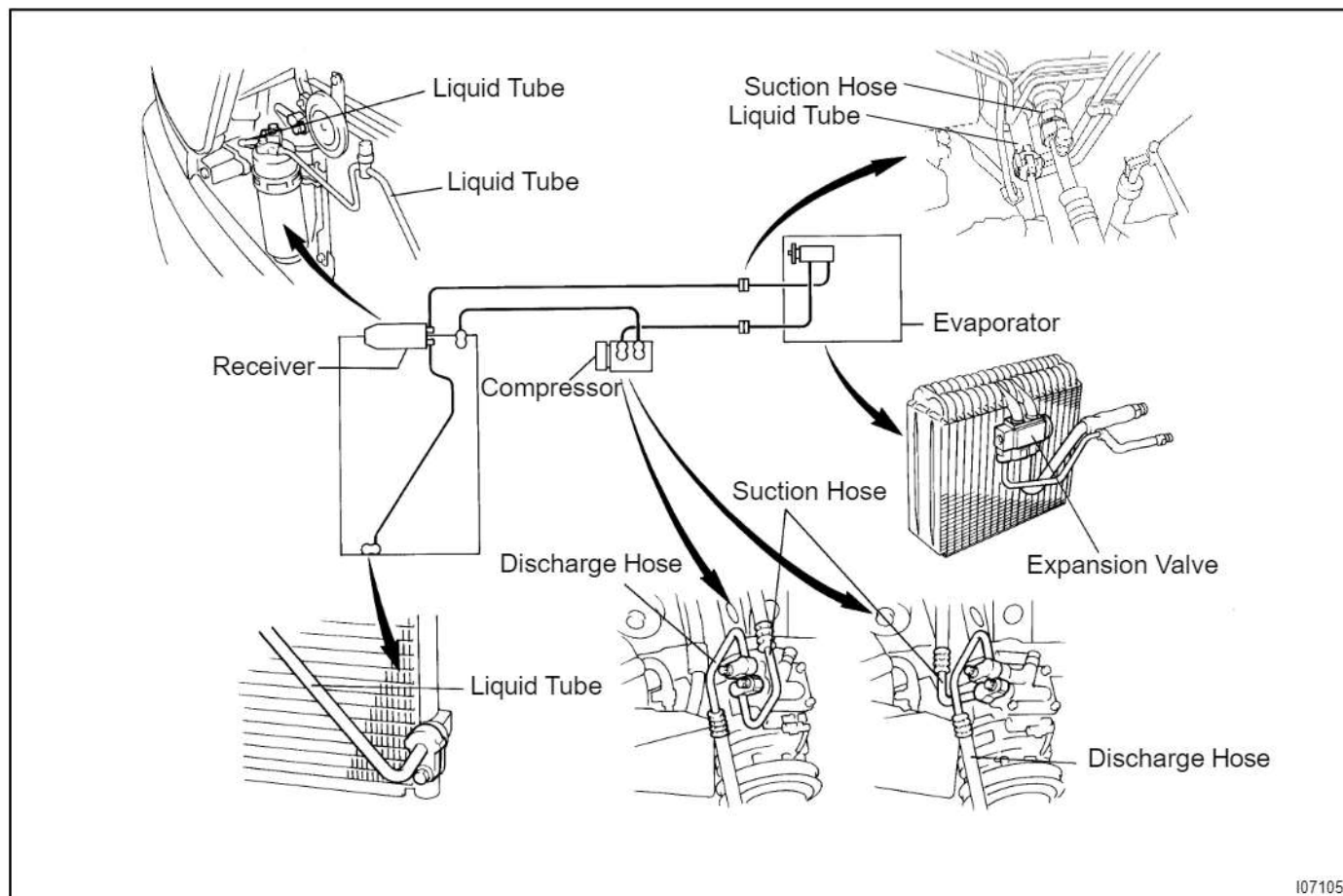
REFRIGERANT LINE ON-VEHICLE INSPECTION

AC0CC-01

1. INSPECTION HOSE AND TUBE CONNECTIONS FOR LOOSENESS
2. INSPECT HOSES AND TUBES FOR LEAKAGE

Using a gas leak detector, check for leakage of refrigerant.

LOCATION



107105

REPLACEMENT

1. DISCHARGE REFRIGERANT FROM REFRIGERATION SYSTEM
2. REPLACE FAULTY TUBE OR HOSE

NOTICE:

Cap the open fittings immediately to keep moisture or dirt out of the system.

3. TIGHTEN JOINT OF BOLT OR NUT AT SPECIFIED TORQUE

NOTICE:

Connections should not be torqued tighter than the specified torque.

Part tightened	N·m	kgf·cm	ft·lbf
Receiver x Liquid tube	6.0	60	52 in.·lbf
Condenser x Discharge hose	10	100	7
Condenser x Liquid tube	14	140	10
Compressor x Discharge hose	10	100	7
Compressor x Suction hose	10	100	7
Cooling unit x Suction tube	32	330	24
Expansion valve x Evaporator	5.4	55	48 in.·lbf
Suction line (Piping joint)	32	330	24
Liquid line (Piping joint)	14	140	10

4. EVACUATE AIR IN REFRIGERATION SYSTEM AND CHARGE SYSTEM WITH REFRIGERANT

Specified amount: 650 ± 50g (22.92 ± 1.76 oz.)

5. INSPECT FOR LEAKAGE OF REFRIGERANT

Using a gas leak detector, check for leakage of refrigerant.

6. INSPECT AIR CONDITIONING OPERATION

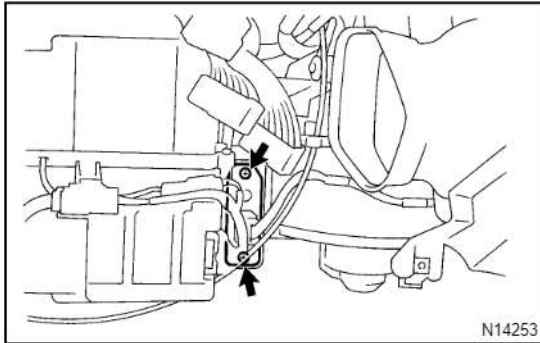
COOLING UNIT

ON-VEHICLE INSPECTION

AC3EZ-01

1. INSPECT FOR LEAKAGE OF REFRIGERANT

- (a) Remove the glove compartment door
(See page [BO-69](#)).



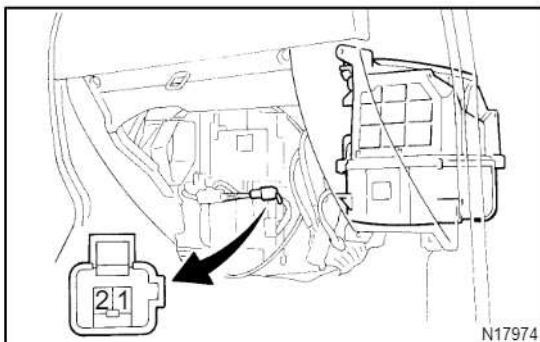
- (b) Manual A/C:
Remove the blower resistor.
 - (1) Disconnect the connector.
 - (2) Remove the 2 screws and blower resistor.
- (c) Using a gas leak detector, check for leakage.
If there is leakage, check the tightening torque at the joints or check the evaporator.
- (d) Manual A/C:
Install the blower resistor with the 2 screws.
- (e) Install the glove compartment door (See page [BO-76](#)).

2. INSPECT EXPANSION VALVE

- (a) Check quantity of gas during refrigeration cycle.
- (b) Set on manifold gauge set.
- (c) Run engine.
 - (1) Run the engine at 1,500 rpm for at least 5 minutes.
 - (2) Then check that the high pressure reading is 1.37 - 1.57 Mpa (14 - 16 kgf/cm², 199 - 288 psi).
- (d) Check expansion valve.
If the expansion valve is faulty, the low pressure reading will drop to 0 kPa (0 kgf/cm², 0 psi).

HINT:

When the lower pressure drop to 0 kPa (0 kgf/cm², 0 psi), feel the receiver's IN and OUT sides for no temperature difference.



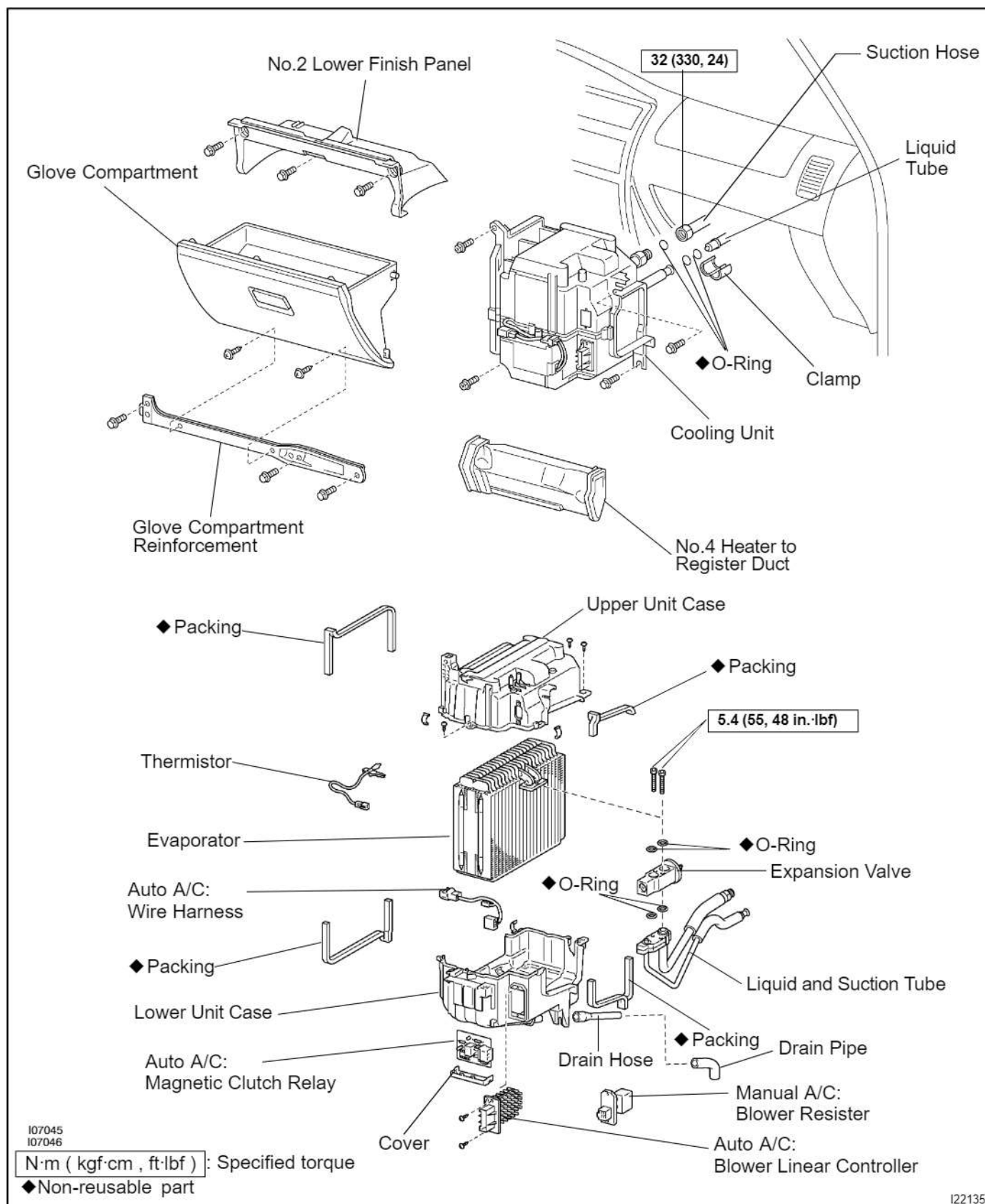
3. INSPECT THERMISTOR RESISTANCE

- (a) Disconnect the connector.
- (b) Measure resistance between terminals.

Standard resistance: 1,500 Ω at 25°C (77°F)

If resistance is not as specified, replace the thermistor.

COMPONENTS



I22135

REMOVAL

1. DISCHARGE REFRIGERANT FROM REFRIGERATION SYSTEM

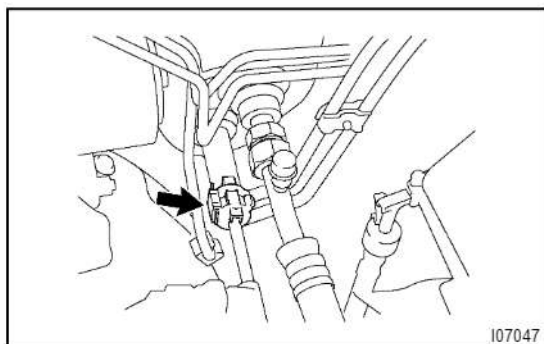
HINT:

At the time of installation, please refer to the following item.

Evacuate air from refrigeration system.

Charge system with refrigerant and inspect for leakage of refrigerant.

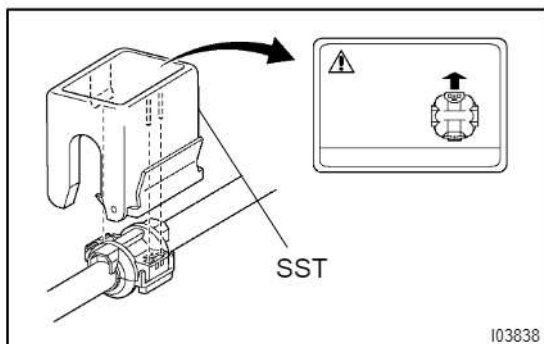
Specified amount: 650 ± 50 g (22.92 ± 1.76 oz.)



2. DISCONNECT LIQUID TUBE

(a) Using SST, remove the piping clamp.

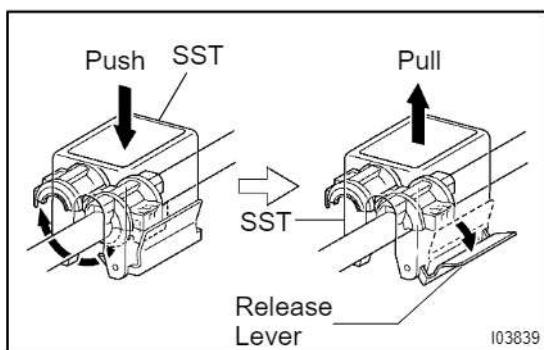
SST 09870-00025 (Liquid tube)



(1) Insert SST to piping clamp.

HINT:

Confirm the direction of the piping clamp claw and SST using the illustration showing on the caution label.



(2) Push down SST and release the clamp lock.

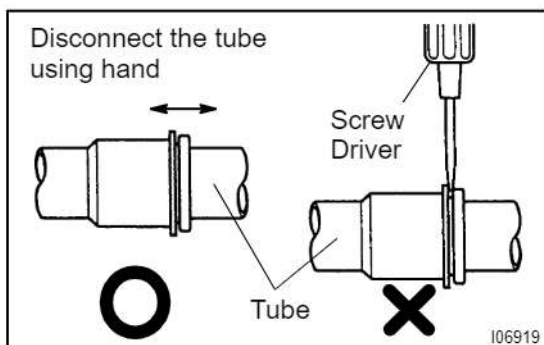
NOTICE:

Be careful not to deform the tubes, when pushing SST.

(3) Pull SST slightly and push the release lever, then remove the piping clamp with SST.

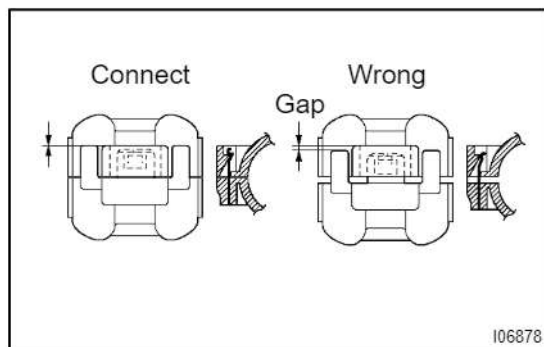
(4) Remove the piping clamp from SST.

(b) Disconnect the both tubes.



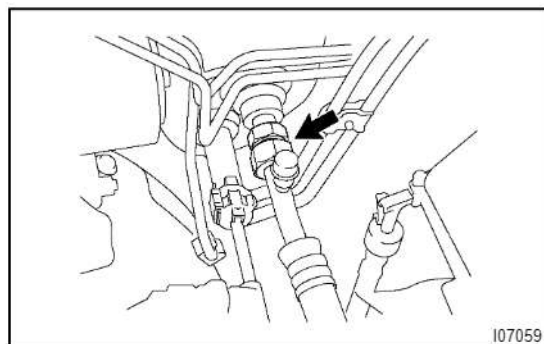
NOTICE:

- Do not use tools like screwdriver to remove the tube.
- Cap the open fittings immediately to keep moisture or dirt out of the system.

**HINT:**

At the time of installation, please refer to the following item.

- Lubricate 2 new O-rings with compressor oil and install them to the tubes.
- After connection, check the fitting for claw of the piping clamp.



3. DISCONNECT SUCTION TUBE FROM COOLING UNIT FITTINGS

Loosen the nut and disconnect the both tube.

Torque: 32 N·m (330 kgf·cm, 24 ft·lbf)

NOTICE:

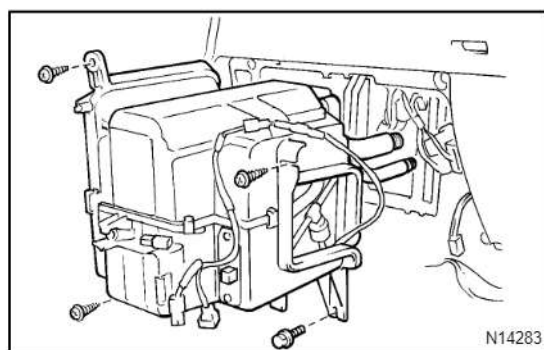
Cap the open fittings immediately to keep moisture or dirt out of the system.

HINT:

At the time of installation, please refer to the following item.

Lubricate a new O-ring with compressor oil and install them to the tube.

4. REMOVE 2 GROMMETS
5. REMOVE DRAIN PIPE GROMMET
6. REMOVE GLOVE COMPARTMENT PARTS (See page [BO-69](#))
7. REMOVE No.4 HEATER TO REGISTER DUCT



8. REMOVE COOLING UNIT

- (a) Disconnect the connectors.
- (b) Remove the 3 screws, bolt and the cooling unit.

DISASSEMBLY

1. REMOVE A/C AMPLIFIER
2. REMOVE WIRE HARNESS
3. Manual A/C:

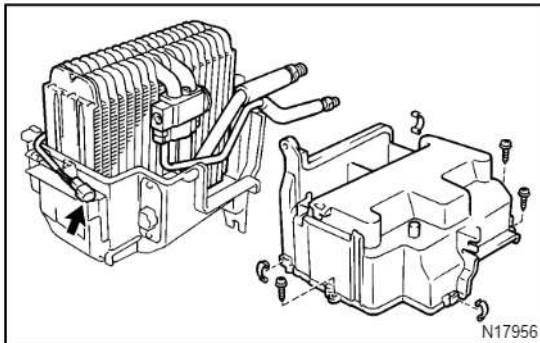
REMOVE BLOWER RESISTOR

Remove the 2 screws and blower resistor.

4. Auto A/C:

REMOVE BLOWER LINEAR CONTROLLER

Remove the 2 screws and blower linear controller.



5. SEPARATE UPPER AND LOWER UNIT CASES

- (a) Using a knife, cut off the each packing.
- (b) Remove the 3 clips and 3 screws.
- (c) Separate the upper and lower unit case.

6. REMOVE EVAPORATOR FROM LOWER UNIT CASE

HINT:

At the time of reassembly, please refer to the following item.

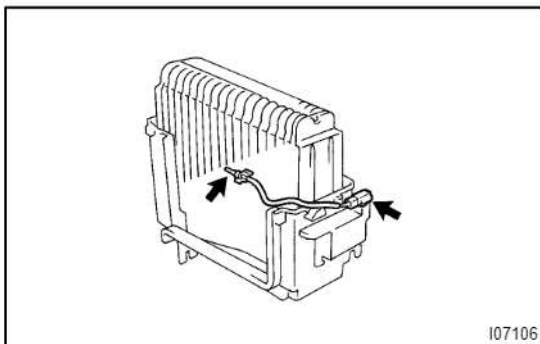
If evaporator is replaced, add compressor oil to compressor.

Add 40 - 50 cc (1.4 - 1.7 fl.oz.)

Compressor oil: ND-OIL 8 or equivalent

7. REMOVE THERMISTOR

- (a) Disconnect the connector clamp.
- (b) Pull out the thermistor from evaporator.



8. REMOVE EXPANSION VALVE

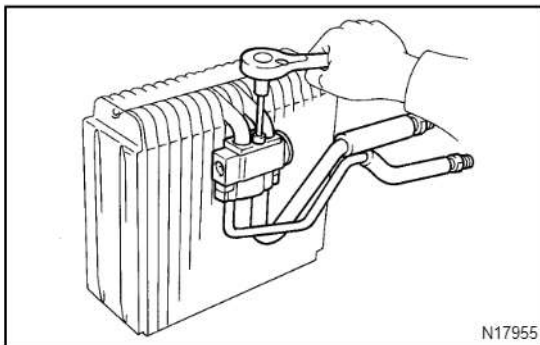
Using a hexagon wrench (5.0 mm, 0.20 in.), remove the 2 bolts and separate the expansion valve and evaporator and tubes.

Torque: 5.4 N·m (55 kgf·cm, 48 in.·lbf)

HINT:

At the time of reassembly, please refer to the following item.

Lubricate 4 new O-rings with compressor oil and install the tubes and valve.



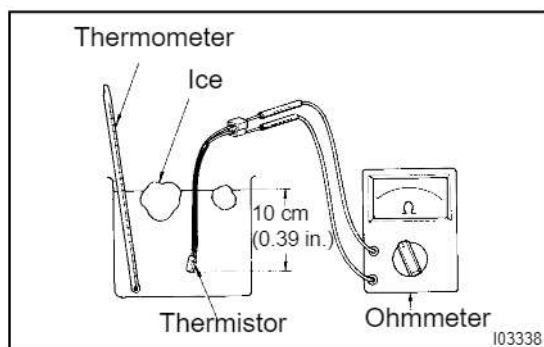
INSPECTION

1. CHECK EVAPORATOR FINS FOR BLOCKAGE

If the fins are clogged, clean them with compressed air.

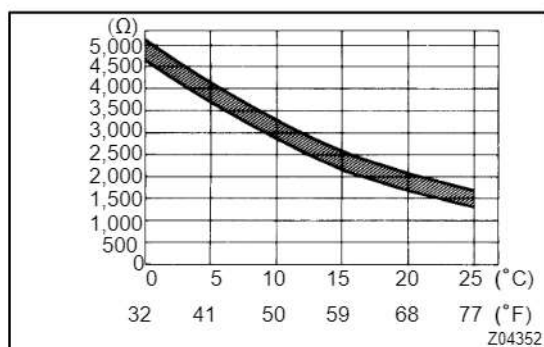
2. CHECK FITTING FOR CRACKS FOR SCRATCHES

If necessary repair or replace.



3. INSPECT THERMISTOR RESISTANCE

- (a) Place the thermistor in cold water and while changing the temperature of the water, measure resistance at the connector and at the same time, measure temperature of the water with a thermometer.



- (b) Compare the 2 readings on the chart. If resistance value is not as specified, replace the thermistor.

REASSEMBLY

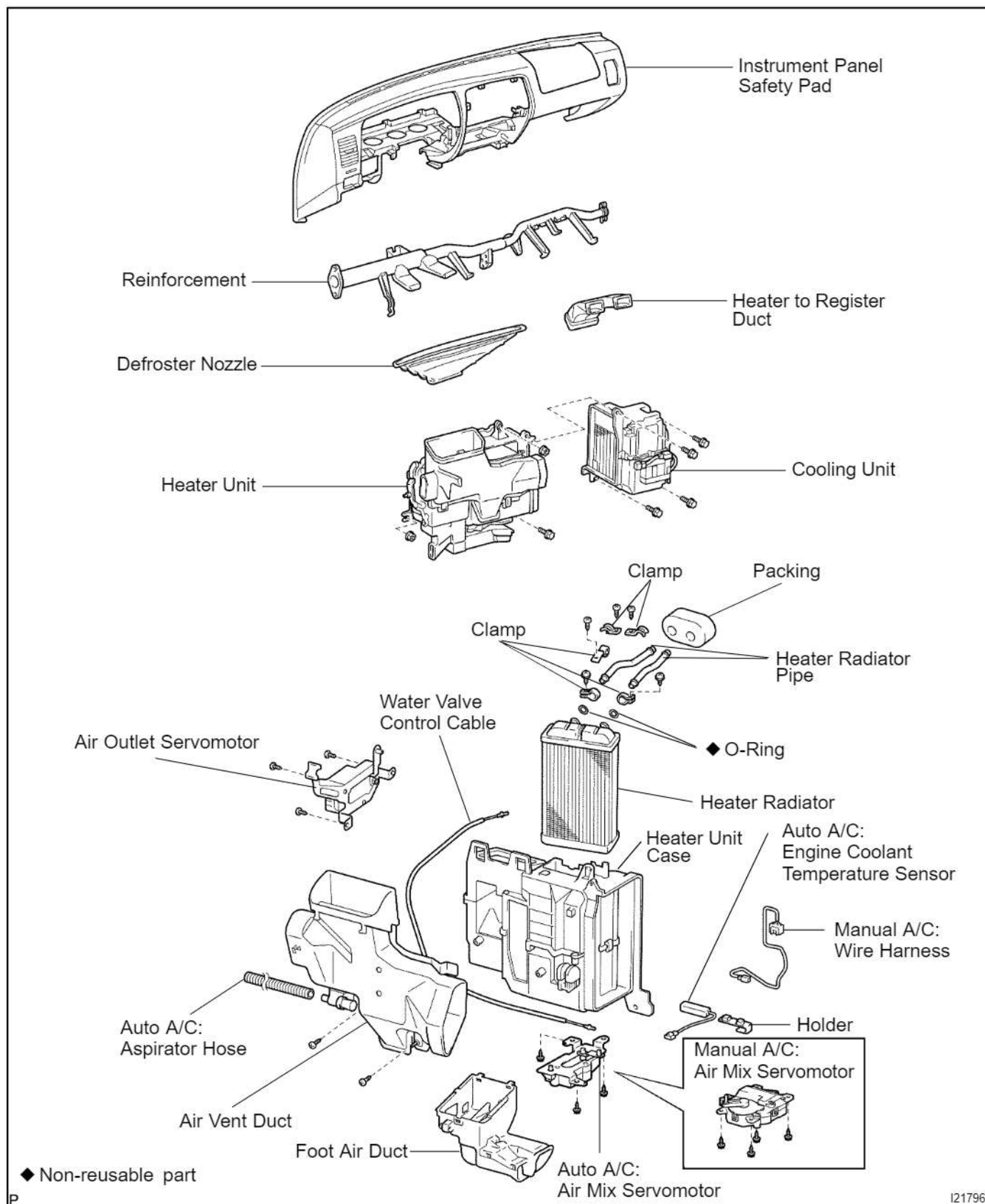
Reassembly is in the reverse order of disassembly (See page [AC-28](#)).

INSTALLATION

Installation is in the reverse order of removal (See page [AC-26](#)).

HEATER UNIT COMPONENTS

AC0CK-04



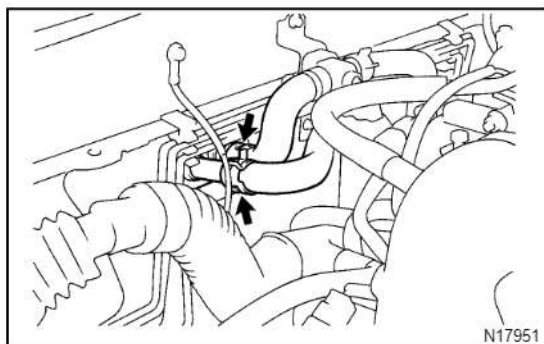
I21796

REMOVAL

1. **REMOVE COOLING UNIT** (See page [AC-26](#))
2. **DRAIN ENGINE COOLANT FROM RADIATOR**

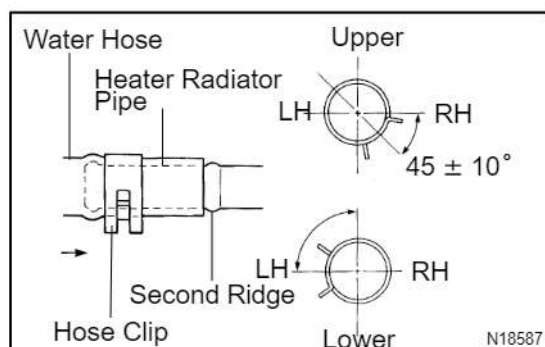
HINT:

It is not necessary to drain out all the coolant.



3. **DISCONNECT WATER HOSES FROM HEATER RADIATOR PIPES**

- (a) Using pliers, grip the claw of clip and slide the clip along the hose.
- (b) Disconnect the water hoses.



HINT:

At the time of installation, please refer to the following items.

- Push the water hose onto the heater radiator pipe as far as the second ridge on the pipe.
 - Install the hose clip in a position, as shown in the illustration.
4. **REMOVE INSTRUMENT PANEL AND REINFORCEMENT** (See page [BO-69](#))
 5. **REMOVE DEFROSTER NOZZLE AND HEATER TO REGISTER DUCT**
 6. **REMOVE HEATER UNIT**
 - (a) Disconnect the connector from mode control servomotor.
 - (b) Auto A/C models:
Disconnect the aspirator hose from room temperature sensor.
 - (c) Disconnect the water valve control cable.
 - (d) Remove the 2 nuts and heater unit.

DISASSEMBLY

1. REMOVE AIR MIX SERVOMOTOR

- (a) Remove the water valve control cable.
- (b) Disconnect the connector.
- (c) Remove the 3 screws and servomotor.

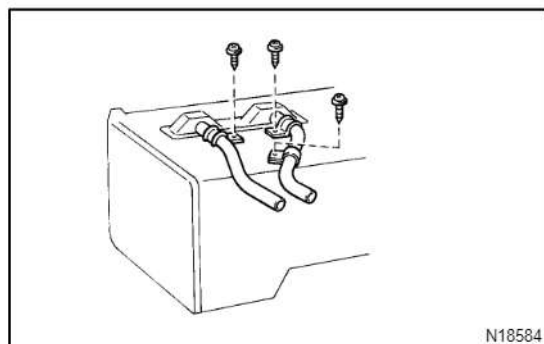
2. REMOVE AIR OUTLET SERVOMOTOR

Remove the 3 screws and servomotor.

3. Auto A/C models:

REMOVE ENGINE COOLANT TEMPERATURE SENSOR

After pulling off the clamp, pull out the sensor.



4. REMOVE HEATER RADIATOR

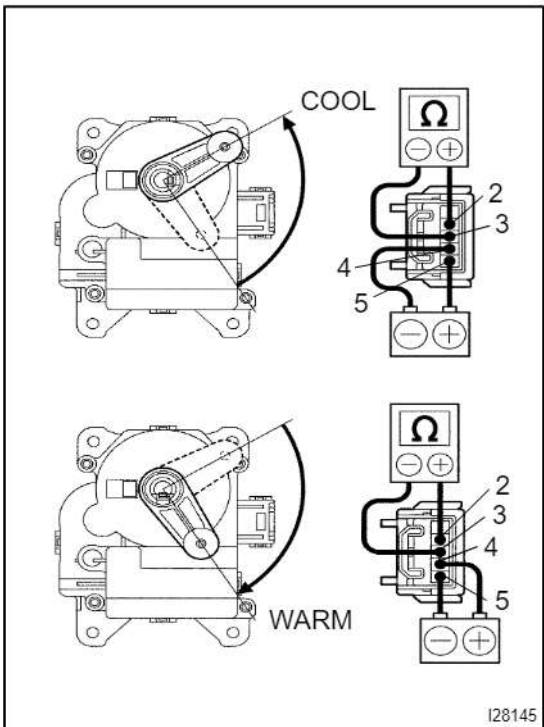
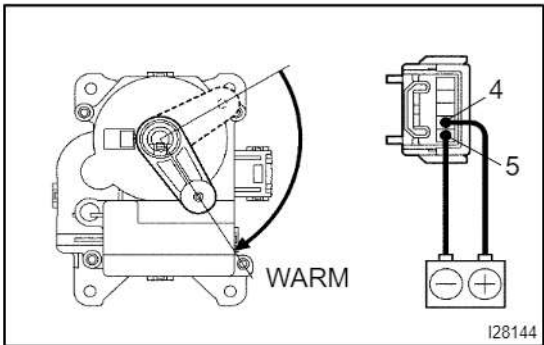
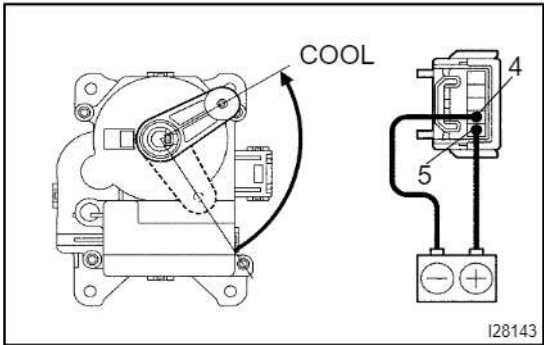
- (a) Remove the 3 screws and 2 plates and clamp.
- (b) Pull out the heater radiator.
- (c) Remove the 2 screws and 2 clips, then disconnect the heater radiator pipes.

5. REMOVE AIR VENT DUCT

Remove the 2 screws and duct.

INSPECTION

1. **INSPECT HEATER RADIATOR FINS FOR BLOCKAGE**
If the fins are clogged, clean them with compressed air.
2. **INSPECT AIR MIX SERVOMOTOR CIRCUIT**
(See page [DI-602](#))
3. **INSPECT AIR MIX DAMPER POSITION CIRCUIT**
(See page [DI-596](#))



4. Manual A/C model: INSPECT AIR MIX SERVOMOTOR

- (a) Inspect servomotor operation.
 - (1) Connect the positive (+) lead from the battery to terminal 5 and negative (-) lead to terminal 4, then check that the arm turns to "COOL" side smoothly.
 - (2) Connect the positive (+) lead from the battery to terminal 4 and negative (-) lead to terminal 5, then check that the arm turns to "WARM" side smoothly.

If operations are not as specified, replace the air mix servomotor.

- (b) Inspect position sensor resistance.
Measure resistance between terminals at servomotor arm each position as shown in the chart.

Tester connection	Condition	Specified condition
2 - 3	Arm position at "COOL"	3.8 - 5.8 kΩ
2 - 3	Arm position at "WARM"	0.95 - 1.45 kΩ

If resistance is not as specified, replace the servomotor.

REASSEMBLY

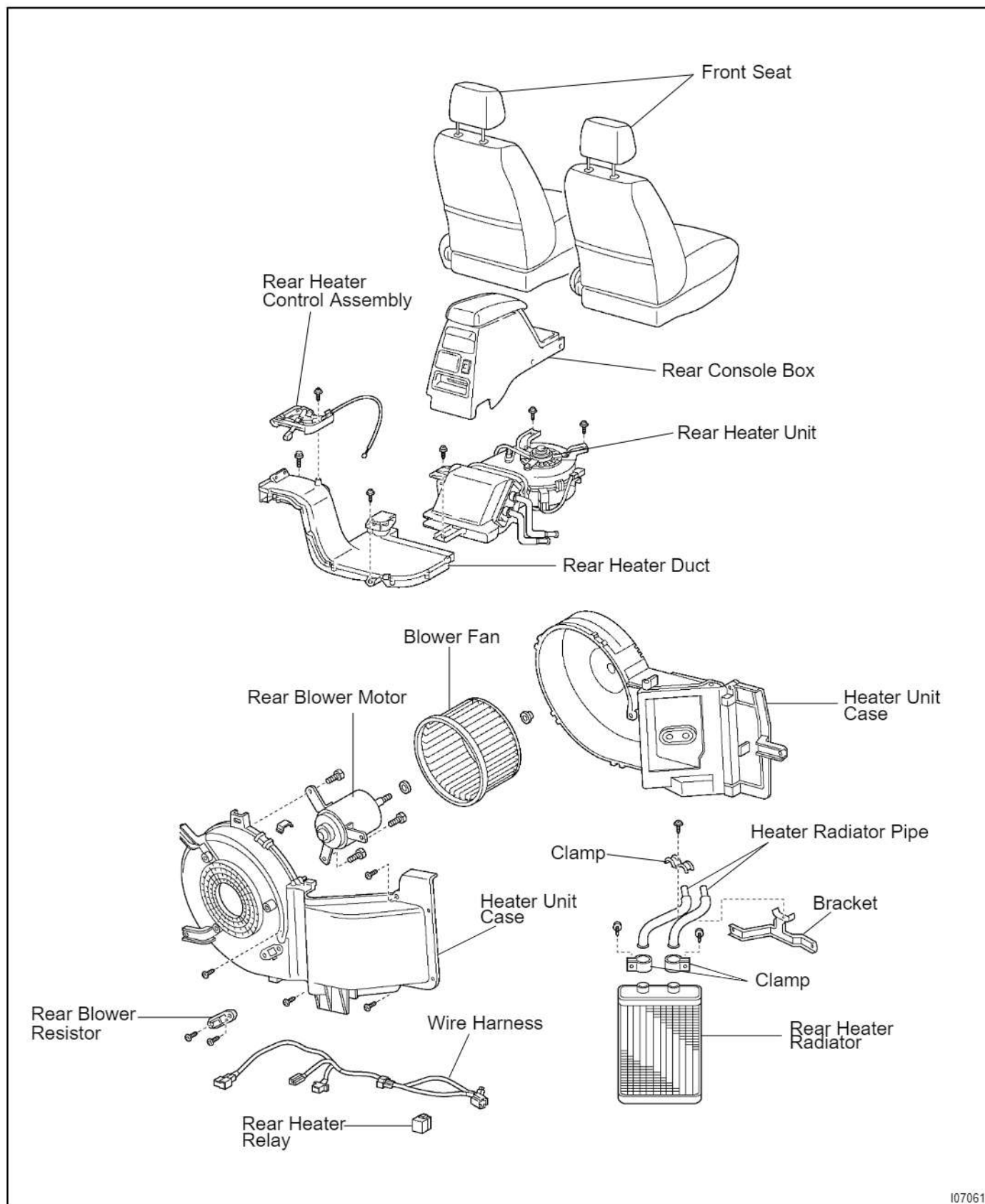
Reassembly is in the reverse order of disassembly (See page [AC-34](#)).

INSTALLATION

Installation is in the reverse order of removal (See page [AC-33](#)).

REAR HEATER UNIT COMPONENTS

AC6CP-02



107061

REMOVAL

1. DRAIN ENGINE COOLANT

HINT:

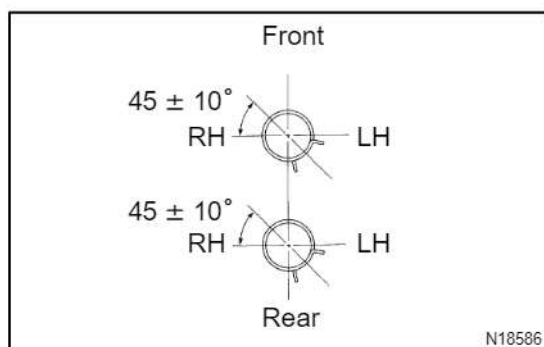
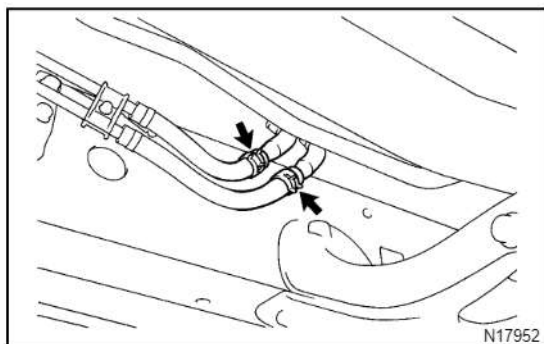
It is not necessary to drain out all coolant.

2. REMOVE FRONT SEATS

3. REMOVE CENTER CONSOLE BOX

4. SLIDE FLOOR CARPET BACKWARD

5. DISCONNECT WATER HOSES



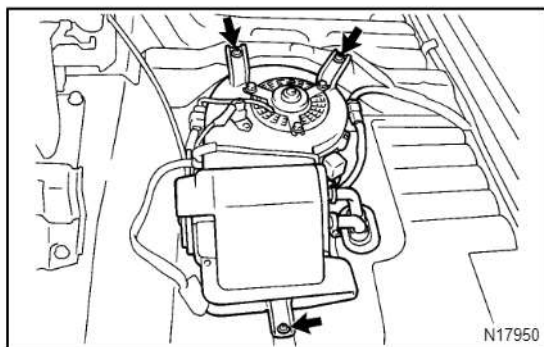
HINT:

At the time of installation, please refer to the following item.
Install the hose clip in a position, as shown in the illustration.

6. REMOVE REAR HEATER DUCT

Remove the bolt, screw and duct.

7. REMOVE REAR HEATER CONTROL ASSEMBLY (See page AC-101)

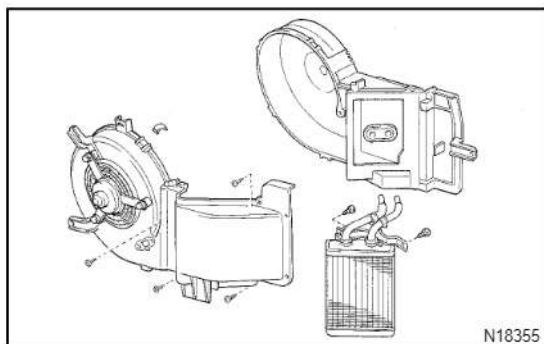


8. REMOVE REAR HEATER DUCT

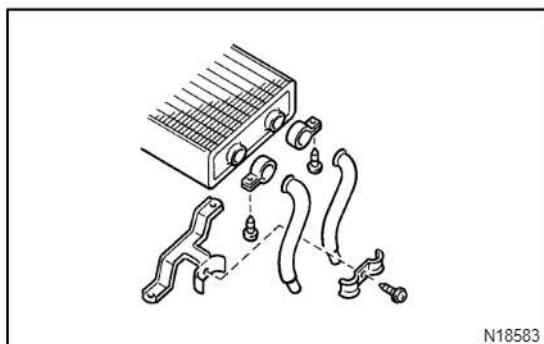
- (a) Disconnect the connectors.
- (b) Remove the 3 screws and heater unit.

DISASSEMBLY

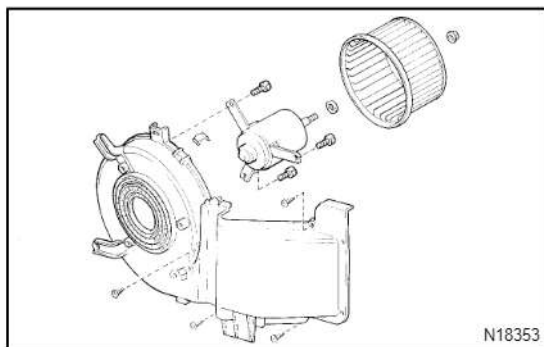
1. REMOVE BLOWER RESISTOR
2. REMOVE REAR HEATER RELAY
3. REMOVE WIRE HARNESS
4. SEPARATE HEATER CASES



5. REMOVE HEATER RADIATOR
 - (a) Remove the wire harness clamps.
 - (b) Remove the 4 screws and 5 clips, then separate the heater cases.
 - (c) Remove the 2 screws and heater radiator.



- (d) Remove the 2 screws and 2 piping clamps.
 - (e) Remove the 2 screws and 2 heater radiator pipes.

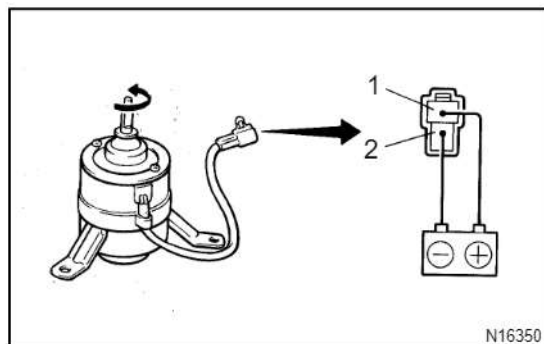


6. REMOVE BLOWER MOTOR
 - (a) Remove the wire harness clamps.
 - (b) Remove the 4 screws 5 clips and separate the heater cases.
 - (c) Remove the 3 screws and blower motor.
 - (d) Remove the nut and blower fan.

INSPECTION

1. INSPECT FINS FOR BLOCKAGE

If the fins are clogged, clean them with compressed air.



2. INSPECT BLOWER MOTOR OPERATION

Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 2, then check that the motor operations smoothly.

If operation is not as specified, replace the motor.

REASSEMBLY

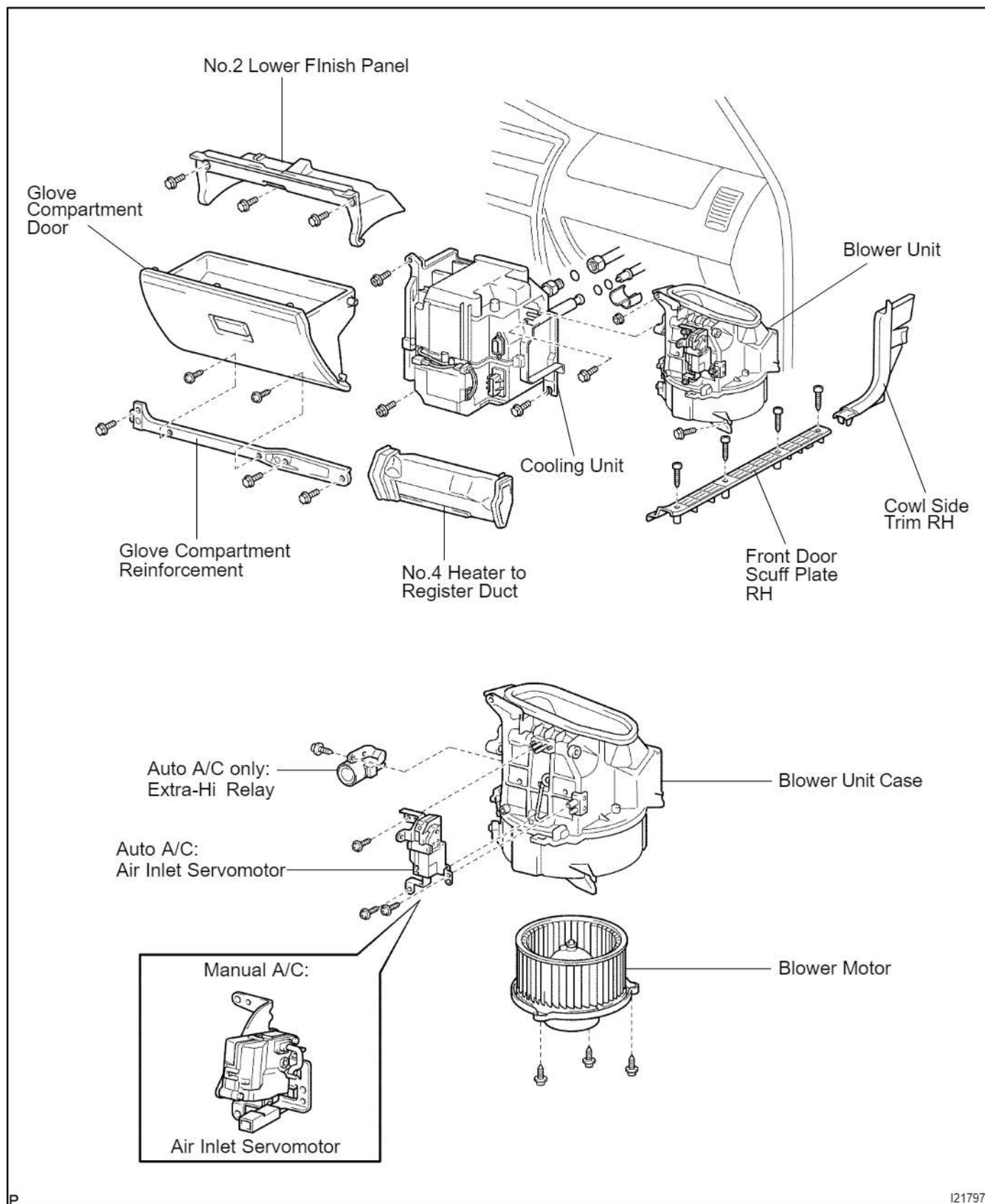
Reassembly is in the reverse order of disassembly (See page [AC-40](#)).

INSTALLATION

Installation is in the reverse order of removal (See page [AC-39](#)).

BLOWER UNIT COMPONENTS

AC6CU-84



P

I21797

REMOVAL

1. REMOVE GLOVE COMPARTMENT DOOR
2. REMOVE GLOVE COMPARTMENT REINFORCEMENT
3. REMOVE NO. 2 INSTRUMENT PANEL LOWER FINISH PANEL
4. REMOVE NO. 4 HEATER TO REGISTER DUCT
5. REMOVE FRONT DOOR SCUFF PLATE RH
6. REMOVE COWL SIDE TRIM RH
7. REMOVE COOLING UNIT (See page [AC-26](#))
8. REMOVE BLOWER UNIT
 - (a) Disconnect the connector from the blower motor.
 - (b) Disconnect the air inlet damper control cable from the blower unit.

HINT:

At the time of installation, please refer to the following item.

After connection, adjust the control cable.

- (c) Remove the nut, bolt and blower unit.

DISASSEMBLY

1. Auto A/C models:

REMOVE EXTRA-HI RELAY

Remove the screw and extra-hi relay.

2. **REMOVE AIR INLET SERVOMOTOR**

Remove the 3 screws and servomotor.

3. **REMOVE BLOWER MOTOR**

Remove the 3 screws and blower motor.

REASSEMBLY

Reassembly is in the reverse order of disassembly (See page [AC-46](#)).

INSTALLATION

Installation is in the reverse order of removal (See page [AC-45](#)).

COMPRESSOR AND MAGNETIC CLUTCH

AC0CZ-02

ON-VEHICLE INSPECTION

1. **SET ON MANIFOLD GAUGE SET (See page AC-19)**

2. **START ENGINE**

3. **INSPECT COMPRESSOR FOR METALLIC SOUND**

Check if there is a metallic sound from the compressor when the A/C switch is on.

If metallic sound is heard, replace the compressor assembly.

4. **INSPECT REFRIGERANT PRESSURE**

(See page AC-3)

5. **STOP ENGINE**

6. **INSPECT VISUALLY FOR LEAKAGE OF REFRIGERANT FROM SAFETY SEAL**

Using a gas leak detector, check for leakage of refrigerant.

If there is any leakage, replace the compressor assembly.

7. **SET OFF MANIFOLD GAUGE SET (See page AC-20)**

8. **CHECK FOR LEAKAGE OF GREASE FROM CLUTCH BEARING**

9. **CHECK FOR SIGNS OF OIL ON PRESSURE PLATE**

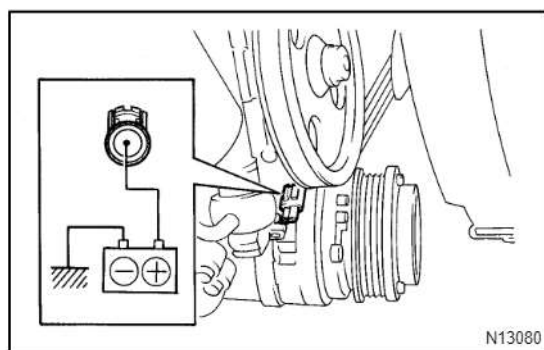
If necessary, repair or replace.

10. **INSPECT MAGNETIC CLUTCH BEARING FOR NOISE**

(a) Start engine.

(b) Check for abnormal noise from near the compressor when the A/C switch is OFF.

If abnormal noise is being emitted, replace the magnetic clutch.



N13080

11. **INSPECT MAGNETIC CLUTCH OPERATION**

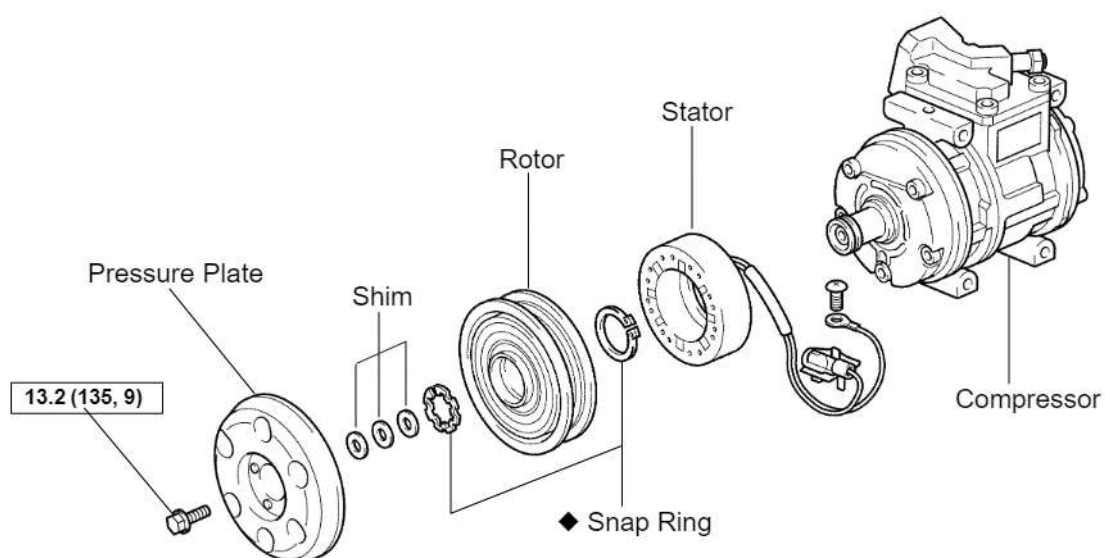
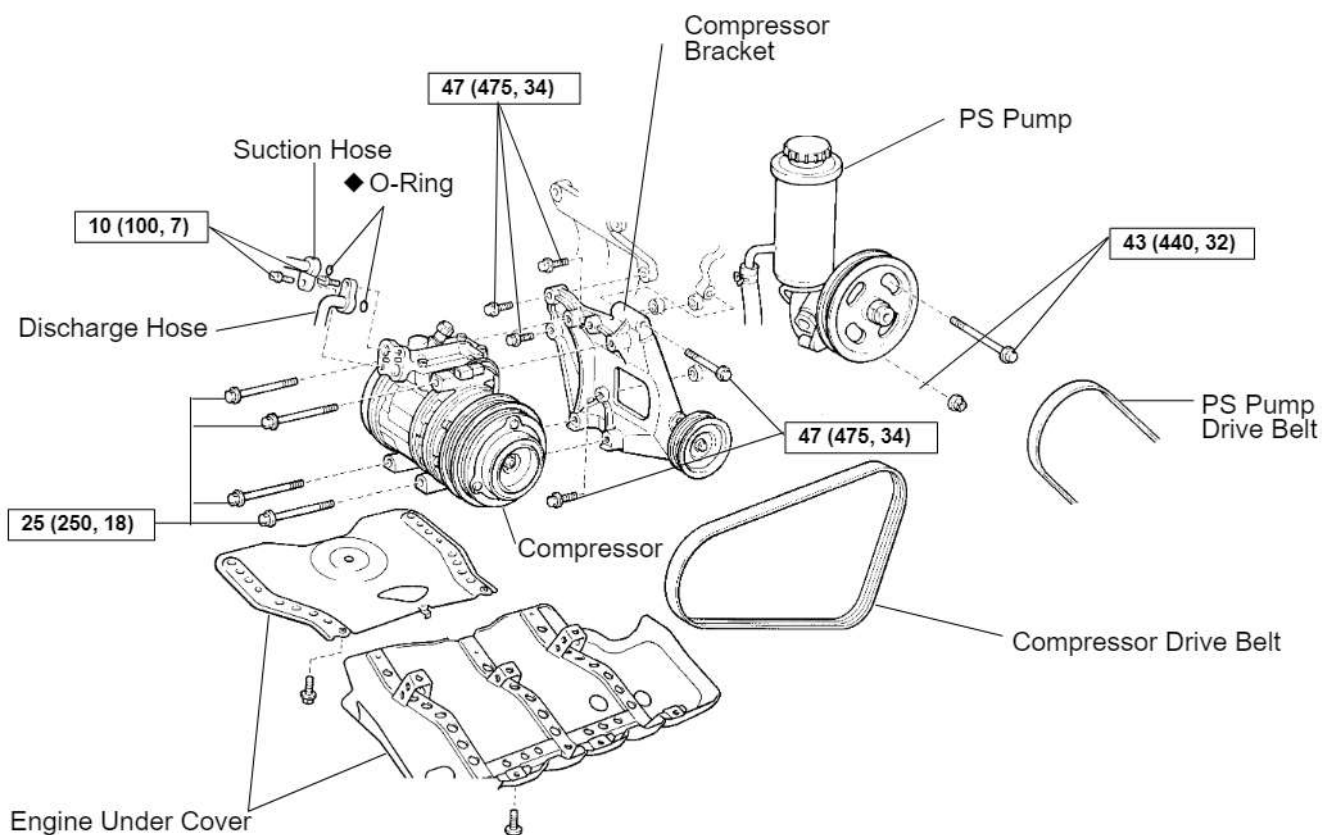
(a) Disconnect the connector.

(b) Connect the positive (+) lead from the battery to terminal on the magnetic clutch connector and the negative (-) lead to the body ground.

(c) Check that the magnetic clutch is energized.

If operation is not as specified, replace the magnetic clutch.

COMPONENTS



N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

2002 4RUNNER (RM887U)

I21461

Author :

Date :

1819

REMOVAL

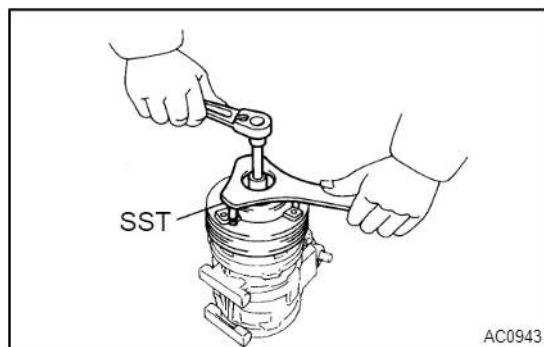
1. RUN ENGINE AT IDLE SPEED WITH A/C ON FOR APPROX. 10 MINUTES
2. STOP ENGINE
3. DISCONNECT NEGATIVE (-) TERMINAL CABLE FROM BATTERY
4. DISCHARGE REFRIGERANT FROM REFRIGERATION SYSTEM
5. REMOVE ENGINE UNDER COVER
6. DISCONNECT DISCHARGE AND SUCTION HOSES

Remove the 2 bolts and disconnect the both hoses.

NOTICE:

Cap the open fitting immediately to keep moisture or dirt out of the system.

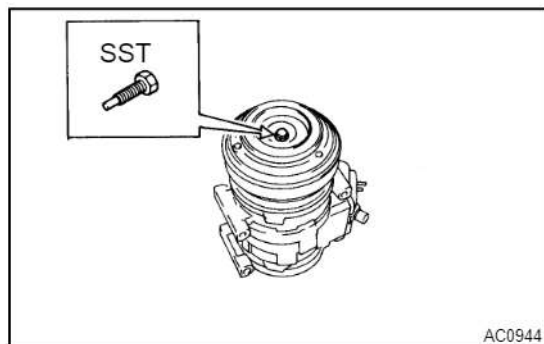
7. REMOVE DRIVE BELT (See page [AC-17](#))
 8. REMOVE PS PUMP SET BOLTS
 9. REMOVE COMPRESSOR
- (a) Disconnect the connector.
 - (b) Remove the 4 bolts and compressor.



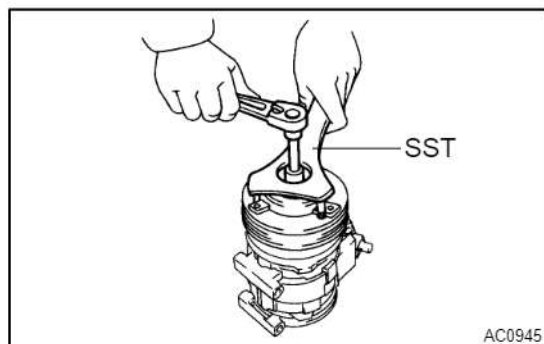
DISASSEMBLY

1. REMOVE PRESSURE PLATE

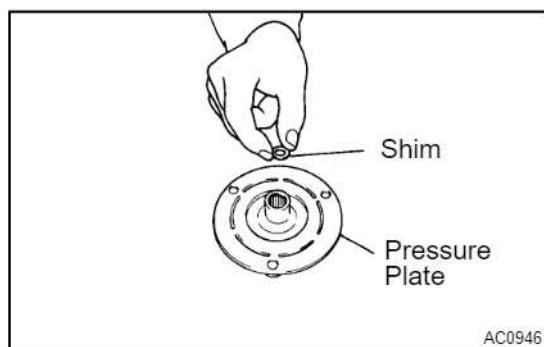
- (a) Using SST and a socket wrench, remove the shaft bolt.
 SST 07112-76060
Torque: 13.2 N·m (135 kgf·cm, 9 ft·lbf)



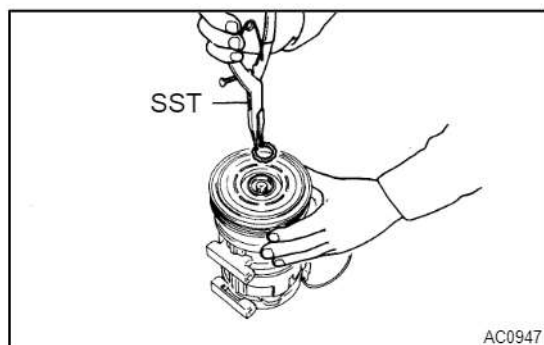
- (b) Install SST on the pressure palate.
 SST 07112-66040



- (c) Using SST and socket wrench, remove the pressure plate.
 SST 07112-66040, 07112-76060,

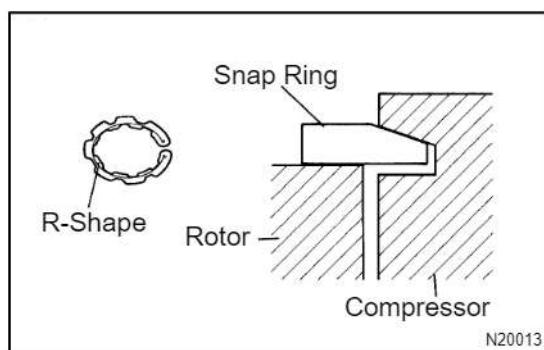


- (d) Remove the shims from the pressure palate.

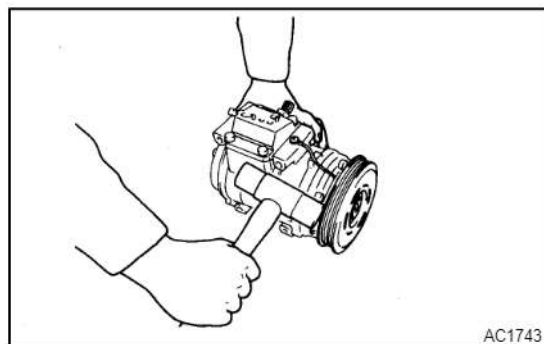


2. REMOVE ROTOR

- (a) Using SST, remove the snap ring.
 SST 95994-10020

**NOTICE:**

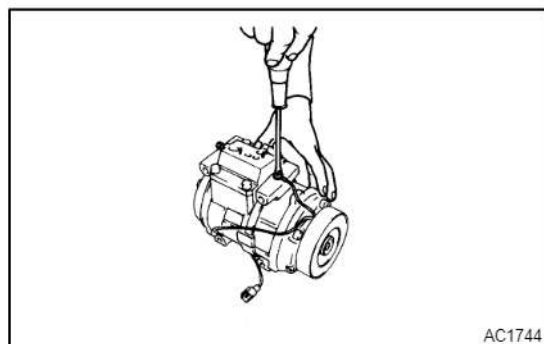
The snap ring should be installed so that beveled side faces up.



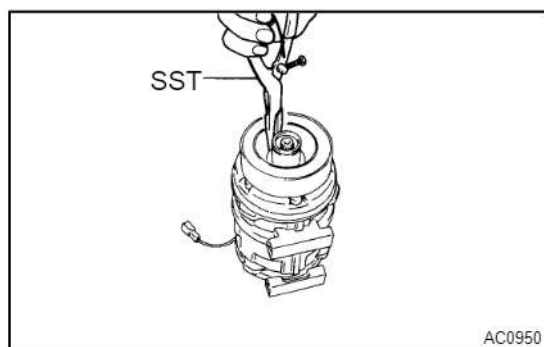
(b) Using a plastic hammer, tap the rotor off the shaft.

NOTICE:

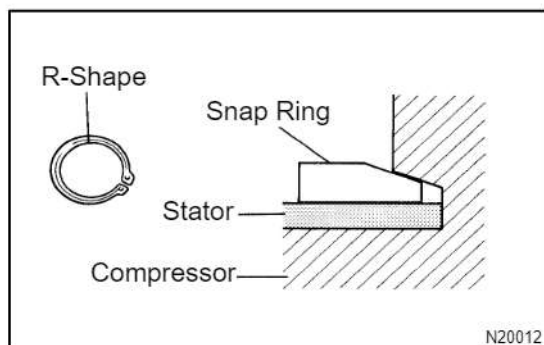
Be careful not to damage the pulley when tapping on the rotor.

**3. REMOVE STATOR**

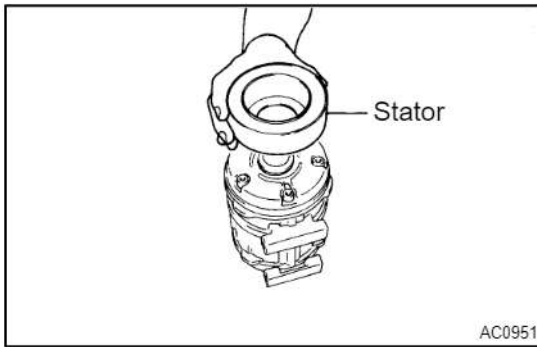
(a) Disconnect the stator lead wire from the compressor housing.



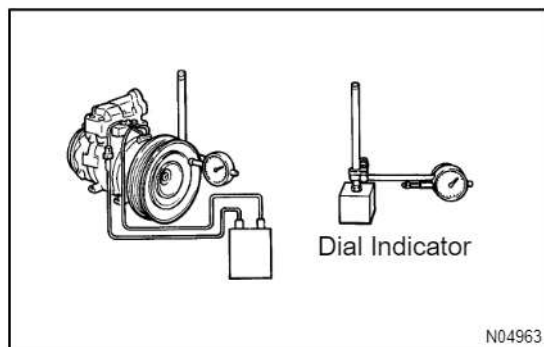
(b) Using SST, remove the snap ring.
SST 95994-10020

**NOTICE:**

The snap ring should be installed so that its beveled side faces up.



(c) Remove the stator.



REASSEMBLY

Reassembly is in the reverse order of disassembly

(See page [AC-52](#)).

AFTER REASSEMBLY, CHECK MAGNETIC CLUTCH CLEARANCE

- Set the dial indicator to the pressure plate of the magnetic clutch.
- Connect the magnetic clutch lead wire to the positive (+) terminal of the battery.
- Check the clearance between the pressure plate and rotor when connecting the negative (-) terminal to the battery.

Standard clearance:

0.5 ± 0.15 mm (0.020 ± 0.0059 in.)

If the clearance is not within the standard clearance, adjust the clearance using shims to obtain the standard clearance.

Standard thickness:

0.1 mm (0.004 in.)

0.3 mm (0.012 in.)

0.5 mm (0.020in.)

INSTALLATION

1. INSTALL COMPRESSOR

- (a) Install the compressor with the 4 bolts.

Torque: 25 N·m (250 kgf·cm, 18 in·lbf)

- (b) Install the fan shroud.
(c) Connect the connector.

2. CONNECT DISCHARGE AND SUCTION HOSES

Connect the both hoses with the 2 bolts.

Torque: 10 N·m (100 kgf·cm, 7 in·lbf)

NOTICE:

Hose should be connected immediately after the caps have been removed.

HINT:

Lubricate 2 new O-rings with compressor oil and install them to the hoses.

3. INSTALL AND CHECK DRIVE BELT (See page [AC-18](#) and [AC-16](#))

4. INSTALL ENGINE UNDER COVER

5. INSTALL PS PUMP SET BOLTS

Torque: 43 N·m (440 kgf·cm, 32 in·lbf)

6. CONNECT NEGATIVE (-) TERMINAL CABLE TO BATTERY

7. EVACUATE AIR FROM REFRIGERATION SYSTEM

8. CHARGE SYSTEM WITH REFRIGERANT

Specified amount: 650 ± 50 g (22.92 ± 1.76 oz.)

9. INSPECT FOR LEAKAGE OF REFRIGERANT

Using a gas leak detector, check for leakage of refrigerant.

If there is leakage, check the tightening torque at the joints.

RECEIVER

ON-VEHICLE INSPECTION

AC0D5-01

INSPECT FITTINGS FOR LEAKAGE

Using a gas leak detector, check for leakage.

If there is leakage, check the tightening torque at the joints.

REMOVAL

1. DISCHARGE REFRIGERANT FROM REFRIGERATION SYSTEM

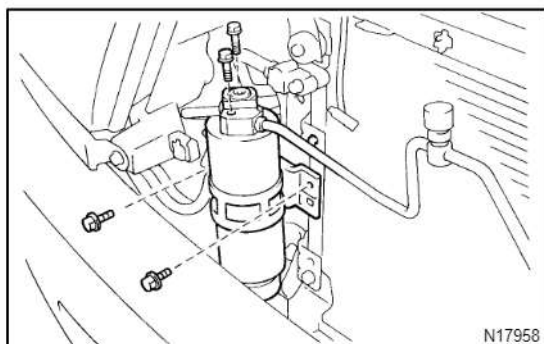
HINT:

At the time of the installation, please refer to the following item.
Evacuate air from refrigeration system.

Charge system with refrigerant and inspect for leakage of refrigerant.

Specified amount: 650 ± 50 g (22.92 ± 1.76 oz.)

2. REMOVE RADIATOR GRILLE



3. DISCONNECT 2 LIQUID TUBES FROM RECEIVER

Remove the 2 bolts and disconnect the both tubes.

Torque: 5.4 N·m (55 kgf·cm, 48 in·lbf)

NOTICE:

Cap the open fittings immediately to keep moisture or dirt out of the system.

HINT:

At the time of the installation, please refer to the following item.
Lubricate 2 new O-rings with compressor oil and install them to the tubes.

4. REMOVE RECEIVER

(a) Remove the holder bolt and pull receiver downward.

HINT:

At the time of the installation, please refer to the following item.
If receiver is replaced, add compressor oil to compressor.

Add 20 cc (0.71 fl.oz.)

Compressor oil: ND-OIL 8 or equivalent

(b) Remove the bolt and holder.

INSTALLATION

Installation is in the reverse order of removal (See page [AC-58](#)).

CONDENSER

AC008-01

ON-VEHICLE INSPECTION

1. INSPECT CONDENSER FINS FOR BLOCKAGE OR DAMAGE

If the fins are clogged, wash them with water and dry with compressed air.

NOTICE:

Be careful not to damage the fins.

If the fins are bent, straighten them with a screwdriver or pliers.

2. INSPECT CONDENSER AND FITTINGS FOR LEAKAGE

Using a gas leak detector, check for leakage of refrigerant.

If there is leakage, check the tightening torque at the joints.

REMOVAL

1. DISCHARGE REFRIGERANT FROM REFRIGERATION SYSTEM

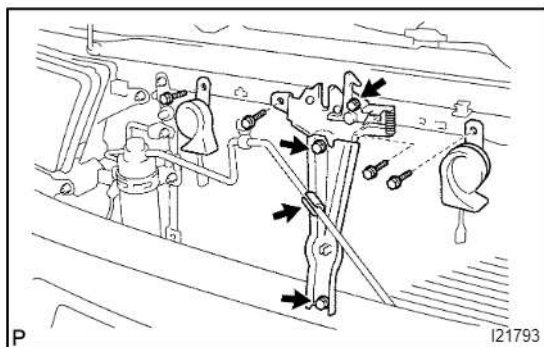
HINT:

At the time of installation, please refer to the following item.

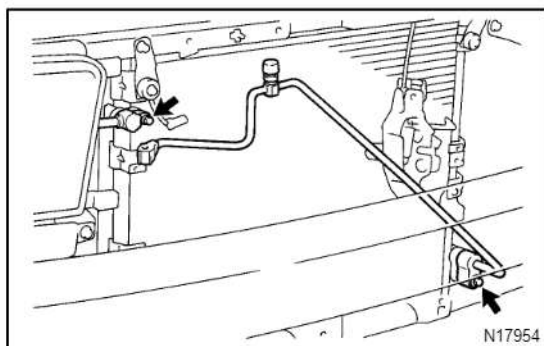
Evacuate air from refrigeration system.

Charge system with refrigerant and inspect for leakage of refrigerant.

Specified amount: 650 ± 50 g (22.92 ± 1.76 oz.)



2. REMOVE RADIATOR GRILL
3. REMOVE HORN
4. REMOVE HOOD LOCK
5. REMOVE CENTER BRACE
6. REMOVE RECEIVER AND HOLDER
(See page AC-58)



7. DISCONNECT LIQUID TUBE AND DISCHARGE HOSE

Remove the 2 bolts and disconnect the both tube and hose.

Torque: 10 N·m (100 kgf·cm, 7 ft·lbf)

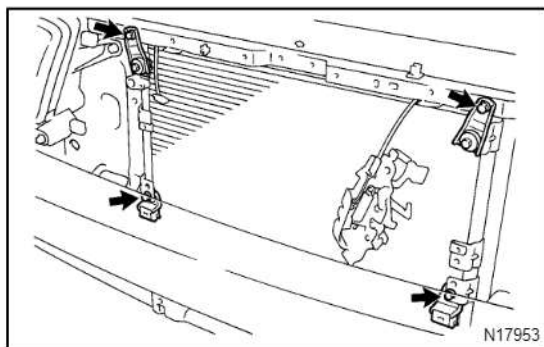
NOTICE:

Cap open the fittings immediately to keep moisture or dirt out of the system.

HINT:

At the time of installation, please refer to the following item.

Lubricate 2 new O-rings with compressor oil and install them to the tubes.



8. REMOVE CONDENSER

- (a) Remove the 2 bolts and 2 lower brackets.
- (b) Remove the 4 bolts and 2 upper brackets.
- (c) Pull the condenser forward and pull it upward.

HINT:

At the time of installation, please refer to the following item.

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

Add 40 - 50 cc (1.4 - 1.7 fl.oz.)

Compressor oil: ND-OIL 8 or equivalent

INSTALLATION

Installation is in the reverse order of removal (See page [AC-61](#)).

WATER VALVE

AC000-01

ON-VEHICLE INSPECTION

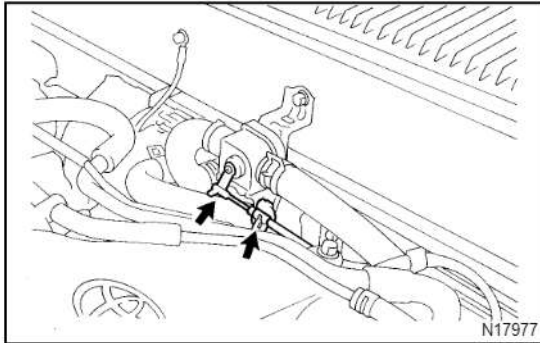
1. **WARM UP ENGINE**
2. **DISCONNECT WATER VALVE CONTROL CABLE**
3. **INSPECT WATER VALVE OPERATION**
 - (a) Check that warm air blown out the vent when the water valve lever is moved to "WARM" position.
 - (b) Check that cool air blown out when the water valve is moved to the "COOL" position.If operation is not as specified, replace the water valve.
4. **CONNECT WATER VALVE CONTROL CABLE**

REMOVAL

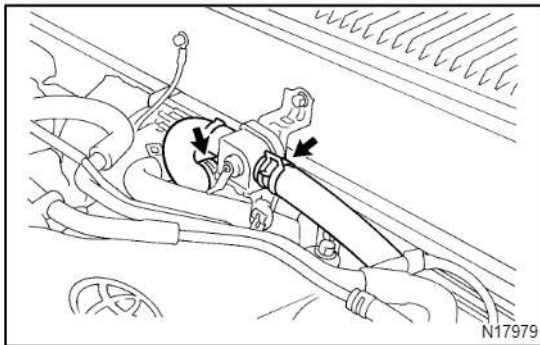
1. DRAIN ENGINE COOLANT FROM RADIATOR

HINT:

It is not necessary to drain out all the coolant.

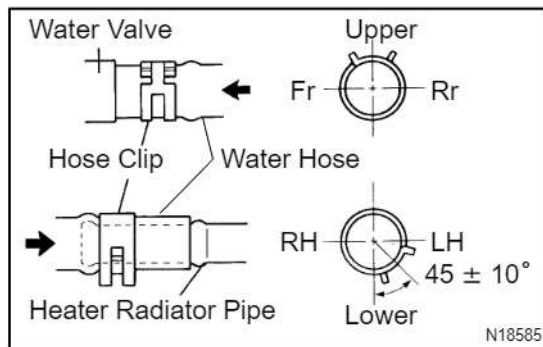


2. DISCONNECT WATER VALVE CONTROL CABLE FROM WATER VALVE



3. DISCONNECT WATER HOSES

- Using pliers, grip the claws of the hose clip and slide the hose clip along the hose.
- Disconnect the water hose.



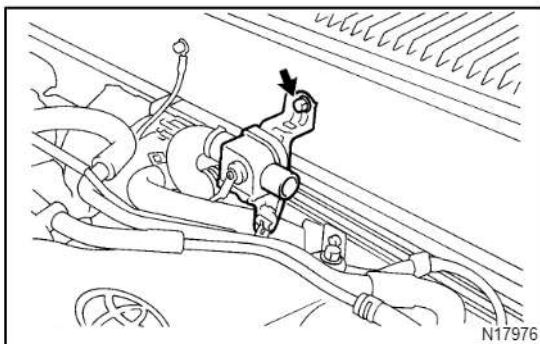
HINT:

At the time of installation, please refer to the following item.

- Heater radiator pipe:
Push the water hose onto the heater radiator pipe as far as second ridge on the pipe.
- Water valve:
Push the water hose onto the water valve pipe as far as water valve.
- Install the hose clip in a position, as shown in the illustration.

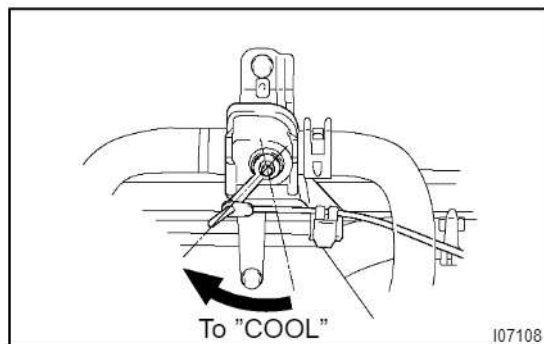
4. REMOVE WATER VALVE

Remove the bolt and water valve.



INSTALLATION

Installation is in the reverse order of removal
(See page [AC-64](#)).



AFTER INSTALLATION, ADJUST WATER VALVE CONTROL CABLE

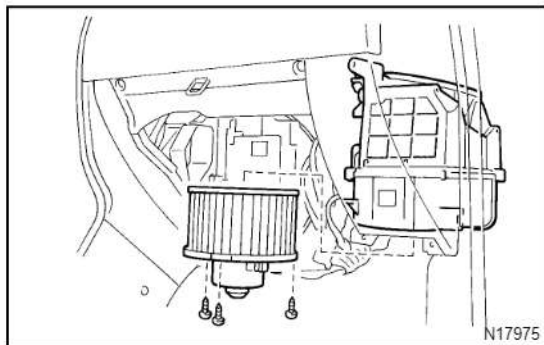
- (a) Ignition switch ON.
- (b) Set the temperature control door to "COOL" position and connect the control cable and lock the clamp.

HINT:

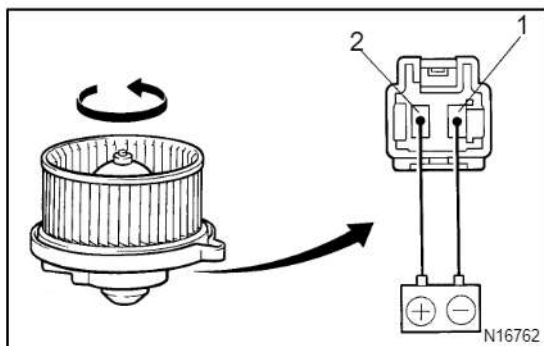
Lock the clamp during lightly pushing the outer cable in the direction, as shown in the illustration by an arrow.

BLOWER MOTOR INSPECTION

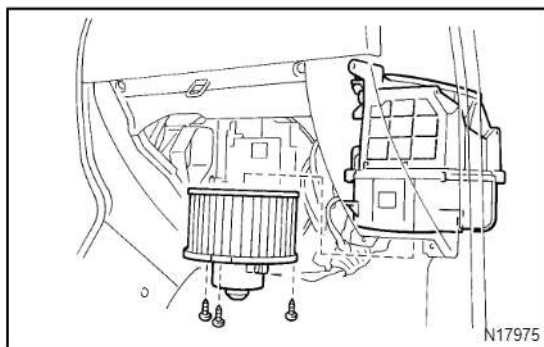
1. REMOVE GLOVE COMPARTMENT DOOR
(See page [BO-69](#))



2. REMOVE BLOWER MOTOR
 - (a) Disconnect the connector.
 - (b) Remove the 3 screws and motor.



3. INSPECT BLOWER MOTOR OPERATION
Connect the positive (+) lead from the battery to terminal 2 and the negative (-) lead to terminal 1, then check that the motor operations smoothly.
If operation is not as specified, replace the blower motor.

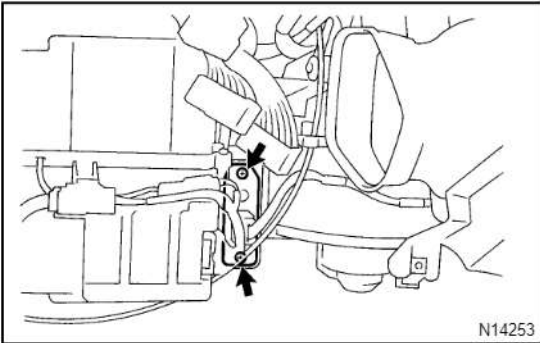


4. INSTALL BLOWER MOTOR
 - (a) Install the motor with the 3 screws.
 - (b) Connect the connector.
5. INSTALL GLOVE COMPARTMENT DOOR
(See page [BO-76](#))

BLOWER RESISTOR (Manual A/C) INSPECTION

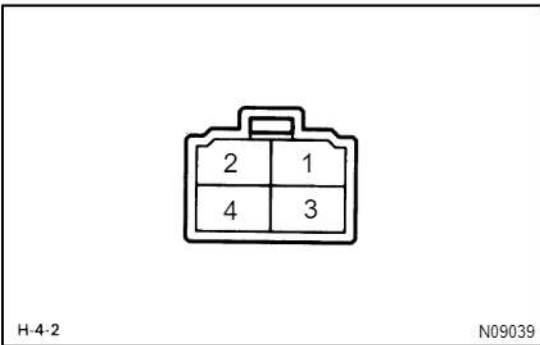
AC23E-03

1. REMOVE GLOVE COMPARTMENT PARTS
(See page [BO-69](#))



N14253

2. REMOVE BLOWER RESISTOR
 - (a) Disconnect the connector.
 - (b) Remove the 2 screws and blower resistor.



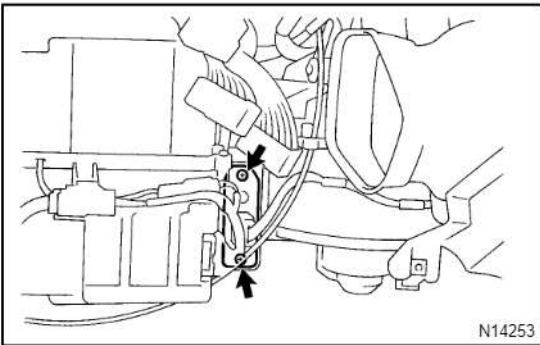
H-4-2

N09039

3. INSPECT BLOWER RESISTOR RESISTANCE

Tester connection	Condition	Specified condition
1-4	Constant	$2.2 \pm 0.1 \Omega$
1-3	Constant	$1.2 \pm 0.2 \Omega$
1-2	Constant	$1.8 \pm 0.2 \Omega$

If resistance is not as specified, replace the blower resistor.



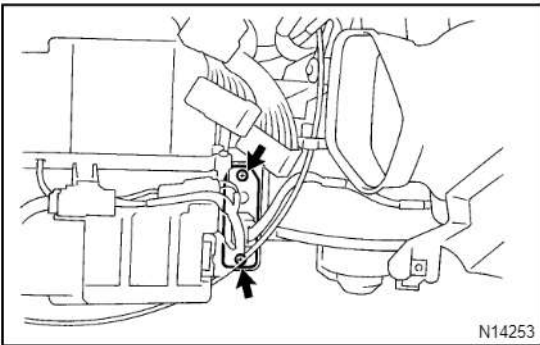
N14253

4. INSTALL BLOWER RESISTOR
 - (a) Install the blower resistor with the 2 screws.
 - (b) Connect the connector.
5. INSTALL GLOVE COMPARTMENT PARTS
(See page [BO-76](#))

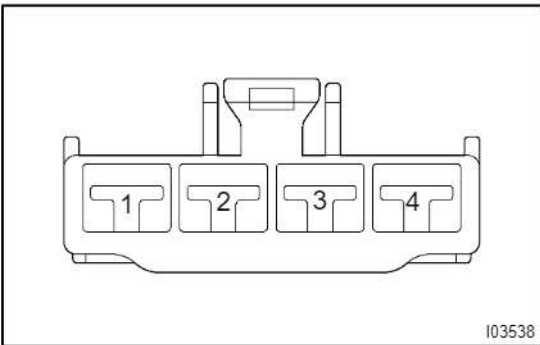
BLOWER MOTOR LINEAR CONTROLLER (Auto A/C) INSPECTION

AC23C-02

- 1. REMOVE GLOVE COMPARTMENT PARTS (See page [BO-69](#))



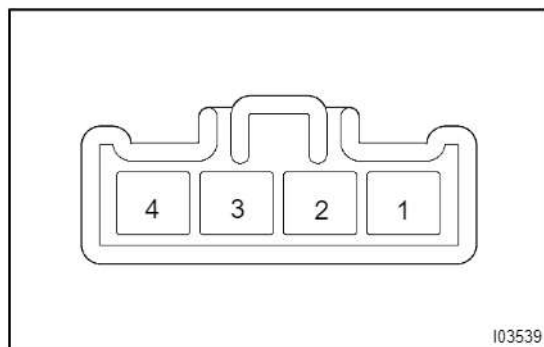
- 2. REMOVE BLOWER MOTOR LINEAR CONTROLLER
 - (a) Disconnect the connector.
 - (b) Remove the 2 screws and blower motor linear controller.



- 3. INSPECT BLOWER MOTOR LINEAR CONTROLLER CIRCUIT
 - (a) Disconnect the connector from the relay and inspect the connector on wire harness side, as shown in the chart below.
Test condition:
Ignition switch ON

Tester connection	Condition	Specified condition
1 - Ground	Constant	Continuity
3 - Ground	Constant	Battery voltage

If the circuit is as specified, try to replace the controller with a new one. If the circuit is not as specified, inspect the connected to other parts.



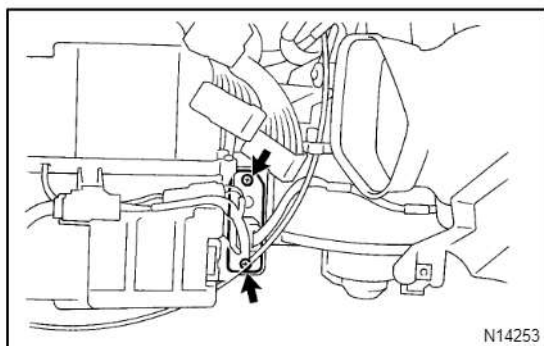
- (b) Connect the connector to the relay and inspect the wire harness connector from the back side, as shown in the chart below.

Test condition:

Ignition switch ON

Tester connection	Condition	Specified condition
4 - Ground	Constant	Battery voltage

If the circuit is as specified, try to replace the controller with a new one. If the circuit is not as specified, inspect the connected to other parts.



4. INSTALL BLOWER MOTOR LINEAR CONTROLLER

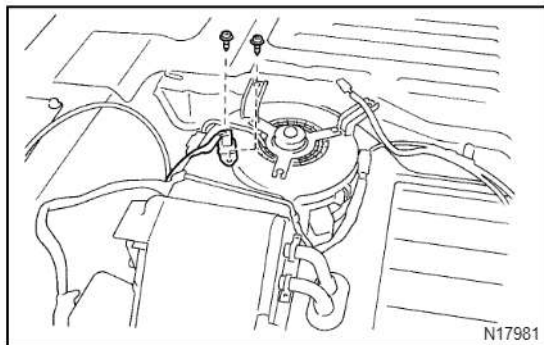
- (a) Install the blower motor linear controller with the 2 screws.
(b) Connect the connector.

5. INSTALL GLOVE COMPARTMENT PARTS (See page [BO-76](#))

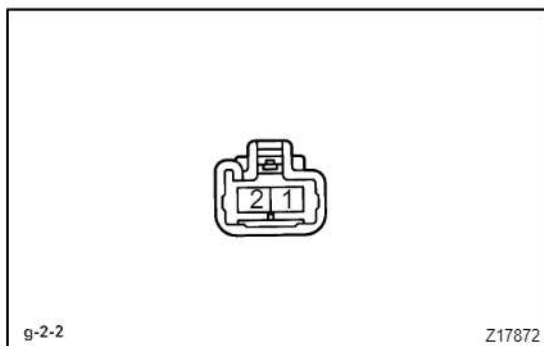
REAR BLOWER RESISTOR INSPECTION

AC22T-02

1. REMOVE FRONT SEATS
2. SLIDE FLOOR CARPET BACKWARD



3. REMOVE BLOWER RESISTOR
 - (a) Disconnect the connector.
 - (b) Remove the 2 screws and blower resistor.

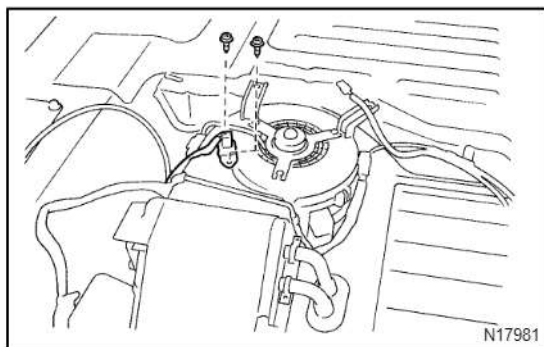


4. INSPECT BLOWER RESISTOR RESISTANCE

Measure resistance between terminals.

Standard resistance: $3.2 \pm 0.2 \Omega$

If resistance is not as specified, replace the blower resistor.

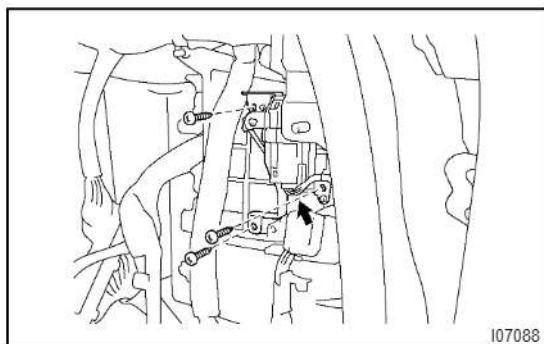


5. INSTALL BLOWER RESISTOR
 - (a) Install the blower resistor with the 2 screws.
 - (b) Connect the connector.
6. SLIDE FLOOR CARPET FORWARD
7. INSTALL FRONT SEATS

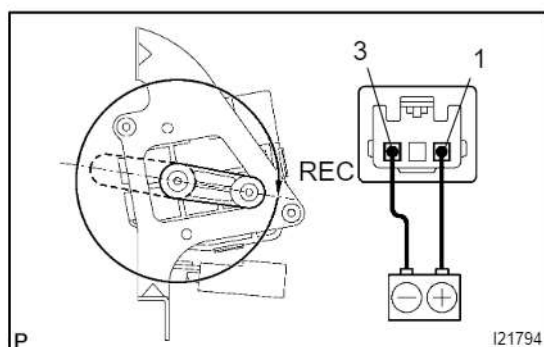
AIR INLET SERVOMOTOR INSPECTION

AC3F2-01

1. REMOVE GLOVE COMPARTMENT PARTS (See page [BO-69](#))
2. REMOVE AIR DUCT



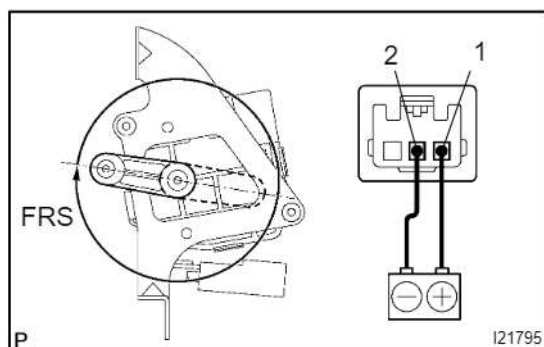
3. REMOVE AIR INLET SERVOMOTOR
 - (a) Disconnect the connector.
 - (b) Remove the 3 screws and servomotor.
4. Auto A/C model:
INSPECT AIR INLET CONTROL SERVOMOTOR CIRCUIT (See page [DI-616](#))
5. Auto A/C model:
INSPECT AIR INLET DAMPER POSITION SENSOR CIRCUIT (See page [DI-609](#))



6. Manual A/C model:
INSPECT AIR INLET SERVOMOTOR

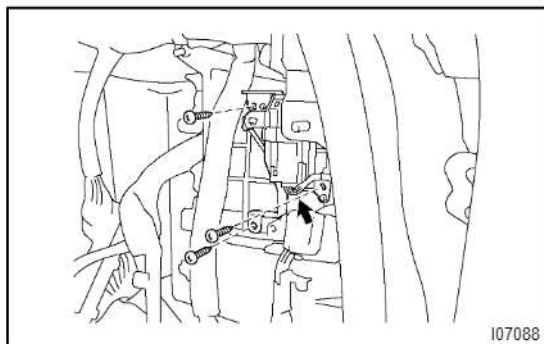
Inspect servomotor operation.

- (1) Connect the positive (+) lead to terminal 2 and negative (-) lead to terminal 1, then check that the arm rotates clockwise and stop to REC position.



- (2) Connect the positive (+) lead to terminal 2 and negative (-) lead to terminal 3, then check that the arm rotates clockwise and stop to FRS position.

If operations are not as specified, replace the servomotor

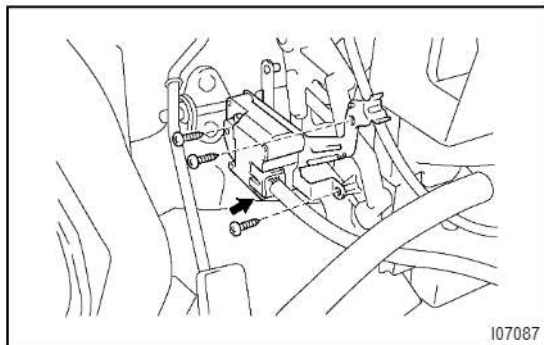


7. INSTALL AIR INLET SERVOMOTOR
 - (a) Install the servomotor with the 3 screws.
 - (b) Connect the connector.
8. INSTALL AIR DUCT
9. INSTALL GLOVE COMPARTMENT PARTS (See page [BO-76](#))

AIR OUTLET SERVOMOTOR INSPECTION

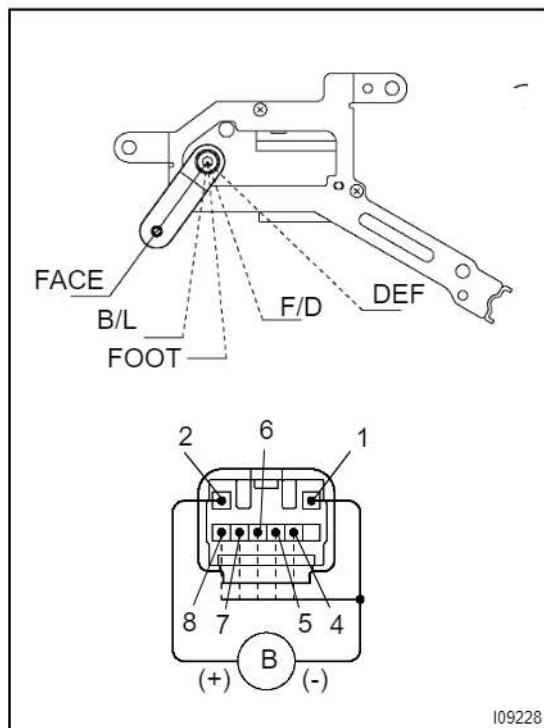
AC3F3-01

1. REMOVE LOWER FINISH PANEL LH (See page [BO-69](#))



107087

2. REMOVE AIR OUTLET SERVOMOTOR
 - (a) Disconnect the connector.
 - (b) Remove the 3 screws and servomotor.
3. Auto A/C model:
INSPECT AIR OUTLET CONTROL SERVOMOTOR CIRCUIT (See page [DI-619](#))



109228

4. Manual A/C model:
INSPECT AIR OUTLET SERVOMOTOR

Inspect servomotor operation.

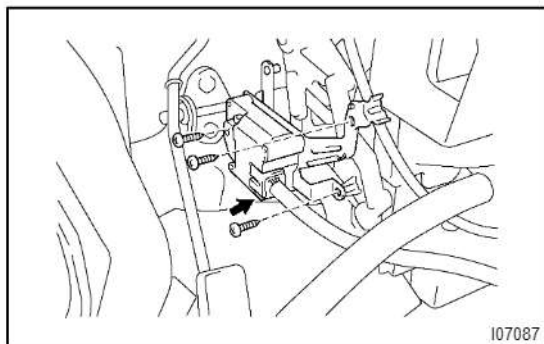
- (1) Connect the positive (+) lead from the battery to terminal 2 and negative (-) lead to terminal 1.
- (2) Check the lever operation when the negative (-) lead is connected to the terminals shown below.

HINT:

The lever moves smoothly to the position for each mode.

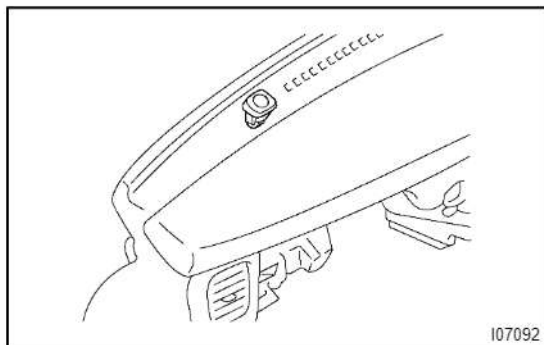
Ground Terminals	Mode
8	DEF.
7	FOOT/DEF
6	FOOT
5	B/L
4	FACE

If resistance is not as specified, replace the servomotor.



107087

5. INSTALL AIR OUTLET SERVOMOTOR
 - (a) Install the servomotor with the 3 screws.
 - (b) Connect the connector.
6. INSTALL LOWER FINISH PANEL LH (See page [BO-76](#))



SOLAR SENSOR (Auto A/C) INSPECTION

AC22W-01

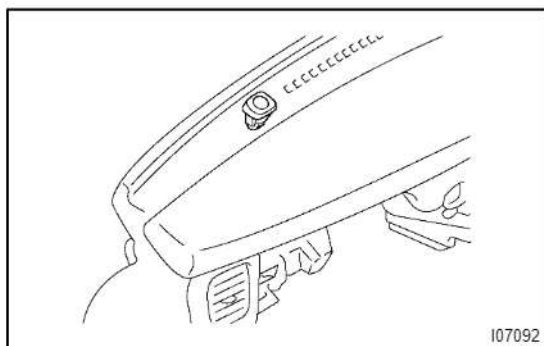
1. REMOVE SOLAR SENSOR

Using a screwdriver, pull out the sensor with the holder, then disconnect the connector.

HINT:

Tape the screwdriver tip before use.

2. INSPECT SOLAR SENSOR CIRCUIT (See page [DI-600](#))



3. INSTALL SOLAR SENSOR

- (a) Install the sensor to the holder.
- (b) Install the sensor with holder to instrument panel, then connect the connector.

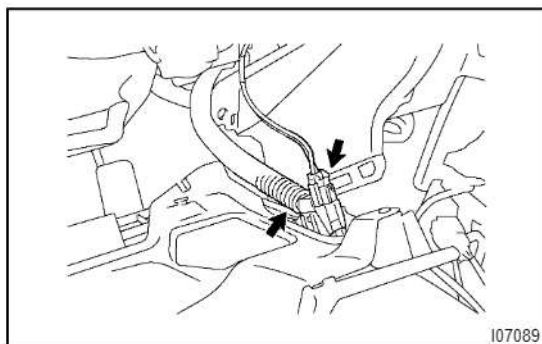
HINT:

Assemble the holder with the triangular cut-out facing forward.

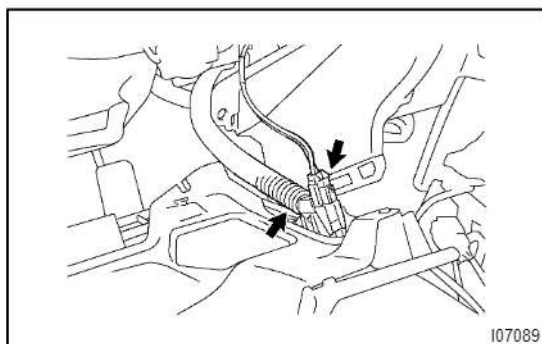
ROOM TEMPERATURE SENSOR (Auto A/C) INSPECTION

AC22X-02

1. **REMOVE LOWER FINISH PANEL LH**
(See page [BO-69](#))



2. **REMOVE ROOM TEMPERATURE SENSOR**
 - (a) Disconnect the connector and aspirator hose.
 - (b) Pull out the sensor from lower finish panel.
3. **INSPECT ROOM TEMPERATURE SENSOR CIRCUIT**
(See page [DI-588](#))

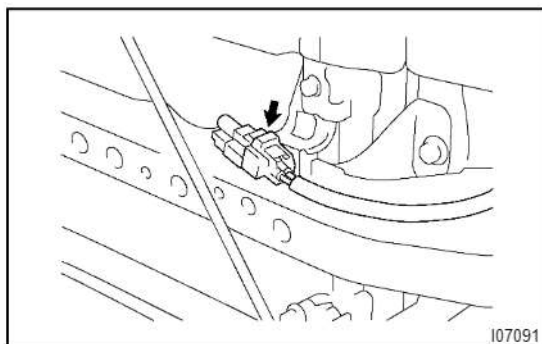


4. **INSTALL ROOM TEMPERATURE SENSOR**
 - (a) Install the sensor to lower finish panel.
 - (b) Connect the connector and aspirator hose.
5. **INSTALL LOWER FINISH PANEL LH**
(See page [BO-76](#))

AMBIENT TEMPERATURE SENSOR (Auto A/C) INSPECTION

AC22Y-02

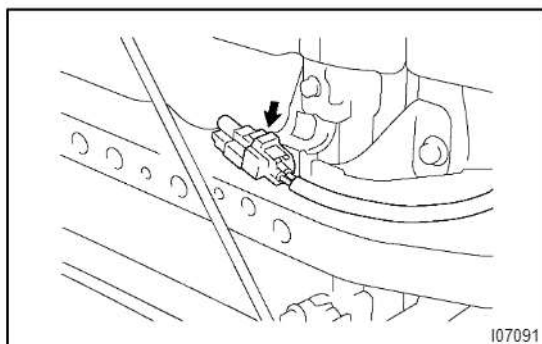
1. REMOVE FRONT GRILL



2. REMOVE AMBIENT TEMPERATURE SENSOR

- (a) Disconnect the connector.
- (b) Remove the sensor from the bumper reinforcement.

3. INSPECT AMBIENT TEMPERATURE SENSOR CIRCUIT (See page [DI-591](#))



4. INSTALL AMBIENT TEMPERATURE SENSOR

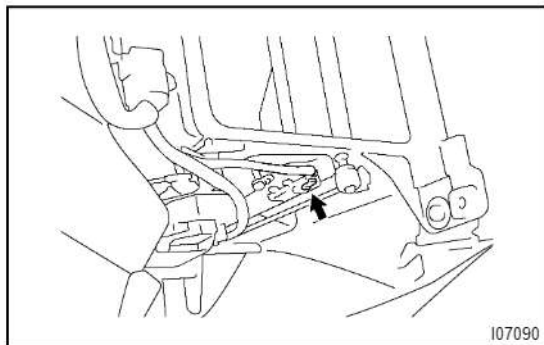
- (a) Install the sensor to the bumper reinforcement.
- (b) Connect the connector.

5. INSTALL FRONT GRILL

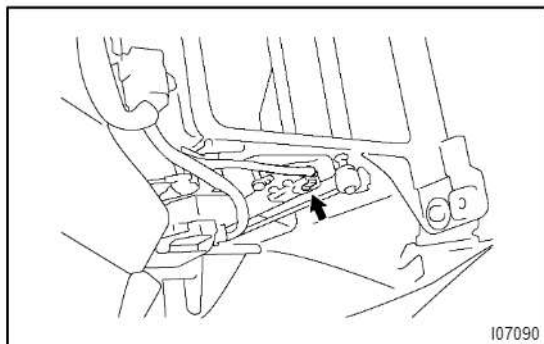
ENGINE COOLANT TEMPERATURE (ECT) SENSOR (Auto A/C) INSPECTION

AC22Z.02

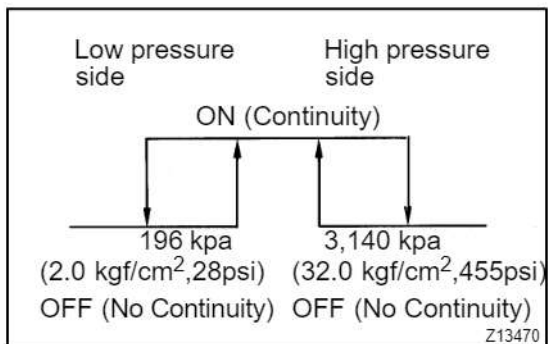
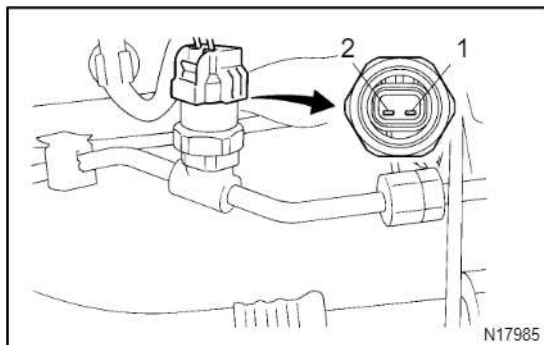
1. REMOVE COOLING UNIT (See page [AC-26](#))



2. REMOVE ENGINE COOLANT TEMPERATURE SENSOR
 - (a) Disconnect the connector from air mix servomotor.
 - (b) After pulling off the clamp, pull out the sensor.
3. INSPECT ENGINE COOLANT TEMPERATURE SENSOR CIRCUIT (See page [DI-597](#))



4. INSTALL ENGINE COOLANT TEMPERATURE SENSOR
Install the sensor with the holder.
5. INSTALL COOLING UNIT (See page [AC-31](#))



PRESSURE SWITCH ON-VEHICLE INSPECTION

AC0E7-02

1. SET ON MANIFOLD GAUGE SET (See page [AC-19](#))
 2. DISCONNECT CONNECTOR
 3. RUN ENGINE AT APPROX. 2,000 rpm
 4. SET BLOWER SPEED CONTROL SWITCH TO "HI" POSITION
 5. SET TEMPERATURE CONTROL LEVER TO "MAX. COOL" POSITION
 6. A/C SWITCH ON
 7. INSPECT PRESSURE SWITCH OPERATION
 - (a) Connect the positive (+) lead from the ohmmeter to terminal 1 and negative (-) lead to terminal 2.
 - (b) Check continuity between terminals when refrigerant pressure is changed, as shown in the illustration.
- If operation is not as specified, replace the pressure switch.

REMOVAL

1. DISCHARGE REFRIGERANT FROM REFRIGERATION SYSTEM

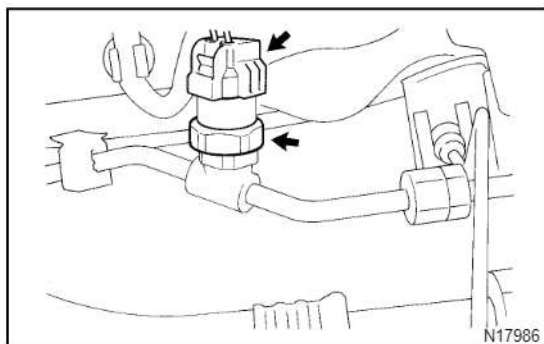
HINT:

At the time of installation, please refer to the following item.

Evacuate air from refrigeration system.

Charge system with refrigerant and inspect for leakage of refrigerant.

Specified amount: 650 ± 50 g (22.92 ± 1.76 oz.)



2. REMOVE PRESSURE SWITCH FROM LIQUID TUBE

Disconnect the connector and remove the pressure switch.

Torque: 10 N·m (100 kgf·cm, 7 ft·lbf)

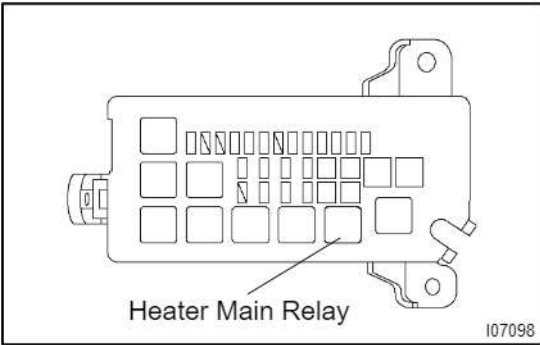
HINT:

- Lock the switch mount on the tube with an open end wrench, being careful not to deform the tube, and remove the switch.
- At the time of installation, please refer to the following item.

Lubricate a new O-ring with the compressor oil and install them to the switch.

INSTALLATION

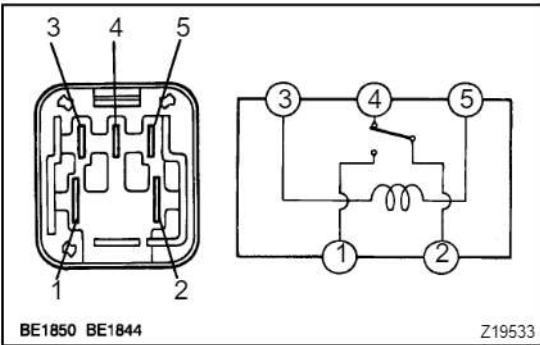
Installation is in the reverse order of removal (See page [AC-78](#)).



HEATER MAIN RELAY INSPECTION

AC230-01

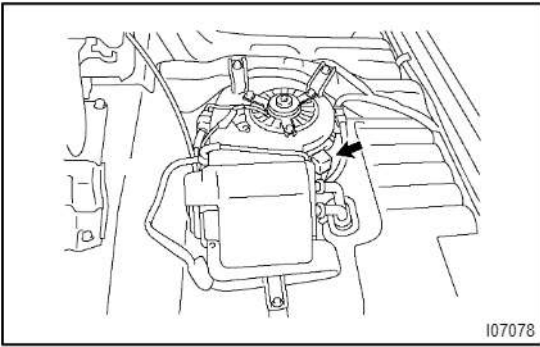
1. REMOVE HEATER MAIN RELAY FROM NO. 2 RELAY BLOCK



2. INSPECT HEATER MAIN RELAY (Making: HTR) CONTINUITY

Condition	Tester connection	Specified condition
Constant	2 - 4	Continuity
	3 - 5	
Apply B+ between terminals 3 and 5	1 - 2	Continuity

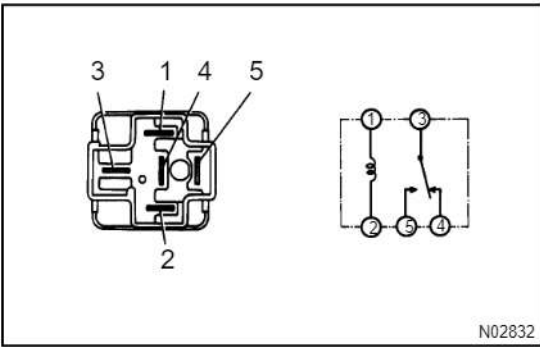
If continuity is not as specified, replace the relay.



REAR HEATER RELAY INSPECTION

AC231-01

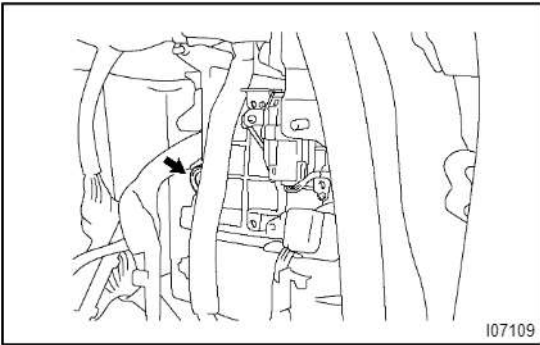
1. REMOVE REAR HEATER RELAY FROM REAR HEATER UNIT



2. INSPECT REAR HEATER RELAY CONTINUITY

Condition	Tester connection	Specified condition
Constant	1 - 2 3 - 5	Continuity
Apply B+ between terminals 1 and 2	3 - 5	Continuity

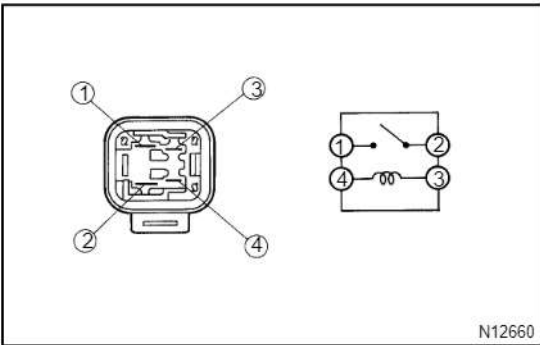
If continuity is not as specified, replace the relay.



EXTRA-HI RELAY (Auto A/C) INSPECTION

AC232-01

1. REMOVE EXTRA-HI RELAY FROM BLOWER UNIT
Remove the screw and extra-hi relay.



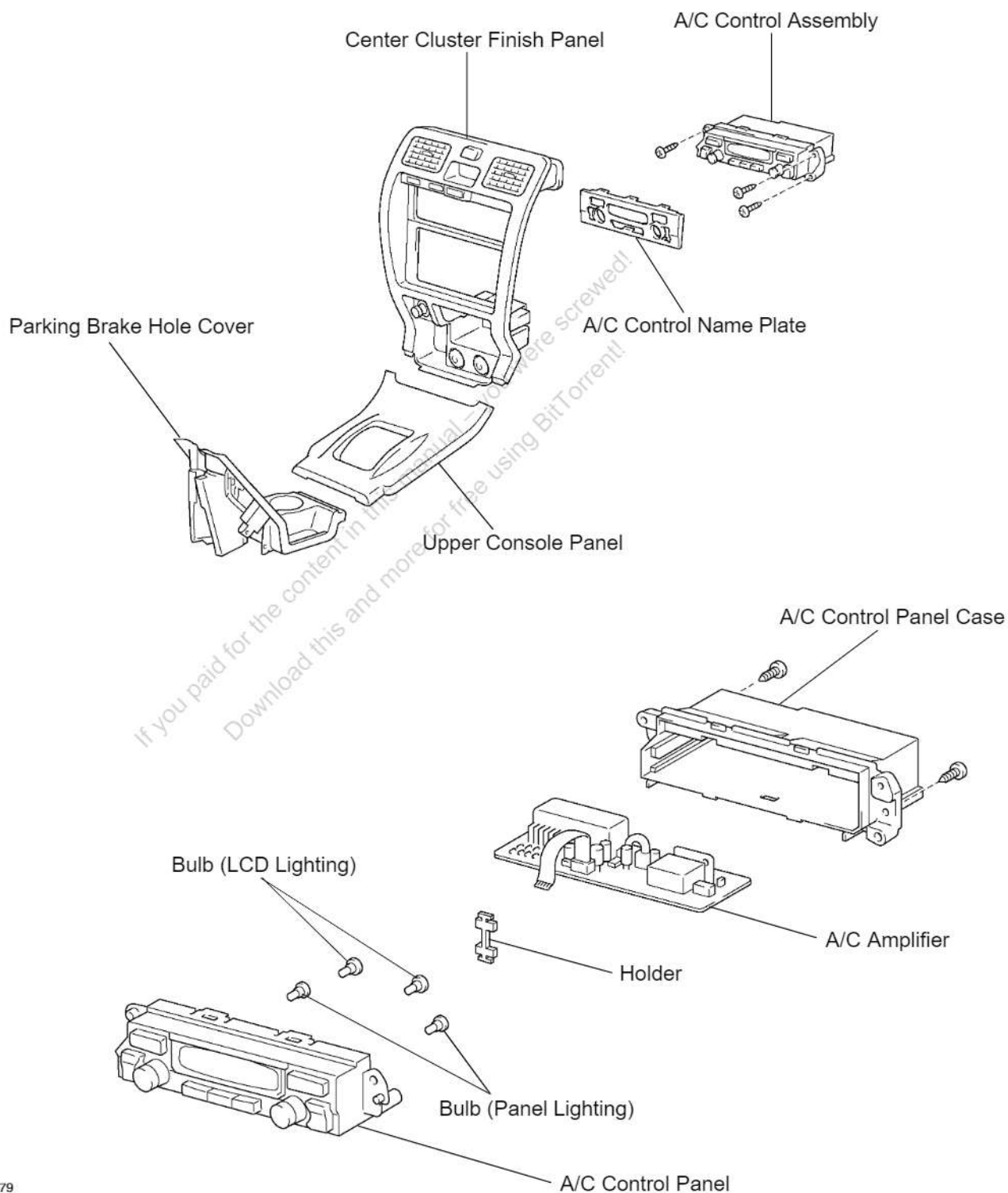
2. INSPECT EXTRA-HI RELAY CONTINUITY

Condition	Tester connection	Specified condition
Constant	3 - 4	Continuity
Apply B+ between terminals 3 and 4.	1 - 2	Continuity

If continuity is not as specified, replace the relay.

AIR CONDITIONING CONTROL ASSEMBLY (Auto A/C) COMPONENTS

AC233-01

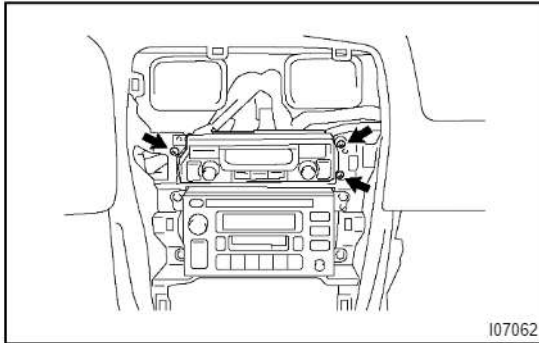


107079
107080

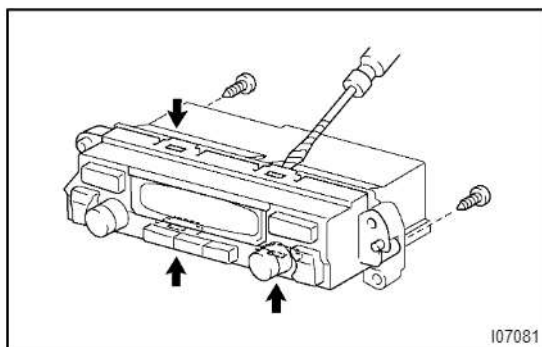
107104

REMOVAL

1. REMOVE PARKING BRAKE HOLE COVER
2. REMOVE UPPER CONSOLE PANEL
3. REMOVE CENTER CLUSTER FINISH PANEL
(See page [BO-69](#))



4. REMOVE A/C CONTROL ASSEMBLY
 - (a) Remove the A/C control name plate.
 - (b) Remove the 3 screws and A/C control assembly, then disconnect the connector.



DISASSEMBLY

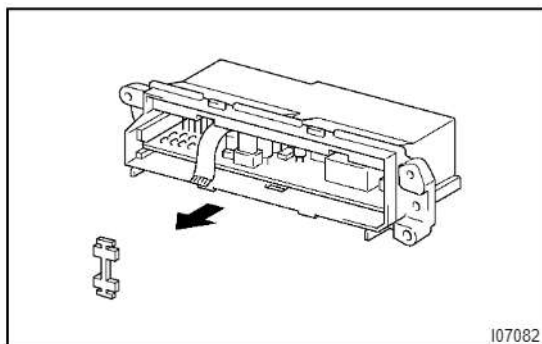
1. REMOVE A/C CONTROL PANEL

- Remove the 2 screws.
- Using a screwdriver, release the 4 claws.

HINT:

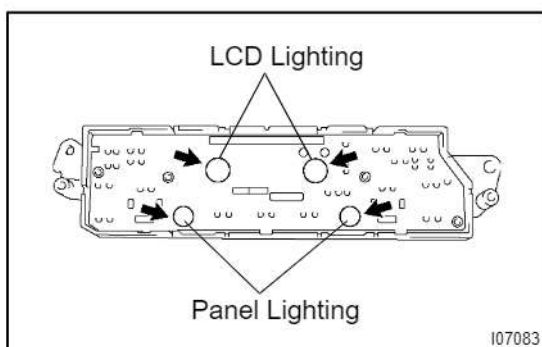
Tape the screwdriver tip before use.

- Unlock the connector's lock and pull out the flat harness from the A/C control panel.



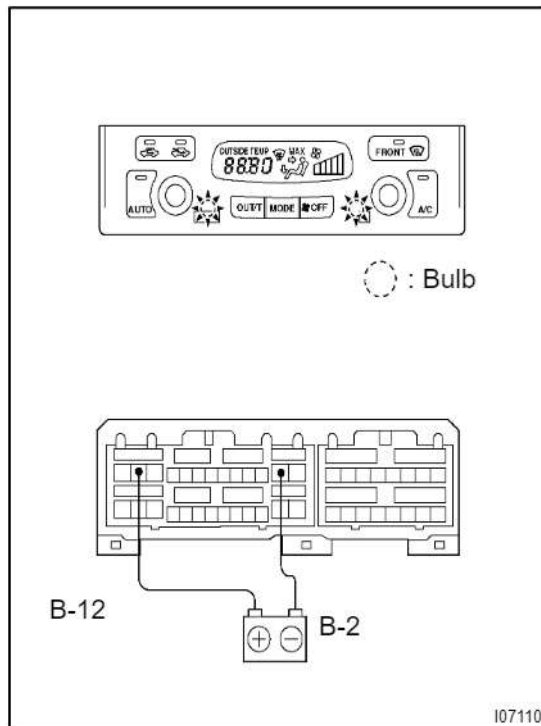
2. REMOVE A/C AMPLIFIER

- Release the 4 claws and remove the holder.
- Hold the connector of amplifier and pull out the amplifier.



3. REMOVE BULB

Using a screwdriver, turn the bulb to the left and pull out the bulb.

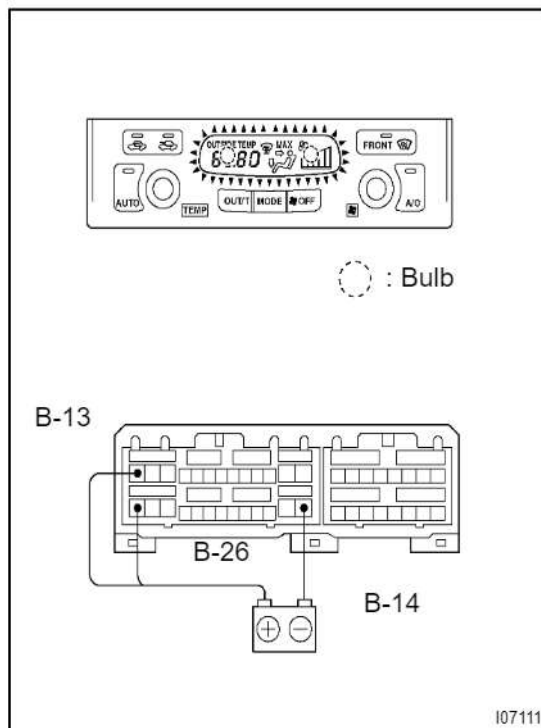


INSPECTION

1. INSPECT PANEL LIGHTING

Connect the positive (+) lead from the battery to terminal B-12 and the negative (-) lead to terminal B-2, then check that the illumination lights up.

If there is bulb not light up, replace the bulb only. If all bulbs do not light up, replace the A/C control panel.

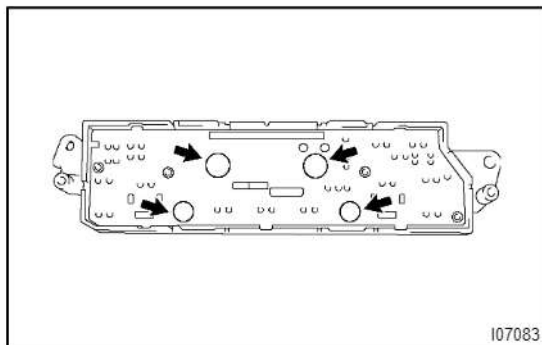


2. INSPECT LCD LIGHTING

Connect the positive (+) lead from the battery to terminal B-13, B-26 and the negative (-) lead to terminal B-14, then check that the illumination lights up.

If there is bulb not light up, replace the bulb only. If the 2 bulbs do not light up, try replace the bulb with a new one. If the bulbs do not light up, replace the A/C control panel.

3. INSPECT A/C CONTROL ASSEMBLY CIRCUIT (See page [DI-584](#))



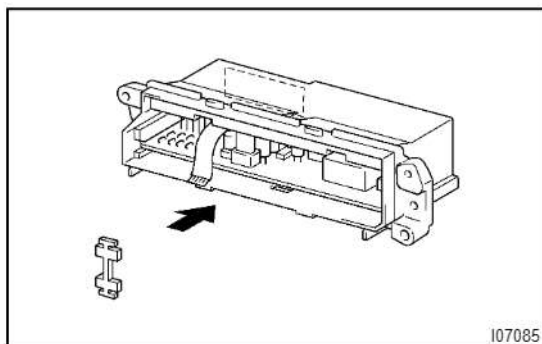
REASSEMBLY

1. INSTALL BULB

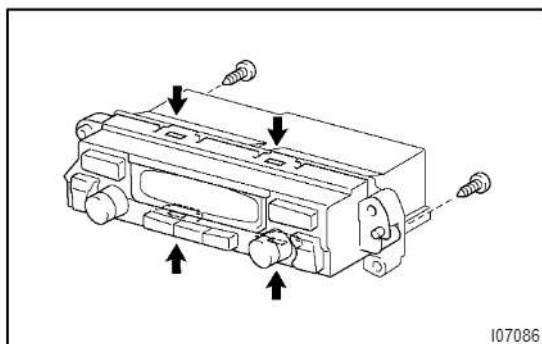
- (a) Install the bulb to the A/C control panel.
- (b) Using a screwdriver, turn the bulb to the right and lock the bulb.

2. INSTALL A/C AMPLIFIER

- (a) Hold the connector of supply parts amplifier and pull out the amplifier from electrostatic prevention bag.

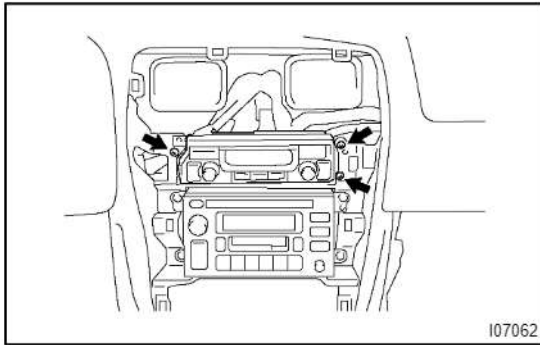


- (b) Hold the connector of amplifier and insert the amplifier to the A/C control panel case.
- (c) Install the holder.
- (d) Check the fitting for connector of amplifier.



3. INSTALL A/C CONTROL PANEL

- (a) Unlock the connector's lock and push into the flat cable.
- (b) Install the A/C control panel.
- (c) Check the fitting for 4 claws.
- (d) Install the 2 screws.



INSTALLATION

1. INSTALL A/C CONTROL ASSEMBLY

- (a) Install the A/C control assembly with the 3 screws, then connect the connector.
- (b) Install the A/C control name plate.

2. INSTALL CENTER CLUSTER FINISH PANEL

3. INSTALL UPPER CONSOLE PANEL

4. INSTALL PARKING BRAKE HOLE COVER

(See page [BO-76](#))

HEATER CONTROL ASSEMBLY (Manual A/C) ON-VEHICLE INSPECTION

AC3F4-01

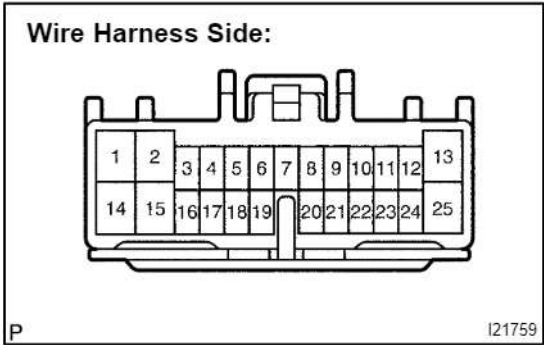
1. INSPECT HEATER CONTROL LEVER AND DIALS OPERATION

Move the control dials left and right check for stiffness and binding the full range of the dials.

2. REMOVE HEATER CONTROL ASSEMBLY

3. INSPECT AMPLIFIER CIRCUIT

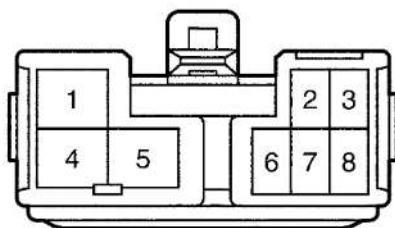
- (a) Remove the glove compartment door
(See page [BO-69](#)).



- (b) Disconnect the amplifier connector and inspect the connector on wire harness side, as shown in the chart below.
Test conditions:

- Turn ignition switch to ON
- Blower speed switch HI
- Temperature control lever Max. COOL

Tester connection	Condition	Specified condition
1 - Ground	Always	Battery voltage
2 - Ground	Turn ignition switch to ON	Battery voltage
2 - Ground	Turn ignition switch to OFF	No voltage
11 - 13	Always	4.5 - 5.5
15 - 16	Turn light control switch to TAIL	Battery voltage
15 - 16	Turn light control switch to OFF	No voltage

Wire Harness Side:

P

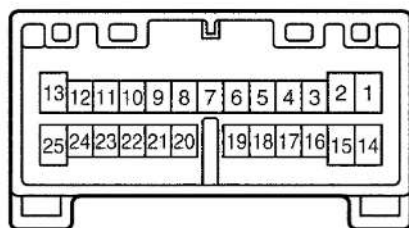
I21758

- (c) Disconnect the amplifier connector and inspect the connector on wire harness side, as shown in the chart below.
Test conditions:

- Turn ignition switch to ON
- Blower speed switch HI
- Temperature control lever Max. COOL

Tester connection	Condition	Specified condition
1 - Ground	Always	Below 1 Ω

From back side:



P

I21756

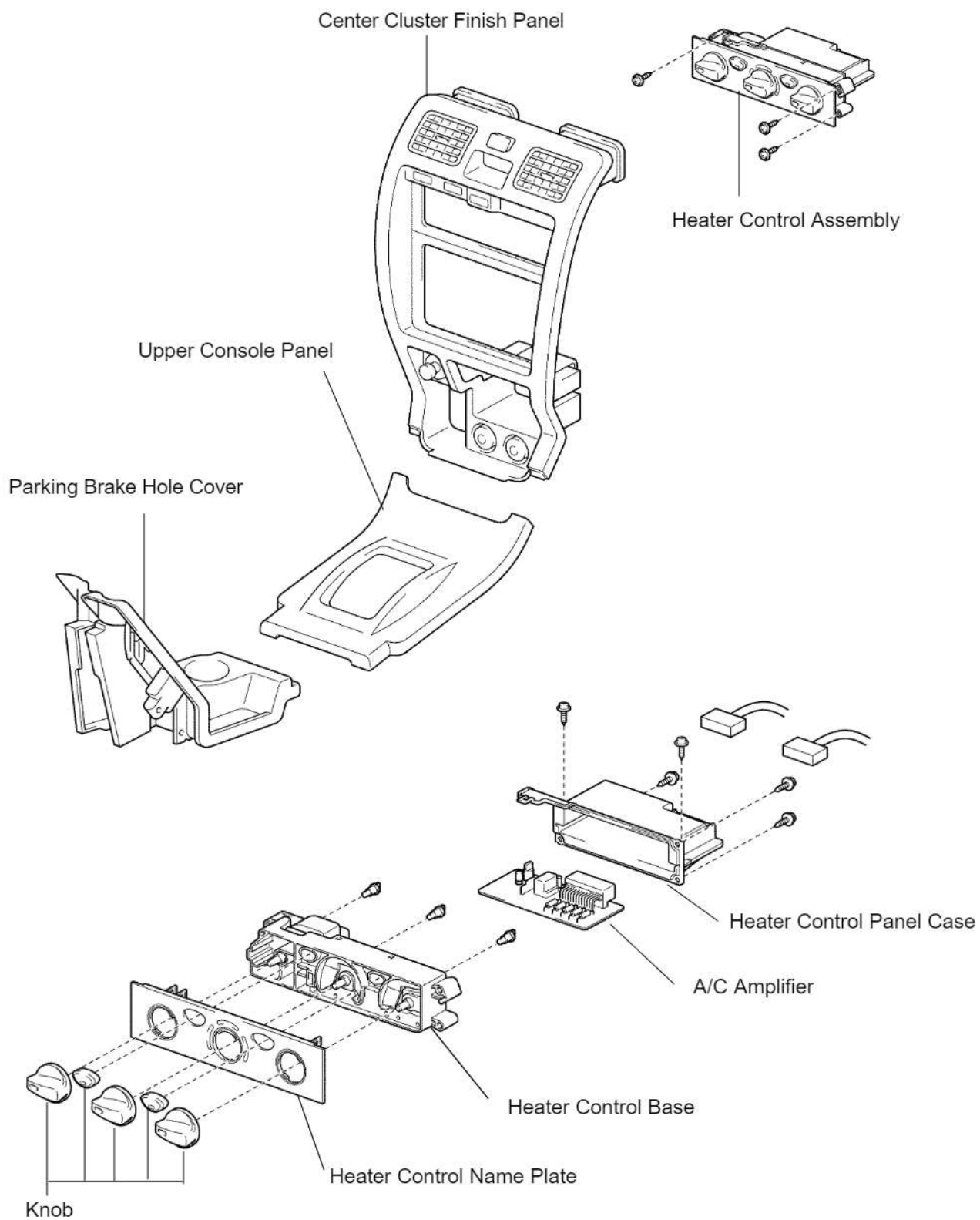
- (d) Connect the connector to amplifier and inspect wire harness side connector from the back side, as shown in the chart below.

Test conditions:

- Running engine at idle speed
- Blower speed switch HI
- A/C switch ON
- Temperature control lever Max. COOL

Tester connection	Condition	Specified condition
3 - Ground	IG ON.	10 - 14 V
3 - Ground	IG ON. Disconnect pressure switch connector	Below 1.0 V
4 - Ground	IG ON. Set temp. MAX. COOL	Below 1.0 V
4 - Ground	IG ON. Set temp. MAX. HOT	Below 1.0 V
5 - Ground	IG ON. Set temp. MAX. HOT	Below 1.0 V
5 - Ground	IG ON. Set temp. MAX. COOL	Below 1.0 V
6 - Ground	IG ON. Air inlet selector: FRESH	Below 1.0 V
6 - Ground	IG ON. Air inlet selector: RECIRCULATE	10 - 14 V
7 - Ground	IG ON. Air inlet selector: RECIRCULATE	Below 1.0 V
7 - Ground	IG ON. Air inlet selector: FRESH	10 - 14 V
8 - Ground	IG ON. Operate blower motor	10 - 14 V
9 - Ground	A/C switch to OFF	4.5 - 5.5 V
9 - Ground	A/C switch to ON	4.5 - 5.5 V
10 - Ground	A/C switch to ON	Below 1.0 V
10 - Ground	A/C switch to OFF	Below 1.0 V
14 - Ground	A/C switch to ON	10 - 14 V
14 - Ground	A/C switch to OFF	10 - 14 V
17 - Ground	Mode selector: FACE	Below 1.0 V
17 - Ground	Mode selector: Except FACE	10 - 14 V
18 - Ground	Mode selector: B/L	Below 1.0 V
18 - Ground	Mode selector: Except B/L	10 - 14 V
19 - Ground	Mode selector: FOOT	Below 1.0 V
19 - Ground	Mode selector: Except FOOT	10 - 14 V
20 - Ground	Mode selector: F/D	Below 1.0 V
20 - Ground	Mode selector: Except F/D	10 - 14 V
21 - Ground	Mode selector: DEF	Below 1.0 V
21 - Ground	Mode selector: Except DEF	10 - 14 V
23 - Ground	Ambient temp. 25 °C (77 °F)	1.8 - 2.2 V
23 - Ground	Ambient temp. 40 °C (104 °F)	-

COMPONENTS

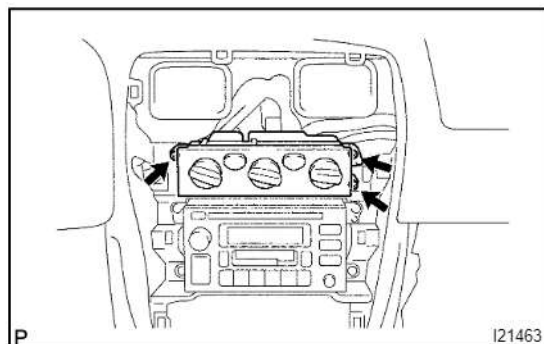


P

I21462

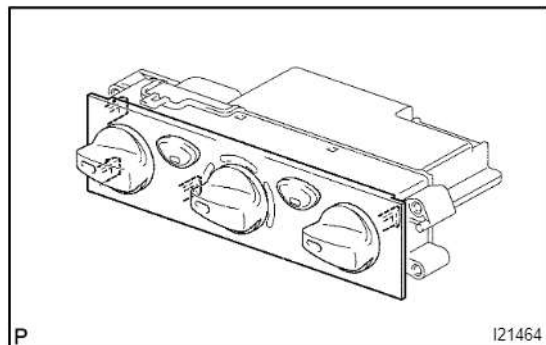
REMOVAL

1. REMOVE PARKING BRAKE HOLE COVER
2. REMOVE UPPER CONSOLE PANEL
3. REMOVE CENTER CLUSTER FINISH PANEL (See page [BO-69](#))



4. REMOVE HEATER CONTROL ASSEMBLY

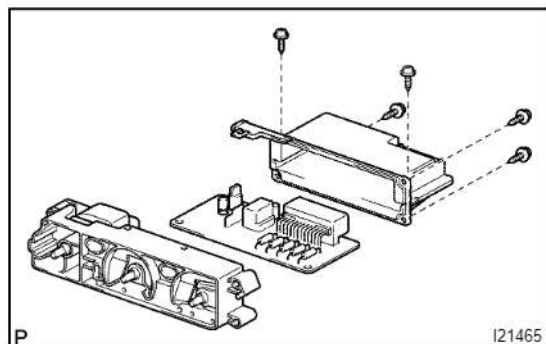
Remove the 3 screws and pull out the heater control assembly, then disconnect the connectors.



DISASSEMBLY

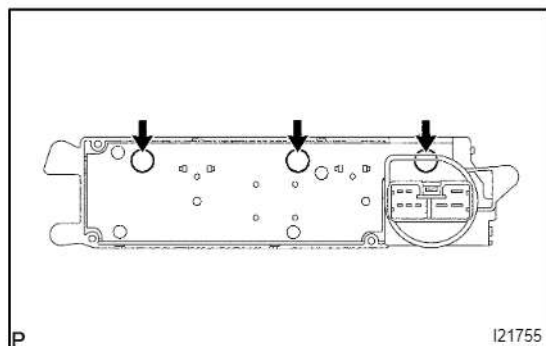
1. REMOVE A/C CONTROL PANEL

- Remove the 3 knobs and 2 switch.
- Remove the A/C control panel.



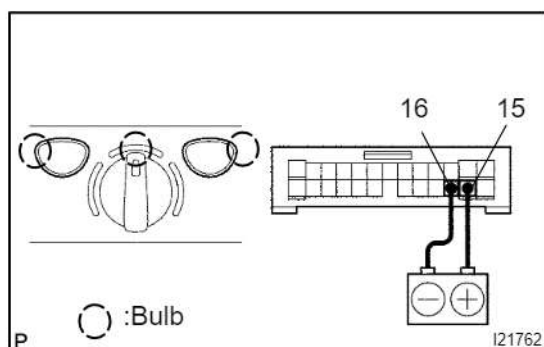
2. REMOVE A/C AMPLIFIER

- Remove the 5 screws.
- Remove the A/C control panel case and amplifier.



3. REMOVE BULB

Using a screwdriver, turn the bulb to the left and pull out the bulb.

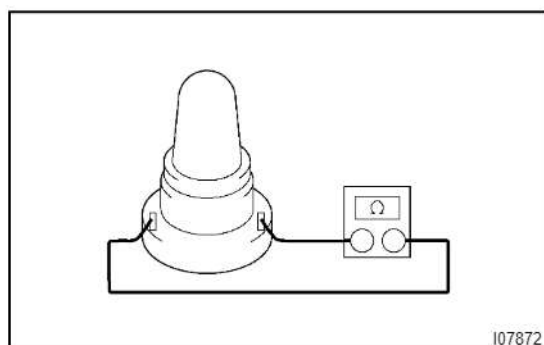


INSPECTION

1. INSPECT ILLUMINATION OPERATION

Connect the positive (+) lead from the battery to terminal 15 and negative (-) lead to terminal 16 then check that the illuminations lights up.

If operation is not as specified, check the faulty bulb.

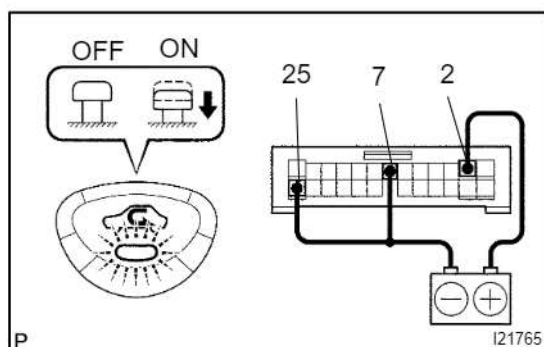


2. INSPECT BULB

Apply the tester as shown in the illustration to the test for continuity.

If continuity exists, replace the heater control.

If no continuity exists, replace the bulb.

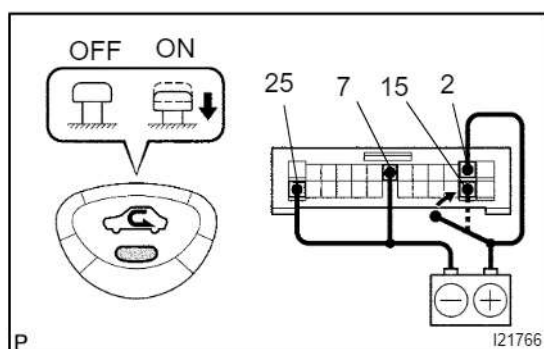


3. INSPECT RECIRC INDICATOR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 2 and the negative (-) lead to terminal 7, 25.

(b) Push the REC button in and then check that the indicator lights up.

If operation is not as specified, replace the switch circuit board.



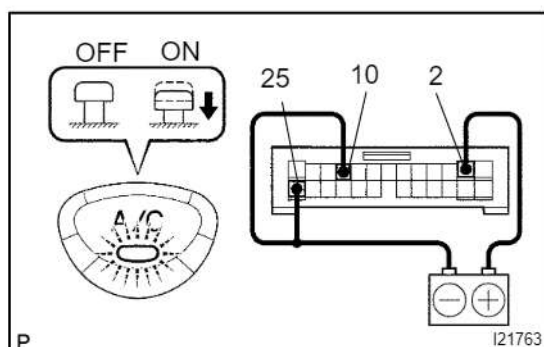
4. INSPECT DIMMING OPERATION

(a) Connect the positive (+) lead from the battery to terminal 2 and the negative (-) lead to terminal 7, 25 while press the switch.

(b) Push the REC button in and then check that the indicator lights up.

(c) Connect the positive (+) lead from the battery to terminal 15 and then check that the indicator dims.

If operation is not as specified, replace the switch circuit board.

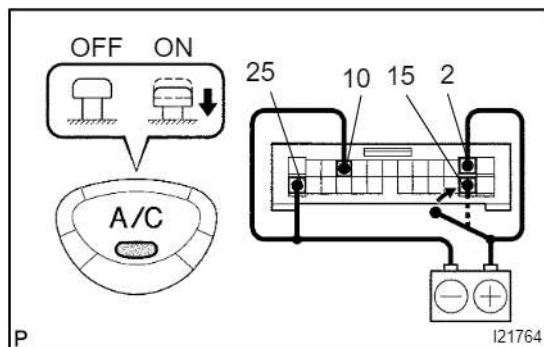


5. INSPECT A/C INDICATOR OPERATION

(a) Connect the positive (+) lead from the battery to terminal 2 and negative (-) lead to terminal 10, 25.

(b) Push the A/C button in and then check that the indicator lights up.

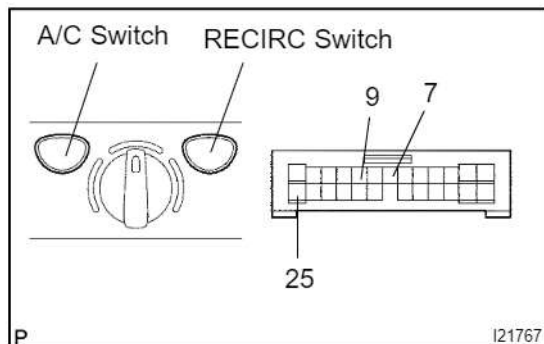
If operation is not as specified, replace the switch circuit board.



6. INSPECT DIMMING OPERATION

- Connect the positive (+) lead from the battery to terminal 2 and negative (-) lead to terminal 10, 25 while press the switch.
- Push the A/C button in and then check that the indicator lights up.
- Connect the positive (+) lead from the battery to terminal 20 and then check that the indicator dims.

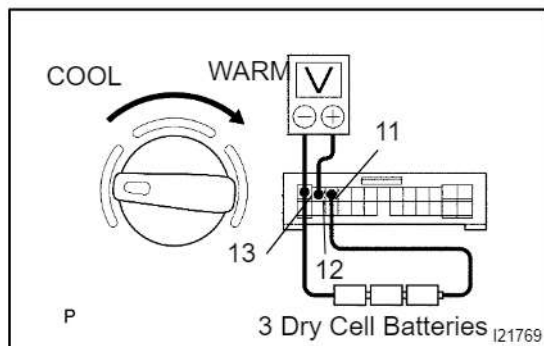
If operation is not as specified, replace the switch circuit board.



7. INSPECT SWITCH CONTINUITY

Check the continuity between terminals while switch is pressed, as shown in the chart.

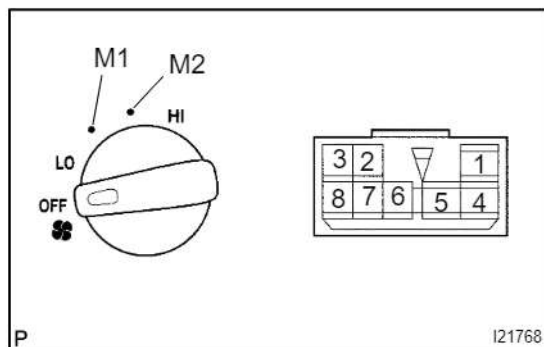
Switch	Tester connection	Specified condition
A/C	9 - 25	Continuity
RECIRC	7 - 25	Continuity



8. INSPECT TEMPERATURE CONTROL SWITCH OPERATION

- Check that the resistance between terminals 11 and 13 is approx. 3.0 k Ω .
- Connect the positive (+) lead from the three 1.5 V dry cell batteries to terminal 11 and negative (-) lead to terminal 13.
- Connect the positive (+) lead from the tester to terminal 12 and negative (-) lead to terminal 13.
- Gradually turn the switch from "MAX. WARM" side to "MAX. COOL" side and check that the voltage increase from 0 to 4.5 V.

If operation is not as specified, replace the heater control base.

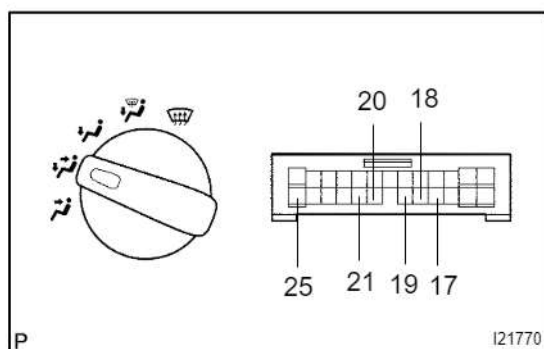


9. INSPECT BLOWER SPEED CONTROL SWITCH OPERATION

Check the continuity between terminals at each switch position as shown in the chart.

Position/ Circuit	Tester connection	Specified condition
OFF	-	No continuity
LO	1 - 8	Continuity
M1	1 - 6 - 8	Continuity
M2	1 - 5 - 8	Continuity
HI	1 - 4 - 8	Continuity

If continuity is not as specified, replace the heater control base.



10. INSPECT MODE SWITCH CONTINUITY

Check the continuity between terminals at each switch position as shown in the chart.

Switch position	Tester connection	Specified condition
FACE	17 - 25	Continuity
B/L	18 - 25	Continuity
FOOT	19 - 25	Continuity
FOOT/DEF.	20 - 25	Continuity
DEF.	21 - 25	Continuity

If continuity is not as specified, replace the switch.

REASSEMBLY

Reassembly is in the reverse order of disassembly (See page [AC-94](#)).

INSTALLATION

Installation is in the reverse order of removal (See page [AC-93](#)).

REAR HEATER CONTROL ASSEMBLY

ON-VEHICLE INSPECTION

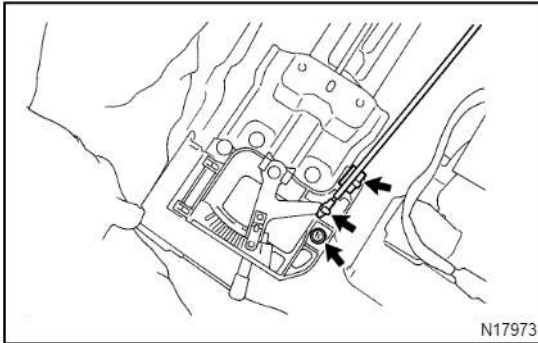
AC0EO-01

INSPECT HEATER CONTROL LEVER OPERATION

Move the control lever left and right check for stiffness and binding the full range of the lever.

REMOVAL

1. REMOVE REAR CONSOL BOX
(See page [BO-69](#))



2. REMOVE HEATER CONTROL ASSEMBLY

- (a) Disconnect the control cable.

HINT:

At the time of installation, please refer to the following item.
For installing the control cable refer to "INSTALLATION".

- (b) Remove the screw and heater control assembly.

INSTALLATION

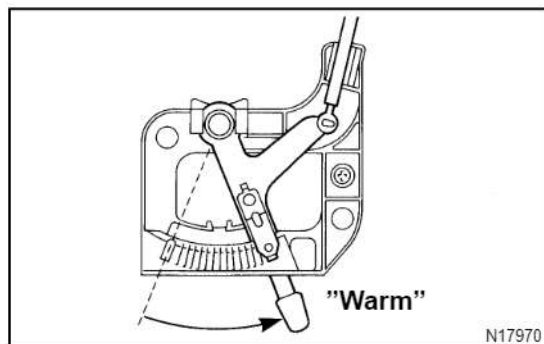
Installation is in the reverse order of removal

(See page [AC-101](#)).

1. AFTER INSTALLATION, CHECK HEATER CONTROL LEVER OPERATION

Move the control lever left and right check for stiffness and binding the full range of the lever.

If there is stiffness or binding, proceed next step.

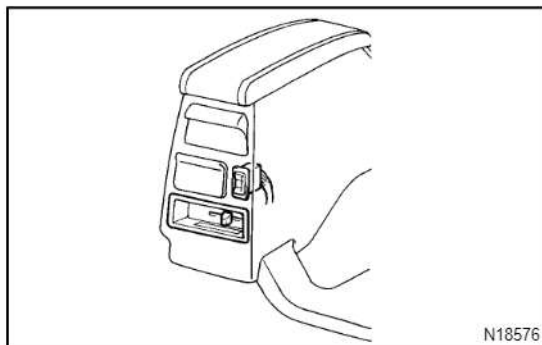


2. ADJUST HEATER CONTROL CABLE

- Set damper control lever to "WARM" position.
- Set the rear heater control lever to "WARM" position, install the control cable and lock the clamp.

HINT:

Lock the clamp during lightly pushing the outer cable in the direction, as shown in the illustration by an arrow.



N18576

REAR BLOWER SWITCH INSPECTION

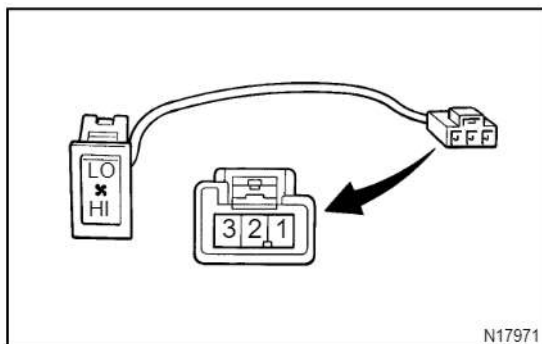
AC23B-01

1. REMOVE REAR BLOWER SWITCH

Using a screwdriver, pry out the switch, then disconnect the connector.

HINT:

Tape the screwdriver tip before use.

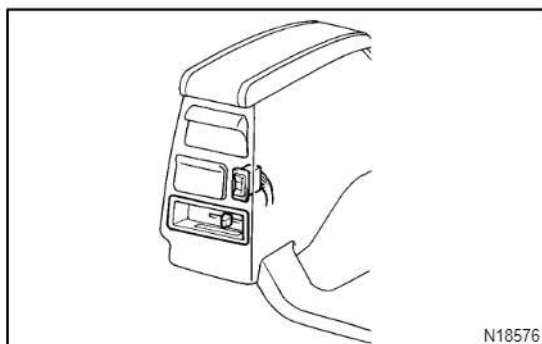


N17971

2. INSPECT SWITCH CONTINUITY

Switch position	Tester connection	Specified condition
OFF	-	No continuity
LO	2 - 3	Continuity
HI	1 - 2 - 3	Continuity

If continuity is not as specified, replace the switch.



N18576

3. INSTALL REAR BLOWER RESISTOR

Install the switch, then connect the connector.