DAIHATSU

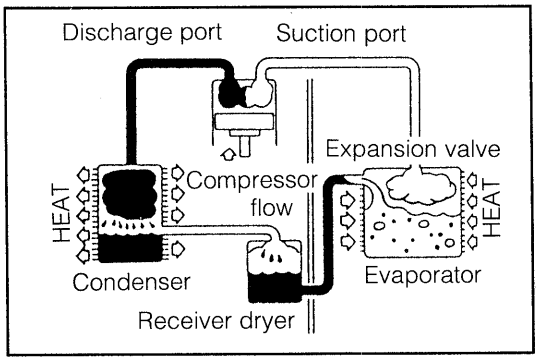
ROCKY

AIR CONDITIONING SYSTEM

WRU90-AC001

AC

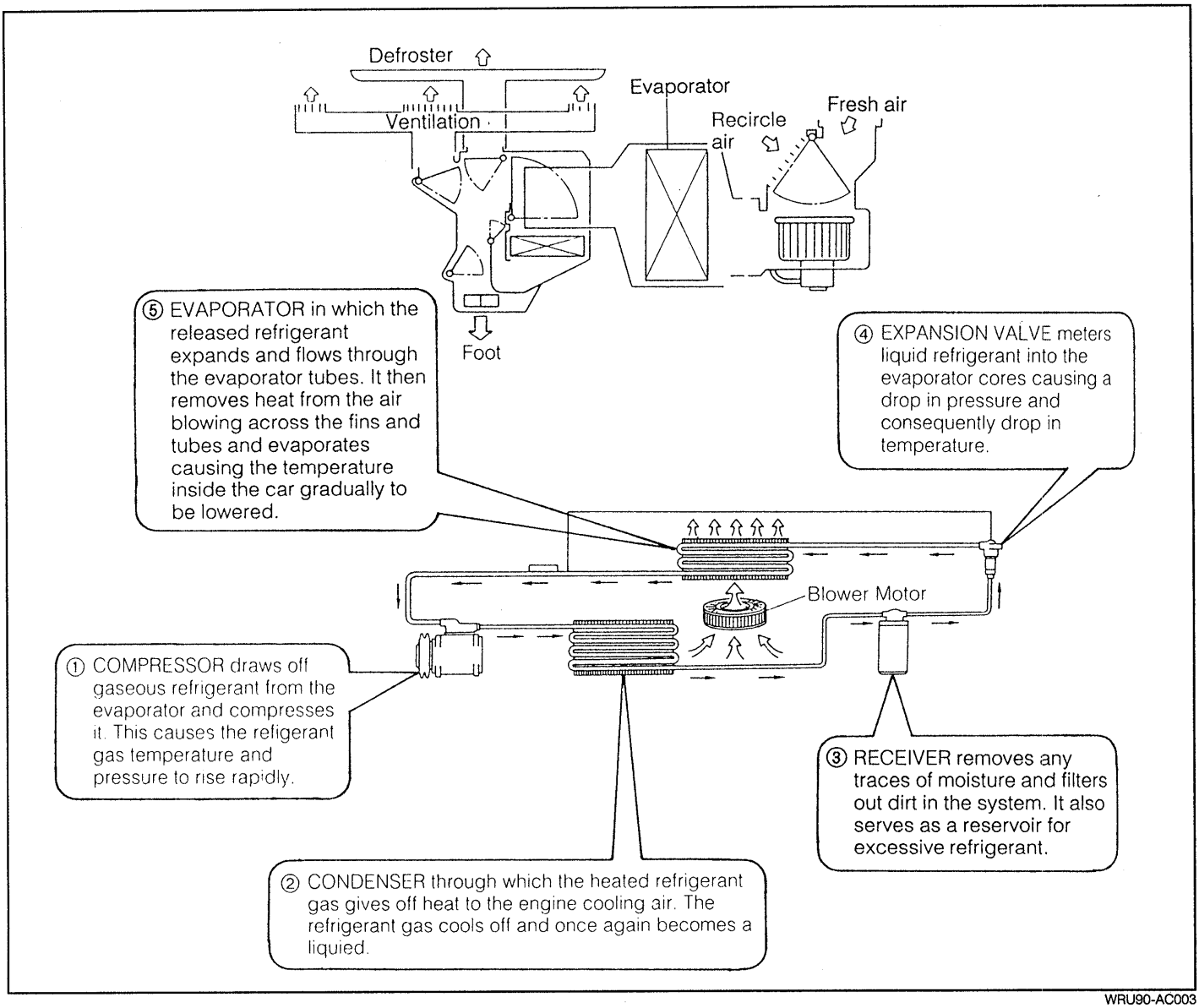
GENERAL DESCRIPTION



REFRIGERATION CYCLE

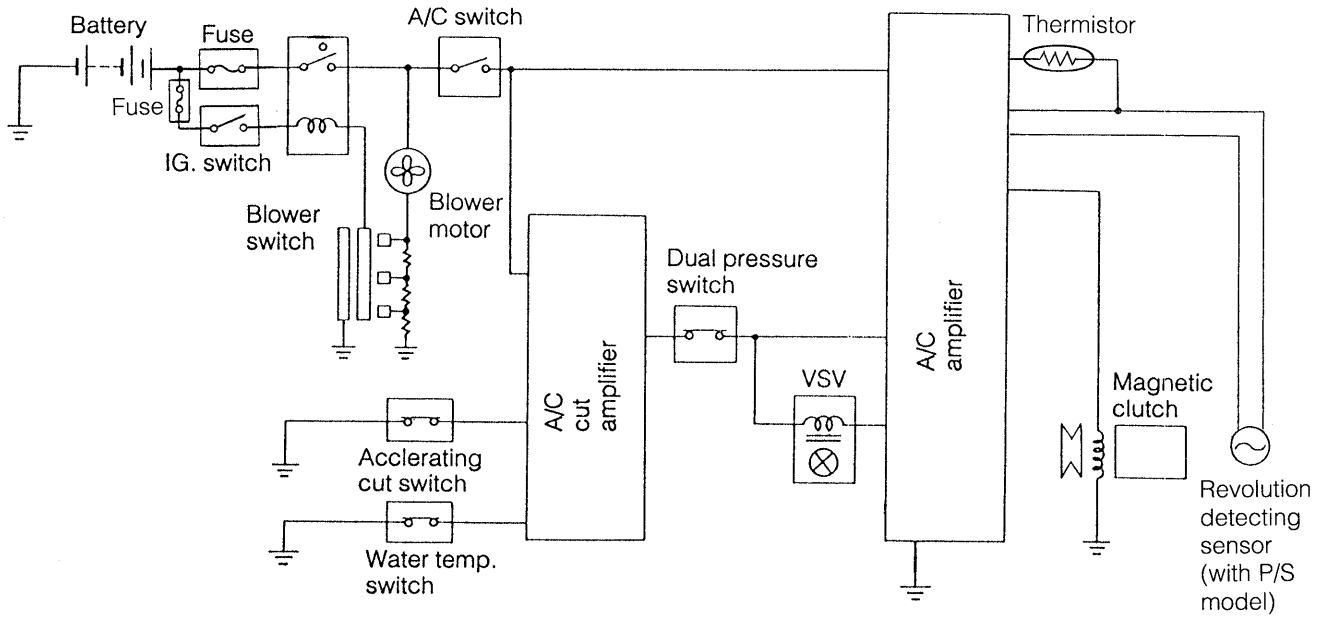
1. The compressor discharges high temperature and high pressure refrigerant that contains the heat absorbed from the evaporator plus the neat created by the compressor in the discharge stroke.
2. This gaseous refrigerant flows into the condenser. In the condenser the gaseous refrigerant condenses into liquid refrigerant.
3. This liquid refrigerant flows into the receiver which stores and filters the liquid refrigerant till the evaporator requires the refrigerant.
4. At the expansion valve the liquid refrigerant changes into low temperature low pressure liquid and refrigerant mixture.
5. This cold refrigerant flows into the evaporator. The heat from the warm air stream passing through the evaporator core is transferred to the refrigerant. All the liquid is change into the gaseous refrigerant in the evaporator and only heat-laden gaseous refrigerant is drawn into the compressor. Then the process is repeated again.

WRU90-AC002



WRU90-AC003

1. PRINCIPLE OF A/C ELECTRICAL CIRCUIT



WRU90-AC004

2. HOW MAGNETIC CLUTCH BE ENERGIZED

The general process until magnetic clutch is energized is shown below.

1. Ignition Switch "ON"
2. Blower Switch "ON"
   Heater Relay "ON" (Blower Motor "RUN")
3. A/C Switch "ON"
   A/C Cut Amplifier "ON"
   A/C Amplifier "ON"
4. Dual Pressure Switch "ON"
   Refrigerant Condition: 2.1 kg/cm^2 (30 psi) - 27 kg/cm^2 (384 psi)
5. Thermistor supplys the signal for temperature of evaporator to amplifier.
6. VSV "ON" Engine idle up.
7. Magnetic Clutch "ON"

WRU90-AC005

PRECAUTIONS

1. When handling refrigerant (R-12), the following precautions should be observed:
   (1) Always wear goggles.
   (2) Keep the refrigerant container (service drum) below 40°C (104°F).
   (3) Do not handle refrigerant in an enclosed area where there is an open flame.
   (4) Discharge refrigerant slowly when purging the system.
   (5) Be careful that liquid refrigerant does not get on your skin.
2. If liquid refrigerant gets in the eyes or on the skin:
   (1) Do not rob.
   (2) Wash the area with a lot of cool water.
   (3) Rush to physician or hospital for immediate professional treatment.
   (4) Do not attempt to treat yourself.
3. When connecting the refrigerant lines:
   (1) Apply a few drops of compressor oil onto the O-ring fittings.
   (2) Tighten the nut using two wrenches to avoid twisting the tube.
   (3) Tighten the O-ring fitting to the specified torque.

WRU90-AC006

Tightening torque for O-ring fittings and bolted type fittings.:

Fitting size		Tightening torque
0.31 inch Tube		1.4 kg-m (10.1 ft-lb, 13.7 N·m)
0.50 inch Tube		2.3 kg-m (16.6 ft-lb, 22.6 N·m)
0.62 inch Tube		3.3 kg-m (23.9 ft-lb, 32.4 N·m)
Bolted Type	(For Compressor)	2.5 kg-m (18.1 ft-lb, 24.5 N·m)
	5.4(For Receiver)	0.55 kg-m (4.0 ft-lb, 5.4 N·m)

WRU90-AC007

SPECIAL TOOLS AND EQUIPMENT

	Name	SST No.	Use
Tool	Air-conditioner magnet clutch stopper	09802-87702-000	To remove and install pressure plate
	Air-conditioner magnet clutch remover	09802-87701-000	To remove pressure plate
	Air-conditioner bit set	09801-87701-000	To remove service valve and front housing
	Air-conditioner seal plate replacer	09953-87701-000	To replace seal plate
	Air-Conditioner seal plate remover	09956-87701-000	To remove seal plate
Equipment	Manifold gauge set	—	To evacuate and charge system
	Ohm meter	—	To diagnosis electrical system
	Voltage meter	—	To diagnosis electrical system

WRU90-AC008

TROUBLE SHOOTING

You will find the troubles easier using the table well shown below. In this table, each number shows the priority of causes in trouble. Check each part in order.

See page	Part name \ Trouble	No blower operation	No compressor operation	Compressor operate intermittently	No condenser fan operation	No cool air comes out	Cool air comes out intermittently	Cool air comes out only at high engine r.p.m.	Insufficient cooling	No engine idle up when A/C switch on
—	Volume of refrigerant		1	1		1	1	1	1	
AC–11	Drive belt tension					2	2	2	2	
AC–47	Fusible link				1					
BE–111	Heater relay	1	2							
BE–109	Blower switch	2								
AC–46	A/C switch		3							
AC–47	Condenser fan relay			2	2					
AC–47	Condenser fan motor			3	3					
AC–24	Compressor		11			7	5	4	7	
AC–24	Magnetic clutch		10			8	6	5	8	
AC–28	Revolution detecting Sensor (With P/S model)		12							
AC–45	Dual pressure switch		4	4						
AC–44	Thermistor		5	5						
AC–48	Water temperature switch		6							
—	Throttle switch		7							
AC–49	A/C amplifier		8	6	4					2
AC–51	A/C cut-off amplifier		9	7						3
AC–38	Condenser					3		3	3	
AC–39	Receiver					6	3		6	
AC–41	Evaporator					4			5	
AC–41	Expansion valve					5	4		4	
AC–52	Vacuum switching valve (VSV)									1
AC–21 to AC–23	Wiring & its connection		12	8						4

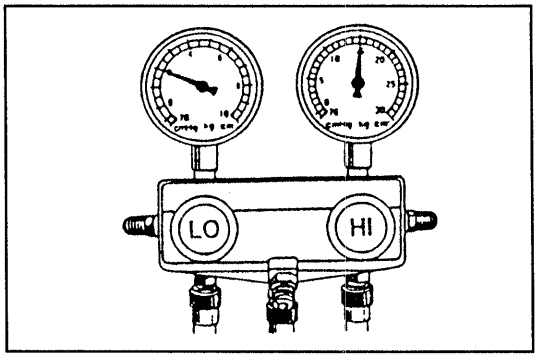
WRU90-AC009

CHECKING OF REFRIGERATION SYSTEM WITH MANIFOLD GAUGE

This is a method in which the trouble is located by using a manifold gauge.
Read the manifold gauge pressure with the following established conditions:
(1) Temperature at the air inlet is 30 - 35°C (86 - 95°F)
(2) Engine running at 1,500 rpm
(3) Blower speed set at high
(4) Temperature control lever set at cool

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

WRU90-AC010



1. Normally functioning refrigeration system

Gauge Reading:

Low pressure side

15 - 20 kg/cm^2 (21 - 28 psi)

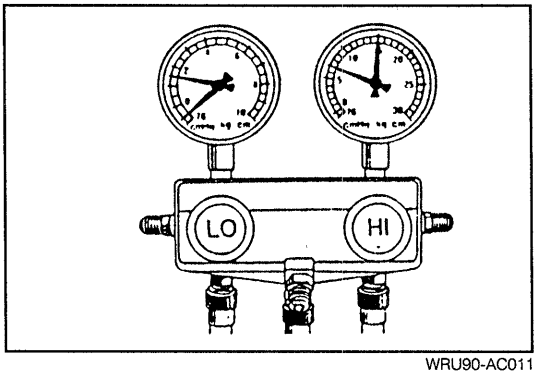
High pressure side

13.0 - 15.0 kg/cm^2 (182 - 213 psi)

2. Moisture present in refrigeration system

Condition:

Periodically cools and then fails to cool



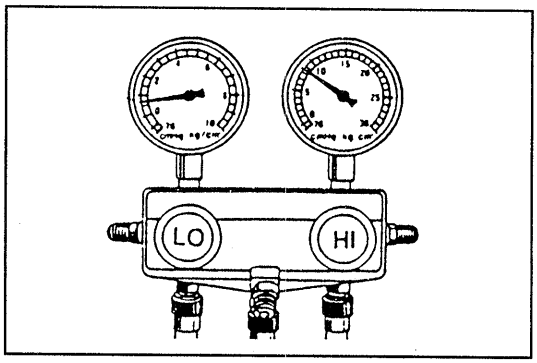
WRU90-AC011

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

WRU90-AC012

3. Insufficient refrigerant

Condition: Insufficient cooling



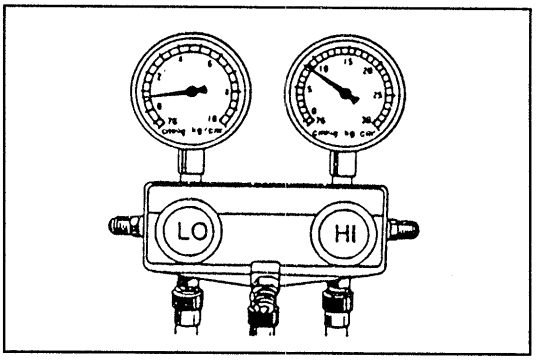
WRU90-AC013

Symptom seen in refrigeration system	Probable cause	Diagnosis	Remedy
Pressure low at both low and high pressure sides Bubbles seen in sight glass Insufficient cooling performance	Gas leakage at some place in refrigeration system	Insufficient refrigerant in system Refrigerant leaking	(1) Check with leak detector and repair (2) Charge refrigerant to proper amount

WRU90-AC014

4. Poor circulation of refrigerant

Condition: Insufficient cooling



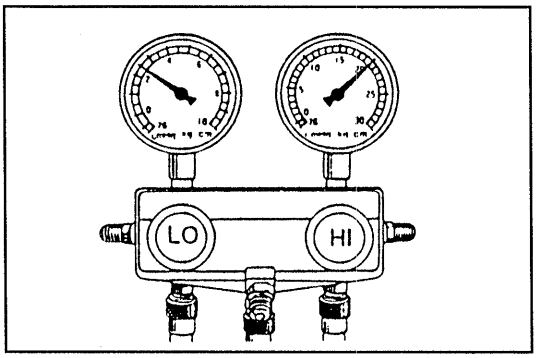
WRU90-AC015

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

WRU90-AC016

5. Refrigerant overcharge or insufficient cooling of condenser

Condition: Does not cool sufficiently



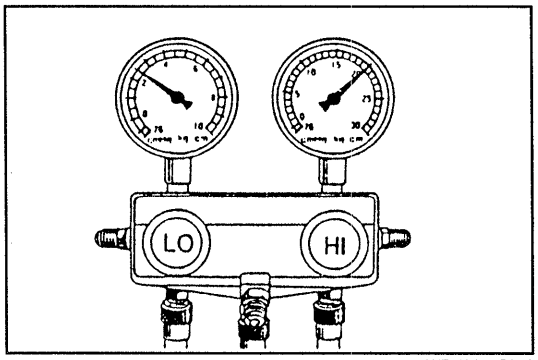
WRU90-AC017

Symptom seen in refrigeration system	Probable cause	Diagnosis	Remedy
Pressure too high at both low and high pressure sides	Unable to develop sufficient performance due to excessive refrigerant in system Condenser cooling insufficient	Excessive refrigerant in cycle → refrigerant overcharged Condenser cooling insufficient → condenser fins clogged or fan motor faulty	(1) Clean condenser (2) Check fan motor operation (3) If (1) and (2) are normal, check amount of refrigerant NOTE: Vent out refrigerant through gauge manifold low pressure side by gradually opening valve.

WRU90-AC018

6. Expansion valve improperly mounted/heat sensing tube defective (opens too wide)

Condition: Insufficient cooling



WRU90-AC019

Symptom seen in refrigeration system	Probable cause	Diagnosis	Remedy
Pressure too high at both low and high pressure sides Frost or large amount of dew on piping at low pressure side	Trouble in expansion valve or heat sensing tube not installed correctly Refrigerant flow out of adjustment	Excessive refrigerant in low pressure piping Expansion valve opened too wide	(1) Check heat sensing tube installed condition (2) If (1) is normal, test expansion valve in unit Replace if defective

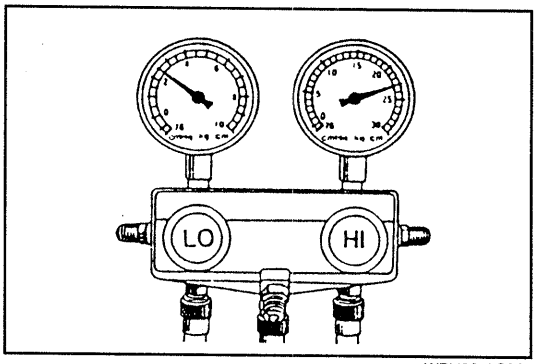
WRU90-AC020

7. Air present in refrigeration system

Condition: Does not cool sufficiently

NOTE:

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



WRU90-AC021

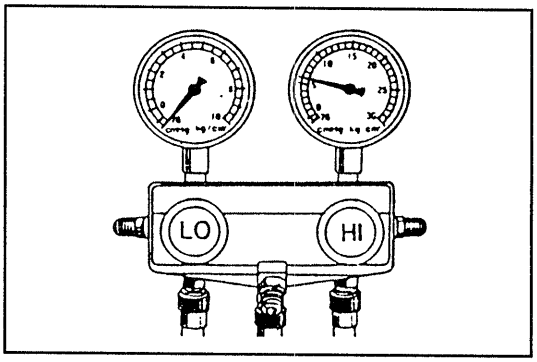
Symptom seen in refrigeration system	Probable cause	Diagnosis	Remedy
Pressure too high at both low and high pressure sides	Air entered refrigeration system	Air present in refrigeration system Insufficient vacuum purging	(1) Replace receiver and direr (2) Check compressor oil to see If dirty or insufficient (3) Vacuum purge and Charge new refrigerant

WRU90-AC022

8. Refrigerant does not circulate

Condition:

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



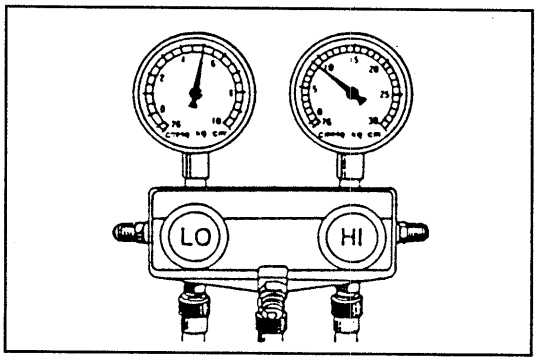
WRU90-AC023

Symptom seen in refrigeration system	Probable cause	Diagnosis	Remedy
Vacuum indicated at low pressure side and very low pressure indicated at high pressure side Frost or dew seen on piping before and after receiver and drier or expansion valve	Refrigerant flow obstructed by moisture or dirt in refrigerant freezing or adhering to expansion valve orifice Refrigerant flow obstructed by gas leakage from expansion valve heat sensing tube	Expansion valve orifice clogged Refrigerant cues not few	Allow to stand for some time and then restart operation to determine if trouble is caused by moisture or dirt. If caused by moisture refer to step 2 on page AC–6. If caused by dirt, remove expansion valve and clean off dirt by blowing with air. If unable to remove dirt, replace valve. Vacuum purge and charge new refrigerant to proper amount. For gas leakage from heat sensing tube, replace expansion valve.

WRU90-AC024

9. Insufficient compression

Condition: Does not cool



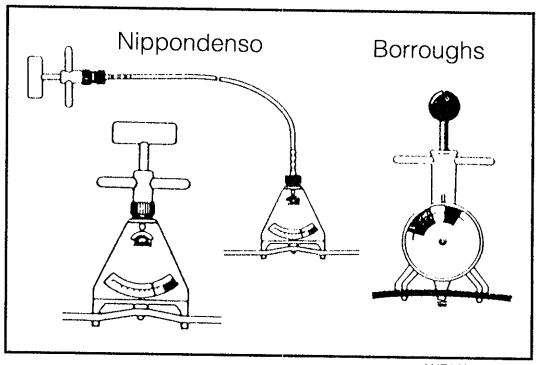
WRU90-AC025

Symptom seen in refrigeration system	Probable cause	Diagnosis	Remedy
Pressure too high at low Pressure side Pressure too low at high Pressure side	Internal leak in compressor	Compression defective Valve leaking or broken sliding parts (Piston, cylinder, gasket, etc.,) broken	Repair or replace compressor

WRU90-AC026

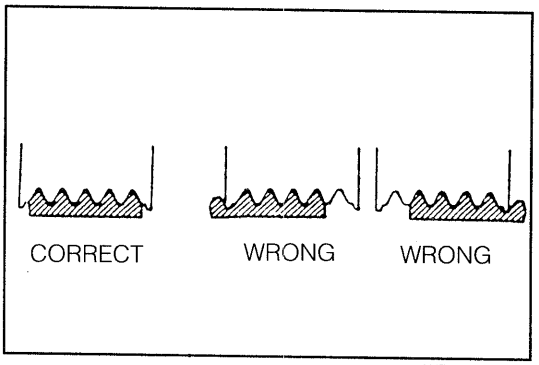
IN-VEHICLE INSPECTION

1. Check the condenser fins for blockage or damage.
   If the fins are clogged, clean them with pressurized water
   CAUTION:
   - Be careful not to damage the fins.



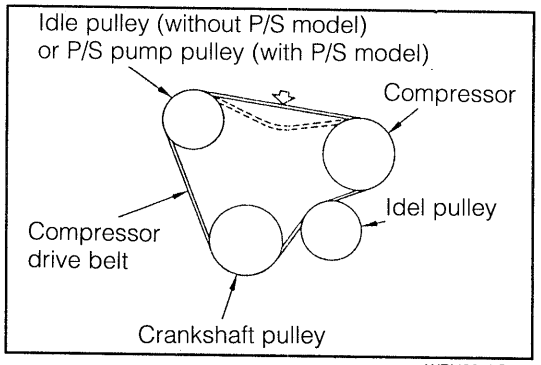
WRU90-AC027

2. Check the drive belt tension.
   Using a belt tension gauge, check the drive belt tension.
   Belt Tension Gauge:
   Nippondenso BTG-20 (95506-00020) or
   Burroughs No. BT-33-73F
   Drive Belt Tention:
   New belt 75 ± 12kg (165 ± 26 lb)
   Used belt 60 ± 10 kg (132 ± 22 lb)



WRU90-AC028

   NOTE:
   - "New belt" refers to a belt which has been used less than 5 minutes on a running engine.
   - "Used belt" refers to a belt which has been used on a running engine for 5 minutes or more.



WRU90-AC029

3. Start the engine.

4. Turn on the A/C switch.
   Check that the A/C operates at each position of the blower switch.
   If blower does not operate, check fuse.

5. Check the magnetic clutch operation.

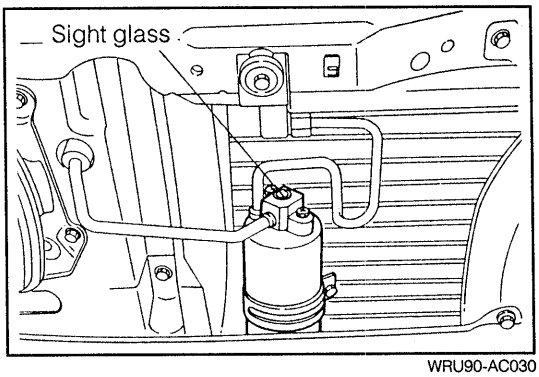
6. Check that idle increases.
   When the magnetic clutch engages, engine revolution should increase.
   Standard Idle-up rpm: 1100 ± 50 rpm

7. Check the condenser fan motor rotates.

8. Check amount of refrigerant.
   If you can see bubbles in the sight glass, additional refrigerant is needed.

9. If no or insufficient cooling, inspect for leakage.
   Using a gas leak detector, inspect each component of the refrigeration system.

REFRIGERATION SYSTEM



WRU90-AC030

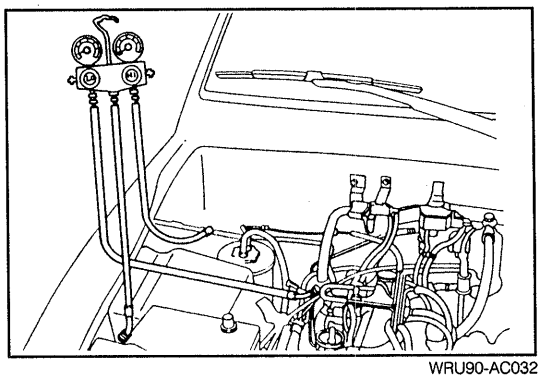
Checking of refrigerant charge

1. Run the engine at fast idle.
2. Operate the air conditioner at maximum cooling for a few minutes.
3. Check amount of refrigerant.
   Remove the air cleaner and observe the sight glass.

Item	Symptom	Amount of refrigerant	Remedy
1	Bubbles present in sight glass	Insufficient	Check for leak with gas leak detector
2	No bubbles present in sight glass	Empty, proper or too much	Refer to items 3 and 4
3	No temperature difference between compressor inlet and outlet	Empty or nearly empty	Evacuate and charge system. Then check for leak with gas leak detector
4	Temperature between compressor inlet and outlet is noticeably different	Proper 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	Discharge excess refrigerant to specified amount
6	When air conditioner is turned off, refrigerant foams and then stays clear	Proper	—

WRU90-AC031

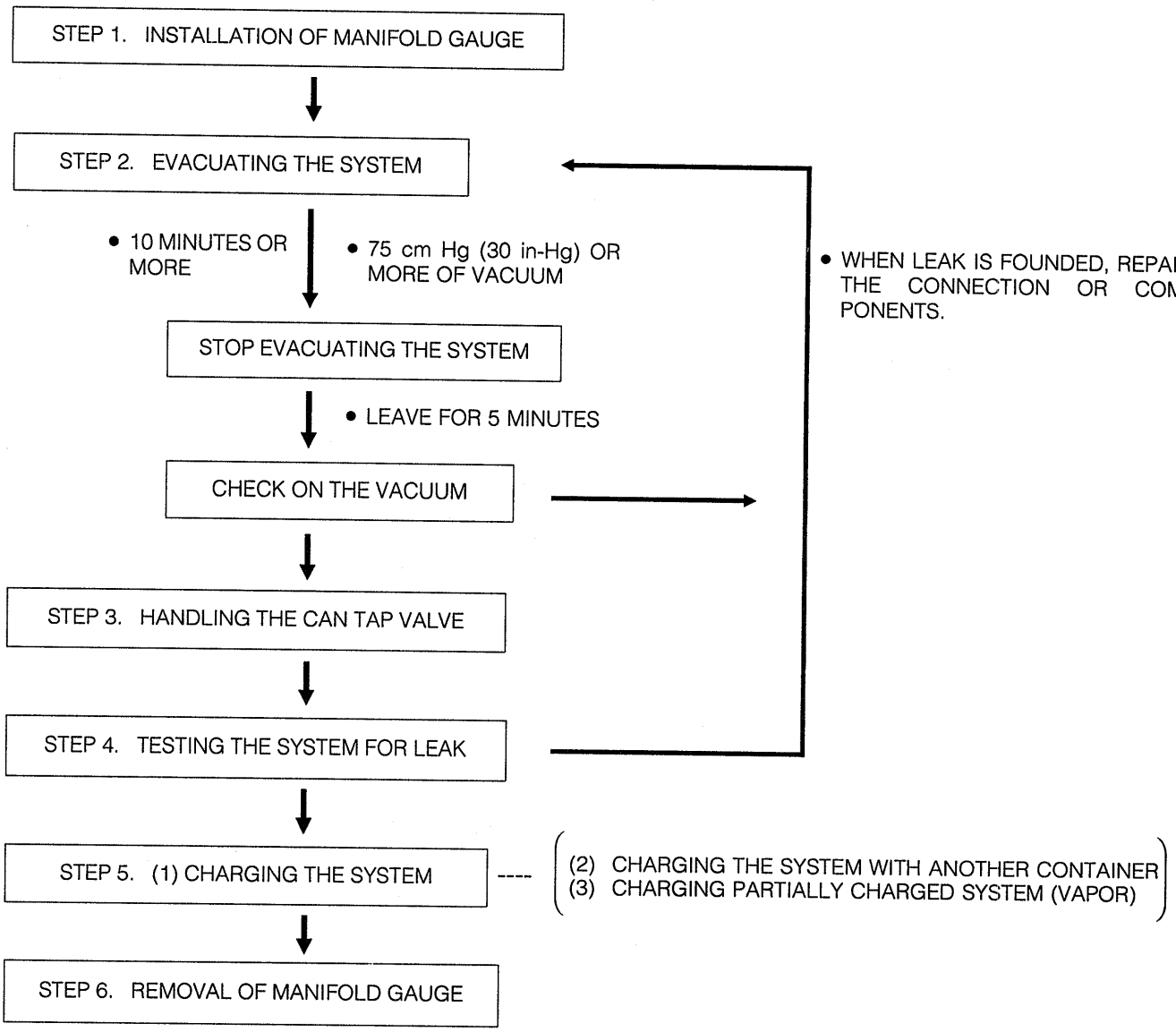
INSTALLATION OF MANIFOLD GAUGE SET


WRU90-AC032

1. Close both hand valves of manifold gauge set.
2. Installation of charging hoses of gauge set to charging valves.
   (1) Connect the low pressure hose to the low pressure charging valve and the high pressure hose to the high pressure charging valve. Tighten the hose nuts by hand.

   NOTE:
   - Do not apply compressor oil to the seat of the connection.

EVACUATING AND CHARGING OF REFRIGERATION SYSTEM



WRU90-AC033

CAUTIONS FOR HANDLING THE REFRIGERANT

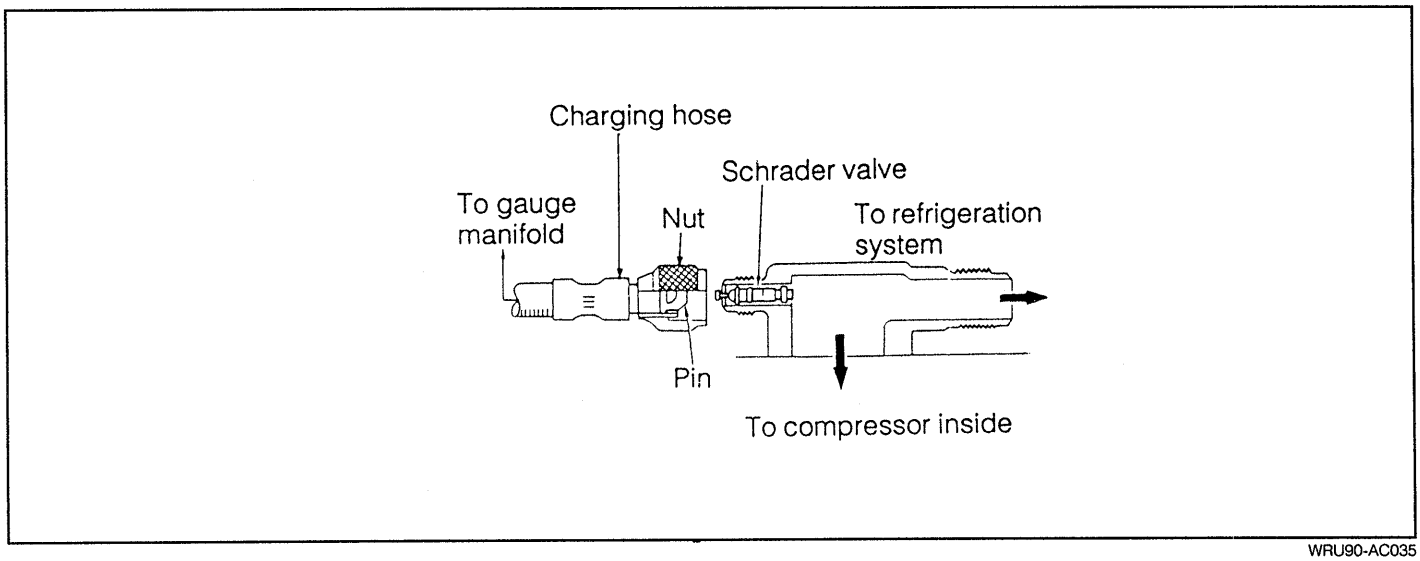
1. When handling refrigerant, the following precautions must be observed.
   (1) Always wear eye protection while handling refrigerant.
   (2) The refrigerant container must never be heated.
   Store the refrigerant container below 40°C (104°F).
   (3) Do not handle refrigerant in an enclosed area where it is exposed to an open frame.
   (4) Care must be taken to protect eyes and skin from refrigerant.

2. If refrigerant strike eyes or skin.
   (1) Do not rub the affected areas.
   (2) Splash large quantities of cool water on the eyes or skin.
   (3) Do not attempt to treat the patient by yourself, rush the patient to a doctor or hospital for immediate professional treatment.

WRU90-AC034

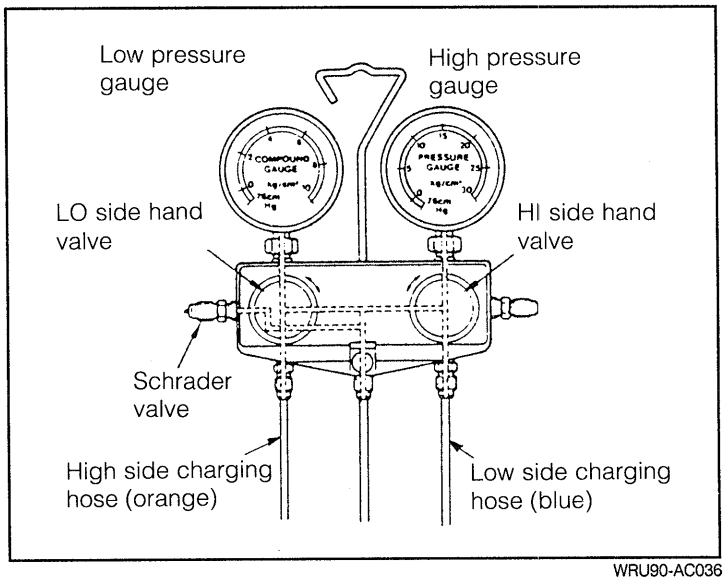
STEP 1. INSTALLATION OF MANIFOLD GAUGE

NOTE:
- Each service valve fitting has a schrader type valve as shown.
- The charging hose end, with pin attached, should be fitted to the service valve to open this valve.



WRU90-AC035

1. Close both hand valves of manifold gauge.
2. Remove the valve caps from the service valve fittings.
3. Connect the low side charging hose (blue) of the manifold gauge to the suction service valve and high side charging hose (red) to the discharge service valve.
   NOTE:
   - Do not apply compressor oil to the seat of the connection.
   - Discharge service valve is smaller in size and requires an adaptor to the red high side charging hose.



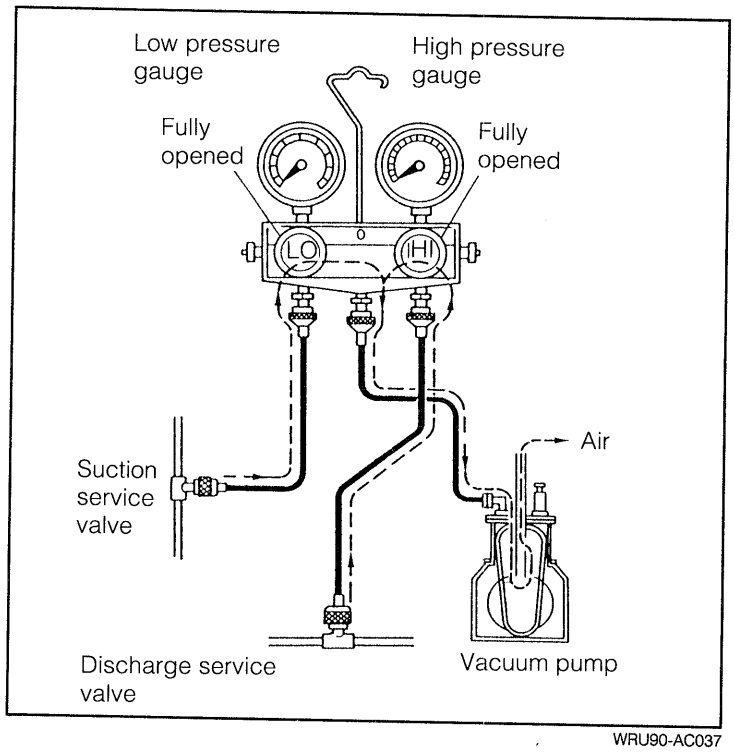
WRU90-AC036

STEP 2. EVACUATING THE SYSTEM

NOTE:
- Whenever the air conditioner system has been opened (exposed to atmosphere), it must be evacuated using a vacuum pump.

1. Install the manifold gauge to the service valves as in step 1.
2. Connect the center charging hose of manifold gauge to the vacuum pump inlet.
3. Run the vacuum pump, then open both hand valves.
4. Evacuate the system for 10 minutes or more, confirm that the low pressure gauge should read 75 cm-Hg (30 in-Hg) or more of vacuum, then close both hand valves and stop the vacuum pump.
5. Check the low side pressure gauge for needle movement for 5 minutes.
   NOTE:
   - The low pressure gauge should read 75 cm-Hg (30 in-Hg)or more of vacuum. This will occur if there is no leak.
   - An increase in low pressure gauge reading means that there is a leak. This must be repaired and then repeat item 3 thru 5.
6. Disconnect the center charging hose from the vacuum pump inlet.

The system is now ready for charging.



WRU90-AC037

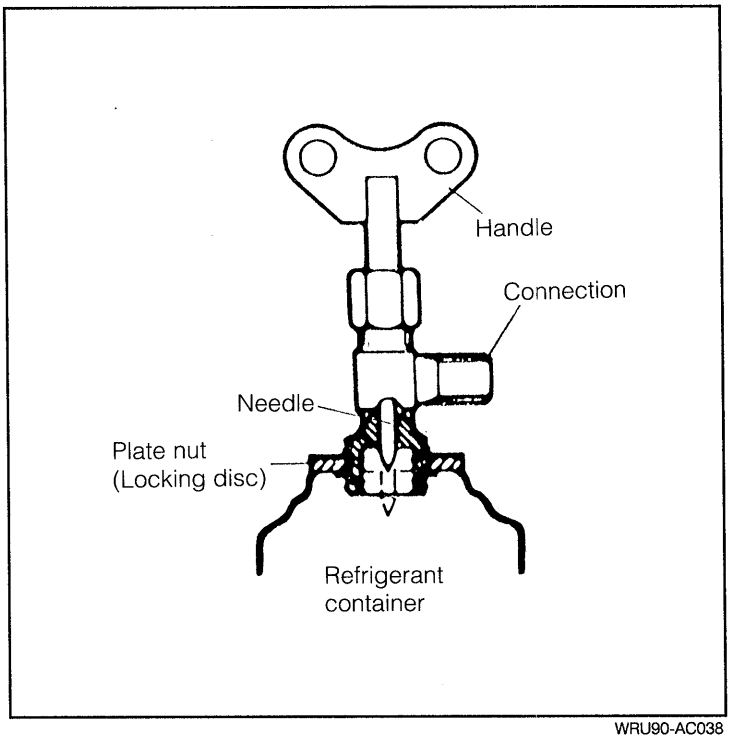
STEP 3. HANDLING CAN TAP VALVE

1. Before putting the can tap valve on the refrigerant container, thru the handle out counterclockwise until the valve needle is fully retracted.
2. Turn the plate nut (locking disc) counterclockwise until it reaches its highest position and then screw down the can tap valve onto the refrigerant container.
3. Holding the body of the can tap valve, install the can tap valve to the refrigerant container and turn the plate nut clockwise fully.
4. Connect the center charging hose to the valve fitting of can tap valve.
5. Turn the handle clockwise to pierce a hole in the top of the container.
6. Turn the handle counterclockwise fully to fill the center charging hose with refrigerant.
   CAUTION:
   - **Do not open the high and low side hand valves.**

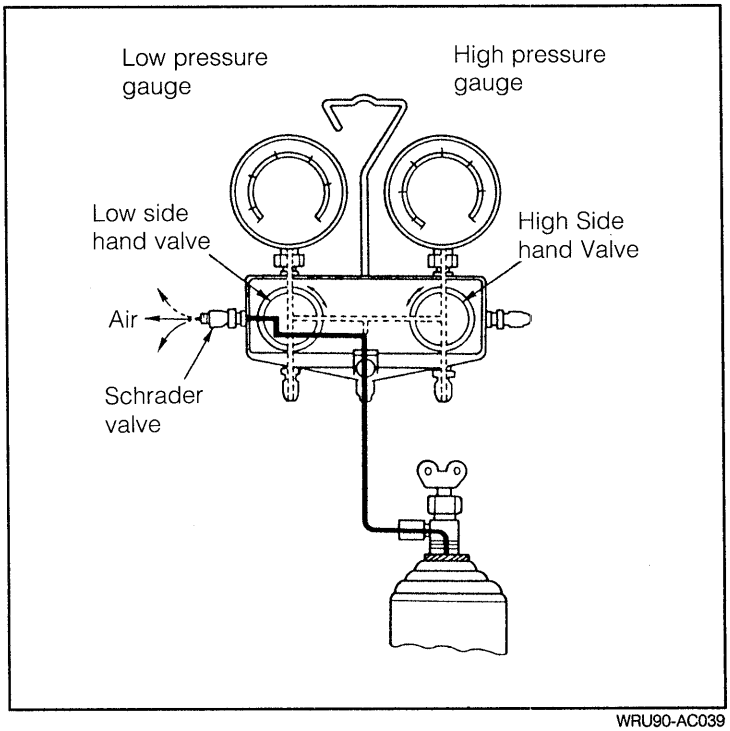
7. Open the schrader valve of the manifold gauge to allow air to escape for a few second until a hiss can be heard.

   WARNING:
   Refrigerant will escape from the schrader valve of the manifold gauge hoses so care must be taken to protect eyes and skin when purging air.

The refrigerant container is ready for charging.



WRU90-AC038



WRU90-AC039

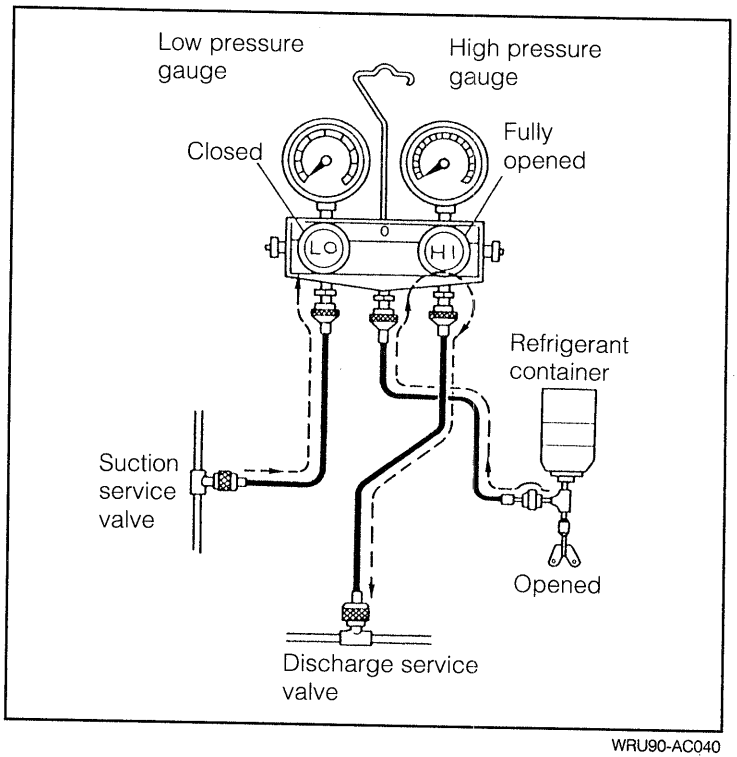
STEP 4. TESTING THE SYSTEM FOR LEAKS

NOTE:

- After finishing the evacuation of the system, check the system for leaks using an electronic leak detector as described below.

1. Attach the can tap valve to a refrigerant container and connect the center charging hose to the can tap valve as in step 3.
2. Open the high side hand valve to charge the system with refrigerant vapor.
3. When the low pressure gauge reads 1kg/cm^2 14 psi, close the high side hand valve.
4. Check the system for leaks.
   When a leak is found, repair the defective components or connection.

The system is now ready ready for charging.



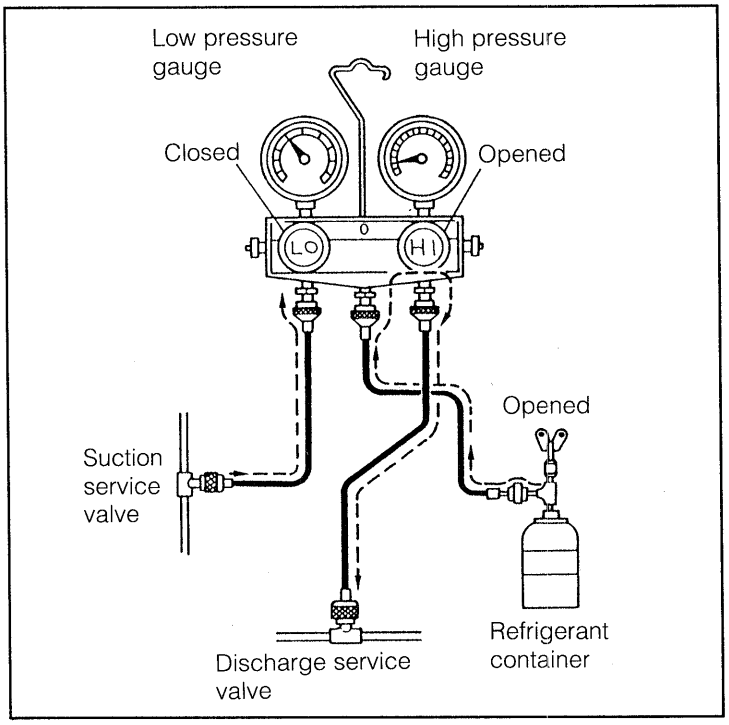
WRU90-AC040

STEP 5. (1) CHARGINE THE SYSTEM

NOTE:
- This step is for charging an empty system through the high pressure side with refrigerant in a liquid state, after testing the system for leaks.
- When the refrigerant container is held upside down, refrigerant will enter the system as a liquid.

CAUTION:
- Never run the engine when charging the system through the high pressure side.
- Do not open the low side hand valve when the refrigerant is being charged in a liquid state (refrigerant container up side down).

1. Open the high side hand valve fully, and keep the container upside down.
2. Charge the system with specified amount of the refrigerant. The close the high side hand valve.
3. When the container becomes empty in the middle of charging the refrigerant, close the high side hand valve and exchange the container as in step 5. (2)
   CAUTION:
   - Be careful not to overcharge the system with refrigerant because it could failure of the compressor and magnetic clutch.



WRU90-AC041

(2) CHARGING SYSTEM WITH ANOTHER CONTAINER

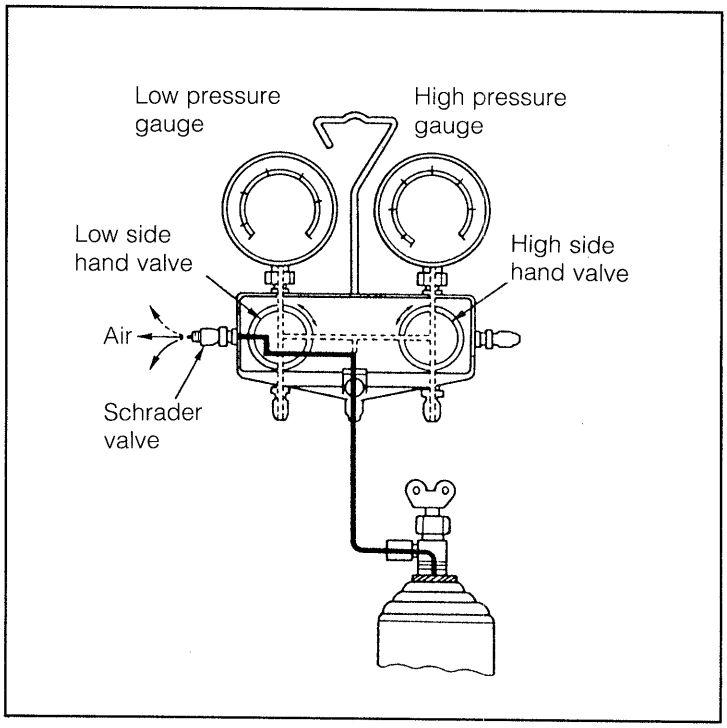
NOTE:
- This step is for exchanging an empty container for a full container.

1. When the refrigerant container is empty, close the manifold gauge hand valve.
2. Remove the can tap valve from the container.

WARNING:
Refrigerant will escape from the manifold gauge hoses so care must be taken to protect eyes and skin when removing the hoses.

3. Attach the can tap valve to a new refrigerant container as in step 3 item 1 thru 3.
4. Make a hold in the sealed top of the new container as in step 3 item 5 thru 6.
5. Purge the air from the center charging hose as in step 3 item 7.

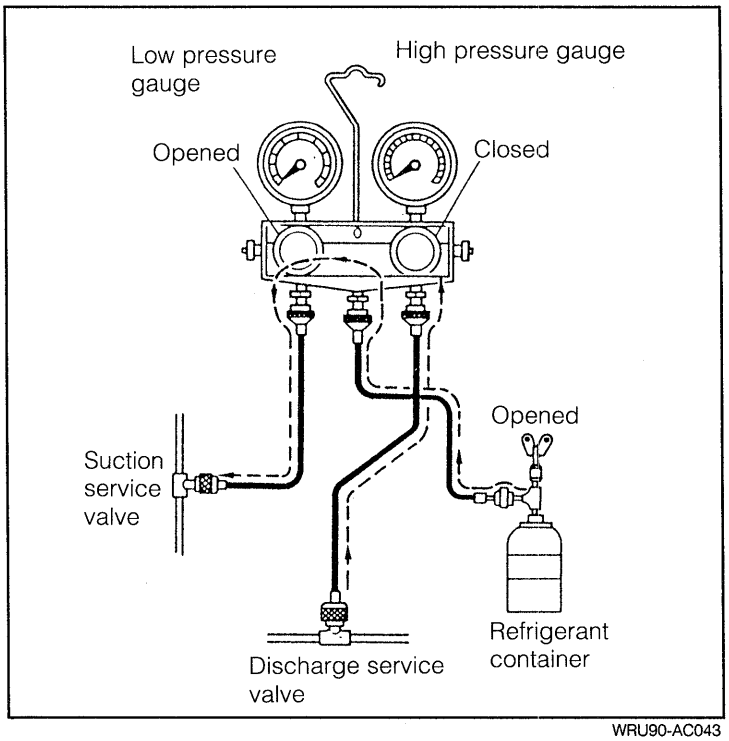
The system is now ready for charging.



WRU90-AC042

(3) CHARGING PARTIALLY CHARGED SYSTEM (VAPOR)

NOTE:
- This step is for partially charging a system through the low pressure side with the refrigerant in a vapor state, when a specified amount of refrigerant could not be charged into the system from high pressure side.



WRU90-AC043

1. Run the engine at 1500rpm, and operate the air conditioner.
2. Open the low side hand valve.
   CAUTION:
   - Never open the high side hand valve.
   - Be sure to keep the container upright to prevent liquid refrigerant from being charged into the system through the suction side, resulting in possible damage the compressor.

   Filling Amount of Refrigerant Gas:
   750 ± 50 grams

CAUTION:
- Be careful not to overcharge the system with refrigerant because it could cause failure of the compressor and magnetic clutch.

REMARKS:
- When the sight glass is free of any bubbles, close the low side hand valve and stop the engine.

WRU90-AC044

STEP 6. REMOVAL OF MANIFOLD GAUGE

NOTE:
- This step is for removing a manifold gauge, after charging the system with refrigerant.

1. Turn the handle of the can tap valve clockwise to close the valve attached to the refrigerant container.
2. Using a shop towel, push the low side charging hose fitting to the suction service valve and loosen the fitting nut of the charging hose then quickly remove the charging hose from the service valve.
3. Perform item 2 to remove the high side charging hose from the discharge service valve.

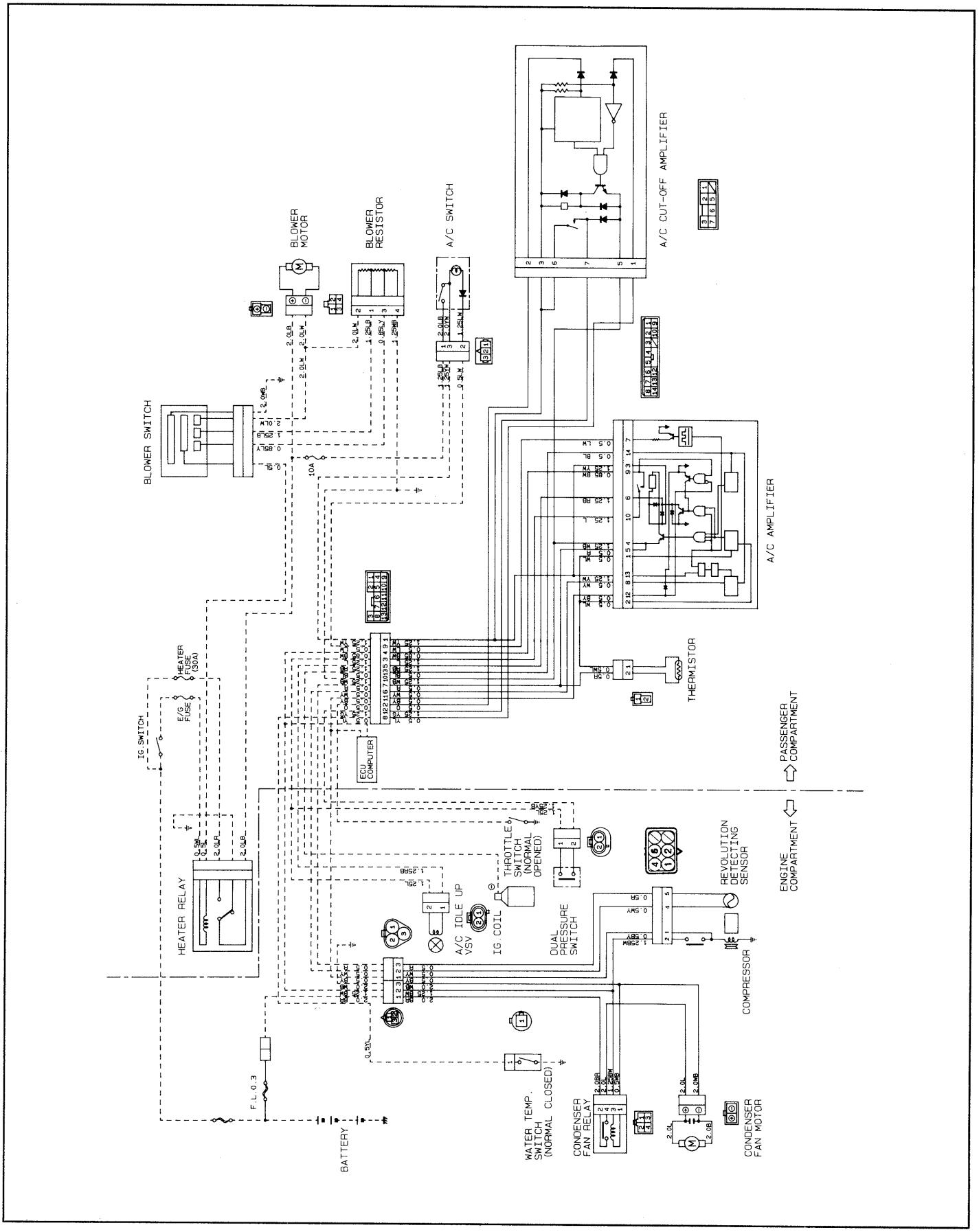
WARNING:
The refrigerant will escape from the manifold gauge hoses during the operation above.
Hence, utmost care must be taken to protect your eyes and skin when removing the hoses.

4. Reinstall the valve caps to the service valve fittings.

WRU90-AC045

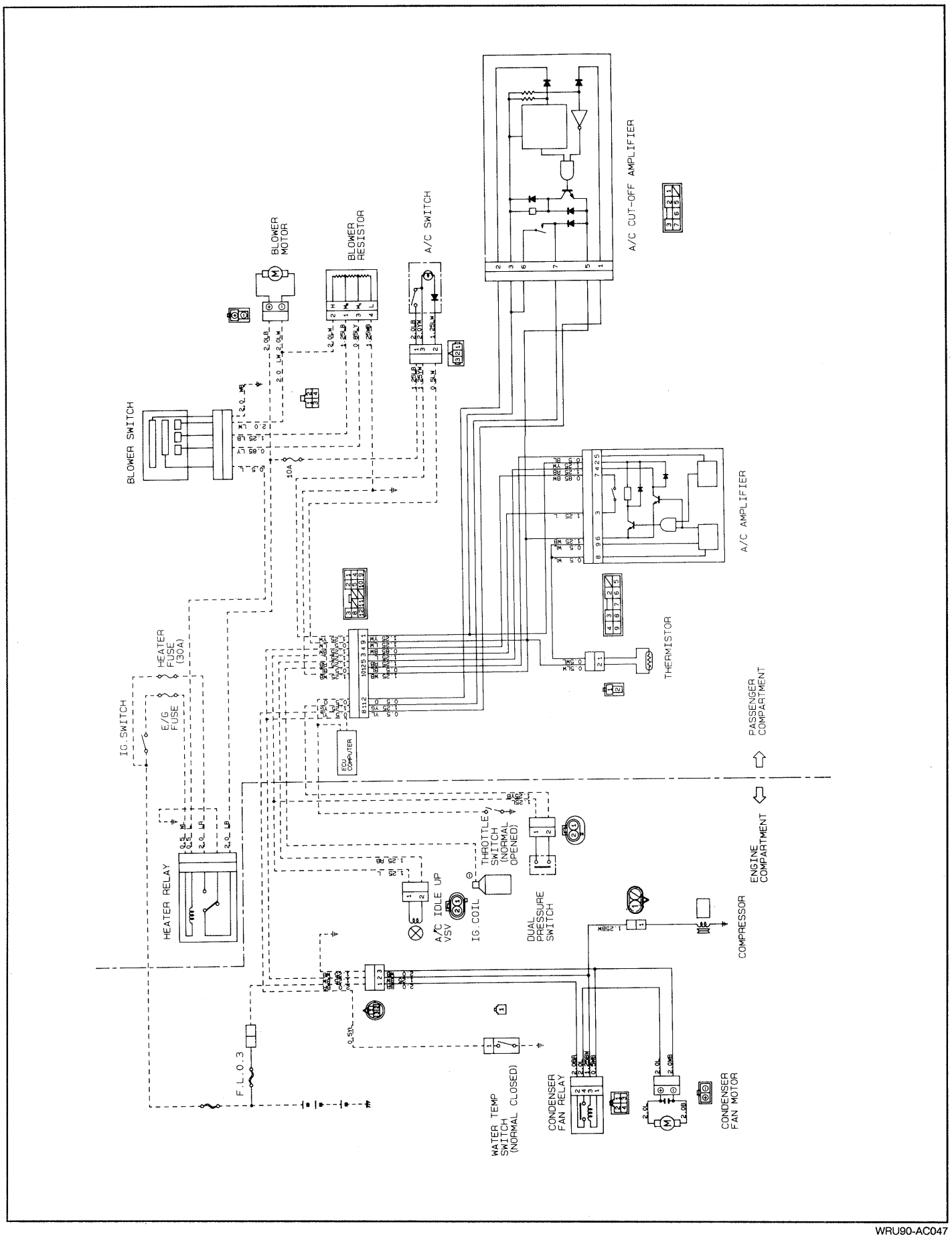
WIRING DIAGRAM

VEHICLE WITH POWER STEERING



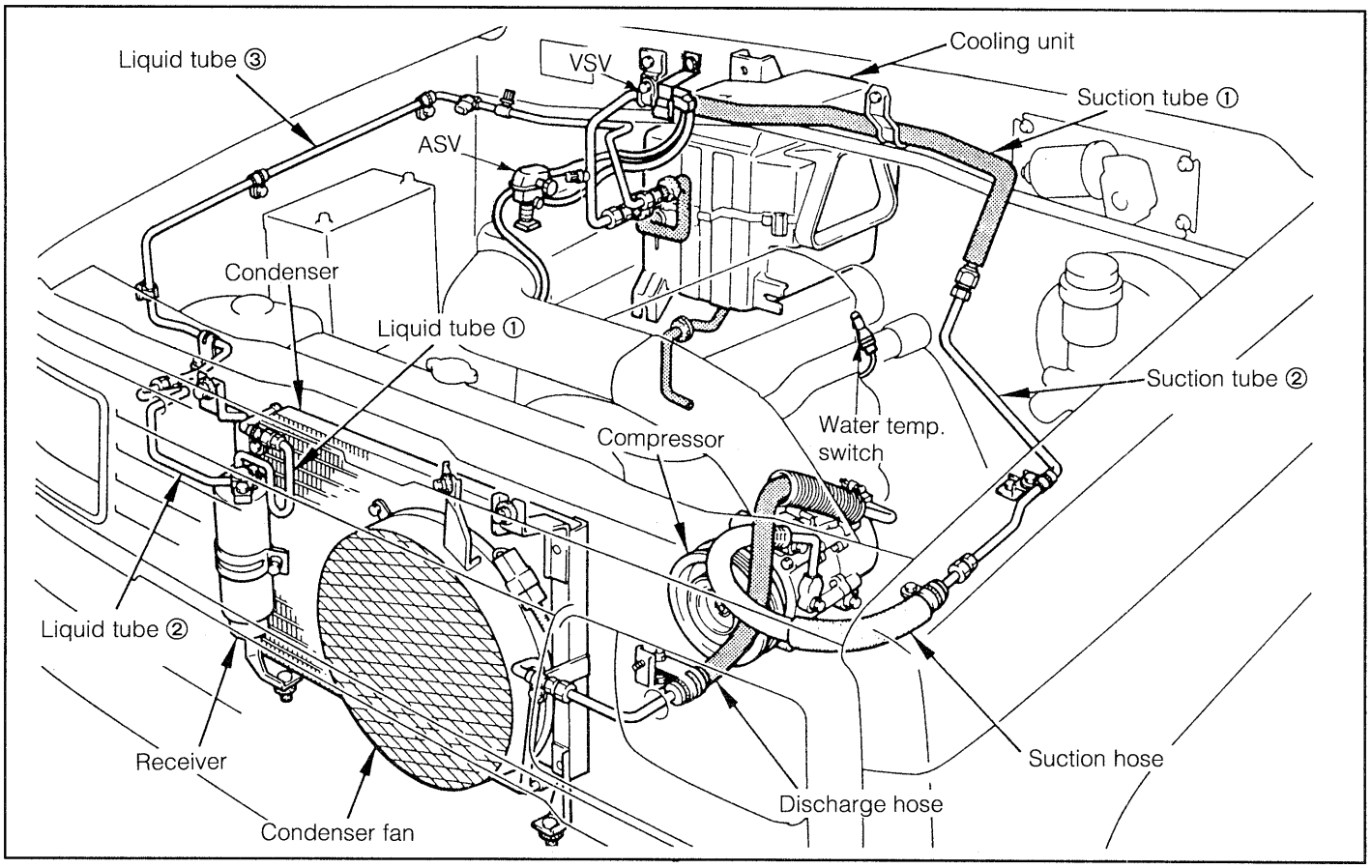
WRU90-AC046

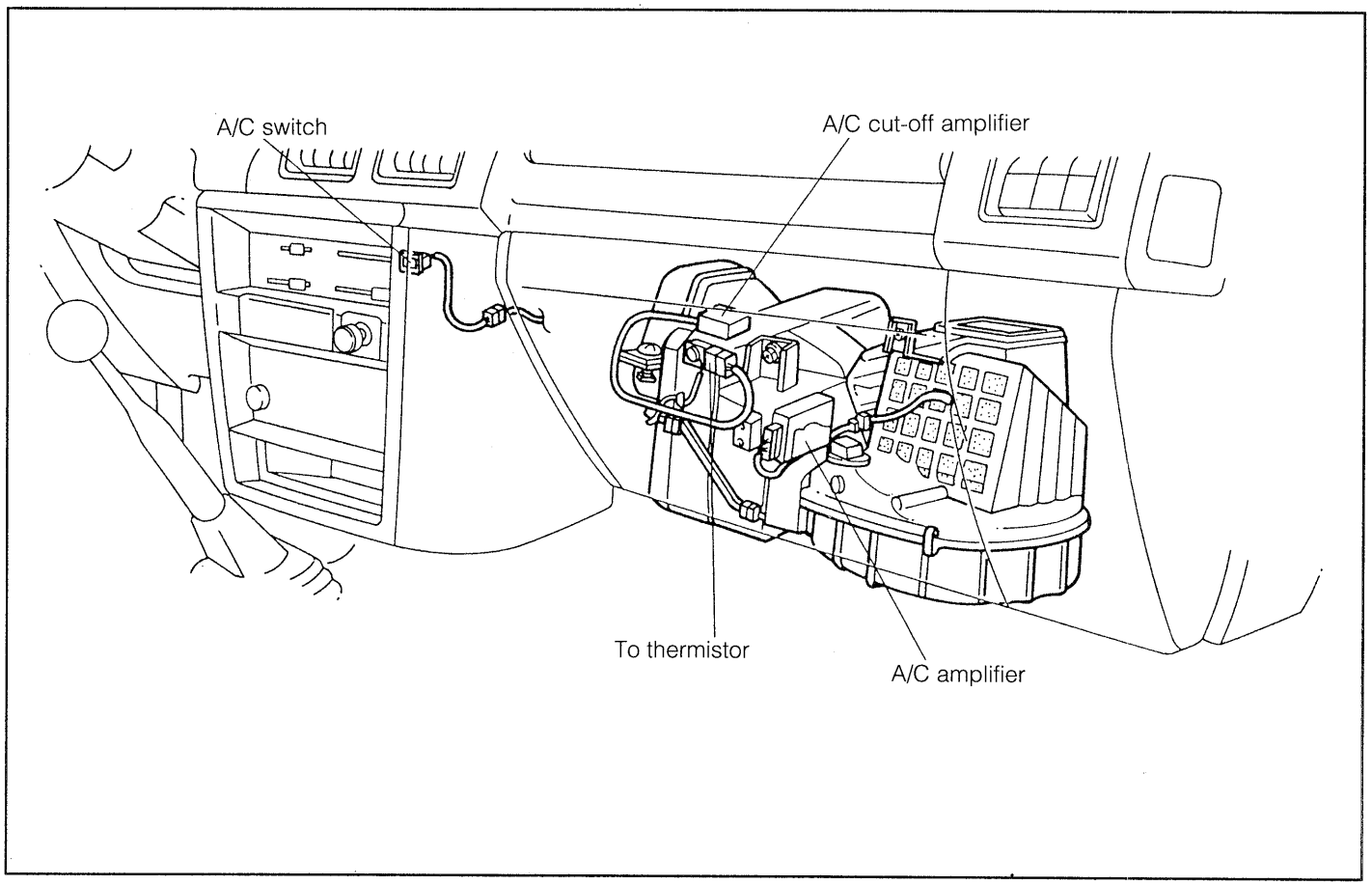
VEHICLE WITHOUT POWER STEERING



WRU90-AC047

SYSTEM COMPONENTS



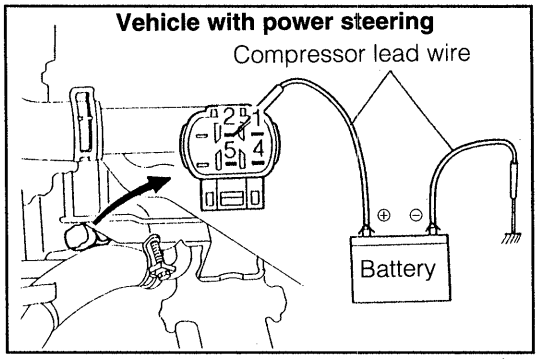


WRU90-AC048

COMPRESSOR

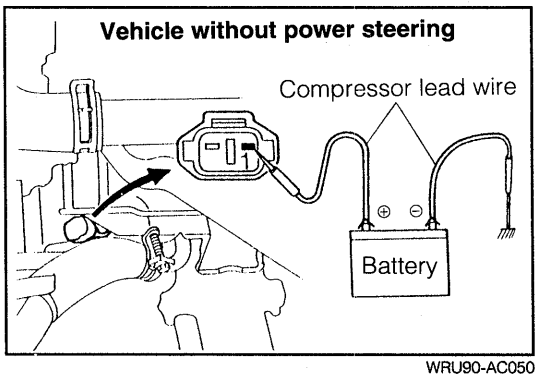
IN-VEHICLE INSPECTION (MAGNETIC CLUTCH)

1. Inspect magnetic clutch for following
   (1) Inspect the pressure plate and the rotor for signs of oil.
   (2) Check the clutch bearings for noise and grease leakage.



WRU90-AC049

   (3) Connect the positive (+) lead from the battery to the terminal on the magnetic clutch connector and the negative (–) lead to the body ground.
   (4) Check that the magnetic clutch is energized.
   If the magnetic clutch is not energized, replace the magnetic clutch.



WRU90-AC050

(COMPRESSOR)

1. Install manifold gauge set.
2. Run engine at the first idle.
3. Inspect compressor for following.
   (1) High pressure gauge reading is not lower and low pressure gauge reading is not higher than normal.
   (2) Check that the metallic sound.
   (3) Check that the leakage from shaft seal.
   If defects are found, replace the compressor.

WRU90-AC051

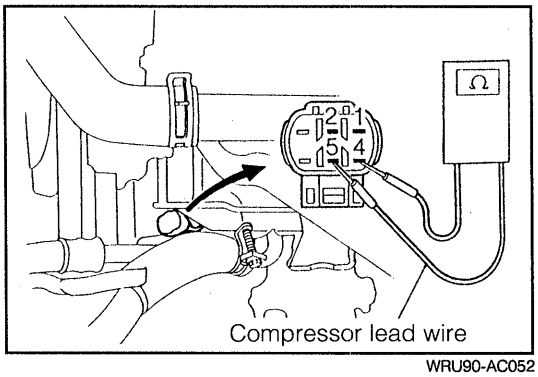
4. Inspect revolution detecting sensor.

(VEHICLE WITH POWER STEERING)

Using an ohmmeter, measure the resistance between terminals 1 and 2 of the sensor.

Specified Resistance: 200 - 260 Ω at 20°C (68°F)

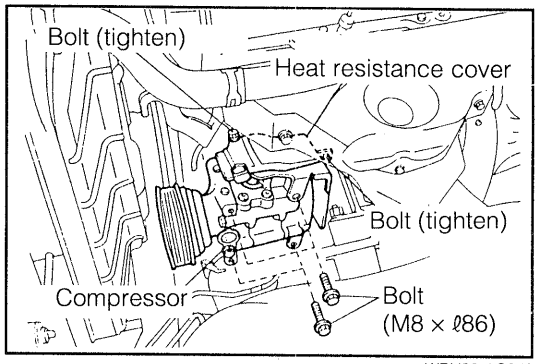
If the resistance value is not as specified, replace the revolution detecting sensor.



WRU90-AC052

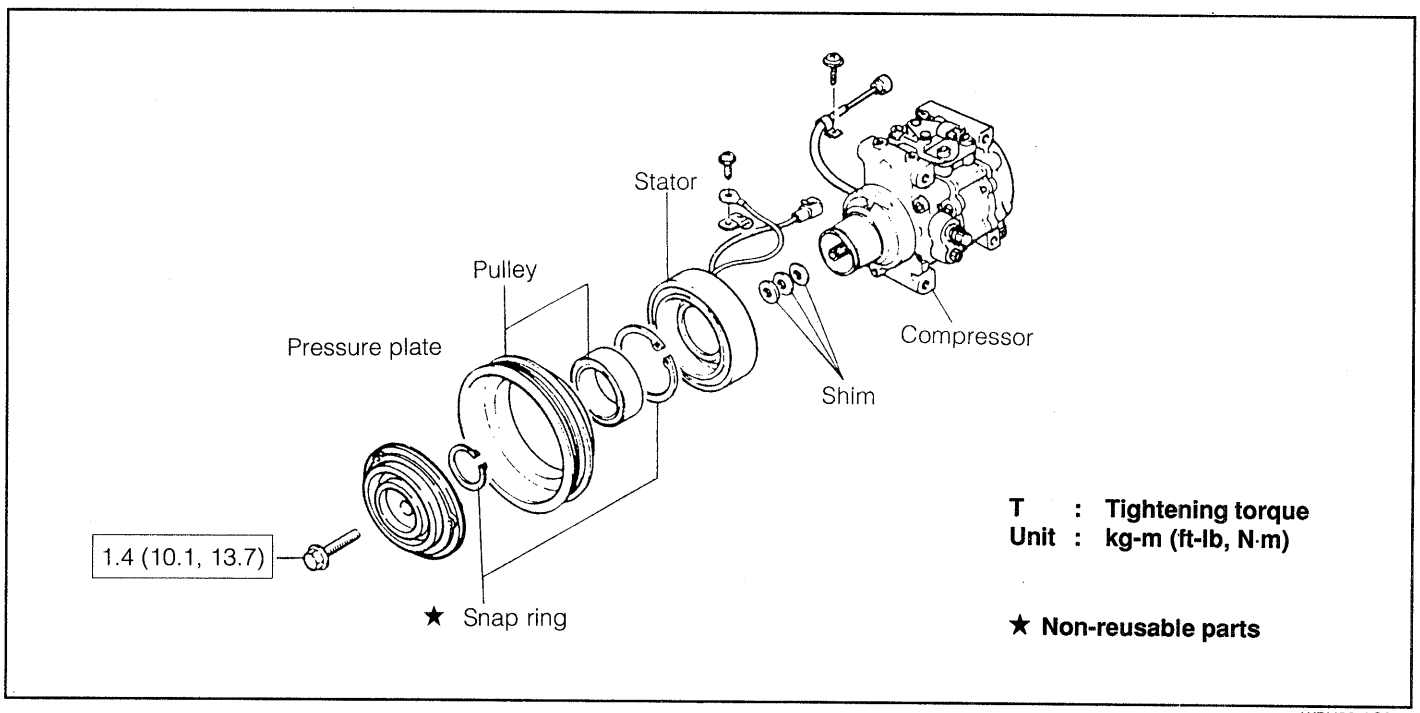
REMOVAL

1. Run the engine at idle with air conditioning on for 10 minutes.
2. Disconnect the negative cable from battery.
3. Discharge the refrigerant from refrigeration system.
4. Remove the front grille and the air cleaner & duct.
5. Disconnect the compressor lead wire.
6. Disconnect the suction hose from the compressor service valve and the discharge hose from the condenser inlet fitting.
   Cap the open fitting immediately to keep moisture out of the system.
7. Loosen the drive belt.
8. Remove the compressor.
9. Disconnect the discharge hose from the compressor service valve.



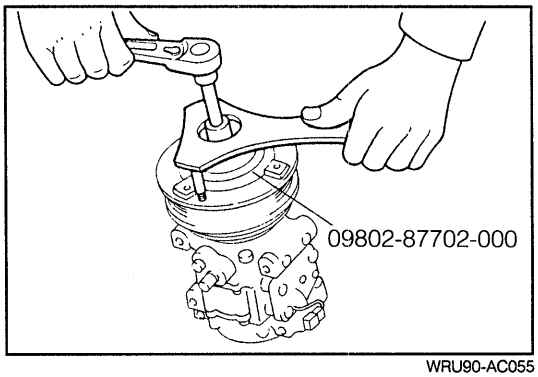
WRU90-AC053

DISASSEMBLY OF MAGNETIC CLUTCH



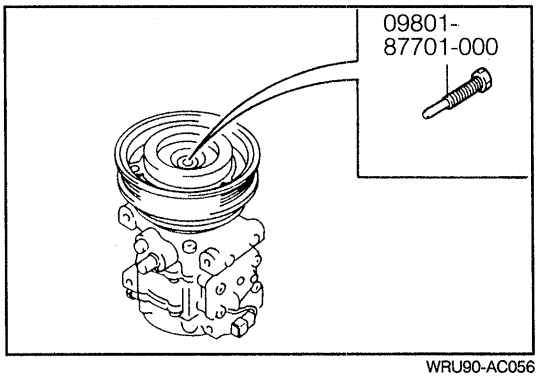
WRU90-AC054

1. Removal of the pressure plate
   (1) Remove the shaft bolt, using the socket and following SST.
   SST: 09802-87702-000



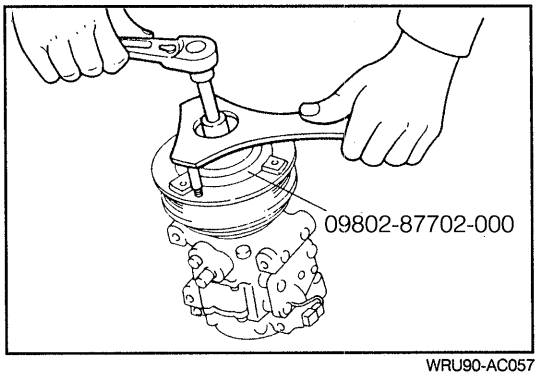
WRU90-AC055

   (2) Install the SST to the pressure plate.
   SST: 09801-87701-000



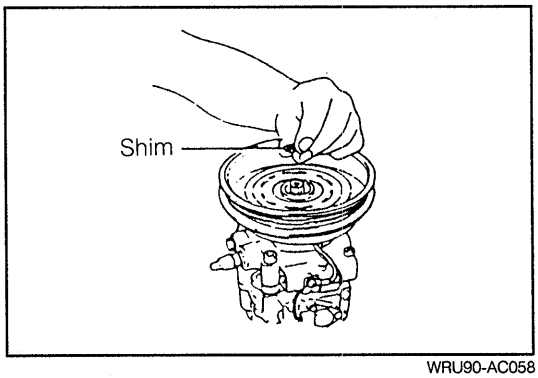
WRU90-AC056

   (3) Remove the pressure plate, using the socket and following SST.
   SST: 09802-87702-000



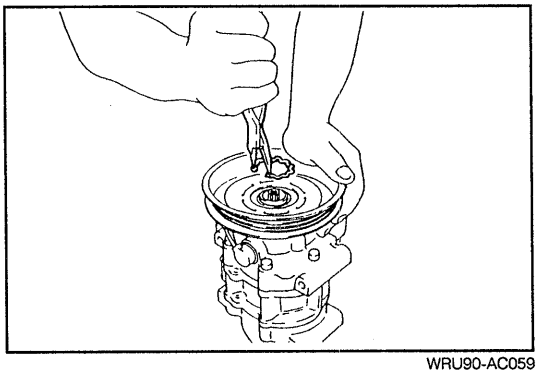
WRU90-AC057

   (4) Remove the shims from the shaft.

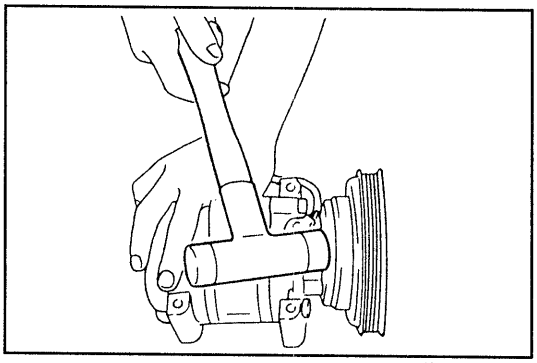


WRU90-AC058

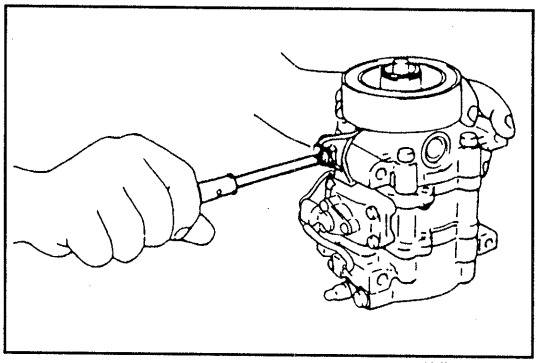
2. Removal of the rotor
   (1) Remove the snap ring, using the snap ring plier.


WRU90-AC059

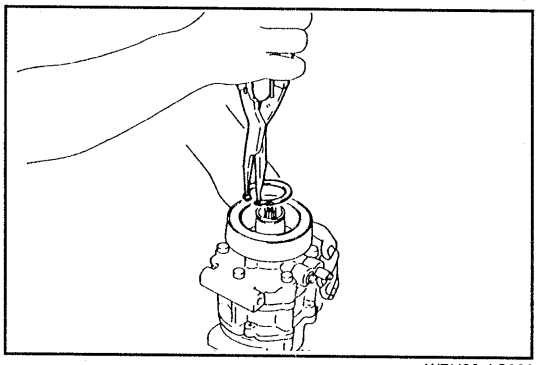
(2) Using a plastic hammer, tap the rotor off the shaft.
CAUTION:
- **Be careful not to damage the pulley when tapping on the rotor.**


WRU90-AC060

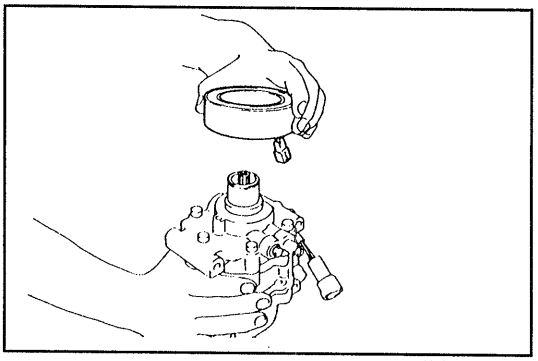
3. Removal of the stator
   (1) Disconnect the stator lead wires from the compressor housing.


WRU90-AC061

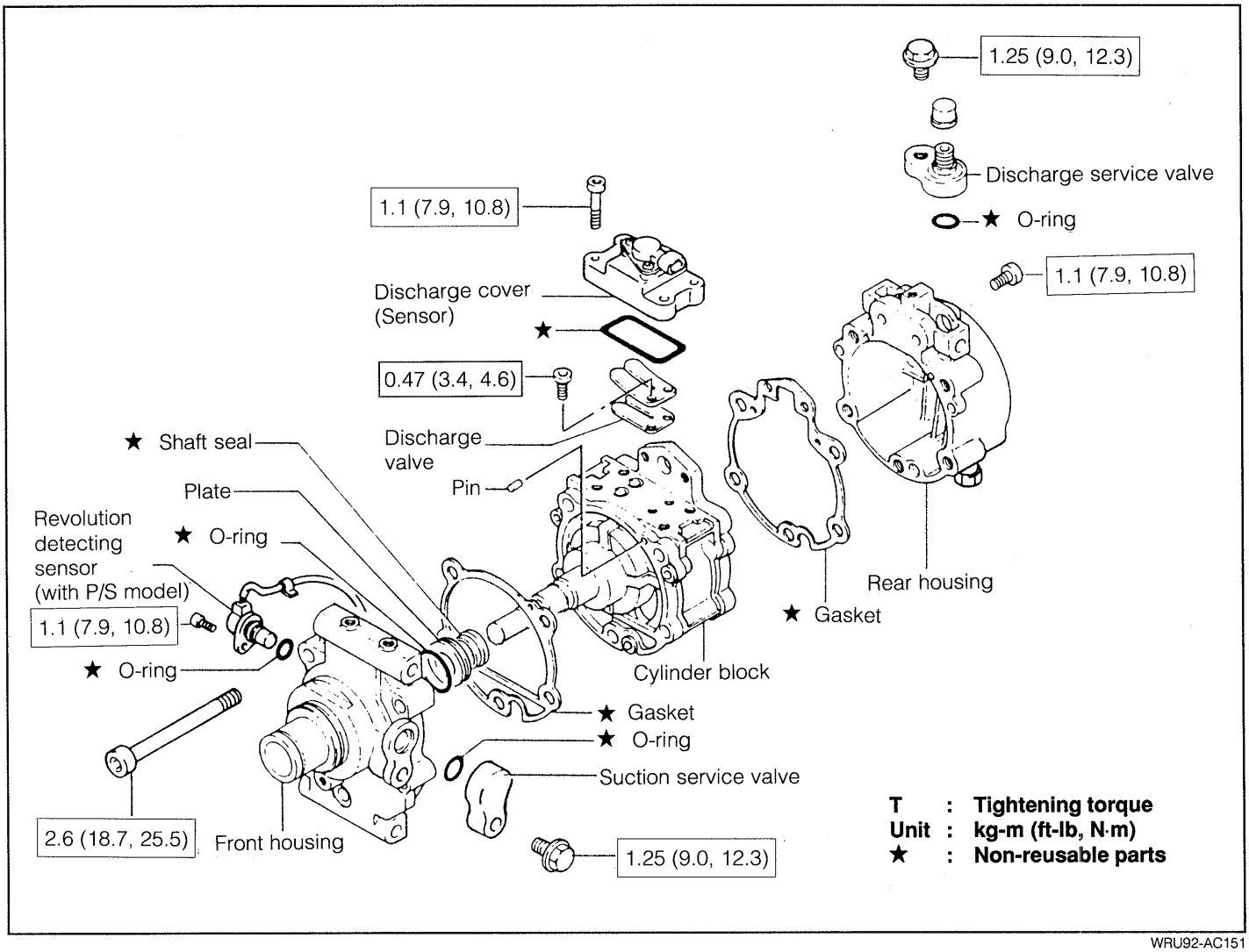
   (2) Using the snap ring plier, remove the snap ring.


WRU90-AC062

   (3) Remove the stator.

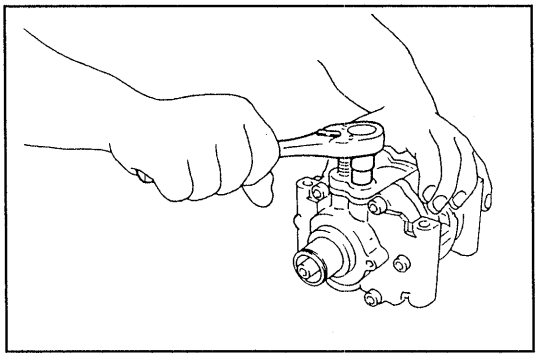

WRU90-AC063

DISASSEMBLY



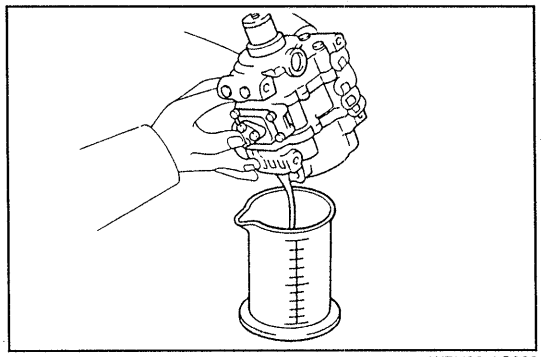
WRU92-AC151

1. Remove the suction service valve.
2. Remove the discharge service valve.



WRU90-AC065

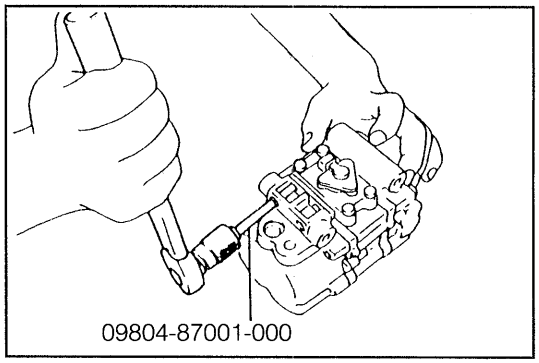
3. Drain compressor oil into measuring flask
   (1) Measure the quantity of drained oil because the same amount should be replace later.



WRU90-AC066

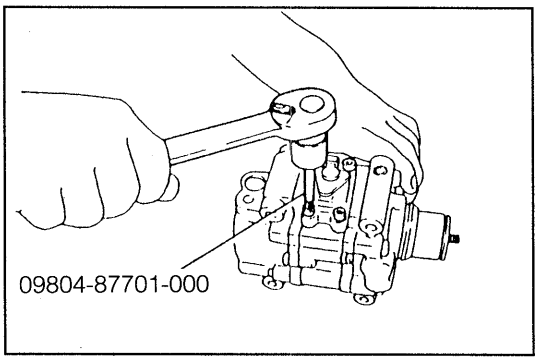
4. Removal of the discharge cover
   (1) Remove the two through belts, using the following SST.
   SST: 09804-87701-000

   CAUTION:
   - Do not remove three screws.



WRU90-AC067

   (2) Remove the four bolts, using the following SST.
   SST: 09804-87701-000

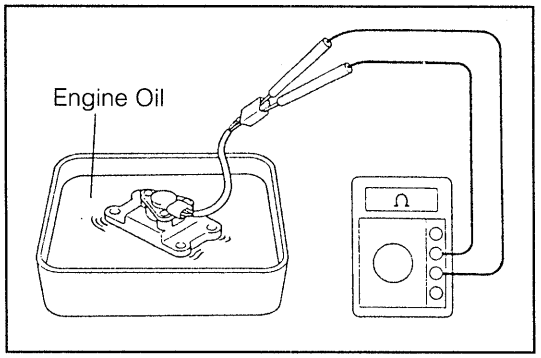


WRU90-AC068

5. Check refrigerant temperature switch
   (1) Check refrigerant temperature switch operation.

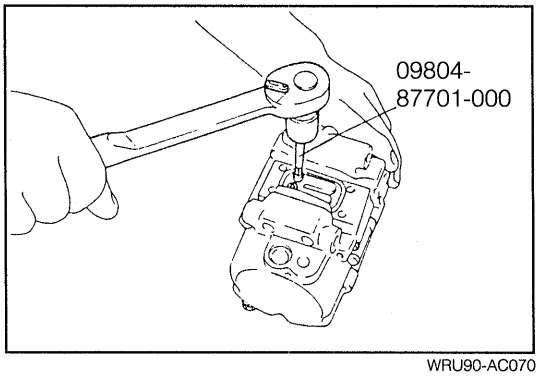
Oil Temperature	—
~ 120°C (248°F)	Continuity
180°C (356°F) ~	No continuity

   If operation is not as specified, replace the switch.
   NOTE:
   - After inspection, throughly clean the switch before assembly.



WRU92-AC152

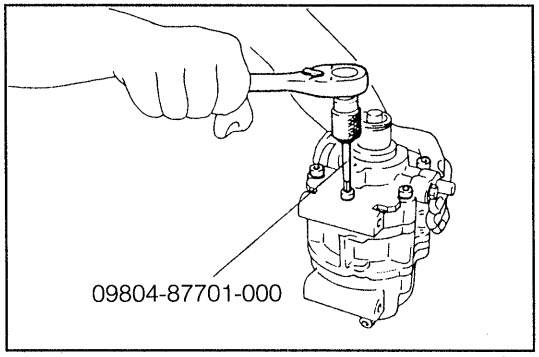
6. Removal of the discharge valve
   (1) Remove the two bolts and the discharge valve, using the following SST.
   SST: 09804-87701-000



WRU90-AC070

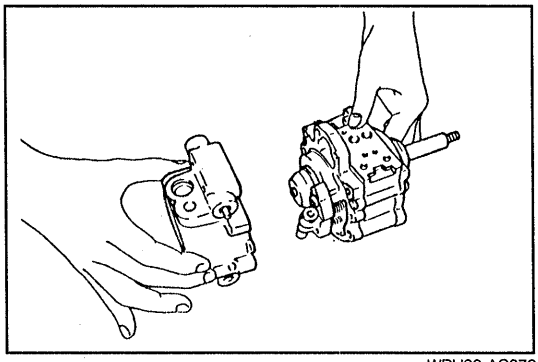
7. Removal of the front housing
   (1) Remove the five through bolts, using the following SST.
   SST: 09804-87701-000

   (2) Remove front housing



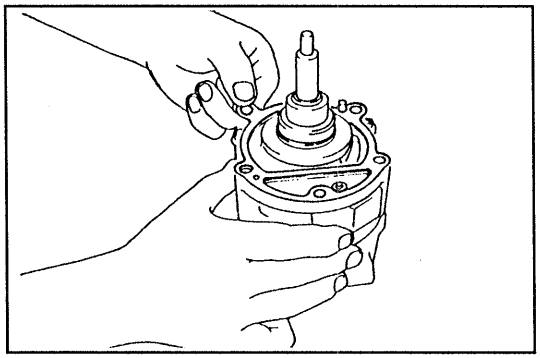
WRU90-AC071

8. Remove the rear housing.



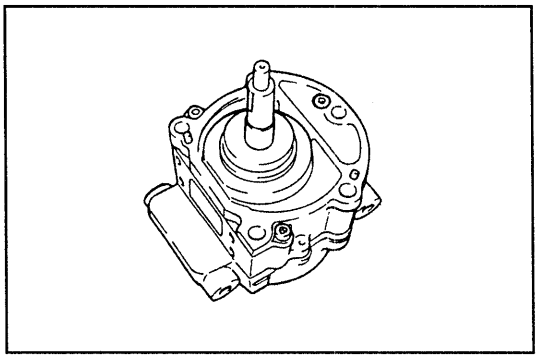
WRU90-AC072

9. Remove the gasket.



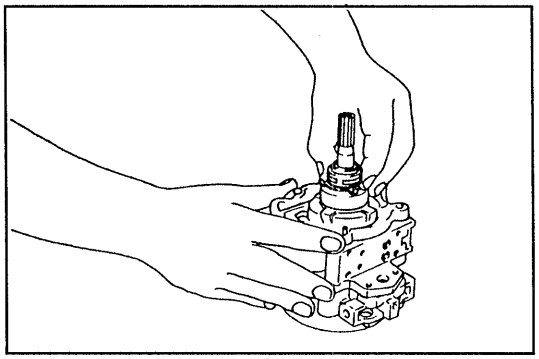
WRU90-AC073

CAUTION:
- Do not disassemble pump subassembly.



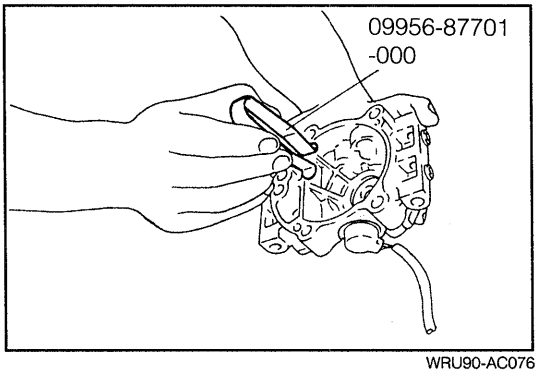
WRU90-AC074

10. Remove the shaft seal from shaft.



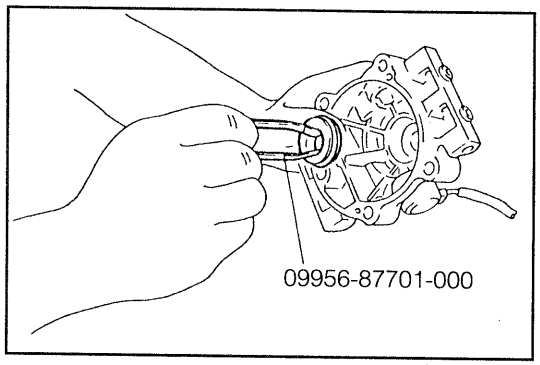
WRU90-AC075

11. Removal of the seal plate
    (1) Set SST on the seal plate.
        SST: 09956-87701-000



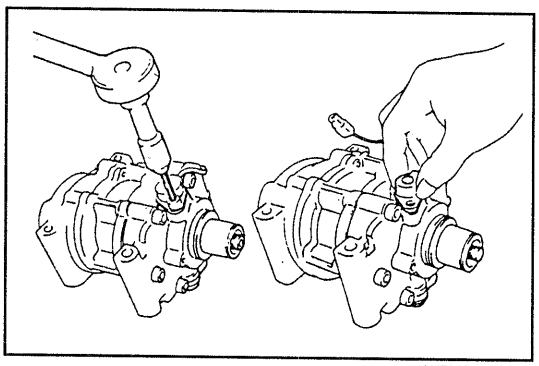
WRU90-AC076

(2) Pull the seal plate out of the front housing, using the following SST.
SST: 09956-87701-000



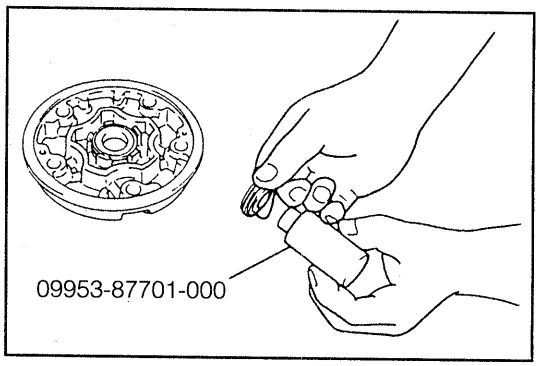
WRU90-AC077

12. Removal of the revolution detecting sensor.
(1) Remove the bolt
(2) Remove the revolution detecting sensor.


WRU90-AC078

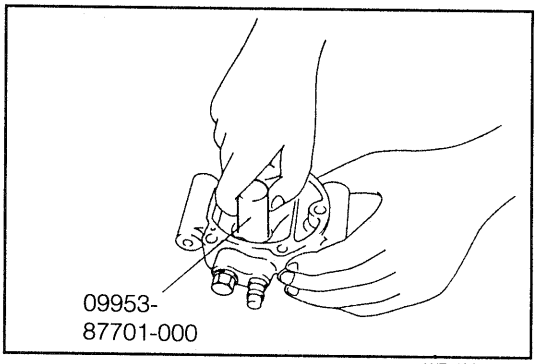
ASSEMBLY

1. Install new seal plate if seal plate was removed.
(1) Fit new seal plate on SST.
SST: 09953-87701-000



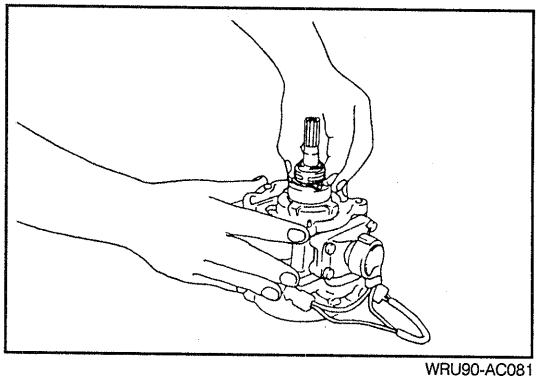
WRU90-AC079

(2) Install the seal plate, using the following SST.
SST: 09953-87701-000

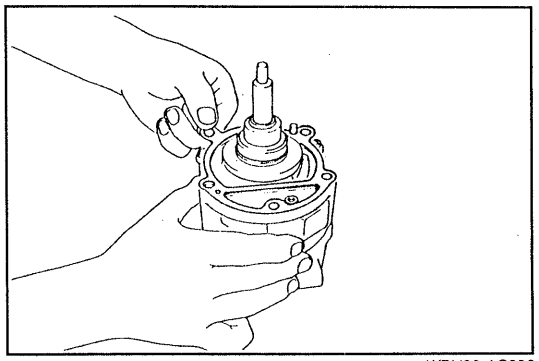


WRU90-AC080

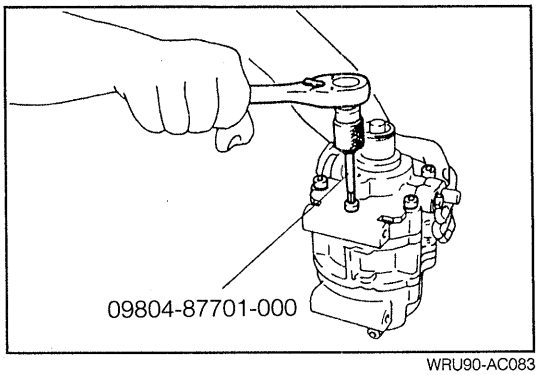
2. Install the shaft seal.
Lubricate shaft seal with compressor oil. Fit the shaft seal on the shaft.


WRU90-AC081

3. Install the pins and gasket on pump subassembly.
4. Fit the front and rear housings on pump subassembly.

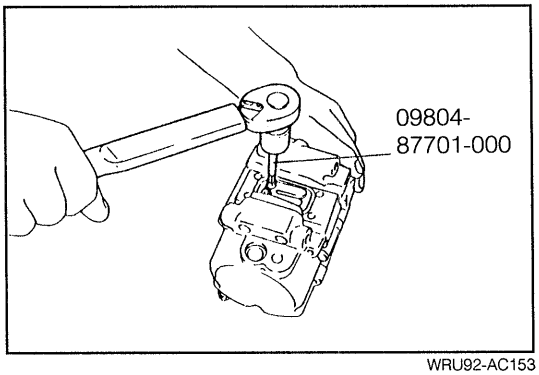

WRU90-AC082

5. Installation of the five through bolts
   (1) Tighten the five through bolts loosely, using the following SST.
   SST: 09804-87701-000



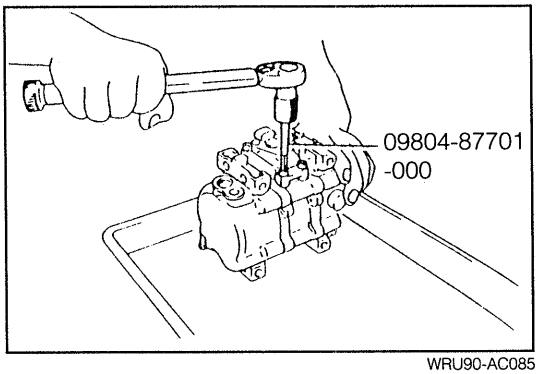
WRU90-AC083

6. Installation of the discharge valves
   (1) Using a torque wrench and SST, gradually tighten the two bolts.
   SST: 09804-87701-000
   Tightening Torque: 0.47 kg-m (3.4 ft-lb, 4.6 N·m)



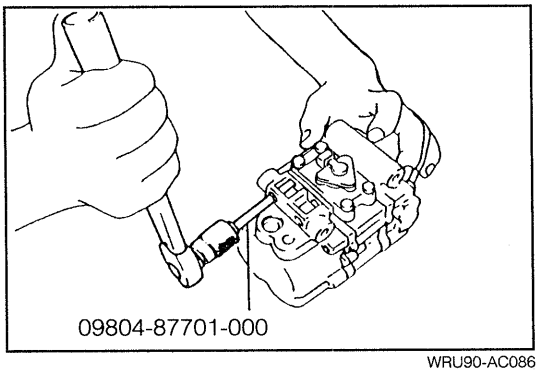
WRU92-AC153

7. Installation of the discharge cover
   (1) Tighten the four bolts loosely, using the following SST.
   SST: 09804-87701-000



WRU90-AC085

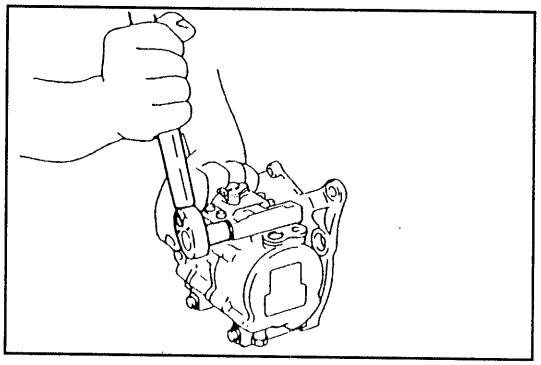
   (2) Tighten the two through bolts, using the following SST.
   SST: 09804-87701-000



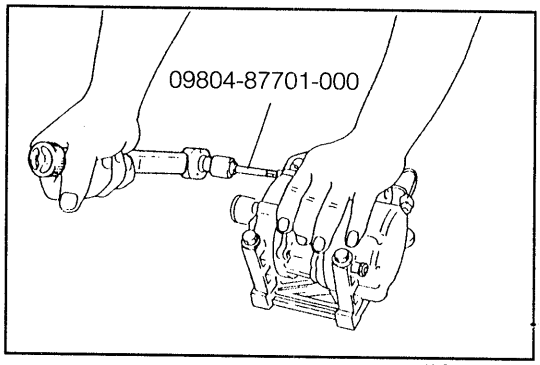
WRU90-AC086

8. Installation of the compressor to compressor bracket
   Attach the compressor to the compressor bracket with four bolts.
   Tightening Torque: 2.6 kg-m (18.7 ft-lb, 25.5 N·m)

   CAUTION:
   - Be sure to use the compressor bracket for assembling. Otherwise, correct compressor alignment cannot be obtained, causing compressor lock.

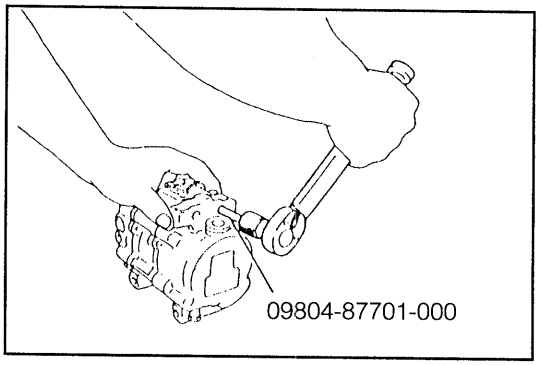

WRU90-AC087

9. Tighten the through bolts.
   Using a torque wrench and SST, tighten the five through bolts.
   SST: 09804-87701-000
   Tightening Torque: 2.6 kg-m (18.7 ft-lb, 25.5 N·m)



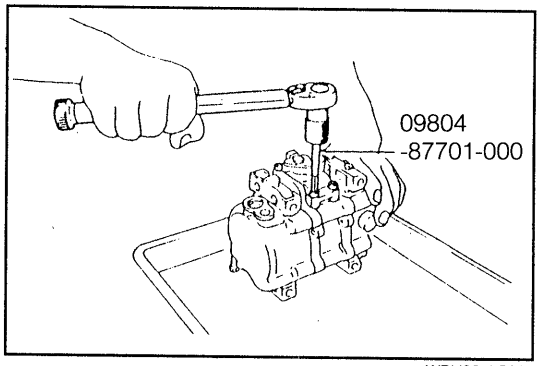
WRU90-AC088

10. Tightening of the two through bolts
    (1) Remove the compressor from the compressor bracket.
    (2) Using a torque wrench and SST, tighten the two through bolts.
    SST: 09804-87701-000
    Tightening Torque: 1.1 kg-m (7.9 ft-lb, 10.8 N·m)



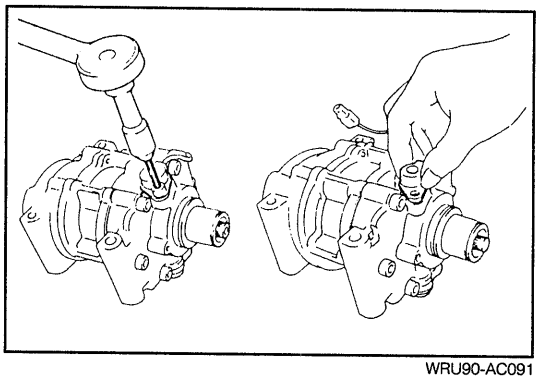
WRU90-AC089

11. Tighten bolts of discharge cover.
    Using a torque wrench and SST, tighten the four bolts.
    SST: 09804-87701-000
    Tightening Torque: 1.1 kg-m (7.9 ft-lb, 10.8 N·m)

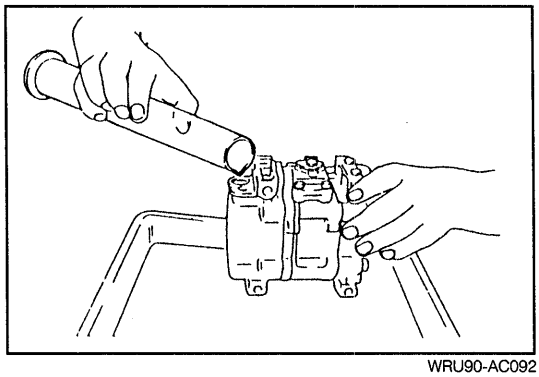


WRU90-AC090

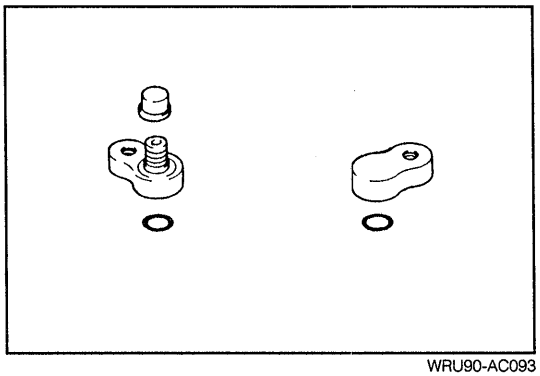
12. Install revolution detecting sensor.
    Using a torque wrench and SST, tighten the bolt.
    SST: 09804-87701-000
    Tightening Torque: 1.1 kg-m (7.9 ft-lb, 10.8 N·m)


WRU90-AC091

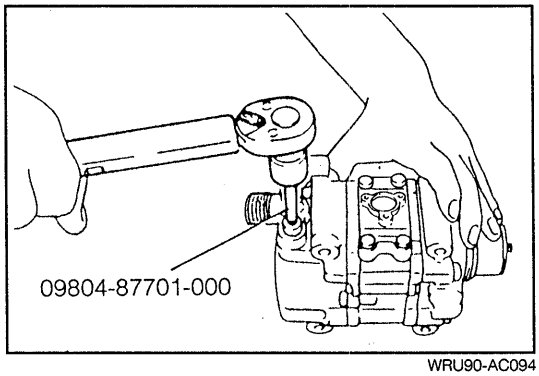
13. Pour compressor oil into compressor
    Compressor oil: DENSO OIL 7
    (1) Add the same quantity plus 20 cc of oil into compressor.


WRU90-AC092

14. Installation of the discharge and suction service valves
    (1) Lubricate new O-rings with compressor oil. Install the O-rings in the service valves.


WRU90-AC093

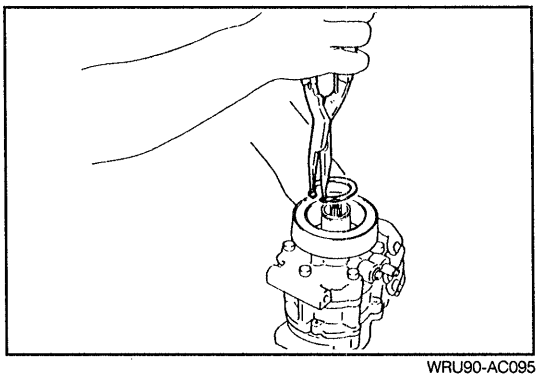
    (2) Install the service valves on the compressor. Using a torque wrench and SST, tighten the bolts.
    SST: 09804-87701-000
    Tightening Torque: 1.25 kg-m (9.0 ft-lb, 12.3 N·m)



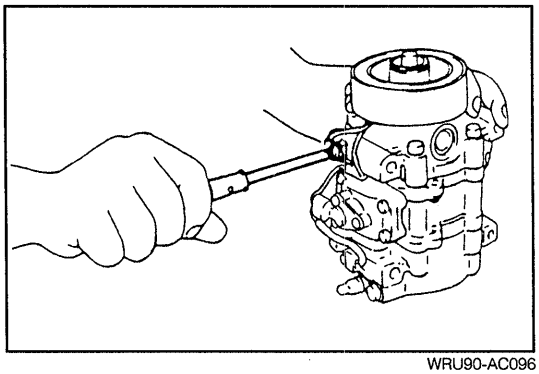
WRU90-AC094

ASSEMBLY OF MAGNETIC CLUTCH

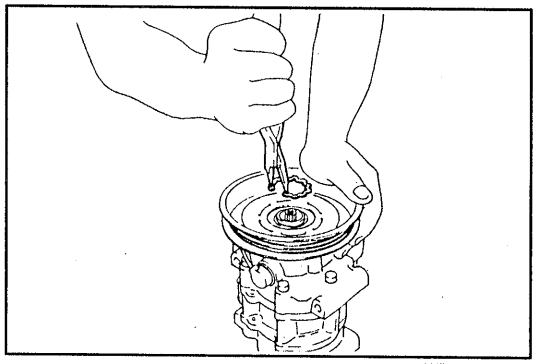
1. Installation of the stator
    (1) Install the stator on the compressor.
    (2) Using the snap ring plier, install the snap ring.


WRU90-AC095

    (3) Connect the stator lead wires to the compressor housing.


WRU90-AC096

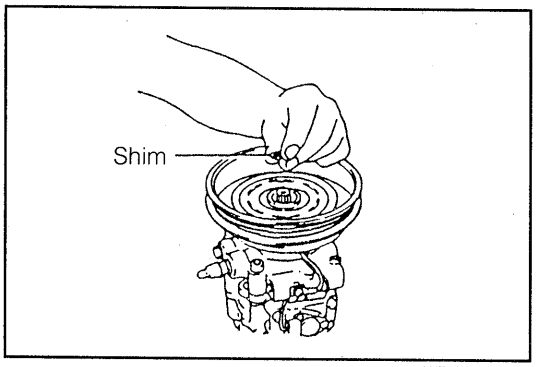
2. Installation of the rotor
   (1) Install the rotor on the compressor shaft.
   (2) Using the snap ring plier, install the snap ring.



WRU90-AC097

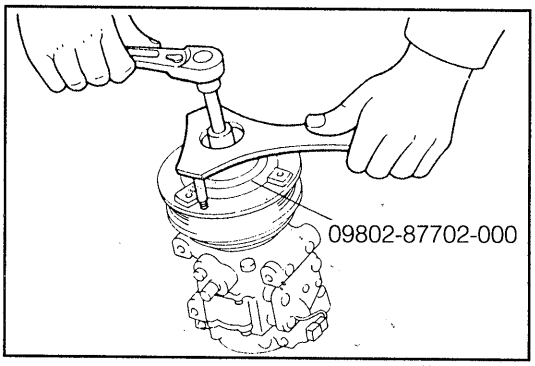
3. Installation of the pressure plate
   (1) Adjust the clearance between the pressure plate and rotor by putting shims on the compressor shaft.
   Standard Clearance: 0.5 ± 0.15 mm (0.020 ± 0.006 inch)

   If the clearance is not with tolerance, and or reduce the number of shims to obtain the standard clearance.



WRU90-AC098

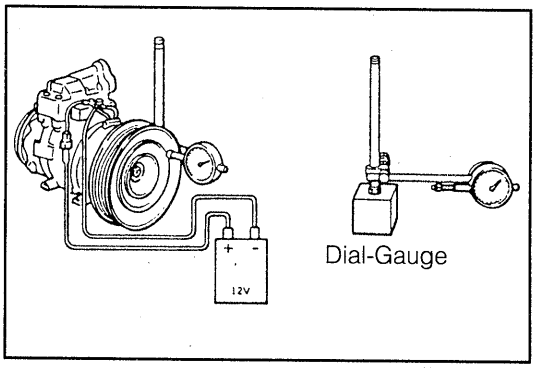
   (2) Using SST and torque wrench, install the shaft nut.
   SST: 09802-87702-000
   Tightening Torque: 1.4 kg-m (10.1 ft-lb, 13.7 N·m)



WRU90-AC099

4. Check clearance of magnetic clutch
   (1) Set the dial-gauge to the pressure plate of the magnetic clutch.
   (2) Connect the magnetic clutch lead wire to the positive (+) terminal of the battery.
   (3) Check the clearance between the pressure plate and rotor, when connect the negative (–) terminal of the battery, using the standard tool of feeler gauge.
   Standard Clearance: 0.5 ± 0.15 mm (0.020 ± 0.006 inch)

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



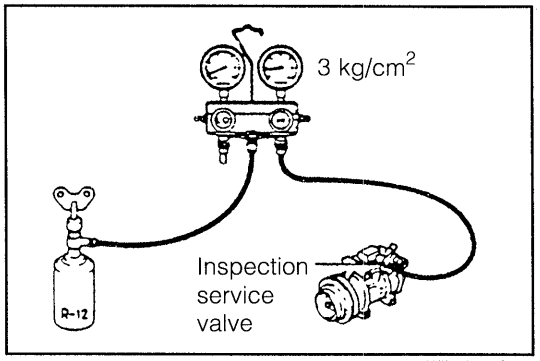
WRU90-AC100

PERFORMANCE TEST

1. Perform gas leakage test
   (1) Install the inspection service valve on the service valve.
   NOTE:
   - Use only the specified service valve for the perform gas leakage test.

     Thread Specification: Suction side 7/6-20 UNF
     Discharge side 3/8-24 UNF

   (2) Charge the compressor with refrigerant through the charge valve until the pressure is 3 kg/cm^2 (43 psi).
   (3) Using gas leak detector, check the compressor for leaks.
   If leaks are found, check and replace the gasket, O-ring or shaft seal.
2. Evacuate compressor and charge with refrigerant
   Make sure the caps are tight and free from the moisture and contamination.
   NOTE:
   - When storing a compressor for an extended period, charge the compressor with refrigerant or dry nitrogen gas to prevent corrosion.



WRU90-AC101

WRU90-AC102

INSTALLATION

1. Connect the discharge hose to the compressor service valve.
   Tightening Torque: 2.5 kg-m (18.0 ft-lb, 24.5 N·m)

2. Install the compressor together with the heat resistance cover with mounting bolts.
   Tightening Torque: 2.5 kg-m (18.0 ft-lb, 24.5 N·m)

3. Installation of the drive belt
   (1) Adjust installing the drive belt, check that it fits properly in the ribbed grooves.
   (2) Tighten the belt with adjusting bolts.
4. Check drive belt tension
   Using a belt tension gauge, check the drive belt tension.
   Belt Tension Gauge:
   Nippondenso BTG-20(95506-00020) or
   Burroughs No. BT-33-73F
   Drive Belt Tension:
   New belt 75 ± 12 kg (165 ± 26 lb)
   Used belt 60 ± 10 kg (132 ± 22 lb)

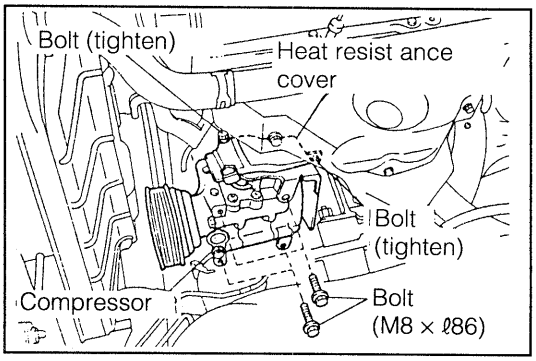
   NOTE:
   - "New belt" refers to a belt which has been used less than 5 minutes on a running engine.
   - "Used belt" refers to a belt which has been used on a running engine for 5 minutes or more.

5. Make sure that drive belt is installed correctly.
   After installing the drive belt, check that it fits properly in the ribbed grooves.

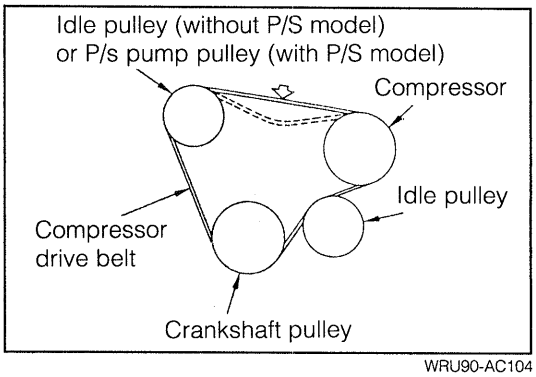
6. Connect the discharge hose to condenser inlet fitting.
   Tightening Torque: 2.30 kg-m (16.6 ft-lbs, 22.6 N·m)

7. Connect the suction hose to the compressor service valve.
   Tightening Torque: 2.50 kg-m (18.0 ft-lbs, 24.5 N·m)

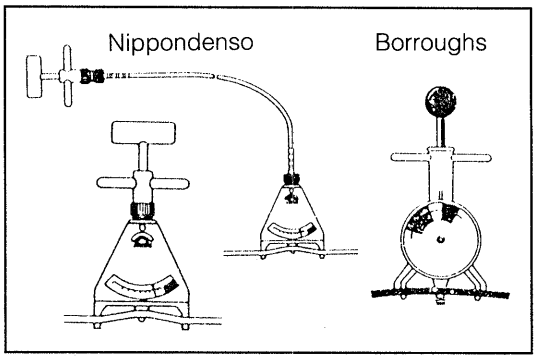
8. Connect the compressor lead wire to wring harness.
9. Install the air cleaner & duct and the front grille.
10. Connect the negative cable to battery.
11. Evacuate and charge refrigerant system.



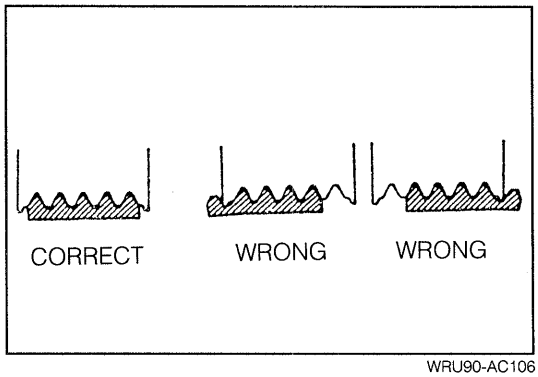
WRU92-AC154



WRU90-AC104



WRU90-AC105



WRU90-AC106

CONDENSER

IN-VEHICLE INSPECTION

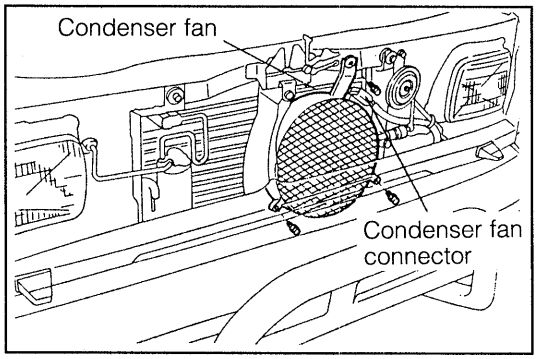
1. Check condenser fins for blockage or damage.
   If the fins are clogged, wash them with water and dry with compressed air.
   CAUTION:
   - Be careful not to damage the fins.

   If the fins are bent, straighten them with a screwdriver or pliers.
2. Check condenser fittings for leakage.
   Repair as necessary.

REMOVAL

1. Discharge refrigeration system.
2. Disconnect negative cable from battery.
3. Remove front grille, hood lock and center brace.
4. Disconnect the connector for condenser fan motor.
5. Remove the condenser fan.
6. Disconnect the discharge hose from condenser inlet fitting.

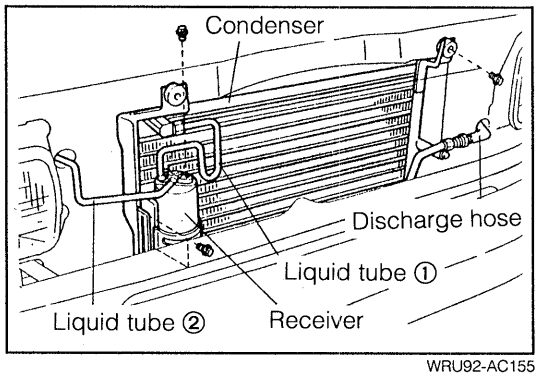
WRU90-AC107



WRU90-AC108

7. Disconnect the liquid tube ② from receiver and from liquid tube ①.
   NOTE:
   - Cap the open fittings immediately to keep moisture out of the system.

8. Disconnect the liquid tube ① from condenser outlet fitting and remove the receiver from the condenser.
9. Remove the condenser.



WRU92-AC155

INSTALLATION

1. Installation of the condenser
   Install the two bolts making sure the rubber cushions fit on the mounting flanges correctly.
2. Install the receiver with bracket to the condenser.
3. Connect the liquid tube and discharge hose to condenser.
   Tightening Torques:

Receiver	0.55 kg-m (4.0 ft-lb, 5.4 N·m)
Liquid tube	1.40 kg-m (10.1 ft-lb, 13.7 N·m)
Discharge hose	1.85 kg-m (13.3 ft-lb, 18.1 N·m)

4. Installation of the condenser fan.
5. Install the three bolts making sure the rubber.
6. Cushions fit on the mounting flanges correctly.
7. Connect the connector to the condenser fan motor.
8. Install hood lock, center brace and front grille.
9. Connect negative cable to battery.
10. If condenser was replaced, add compressor oil to compressor.
    Add 40 - 50 cc (1.4 - 1.7 fl.oz.)
11. Evacuate, charge and test refrigeration system

WRU92-AC156

RECEIVER

IN-VEHICLE INSPECTION

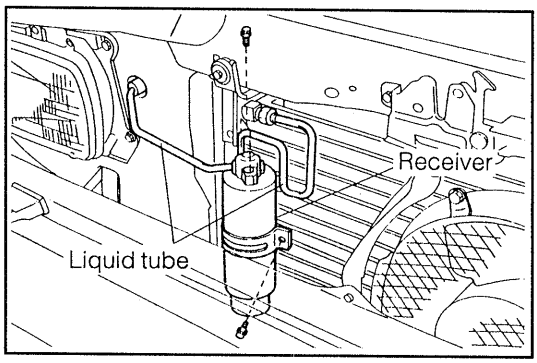
Check sight glass and fittings for leakage.

Use a gas leak detector. Repair as necessary.

WRU90-AC111

REMOVAL

1. Discharge the refrigeration system.
2. Remove the front grille and bumper.
3. Disconnect the two liquid tubes from receiver.
   NOTE:
   - **Cap the open fittings immediately to keep moisture out of the system.**
4. Remove the receiver from receiver holder.



WRU90-AC112

INSTALLATION

1. Install the receiver in receiver holder.
   NOTE:
   - **Do not remove the blind plugs until ready for connection.**
2. Connect the two liquid tubes to receiver.
   Tightening Torque: 0.55 kg-m (4.0 ft-lb, 5.4 N·m)
3. Install the front grille and bumper.
4. If receiver was replaced, add compressor oil to compressor.
   Add 20 cc (0.7 fl.oz.)
5. Evacuate, charge and test refrigeration system.

WRU90-AC113

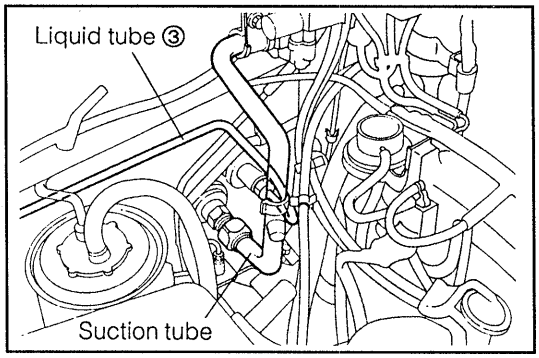
COOLING UNIT

IN-VEHICLE INSPECTION OF EXPANSION VALVE

1. Check the quantity of gas during refrigeration cycle.
2. Install the manifold gauge set.
3. Run the engine.
   Run the engine at 1,500 rpm for at least 5 minutes.

WRU90-AC114

4. Check the expansion valve.
   If the expansion valve is clogged, the low pressure reading will drop to 0 psi (0 kg/cm^2), otherwise it is OK.

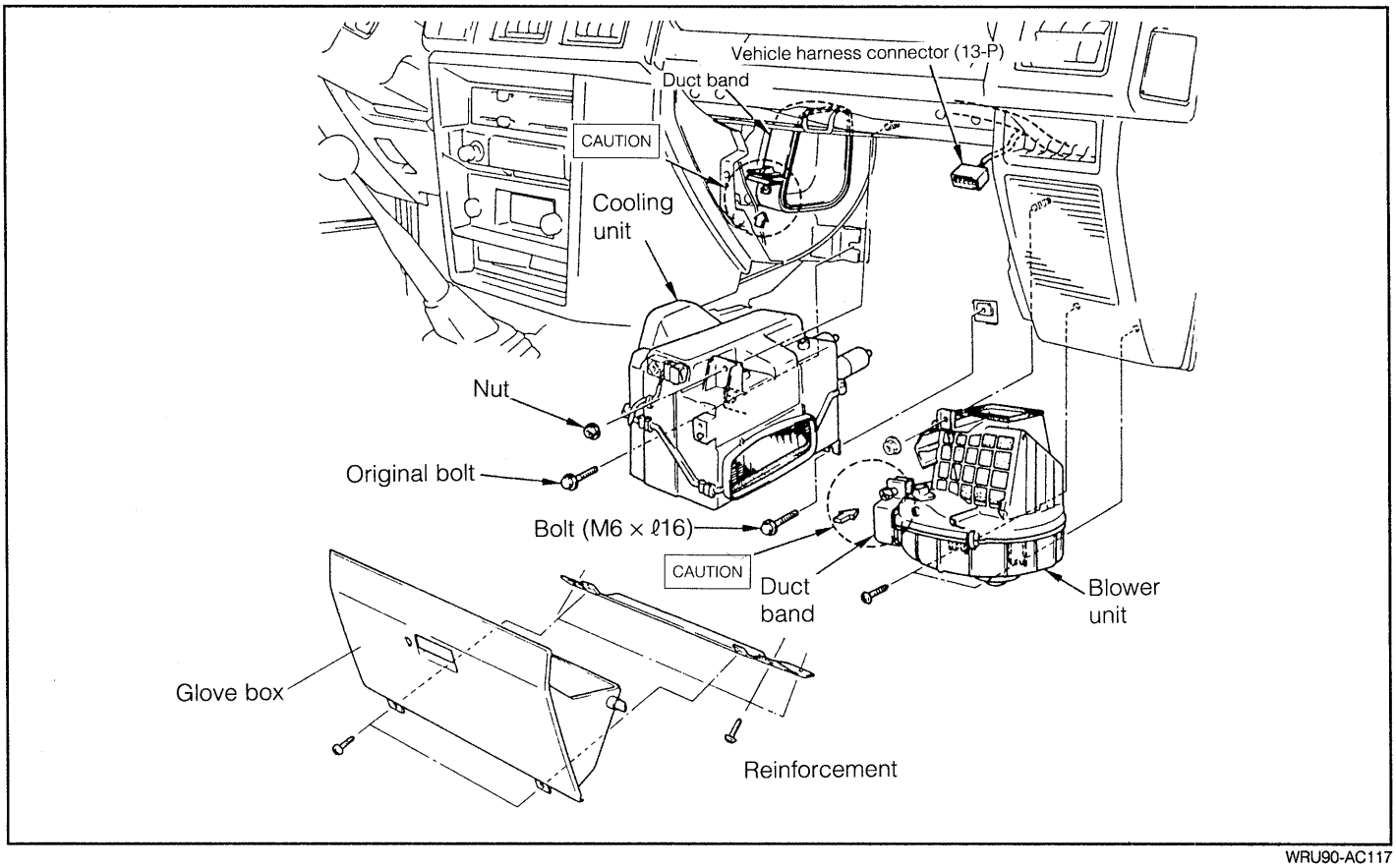


WRU90-AC115

REMOVAL

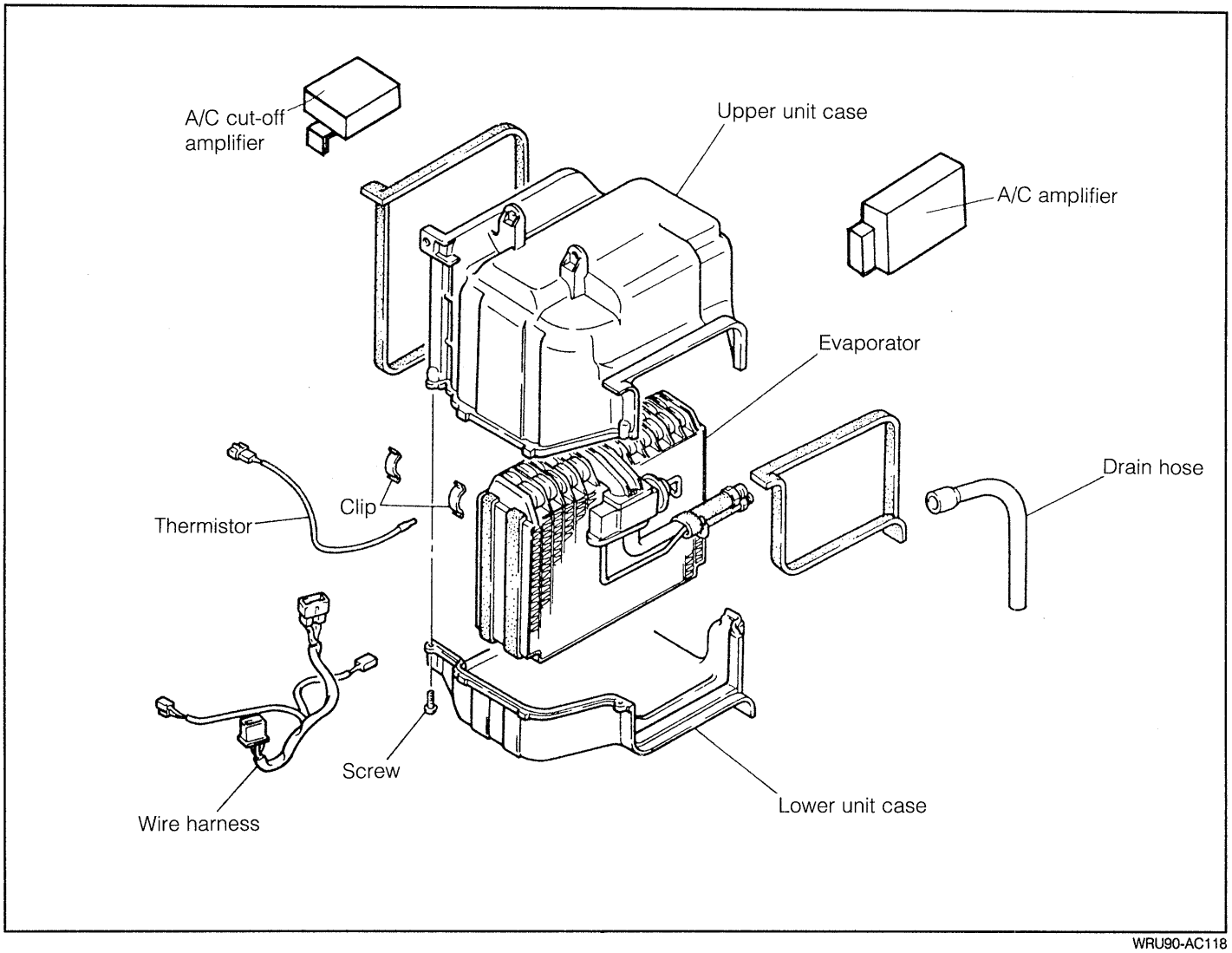
1. Disconnect negative cable from battery.
2. Discharge refrigeration system.
3. Disconnect suction tube from cooling unit outlet fitting.
4. Disconnect liquid tube from cooling unit inlet fitting.
   NOTE:
   - **Cap the open fittings immediately to keep moisture out of the system.**
5. Remove grommets from inlet and outlet fittings.
6. Remove the glove box, reinforcement and blower unit.
7. Disconnect the unit harness connector.
8. Remove the cooling unit.

WRU90-AC116



WRU90-AC117

COMPONENTS

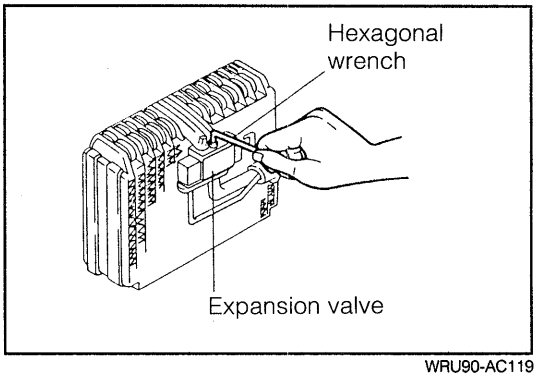


WRU90-AC118

DISASSEMBLY

1. Removal of the lower and upper cases
   (1) Remove wire harness.
   (2) Remove A/C amplifier and A/C cut-off amplifier.
   (3) Remove three screws and clips.
   (4) Remove upper unit case.
   (5) Remove lower unit case.

2. Removal of expansion valve
   (1) Remove of expansion valve from evaporator.



WRU90-AC119

EVAPORATOR

INSPECTION

1. Check evaporator fins for blockage.
   If the fins are clogged, clean them with compressed air.
   CAUTION:
   - Never use water to clean the evaporator.

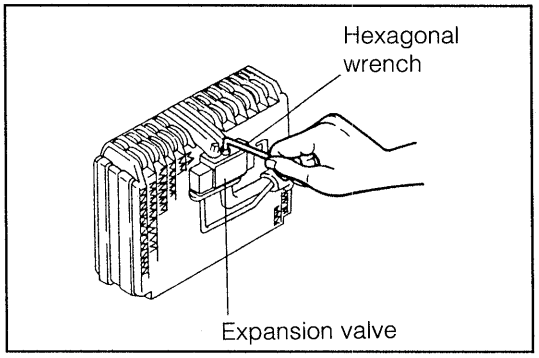
2. Check fittings for cracks or scratches.
   Repair as necessary.

ASSEMBLY

1. Installation of the components on evaporator.
   (1) Install the expansion valve to the evaporator.
   Tightening Torque: 0.55 - kg-m (4.0 ft-lb, 5.4 N·m)

   (2) Install the lower unit case to the evaporator.
   (3) Install the thermistor to the evaporator.
   (4) Install the upper unit case.
   (5) Install the three screws.
   (6) Install three clips.
   (7) Install the connector of thermistor.
   (8) Install the A/C amplifier and A/C cut-off amplifier.
   (9) Connect the wire harness.

WRU90-AC120



WRU92-AC157

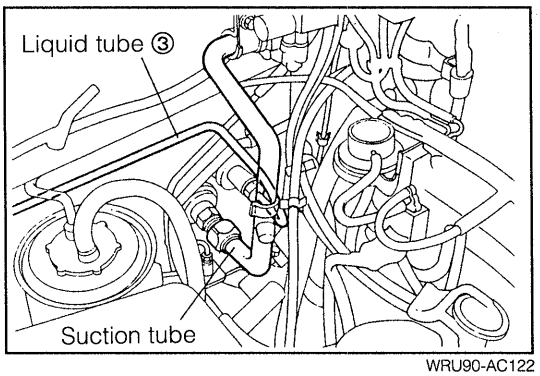
INSTALLATION

1. Install the cooling unit.
   Install the cooling unit with two bolts and nut.
2. Connect the connectors.
3. Install glove box, under cover and reinforcement.
4. Install gromments on inlet and outlet fittings.
5. Connect liquid tube to cooling unit inlet fittings.
   Torque the nut.
   Tightening Torque: 1.4 kg-m (10.1 ft-lb, 13.7 N·m)

6. Connect suction tube to cooling unit outlet fitting.
   Torque the nut
   Tightening Torque: 2.3 kg-m (16.6 ft-lb, 22.6 N·m)

7. If evaporator was replaced, add compressor oil to compressor.
   Add 40 - 50 cc (1.4 - 1.7 fl.oz.)

8. Connect negative cable to battery.
9. Evacuate, charge and test refrigeration system.



WRU90-AC122

REFRIGERANT LINES

IN-VEHICLE INSPECTION

1. Inspect hoses and tubes for leakage.
   Use a gas leak detector. Replace if necessary.
2. Check that hose and tube clamps are not loose.
   Tighten or replace, as necessary.

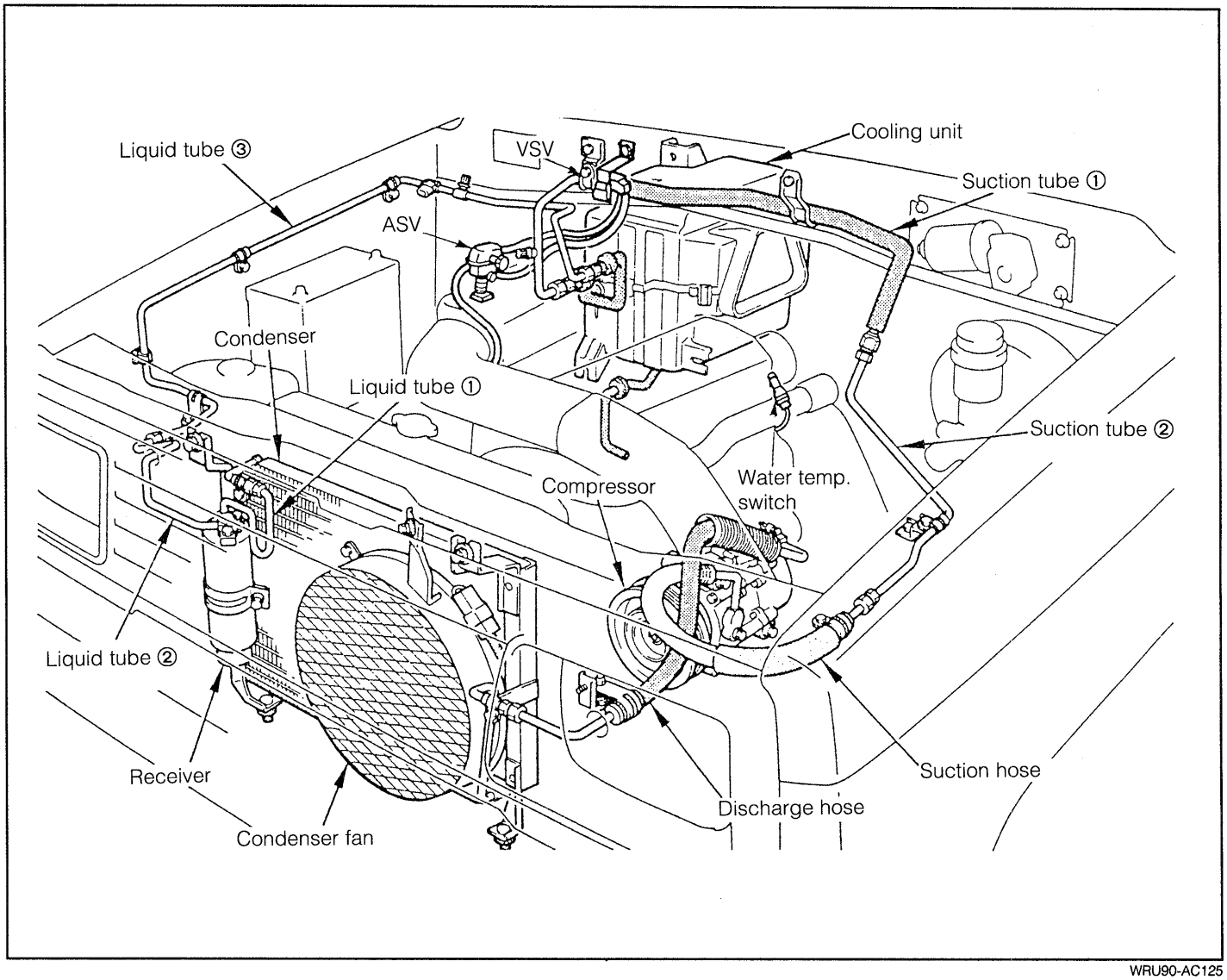
WRU90-AC123

REPLACEMENT

1. Discharge refrigeration system.
2. Replace faulty tube or hose.
   NOTE:
   - **Cap the open fittings immediately to keep moisture out of the system.**

3. Tightening torque for "O"-ring and bolted type fittings.
4. Evacuate charge and test refrigeration system.

WRU90-AC124

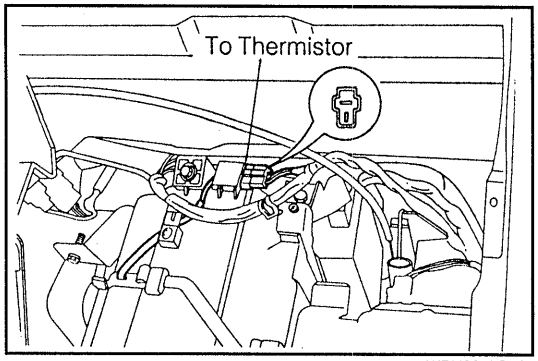


WRU90-AC125

THERMISTOR

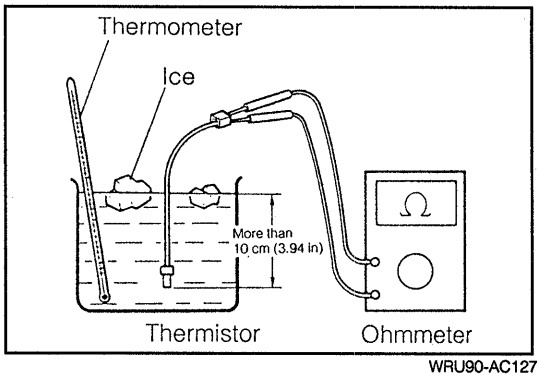
REMOVAL AND INSPECTION

1. Disconnect the negative cable form battery.
2. Remove the glove box, and glove box reinforcement.
3. Check the thermistor installed operation.
   Using an ohmmeter, measure the resistance between the terminals 1 and 2.
   Resistance: 1,500 Ω at 25°C (77°F)



WRU90-AC126

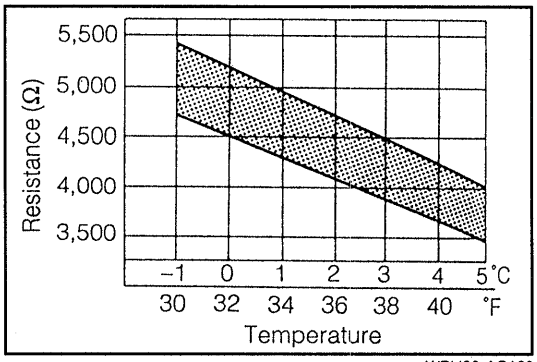
4. Removal of the thermistor
   (1) Remove the cooling unit.
   (2) Disassembly the cooling unit and remove thermistor.
5. Check the thermistor operation.
   (1) Place the thermistor in cold water. While varying the temperature of the water, measure the resistance at the connector and, at the same time, measure the temperature of the water with a thermometer.
   (2) Compare the two readings on the chart.
   If the intersection is not between the two lines, replace the thermistor.



WRU90-AC127

INSTALLATION

1. Installation of the thermistor
   (1) Install thermistor and assemble the cooling unit.
   (2) Install the cooling unit.
2. Install the glove box, and glove box reinforcement.
3. Connect the negative cable to battery.



WRU90-AC128

DUAL PRESSURE SWITCH

INSPECTION OF DUAL PRESSURE SWITCH

1. Disconnect negative cable from battery.
2. Check the refrigerant pressure
   (1) Connect the hoses of the manifold gauge set to the service valves and observe the gauge reading.
   (2) The gauge reading must be more than 0.21 kg-m (3.0 psi), when the ambient temperature is higher than 0°C (32°F).

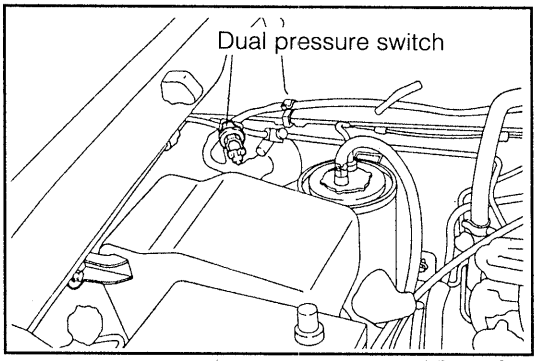
   If the pressure is less than 2.1 kg/cm^2 (30 psi), charge the refrigerant.

3. Check the dual pressure switch
   (1) Observe the gauge reading.
   (2) Check the continuity between the two terminals of the dual pressure switch.

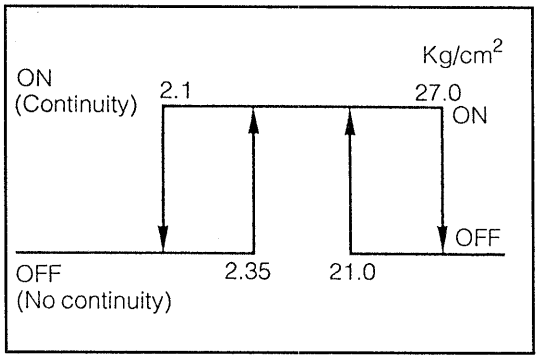
   If the gauge pressure is between 30 - 38 psi, the dual pressure switch should have continuity. If it does not, replace the dual pressure switch.

4. Removal of the dual pressure switch
   (1) Disconnect the connector.
   (2) Remove the dual pressure switch.

5. Connect the negative cable to battery.



WRU90-AC129



WRU90-AC130

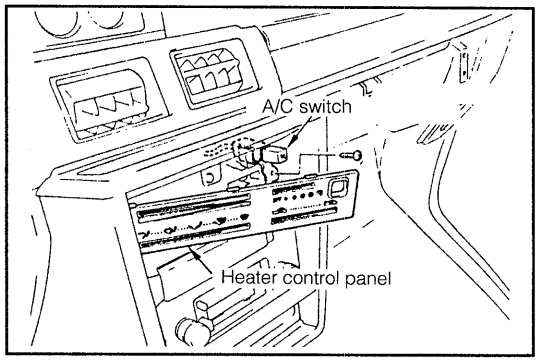
A/C SWITCH

IN-VEHICLE INSPECTION

1. Disconnect the negative cable from battery.
2. Remove the A/C switch.
   Remove one tapping screw.
3. Disconnect the A/C switch connector.
4. Check the A/C switch for continuity.
   Inspect the switch continuity between terminals.

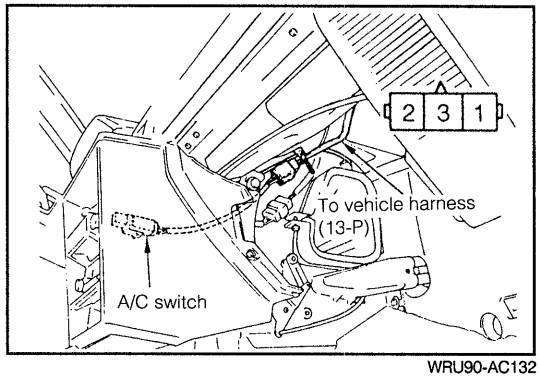
Switch position \ Terminal	1	2	3
ON		○———	———○
OFF	○———	○———	———○

   If continuity is not as specified, replace the switch.
5. Check the indicator lamp operation
   When applying battery voltage between terminals 1 and 2 check that the indicator light light.



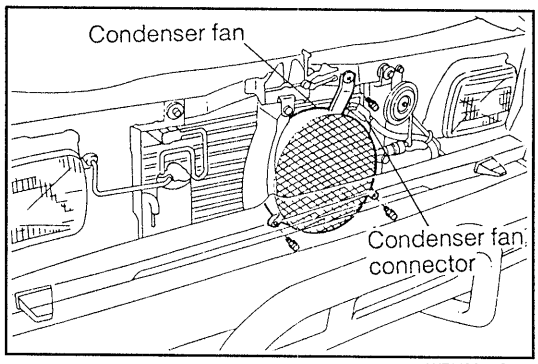
WRU90-AC131

6. Connect the A/C switch connector.
7. Install the A/C switch.
8. Install one tapping screw.
9. Connect the negative cable to battery.



WRU90-AC132

CONDENSER FAN MOTOR



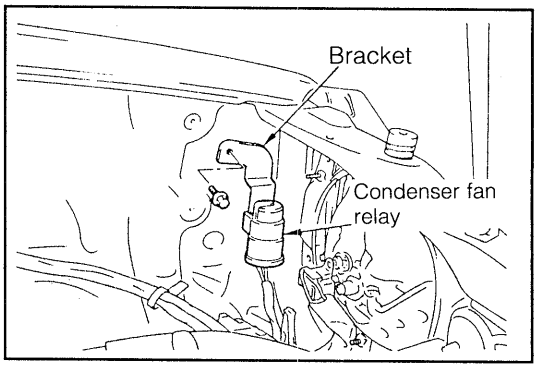
WRU90-AC133

INSPECTION OF CONDENSER FAN MOTOR

1. Disconnect the negative cable from battery.
2. Disconnect the connector of fan motor.
3. Check fan motor
   (1) Apply 12V battery voltage to the connector using the wire harness.
   (2) Confirm smooth rotation of the motor within the specified current flow.
   Standard Current: 6.7 ± 0.7 A
   (Motor Revolution: 2,700 ± 300 rpm)

   If defective, replace the motor.
4. Connect the connector of fan motor.
5. Connect the negative cable to battery.

CONDENSER FAN RELAY



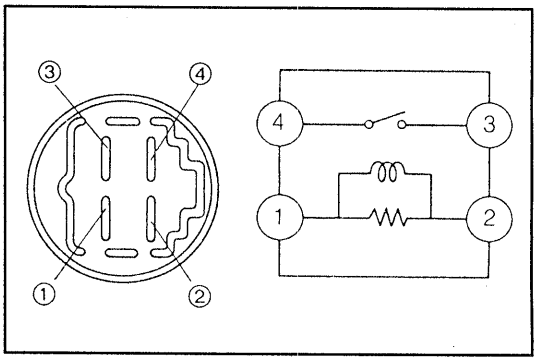
INSPECTION

Inspect relay continuity.

O—O Continuity exists.

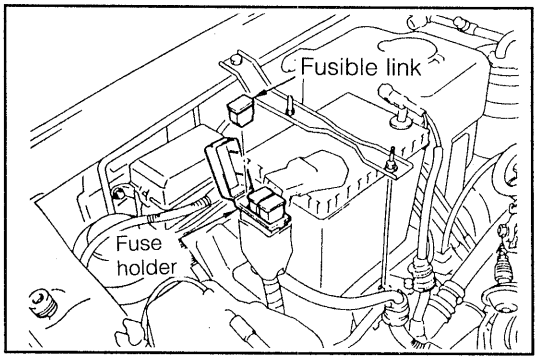
Condition \ Terminal	1	2	3	4
—	O	O		
Apply battery voltage to terminal 1 and 2			O	O

If continuity is not as specified, replace the relay.



WRU90-AC134

FUSIBLE LINK



WRU90-AC135

INSPECTION OF FUSIBLE LINK

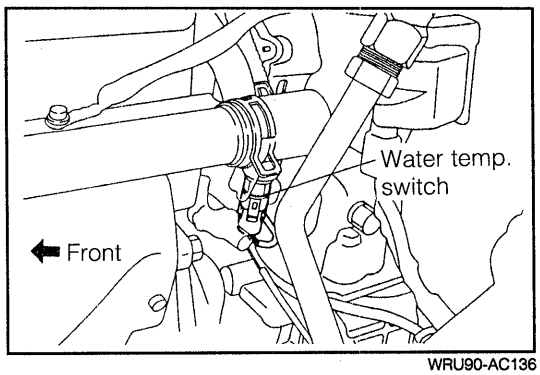
1. Disconnect the negative cable from battery.
2. Disconnect the fusible link.
3. Check the fusible link for continuity.
   Using an ohmmeter, check continuity of the fusible link. If there is no continuity, replace the fusible link.
4. Connect the fusible link.
5. Connect the negative cable to battery.

WATER TEMPERATURE SWITCH

INSPECTION

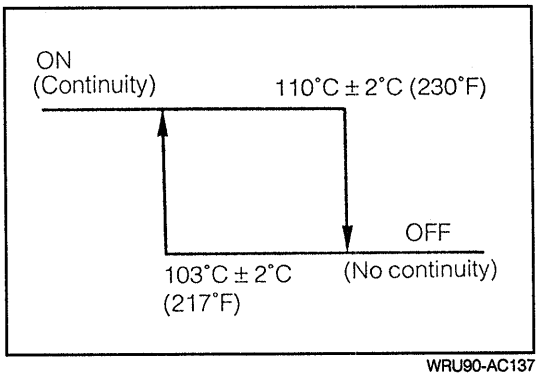
Inspect switch continuity.

Inspect the switch continuity between each terminal at each water temperature.



WRU90-AC136

If defective, replace the water temperature switch.

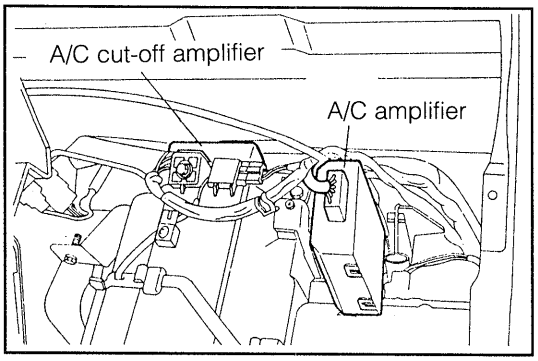


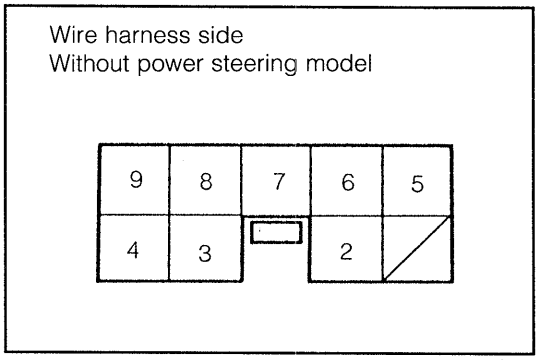
WRU90-AC137

AIR CONDITIONER AMPLIFIER

INSPECTION

Inspect the amplifier circuit.
Disconnect the amplifier and inspect the connector on the wire harness side as shown in the chart below.
Test conditions:
(1) Ignition switch: ON
(2) Temperature control lever: MAX COOL
(3) Blower switch: HI



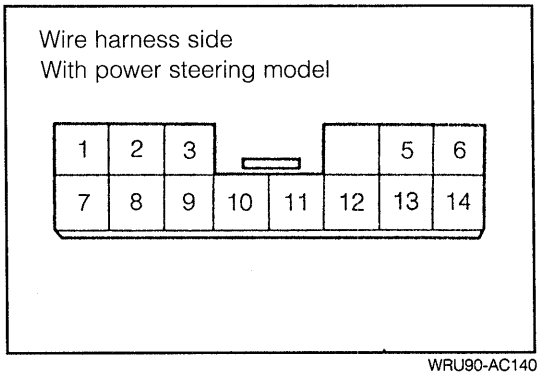


WRU90-AC138

Without power steering model

Check for	Tester Connection	Condition	Specified Value
Voltage	5 - Ground	Start the engine	Approx. 10 to 14 V
		Stop the engine	No voltage
	2 - Ground	A/C switch on	Battery voltage
		A/C switch off	No voltage
Continuity	6 - Ground	Constant	Continuity
Resistance	4 - 3	Constant	37 - 44 Ω at 20°C (68°F)
	7 - Ground	Constant	3.4 - 3.8 Ω at 20°C (68°F)
	6 - 8	Constant	Approx. 1.5 kΩ at 25°C (77°F)
	6 - 9	Constant	

WRU90-AC139



WRU90-AC140

With power steering model

Check for	Test Connection	Condition	Specified Value
Voltage	1 - Ground	Start the engine	Approx. 10 to 14 V
		Stop the engine	No voltage
	2 - Ground (Fan on)	A/C switch on	Battery voltage
		A/C switch off	No voltage
	8 - Ground (Fan on)	A/C switch on	Battery voltage
		A/C switch off	No voltage
	12 - Ground (Fan on)	A/C switch on	Battery voltage
		A/C switch off	No voltage
Continuity	11 - Ground	Constant	Continuity
Resistance	10 - 13	Constant	Approx. 1.5 kΩ at 25°C (77°F)
	10 - 14	Constant	
	7 - 10	Constant	200 - 260 Ω at 20°C (68°F)
	5 - 9	Constant	33 - 44 Ω at 20°C (68°F)
	3 - Ground	Constant	3.4 - 3.8 Ω at 20°C (68°F)
	6 - Ground	Constant	

WRU90-AC141

AIR CONDITIONER CUT-OFF AMPLIFIER

INSPECTION

Inspect the amplifier circuit.

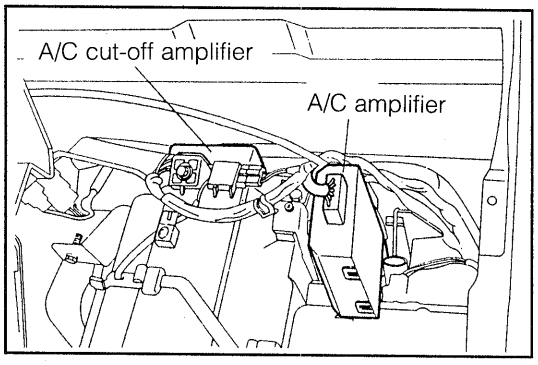
Disconnect the amplifier and inspect the connector on the wire harness side as shown in the chart below.

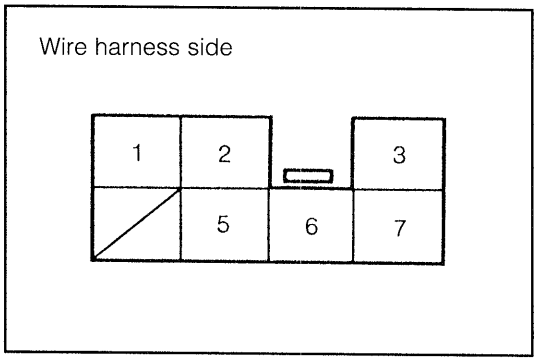
Test conditions:

(1) Ignition switch: ON

(2) Temperature control lever: MAX COOL

(3) Blower switch: HI





WRU90-AC142

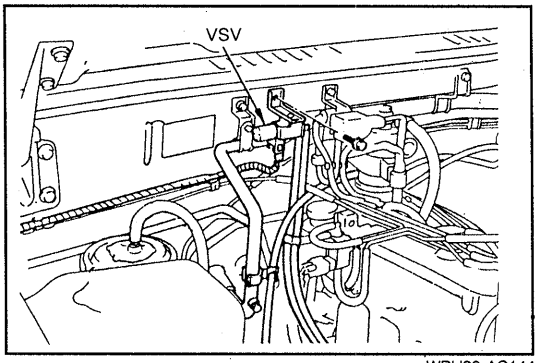
Check for	Test Connection	Condition	Specified Value
Voltage	3 - Ground (Fan on)	A/C switch on	Battery voltage
		A/C switch off	No voltage
	6 - Ground (Fan on)	A/C switch on	Battery voltage
		A/C switch off	No voltage
Continuity	2 - Ground	No depress of acceleration pedal	No continuity
		Depress the acceleration pedal fully	Continuity
	1 - Ground	Water temp. 110°C or less	Continuity
		Water temp. 110°C or more	No continuity
	5 - Ground	Constant	Continuity

WRU90-AC143

VACUUM SWITCHING VALVE (VSV)

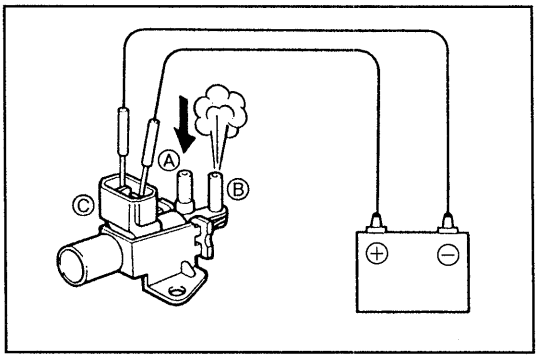
INSPECTION

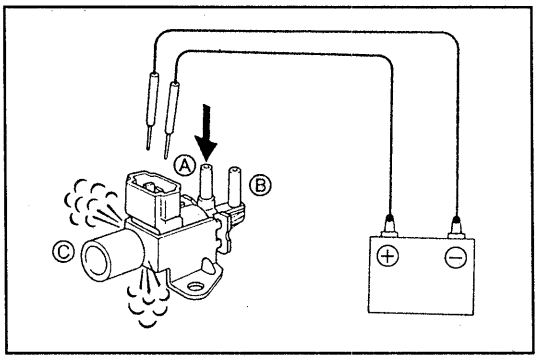
1. Check vacuum circuit continuity in VSV by blowing air into pipes
   (1) Connect the VSV terminals to the battery terminals as illustrated.
   (2) Blow into pipe "F" and check that air comes out of pipe "E".
   (3) Disconnect the battery.



WRU90-AC144

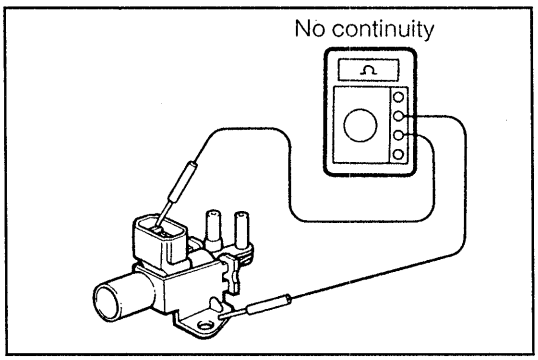
   (4) Blow into pipe "F" and check that air comes out of filter "G".
   If a problem is found, replace the VSV.





WRU90-AC145

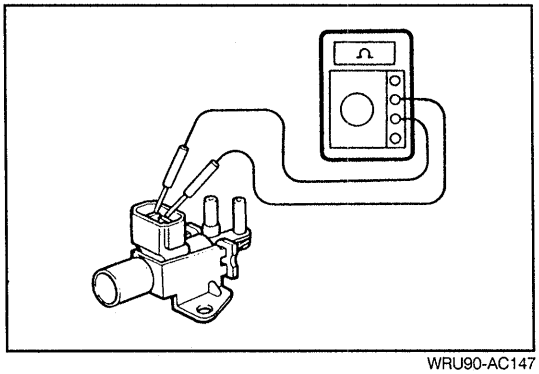
2. Check for short circuit
   Using an ohmmeter, check that there is no continuity between each terminal and the VSV body.
   If there is continuity, replace the VSV.



WRU90-AC146

3. Check for open circuit
   Using an ohmmeter, measure the resistance between the two terminals.
   Resistance: 37 - 44 Ω at 20°C (68°F)

   If resistance is not as specified, replace the VSV.


WRU90-AC147

ADJUSTMENT OF ENGINE A/C RPM

Engine idle rpm should be adjusted by operating the air conditioner as described below:

(1) Start engine and allow it to reach operating temperature before adjusting the idle RPM.
(2) Check the initial ignition timing and initial idle RPM. Adjust as necessary.
(3) Place the blower motor in the high position and turn off the head light.
(4) Turn the air conditioner on.
(5) With the engine running, remove the connector cap and install the Engine Control System Inspection Sub Harness (SST 09991-87702-000), then short the check terminal to the ground terminal.
(6) Raise engine speed quickly to 2,000 RPM two or three times.

NOTE:
- Do not exceed 2,000 rpm.

(7) Turn the A/C idle speed adjusting screw to adjust A/C idle speed.
A/C Idle Speed Specification: 1050 ± 50 rpm

(8) Disconnect the check and ground terminals at the inspection sub harness and raise the engine speed to 2,000 RPM quickly two or three times, then verify that engine speed is within the specified RPM.

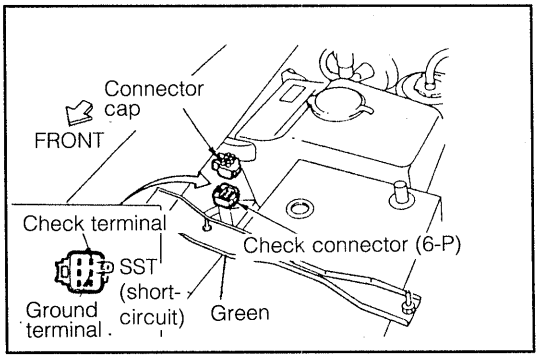
NOTE:
- Do not exceed 2,000 RPM
  Idle Speed Specification: 1100 ± 50 rpm

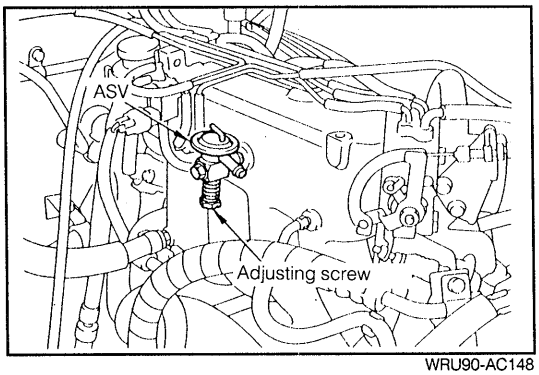
Repeat Steps (e) thru (h) as necessary.

(9) Remove the inspection sub harness from the check terminal, the reinstall the check terminal cap.

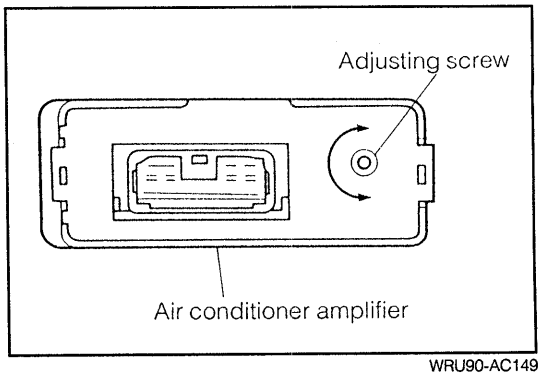
NOTE:
- The cut off revolution speed of the air conditioner amplifier has been already adjusted at the time when the product is shipped from the factory. Hence, never tamper the adjusting screw.

(Reference)
Cut Off Revolution Speed: 600 rpm





WRU90-AC148



WRU90-AC149

DRIVE BELT TENSION

CAUTION:
- The new compressor drive belt is given extra tension when installed because it will loosen after several minutes running. Recheck that its tension is within the standard specification after operation and performance test (five minutes or operation).

WRU90-AC150