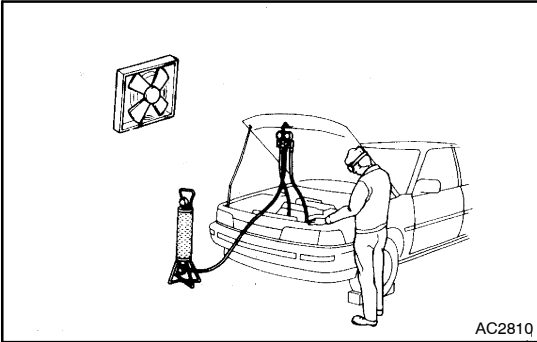


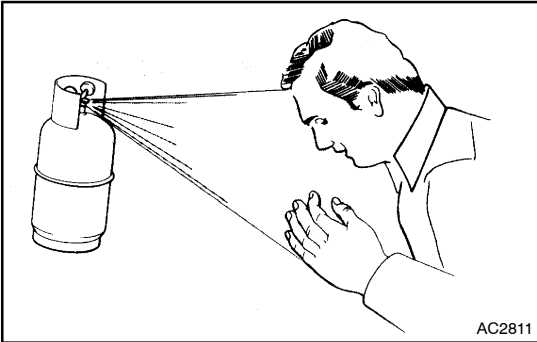


AC2810

## AIR CONDITIONING SYSTEM PRECAUTION

AC15I-01

1. **DO NOT HANDLE REFRIGERANT IN AN ENCLOSED AREA OR NEAR AN OPEN FLAME**
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.

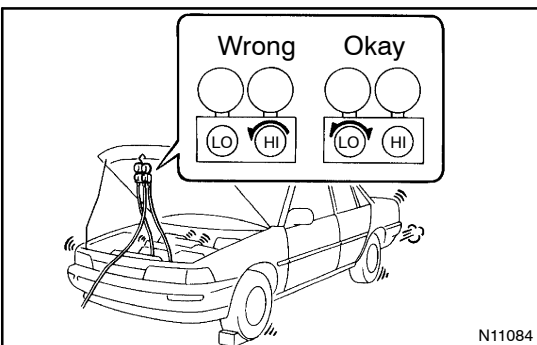
### CAUTION:

**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 REFRIGERANT SYSTEM**

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

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

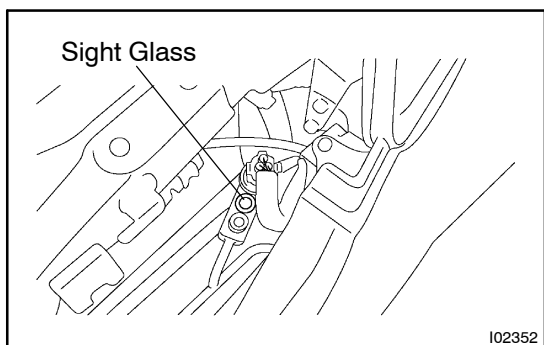
If the high pressure valves opened, refrigerant flows in the reverse direction and could cause the charging cylinder to rupture, so open and close the only low pressure valve.

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 Lexus GS 300 is equipped with an SRS (Supplemental Restraint System) such as the driver and passenger airbag. Failure to carry out service operations in the correct sequence could cause the SRS to unexpectedly deployed during servicing, possibly leading to a serious accident. Further, if a mistake is made in servicing the SRS, it is possible the SRS may fail to operate when required. Before servicing ( including removal or installation of parts, inspection or replacement), be sure to read the following item carefully, then follow the correct procedure described in repair manual.



## 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<br>(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<br>(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 conditioner is turned off, refrigerant in sight glass stays clear | Too much                     | (1) Discharge refrigerant<br>(2) Evacuate air and charge proper amount of purified refrigerant                          |
| 6    | When air conditioner 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

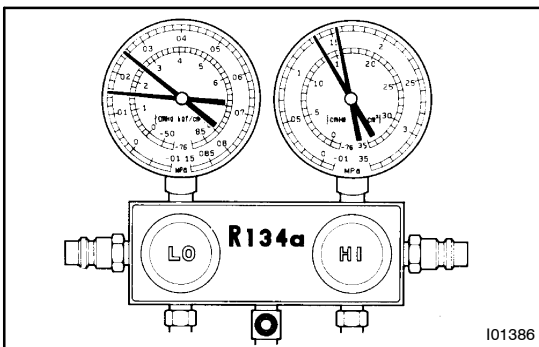
This is a method in which the trouble is located by using a manifold gauge set. Read the manifold gauge pressure when these conditions are established.

Test conditions:

- Temperature at the air inlet with the switch set at RECIRC is 30 – 35 °C (86 – 95 °F)
- Engine running at 2,000 rpm
- Blower speed control switch at "HI" position
- Temperature control dial on "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:**

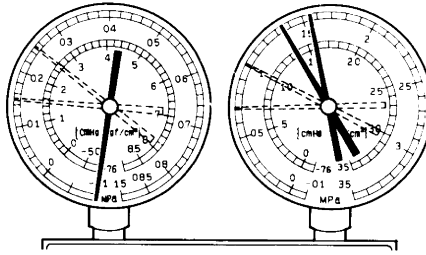
**0.15 – 0.25 MPa (1.5 – 2.5 kgf/cm<sup>2</sup>)**

**High pressure side:**

**1.37 – 1.57 MPa (14 – 15 kgf/cm<sup>2</sup>)**

## (2) Moisture present in refrigeration system.

Condition : Periodically cools and then fails to cool

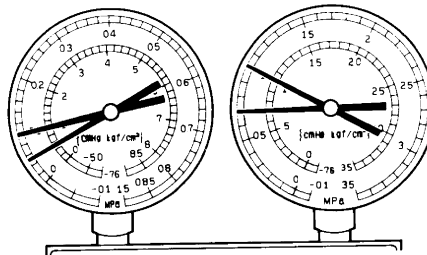


I01387

| 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 | <ul style="list-style-type: none"> <li>• Drier in oversaturated state</li> <li>• Moisture in refrigeration system freezes at expansion valve orifice and blocks circulation of refrigerant</li> </ul> | (1) Replace condenser<br>(2) Remove moisture in cycle through repeatedly evacuating air<br>(3) Charge proper amount of new refrigerant |

## (3) Insufficient cooling

Condition: Insufficient cooling

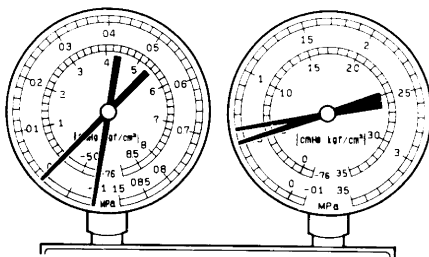


I01388

| Symptom seen in refrigeration system                                                                                                                                                                 | Probable cause                                    | Diagnosis                                                                                                             | Remedy                                                                                                                                                                                                                                                              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Pressure low on both low and high pressure sides</li> <li>• Bubbles seen in sight glass continuously</li> <li>• Insufficient cooling performance</li> </ul> | Gas leakage at some place in refrigeration system | <ul style="list-style-type: none"> <li>• Insufficient refrigerant in system</li> <li>• Refrigerant leaking</li> </ul> | (1) Check for gas leakage with gas leak detector and repair if necessary<br>(2) Charge proper amount of refrigerant<br>(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

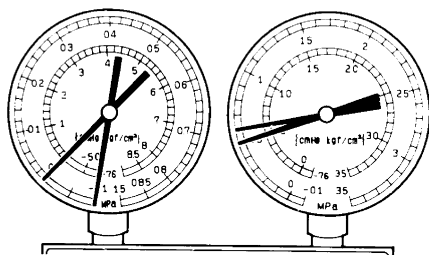


I01389

| Symptom seen in refrigeration system                                                                                                             | Probable cause                                   | Diagnosis         | Remedy            |
|--------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|-------------------|-------------------|
| <ul style="list-style-type: none"> <li>Pressure low in both low and high pressure sides</li> <li>Frost on tube from condenser to unit</li> </ul> | Refrigerant flow obstructed by dirt in condenser | condenser clogged | Replace condenser |

## (5) Refrigerant does not circulate

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

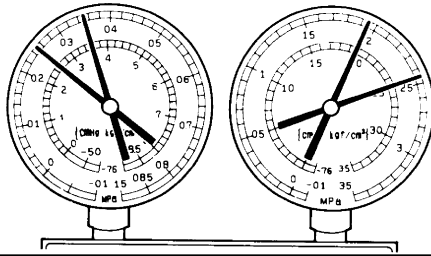


I01449

| Symptom seen in refrigeration system                                                                                                                                                                                                 | Probable cause                                                                                                                                                                                     | Diagnosis                      | Remedy                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Vacuum indicated on low pressure side, very low pressure indicated on high pressure side</li> <li>Frost or dew seen on piping before and after condenser/ drier or expansion valve</li> </ul> | <ul style="list-style-type: none"> <li>Refrigerant flow obstructed by moisture or dirt in refrigeration system</li> <li>Refrigerant flow obstructed by gas leakage from expansion valve</li> </ul> | Refrigerant does not circulate | <ol style="list-style-type: none"> <li>(1) Check expansion valve</li> <li>(2) Clean out dirt in expansion valve by blowing with air</li> <li>(3) Replace condenser</li> <li>(4) Evacuate air and charge new refrigerant to proper amount</li> <li>(5) For gas leakage from expansion valve, replace expansion valve</li> </ol> |

(6) Refrigerant overcharged or insufficient cooling of condenser

Condition: Insufficient cooling

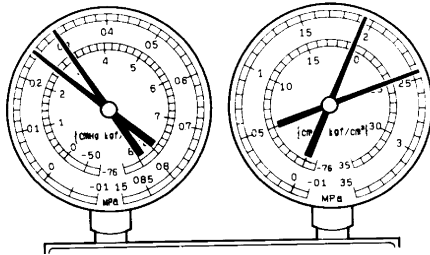


I01390

| Symptom seen in refrigeration system                                                                                                                                                             | Probable cause                                                                                                                                                              | Diagnosis                                                                                                                                                                               | Remedy                                                                                                                                                                                                                      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Pressure too high on both low and high pressure sides</li> <li>No air bubbles seen through the sight glass even when the engine rpm is lowered</li> </ul> | <ul style="list-style-type: none"> <li>Unable to develop sufficient performance due to excessive refrigeration system</li> <li>Insufficient cooling of condenser</li> </ul> | <ul style="list-style-type: none"> <li>Excessive refrigerant in cycle → refrigerant over charged</li> <li>Condenser cooling → condenser fins clogged of condenser fan faulty</li> </ul> | <ol style="list-style-type: none"> <li>Clean condenser</li> <li>Check condenser fan motor operation</li> <li>If (1) and (2) are in normal state, check amount of refrigerant Charge proper amount of refrigerant</li> </ol> |

(7) Air present in refrigeration system

Condition: Insufficient cooling



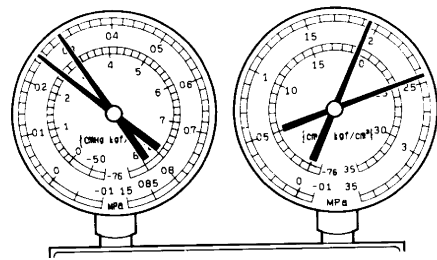
NOTE : These gauge indications are shown when the refrigeration system has been opened and the refrigerant charged without vacuum purging.

I01392

| Symptom seen in refrigeration system                                                                                                                                                       | Probable cause                      | Diagnosis                                                                                                                  | Remedy                                                                                                                                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Pressure too high on both low and high pressure sides</li> <li>The low pressure piping hot to touch</li> <li>Bubbles seen in sight glass</li> </ul> | Air entered in refrigeration system | <ul style="list-style-type: none"> <li>Air present in refrigeration system</li> <li>Insufficient vacuum purging</li> </ul> | <ol style="list-style-type: none"> <li>Check compressor oil to see if it is dirty or insufficient</li> <li>Evacuate air and charge new refrigerant</li> </ol> |

(8) Expansion valve improperly

Condition: Insufficient cooling

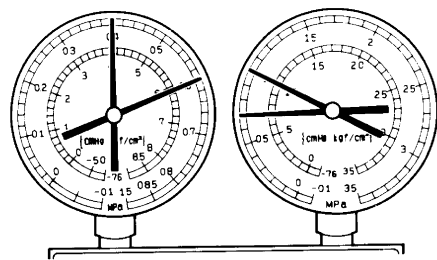


I01450

| Symptom seen in refrigeration system                                                                                                                                          | Probable cause             | Diagnosis                                                                                                                                | Remedy                                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| <ul style="list-style-type: none"><li>• Pressure too high on both low and high pressure sides</li><li>• Frost or large amount of dew on piping on low pressure side</li></ul> | Trouble in expansion valve | <ul style="list-style-type: none"><li>• Excessive refrigerant in low pressure piping</li><li>• Expansion valve opened too wide</li></ul> | <p>Check expansion valve</p> <p>Replace if defective</p> |

(9) Defective compression compressor

Condition : Does not cool



I01393

| Symptom seen in refrigeration system                                                                                                                | Probable cause              | Diagnosis                                                                                                               | Remedy                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------------------------------------------|------------------------------|
| <ul style="list-style-type: none"><li>• Pressure too high on low and high pressure sides</li><li>• Pressure too low on high pressure side</li></ul> | Internal leak in compressor | <ul style="list-style-type: none"><li>• Compression defective</li><li>• Valve leaking or broken sliding parts</li></ul> | Repair or replace compressor |

**3. INSPECT IDLE-UP SPEED**

- (a) Warm up engine
- (b) Inspect idle-up speed when the these conditions are established.

Test conditions:

- Blower speed control switch at "HI" position
- Temperature control dial at "COOL" position
- A/C switch ON
- Put gear shift in neutral

| Magnetic clutch condition   | Idle-up speed |
|-----------------------------|---------------|
| Magnetic clutch not engaged | 700 ± 50 rpm  |
| Magnetic clutch engaged     | 800 ± 50 rpm  |

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

**4. INSPECT FOR LEAKAGE OF REFRIGERANT**

- (a) Perform in these conditions.
  - Stop engine
  - Secure good ventilation (If the gas leak detector may not react 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.

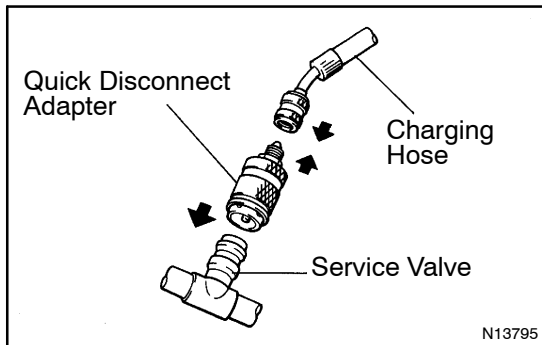
When compressor is OFF: approx. 392 – 588 kPa  
(4 – 6 kgf·cm<sup>2</sup>, 57 – 85 psi)
- (b) Bring the gas leak detector close to the drain hose before performing the test.

HINT:

- After the blower motor has stopped, leave the cooling for more than 15 minutes.
- Expose the gas leak detector sensor 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.

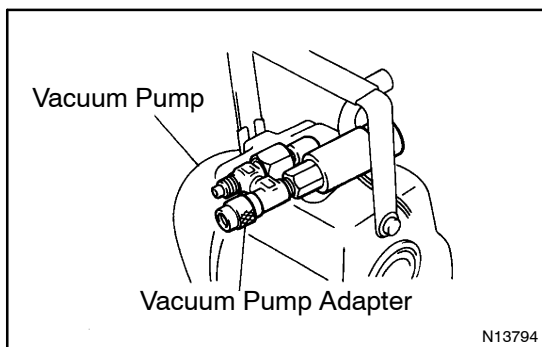
If such reaction is unavoidable, the vehicle must be lifted up.

- (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.

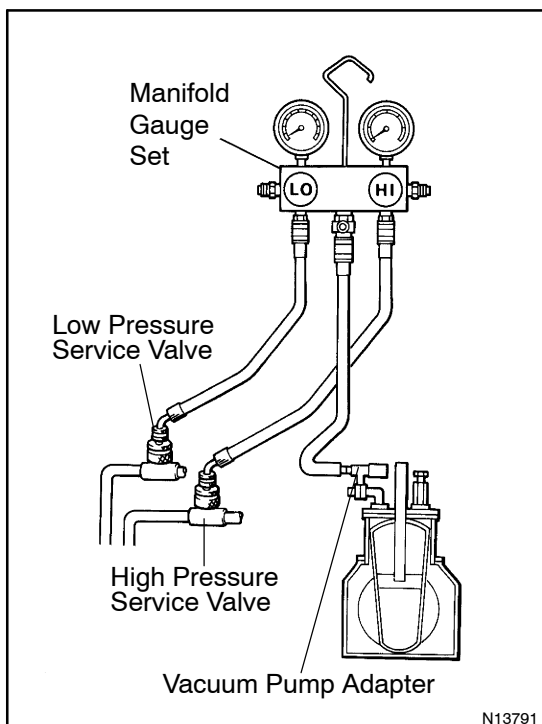


## EVACUATING

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.

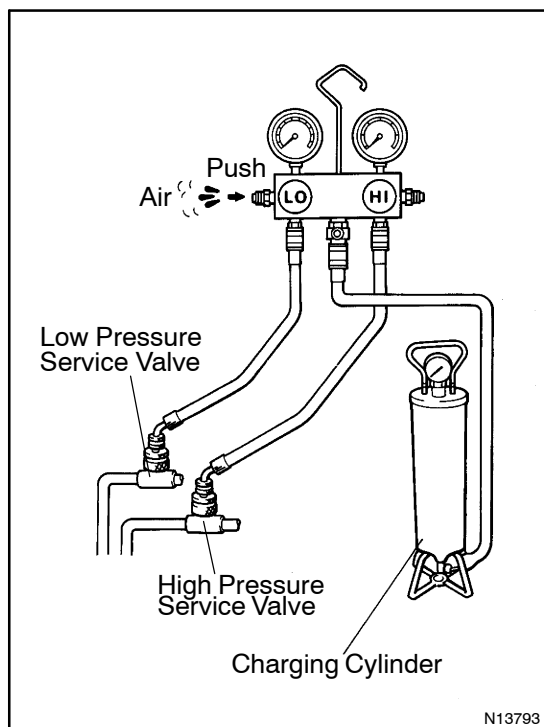


- (b) Connect the center hose of the manifold gauge set to the vacuum pump adapter.
- (c) Open both the high and low hand valves and run the vacuum pump.
- (d) After 10 minutes or more, check that the low pressure gauge indicates 750 mmHg (30 in. Hg) or more.

### HINT:

If the reading is 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 if 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:

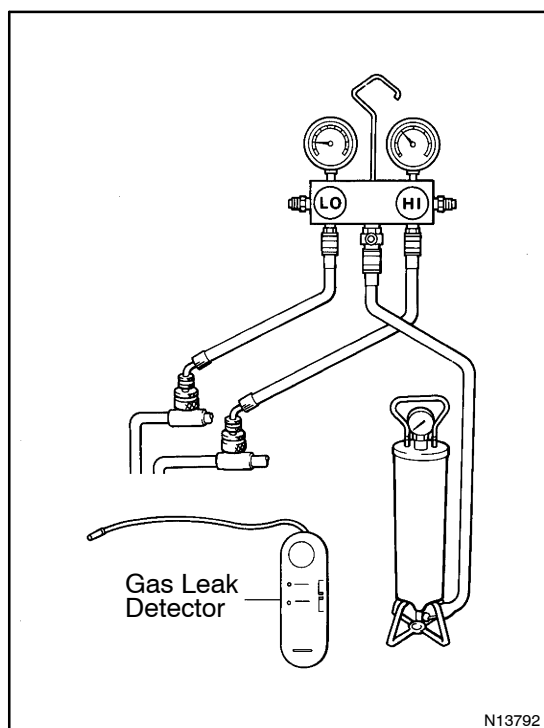
When handling the charging cylinder, always follow the directions given in the instruction manual.

- 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.

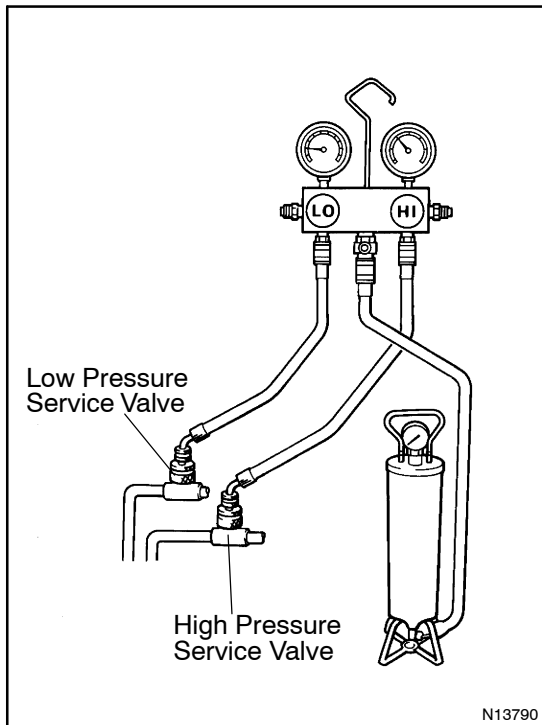


### 2. INSPECT REFRIGERATION SYSTEM FOR LEAKS

- Open the high pressure hand valve and charge refrigerant.
- When the low pressure gauge indicates 98 kPa (1 kgf/cm<sup>2</sup>, 14 psi) close the high pressure hand valve.
- Using a gas leak detector, check the system for leakage. If leak is found, repair the faulty component or connection.

#### CAUTION:

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



### 3. CHARGE REFRIGERANT INTO REFRIGERATION SYSTEM

If there is no leak after refrigerant leak check charge, the proper amount of refrigerant in to 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.

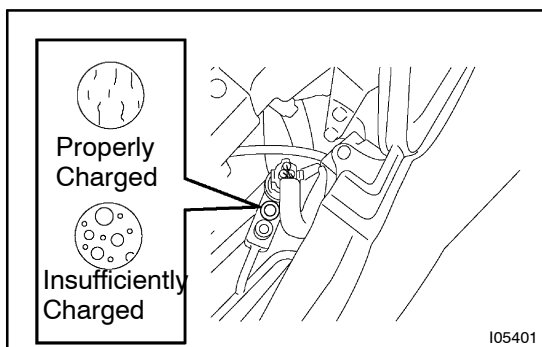
#### HINT:

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 conditions:
    - 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.**



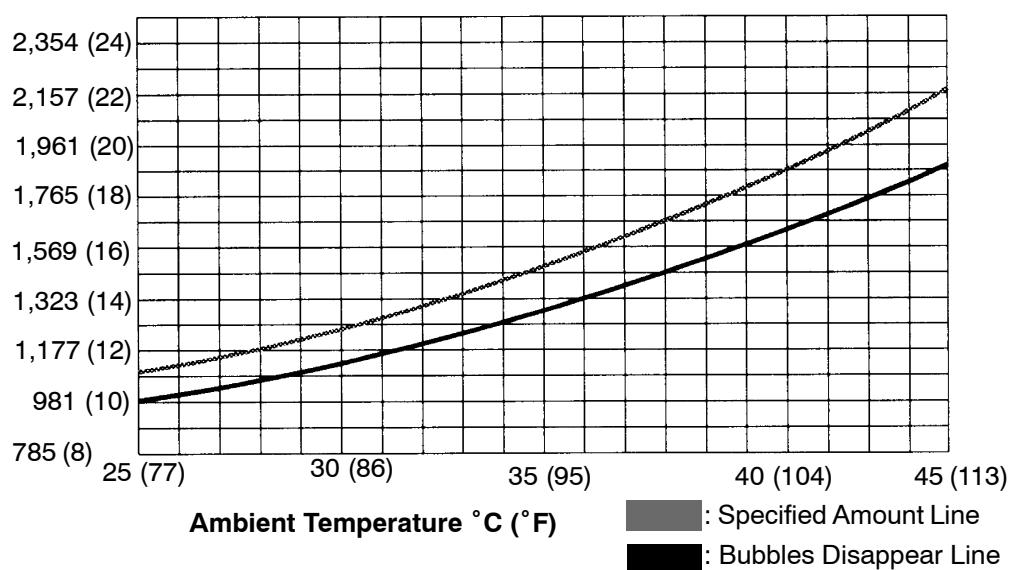
- (3) Charge refrigerant until bubbles disappear and check the pressure on the gauge through the sight glass.

- (4) Add the refrigerant gradually until the pressure reaches to of point of intersection with ambient temperature and the specified amount in the chart and check the pressure rise up.
- (5) Stop adding the refrigerant when the pressure of the specified amount has been reached.

**HINT:**

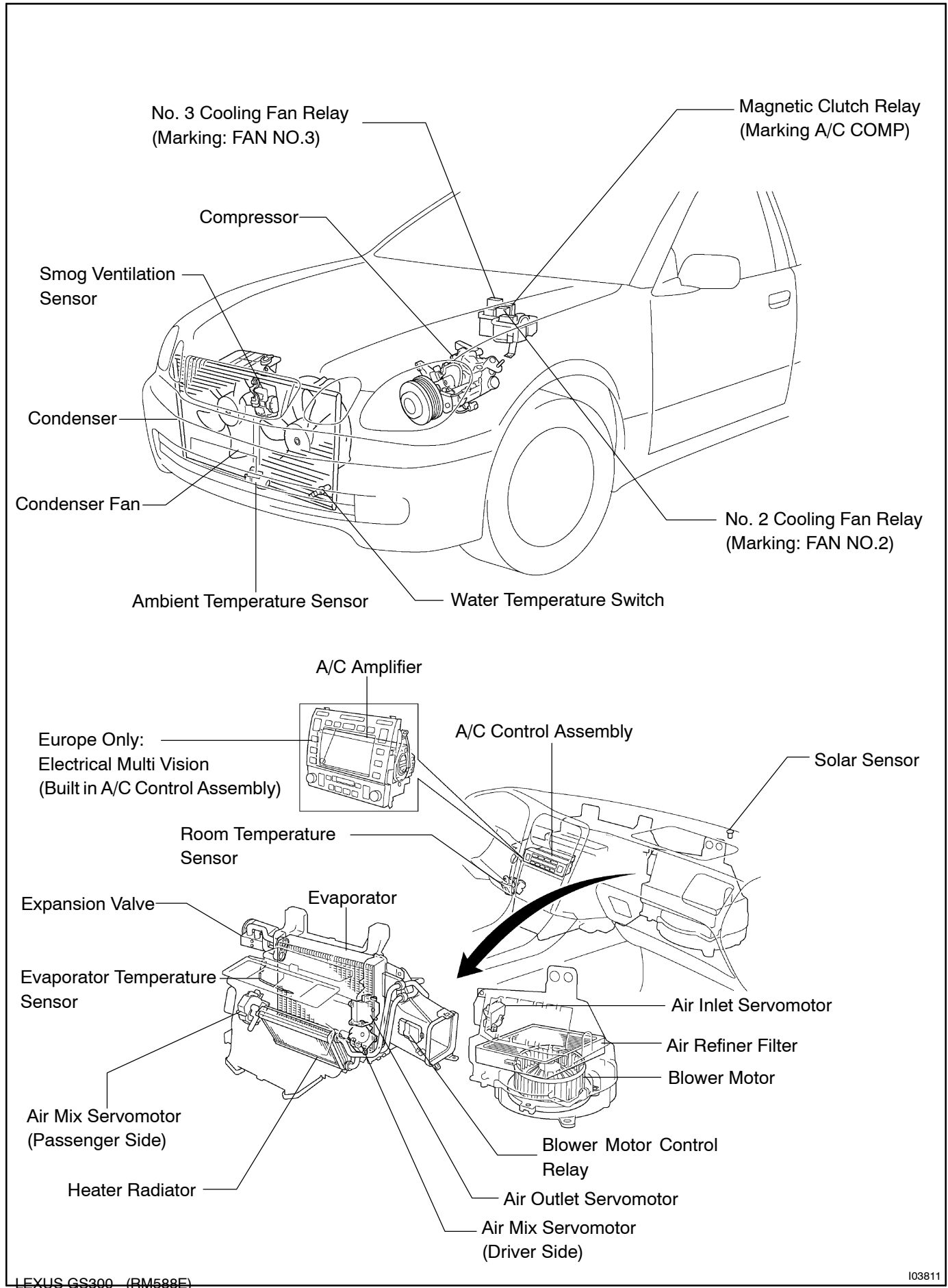
- In the case that the refrigerant has been charged excessively, draw out the refrigerant until the pressure returns to the specified amount.
- When the ambient temperature is 25°C (77°F) below, a compressor might be OFF due the mechanism of the system. When checking the pressure based o this chart, check it at the ambient temperature of 25°C (77°F) above.

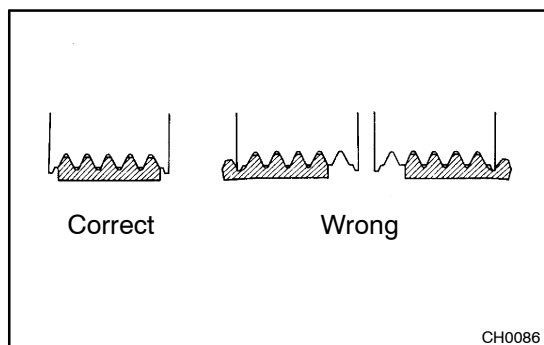
**High Pressure Side Pressure**  
**KPa (kgf/cm<sup>2</sup>)**



105402

## LOCATION



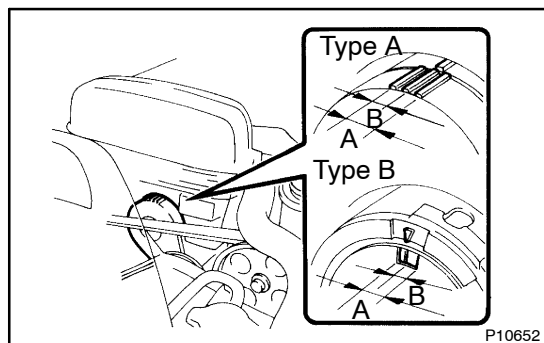


## DRIVE BELT ON-VEHICLE INSPECTION

AC15N-01

### 1. INSPECT DRIVE BELT'S INSTALLATION CONDITION

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



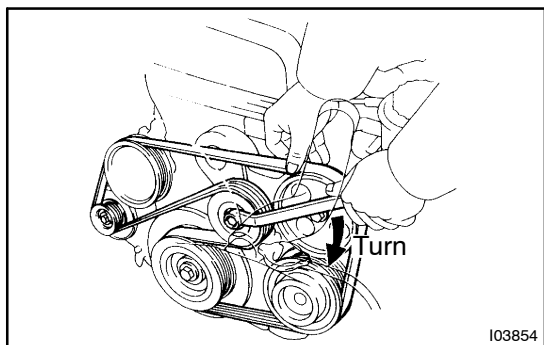
### 2. INSPECT DRIVE BELT TENSION

Check that the arrow mark on the belt tensioner falls within area "A" of the scale.

If it is out side area "A", replace the drive belt.

HINT:

When a new belt is installed, it should be lie within area B.



## REMOVAL

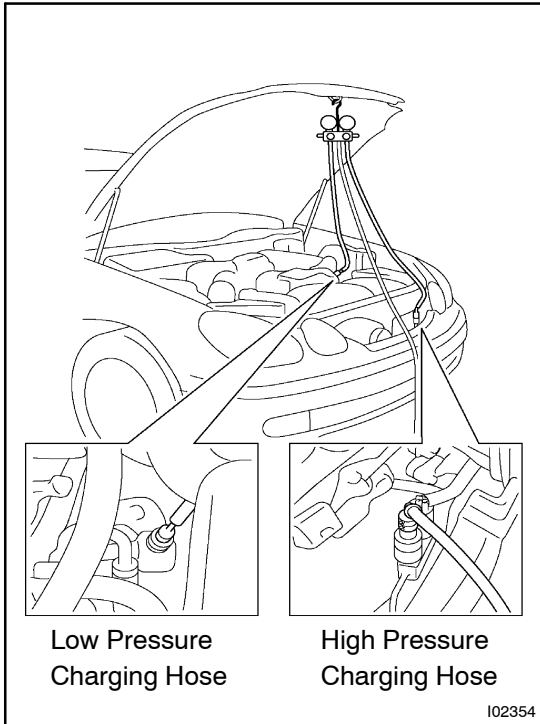
### REMOVE DRIVE BELT

Loosen the drive belt tension by turning the drive belt tensioner clockwise and remove the drive belt.

## INSTALLATION

Installation is in the reverse order of removal. [\(See page AC-15\)](#)

AFTER INSTALLATION, CHECK DRIVE BELT'S INSTALLATION CONDITION



## MANIFOLD GAUGE SET SET ON

AC15Q-01

### 1. CONNECT CHARGING HOSES TO MANIFOLD GAUGE SET

Tighten the nuts by hand.

#### CAUTION:

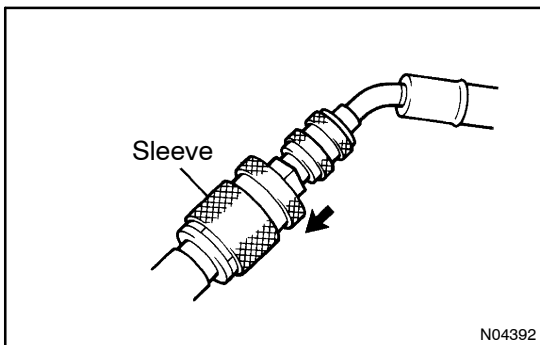
Do not connect the wrong hoses.

### 2. CONNECT QUICK DISCONNECT ADAPTERS TO CHARGING HOSES

Tighten the nuts by hand.

### 3. CLOSE BOTH HAND VALVES OF MANIFOLD GAUGE SET

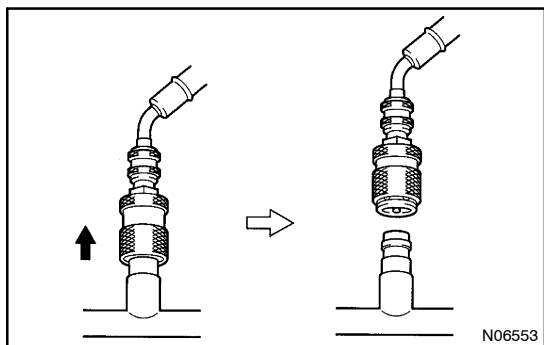
### 4. REMOVE CAPS FROM SERVICE VALVE ON REFRIG- ERANT LINES



### 5. CONNECT QUICK DISCONNECT ADAPTERS TO SER- VICE VALVES

#### HINT:

Push the quick disconnect adapter onto the service valve, 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 LINES

# REFRIGERANT LINE

## ON-VEHICLE INSPECTION

AC15S-01

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

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

Diagram illustrating the installation of a refrigerant system on a vehicle, showing the following components and torque specifications:

- Suction Hose
- Compressor
- Condenser
- Suction Tube
- Liquid Tube
- Discharge Hose

Torque specifications (N·m (kgf·cm, ft·lbf)) are indicated for several bolts:

- 10 (100, 7)
- 10 (100, 7)
- 10 (100, 7)
- 10 (100, 7)
- 10 (100, 7)

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

## 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 TO SPECIFIED TORQUE

### NOTICE:

Connections should not be torqued tighter than the specified torqued.

| Part tightened                            | N·m | kgf·cm | ft·lbf    |
|-------------------------------------------|-----|--------|-----------|
| Compressor x Discharge hose               | 10  | 100    | 7         |
| Compressor x Suction hose                 | 10  | 100    | 7         |
| Condenser x Discharge hose                | 10  | 100    | 7         |
| Condenser x Liquid tube                   | 10  | 100    | 7         |
| A/C unit x Liquid and Suction tubes       | 10  | 100    | 7         |
| Expansion valve x Liquid and suction tube | 4.1 | 42     | 36 in·lbf |
| Evaporator x Liquid and suction tube      | 4.1 | 42     | 36 in·lbf |
| Suction line (Block joint)                | 10  | 100    | 7         |

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

Specified amount: 600 ± 50 g (21.16 ± 1.76 oz.)

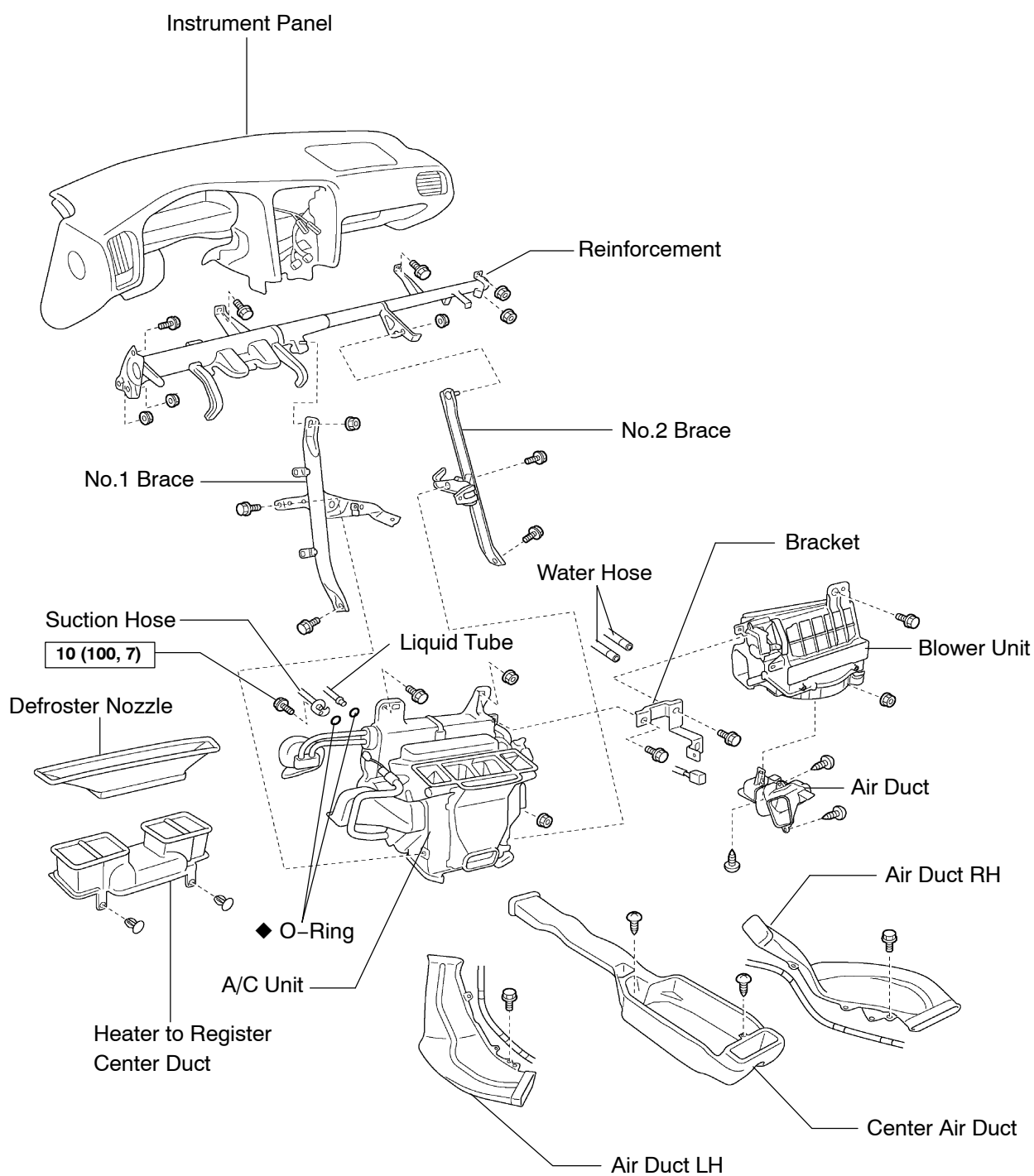
5. INSPECT FOR LEAKAGE OF REFRIGERANT

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

6. INSPECT AIR CONDITIONING OPERATION

# AIR CONDITIONER UNIT COMPONENTS

AC15V-01

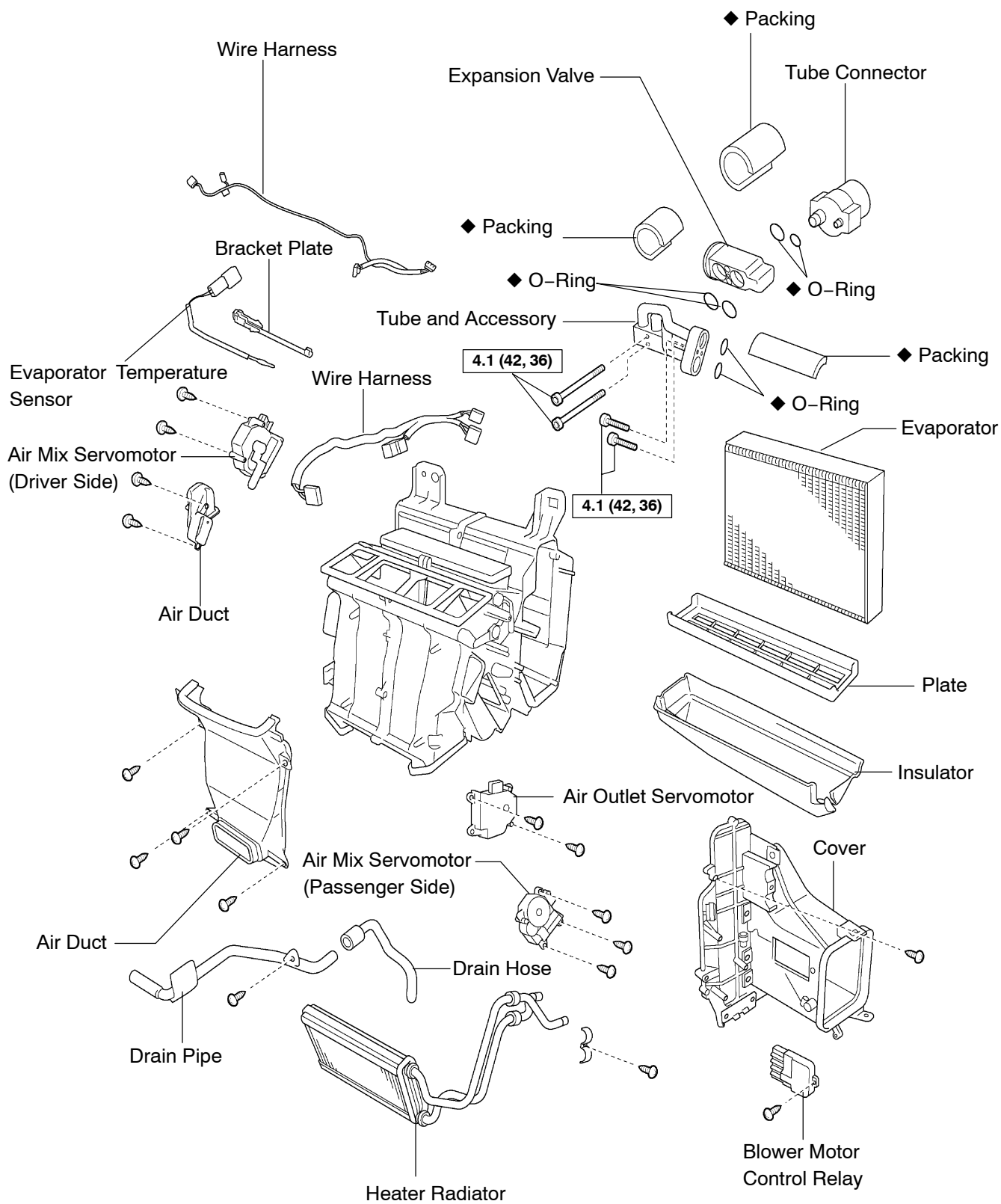


N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

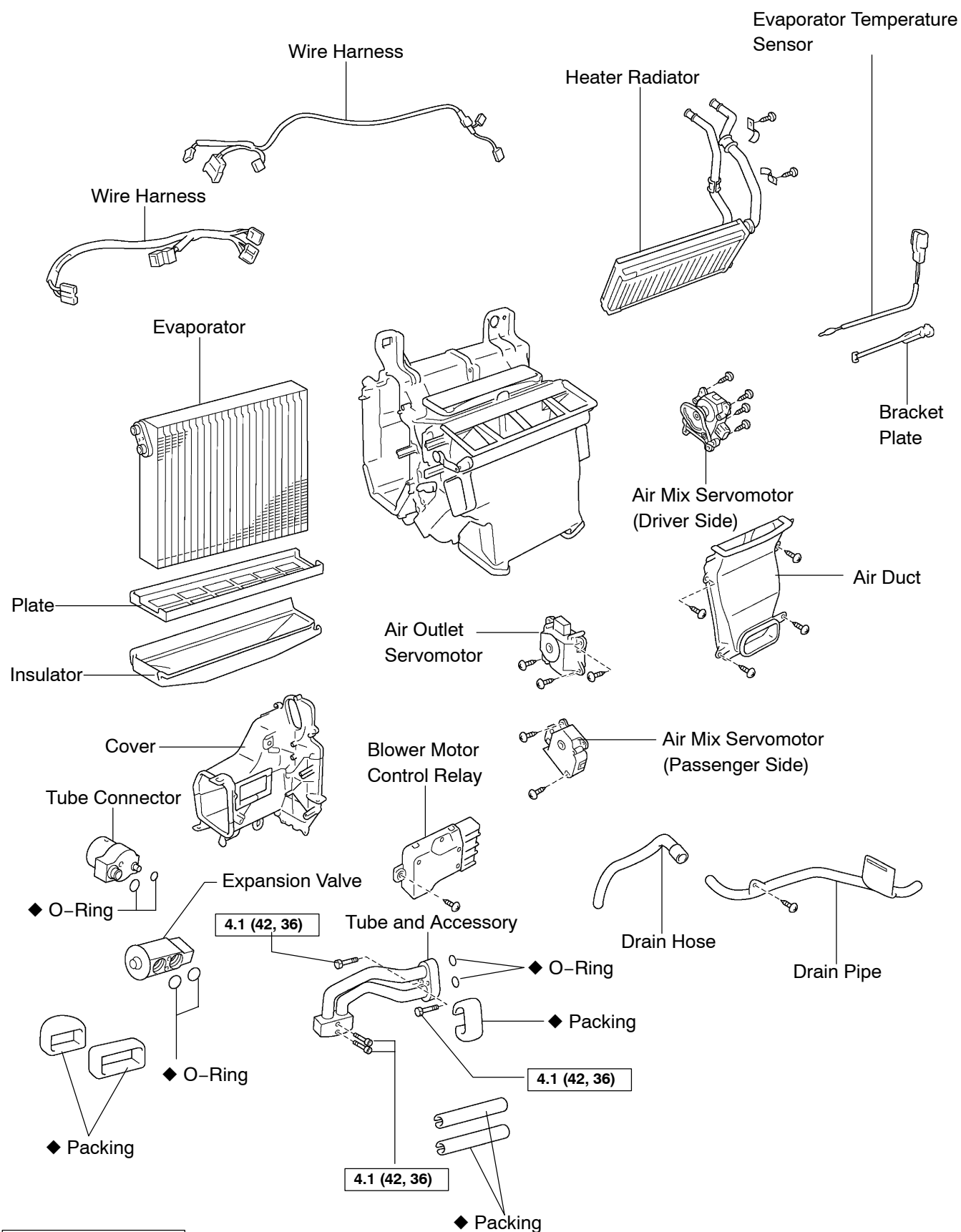
102365

## LHD Models:



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

◆ Non-reusable part

**RHD Models:**

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

◆ Non-reusable part  
LEXUS GS300 - (RM588E)

## REMOVAL

### 1. DISCHARGE REFRIGERANT FROM REFRIGERATION SYSTEM

HINT:

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

Evacuate air from refrigeration system.

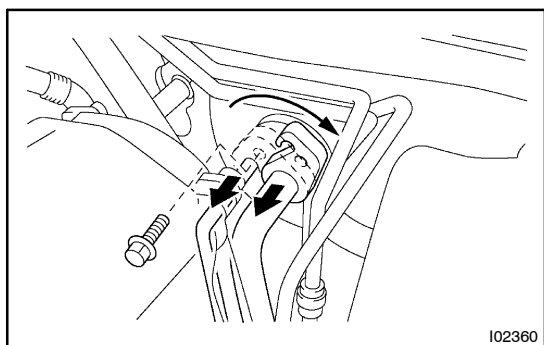
Charge system with refrigerant and inspect for leakage of refrigerant.

**Specified amount: 600 ± 50 g (21.16 ± 1.76 oz.)**

### 2. DRAIN ENGINE COOLANT FROM RADIATOR

HINT:

It is not necessary to drain out all coolant.



### 3. DISCONNECT LIQUID TUBE AND SUCTION HOSE FROM A/C UNIT

Remove the bolt and slide the plate, then disconnect the both tubes.

**Torque: 10 N·m (100 kgf·cm, 7 ft·lbf)**

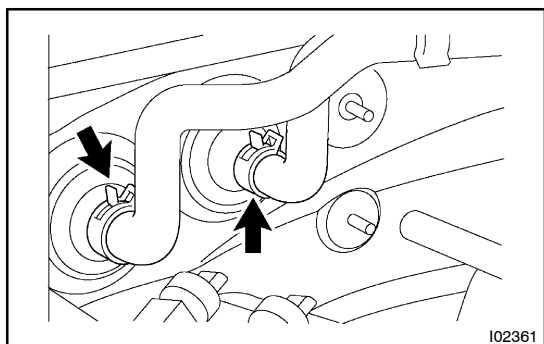
**NOTICE:**

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

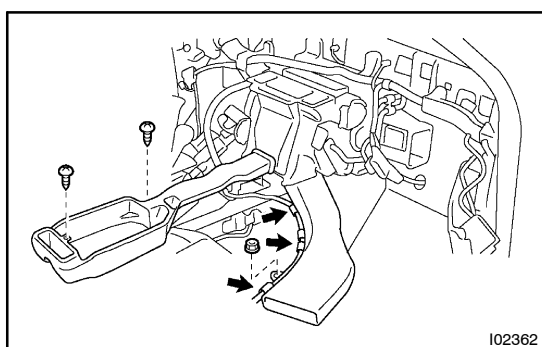


### 4. DISCONNECT WATER HOSES FROM HEATER RADIATOR PIPES

- (a) Grip the claws of the hose clip and slide the hose clip along the hose.
- (b) Disconnect the water hose.

**5. REMOVE THESE PARTS:**

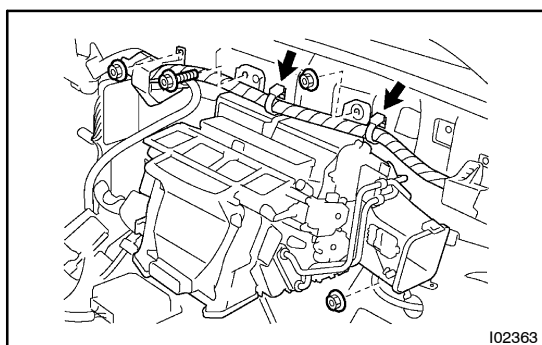
- (a) Cooler No.1 Grommet
- (b) Heater Pipe Grommet
- (c) Drain Hose Grommet
- (d) Instrument Panel and Reinforcement  
(See page BO-91)
- (e) Blower Unit  
(See page AC-32)



102362

**6. REMOVE 3 AIR DUCTS**

- (a) Remove the 2 screws and center air duct.
- (b) Slide the floor carpet backward.
- (c) Disconnect the wire harness clamps.
- (d) Remove the 2 bolts and air ducts L.H., R.H.



102363

**7. REMOVE A/C UNIT**

- (a) Disconnect the connector.
- (b) Remove the wire harness set nut.
- (c) Disconnect the wire harness clamps.
- (d) Remove the 2 nuts, bolt and A/C unit.

## DISASSEMBLY

### 1. REMOVE THESE PARTS:

- (a) Wire harness
- (b) Drain hose

### 2. REMOVE HEATER RADIATOR

- (a) LHD Models:  
Remove the screw and clamp.
- (b) RHD Models:  
Remove the 2 screws and 2 clamp.
- (c) Pull out the heater radiator.

### 3. REMOVE BLOWER MOTOR CONTROL RELAY

Remove the screw and blower motor control relay.

### 4. REMOVE AIR MIX SERVOMOTORS

Remove the 6 screws and both servomotors.

### 5. REMOVE AIR OUTLET SERVOMOTOR

Remove the 2 screws and servomotor.

### 6. REMOVE EXPANSION VALVE

- (a) Pry out the packing.

HINT:

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

Do not reuse the packing.

- (b) Using SST, remove the 2 bolts, then separate the expansion valve, and tube connector.  
SST 07110-61050

**Torque: 4.1 N·m (42 kgf·cm, 36 in·lbf)**

HINT:

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

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

### 7. REMOVE EVAPORATOR TEMPERATURE SENSOR

- (a) Disconnect the wire harness clamp.
- (b) Using a screwdriver, pull out the sensor with bracket plate.

HINT:

Tape the screwdriver tip before use.

- (c) Release the 2 claws and sensor from bracket plate.

### 8. REMOVE EVAPORATOR

- (a) Using SST, remove the 2 bolts and tube and accessory.  
SST 07110-61050

**Torque: 4.1 N·m (42 kgf·cm, 36 in·lbf)**

HINT:

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

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

- (b) Remove the 4 screws and cover.
- (c) Pull out the evaporator.
- (d) Remove the plate from evaporator.

HINT:

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

If evaporator is replaced, add compressor oil to evaporator.

**Add 40 cc (1.4 fl.oz.) Compressor oil: ND-OIL 8 or equivalent**

### 9. REMOVE INSULATOR FROM HEATER CASE

### 10. REMOVE AIR DUCT

## REASSEMBLY

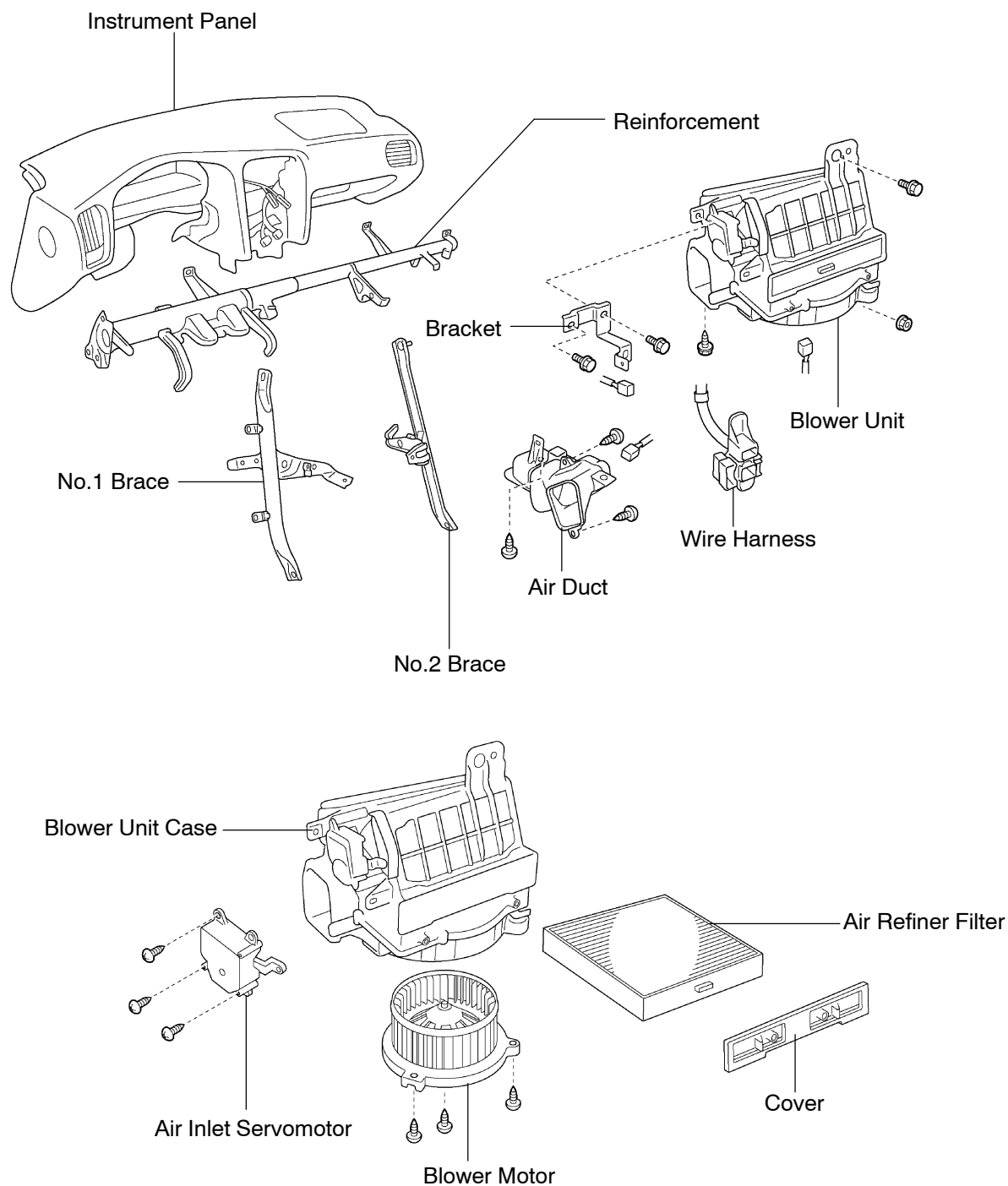
Reassembly is in the reverse order of disassembly (See [page AC-28](#)).

## INSTALLATION

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

# BLOWER UNIT COMPONENTS

AC160-01

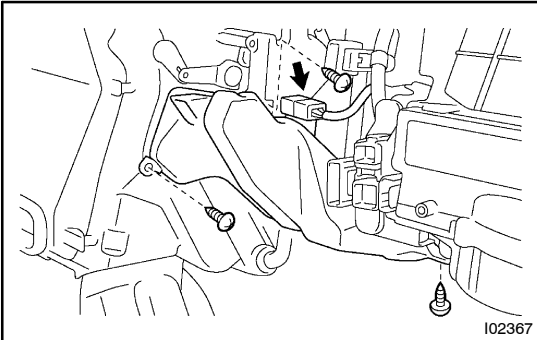
I02370  
I02371

I02372

## REMOVAL

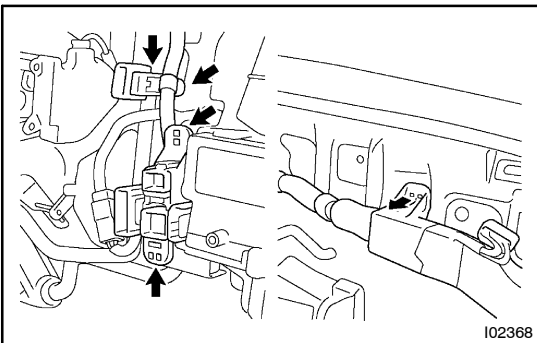
### 1. REMOVE INSTRUMENT PANEL AND REINFORCEMENT

(See page BO-91)



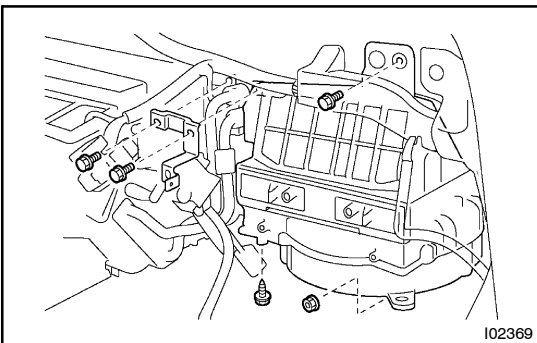
### 2. REMOVE AIR DUCT

- (a) Disconnect the connector clamp.
- (b) Remove the 3 screws and air duct.



### 3. DISCONNECT WIRE HARNESS

- (a) Release the claw of the connector bracket and disconnect the connector bracket.
- (b) Disconnect the wire harness set clamps.
- (c) Disconnect the wire harness.



### 4. REMOVE BLOWER UNIT

- (a) Disconnect the connectors.
- (b) Remove the 2 bolts and bracket.
- (c) Remove the bolt, screw and nut.
- (d) Remove the blower unit.

## DISASSEMBLY

### 1. REMOVE AIR REFINER FILTER

- (a) Release the 4 claws and remove the cover.
- (b) Pull out the air refiner filter.

### 2. REMOVE AIR INLET SERVOMOTOR

Remove the 3 screws and servomotor.

### 3. REMOVE BLOWER MOTOR

Remove the 3 screws and blower motor.

### 4. REMOVE BRACKET

Remove the screw and bracket.

## REASSEMBLY

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

## INSTALLATION

Installation is in the reverse order of removal (See [page AC-32](#)).

# COMPRESSOR AND MAGNETIC CLUTCH

AC165-01

## ON-VEHICLE INSPECTION

### 1. INSPECT COMPRESSOR FOR METALLIC SOUND

Check there is abnormal metallic sound from the compressor when the A/C switch is ON.

If abnormal metallic sound is heard, replace the compressor assembly.

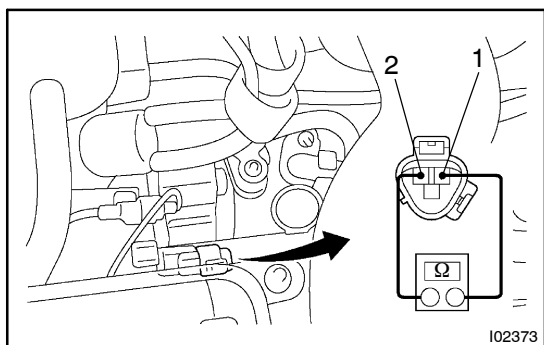
### 2. INSPECT REFRIGERANT PRESSURE

(See page AC-3)

### 3. INSPECT VISUALLY FOR LEAKAGE OF REFRIGERANT

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

If there is any leakage, replace the compressor assembly.



### 4. INSPECT COMPRESSOR LOCK SENSOR RESISTANCE

(a) Disconnect the connector.

(b) Measure resistance between terminals 1 and 2.

**Standard resistance: 570 – 1,050  $\Omega$  at 20°C (68 °F)**

If resistance is not as specified, replace the compressor.

### 5. MAKE THESE VISUAL CHECKS:

(a) Leakage of grease from the clutch bearing.

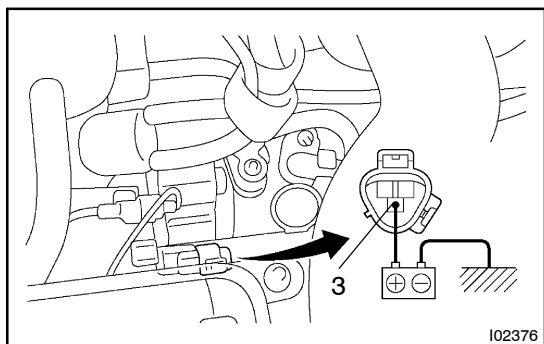
(b) Signs of oil on the pressure plate or rotor.

### 6. INSPECT MAGNETIC CLUTCH BEARING FOR NOISE

(a) Start engine.

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

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



### 7. INSPECT MAGNETIC CLUTCH OPERATION

(a) Disconnect the connector.

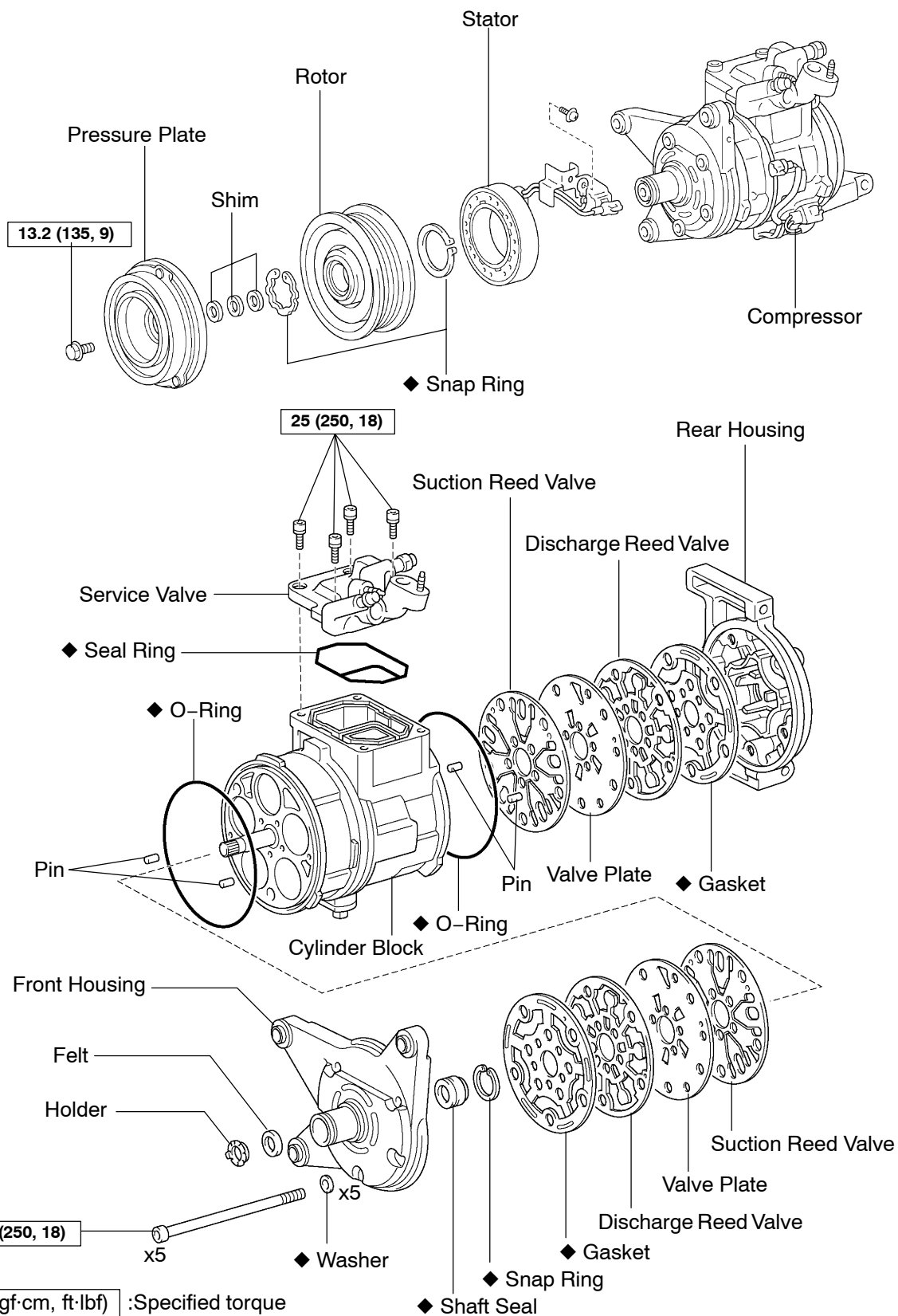
(b) Connect the positive (+) lead from the battery to terminal 3 and the negative (-) lead to the body ground.

(c) Check that the magnetic clutch is energized.

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

[illegible]

## G.C.C. Countries:



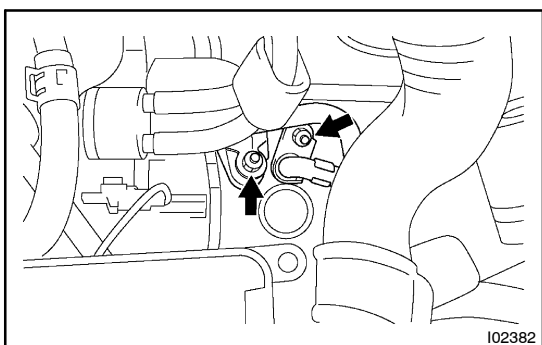
N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

LEXUS GS300 (RM588E)

## 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. REMOVE DRIVE BELT  
(See page AC-16)

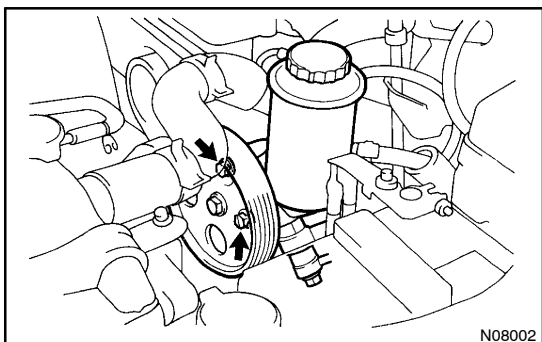


### 7. DISCONNECT DISCHARGE AND SUCTION HOSES

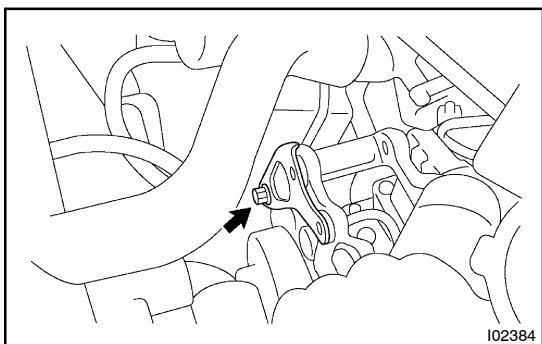
Remove the 2 nut and disconnect the both hoses.

#### NOTICE:

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

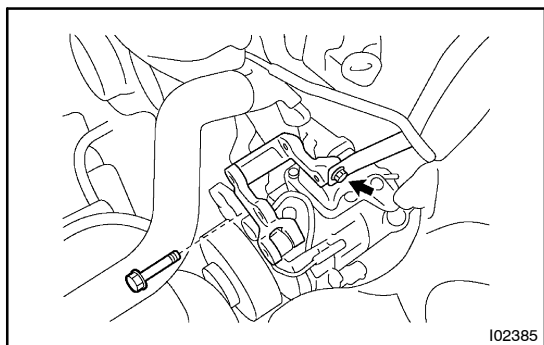


### 8. REMOVE 2 PS PUMP SET BOLTS

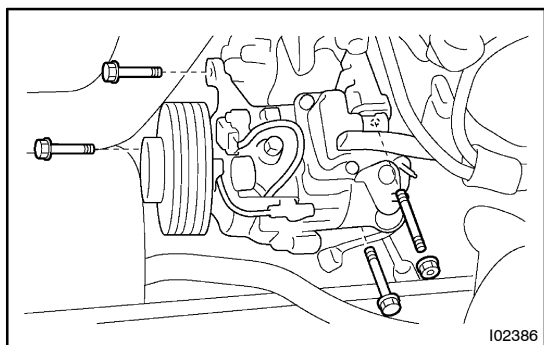


### 9. REMOVE COMPRESSOR

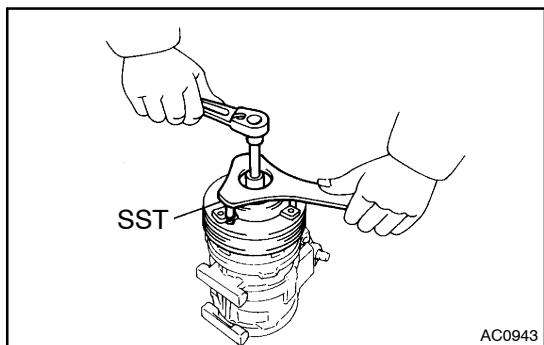
- (a) Remove the bolt and PS pump bracket.



- (b) Remove the 2 bolts and compressor bracket.
- (c) Disconnect the connector.



- (d) Remove the nut and 3 bolts.
- (e) Using a torx socket (E10), remove the stud bolt and compressor.



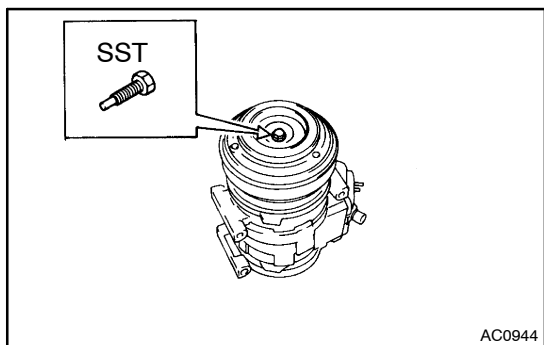
## DISASSEMBLY

### 1. DISASSEMBLE MAGNETIC CLUTCH

#### (a) Remove the pressure plate.

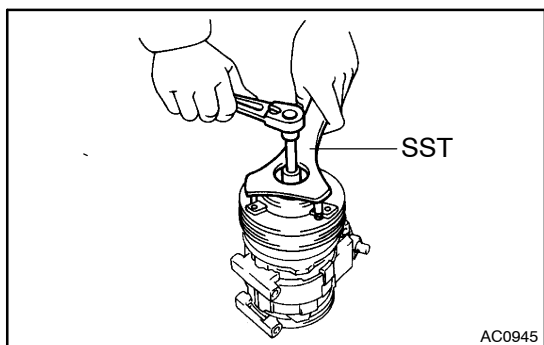
- (1) Using SST and a socket wrench, remove the shaft bolt.

SST 07112-76060



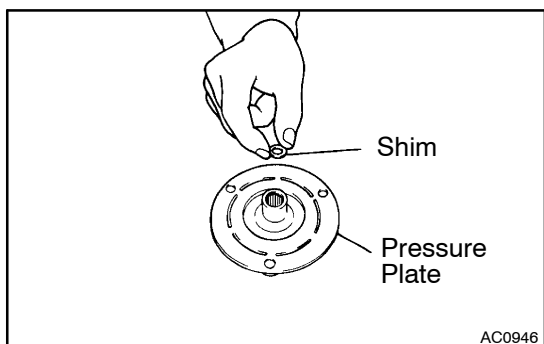
- (2) Install SST on the pressure plate.

SST 07112-66040

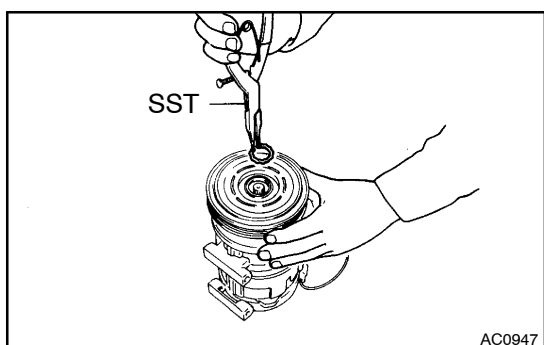


- (3) Using SST and a socket wrench, remove the pressure plate.

SST 07112-66040, 07112-76060



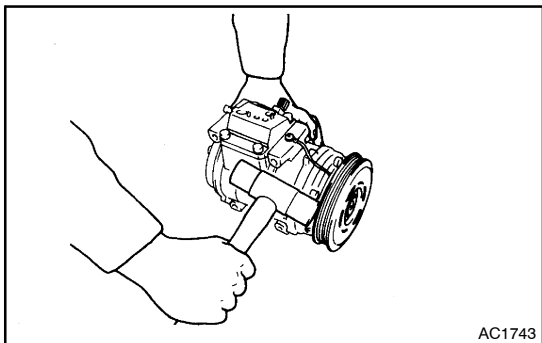
- (4) Remove the shims from the pressure plate.



#### (b) Remove the rotor.

- (1) Using SST, remove the snap ring.

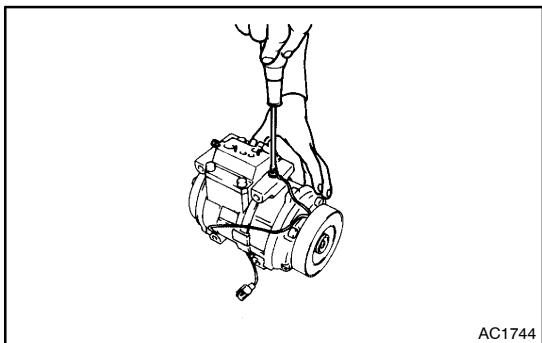
SST 07114-84020



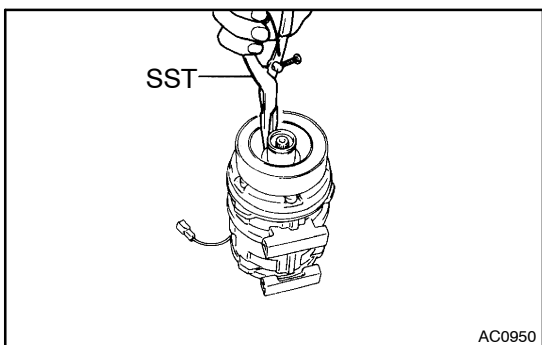
- (2) Using a plastic hammer, tap the rotor off the shaft.

**NOTICE:**

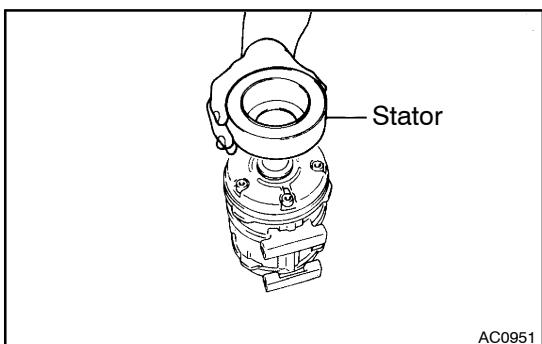
**Be careful not to damage the pulley when tapping on the rotor.**



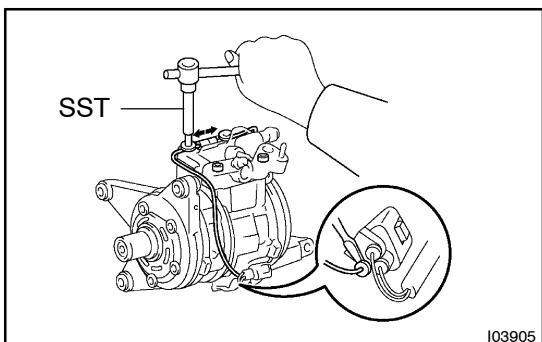
- (c) Remove the stator.
- (1) Disconnect the stator lead wire from the compressor.



- (2) Using SST, remove the snap ring.  
SST 07114-84020

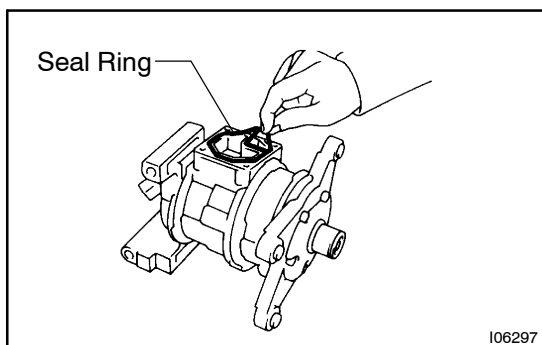


- (3) Remove the stator.

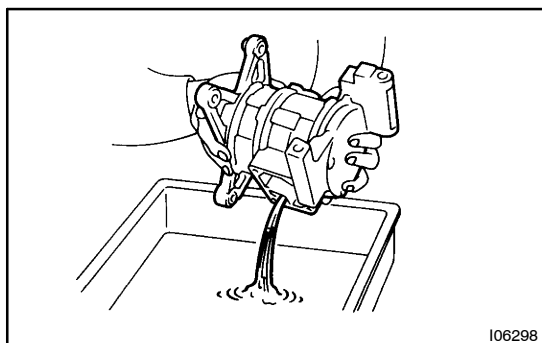


**2. G.C.C. Countries Only:  
DISASSEMBLE COMPRESSOR**

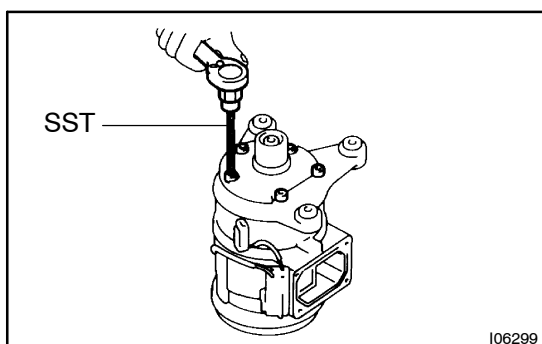
- (a) Remove the service valve.
- (1) Disconnect the connector.
- (2) Using a screwdriver, disconnect the No. 3 terminal from the connector housing.
- (3) Using SST, remove the 4 bolts and service valve.  
SST 07110-61050



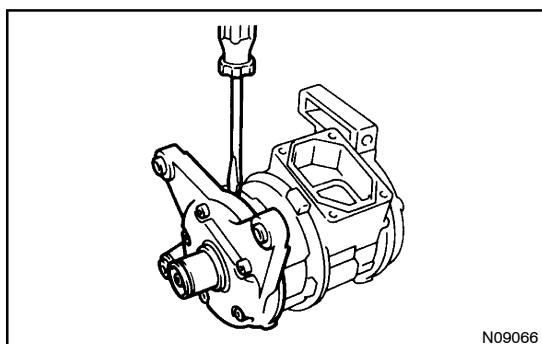
- (4) Remove the seal ring from the cylinder block.
- (5) Discard the seal ring.



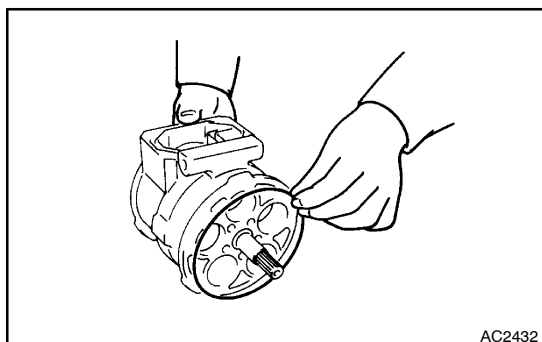
- (b) Drain compressor oil into the measuring flask. Measure quantity of drained oil because the same amount should be replaced later.



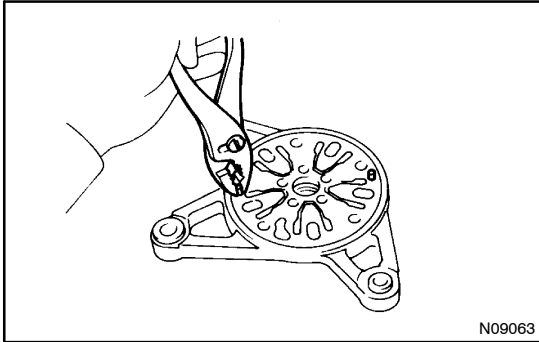
- (c) Remove the front housing.
  - (1) using SST, remove the 5 through bolts and 5 washers
 SST 0711061050



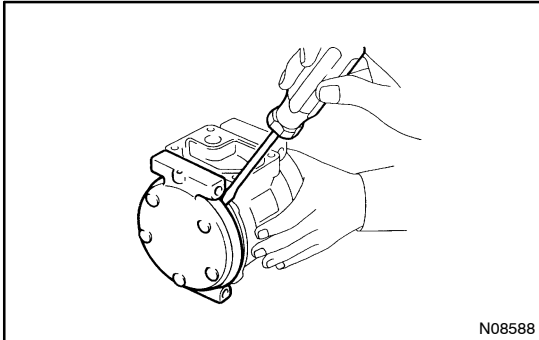
- (2) Using a screwdriver, remove the front housing.
- NOTICE:**  
Be careful not to scratch the sealing surface of the front housing.



- (3) Remove the O-ring.
- (4) Discard the O-ring.



- (d) Remove the 2 pins.  
Using pliers, pull out the 2 pins from front housing.
- (e) Remove the these parts from the front housing:
  - (1) Suction reed valve
  - (2) Front valve plate
  - (3) Discharge reed valve
  - (4) Gasket

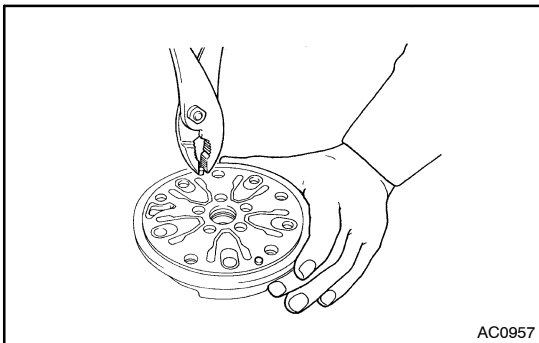


- (f) Remove the rear housing.
  - (1) Using a screwdriver, remove the rear housing.

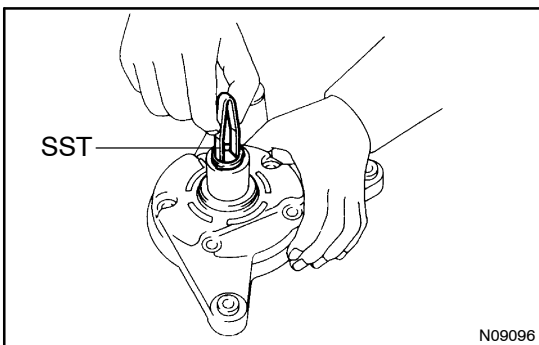
**NOTICE:**

**Be careful not to scratch the sealing surface of the front housing.**

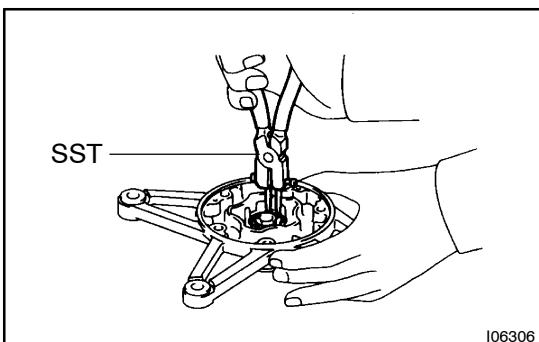
- (2) Remove the O-ring.
- (3) Discard the O-ring.



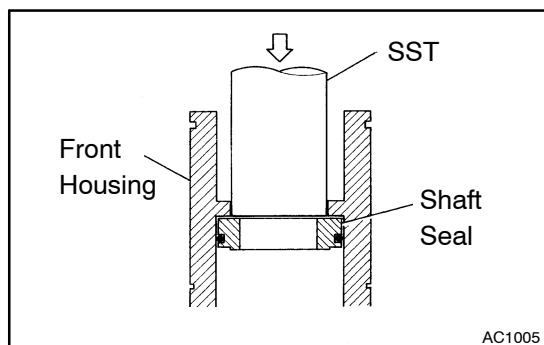
- (g) Remove the 2 pins.  
Using pliers, pull out the 2 pins from front housing.
- (h) Remove the these parts from the front housing:
  - (1) Suction reed valve
  - (2) Front valve plate
  - (3) Discharge reed valve
  - (4) Gasket



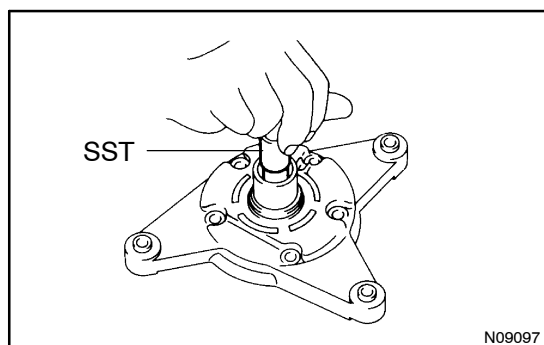
- (i) Remove the felt.  
Using SST, pull out the felt.  
SST 07112-15020



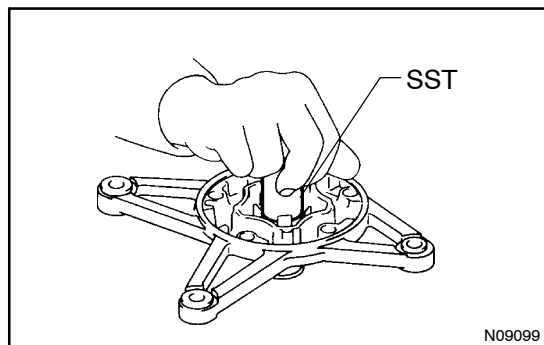
- (j) Remove the shaft seal
  - (1) Using SST, remove the snap ring.  
SST 07114-84010



- (2) Set SST on the shaft seal.  
SST 07112-85030



- (3) Push SST and remove the shaft seal.



## REASSEMBLY

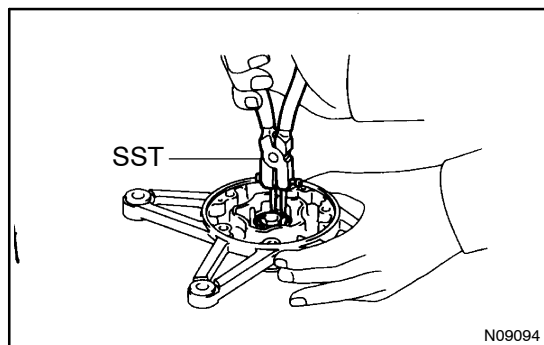
### 1. G.C.C. Countries Only:

#### ASSEMBLE COMPRESSOR

#### (a) Install new shaft seal.

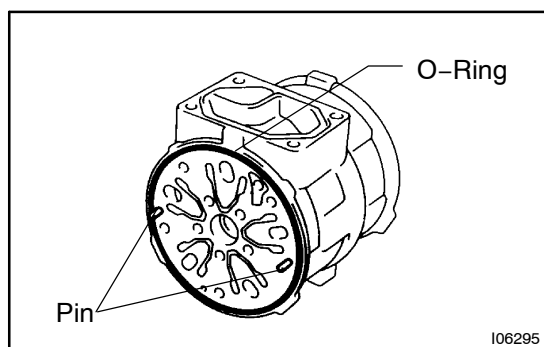
- (1) Fit the shaft seal onto SST and install the shaft seal into the front housing.

SST 07112-85020



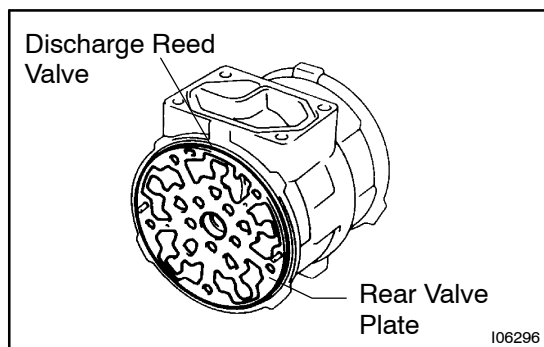
- (2) Using SST, install the new snap ring.

SST 07114-84010



#### (b) Install rear housing onto cylinder block.

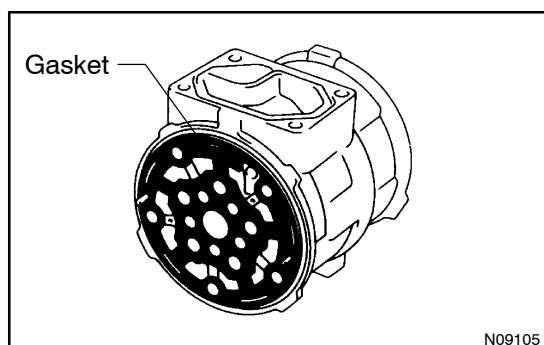
- (1) Install the 2 pins on cylinder block.
- (2) Lubricate a new O-ring with compressor oil and install the O-ring on cylinder block.
- (3) Install the suction reed valve over the pins in the cylinder.



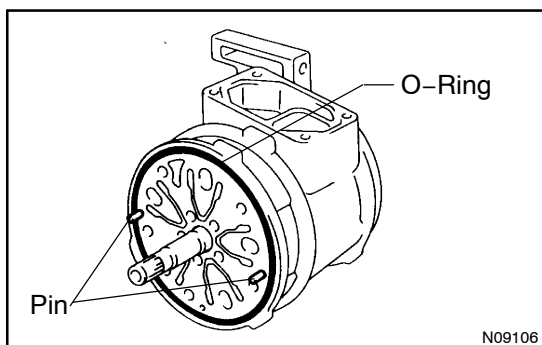
- (4) Install the rear valve plate together with the discharge valve over the pins on the cylinder block.

#### HINT:

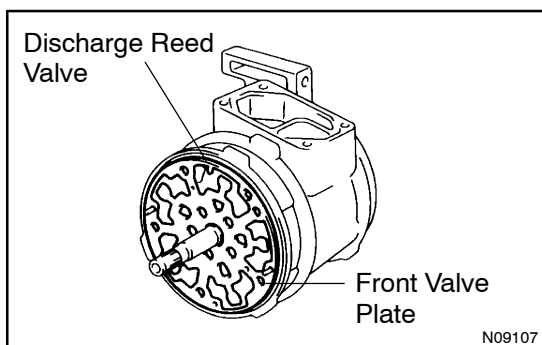
The rear valve plate is marked with an "R".



- (5) Lubricate a new gasket on the valve plate.
- (6) Install the rear housing on cylinder block.



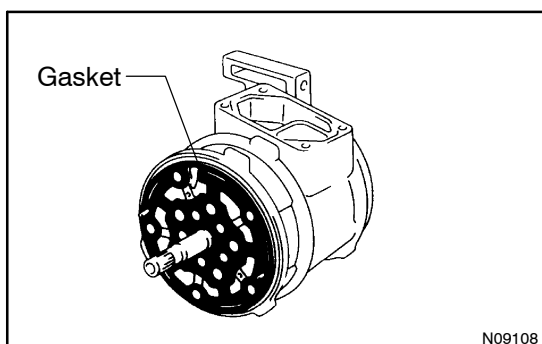
- (c) Install the front housing on cylinder block.
- (1) Install the 2 pins on cylinder block.
  - (2) Lubricate a new O-ring with compressor oil and install the O-ring in the front housing.
  - (3) Install the front suction reed valve over the pins on the cylinder block.



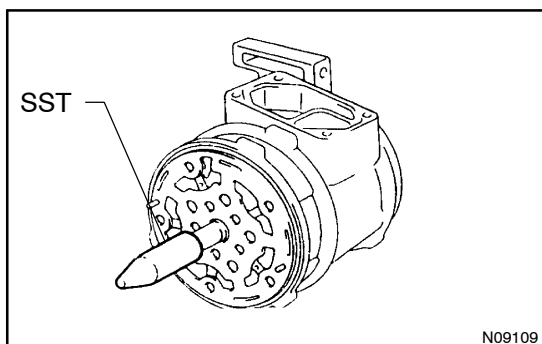
- (4) Install the front valve plate together with the discharge reed valve over the pins on the cylinder block.

HINT:

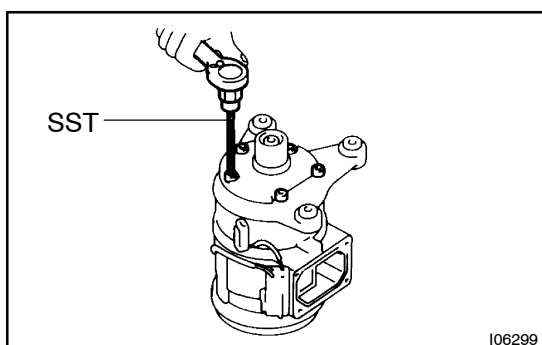
The front valve plate is marked with an "F".



- (5) Lubricate a new gasket with compressor oil and install the gasket on the valve plate.



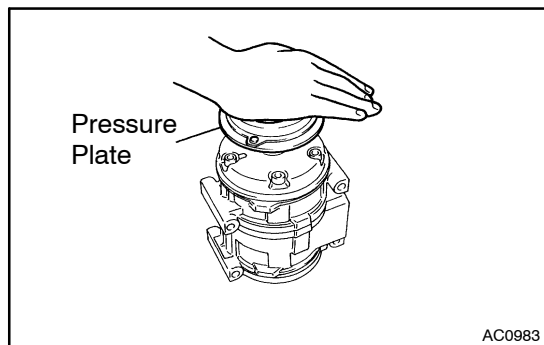
- (6) Set SST on the shaft to protect the shaft seal.
- (7) Install the front housing on the cylinder block.
- (8) Remove SST from the shaft.



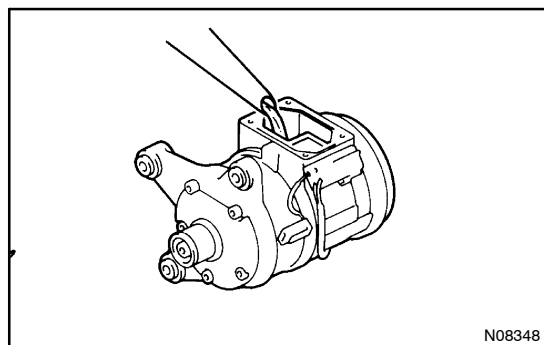
- (9) Using SST and torque wrench, gradually tighten the 5 through bolts with 5 new washers 2 or 3 times.

SST 07110-61050

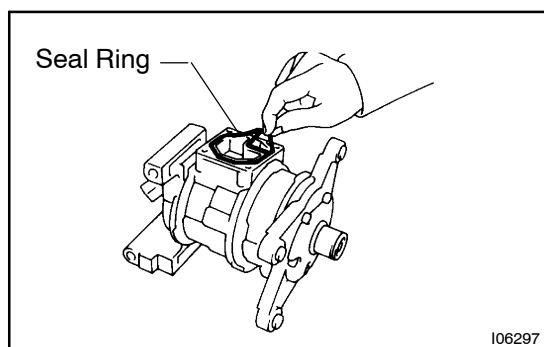
**Torque: 25 N·m (250 kgf·cm, 18 ft·lbf)**



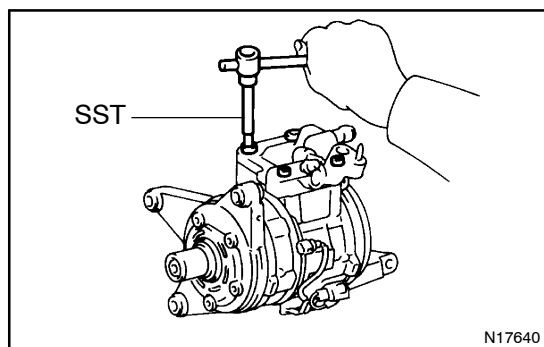
- (d) Install the felt.
- (1) Set the felt with felt holder to front housing.
  - (2) Using a pressure plate of magnetic clutch, install the felt.



- (e) Pour compressor oil into compressor.  
Add the same quantity of oil as is removed, plus 20 cc (0.68 fl.oz.) into the compressor.  
**Compressor oil: ND-OIL 8 or equivalent**



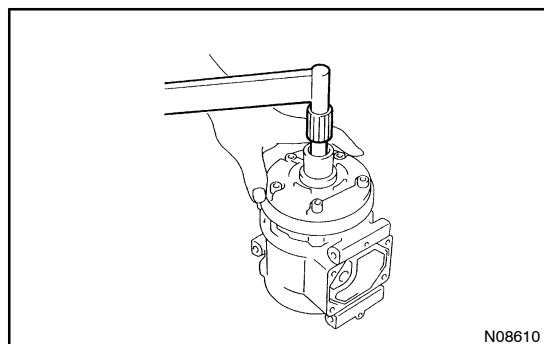
- (f) Install the service valve.
- (1) Lubricate a new seal ring with compressor oil and install the seal ring on cylinder block.



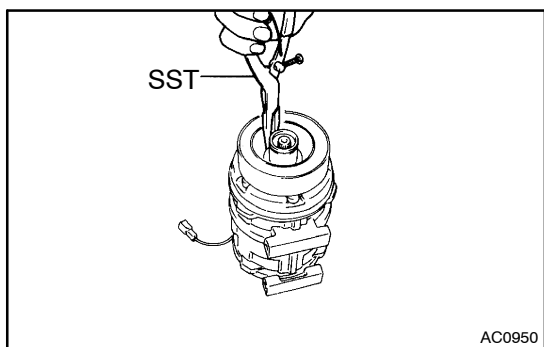
- (2) Using SST and torque wrench, install the service valve with 4 bolts.

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

- (3) Connect the connector terminal to the connector housing.
- (4) Connect the connector.



- (g) Check shaft starting torque.  
**Torque: 2.9 N·m (30 kgf·cm, 26 in·lbf)**



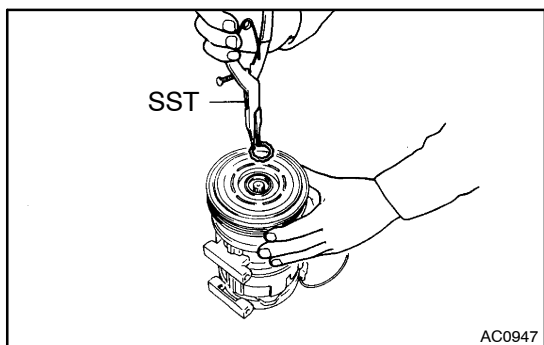
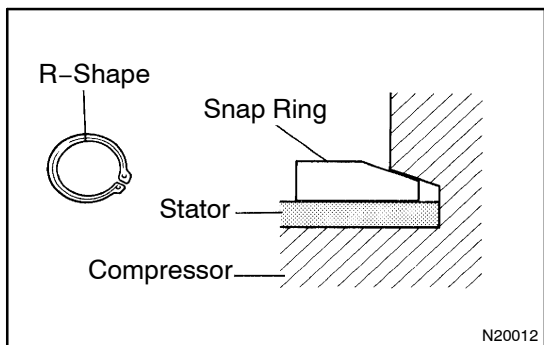
## 2. ASSEMBLE MAGNETIC CLUTCH

- (a) Install the stator.
- (1) Install the stator on compressor.
  - (2) Using SST, install the new snap ring.
- SST 07114-84020

### NOTICE:

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

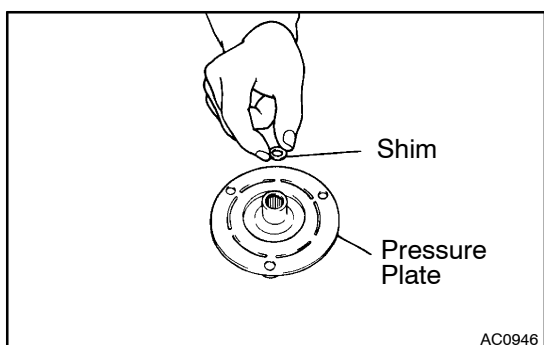
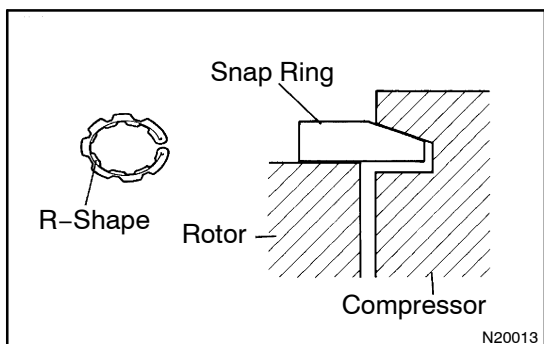
- (3) Connect the stator lead wire to the compressor.



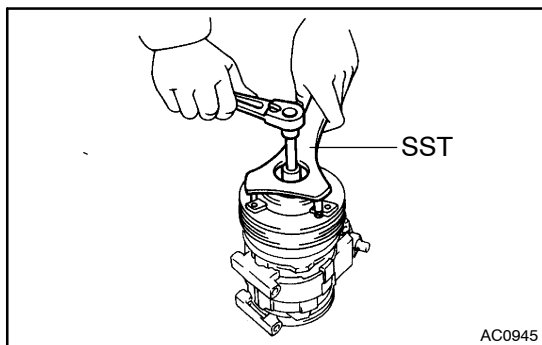
- (b) Install the rotor.
- (1) Install the rotor on the compressor.
  - (2) Using SST, install the new snap ring.
- SST 07114-84020

### NOTICE:

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



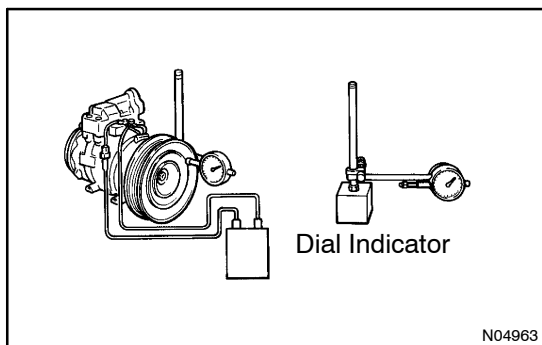
- (c) Install the pressure plate.
- (1) Install the shims to the pressure plate.
  - (2) Install the pressure plate on the rotor.



- (3) using SST and a torque wrench, install the shaft bolt.

**Torque: 13.2 N·m (135 kgf·cm, 9 ft·lbf)**

SST 07112-76060



**3. AFTER REASSEMBLY, CHECK MAGNETIC CLUTCH CLEARANCE**

- (a) Set the dial indicator to the pressure plate of the magnetic clutch.
- (b) Connect the magnetic clutch lead wire to the positive (+) terminal of the battery.
- (c) 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.

**Shim thickness:**

**0.1 mm (0.004 in.)**

**0.3 mm (0.012 in.)**

**0.5 mm (0.020 in.)**

## INSTALLATION

### 1. INSTALL COMPRESSOR

- (a) Install the compressor with the stud bolt.

**Torque:** 52 N·m (530 kgf·cm, 38 ft·lbf)

- (b) Install the 3 bolts and nut.

**Torque:**

**Bolt:** 52 N·m (530 kgf·cm, 38 ft·lbf)

**Nut:** 26 N·m (265 kgf·cm, 19 ft·lbf)

- (c) Connect the connector.

- (d) Install the compressor bracket with the 2 bolts.

**Torque:** 52 N·m (530 kgf·cm, 38 ft·lbf)

- (e) Install the PS pump bracket with the 2 bolts.

**Torque:** 52 N·m (530 kgf·cm, 38 ft·lbf)

### 2. INSTALL 2 PS PUMP SET BOLTS

**Torque:** 58 N·m (590 kgf·cm, 43 ft·lbf)

### 3. CONNECT DISCHARGE AND SUCTION HOSES

Connect the both hoses with the 2 nut.

**Torque:** 10 N·m (100 kgf·cm, 7 ft·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.

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

### 4. INSTALL DRIVE BELT

(See page AC-17)

### 5. INSPECT DRIVE BELT TENSION

(See page AC-15)

### 6. INSTALL ENGINE UNDER COVER

### 7. CONNECT NEGATIVE (-) TERMINAL CABLE TO BATTERY

### 8. EVACUATE AIR FROM REFRIGERATION SYSTEM AND CHARGE SYSTEM WITH REFRIGERANT

**Specified amount:** 600 ± 50 g (21.16 ± 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.

### 10. INSPECT A/C OPERATION

# CONDENSER

AC16B-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 OF REFRIGERANT

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

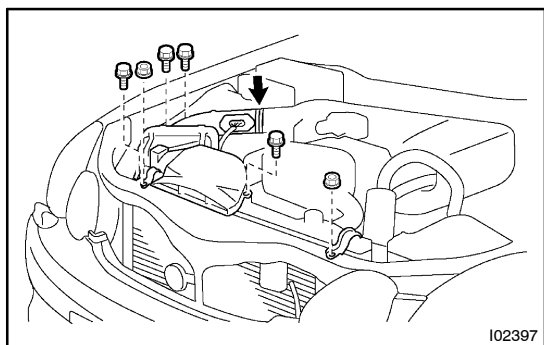
#### HINT:

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

Evacuate air from refrigeration system.

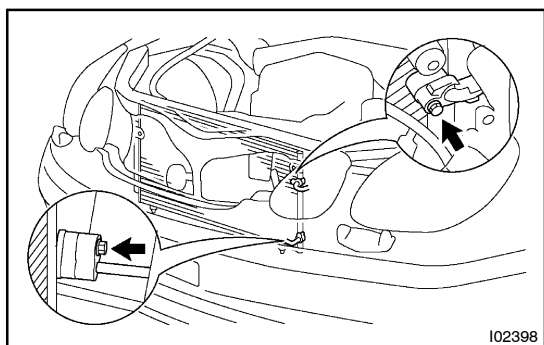
Charge system with refrigerant and inspect for leakage of refrigerant.

**Specified amount : 600 ± 50 g (21.16 ± 1.76 oz.)**



### 2. REMOVE THESE PARTS:

- (a) Air cleaner duct
- (b) Air cleaner assembly
- (c) 2 radiator upper supports



### 3. DISCONNECT DISCHARGE HOSE AND LIQUID TUBE

Remove the 2 bolts and disconnect the hose and tube.

**Torque: 10 N·m (100 kgf·cm, 7 ft·lbf)**

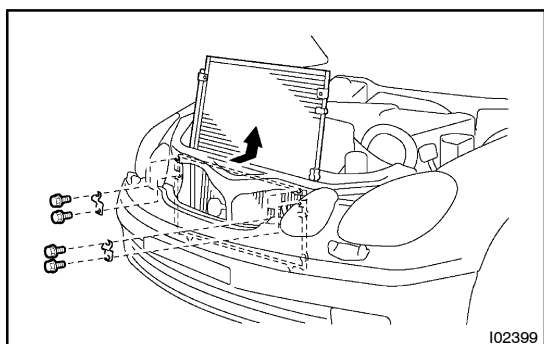
#### NOTICE:

**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 2 new O-rings with compressor oil and install them to the hose and tube.



### 4. REMOVE CONDENSER

- (a) Remove the 4 bolts and 2 brackets.
- (b) Push the radiator toward engine.
- (c) Push the condenser toward radiator 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 condenser.

**Add 40 cc (1.4 fl. oz)**

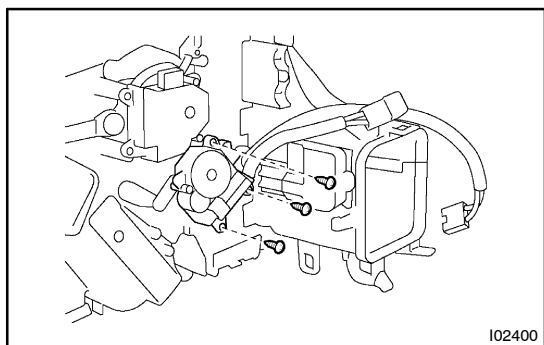
**Compressor oil: ND – OIL 8 or equivalent**

## INSTALLATION

Installation is in the reverse order of removal (See page AC-53).

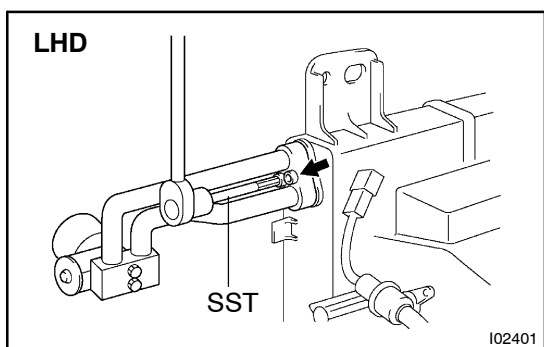
## EVAPORATOR REMOVAL

1. REMOVE A/C UNIT  
(See page AC-26)
2. LHD Models Only:  
REMOVE HEATER RADIATOR  
(See page AC-59)



### 3. REMOVE AIR MIX SERVOMOTOR PASSENGER SIDE

- (a) Disconnect the connector.
- (b) Remove the 3 screws and servomotor.



### 4. REMOVE TUBE AND ACCESSORY

- (a) Pry out packing.

HINT:

At the time of installation, please refer to the following item.  
Do not reuse the packing.

- (b) Using SST, remove the 2 bolts and the tube and accessory.

SST 07110-61050

Torque: 4.1 N·m (42 kgf·cm, 36 in.·lbf)

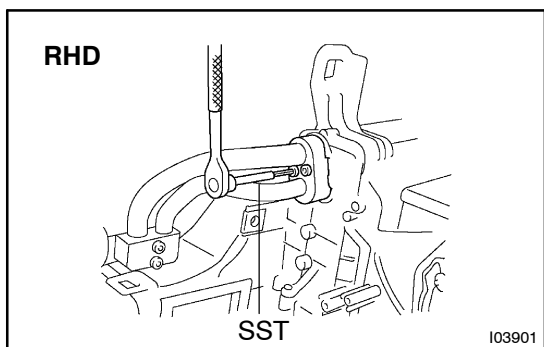
**NOTICE:**

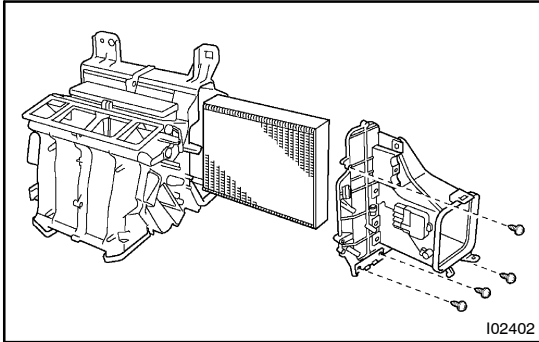
**Cap the open fittings immediately to keep moisture or dirt out of the system.**

HINT:

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

- (c) Remove screw and drain pipe.



**5. REMOVE EVAPORATOR**

- (a) Disconnect the connector from blower motor control relay.
- (b) Remove the screw and drain hose.
- (c) Remove the 4 screws and cover.
- (d) Pull out the evaporator.

**HINT:**

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

**Add 40 cc (1.4 fl.oz.)**

**Compressor oil: ND-OIL 8 or equivalent**

## INSPECTION

### 1. CHECK EVAPORATOR FINS FOR BLOCKAGE

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

#### **NOTICE:**

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

### 2. CHECK FITTING FOR CRACKS OR SCRATCHES

If necessary, repair or replace.

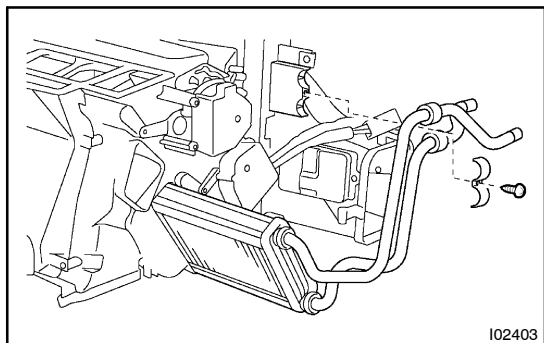
## INSTALLATION

Installation is in the reverse order of removal ([See page AC-55](#)).

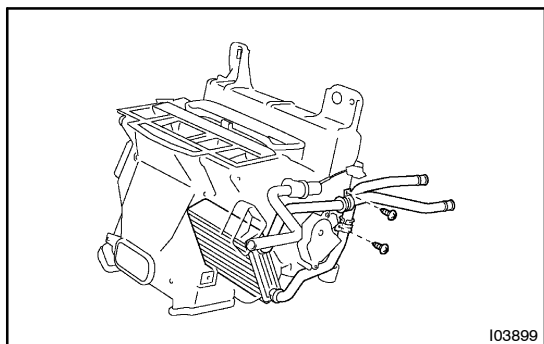
## HEATER RADIATOR REMOVAL

AC16H-01

1. REMOVE A/C UNIT  
(See page AC-26)



2. **LHD Models:**  
**REMOVE HEATER RADIATOR**
  - (a) Remove the screw and clamp.
  - (b) Pull out the heater radiator.



3. **RHD Models:**  
**REMOVE HEATER RADIATOR**
  - (a) Remove the 2 screws and 2 clamps.
  - (b) Pull out the heater radiator.

## INSPECTION

### INSPECT FINS FOR BLOCKAGE

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

## INSTALLATION

Installation is in the reverse order of removal (See page AC-59).

## EXPANSION VALVE

AC16K-01

### ON-VEHICLE INSPECTION

1. CHECK QUANTITY OF GAS DURING REFRIGERATION CYCLE

2. SET ON MANIFOLD GAUGE SET

(See page AC-18)

3. RUN ENGINE

Run the engine at 1,500 rpm for at least 5 minutes.

Then check that the high pressure reading is 1.37 – 1.57 MPa (14 – 16 kgf/cm<sup>2</sup>, 199 – 228 psi).

4. CHECK EXPANSION VALVE

If the expansion valve is faulty, the low pressure reading will drop to 0 kPa (0 kgf/cm<sup>2</sup>, 0 psi).

## REMOVAL

### 1. DISCHARGE REFRIGERANT FROM REFRIGERATION SYSTEM

HINT:

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

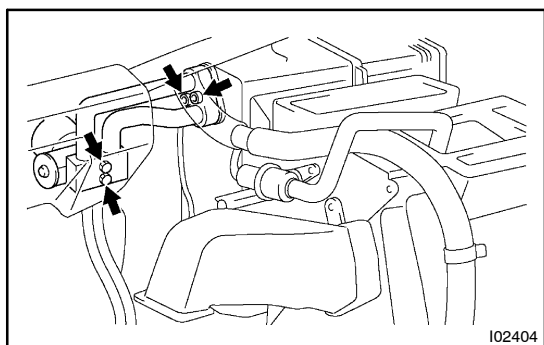
Evacuate air from refrigeration system.

Charge system with refrigerant and inspect for leakage of refrigerant.

**Specified amount: 600 ± 50 g (21.16 ± 1.76 oz.)**

### 2. REMOVE INSTRUMENT PANEL

(See [page BO-91](#))



### 3. LHD Models: REMOVE EXPANSION VALVE

- (a) Pry out the packings.

HINT:

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

Do not reuse the packing.

- (b) Using SST, remove the 4 bolts and separate the expansion valve and tube and accessory.

SST 07110-61050

**Torque: 4.1 N·m (42 kgf·cm, 36 in·lbf)**

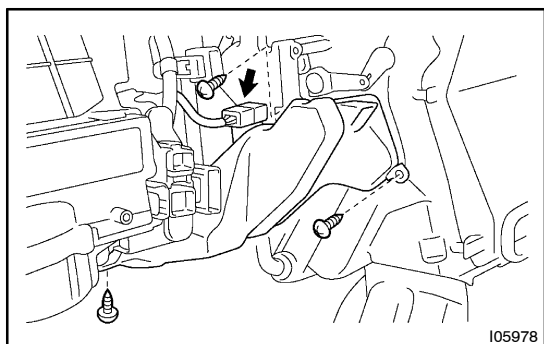
**NOTICE:**

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

HINT:

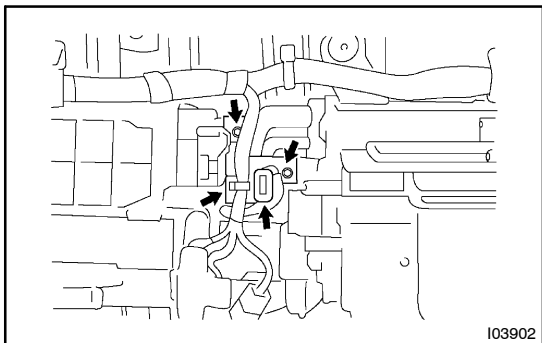
At the time of installation, please refer to the following item.

Lubricate 6 new O-rings with compressor oil and install them to the tube and valve.



### 4. RHD Models: REMOVE EXPANSION VALVE

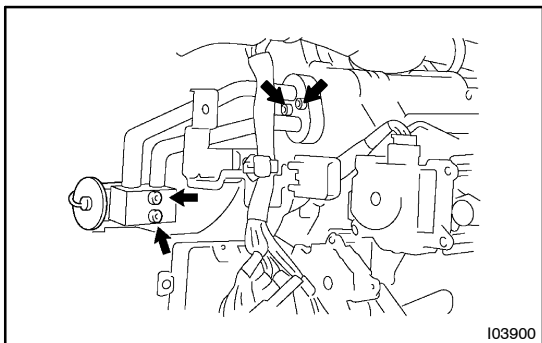
- (a) Remove the air duct.  
Remove the 3 screws and duct.



- (b) Remove the bracket.
  - (1) Disconnect the 2 wire harness clamps.
  - (2) Remove the 2 bolts and bracket.
- (c) Pry out the packings.

HINT:

At the time of installation, please refer to the following item.  
Do not reuse the packing.



- (d) Using SST, remove the 4 bolts and separate the expansion valve and tube and accessory.

SST 07110-61050

**Torque: 4.1 N·m (42 kgf·cm, 36 in.·lbf)**

**NOTICE:**

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

HINT:

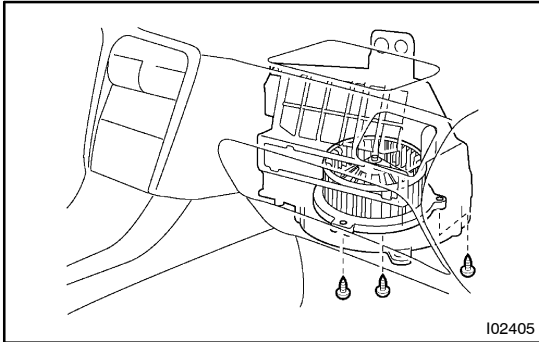
At the time of installation, please refer to the following item.  
Lubricate 6 new O-rings with compressor oil and install them to the tube and valve.

## INSTALLATION

Installation is in the reverse order of removal (See page AC-63).

## BLOWER MOTOR REMOVAL

1. REMOVE No. 2 UNDER COVER  
(See page BO-91)



### 2. REMOVE BLOWER MOTOR

- (a) Disconnect the connector.
- (b) Remove the 3 screws and blower motor.

## INSPECTION

INSPECT BLOWER MOTOR CIRCUIT

(See [page DI-967](#))

## INSTALLATION

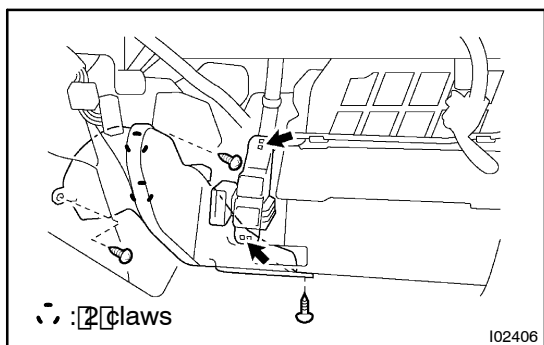
Installation is in the reverse order of removal ([See page AC-66](#)).

# BLOWER MOTOR CONTROL RELAY REMOVAL

AC16Q-01

## 1. REMOVE THESE PARTS:

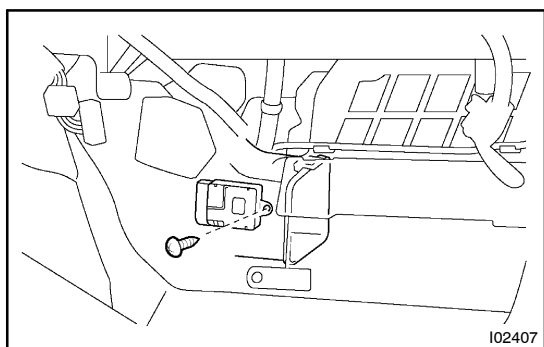
- (a) Front door scuff plate on the passenger side
  - (b) Cowl side trim on the passenger side
  - (c) No. 2 under cover
  - (d) Glove compartment door
  - (e) Glove compartment panel
- (See page BO-91)



## 2. REMOVE AIR DUCT

Remove the screw and release the 2 claws, then pull out the air duct.

## 3. DISCONNECT WIRE HARNESS



## 4. REMOVE BLOWER MOTOR CONTROL RELAY

Remove the screw and blower motor control relay, then disconnect the connectors.

## INSPECTION

INSPECT BLOWER MOTOR CONTROL RELAY CIRCUIT

(See page DI-967)

## INSTALLATION

Installation is in the reverse order of removal (See [page AC-69](#)).

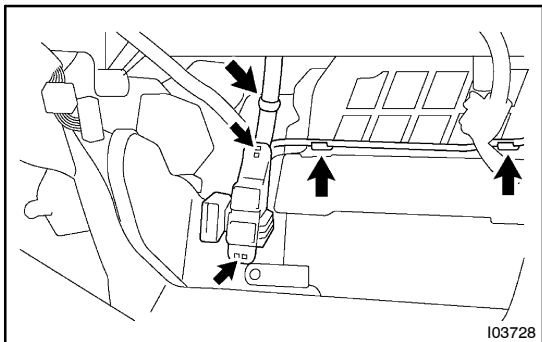
# SERVOMOTOR REMOVAL

## 1. REMOVE AIR INLET SERVOMOTOR

### (a) Remove these parts:

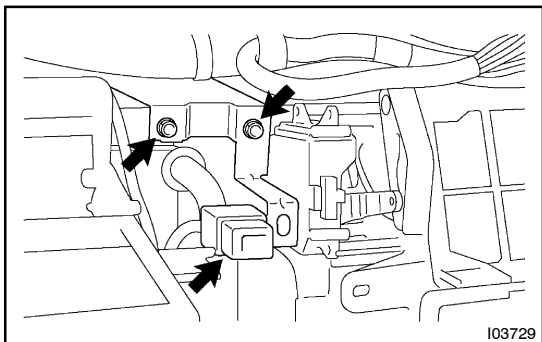
- (1) Front door scuff plate on the passenger side
  - (2) Cowl side trim on the passenger side
  - (3) No. 2 under cover
  - (4) Glove compartment door
  - (5) Glove compartment panel
- (See page BO-91)

### (b) Disconnect the wire harness.



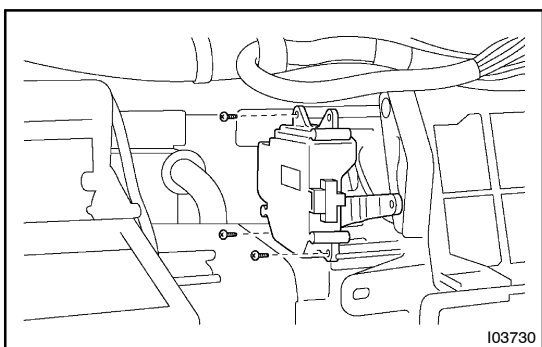
### (c) Remove the bracket.

- (1) Disconnect wire harness clamp.
- (2) Remove the 2 bolts and bracket.



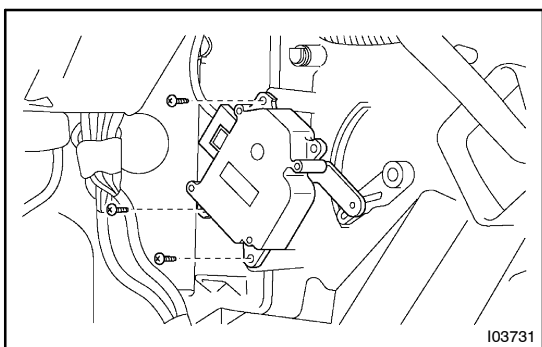
### (d) Remove the air inlet servomotor.

- (1) Disconnect the connector.
- (2) Remove the 3 screws and servomotor.



## 2. Driver Side: REMOVE AIR MIX SERVOMOTOR

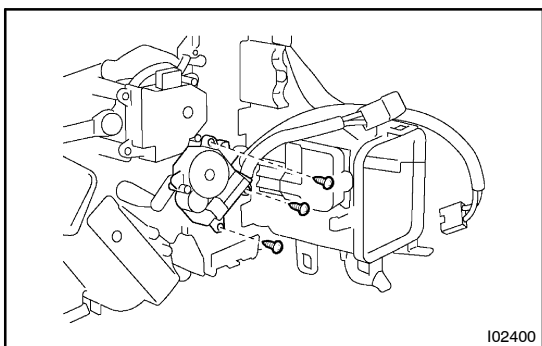
- (a) Remove these parts:
- (1) No. 1 under cover
  - (2) No. 1 safety pad
- (See page BO-91)



- (b) Remove the air mix servomotor.
- (1) Disconnect the connector.
  - (2) Remove the 3 screws and servomotor.

## 3. LHD Passenger Side: REMOVE AIR MIX SERVOMOTOR

- (a) Remove heater radiator.
- (See page AC-59)

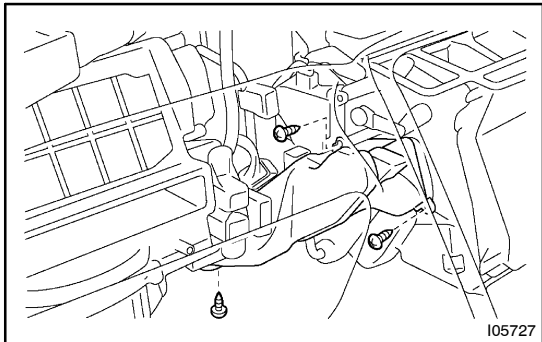


- (b) Remove the air mix servomotor.
- (1) Disconnect the connector.
  - (2) Remove the 3 screws and servomotor.

#### 4. RHD Passenger Side: REMOVE AIR MIX SERVOMOTOR

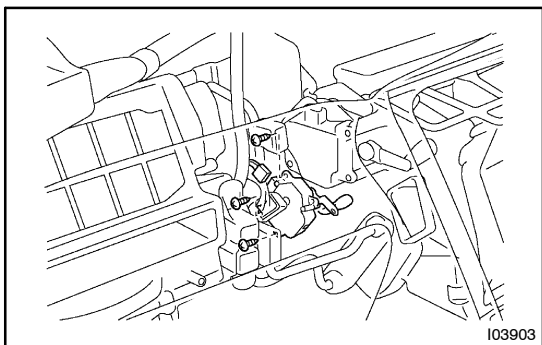
##### (a) Remove these parts:

- (1) Front door scuff plate L.H
- (2) Cowl side trim L.H
- (3) No. 2 under cover
- (4) Glove compartment door
- (5) Glove compartment panel  
(See page BO-91)



##### (b) Remove the air duct.

- (1) Disconnect the wire harness clamp.
- (2) Remove the 3 screws and air duct.



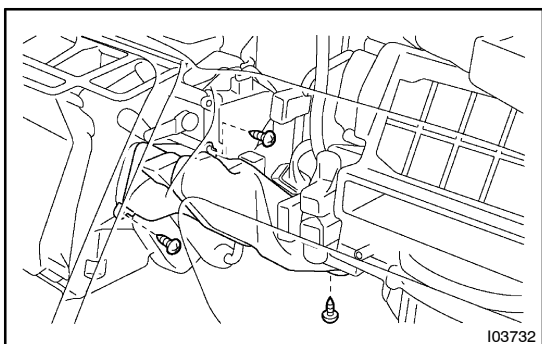
##### (c) Remove the air mix servomotor.

- (1) Disconnect the connector.
- (2) Remove the 3 screws and servomotor.

#### 5. REMOVE AIR OUTLET SERVOMOTOR

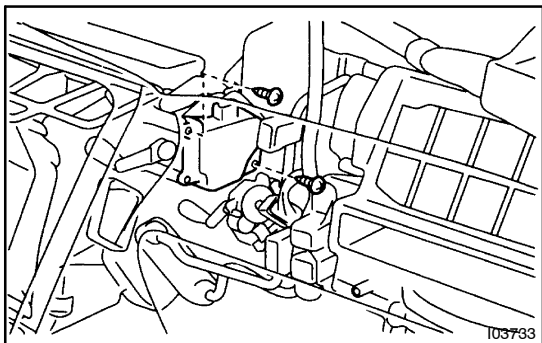
##### (a) Remove these parts:

- (1) Front door scuff plate on the passenger side
- (2) Cowl side trim on the passenger side
- (3) No. 2 under cover
- (4) Glove compartment door
- (5) Glove compartment panel  
(See page BO-91)



##### (b) Remove the air duct.

- (1) Remove the 3 screws and air duct.



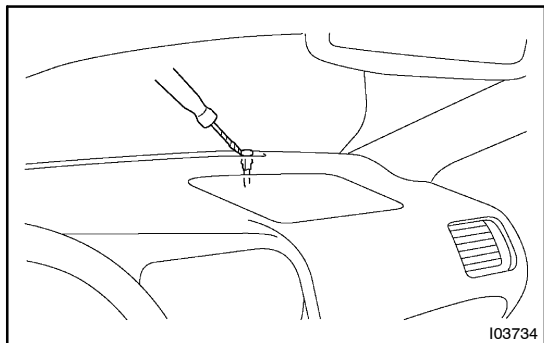
- (c) Remove air outlet servomotor.
- (1) Disconnect the connector.
  - (2) Remove the 2 screws and servomotor.

## INSPECTION

1. INSPECT AIR INLET DAMPER POSITION SENSOR CIRCUIT  
(See page DI-941)
2. INSPECT AIR INLET SERVOMOTOR OPERATION  
(See page DI-953)
3. INSPECT AIR MIX DAMPER POSITION SENSOR CIRCUIT  
(See page DI-938)
4. INSPECT AIR MIX SERVOMOTOR OPERATION  
(See page DI-950)
5. INSPECT AIR OUTLET DAMPER POSITION SENSOR CIRCUIT  
(See page DI-944)
6. INSPECT AIR OUTLET SERVOMOTOR OPERATION  
(See page DI-956)

## INSTALLATION

Installation is in the reverse order of removal ([See page AC-72](#)).



I03734

## SENSOR REMOVAL

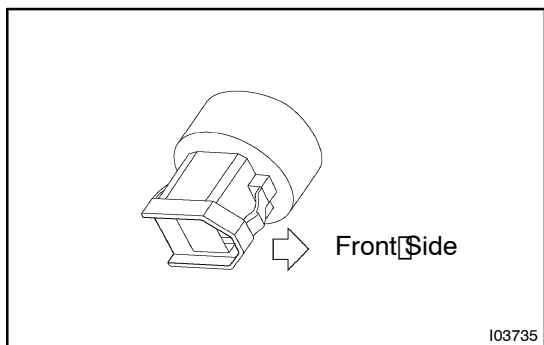
AC16W-01

### 1. REMOVE SOLAR SENSOR

Using a screw driver, pull out the sensor and disconnect the connector.

HINT:

- □ Tape the screwdriver tip before use.
- □ At the time of installation, please refer to the following item.  
Insert the sensor to instrument panel as shown in the illustration.

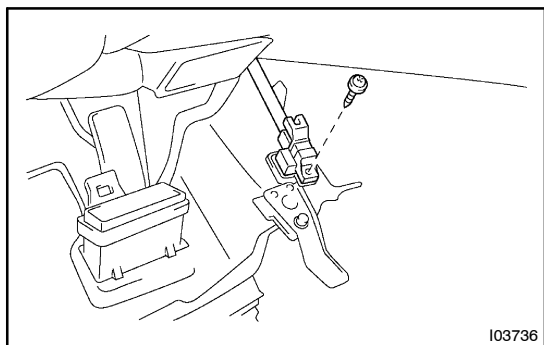


I03735

### 2. REMOVE ROOM TEMPERATURE SENSOR

(a) Remove the No. 1 under cover.

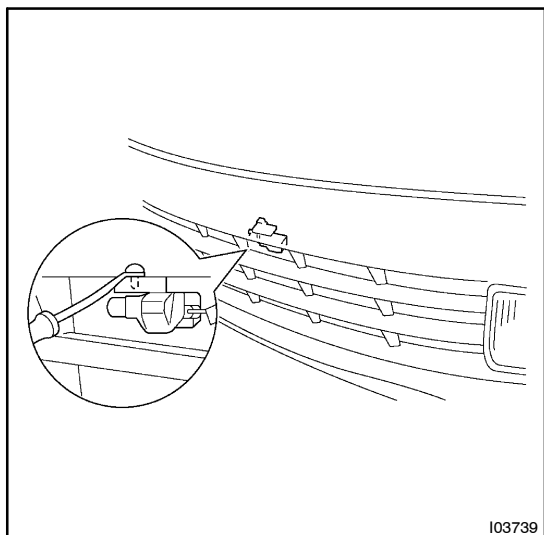
(See [page BO-91](#))



I03736

(b) Remove the room temperature sensor.

- (1) Remove the No. 1 safety pad set bolts and screws.
- (2) Disconnect the connector and aspirator hose.
- (3) Remove the screw and sensor.



I03739

**3. REMOVE AMBIENT TEMPERATURE SENSOR**

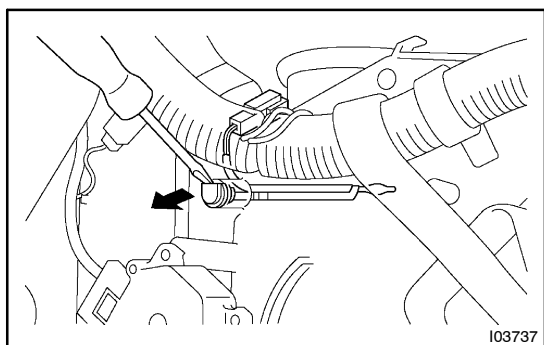
- (a) Disconnect the connector.
- (b) Using a clip remover, pull out the sensor from bumper reinforcement.

**4. REMOVE EVAPORATOR TEMPERATURE SENSOR**

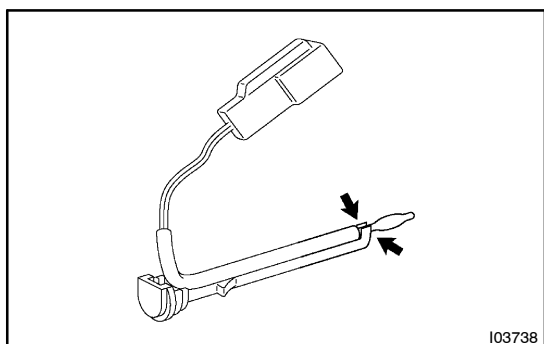
- (a) Remove these parts:
  - (1) No. 1 under cover
  - (2) No. 1 safety pad
 (See page BO-91)
- (b) Remove the evaporator temperature sensor.
  - (1) Using a screwdriver, pull out the sensor with bracket plate.

**HINT:**

Tape the screwdriver tip before use.

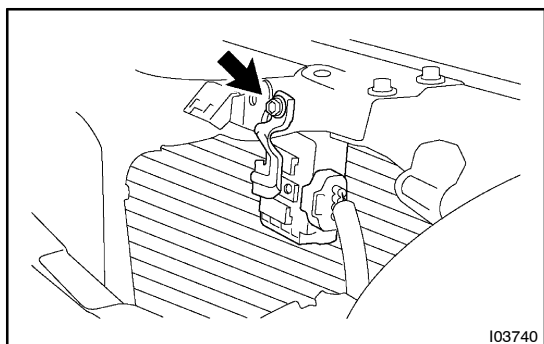


I03737



I03738

- (2) Release the 2 claws and remove the sensor from bracket plate.



I03740

**5. REMOVE SMOG VENTILATION SENSOR**

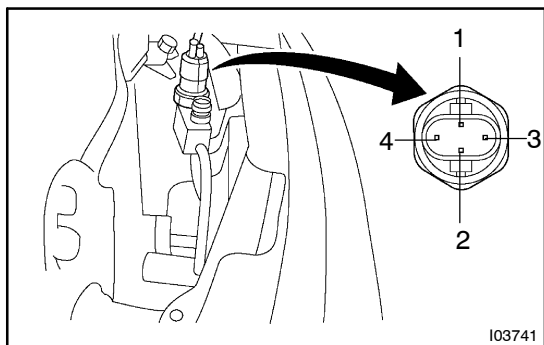
- (a) Disconnect the connector.
- (b) Remove the bolt and sensor.

## INSPECTION

1. **INSPECT SOLAR SENSOR CIRCUIT**  
Driver Side: ([See page DI-935](#))  
Passenger Side: ([See page DI-926](#))
2. **INSPECT ROOM TEMPERATURE SENSOR CIRCUIT**  
([See page DI-914](#))
3. **INSPECT AMBIENT TEMPERATURE SENSOR CIRCUIT**  
([See page DI-917](#))
4. **INSPECT EVAPORATOR TEMPERATURE SENSOR**  
([See page DI-920](#))
5. **INSPECT SMOG VENTILATION SENSOR CIRCUIT**  
([See page DI-923](#))

## INSTALLATION

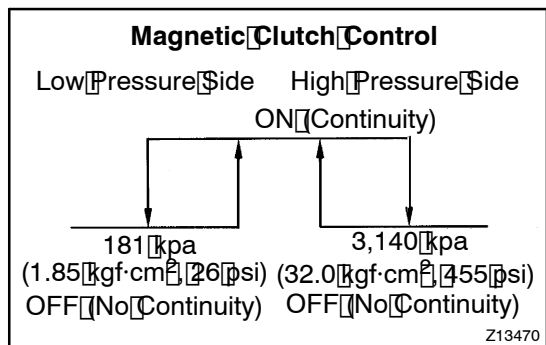
Installation is in the reverse order of removal ([See page AC-78](#)).



## PRESSURE SWITCH ON-VEHICLE INSPECTION

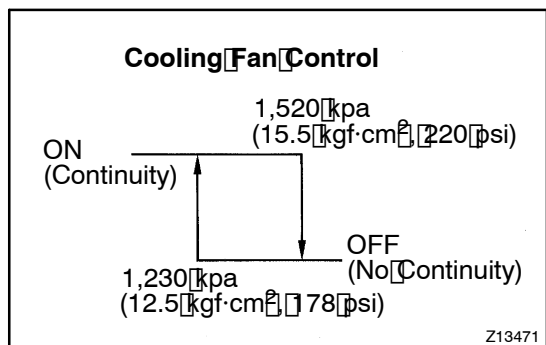
AC16Z-01

1. SET ON MANIFOLD GAUGE SET  
(See page AC-18)
2. DISCONNECT CONNECTOR FROM PRESSURE SWITCH
3. RUN ENGINE AT APPROX. 1,500 RPM



4. **Magnetic Clutch Control:**  
**INSPECT PRESSURE SWITCH OPERATION**
  - (a) Connect the positive (+) lead from the ohmmeter to terminal 4 and the negative (-) lead to terminal 1.
  - (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.



5. **Cooling Fan Control:**  
**INSPECT PRESSURE SWITCH OPERATION**
  - (a) Connect the positive (+) lead from the ohmmeter to terminal 2 and the negative (-) lead to terminal 3.
  - (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.
6. STOP ENGINE AND SET OFF MANIFOLD GAUGE SET
7. CONNECT CONNECTOR TO PRESSURE SWITCH

## REMOVAL

### 1. DISCHARGE REFRIGERANT FROM REFRIGERATION SYSTEM

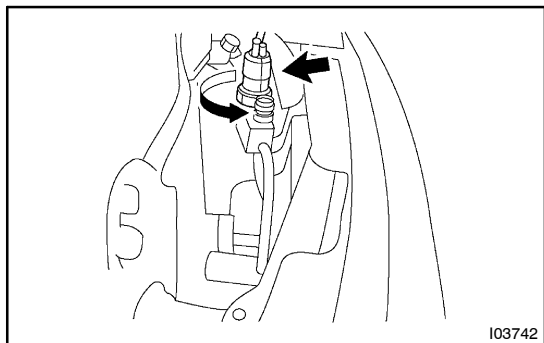
HINT:

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: 600 ± 50 g (21.16 ± 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)**

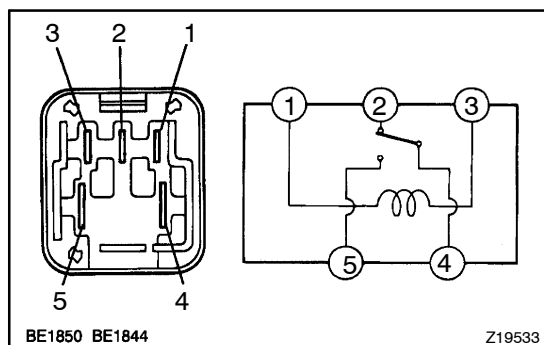
HINT:

- 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 compressor oil and install the switch.

## INSTALLATION

Installation is in the reverse order of removal ([See page AC-83](#)).



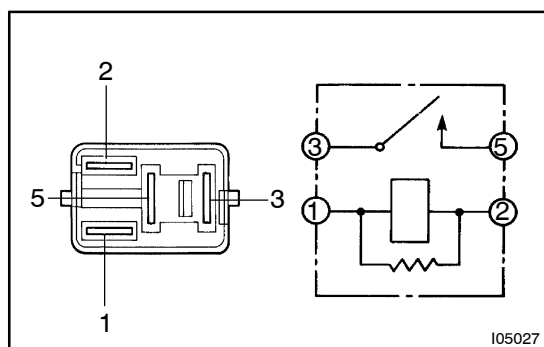
## RELAY INSPECTION

AC172-01

### 1. INSPECT HEATER MAIN RELAY (Marking: HTR) CONTINUITY

| Condition                           | Tester connection | Specified condition |
|-------------------------------------|-------------------|---------------------|
| Constant                            | 2 - 4<br>1 - 3    | Continuity          |
| Apply B+ between terminals 1 and 3. | 5 - 4             | Continuity          |

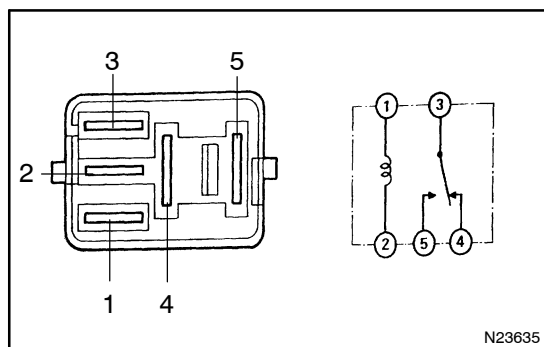
If continuity is not as specified, replace the relay.



### 2. INSPECT MAGNETIC CLUTCH RELAY (Marking: A/C COMP) CONTINUITY

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

If continuity is not as specified, replace the relay.



### 3. INSPECT No.2 COOLING FAN RELAY (Marking: FAN NO.2) CONTINUITY

| Condition                           | Tester connection | Specified condition |
|-------------------------------------|-------------------|---------------------|
| Constant                            | 1 - 2<br>3 - 4    | Continuity          |
| Apply B+ between terminals 1 and 2. | 3 - 5             | Continuity          |

If continuity is not as specified, replace the relay.

### 4. INSPECT No.3 COOLING FAN RELAY (Marking: FAN NO.3) CONTINUITY

Check the relay in the same way as for "MAGNETIC CLUTCH RELAY".

# CONDENSER FAN ON-VEHICLE INSPECTION

AC173-01

## 1. INSPECT CONDENSER FAN OPERATION

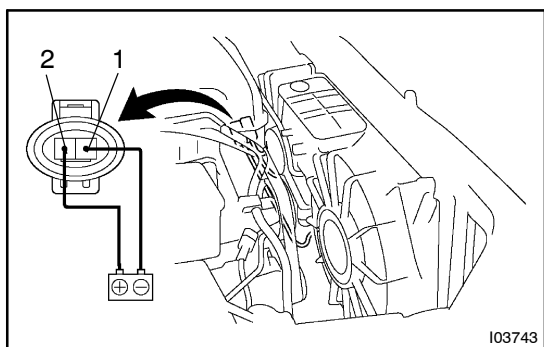
Inspect the fan operation, as shown in the chart below.

Test conditions:

- Ignition switch ON
- Blower speed control switch position "HI"
- Temperature control dial at "MAX. COOL"
- Install manifold gauge set"
- A/C switch ON

| Condition                                                                           | Fan operation (Fan speed) |
|-------------------------------------------------------------------------------------|---------------------------|
| Engine coolant temperature<br>91°C (196 °F) or below                                | Rotate (Low speed)        |
| Engine coolant temperature<br>100°C (212 °F) or above                               | Rotate (High speed)       |
| Refrigerant pressure is less than<br>1,520 kPa (15.5 kgf·cm <sup>2</sup> , 220 psi) | Rotate (Low speed)        |
| Refrigerant pressure is 1,520 kPa<br>(15.5 kgf·cm <sup>2</sup> , 220 psi) or above  | Rotate (High speed)       |

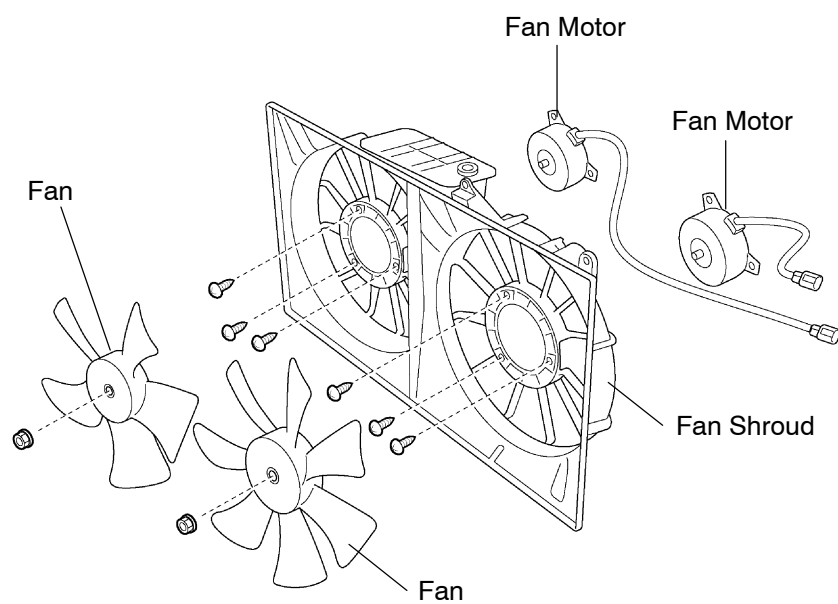
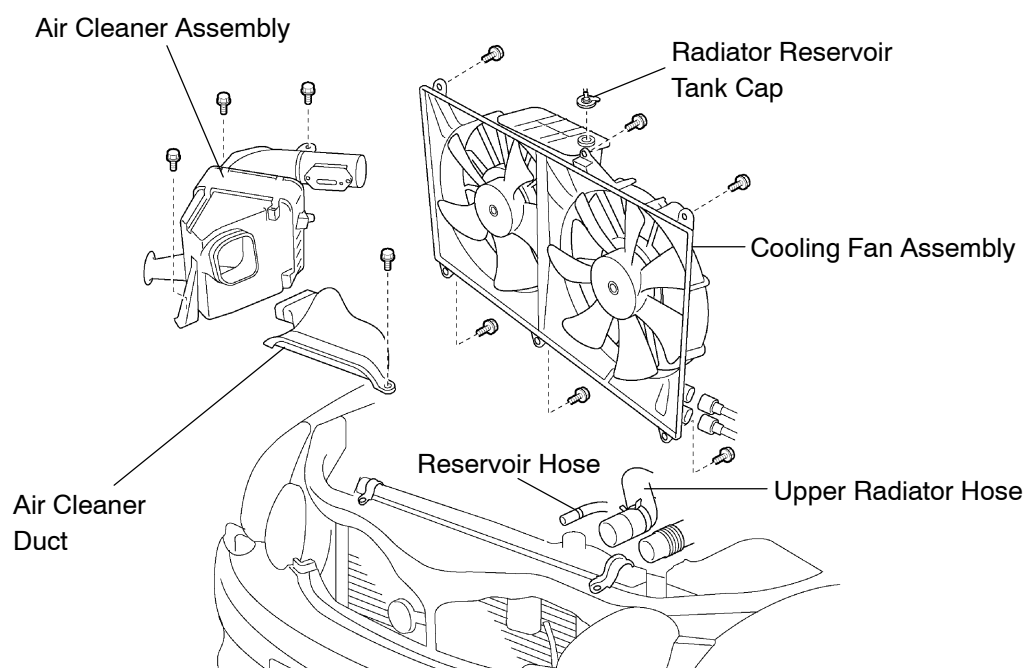
If operation is not as specified, proceed to the next inspection.



## 2. INSPECT CONDENSER FAN MOTOR OPERATION

- Disconnect the fan connector.
- Connect the positive (+) lead from the battery to terminal 2 and negative (–) lead to terminal 1 then check that motor operations smoothly.
  - If operation is not as specified, replace the fan motor.
  - If operation is as specified, check the pressure switch, cooling fan relays and engine coolant temp. switch.

# COMPONENTS



## REMOVAL

### 1. DRAIN ENGINE COOLANT FROM RADIATOR

HINT:

It is not necessary to drain out all coolant.

### 2. REMOVE THESE PARTS:

- (a) Air cleaner duct
- (b) Air cleaner assembly
- (c) Radiator reservoir tank cap

### 3. DISCONNECT THESE PARTS:

- (a) Upper radiator hose
- (b) Reservoir hose

### 4. REMOVE COOLING FAN

- (a) Disconnect the connectors.
- (b) Remove the 6 bolts cooling fan.

## DISASSEMBLY

### 1. REMOVE COOLING FANS

Remove the 2 nuts and both fans.

### 2. REMOVE COOLING FAN MOTORS

- (a) Disconnect wire harness clamps.
- (b) Remove the 6 screws and both motors.

## REASSEMBLY

Reassembly is in the reverse order of disassembly ([See page AC-89](#)).

## INSTALLATION

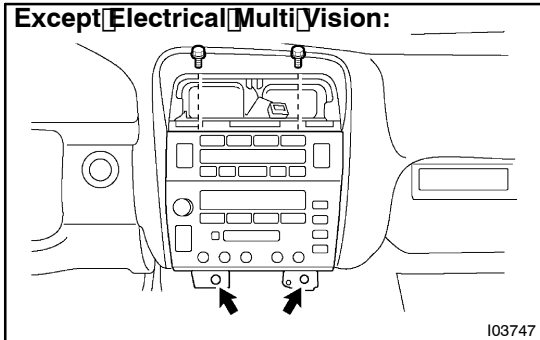
Installation is in the reverse order of removal (See [page AC-88](#)).

# AIR CONDITIONER CONTROL ASSEMBLY REMOVAL

AC178-01

- (c) No.2 register
- (d) Cluster finish panel
- (See page BO-91)

Except Electrical Multi Vision:

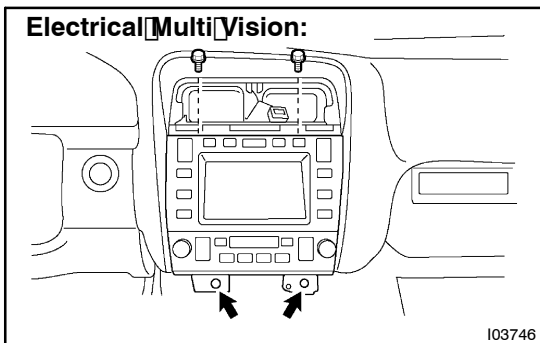


I03747

## 1. REMOVE A/C CONTROL ASSEMBLY WITH RADIO

Remove the 4 bolts and pull out the A/C control assembly, then disconnect the connectors.

Electrical Multi Vision:

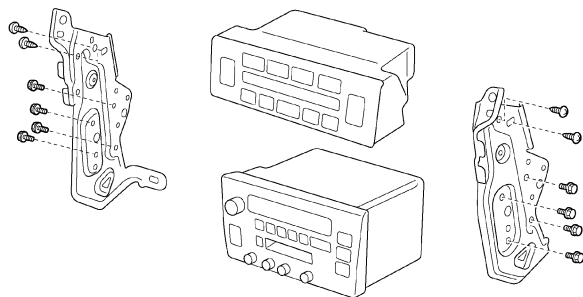


I03746

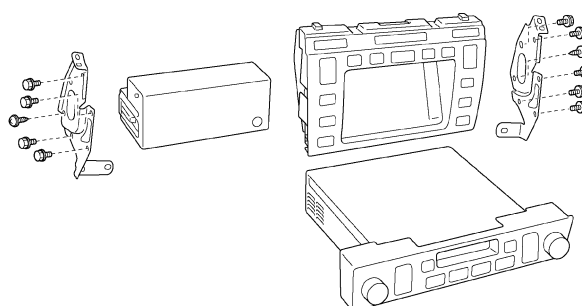
## 2. REMOVE A/C CONTROL ASSEMBLY FROM RADIO

Remove the 8 bolts, 2 screw and 2 brackets, then remove the A/C control assembly.

Except Electrical Multi Vision:



Electrical Multi Vision:



I04720

## INSPECTION

### INSPECT A/C CONTROL ASSEMBLY CIRCUIT

(See [page DI-910](#))

## INSTALLATION

Installation is in the reverse order of removal (See page AC-92).

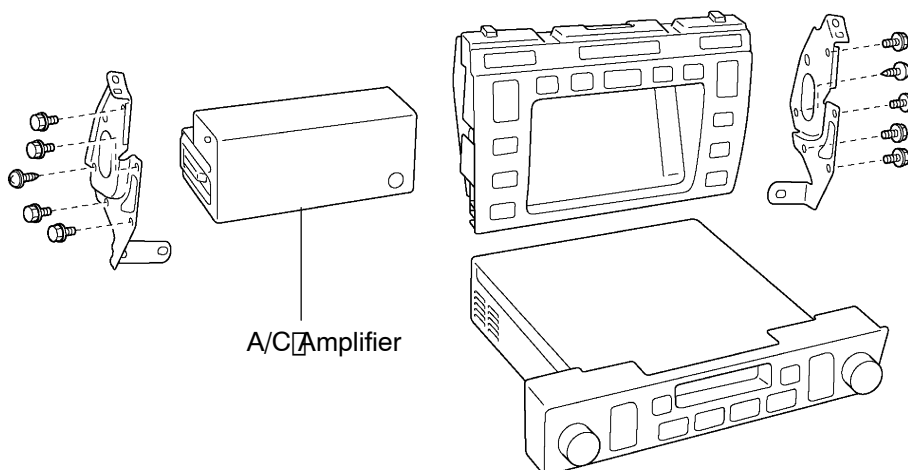
## AIR CONDITIONER AMPLIFIER (Electrical Multi-Vision) REMOVAL

AC17B-01

1. REMOVE A/C CONTROL ASSEMBLY  
(See page AC-92)

2. REMOVE A/C AMPLIFIER

Remove the 8 bolts, 2 screws and 2 bracket, then remove the amplifier.



102319

# INSPECTION

## INSPECT A/C AMPLIFIER CIRCUIT

(See page DI-910)

## INSTALLATION

Installation is in the reverse order of removal (See page AC-95).

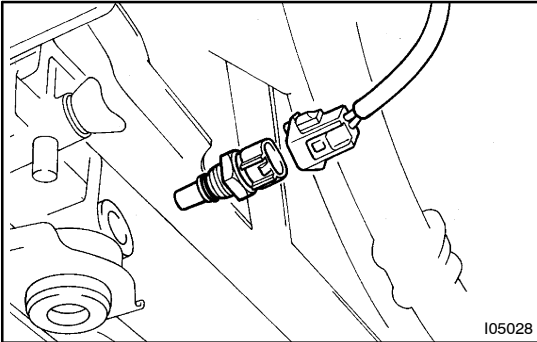
## WATER TEMPERATURE SWITCH REMOVAL

AC17E-01

1. REMOVE ENGINE UNDER COVER
2. DRAIN ENGINE COOLANT FROM RADIATOR

HINT:

It is not necessary to drain out all coolant

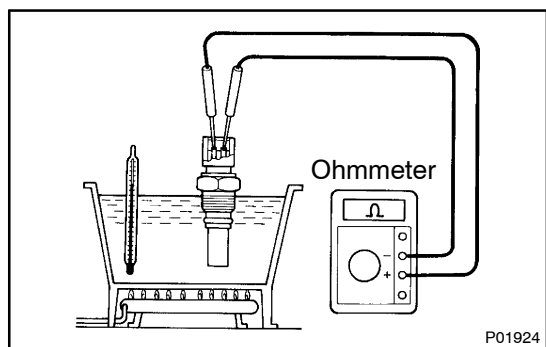


### 3. REMOVE WATER TEMPERATURE SWITCH

- (a) Disconnect the connector.
- (b) Remove the water temperature switch.  
**Torque: 7.4 N·m (75 kgf·cm, 65 in.·lbf)**
- (c) Remove the O-ring from the switch.

HINT:

At the time of installation, please refer to the following item.  
Lubricate a new O-ring with soapy water and install the switch.



## INSPECTION

### INSPECT WATER TEMPERATURE SWITCH

- (a) Using an ohmmeter, check that no continuity exists between the terminals when the coolant temperature is above 100 °C (212 °F).

If continuity exists, replace the switch.

- (b) Using an ohmmeter, check that continuity exists between the terminals when the coolant temperature is below 91 °C (196 °F).

If there no continuity exists, replace the switch.

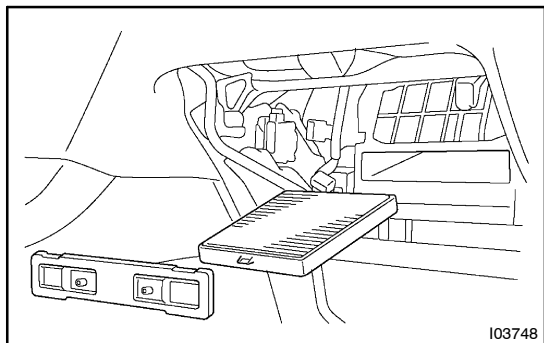
## INSTALLATION

Installation is in the reverse order of removal (See page AC-98).

## AIR REFINER FILTER REMOVAL

AC0Y0-02

1. REMOVE GLOVE COMPARTMENT DOOR  
(See page BO-91)



### 2. REMOVE AIR REFINER FILTER

- (a) Remove the cover.
- (b) Pull out the air refiner filter.

## INSTALLATION

Installation is in the reverse order of removal ([See page AC-101](#)).