AIR CONDITIONING SYSTEM

PRECAUTION

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

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

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 IS300 is equipped with an SRS (Supplemental Restraint System) such as the driver, passenger and side airbag. Failure to carry out service operations 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.
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.
(a) Charge the proper amount of refrigerant into the charging cylinder.
(b) Connect the center hose to the charging cylinder.
CAUTION:
Do not open both high and low hand valves of manifold gauge set.
(c) Open the valve of charging cylinder.
(d) 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
(a) Open the high pressure hand valve and charge refrigerant.
(b) When the low pressure gauge indicates 98 kPa (1 kgf/cm², 14 psi) close the high pressure hand valve.
(c) 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" position
   - 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.
LOCATION

Condenser Fan

Compressor

Condenser

Water Temperature Switch

Engine Room Relay Block
- No. 2 Cooling Fan Relay
- No. 3 Cooling Fan Relay
- Magnetic Clutch Relay

Passenger Side Junction Block
- Heater Main Relay

A/C Control Assembly

Solar Sensor

Expansion Valve

Evaporator

Evaporator Temperature Sensor

Room Temperature Sensor

Air Outlet Servomotor

Air Inlet Servomotor

Air Refiner Filter

Heater Radiator

Blower Motor Control Relay

Air Mix Servomotor

Blower Motor

2005 LEXUS IS300  (RM1140U)
TROUBLESHOOTING
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.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Suspect Area</th>
<th>See page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole functions of A/C system do not operate</td>
<td>1. A.C Fuse</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>2. A/C control assembly</td>
<td>AC-79</td>
</tr>
<tr>
<td>No blower operation</td>
<td>1. Heater main relay</td>
<td>AC-69</td>
</tr>
<tr>
<td></td>
<td>2. Blower motor</td>
<td>AC-55</td>
</tr>
<tr>
<td></td>
<td>3. Blower motor control relay</td>
<td>AC-56</td>
</tr>
<tr>
<td></td>
<td>4. A/C control assembly</td>
<td>AC-79</td>
</tr>
<tr>
<td></td>
<td>5. Wire harness</td>
<td>-</td>
</tr>
<tr>
<td>No blower control</td>
<td>1. Blower motor</td>
<td>AC-55</td>
</tr>
<tr>
<td></td>
<td>2. Blower motor control relay</td>
<td>AC-56</td>
</tr>
<tr>
<td></td>
<td>3. A/C control assembly</td>
<td>AC-79</td>
</tr>
<tr>
<td></td>
<td>4. Wire harness</td>
<td>-</td>
</tr>
<tr>
<td>Insufficient air out</td>
<td>1. Blower motor</td>
<td>AC-55</td>
</tr>
<tr>
<td>No cool air comes out</td>
<td>1. Refrigerant volume</td>
<td>AC-3</td>
</tr>
<tr>
<td></td>
<td>2. Drive belt</td>
<td>AC-16</td>
</tr>
<tr>
<td></td>
<td>3. Refrigerant pressure</td>
<td>AC-3</td>
</tr>
<tr>
<td></td>
<td>4. Compressor</td>
<td>AC-38</td>
</tr>
<tr>
<td></td>
<td>5. Pressure switch</td>
<td>AC-66</td>
</tr>
<tr>
<td></td>
<td>6. Igniter circuit</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>7. Air mix servomotor</td>
<td>AC-30</td>
</tr>
<tr>
<td></td>
<td>8. Room temp. sensor</td>
<td>AC-62</td>
</tr>
<tr>
<td></td>
<td>9. Ambient temp. sensor</td>
<td>AC-63</td>
</tr>
<tr>
<td></td>
<td>10. A/C control assembly</td>
<td>AC-79</td>
</tr>
<tr>
<td></td>
<td>11. Wire harness</td>
<td>-</td>
</tr>
<tr>
<td>No warm air comes out</td>
<td>1. Engine coolant volume</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>2. Air mix servomotor</td>
<td>AC-30</td>
</tr>
<tr>
<td></td>
<td>3. Ambient temp. sensor</td>
<td>AC-63</td>
</tr>
<tr>
<td></td>
<td>4. Room temp. sensor</td>
<td>AC-62</td>
</tr>
<tr>
<td></td>
<td>5. A/C control assembly</td>
<td>AC-79</td>
</tr>
<tr>
<td></td>
<td>6. Heater radiator</td>
<td>AC-30</td>
</tr>
<tr>
<td>Out put air is warmer or cooler than the set</td>
<td>1. Refrigerant volume</td>
<td>AC-3</td>
</tr>
<tr>
<td>temperature or response is slow</td>
<td>2. Engine coolant volume</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>3. Drive belt</td>
<td>AC-16</td>
</tr>
<tr>
<td></td>
<td>4. Refrigerant pressure</td>
<td>AC-3</td>
</tr>
<tr>
<td></td>
<td>5. Condenser fan</td>
<td>AC-72</td>
</tr>
<tr>
<td></td>
<td>6. Ambient temp. sensor</td>
<td>AC-63</td>
</tr>
<tr>
<td></td>
<td>7. Evaporator temp. sensor</td>
<td>AC-64</td>
</tr>
<tr>
<td></td>
<td>8. Solar sensor</td>
<td>AC-61</td>
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<tr>
<td></td>
<td>9. Air mix servomotor</td>
<td>AC-30</td>
</tr>
<tr>
<td></td>
<td>10. Compressor</td>
<td>AC-38</td>
</tr>
<tr>
<td></td>
<td>11. Condenser</td>
<td>AC-47</td>
</tr>
<tr>
<td></td>
<td>12. Evaporator</td>
<td>AC-30</td>
</tr>
<tr>
<td></td>
<td>13. Heater radiator</td>
<td>AC-30</td>
</tr>
<tr>
<td></td>
<td>14. Expansion valve</td>
<td>AC-52</td>
</tr>
<tr>
<td></td>
<td>15. A/C control assembly</td>
<td>AC-79</td>
</tr>
<tr>
<td></td>
<td>16. Wire harness</td>
<td>-</td>
</tr>
<tr>
<td>No temperature control</td>
<td>1. Air mix servomotor</td>
<td>AC-30</td>
</tr>
<tr>
<td></td>
<td>2. A/C control assembly</td>
<td>AC-79</td>
</tr>
<tr>
<td>Issue</td>
<td>Steps</td>
<td>Codes</td>
</tr>
<tr>
<td>------------------------------------------------------------</td>
<td>----------------------------------------------------------------------</td>
<td>---------</td>
</tr>
</tbody>
</table>
| No air inlet control                                       | 1. Air inlet servomotor  
2. A/C control assembly  
3. Wire harness                                                 | AC-57   |
|                                                            |                                                                       | AC-79   |
| No mode control                                            | 1. Air outlet servomotor  
2. A/C control assembly  
3. Wire harness                                                   | AC-59   |
|                                                            |                                                                       | AC-79   |
| No engine idle-up when A/C switch ON                      | 1. A/C control assembly  
2. Wire harness                                                       | AC-79   |
| Set temperature value does not match up with operation of  | 1. A/C control assembly                                                 | AC-79   |
| temperature control switch                                 |                                                                       |         |
| Brightness does not change when light control switch is    | 1. Headlight and taillight system  
2. A/C control assembly                                                | BE-31   |
| turned                                                     |                                                                       | AC-79   |
DRIVE BELT
ON-VEHICLE INSPECTION

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
1. REMOVE ENGINE UNDER COVER
2. REMOVE DRIVE BELT

Using SST, loosen the drive belt tension by turning the drive belt tensioner arm clockwise from the bottom side, and remove the drive belt.

SST 09216-00041
INSTALLATION

Installation is in the reverse order of removal (See page AC-17).
AFTER INSTALLATION, CHECK DRIVE BELT’S INSTALLATION CONDITION
MANIFOLD GAUGE SET

SET ON

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 REFRIGERANT LINES

5. CONNECT QUICK DISCONNECT ADAPTERS TO SERVICE 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

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.
COMPONENTS

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

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

2005 LEXUS IS300 (RM1140U)
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.

<table>
<thead>
<tr>
<th>Part tightened</th>
<th>N·m</th>
<th>kgf·cm</th>
<th>ft·lbf</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressor x Discharge hose</td>
<td>10</td>
<td>100</td>
<td>7</td>
</tr>
<tr>
<td>Compressor x Suction hose</td>
<td>10</td>
<td>100</td>
<td>7</td>
</tr>
<tr>
<td>Condenser x Discharge hose</td>
<td>10</td>
<td>100</td>
<td>7</td>
</tr>
<tr>
<td>Condenser x Liquid tube</td>
<td>10</td>
<td>100</td>
<td>7</td>
</tr>
<tr>
<td>A/C unit x Liquid and Suction tubes</td>
<td>10</td>
<td>100</td>
<td>7</td>
</tr>
<tr>
<td>Suction line (Block joint)</td>
<td>10</td>
<td>100</td>
<td>7</td>
</tr>
</tbody>
</table>

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 CONDITIONING UNIT

COMPONENTS

- Instrument Panel
- Reinforcement
- Defroster Nozzle
- Water Hose
- Liquid Tube
- Suction Tube
- Blower Unit
- Bracket
- Air Duct LH
- Air Duct RH
- A/C Unit
- Non-reusable part

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

Non-reusable part
Specified torque

Non-reusable part

N·m (kgf·cm, ft·lbf)
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 COOLER NO. 1 GROMMET
6. REMOVE HEATER PIPE GROMMET
7. REMOVE DRAIN HOSE GROMMET
8. REMOVE INSTRUMENT PANEL AND REINFORCEMENT (See page BO-139)
9. REMOVE BLOWER UNIT (See page AC-34)

10. REMOVE 2 AIR DUCTS
    (a) Slide the floor carpet backward.
    (b) Remove the air ducts LH, RH.

11. REMOVE A/C UNIT
    (a) Disconnect the connectors.
    (b) Disconnect the wire harness clamps.
    (c) Remove the 2 nuts, 2 bolt and A/C unit.
DISASSEMBLY

1. REMOVE WIRE HARNESS
2. REMOVE DRAIN HOSE

3. REMOVE HEATER RADIATOR
   (a) Remove the screw and clamp.
   (b) Pull out the heater radiator.

4. REMOVE BLOWER MOTOR CONTROL RELAY
   Remove the screw and blower motor control relay.

5. REMOVE AIR MIX SERVOMOTOR
   Remove the 3 screws and servomotor.

6. REMOVE AIR OUTLET SERVOMOTOR
   Remove the 2 screws and servomotor.

7. 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.

8. REMOVE EVAPORATOR TEMPERATURE SENSOR
   (a) Using a screwdriver, pull out the sensor with bracket plate.
   HINT:
   Tape the screwdriver tip before use.
   (b) Release the 2 claws and sensor from bracket plate.

9. REMOVE EVAPORATOR
   (a) Remove air mix servomotor.
      (1) Disconnect the connector.
      (2) Remove the 3 screws and servomotor.
(b) Remove tube and accessory.
   (1) Pry out packing.
   HINT:
   At the time of installation, please refer to the following item.
   Do not reuse the packing.
   (2) 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.
(3) Remove screw and drain pipe.

(c) Remove evaporator.
   (1) Remove the screw and drain hose.
   (2) Remove the 4 screws and cover.
   (3) 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

10. REMOVE INSULATOR FROM HEATER CASE
11. REMOVE AIR DUCT
INSPECTION

1. INSPECT AIR MIX SERVOMOTOR
   (a) Inspect the air mix servomotor operation.
      (1) Connect the positive (+) lead from the battery to terminal 7 and negative (-) lead to terminal 6, then check that the arm turns to "COOL" side smoothly.

      (2) Connect the positive (+) lead from the battery to terminal 6 and negative (-) lead to terminal 7, then check that the arm turns to "WARM" side smoothly.
      If operations are not as specified, replace the 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 |
       |-------------------|-------------|---------------------|
       | 1 - 3             | Constant    | 4.2 - 7.8 kΩ        |
       | 1 - 5             | Max. cool   | 3.6 - 6.8 kΩ        |
       | 1 - 5             | Max. warm   | 0.5 - 1.1 kΩ        |

       If resistance is not as specified, replace the servomotor.

2. INSPECT EVAPORATOR
   (a) Check evaporator fins for blockage.
       If the fins are clogged, clean them with compressed air.
       NOTICE:
       Never use water to clean the evaporator.
   (b) Check fitting for cracks or scratches.
       If necessary, repair or replace.

3. INSPECT HEATER RADIATOR
   Inspect fins for blockage.
   If the fins are clogged, clean them with compressed air.
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

- Instrument Panel
- Air Duct (Duct Side)
- Bracket
- Blower Unit
- Air Inlet Servomotor
- Air Refiner Filter
- Blower Unit Case
- Cover
- Blower Motor
- Air Refiner Flame
REMOVAL

1. REMOVE INSTRUMENT PANEL (See page BO-139)

2. REMOVE AIR DUCT (DUCT SIDE)
   (a) Disconnect the connector and connector clamp.
   (b) Remove the screw.
   (c) Release the 2 claws and pull out the air duct.

3. DISCONNECT WIRE HARNESS
   (a) Disconnect the connector and connector clamp.
   (b) Remove the wire harness clamp and disconnect the con-

4. REMOVE BLOWER UNIT
   (a) Remove the 2 bolts and bracket.
   (b) Remove the bolt, screw and nut.
   (c) Release the claw and 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.
REASSEMBLY

Reassembly is in the reverse order of disassembly (See page AC-35).
INSTALLATION

Installation is in the reverse order of removal (See page AC-34 ).
COMPRESSOR AND MAGNETIC CLUTCH

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: 990 - 1,210 \( \Omega \) at 20\(^\circ\)C (68\(^\circ\)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.
COMPONENTS

- PS Pump
- Bracket
- Compressor
- Bracket
- O-Ring
- Suction Hose
- Drive Belt
- Discharge Hose
- Compressor
- Pressure Plate
- Shim
- Rotor
- Stator
- Snap Ring
- Snap Ring
- Washer

N·m (kgf·cm, ft·lbf) Specified torque

Non-reusable part
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 DRIVE BELT (See page AC-17)
6. DISCONNECT DISCHARGE AND SUCTION HOSES
   Remove the 2 nuts and disconnect the both hoses.
   NOTICE:
   Cap the open fitting immediately to keep moisture or dirt out of the system.
7. REMOVE PS PUMP WITH PRESSURE FEED AND RETURN TUBES STILL CONNECTED
   (a) Disconnect the PS pump connector and PS pump tube clamp.
   (b) Disconnect the engine wire.
   (c) Remove the 2 PS pump set bolts and slide the PS pump backward.
8. REMOVE COMPRESSOR
   (a) Remove the bolt and PS pump bracket.
(b) Remove the 3 bolts and compressor bracket.
(c) Disconnect the connector.

(d) Remove the nut and 2 bolts.
(e) Using a torx socket (E10), remove the stud bolt and compressor.
DISASSEMBLY
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) Remove the snap ring.
(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) Remove the snap ring.

(3) Remove the stator.
REASSEMBLY

1. ASSEMBLE MAGNETIC CLUTCH
(a) Install the stator.
   (1) Install the stator on compressor.
   (2) Install the new snap ring.

**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) Install the new snap ring.

**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

2. **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: 26 N·m (265 kgf·cm, 19 ft·lbf)
   (b) Install the 2 bolts and nut.
      Torque:
         Bolt: 52 N·m (530 kgf·cm, 38 ft·lbf)
         Nut: 52 N·m (530 kgf·cm, 38 ft·lbf)
   (c) Connect the connector.
   (d) Install the compressor bracket with the 3 bolts.
      Torque:
         bolt A: 39 N·m (400 kgf·cm, 29 ft·lbf)
         bolt B: 52 N·m (530 kgf·cm, 38 ft·lbf)
   (e) Install the PS pump bracket with the bolt.
      Torque: 52 N·m (530 kgf·cm, 38 ft·lbf)

2. INSTALL PS PUMP
   (a) Install 2 PS pump set bolt.
      Torque: 58 N·m (590 kgf·cm, 43 ft·lbf)
   (b) Connect the engine wire.
   (c) Connect the PS pump connector and wire harness clamp.

3. CONNECT DISCHARGE AND SUCTION HOSES
   Connect the both hoses with 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.

4. INSTALL DRIVE BELT (See page AC-18)

5. INSPECT DRIVE BELT TENSION (See page AC-16)

6. CONNECT NEGATIVE (-) TERMINAL CABLE TO BATTERY

7. EVACUATE AIR FROM REFRIGERATION SYSTEM
   AND CHARGE SYSTEM WITH REFRIGERANT
   Specified amount: 600 ± 50 g (21.16 ± 1.76 oz.)

8. 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.

9. INSPECT A/C OPERATION
CONDENSER

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.
COMPONENTS

- Condenser
- Liquid Tube
- Discharge Hose
- Bracket
- Dryer
- Filter
- Cap
- Air Cleaner Assembly
- Air Cleaner Inlet
- Condenser
- O-Ring

N·m (kgf·cm, ft·lbf) : Specified torque
◆ Non-reusable part
← Compressor oil ND-OIL 8 or equivalent

2005 LEXUS IS300 (RM1140U)
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 AIR CLEANER DUCT AND AIR CLEANER ASSEMBLY

3. REMOVE ECU OUTLET DUCT

4. REMOVE 2 RADIATOR UPPER SUPPORTS

   Remove the 2 bolts and upper supports.

5. 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.

6. 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

2005 LEXUS IS300 (RM1140U)
REPLACEMENT

REPLACE DRYER FROM MODULATOR

(a) Using a hexagon wrench (10 mm, 0.39 in.), remove the cap from the modulator.
(b) Remove the filter from the modulator.

(c) Using pliers, remove the dryer.

(d) Insert a new dryer into the modulator.

NOTICE:
- Do not remove the dryer from a vinyl bag until inserting it into the modulator.
- Install the dryer with its 2 layered part faced upward to the modulator.

(e) Insert the filter into the modulator.

NOTICE:
Install the filter with its protrusion faced downward to the modulator.

(f) Install the cap to the modulator.
(1) Apply compressor oil to the O-rings and screw part of the cap.

Compressor oil: ND-OIL 8 or equivalent
(2) Using a hexagon wrench (10 mm, 0.39 in.), install the caps.

Torque: 12.3 N·m (125 kgf·cm, 9 ft-lbf)
INSTALLATION

Installation is in the reverse order of removal (See page AC-49).
EXPANSION VALVE

ON-VEHICLE INSPECTION

1. CHECK QUANTITY OF GAS DURING REFRIGERATION CYCLE
2. SET ON MANIFOLD GAUGE SET (See page AC-19)
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/cm², 199 -228 psi).
4. CHECK EXPANSION VALVE
   If the expansion valve is faulty, the low pressure reading will drop to 0 kPa (0 kgf/cm², 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-139)

3. 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.
INSTALLATION

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

1. REMOVE BLOWER MOTOR
   (a) Remove the wire harness clamp and disconnect the connector.
   (b) Remove the 3 screws and blower motor.

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

3. INSTALL BLOWER MOTOR
   (a) Install the blower motor with the 3 screws.
   (b) Connect the connector and wire harness clamp.
BLOWER MOTOR CONTROL RELAY INSPECTION

1. REMOVE GLOVE COMPARTMENT DOOR
   (See page BO-139)

2. REMOVE BLOWER MOTOR CONTROL RELAY
   (a) Disconnect the connectors.
   (b) Remove the screw and blower motor control relay.

3. INSPECT BLOWER MOTOR CONTROL CIRCUIT
   Inspect the wire harness side connector from the back side, as shown in the chart.
   Test conditions:
   - Turn ignition switch to ON
   - Operate blower motor (High blower speed)

<table>
<thead>
<tr>
<th>Terminals</th>
<th>Standard Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GND ↔ Body Ground</td>
<td>Continuity</td>
</tr>
<tr>
<td>+B ↔ Body Ground</td>
<td>Battery positive voltage</td>
</tr>
<tr>
<td>+M ↔ Body Ground</td>
<td>Battery positive voltage</td>
</tr>
<tr>
<td>M+ ↔ M-</td>
<td>Battery positive voltage</td>
</tr>
<tr>
<td>SI ↔ Body Ground</td>
<td>1 - 3 V</td>
</tr>
</tbody>
</table>

   If resistance is not as specified, replace the blower motor control relay.

4. INSTALL BLOWER MOTOR CONTROL RELAY
   (a) Install the blower motor control relay with the screw.
   (b) Connect the connectors.

5. INSTALL GLOVE COMPARTMENT DOOR
   (See page BO-149)
AIR INLET SERVOMOTOR INSPECTION

1. REMOVE GLOVE COMPARTMENT DOOR  
   (See page BO-139)

2. REMOVE BRACKET  
   (a) Disconnect the wire harness clamp.  
   (b) Remove the 2 bolts and bracket.

3. REMOVE AIR INLET SERVOMOTOR  
   (a) Disconnect the connector.  
   (b) Remove the 3 screws and servomotor.

4. INSPECT AIR INLET SERVOMOTOR OPERATION  
   (a) Connect the positive (+) lead from the battery to terminal 7 and negative (-) lead to terminal 6, then check that the arm turns to “FRESH” side smoothly.
   (b) Connect the positive (+) lead from the battery to terminal 6 and negative (-) lead to terminal 7, then check that the arm turns to “RECIRC” side smoothly.  
   If operations are not as specified, replace the servomotor.
5. **INSPECT POSITION SENSOR RESISTANCE**

Measure resistance between terminals at servomotor arm each position as shown in the chart.

<table>
<thead>
<tr>
<th>Tester connection</th>
<th>Condition</th>
<th>Specified condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 3</td>
<td>Constant</td>
<td>4.2 - 7.8 kΩ</td>
</tr>
<tr>
<td>3 - 5</td>
<td>REC</td>
<td>3.1 - 5.8 kΩ</td>
</tr>
<tr>
<td>3 - 5</td>
<td>FRS</td>
<td>0.8 - 1.6 kΩ</td>
</tr>
</tbody>
</table>

If resistance is not as specified, replace the servomotor.

6. **INSTALL AIR INLET SERVOMOTOR**

(a) Install the servomotor with the 3 screws.

(b) Connect the connector.

7. **INSTALL BRACKET**

(a) Install the bracket with 2 bolts.

(b) Connect the wire harness clamp.

8. **INSTALL GLOVE COMPARTMENT DOOR**

(See page BO-149)
AIR OUTLET SERVOMOTOR
INSPECTION

1. REMOVE INSTRUMENT PANEL (See page BO-139)

2. REMOVE AIR DUCT
   (a) Disconnect the connector clamp.
   (b) Remove the 3 screws and air duct.

3. REMOVE AIR OUTLET SERVOMOTOR
   (a) Disconnect the connector.
   (b) Remove the 2 screws and servomotor.

4. INSPECT AIR OUTLET SERVOMOTOR OPERATION
   (a) Connect the positive (+) lead from the battery to terminal 7 and negative (-) lead to terminal 6, then check that the arm turns to "FACE" side smoothly.
   (b) Connect the positive (+) lead from the battery to terminal 6 and negative (-) lead to terminal 7, then check that the arm turns to "DEF" side smoothly.

If operations are not as specified, replace the servomotor.
5. **INSPECT POSITION SENSOR RESISTANCE**

Measure resistance between terminals at servomotor arm each position as shown in the chart.

<table>
<thead>
<tr>
<th>Tester connection</th>
<th>Condition</th>
<th>Specified condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 3</td>
<td>Constant</td>
<td>4.2 - 7.8 kΩ</td>
</tr>
<tr>
<td>3 - 5</td>
<td>FACE</td>
<td>3.6 - 6.8 kΩ</td>
</tr>
<tr>
<td>3 - 5</td>
<td>DEF</td>
<td>0.5 - 1.1 kΩ</td>
</tr>
</tbody>
</table>

If resistance is not as specified, replace the servomotor.

6. **INSTALL AIR OUTLET SERVOMOTOR**

(a) Install the servomotor with the 2 screws.
(b) Connect the connector.

7. **INSTALL AIR DUCT**

(a) Install the air duct with the 3 screws.
(b) Connect the connector clamp.

8. **INSTALL INSTRUMENT PANEL** (See page BO-149)
SOLAR SENSOR INSPECTION

1. REMOVE SOLAR SENSOR
Using a screwdriver, pull out the sensor, then disconnect the connector.
HINT:
Tape the screwdriver tip before use.

2. INSPECT SOLAR SENSOR CONTINUITY
   (a) Cover the sensor with a cloth, check that no continuity exists between terminals.
   If continuity exists, replace the sensor.

   (b) Remove the cloth from the sensor and subject the sensor to electric light, check that continuity exists between terminals.
   If no continuity exists, replace the sensor.

3. INSTALL SOLAR SENSOR
Connect the connector and install the solar sensor.
ROOM TEMPERATURE SENSOR INSPECTION

1. REMOVE LOWER FINISH PANEL
   (a) Remove the 3 screws.
   (b) Release the 3 claws and pull out the lower finish panel.

2. REMOVE ROOM TEMPERATURE SENSOR
   (a) Disconnect the connector and aspirator hose.
   (b) Release the 2 claws and pull out the sensor.

3. INSPECT ROOM TEMPERATURE SENSOR RESISTANCE
   Measure resistance between terminals at each temperature as shown in the chart.

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Specified condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 °C (77 °F)</td>
<td>1.6 - 1.8 kΩ</td>
</tr>
<tr>
<td>50 °C (122 °F)</td>
<td>0.6 - 0.8 kΩ</td>
</tr>
</tbody>
</table>

If resistance is not as specified, replace the sensor.

4. INSTALL ROOM TEMPERATURE SENSOR
   (a) Install the sensor and fit the 2 claws.
   (b) Connect the aspirator hose and connector.

5. INSTALL LOWER FINISH PANEL
   (a) Install the lower finish panel and fit the 3 claws.
   (b) Install the 3 screws.
1. **REMOVE AMBIENT TEMPERATURE SENSOR**
   (a) Disconnect the connector.
   (b) Using a clip remover, pull out the sensor from bumper reinforcement.

2. **INSPECT AMBIENT TEMPERATURE SENSOR RESISTANCE**
   Measure resistance between terminals at each temperature as shown in the chart.

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Specified condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 °C (77 °F)</td>
<td>1.6 - 1.8 kΩ</td>
</tr>
<tr>
<td>50 °C (122 °F)</td>
<td>0.5 - 0.7 kΩ</td>
</tr>
</tbody>
</table>

   If resistance is not as specified, replace the sensor.

3. **INSTALL AMBIENT TEMPERATURE SENSOR**
   (a) Push the sensor in bumper reinforcement.
   (b) Connect the connector.
EVAPORATOR TEMPERATURE SENSOR
INSPECTION

1. REMOVE LOWER FINISH PANEL (See page BO-139 )

2. REMOVE EVAPORATOR TEMPERATURE SENSOR
   (a) Disconnect the connector.
   (b) Using a screwdriver, pull out the sensor with bracket plate.
   HINT:
   Tape the screwdriver tip before use.
   (c) Release the 2 claws and remove the sensor from bracket plate.

3. INSPECT EVAPORATOR TEMPERATURE SENSOR RESISTANCE
   (a) Place the sensor 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 sensor.

2005 LEXUS IS300 (RM1140U)
4. **INSTALL EVAPORATOR TEMPERATURE SENSOR**
   (a) Install the sensor in bracket plate and 2 claws.
   (b) Push in the sensor with the bracket plate.
   (c) Connect the connector.
5. **INSTALL LOWER FINISH PANEL** (See page BO-149)
PRESSURE SWITCH
ON-VEHICLE INSPECTION

1. SET ON MANIFOLD GAUGE SET (See page AC-19)
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 RADIATOR GRILLE (See page BO-4)

3. 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-67 ).
HEATER MAIN RELAY INSPECTION

1. REMOVE FRONT DOOR SCUFF PLATE LH
   (See page BO-139)
2. REMOVE COWL SIDE TRIM BOARD LH
   (See page BO-139)

3. REMOVE HEATER MAIN RELAY
   (a) Disconnect the connectors.
   (b) Remove the 2 passenger side junction block set nuts.
   (c) Remove the heater main relay from passenger side junction block.

4. INSPECT HEATER MAIN RELAY CONTINUITY

<table>
<thead>
<tr>
<th>Condition</th>
<th>Tester connection</th>
<th>Specified condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>2 - 4</td>
<td>Continuity</td>
</tr>
<tr>
<td></td>
<td>1 - 3</td>
<td></td>
</tr>
<tr>
<td>Apply B+ between terminals 1 and 3.</td>
<td>4 - 5</td>
<td>Continuity</td>
</tr>
</tbody>
</table>

If continuity is not as specified, replace the relay.

5. INSTALL HEATER MAIN RELAY
   (a) Install the heater main relay to passenger side junction block.
   (b) Install the passenger side junction block set nuts.
   (c) Connect the connectors.

6. INSTALL COWL SIDE TRIM BOARD LH
   (See page BO-149)

7. INSTALL FRONT DOOR SCUFF PLATE LH
   (See page BO-149)
MAGNETIC CLUTCH RELAY INSPECTION

1. REMOVE MAGNETIC CLUTCH RELAY FROM RELAY BLOCK NO.3

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

<table>
<thead>
<tr>
<th>Condition</th>
<th>Tester connection</th>
<th>Specified condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>1 - 2</td>
<td>Continuity</td>
</tr>
<tr>
<td>Apply B+ between terminals 1 and 2.</td>
<td>3 - 5</td>
<td>Continuity</td>
</tr>
</tbody>
</table>

If continuity is not as specified, replace the relay.
COOLING FAN RELAY INSPECTION

1. REMOVE NO.2 COOLING FAN RELAY FROM RELAY BLOCK NO.3

2. REMOVE NO.3 COOLING FAN RELAY FROM RELAY BLOCK NO.3

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

<table>
<thead>
<tr>
<th>Condition</th>
<th>Tester connection</th>
<th>Specified condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>1 - 2</td>
<td>Continuity</td>
</tr>
<tr>
<td></td>
<td>3 - 4</td>
<td></td>
</tr>
<tr>
<td>Apply B+ between terminals 1 and 2.</td>
<td>3 - 5</td>
<td>Continuity</td>
</tr>
</tbody>
</table>

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

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" position
- Install manifold gauge set
- A/C switch ON

<table>
<thead>
<tr>
<th>Condition</th>
<th>Fan operation (Fan speed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine coolant temperature 91°C (196°F) or below</td>
<td>Rotate (Low speed)</td>
</tr>
<tr>
<td>Engine coolant temperature 100°C (212°F) or above</td>
<td>Rotate (High speed)</td>
</tr>
<tr>
<td>Refrigerant pressure is less than 1,520 kPa (15.5 kgf-cm², 220 psi)</td>
<td>Rotate (Low speed)</td>
</tr>
<tr>
<td>Refrigerant pressure is 1,520 kPa (15.5 kgf-cm², 220 psi) or above</td>
<td>Rotate (High speed)</td>
</tr>
</tbody>
</table>

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

2. INSPECT CONDENSER FAN MOTOR OPERATION
(a) Disconnect the fan connector.
(b) Connect battery and ammeter.
(c) Check that the fan rotates smoothly, and then check the reading on the ammeter.
   **Specified amperage: 8.5 - 11.5 A at 20 °C (68 °F)**
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.
REMOVAL

1. DRAIN ENGINE COOLANT FROM RADIATOR
   
   HINT:
   It is not necessary to drain out all coolant.

2. REMOVE AIR CLEANER INLET

3. REMOVE AIR CLEANER AND MAF METER ASSEMBLY

4. REMOVE COOLING FAN
   (a) Disconnect the upper radiator hose from the radiator.
   (b) Disconnect the ECM outlet duct from the ECM box.
   (c) Disconnect the wire for cooling fan from the clamp on the cooling fan.
   (d) Disconnect the 2 cooling fan connector.
   (e) Disconnect the radiator reservoir hose from the radiator.

   (f) Remove the 6 bolts and cooling fan.
DISASSEMBLY

1. REMOVE FANS
   (a) Remove the nut and fan.
   (b) Remove the 2 fans.

2. REMOVE FAN MOTORS
   (a) Disconnect the wires and connector holders from the fan shroud.
   (b) Remove the 3 screws and fan motor.
   (c) Remove the 2 fan motors.
REASSEMBLY

1. INSTALL FAN MOTORS
   (a) Install the fan motor with the 3 screws. Install the 2 fan motors.
   (b) Install the wires and connector holders to the fan shroud as shown in the illustration.

2. INSTALL FANS
   Install the fan with the nut. Install the 2 fans.
INSTALLATION

1. INSTALL COOLING FAN
   (a) Install the cooling fan with the 6 bolts.
      Torque: 5.0 N·m (50 kgf-cm, 44 in.-lbf)
   (b) Connect the upper radiator hose to the radiator.
   (c) Connect the ECM outlet duct to the ECM box.
   (d) Connect the wire for cooling fan to clamp on the cooling fan.
   (e) Connect the 2 cooling fan connectors.
   (f) Connect the radiator reservoir hose to the radiator.

2. INSTALL AIR CLEANER AND MAF METER ASSEMBLY

3. INSTALL AIR CLEANER INLET

4. FILL WITH ENGINE COOLANT

5. START ENGINE AND CHECK FOR COOLANT LEAKS
AIR CONDITIONING CONTROL ASSEMBLY

ON-VEHICLE INSPECTION

1. REMOVE A/C CONTROL ASSEMBLY
   (See page AC-84)

2. INSPECT A/C CONTROL ASSEMBLY CIRCUIT
   (a) Disconnect the connector from the A/C control assembly and inspect the connector on the wire harness side, as shown in the chart below.

Test condition:
   Turn ignition switch ON

<table>
<thead>
<tr>
<th>Tester connection</th>
<th>Condition</th>
<th>Specified condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>A13 - A6</td>
<td>Cover solar sensor with a cloth</td>
<td>No continuity</td>
</tr>
<tr>
<td></td>
<td>Solar sensor subject to electric light</td>
<td>Continuity</td>
</tr>
<tr>
<td>B14 - Ground</td>
<td>Constant</td>
<td>Continuity</td>
</tr>
<tr>
<td>A17 - A18</td>
<td>Cabin temperature at 25 °C (77 °F)</td>
<td>Approx. 1.7 kΩ</td>
</tr>
<tr>
<td>A5 - A18</td>
<td>Evaporator temperature at 25 °C (77 °F)</td>
<td>Approx. 1.5 kΩ</td>
</tr>
<tr>
<td>B4 - Ground</td>
<td>Turn ignition switch to ACC</td>
<td>Battery positive voltage</td>
</tr>
<tr>
<td>B13 - Ground</td>
<td>Turn ignition switch to ON</td>
<td>Battery positive voltage</td>
</tr>
<tr>
<td></td>
<td>Turn ignition switch to LOCK or ACC</td>
<td>No voltage</td>
</tr>
<tr>
<td>B12 - Ground</td>
<td>Turn light control switch to &quot;TAIL&quot;</td>
<td>Battery positive voltage</td>
</tr>
<tr>
<td>B5 - Ground</td>
<td>Constant</td>
<td>Battery positive voltage</td>
</tr>
</tbody>
</table>

If the circuit is not as specified, inspect the circuit connected to other parts.
If the circuit is as specified, proceed to "INSPECTION" on page AC-88.
(b) Connect the connector to amplifier and inspect the wire harness side connector from the back side, as shown in the chart.

Test conditions:
- Running engine at idle speed
- Blower speed control dial at “HI” position
- Temperature control dial at “MAX. COOL” position
- A/C switch ON

**From back side:**

![Connector "B" and Connector "A" diagram](image)

<table>
<thead>
<tr>
<th>Tester connection</th>
<th>Condition</th>
<th>Specified condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>A18 - Ground</td>
<td>Constant</td>
<td>Continuity</td>
</tr>
<tr>
<td>A1 - Ground</td>
<td>Hazard switch: OFF</td>
<td>No continuity</td>
</tr>
<tr>
<td></td>
<td>Hazard switch: ON</td>
<td>Continuity</td>
</tr>
<tr>
<td>A2 - Ground</td>
<td>R/F switch: FRESH</td>
<td>Battery positive voltage</td>
</tr>
<tr>
<td></td>
<td>R/F switch: RECIRC</td>
<td>Below 1.0 V</td>
</tr>
<tr>
<td>A3 - Ground</td>
<td>Mode control dial: FACE</td>
<td>Below 1.0 V</td>
</tr>
<tr>
<td></td>
<td>Mode control dial: DEF</td>
<td>Battery positive voltage</td>
</tr>
<tr>
<td>A4 - Ground</td>
<td>Temperature control dial: MAX COOL</td>
<td>Below 1.0 V</td>
</tr>
<tr>
<td></td>
<td>Temperature control dial: MAX HOT</td>
<td>Battery positive voltage</td>
</tr>
<tr>
<td>A6 - A18</td>
<td>Constant</td>
<td>5.0 ± 0.5 V</td>
</tr>
<tr>
<td>A9 - Ground</td>
<td>R/F switch: FRESH</td>
<td>Below 1.0 V</td>
</tr>
<tr>
<td></td>
<td>R/F switch: RECIRC</td>
<td>Battery positive voltage</td>
</tr>
<tr>
<td>A10 - Ground</td>
<td>Mode control dial: DEF</td>
<td>Below 1.0 V</td>
</tr>
<tr>
<td></td>
<td>Mode control dial: FACE</td>
<td>Battery positive voltage</td>
</tr>
<tr>
<td>A11 - Ground</td>
<td>Temperature control dial: MAX HOT</td>
<td>Below 1.0 V</td>
</tr>
<tr>
<td></td>
<td>Temperature control dial: MAX COOL</td>
<td>Battery positive voltage</td>
</tr>
<tr>
<td>A14 - A18</td>
<td>Temperature control dial: MAX HOT</td>
<td>Approx. 1.0 V</td>
</tr>
<tr>
<td></td>
<td>Temperature control dial: MAX COOL</td>
<td>Approx. 4.0 V</td>
</tr>
<tr>
<td>A15 - A18</td>
<td>Mode control dial: DEF</td>
<td>Approx. 1.0 V</td>
</tr>
<tr>
<td></td>
<td>Mode control dial: FACE</td>
<td>Approx. 4.0 V</td>
</tr>
<tr>
<td>A16 - A18</td>
<td>R/F switch: FRESH</td>
<td>Approx. 1.0 V</td>
</tr>
<tr>
<td></td>
<td>R/F switch: RECIRC</td>
<td>Approx. 4.0 V</td>
</tr>
<tr>
<td>B2 - Ground</td>
<td>Parking drake lever: Release</td>
<td>Battery positive voltage</td>
</tr>
<tr>
<td></td>
<td>Parking drake lever: Operate</td>
<td>Below 1.0 V</td>
</tr>
<tr>
<td>B3 - Ground</td>
<td>Pattern select switch: Except PWR</td>
<td>Battery positive voltage</td>
</tr>
<tr>
<td></td>
<td>Pattern select switch: PWR</td>
<td>Below 1.0 V</td>
</tr>
</tbody>
</table>

---

2005 LEXUS IS300 (RM1140U)

**Author:** Date: 2546
<table>
<thead>
<tr>
<th>Circuit</th>
<th>Condition 1</th>
<th>Condition 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>B6 - Ground</td>
<td>Ignition switch: ON</td>
<td>Below 1.0 V</td>
</tr>
<tr>
<td></td>
<td>Ignition switch: OFF</td>
<td>Battery positive voltage</td>
</tr>
<tr>
<td>B7 - Ground</td>
<td>Blower motor: ON</td>
<td>Pulse generation</td>
</tr>
<tr>
<td></td>
<td>Blower motor: OFF</td>
<td>Approx. 5.0 V</td>
</tr>
<tr>
<td>B8 - Ground</td>
<td>Pattern select switch: Except SNOW</td>
<td>Battery positive voltage</td>
</tr>
<tr>
<td></td>
<td>Pattern select switch: SNOW</td>
<td>Below 1.0 V</td>
</tr>
<tr>
<td>B10 - Ground</td>
<td>Passenger seat belt: unfastened</td>
<td>Below 1.0 V</td>
</tr>
<tr>
<td></td>
<td>Passenger seat belt: fasted</td>
<td>Battery positive voltage</td>
</tr>
</tbody>
</table>

If the circuit is not as specified, proceed to “INSPECTION” on page AC-88.

3. **INSTALL A/C CONTROL ASSEMBLY**
   (See page AC-91)
COMPONENTS

w/ LEXUS Navigation System:

- Center Register Cover
- Center Cluster Finish Panel
- A/C Control Assembly
- Brackets
- Radio Assembly
- Lower Center Cluster Finish Panel
REMOVAL

1. REMOVE CENTER CLUSTER FINISH PANEL
   (See page BO-139)

2. REMOVE LOWER CENTER CLUSTER FINISH PANEL
   (See page BO-139)

3. REMOVE A/C CONTROL ASSEMBLY
   (a) Remove the 4 bolts and pull out the A/C control assembly
       with radio assembly, then disconnect the connectors.
   (b) Remove the 12 screws and 2 brackets.
   (c) Separate the A/C control assembly and radio assembly.
**DISASSEMBLY**

1. **REMOVE A/C AMPLIFIER**
   
   (a) Remove the 4 screws.

   (b) Using a screwdriver, release the 4 claws and pull out the A/C amplifier.

   **HINT:**
   Tape the screwdriver tip before use.

   (c) Release the connector lock and pull out the flat harness.

   **NOTICE:**
   Pull the lock of the connector securely toward you and pull off the flexible flat cable.

2. **REMOVE BULBS**

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

3. **REMOVE P/C BOARD**

   Remove the 4 screws and P/C board.
NOTICE:
- Do not let any oil, dirt or foreign object on the connecting part of the P/C board.
- When holding the P/C board by hand, hold it at the edge and do not touch the soldered part and connecting part.
- Do not apply unnecessary force to the jumper lead.
- Do not let the accumulated static electricity in an operator apply to the electronic components.
- Do not tumble the LED as this soldered to the P/C board at right angles.

4. REMOVE DIAL KNOBS
Remove the 6 screws and dial knobs.

NOTICE:
- Do not let any oil, dirt or foreign object attach on the connecting part of the connector.
- Do not deform the contact.
- Be careful not to drop the contact.

5. REMOVE KNOB SETS
Pull out the knob sets.
NOTICE:
Do not let any oil, dirt or foreign object attach on the rubber contact part.

6. REMOVE LENS
INSPECTION

1. INSPECT INDICATOR OPERATION
Connect the positive (+) lead from the battery to terminal 4 and negative (-) lead to each terminal, then check that the indicator lights up as shown in the chart.

<table>
<thead>
<tr>
<th>Switch</th>
<th>Tester connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEF</td>
<td>13</td>
</tr>
<tr>
<td>FRESH</td>
<td>12</td>
</tr>
<tr>
<td>RECIRC</td>
<td>11</td>
</tr>
<tr>
<td>A/C</td>
<td>10</td>
</tr>
</tbody>
</table>

If operation is not as specified, replace the P/C board.

2. INSPECT INDICATOR DIMMING OPERATION
   (a) Perform each indicator light up (See step 1).
   (b) Connect the positive (+) lead from the battery to terminal 1 and check that the each indicator dims.

If the operation is not as specified, replace the P/C board.
If the operation is as specified, replace the A/C amplifier.

3. INSPECT BULB OPERATION
Apply the tester as shown in the illustration to the test for continuity.
If continuity exists, replace the P/C board.
If on continuity exists, replace the bulb.
4. **INSPECT SWITCH OPERATION**

Check the continuity exists between terminals while the switch is pressed.

<table>
<thead>
<tr>
<th>Switch</th>
<th>Tester connection</th>
<th>Specified condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>A/C</td>
<td>15 - 21</td>
<td>Continuity</td>
</tr>
<tr>
<td>DEF</td>
<td>16 - 21</td>
<td>Continuity</td>
</tr>
<tr>
<td>F/R</td>
<td>17 - 21</td>
<td>Continuity</td>
</tr>
</tbody>
</table>

If operations is not as specified, replace the P/C board.
If operations is as specified, check the wire harness or replace the A/C amplifier.
REASSEMBLY
Reassembly is in the reverse order of disassembly (See page AC-85).
INSTALLATION

Installation is in the reverse order of removal (See page AC-84 ).
ENGINE COOLANT TEMPERATURE (ECT) SWITCH INSPECTION

1. REMOVE ENGINE UNDER COVER
2. DRAIN ENGINE COOLANT FROM RADIATOR
   HINT:
   It is not necessary to drain out all coolant

3. REMOVE ENGINE COOLANT TEMPERATURE SWITCH
   (a) Disconnect the connector.
   (b) Remove the engine coolant temperature switch.
   (c) Remove the O-ring from the switch.

4. INSPECT ENGINE COOLANT 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 is no continuity, replace the switch.

5. INSTALL ENGINE COOLANT TEMPERATURE SWITCH
   (a) Install the new O-ring to the switch.
   (b) Install the engine coolant temperature switch.
   Torque: 7.4 N·m (75 kgf·cm, 65 in.-lbf)

6. FILL WITH ENGINE COOLANT TO RADIATOR
7. INSTALL ENGINE UNDER COVER
INSTALLATION
Installation is in the reverse order of removal (See page AC-93).