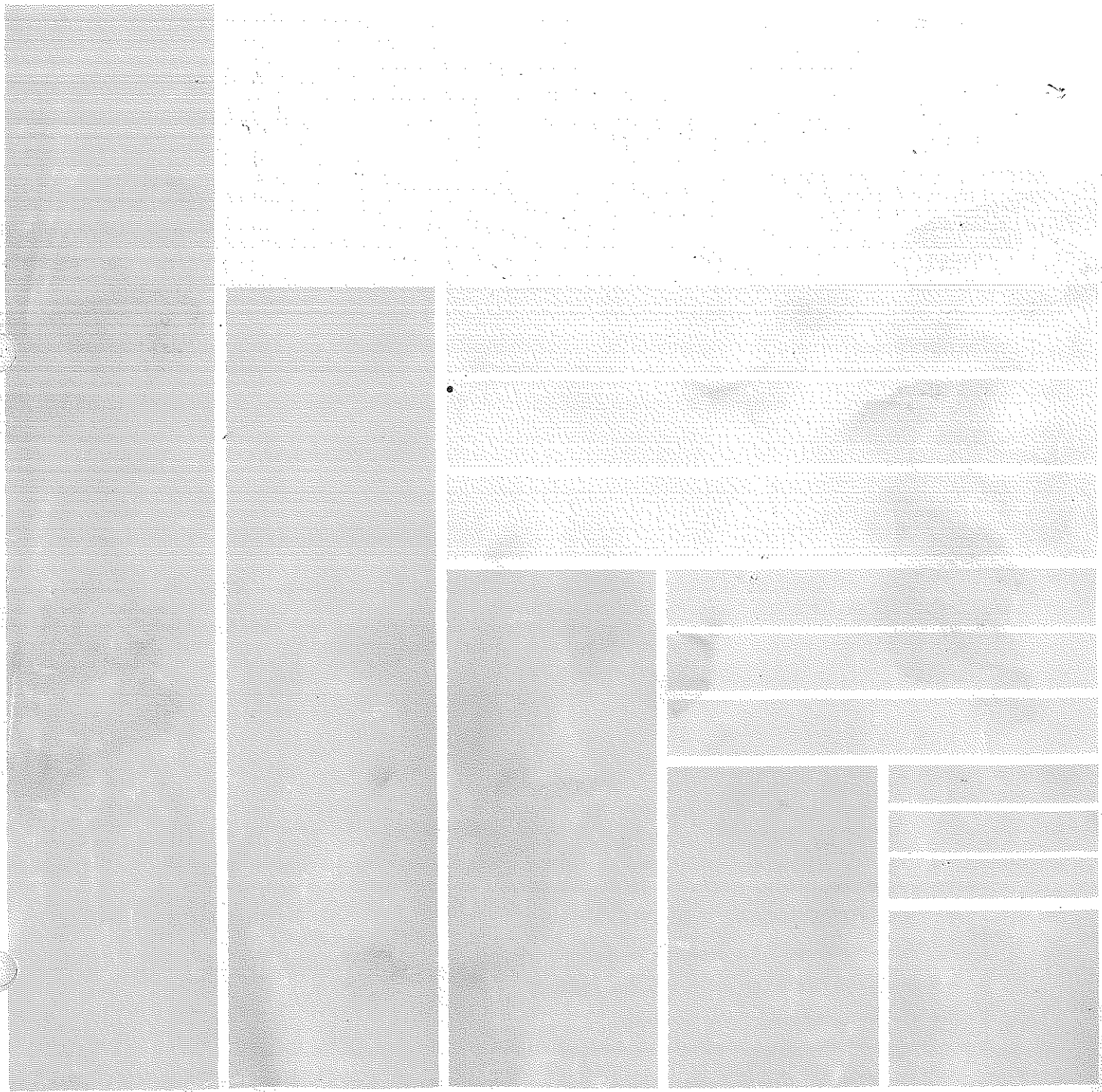
DENSO

TOYOTA
1991
AIR CONDITIONER
MR2/PREVIA

INSTALLATION MANUAL



INDEX

FOREWORD

This manual has been published to explain how to install the air conditioner for 1991 model TOYOTA MR2 and PREVIA.

This manual includes the evacuating and charging procedures in the end section of this manual.

When installing the air conditioner, installation should be done as described in this manual.

It is recommended that this manual should be kept readily available for reference at all times. We reserve the right to make changes in this manual, at any time, without notice.

GENERAL INFORMATION

1. PREPARATIONS BEFORE INSTALLATION

(1) Vehicle Inspection and Adjustment

Prior to installing the air conditioner, make the following inspections and/or adjustments.

(a) Engine Ignition Timing (Engine Injection Timing)
(b) Engine Cooling System
(c) Battery Electolyte and Charging System
(d) Passenger Compartment Seal
(e) Fuel System
(f) General Vehicle Inspection

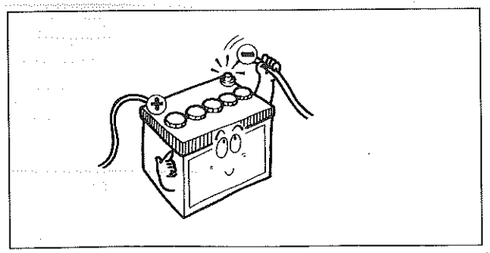
(2) Preparations of Air Conditioner Parts

Unpacking the kit, lay all parts out in order of installation.
Check entire contents of the kit for missing or defective components.
Installing the air conditioner, use guard covers and seat covers for protection.

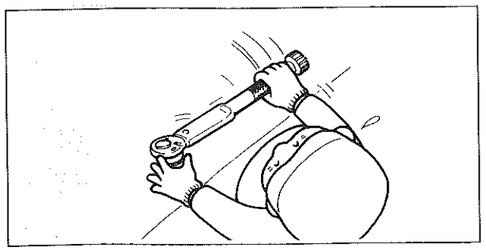
(3) Installation Tools

(a) Vacuum Pump
(b) Air Conditioner Service Tools
(c) Torque Wrench
(d) Hand Service Tools

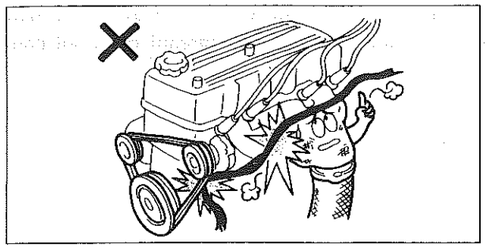
2. SERVICE PRECAUTIONS



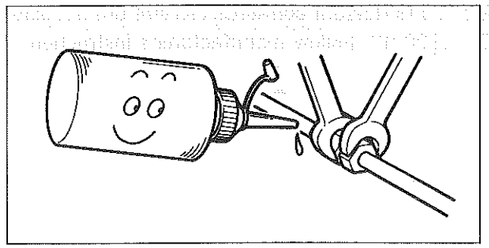
(1) Disconnect the ground cable at the battery negative terminal.



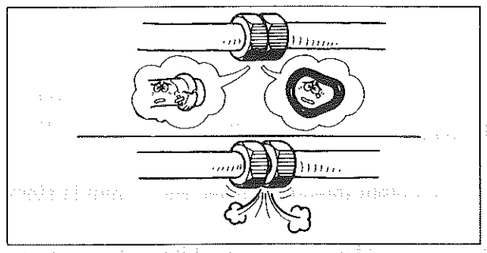
(2) Parts mounted on the engine must use bolts provided in the kit and be torqued to specifications.



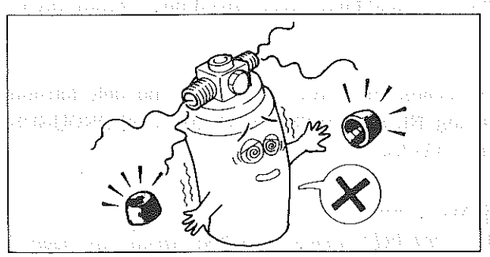
(3) Installing air conditioning lines and A/C harnesses, route properly to avoid interference with surrounding parts.



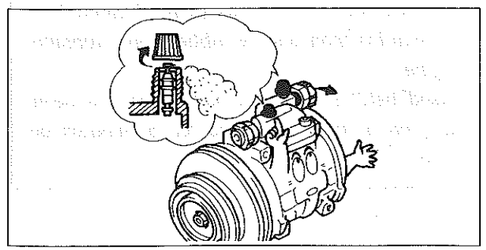
(4) Before making any hose and tube connections, apply a few drops of refrigeration oil to the seat of O-ring.
(5) Tightening or loosening line fittings, use two wrenches to prevent the pipes from twisting.



(6) Tighten coupling nuts according to specified torque.

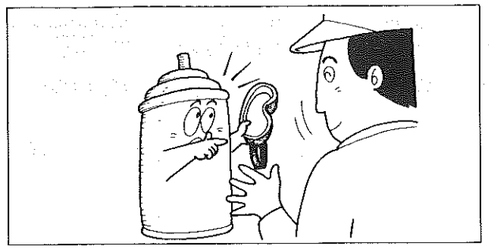


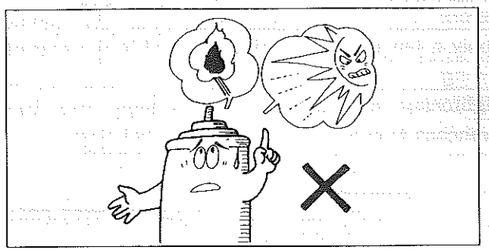
(7) Do not remove caps from fittings until each component is ready for connection.



CAUTION

Remove caps from compressor slowly to allow refrigerant to escape. The compressor is shipped from the factory with a slight charge of refrigerant to prevent corrosion of seals.





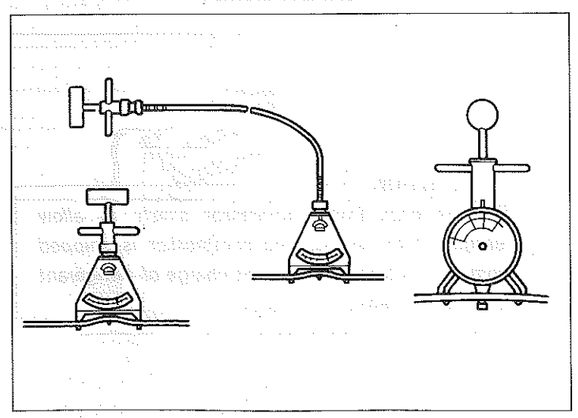
(8) Handling the refrigerant R-12, wear eye protection and be careful that liquid refrigerant does not contact skin.

(9) Keep the refrigerant container (service drum) below 40°C (100 °F). Follow manufacturer's instruction.

3. WHEN INSTALLING

(1) All instructions are given from the driver's point of view.
(2) Figures in parentheses indicate diameter and length of bolt stem.

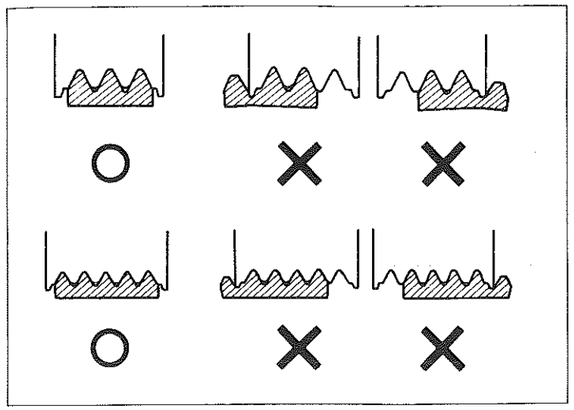
Example: (a) BOLT (M6× ℓ16) means a hex head bolt which has 6mm thread diameter and 16mm in stem length.
(b) SCREW or TAPPING SCREW (ϕ6× ℓ16) means a round head screw which has a 6mm thread diameter and a 16mm-stem.



(3) Installing the drive belt, check the belt tension using NIPPONDENSO BTG-20 or BURROUGHS BT-33-73F.

NOTE

1) "New belt" refers to a belt which has been used less than 5 minutes (poly-V-ribbed) or 15 minutes (non poly-V-ribbed) on a running engine.
2) "Used belt" refers to a belt which has been used on a running engine for 5 minutes or more.



CAUTION

1) The V-ribbed belt requires accurate tension adjustment ; weak tension is likely to cause the belt whine, while excessive tension may result in damage to accessory bearing or the idle pulley bracket.
2) After installing the drive belt, check that it fits properly in the ribbed grooves.

(4) TIGHTENING TORQUE

UNIT: kg-cm 〈Nm〉 (ft-lbs)

Dia.× Pitch	4T BOLT	6T BOLT	8T BOLT
M6 ×1.0	55 〈5.0〉 (4.0)	80 〈8.0〉 (5.8)	———
M8 ×1.25	130 〈12.5〉 (9.4)	195 〈19.0〉 (14.1)	300 〈29.0〉 (21.7)
M10 ×1.25	260 〈26.0〉 (18.8)	400 〈39.0〉 (29.0)	620 〈61.0〉 (44.9)
M12 ×1.25	480 〈47.0〉 (34.8)	730 〈71.0〉 (52.8)	1100 〈110.0〉 (79.6)

MEMO

I

MR2

SW20L, SW21L

E/G	A/C KIT
5S-FE	00883-1790A
3S-GTE	00883-1790B

1. INSTALLATION

CAUTION

Remove the battery ⊖ terminal at the beginning of installation.

1-1 INSTALLATION INSIDE PASSENGER COMPARTMENT

(1) REMOVAL OF PARTS

* Before installing the air conditioner, the following parts should be removed from the vehicle.

① TEMPORARY REMOVAL

(a) Under covers (Seven)

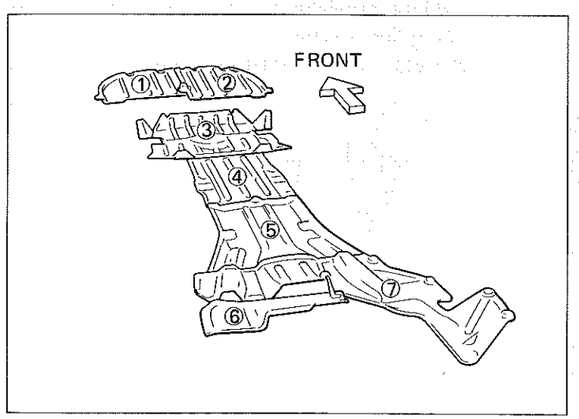


Fig. 1

(b) Grommet (Discard)

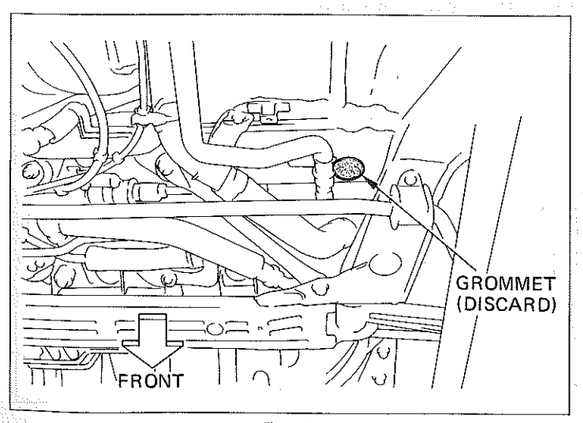


Fig. 2

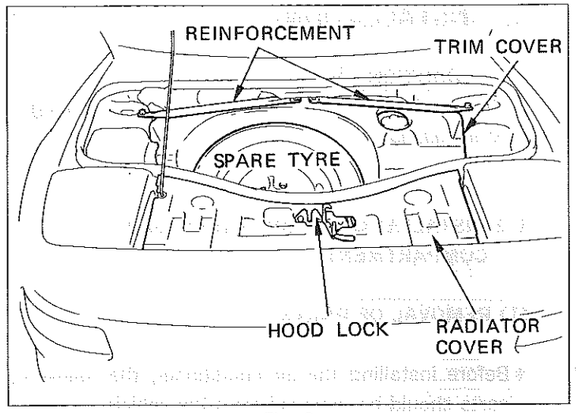


Fig. 3

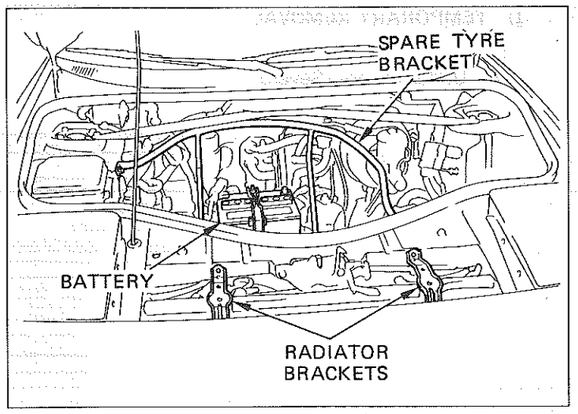


Fig. 4

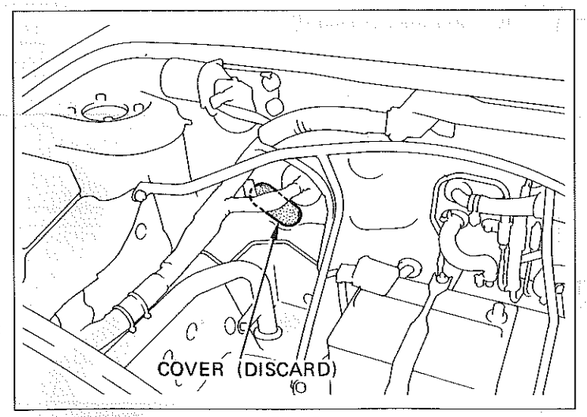


Fig. 5

(c) Reinforcement and Spare tire
(d) Trim cover
(e) Radiator cover

NOTE

In case the original plastic clips are broken, use the new clips provided in the kit when reinstalling the radiator cover.

(f) Hood lock

(g) Radiator brackets
(h) Spare tire bracket
(i) Battery

(j) Cover (Discard)

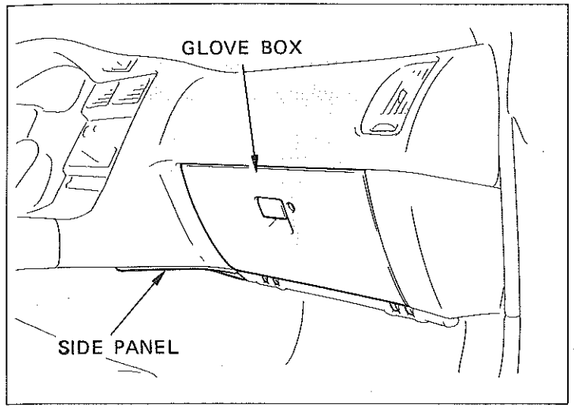


Fig. 6

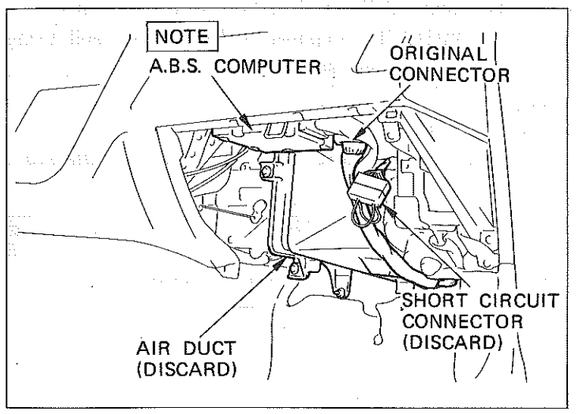


Fig. 7

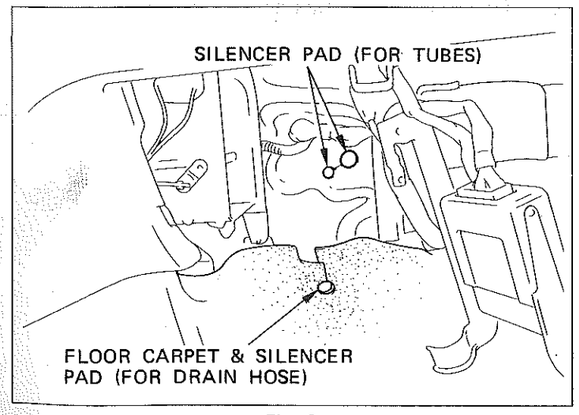


Fig. 8

(k) Glove box
(l) Side panel

(m) Short circuit connector (Discard)
(n) Air duct (Discard)
(o) A.B.S. computer (If equipped)

NOTE

Do not disconnect the A.B.S. computer harness connector.

(p) Temporarily disconnect the original connector.

(2) SILENCER PAD

(a) Cut out the shaded portion of the floor carpet and silencer pad.

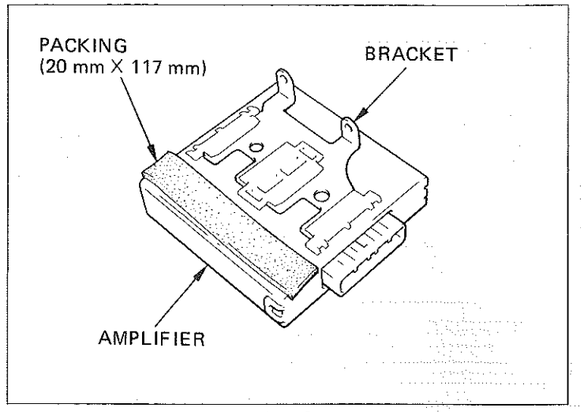


Fig. 9

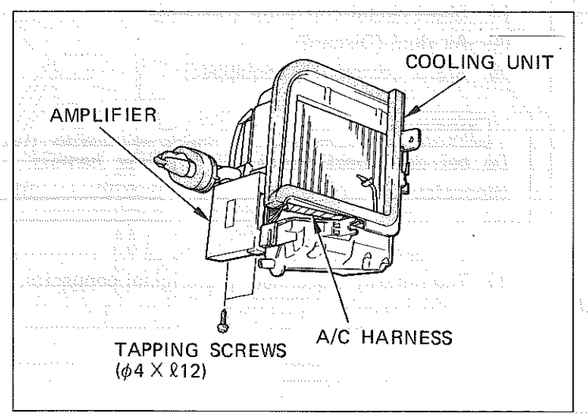


Fig.10

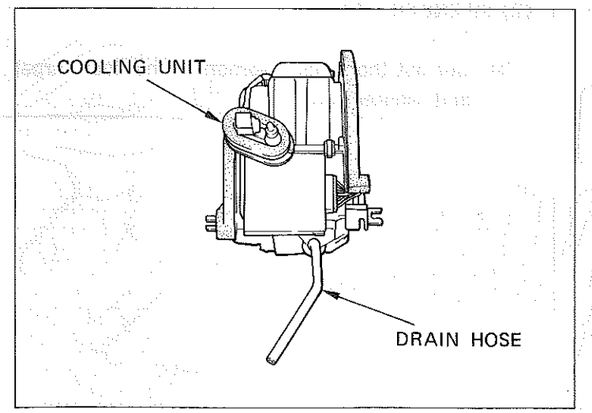


Fig.11

(3) COOLING UNIT

(a) Install the bracket to the amplifier.
(b) Attach the packing to the amplifier.
(c) Connect the A/C harness to the amplifier.
(d) Install the amplifier to the cooling unit using two tapping screws.

NOTE

A/C harness must be routed prior to installing amplifier.

(e) Route the A/C harness as shown.
(f) Connect the drain hose to the cooling unit.

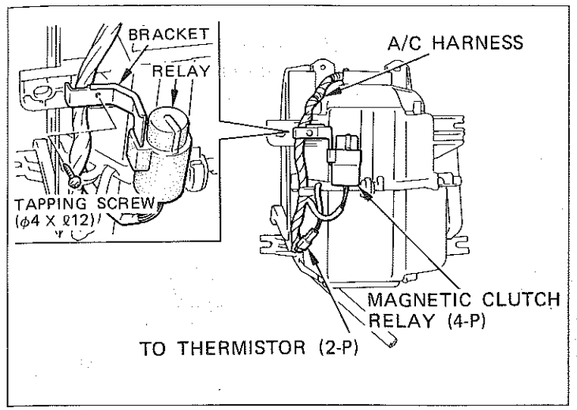


Fig.12

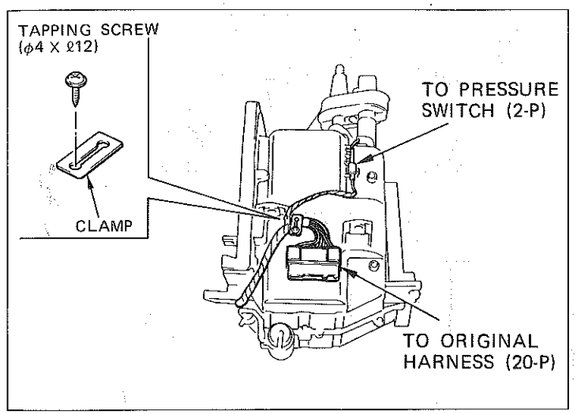


Fig.13

(g) Route the A/C harness as shown.
(h) Install the relay to the cooling unit using the bracket and a tapping screw.
(i) Connect the A/C harness to the relay and thermistor.
(j) Connect the 2-P connector of the A/C harness to the pressure switch.
(k) Slide the 20-P connector of the A/C harness to the cooling unit clamp.
(l) Fasten the A/C harness to the cooling unit using a clamp and a tapping screw.

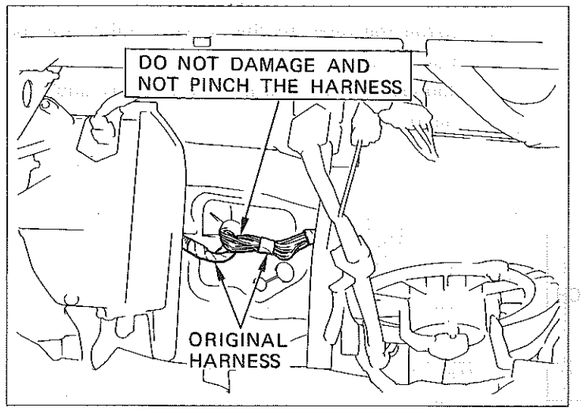


Fig.14

CAUTION

Do not damage and not pinch the original harness when installing the cooling unit.

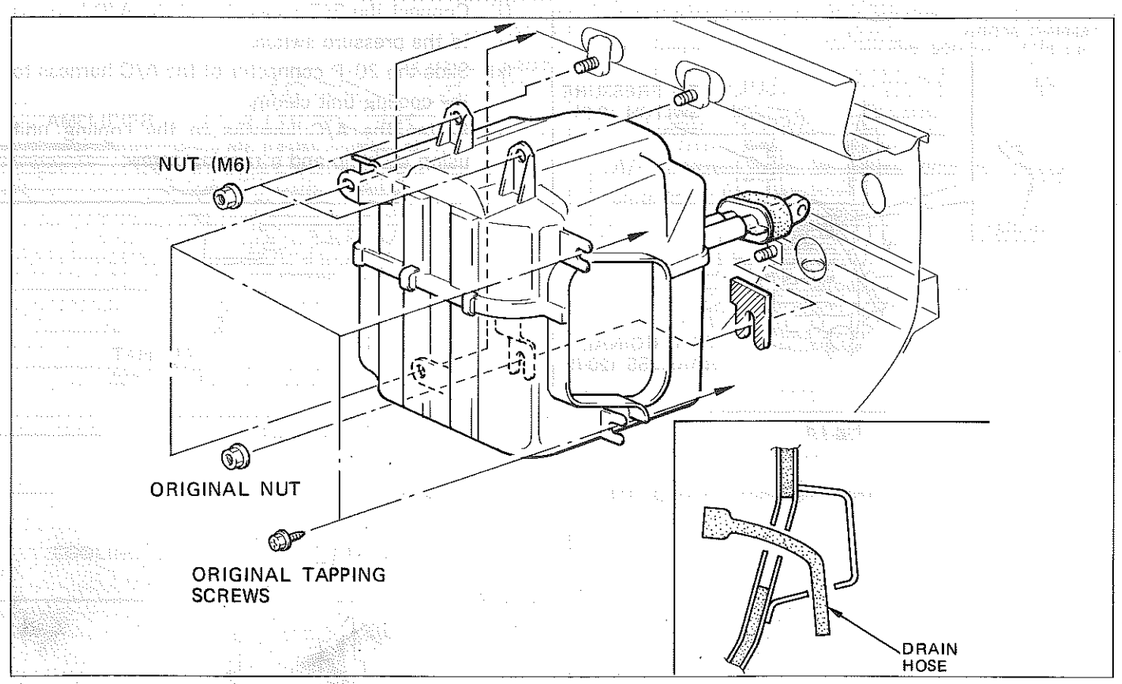


Fig.15

(m) Temporarily remove the original nut.

(n) Install the cooling unit using the four original tapping screws, one original nut and two nuts.

NOTE

Route the drain hose as shown.

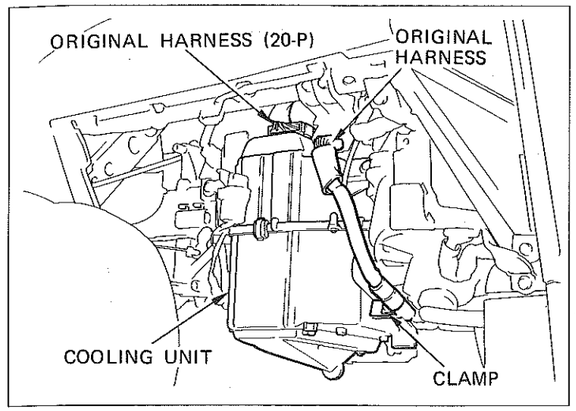


Fig.16

(o) Connect the 20-P connector of the original harness to the A/C harness.

NOTE

The 20-P connector is taped on the original main harness.

(p) Reconnect the original harness.

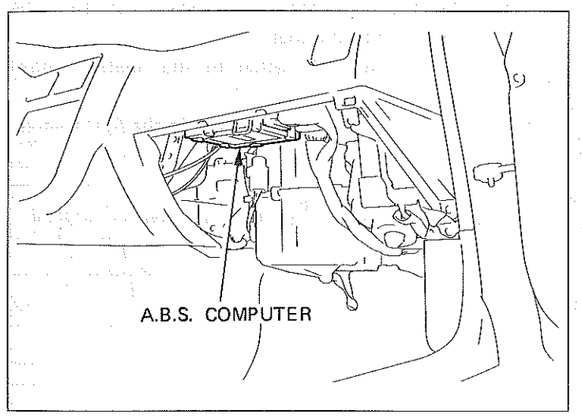


Fig.17

(q) Reinstall the A.B.S. computer. (If equipped)

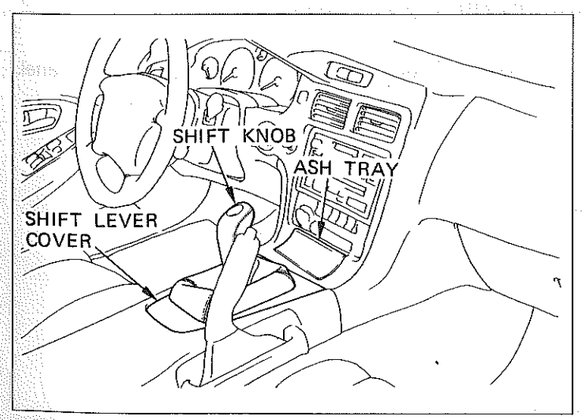


Fig.18

(4) A/C SWITCH

(a) Temporarily remove the shift knob, shift lever cover and ash tray.

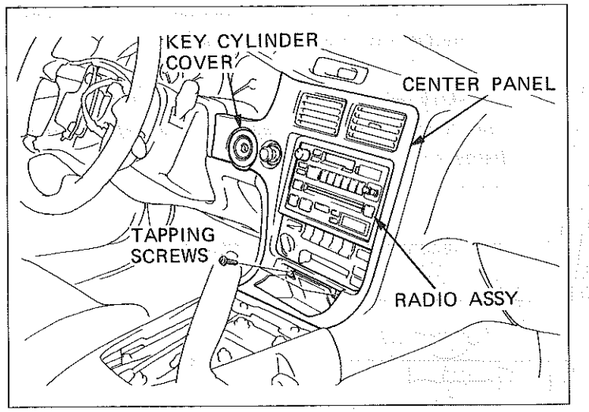


Fig.19

(b) Temporarily remove the key cylinder cover, center panel and radio assy.

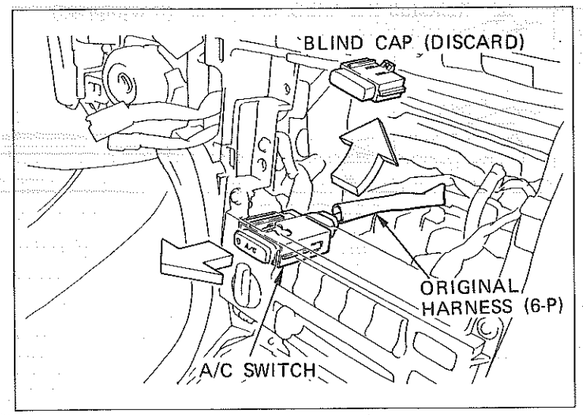


Fig.20

(c) Remove and discard the blind cap from the heater control panel.

(d) Install the A/C switch to the heater control panel.

(e) Connect the original harness to the A/C switch.

NOTE

The original harness (6-P) is taped on the original main harness.

(5) AIR OUTLET GRILLE

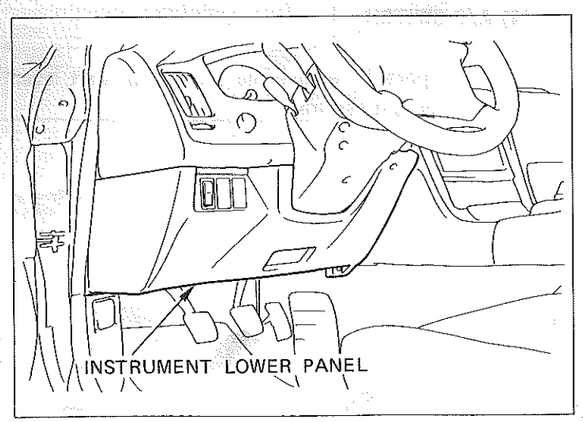


Fig.21

(a) Temporarily remove the instrument lower panel.

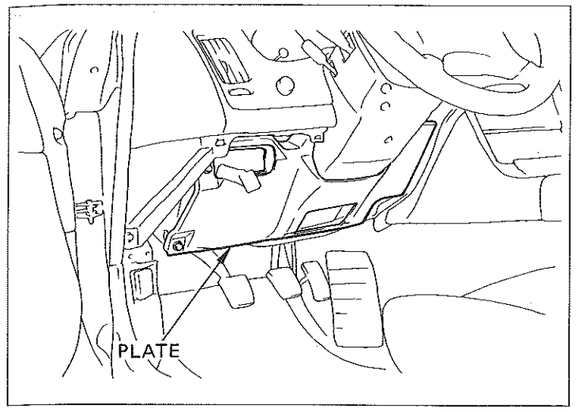


Fig.22

(b) Temporarily remove the plate.

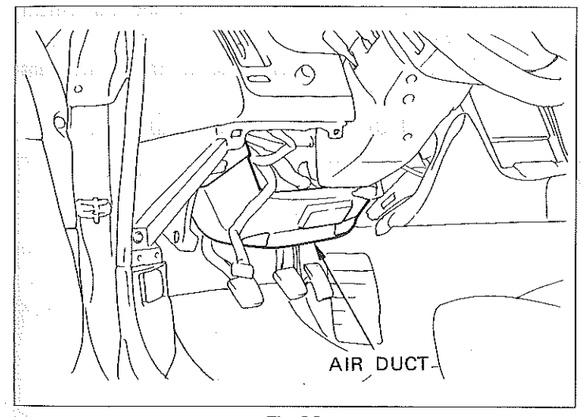


Fig.23

(c) Temporarily remove the air duct.

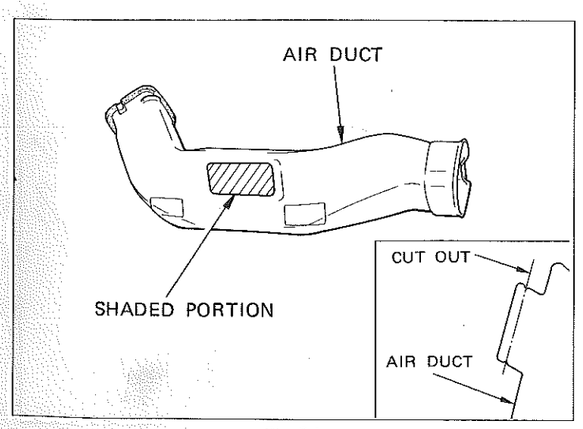


Fig.24

(d) Cut out the shaded portion on the air duct.

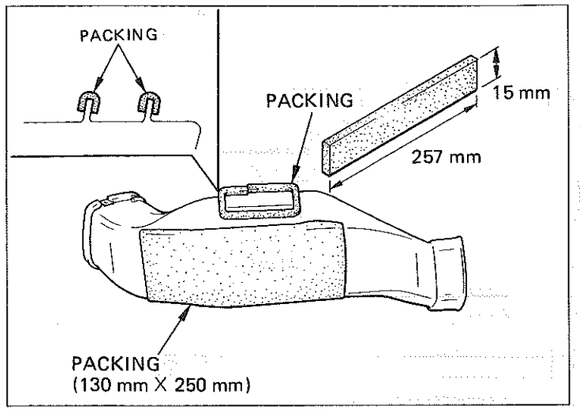


Fig.25

(e) Attach the two pieces of packing to the air duct.

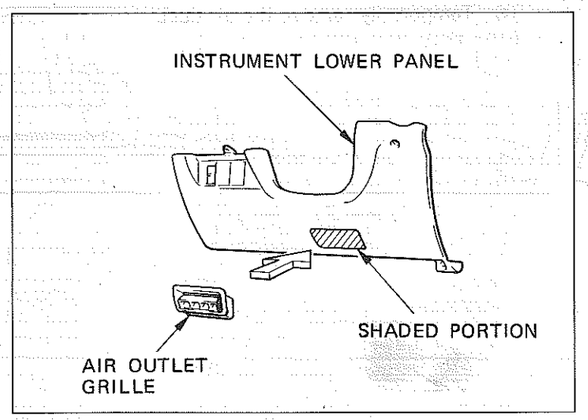


Fig.26

(f) Cut out the shaded portion on the instrument lower panel.
(g) Install the air outlet grille to the instrument lower panel.
(h) Reinstall the temporarily removed parts.

1-2 INSTALLATION INSIDE ENGINE COMPARTMENT

(1) REMOVAL OF PARTS

* Before installing the air conditioner, following parts should be removed.

CAUTION

Remove the battery ⊖ terminal at the beginning of installation.

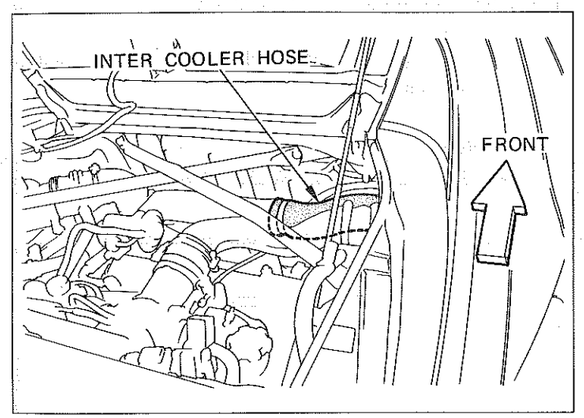


Fig.27

① TEMPORARY REMOVAL

(a) Inter cooler hose (3S-GTE model only)

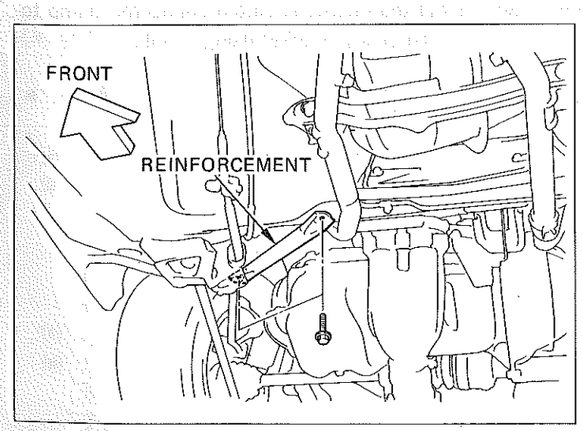


Fig.28

(b) Reinforcement

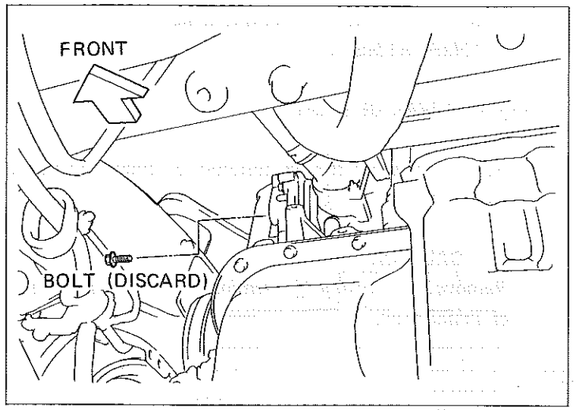


Fig.29

(c) Remove and discard the original bolt from the engine block.

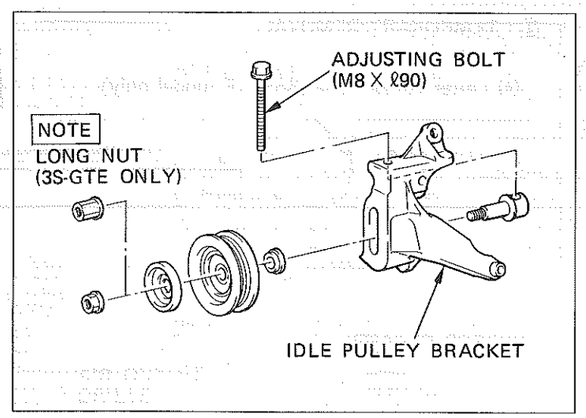


Fig.30

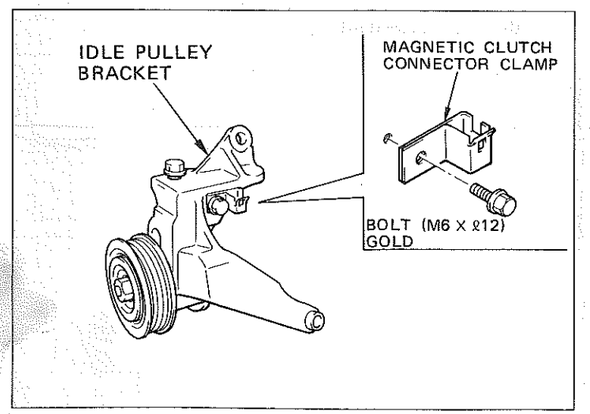


Fig.31

(2) IDLE PULLEY

(a) Assemble the idle pulley to the idle pulley bracket.

NOTE

■ *3S-GTE ENGINE MODEL ONLY*

Use the LONG NUT when assemble the idle pulley.

(b) Install the magnetic clutch connector clamp to the idle pulley bracket using a bolt.

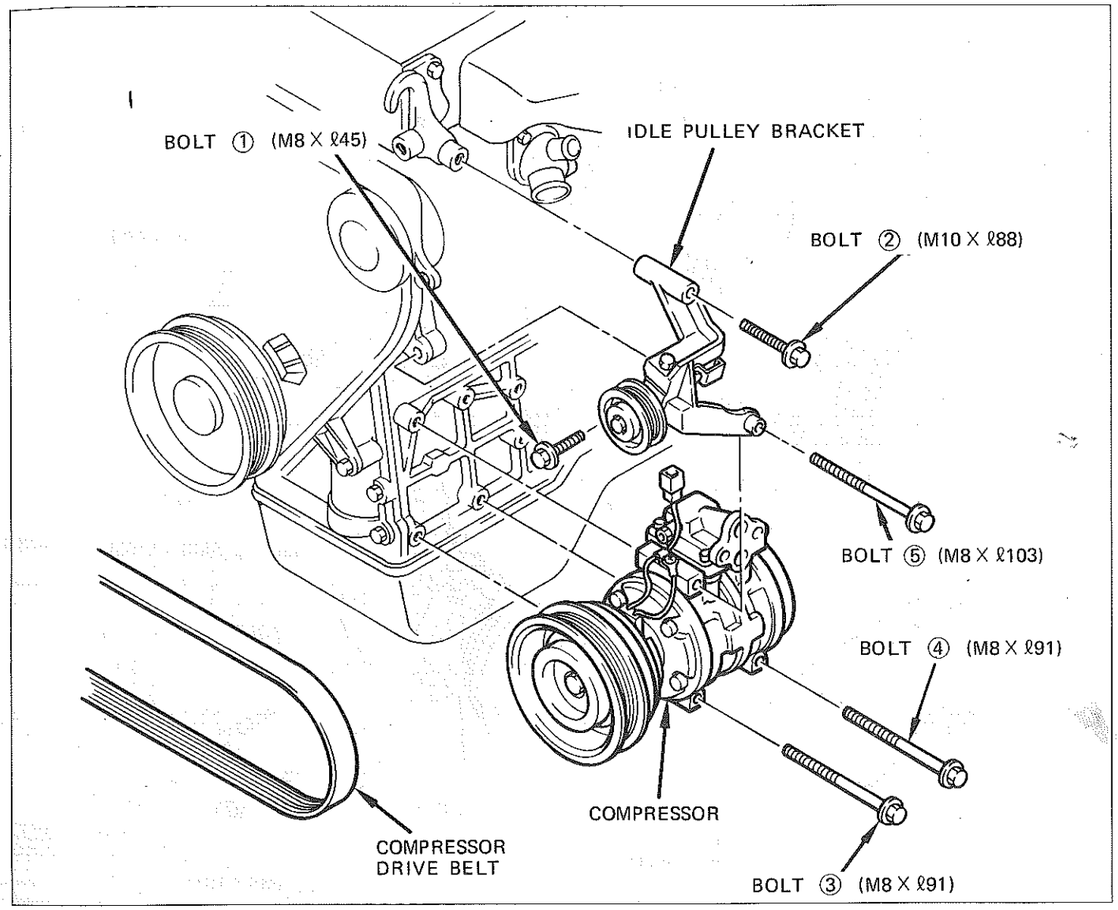


Fig.32

(3) COMPRESSOR

■ 5S-FE ENGINE MODEL ONLY (Fig.32)

(a) Loosely install the idle pulley bracket from the top using two bolts.
(b) Fully tighten the two bolts as following order;
Bolt ①→②
Tightening torque;
Bolt ① 275 kg-cm (20 ft-lbs)
Bolt ② 375 kg-cm (27 ft-lbs)
(c) Loosely install the compressor from the bottom using three bolts.
(d) Fully tighten the three bolts as following order;
Bolt ③→④→⑤
Tightening torque;
Bolt ③, ④, ⑤ 250 kg-cm (18 ft-lbs)

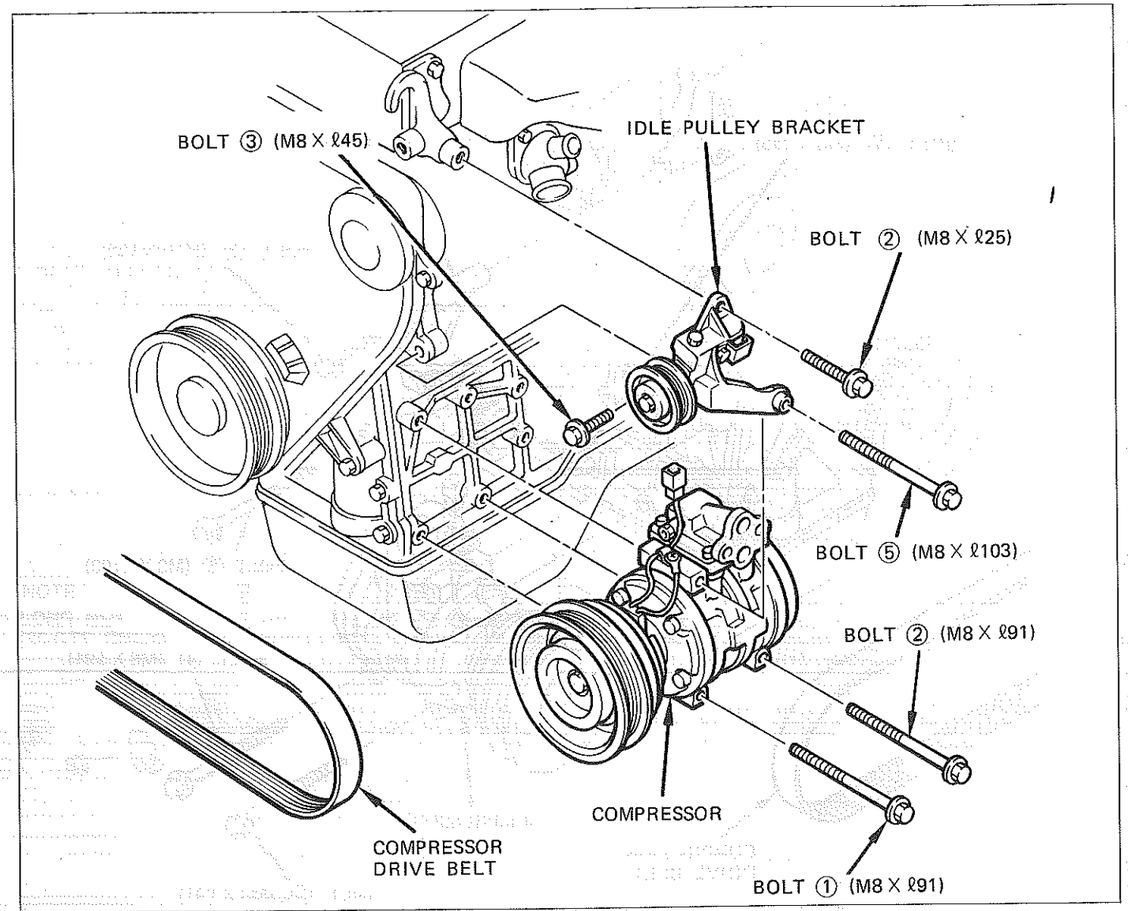


Fig.33

■ 3S-GTE ENGINE MODEL ONLY (Fig.33)

(a) Loosely install the idle pulley bracket from the bottom using two bolts.
(b) Fully tighten the two bolts as following order;
Bolt ①→②
Tightening torque;
Bolt ①, ② 275 kg-cm (20 ft-lbs)
(c) Loosely install the compressor from the bottom using three bolts.
(d) Fully tighten the three bolts as following order;
Bolt ③→④→⑤
Tightening torque;
Bolt ③, ④, ⑤ 250 kg-cm (18 ft-lbs)

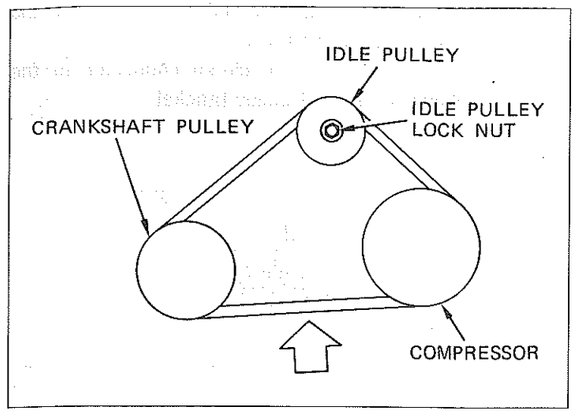


Fig.34

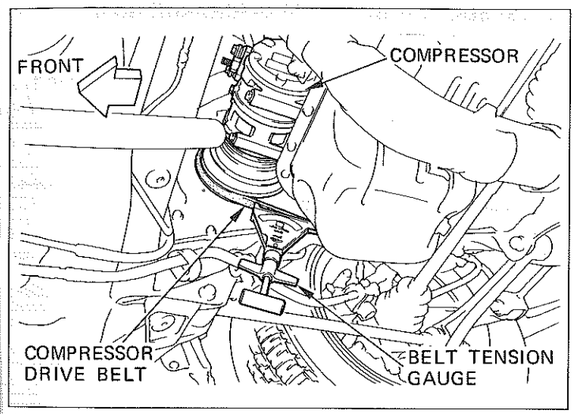


Fig.35

(4) COMPRESSOR DRIVE BELT

(a) Install the compressor drive belt then adjust the belt tension by tightening the adjusting bolt.
(b) Cheak the belt tension using Nippondenso BTG -20 or Burroughs Drive Belt Tension Gauge (No. BT-33-73F).

New belt 160±25 lbs (65±12 kg)
Used belt 100±20 lbs (30±10 kg)

(c) Tighten the idle pulley lock nut.

Tightening torque;
400 kg-cm (29 ft-lbs)

NOTE

Adjust the belt tension by using the belt tension gauge as shown.

CAUTION

1) The new compressor drive belt is given extra tension when installed it will loosen after several minutes running. Recheck that its tension is within the used belt standard specification after operation and performance test (five minutes or more operation).
2) The belt tension may be measured between any two pulleys in using NIPPON DENSO belt tension gauge. Tension must be adjusted to the middle of standard values.

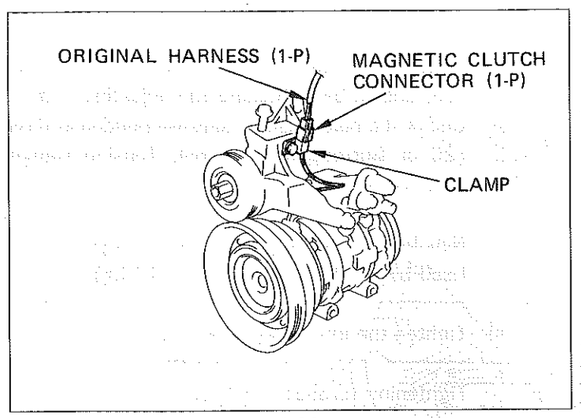


Fig.36

(d) Connect the magnetic clutch connector to the original harness (1-P).

(e) Install the magnetic clutch connector to the clamp on the idle pulley bracket.

(5) SUCTION HOSE AND DISCHARGE HOSE

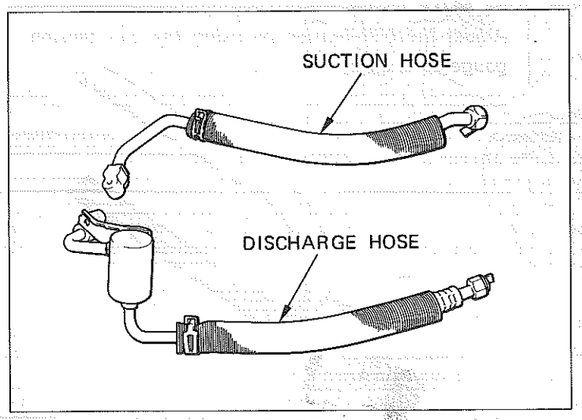


Fig.37

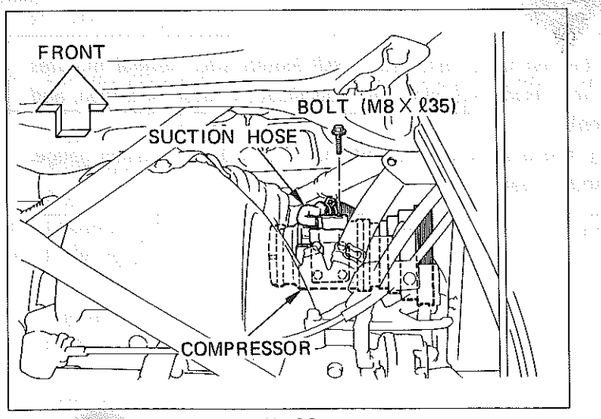


Fig.38

(a) Connect the suction hose to the compressor from the top using a bolt.

Tightening torque; 250 kg-cm (18 ft-lbs)

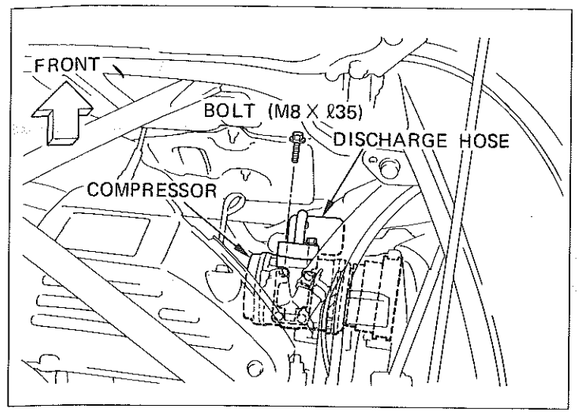


Fig.39

(b) Connect the discharge hose to the compressor from the top using a bolt.

Tightening torque; 250 kg-cm (18 ft-lbs)

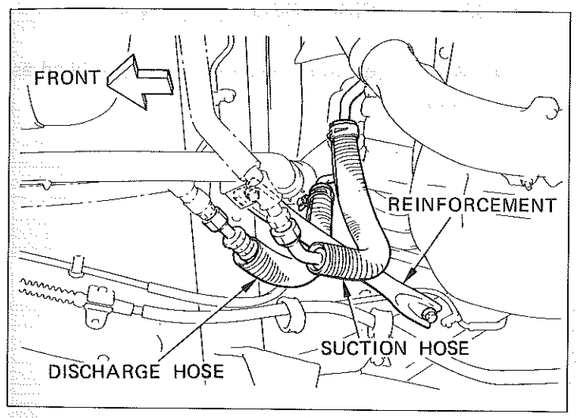


Fig.40

(c) Reinstall the reinforcement.

Tightening torque;
Bolts 740 kg-cm (53 ft-lbs)

CAUTION

Make sure that the reinforcement is located between the suction hose and the discharge hose.

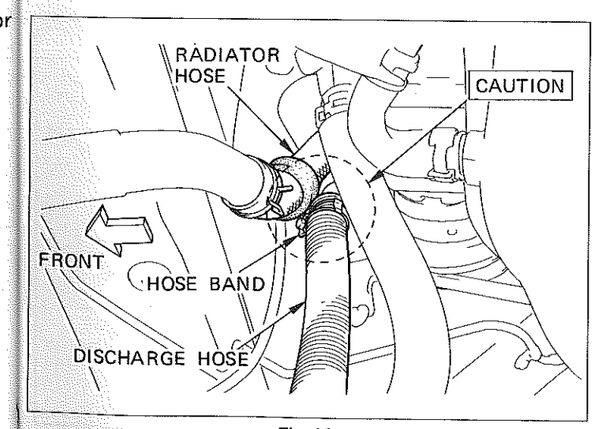


Fig.41

CAUTION

Keep the gap between the discharge hose band and the radiator hose more than 15mm.

(6) CAUTION LABEL

■ 5S-FE ENGINE MODEL ONLY (Fig.42)

(a) Attach the caution label to the engine hood as shown.

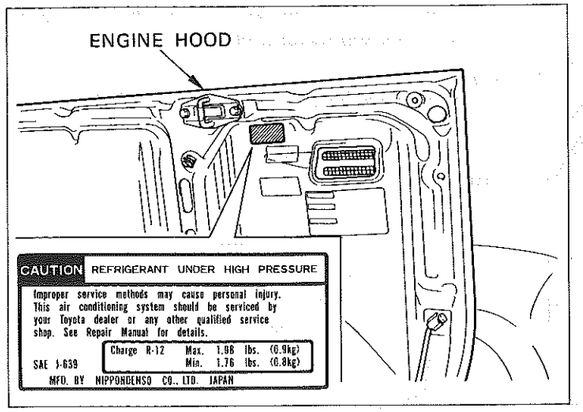


Fig.42

■ 3S-GTE ENGINE MODEL ONLY (Fig.43)

(b) Attach the caution label to the engine hood as shown.

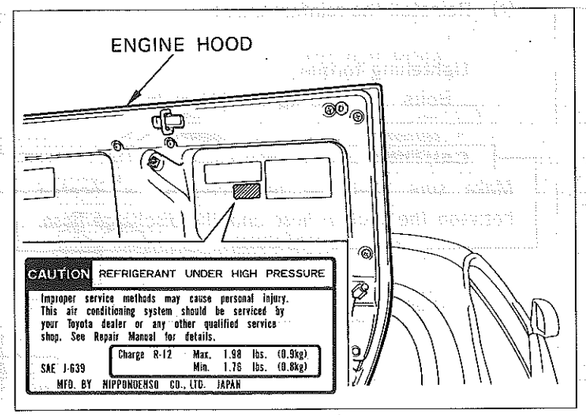
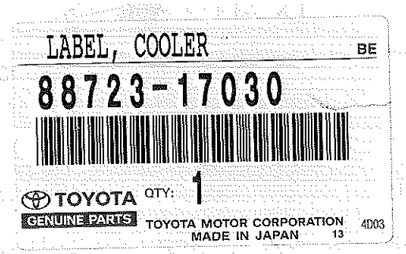


Fig.43



1-3 INSTALLATION INSIDE FRONT LUGGAGE COMPARTMENT

CAUTION

Remove the battery ⊖ terminal at the beginning of installation.

(1) CONDENSER

(a) Install the condenser bracket to the frame using two bolts.

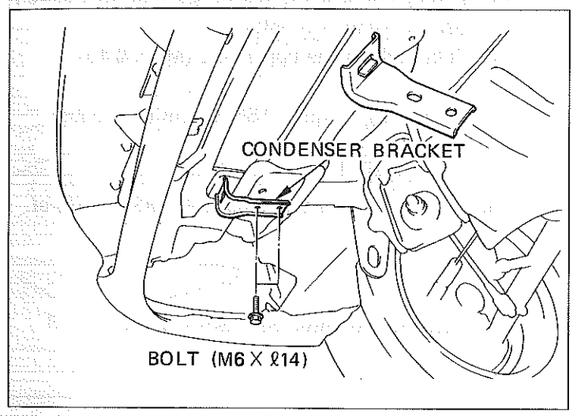


Fig.44

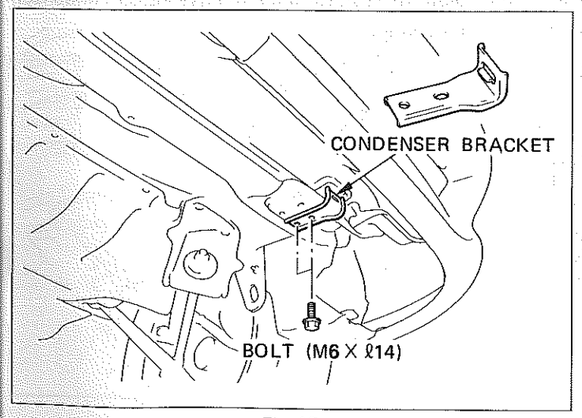


Fig.45

(b) Install the condenser bracket to the frame using two bolts.

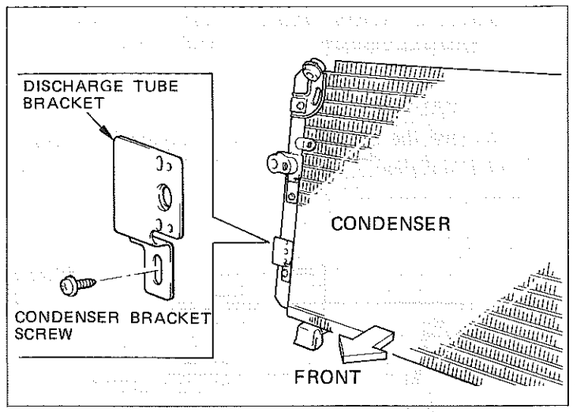


Fig.46

(c) Install the discharge tube bracket to the condenser using the condenser bracket screw.

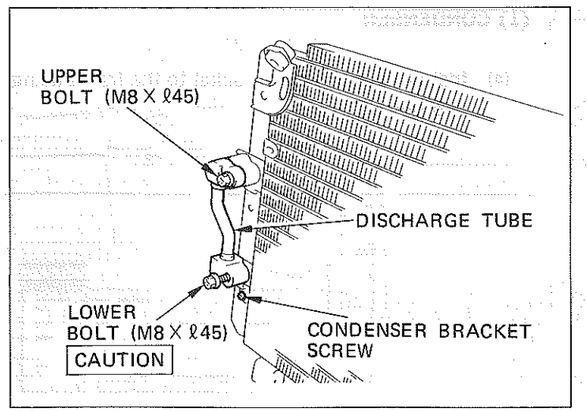


Fig.47

(d) Loosly connect the discharge tube to the condenser using two bolts.

(e) Fully tighten the upper bolt (M8× ℓ45).

Tightening torque; 185 kg-cm (13 ft-lbs)

CAUTION

Do not fully tighten the lower bolt (M8× ℓ45) at this stage.

(f) Remove the lower bolt (M8× ℓ45).

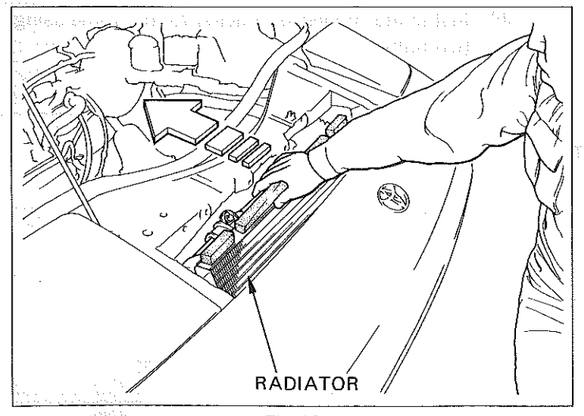


Fig.48

(g) Lean the radiator back to have easier condenser installation.

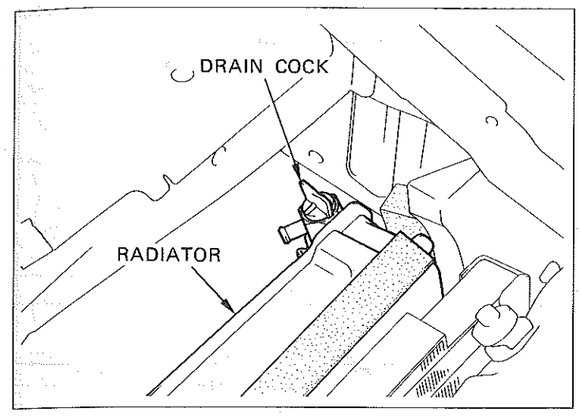


Fig.49

CAUTION

Do not damage the drain cock when lean the radiator back.

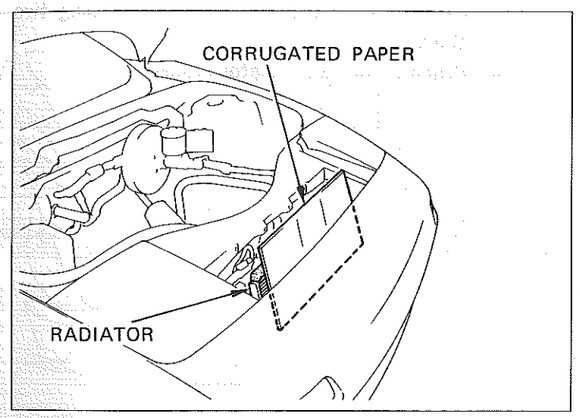


Fig.50

(h) Temporarily put the corrugated paper in front of the radiator to protect it.

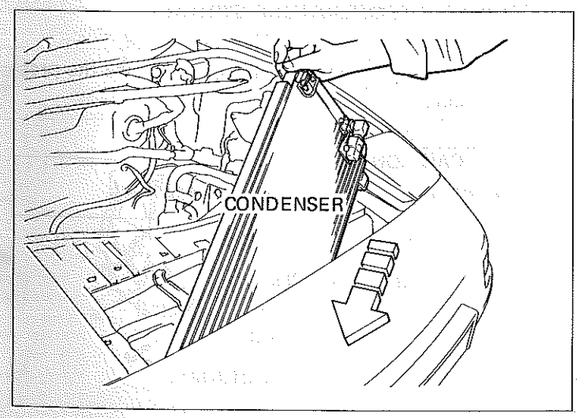


Fig.51

(i) Put the condenser in front of the radiator.

CAUTION

1) *Do not damage the condenser fin.*
2) *Do not pinch the horn harness.*

(j) Remove and discard the corrugated paper.

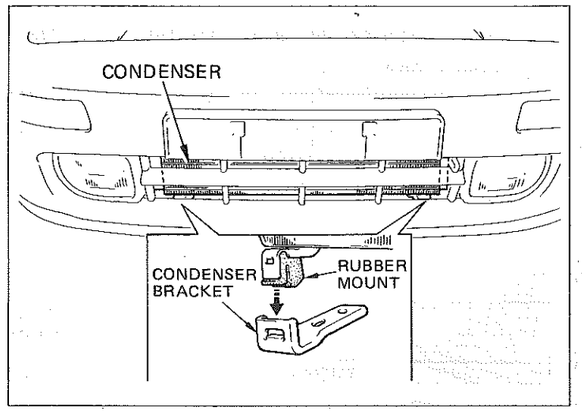


Fig.52

(k) Locate the condenser brackets into the rubber mounts of the condenser.

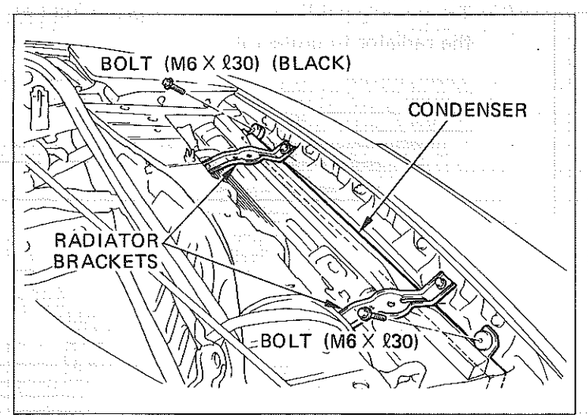


Fig.53

(l) Fasten the condenser to the frame using two bolts.

(m) Reinstall the two radiator brackets.

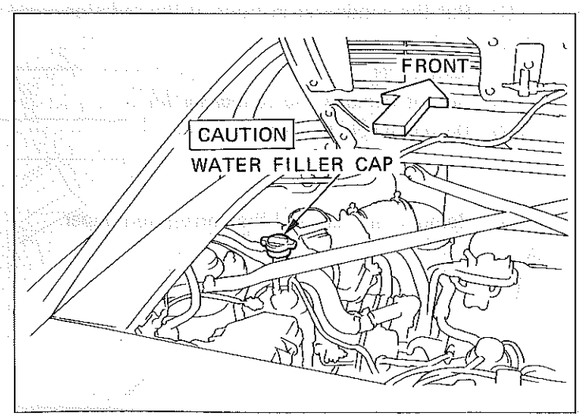


Fig.54

(2) WATER TEMPERATURE SWITCH

(a) Loosen the water filler cap to release the pressure.

CAUTION

Never open the water filler cap when hot.

(b) Close the water filler cap.

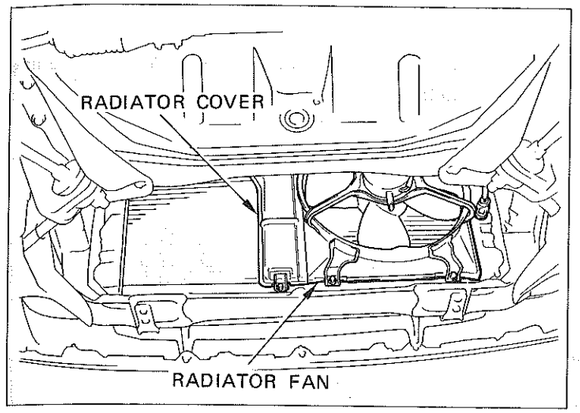


Fig.55

■ 5S-FE ENGINE MODEL ONLY (Fig.55)

(c) Remove and discard the radiator cover.

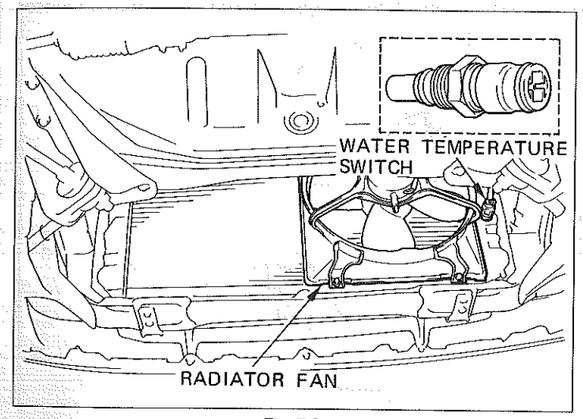


Fig.56

(d) Temporarily remove the radiator fan to have easier water temperature switch replacement.

(e) Disconnect the original harness from the original water temperature switch.

(f) Replace the water temperature switch with new one supplied in the A/C kit.

Tightening torque; 75 kg-cm (5 ft-lbs)

(g) Reinstall the radiator fan.

(h) Connect the original harness to the new water temperature switch.

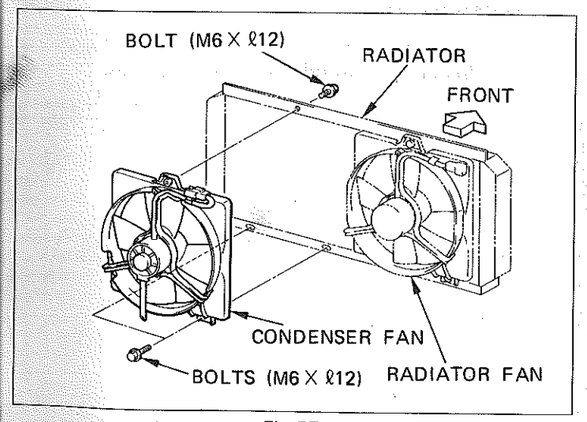


Fig.57

■ 3S-GTE ENGINE MODEL ONLY (Fig.57)

(i) Install the condenser fan to the frame using three bolts.

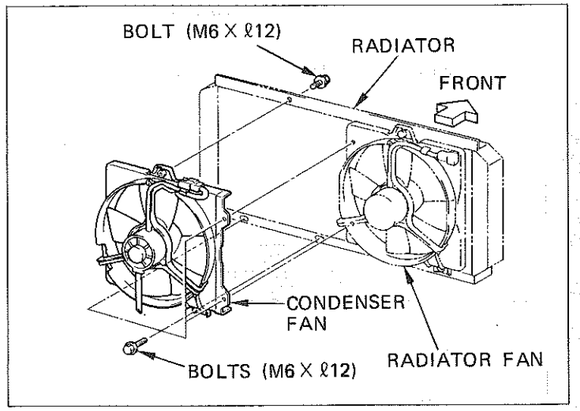


Fig.58

■ 5S-FE ENGINE MODEL ONLY (Fig.58)

(j) Install the condenser fan to the frame using five bolts.

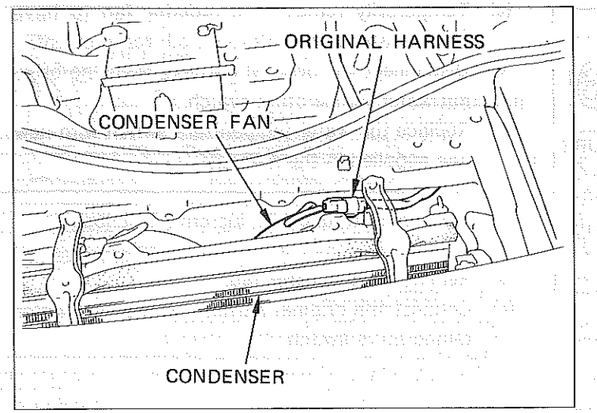


Fig.59

(k) Connect the original harness to the condenser fan connector.

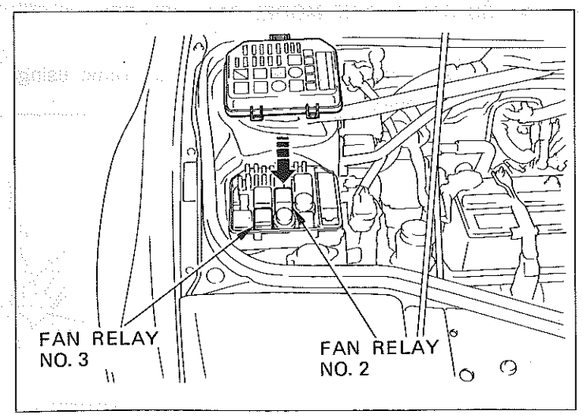


Fig.60

(3) FAN RELAY

(a) Install the two relays to the relay box.

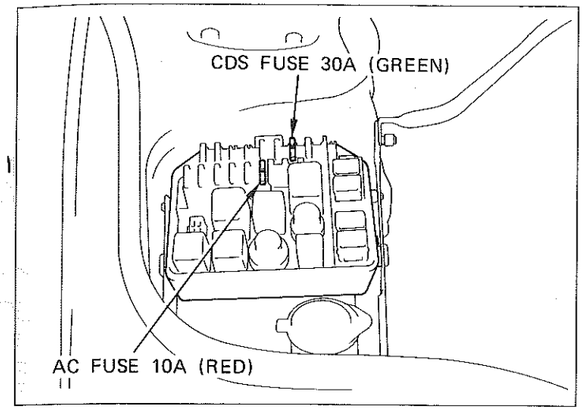


Fig.61

(b) Install the two fuses to the relay box.

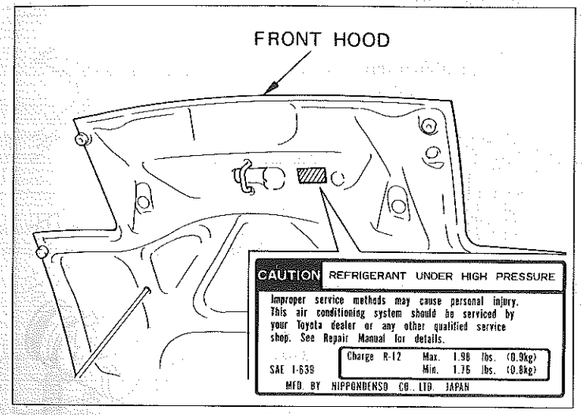


Fig.62

(4) CAUTION LABEL

(a) Attach the caution label to the front hood as shown.

(1) PIPING LAYOUT

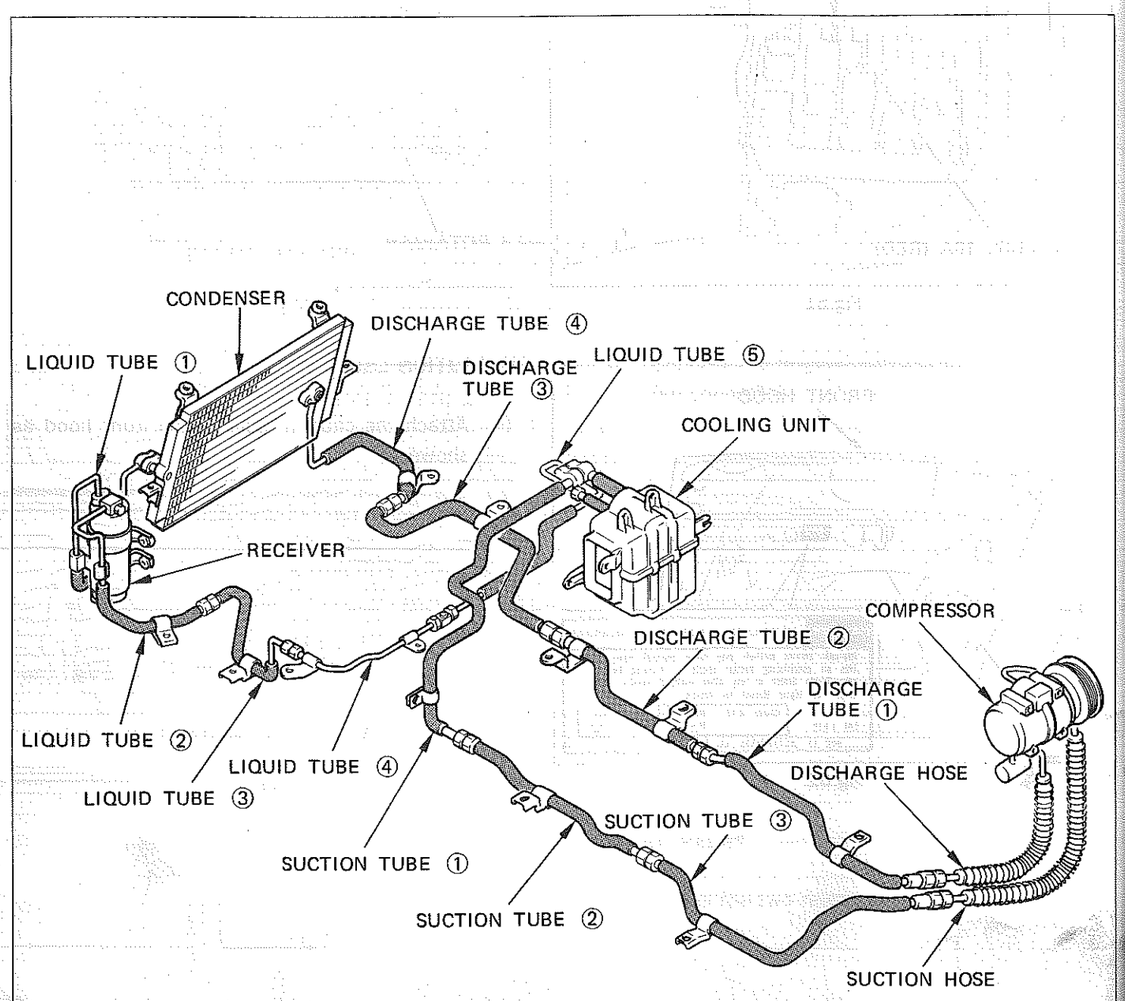


Fig.63

* Before making any hose and tube connections, apply a few drops of refrigerant oil to the seat of O -ring and coupling nuts.

* When tightening and loosening fittings, use two wrenches for support.

Standard Torque for O-ring Fitting

Size of Tube (inch)	Fitting Torque kg-cm <N-m> (ft-lbs)
0.31	140 <13.7> (10)
0.50	230 <22.5> (17)
0.62	330 <32.3> (24)

(2) PIPING IN FRONT LUGGAGE COMPARTMENT

(a) Temporarily remove the P/S computer (If equipped).
(b) Remove and discard the short circuit connector.

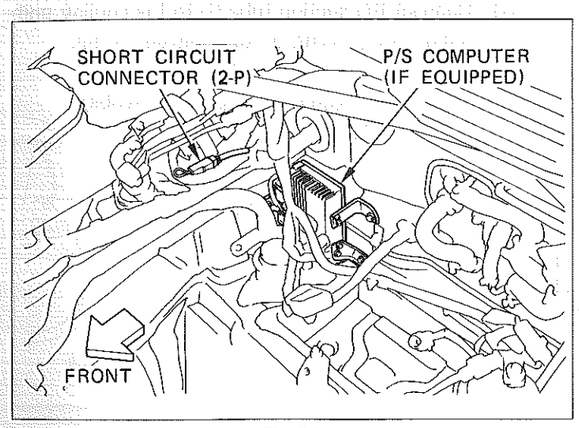


Fig.64

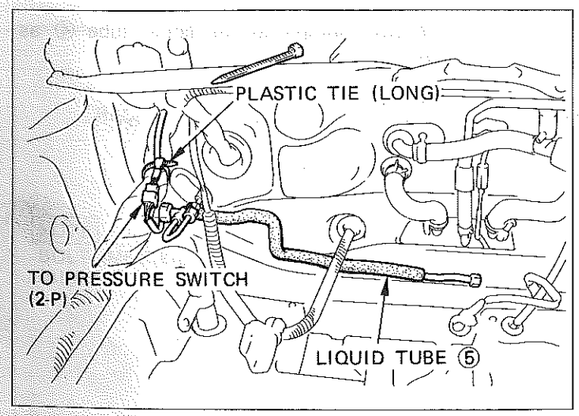


Fig.65

(c) Connect the liquid tube ⑤ to the cooling unit inlet fitting.
(d) Connect the original harness (2-P) to the pressure switch then fasten it to the original harness using a plastic tie (Long).

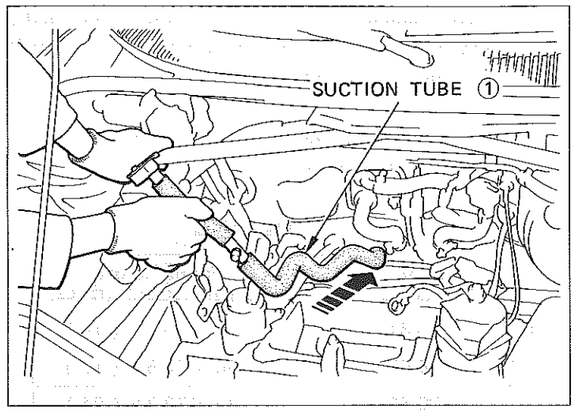


Fig.66

(e) Pass the suction tube ① through the bulkhead as shown.

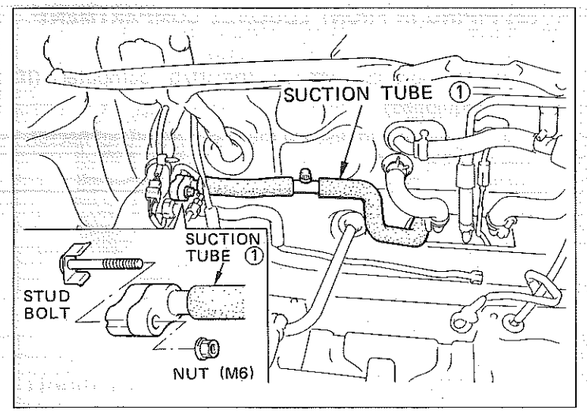


Fig.67

(f) Connect the suction tube ① to the cooling unit outlet fitting using a stud bolt and a nut.

Tightening torque; 55 Kg-cm (4 ft-lbs)

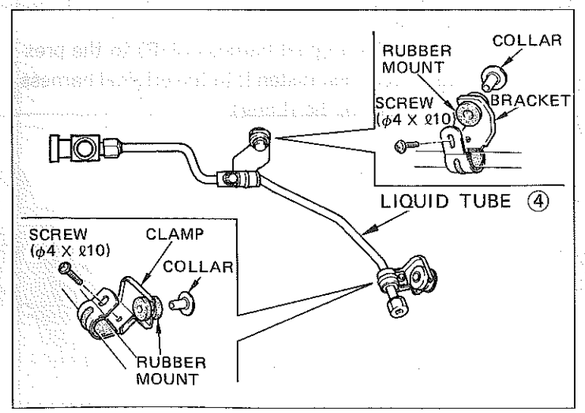


Fig.68

(g) Install two clamps to the liquid tube ④ as shown.

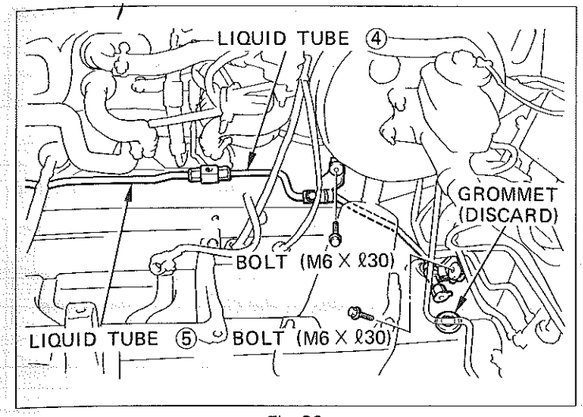


Fig.69

(h) Remove and discard the grommet.
(i) Connect the liquid tube ④ to the liquid tube ⑤.
(j) Remove and discard the radiator pipe clamp bolt then fasten the liquid tube ④ using two bolts.

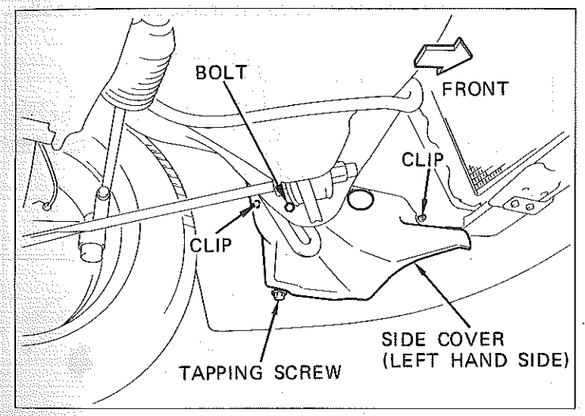


Fig.70

(3) RECEIVER

(a) Temporarily remove the side cover.

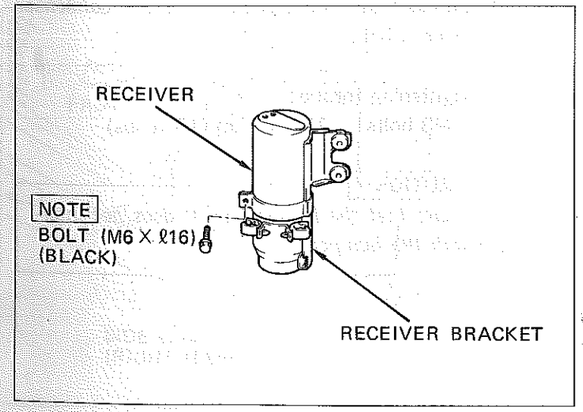


Fig.71

(b) Assemble the receiver to the receiver bracket.

NOTE

Loosely tighten the bolt (M6× ℓ 16).

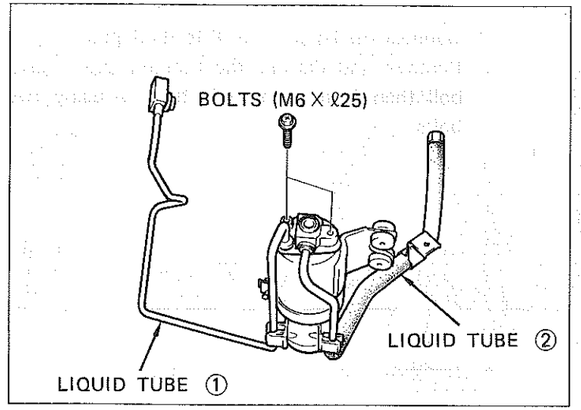


Fig.72

(c) Connect the liquid tube ① & ② to the receiver using two bolts.

Tightening torque;
M6 bolts 55 kg-cm (4 ft-lbs)

(d) Fully tighten the bolt (M6× ℓ16) installed in step(b).

NOTE

Fasten the two tubes to the clamps on the receiver bracket.

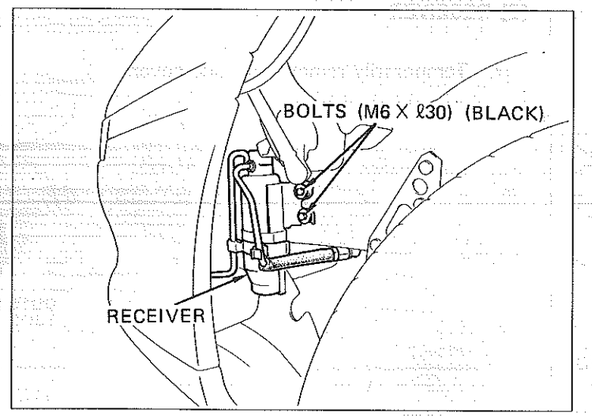


Fig.73

(e) Install the receiver to the frame using two bolts.

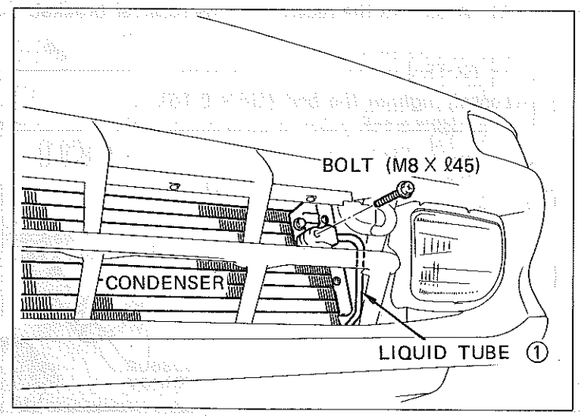


Fig.74

(f) Connect the liquid tube ① to the condenser using a bolt.

Tightening torque;
M8 bolts 185 kg-cm (13 ft-lbs)

CAUTION

Make sure that the liquid tube ① does not interfere with the bumper.

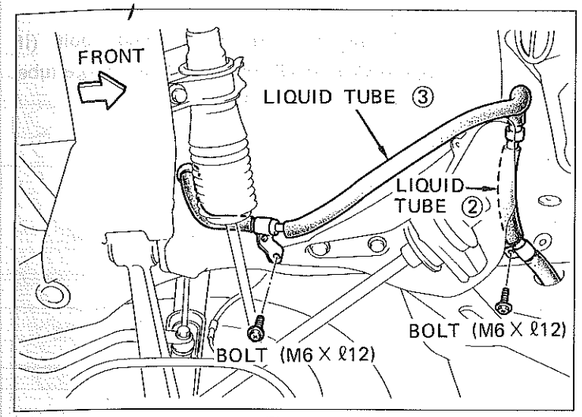


Fig.75

(4) LIQUID TUBES

(a) Connect the liquid tube ③ to the liquid tube ②.
(b) Remove and discard the original bolts (if equipped) then fasten the liquid tubes to the frame using two bolts.

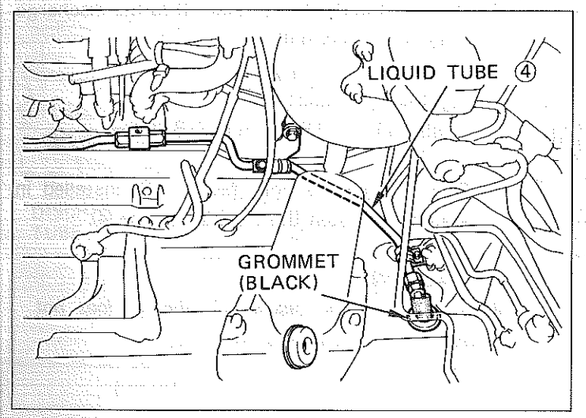


Fig.76

(c) Install the grommet (black) to the frame.
(d) Connect the liquid tube ③ to the liquid tube ④.

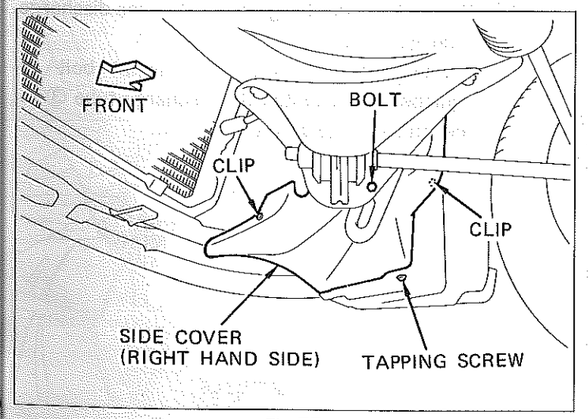


Fig.77

(5) DISCHARGE TUBES

(a) Temporarily remove the side cover.

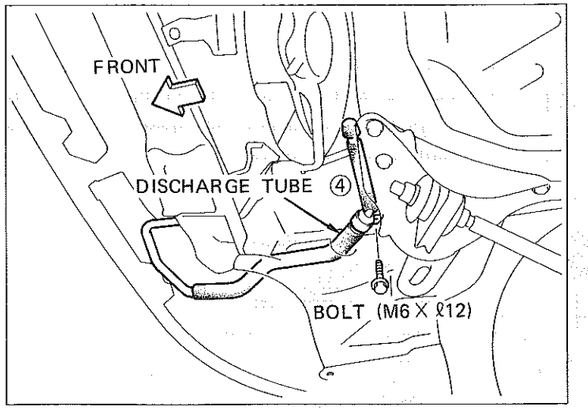


Fig.78

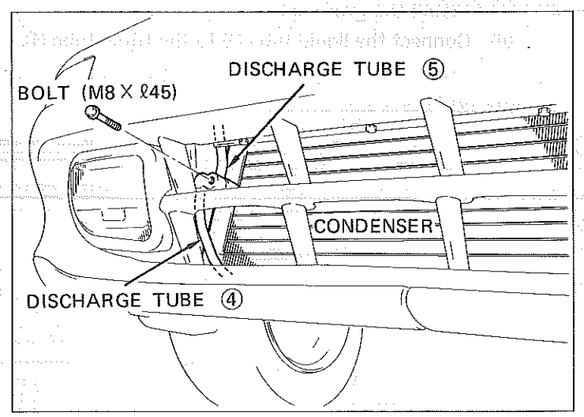


Fig.79

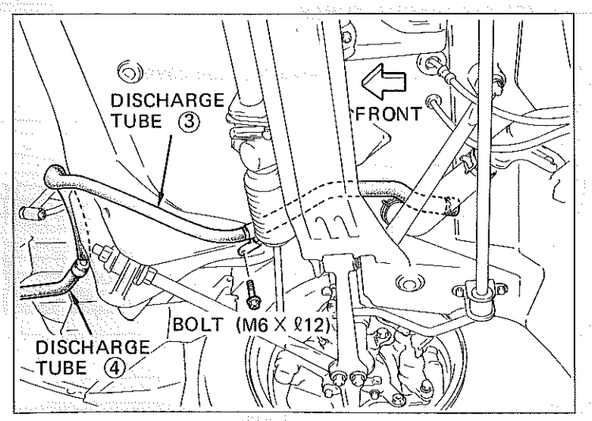


Fig.80

(b) Route the discharge tube ④ as shown.

(c) Remove and discard the original bolt (if equipped) then loosly fasten the discharge tube ④ to the frame using a bolt.

(d) Connect the discharge tube ④ to the discharge tube ⑤ using a bolt.

Tightening torque;
M8 bolt 185 kg-cm (13 ft-lbs)

(e) Fully tighten the bolt (M6× ℓ12) installed in step(c) to fasten the discharge tube ④.

CAUTION

Make sure that the discharge tube ④ does not interfere with surrounding parts.

(f) Connect the discharge tube ③ to the discharge tube ④.

(g) Remove and discard the original bolt (if equipped) then fasten the discharge tube ③ to the frame using a bolt.

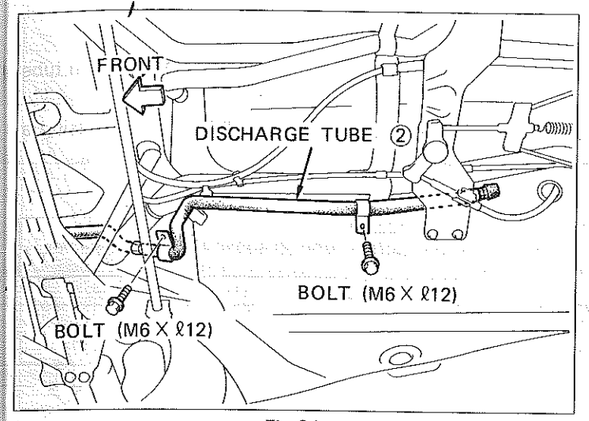


Fig.81

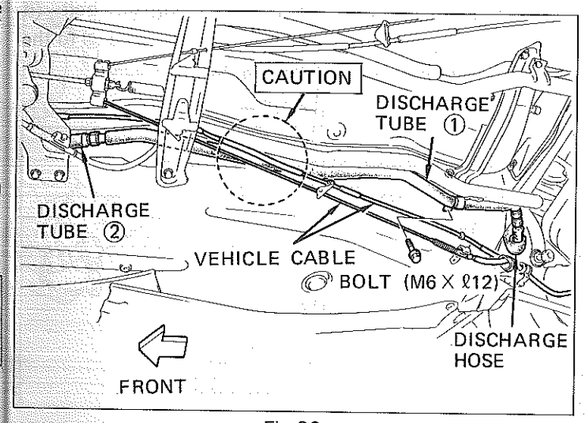


Fig.82

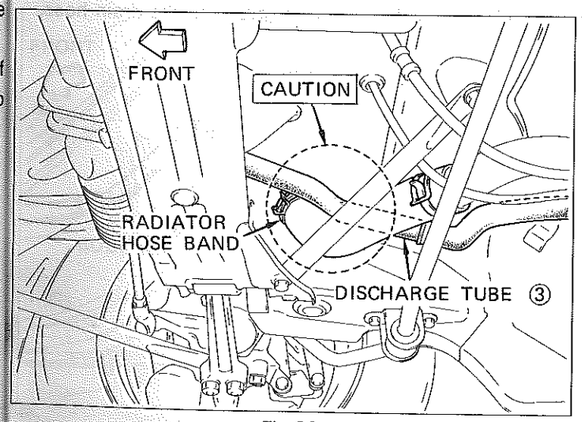


Fig.83

(h) Connect the discharge tube ② to the discharge tube ③.

(i) Fasten the discharge tube ② to the frame using two bolts.

(j) Connect the discharge tube ① between the discharge tube ② and the discharge hose.

CAUTION

Route the discharge tube ① above the vehicle cables.

(k) Fasten the discharge tube ① to the frame using a bolt.

CAUTION

Keep the gap between the radiator hose band and the discharge tube ③ more than 15mm.
In case the gap is less than 15mm, rotate the radiator hose band to keep the gap.

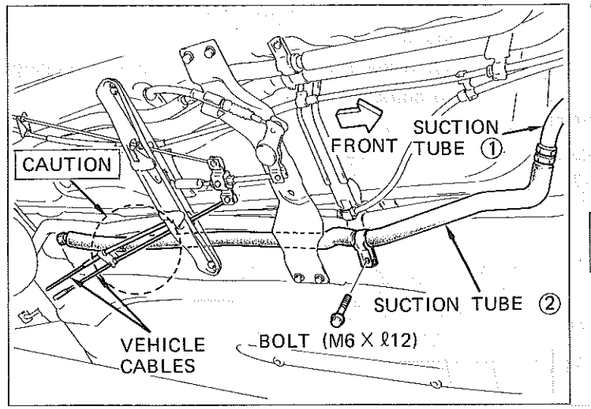


Fig.84

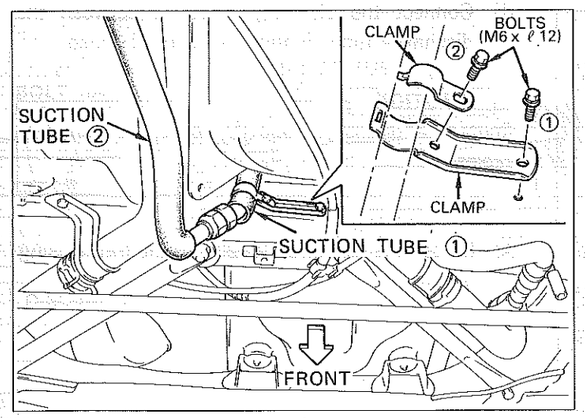


Fig.85

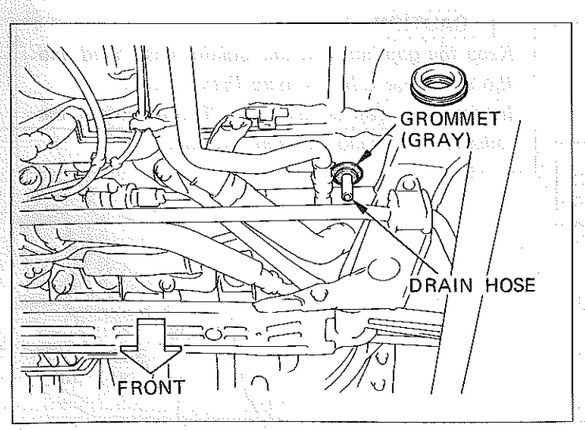


Fig.86

(6) SUCTION TUBES

(a) Connect the suction tube ② to the suction tube ①.

(b) Fasten the suction tube ② to the frame using a bolt.

CAUTION

Route the suction tube ② above the vehicle cables.

(c) Remove and discard the original bolt (if equipped) then fasten the suction tube ① to the frame using two clamps and two bolts.

NOTE

Tighten the two bolts as following order ;
bolt ① → bolt ②

(d) Install the grommet (gray) to the drain hose.

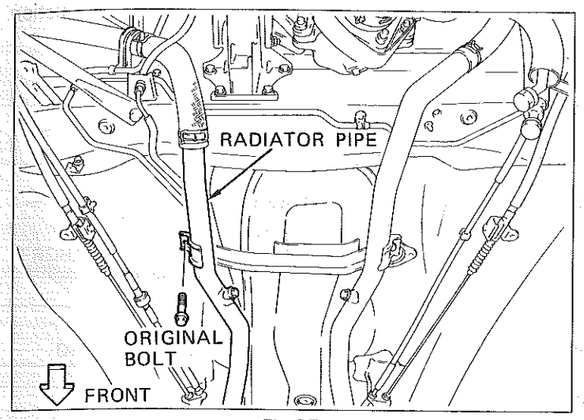


Fig.87

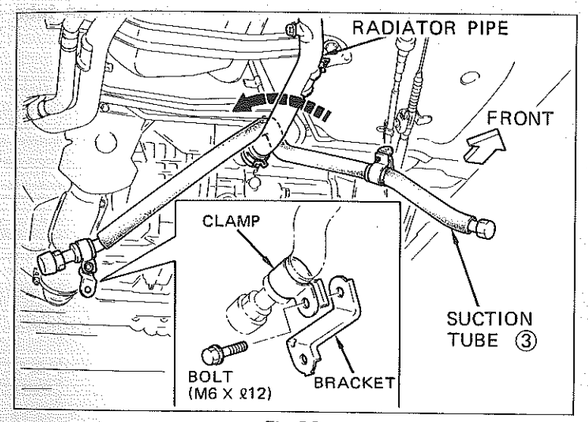


Fig.88

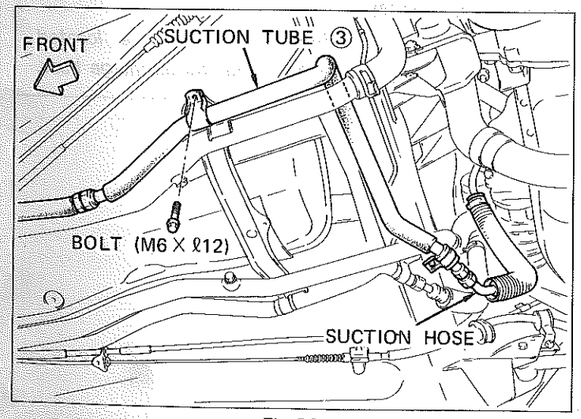


Fig.89

(e) Temporarily remove the original bolt to have easier suction tube ③ installation.

(f) Route the suction tube ③ between the frame and the radiator pipe.

(g) Assemble the clamp and bracket to the suction tube ③.

(h) Reinstall the original bolt removed in step(e).

(i) Connect the suction tube ③ between the suction hose and the suction tube ②.

(j) Fasten the suction tube ③ to the frame using a bolt.

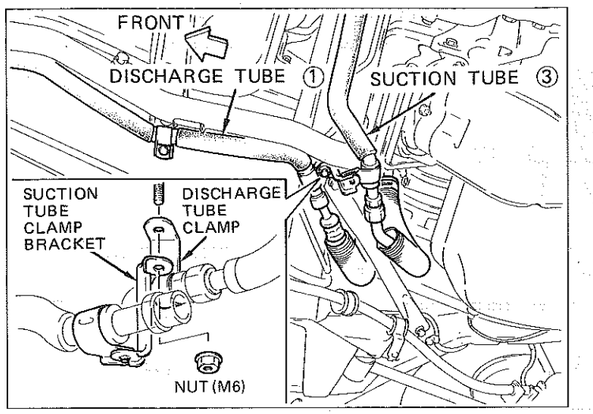


Fig.90

(k) Fasten the discharge tube ① and the suction tube ③ to the frame using a nut.

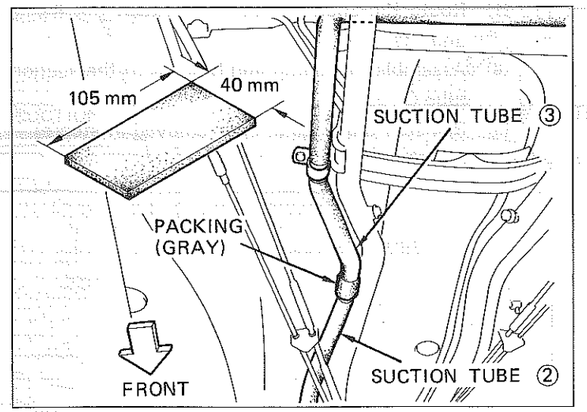


Fig.91

(l) Attach the packing (gray) to the suction tube connection.

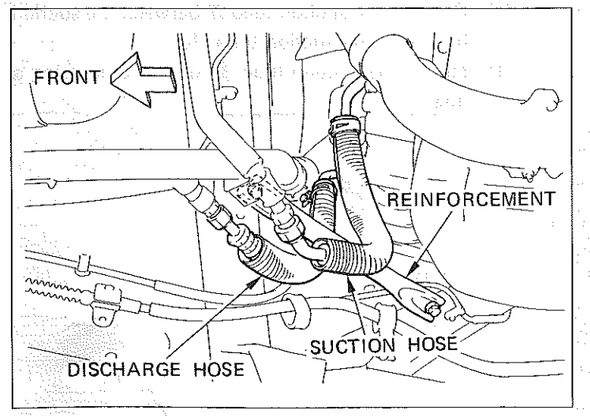


Fig.92

CAUTION

Make sure that the reinforcement is located between the suction hose and the discharge hose.

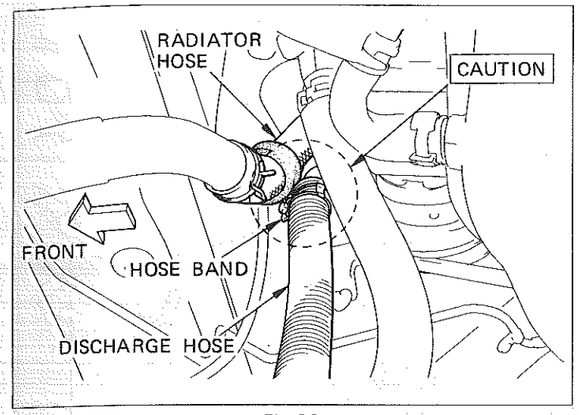


Fig.93

CAUTION

Keep the gap between the radiator hose and the discharge hose band more than 15mm.

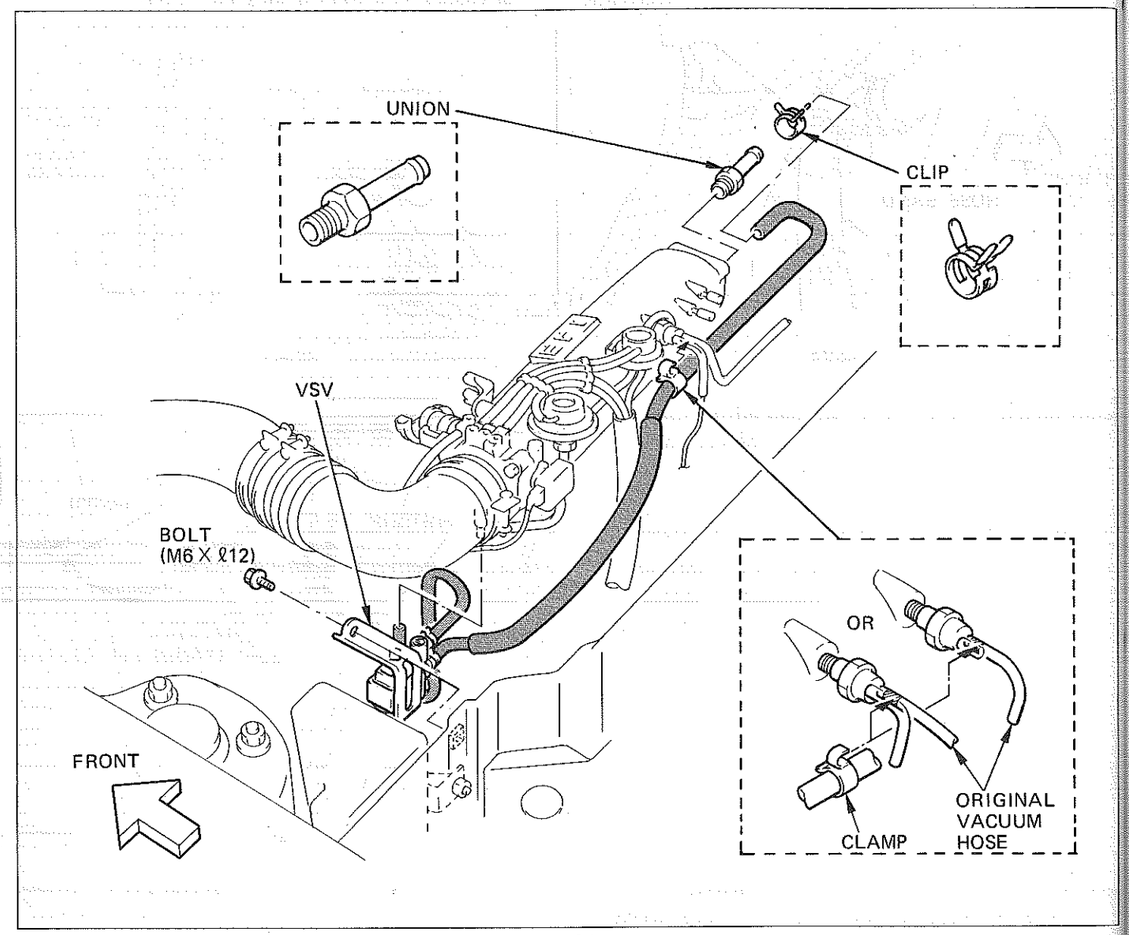


Fig.94

■ 5S-FE ENGINE MODEL (Fig.94, 95)

(a) Remove and discard blind cap and the blind bolt from the surge tank.
(b) Install the union to the surge tank.
Tightening torque;
Union 100 kg-cm (7 ft-lbs)
(c) Install the VSV to the body using a bolt.
(d) Connect the two vacuum hoses to the surge tank.
(e) Fasten the vacuum hose to the original vacuum hose using the clamp.

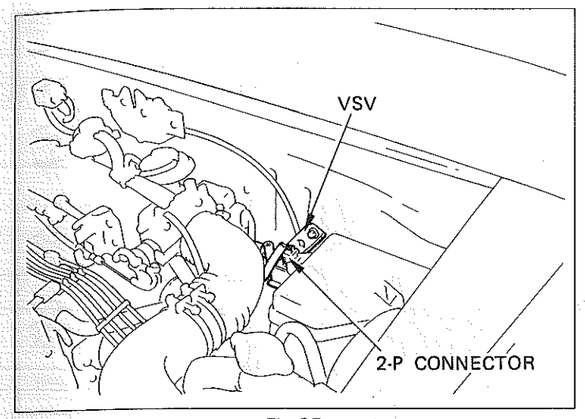


Fig.95

(f) Connect the original 2-P connector to the VSV.

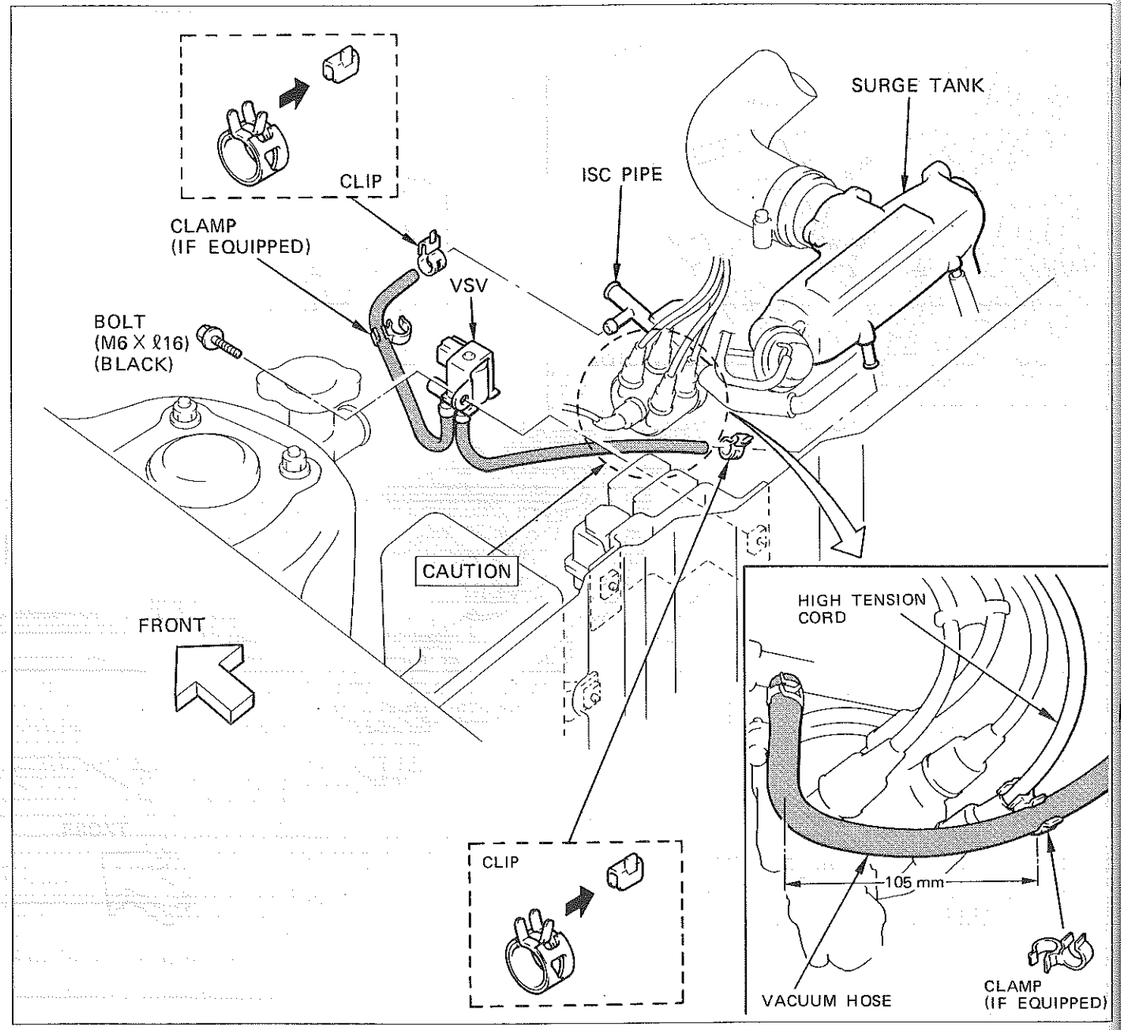


Fig.96

■ 3S-GTE ENGINE MODEL (Fig.96, 97)

(a) Remove and discard the blind caps one from the ISC pipe and the other from the surge tank.
(b) Install the VSV to the body using a bolt.
(c) Connect the two vacuum hoses to the ISC pipe and the surge tank then clamp them using two clips.
(d) Fasten the vacuum hose to the high tension cord using the clamp (If the clamp is equipped).

CAUTION

If the clamp is not equipped in the A/C kit, keep the gap between the high tension cord and the vacuum hose more than 5mm.

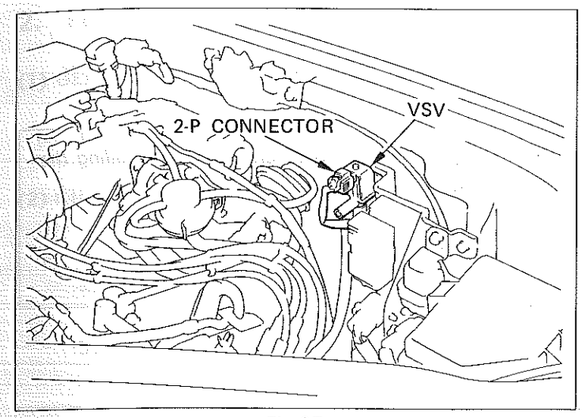


Fig.97

(d) Connect the original 2-P connector to the VSV.

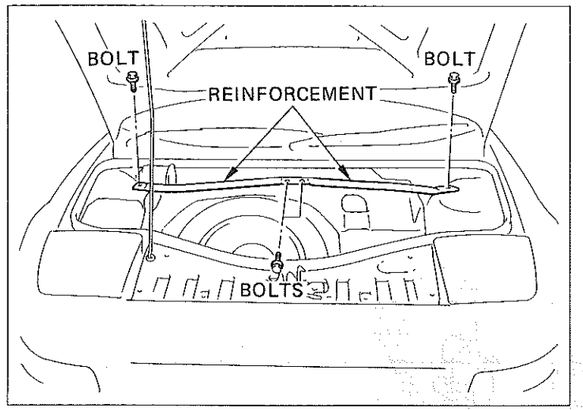


Fig.98

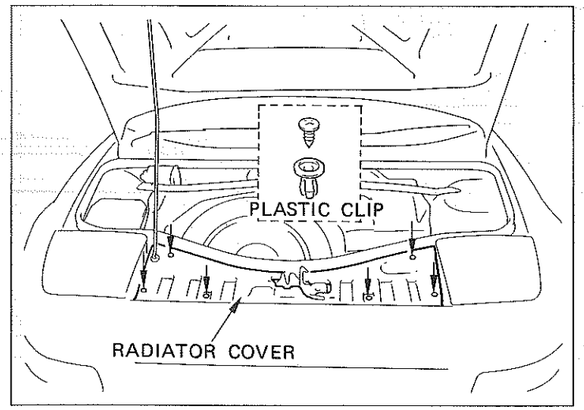


Fig.99

1-6 REINSTALLATION OF PARTS

(a) Reinstall the all temporarily removed parts.

CAUTION

Torque the original four bolts when reinstalling the reinforcement.

Tightening torque ;
Four bolts 590 kg-cm (42 ft-lbs)

NOTE

In case the original plastic clips break when reinstalling the radiator cover. Use the spare clips provided in the A/C kit and reinstall the radiator cover.

2. FINISH

(1) GENERAL

(a) After finishing installation completely, reinstall the parts which temporarily removed.

(2) CHARGING REFRIGERANT

(a) Make thorough inspection for gas leakage and various details, and then charge the air conditioning system with refrigerant.

Standard Amount of Refrigerant·····850±50 g (1.88±0.11 lbs)

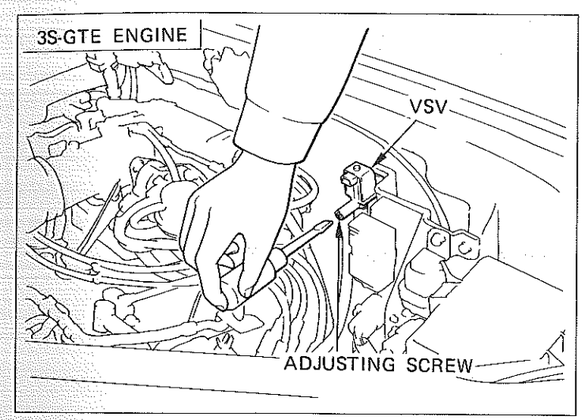


Fig.100

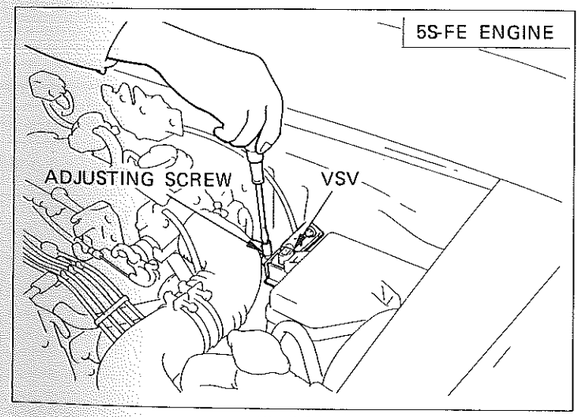


Fig.101

CAUTION

Never rotate the compressor if the air conditioning system is not charged with refrigerant.

(3) ADJUSTMENT OF ENGINE REVOLUTION

The engine idling speed should be adjusted as described below.

(a) Warm up the engine before adjusting the idling speed.
(b) Check the original idling speed.
If the speed is out of specification, adjust it.
(c) Set the following conditions ;
Mode position ·····VENT
Blower speed ·····HIGH
Temperature control ·····MAX COOL
(d) Turn on the air conditioner (A/C SWITCH ON) and then check the engine idling speed with engine tachometer.
The engine idling speed should be at
M/T·····950±50 rpm
A/T·····950±50 rpm (at "N" position)
(e) When the engine idling speed deviates from specified range, adjust it with idle adjusting screw of actuator.

(4) COMPRESSOR DRIVE BELT ADJUSTMENT

(a) Operate the air conditioner for at least five minutes, check the compressor drive belt tension and, if necessary, adjust as described before.

CAUTION

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

2) The belt tension may be measured between any two pulleys in using NIPPON DENSO belt tension gauge. Tension must be adjusted to the middle of standard values.

(5) FINAL INSPECTION

(a) Check if:

1) All heater and air conditioner controls operate correctly.

2) All vehicle functions operate correctly.

3) Any abnormal noises are heard when the air conditioner is operating.

Now the air conditioner is ready for use.

Be sure to explain its operation and maintenance schedule to the owner.

II

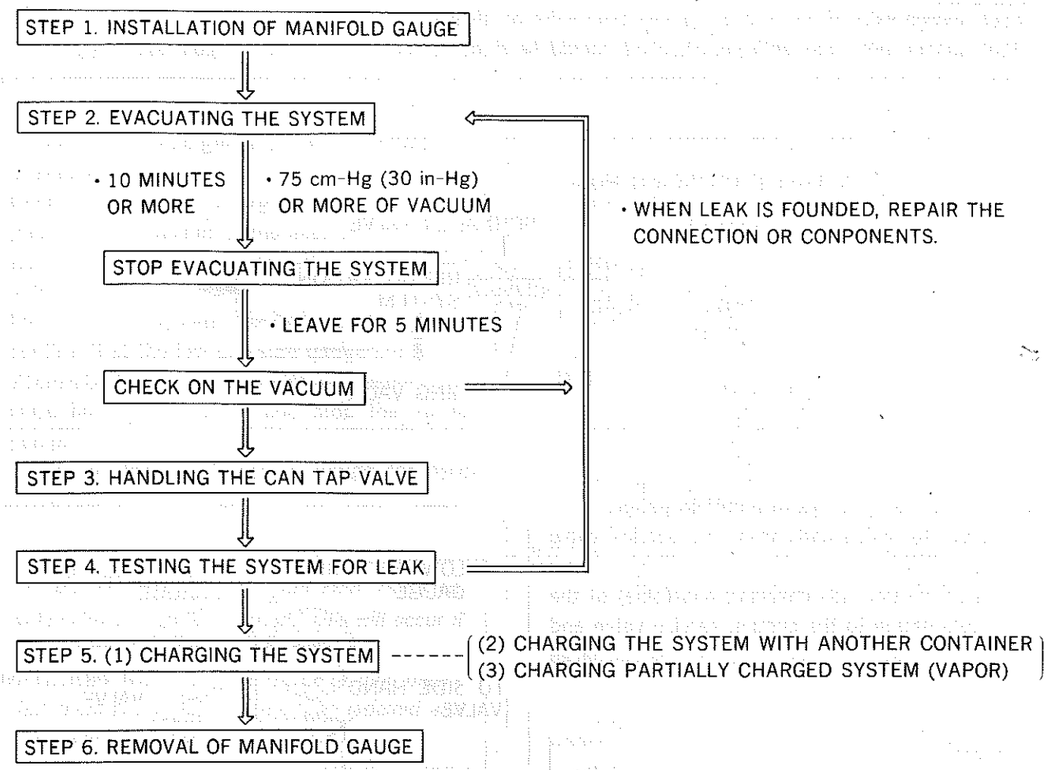
PREVIA

TCR10L, TCR20L

E/G	A/C KIT	A/C ADAPTOR
2TZ-FE	00883-2890A	———

MEMO

EVACUATING AND CHARGING



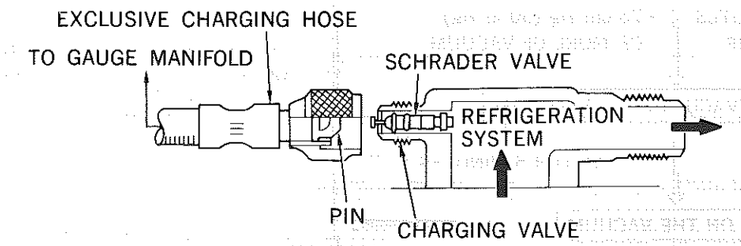
■ CAUTIONS FOR HANDLING THE REFRIGERANT

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.

STEP 1. INSTALLATION OF MANIFOLD GAUGE

NOTE

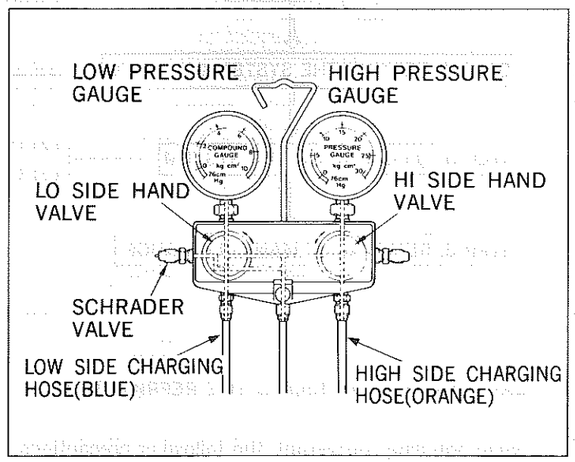
- *Each service valve fitting has a schrader type valve as shown.*
- *The charging hose end, with pin attached, should be fitted to the service valve to open this valve.*



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(orange) 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.*



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.*

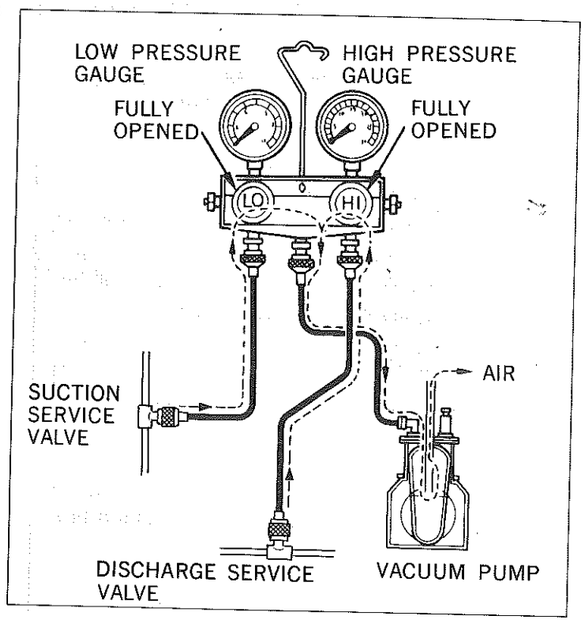
1. Install the manifold gauge to the service valves as in step 1.
2. Connect the center charging hose of manifold gauge to the vacuum pump inlet.
3. Run the vacuum pump, then open both hand valves.
4. Evacuate the system for 10 minutes or more, confirm that the low pressure gauge should read 75cm-Hg (30in-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 75cm-Hg (30in-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.

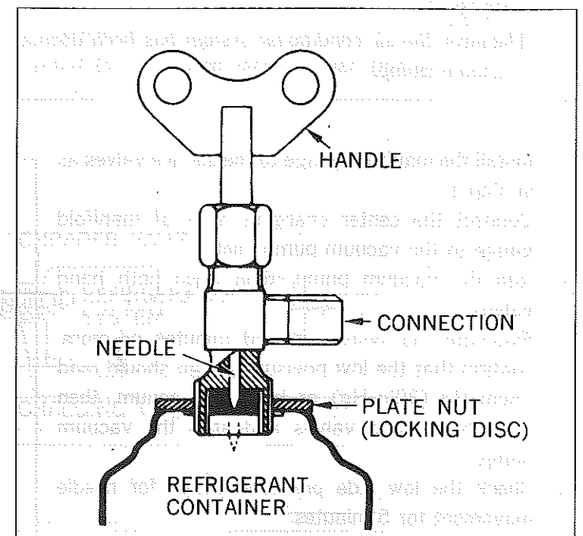


STEP 3. HANDLING CAN TAP VALVE

1. Before putting the can tap valve on the refrigerant container, thrn 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.*

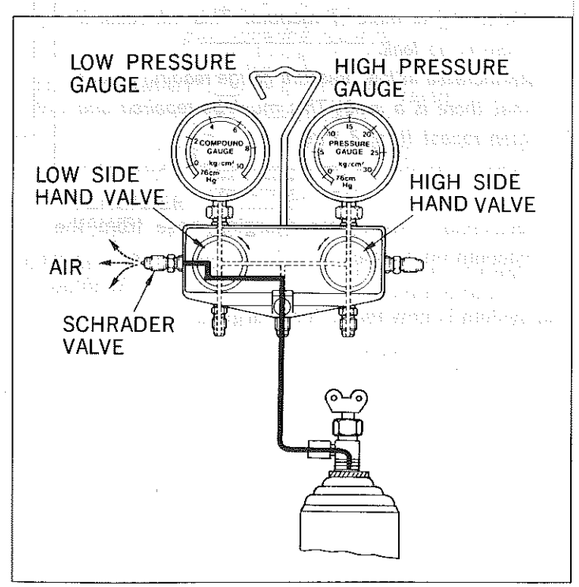


7. Open the schrader valve of the manifold gauge to allow air to escape for a few second until a hiss can be heard.

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.



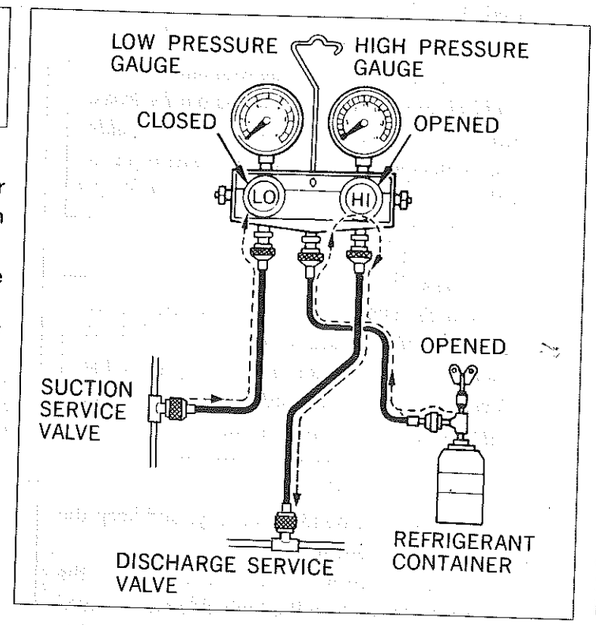
STEP 4. TESTING THE SYSTEM FOR LEAKS

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 14 psi (1 kg/cm²), 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.



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.*

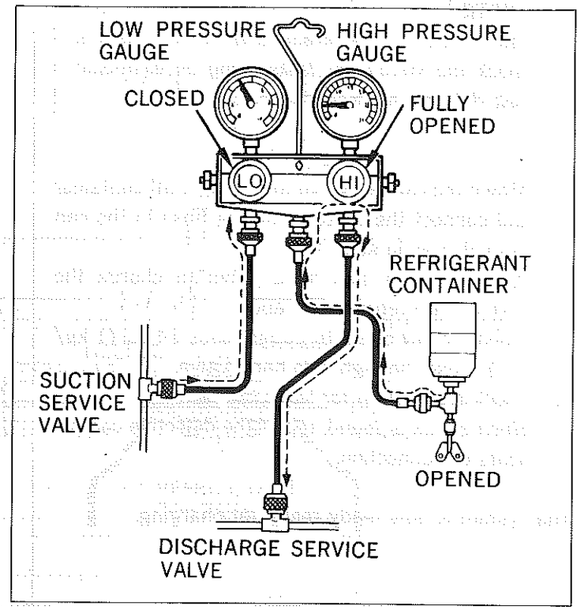
CAUTION

- *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. Then 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.*



(2) CHARGING SYSTEM WITH ANOTHER CONTAINER

NOTE

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

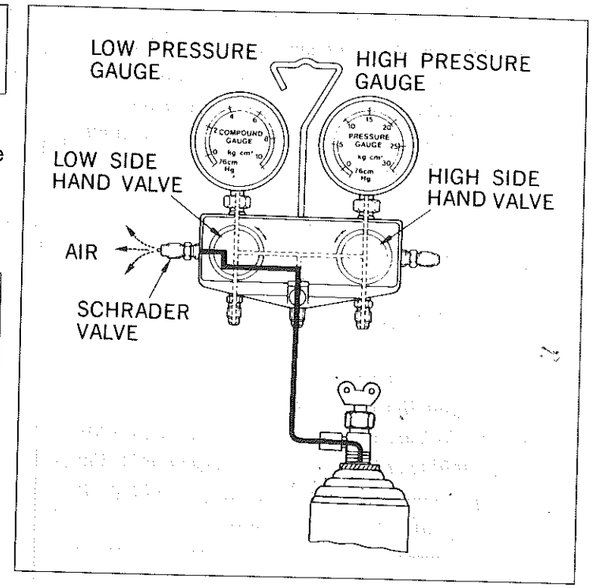
1. When the refrigerant container is empty, close the manifold gauge hand valve.
2. Remove the can tap valve from the container.

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 hole 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.



(3) CHARGING PARTIALLY CHARGED SYSTEM (VAPOR)

NOTE

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

1. Run the engine at 1500rpm, and operate the air conditioner.
2. Open the low side hand valve.

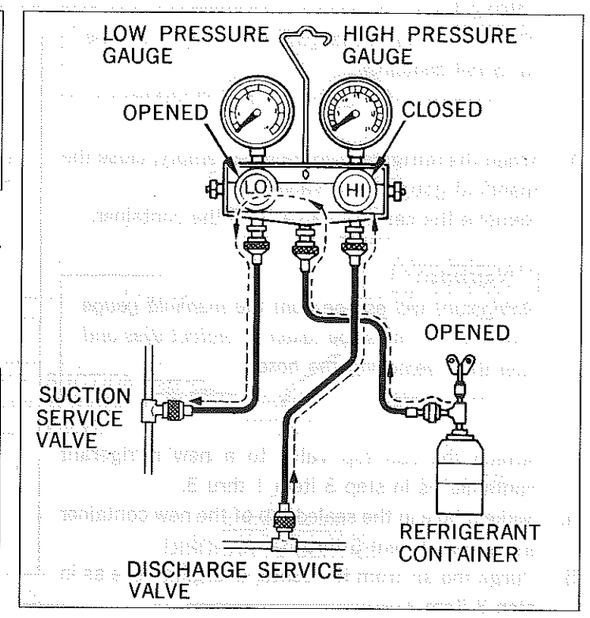
CAUTION

- *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.*

3. When the sight glass be free of any bubbles, close the low side hand valve and stop the engine.

CAUTION

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



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

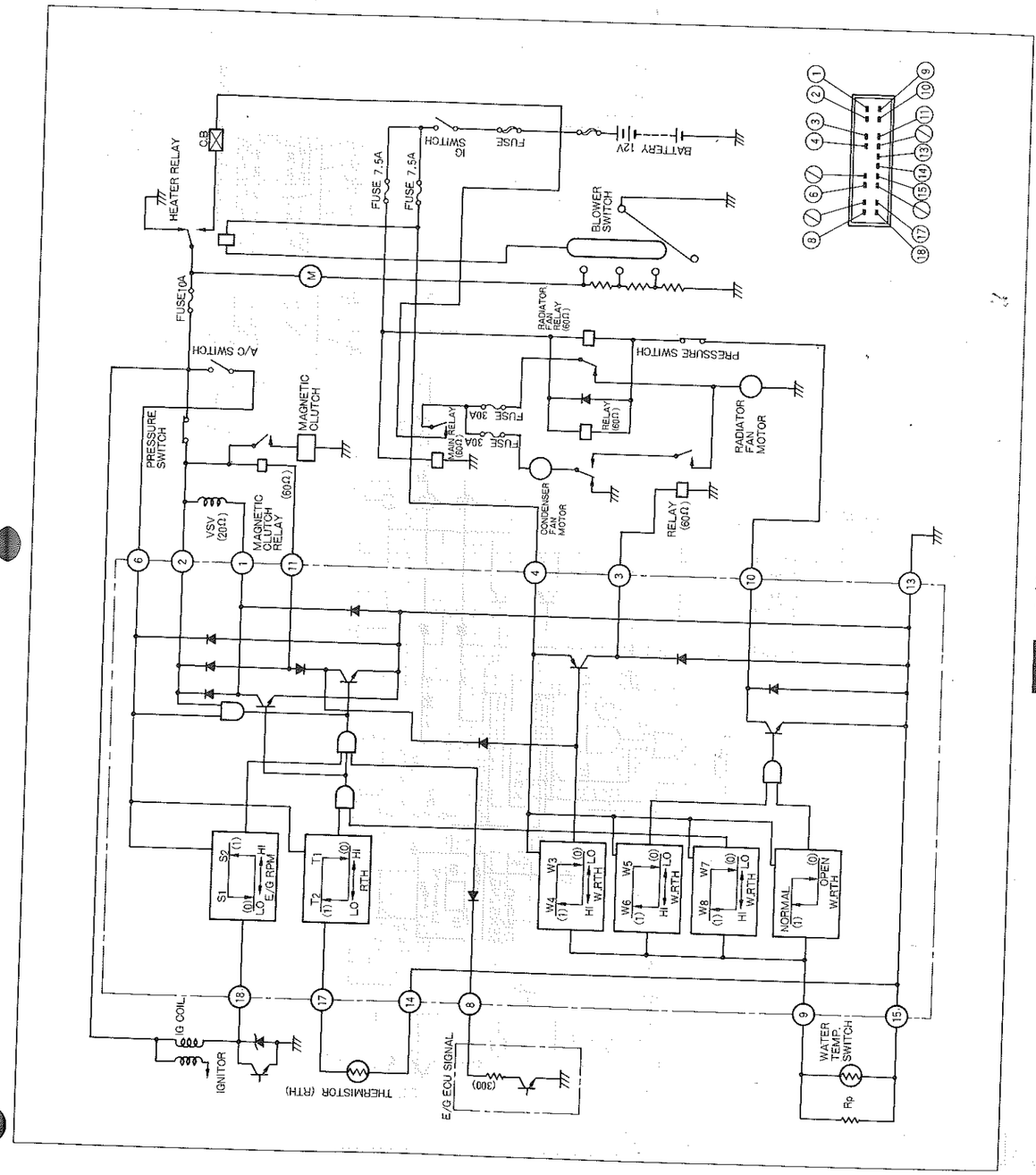
- *Refrigerant will escape from the manifold gauge hoses so care must be taken to protect eyes and skin when removing the hoses.*

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

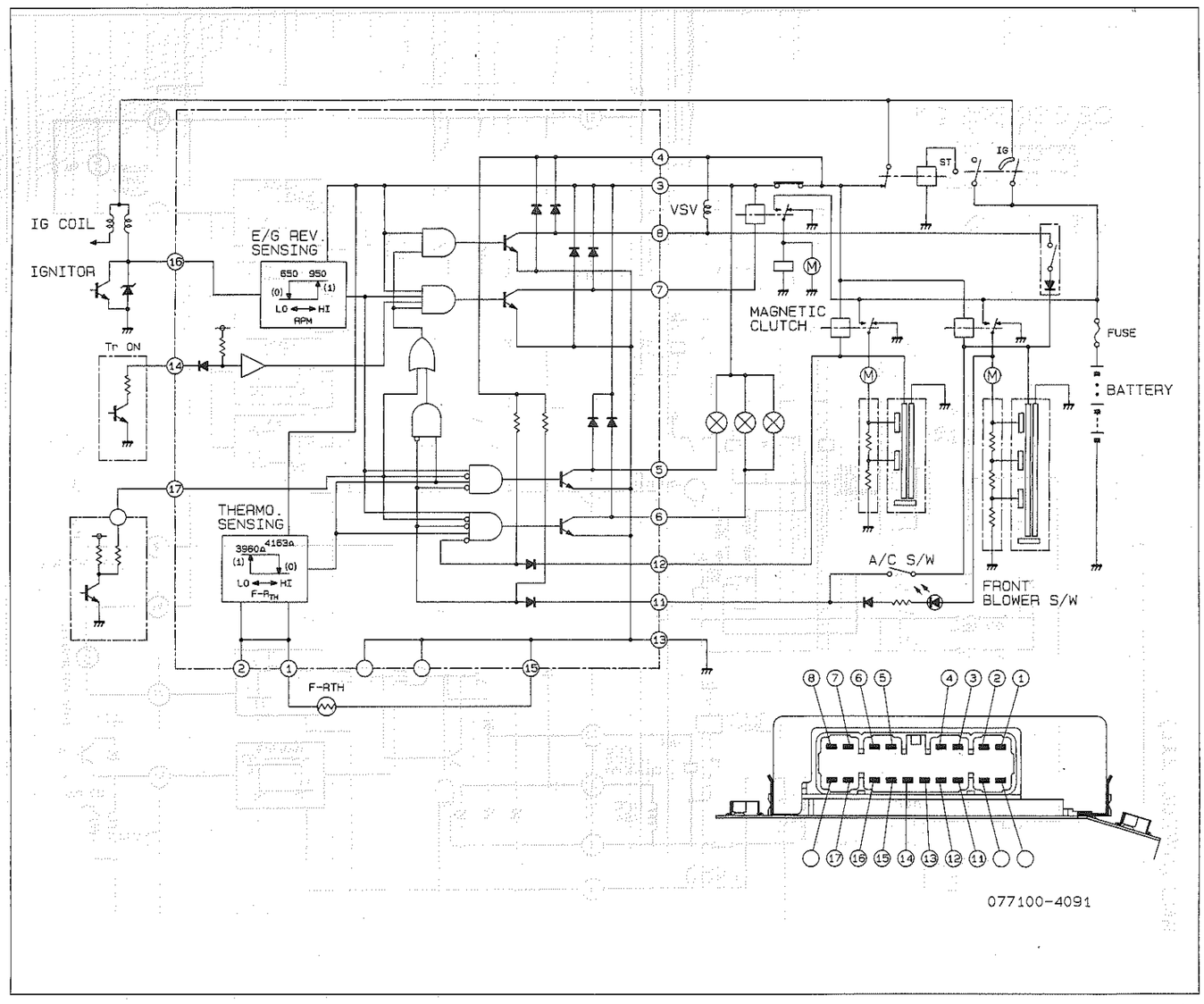
MEMO

A/C AMPLIFIER

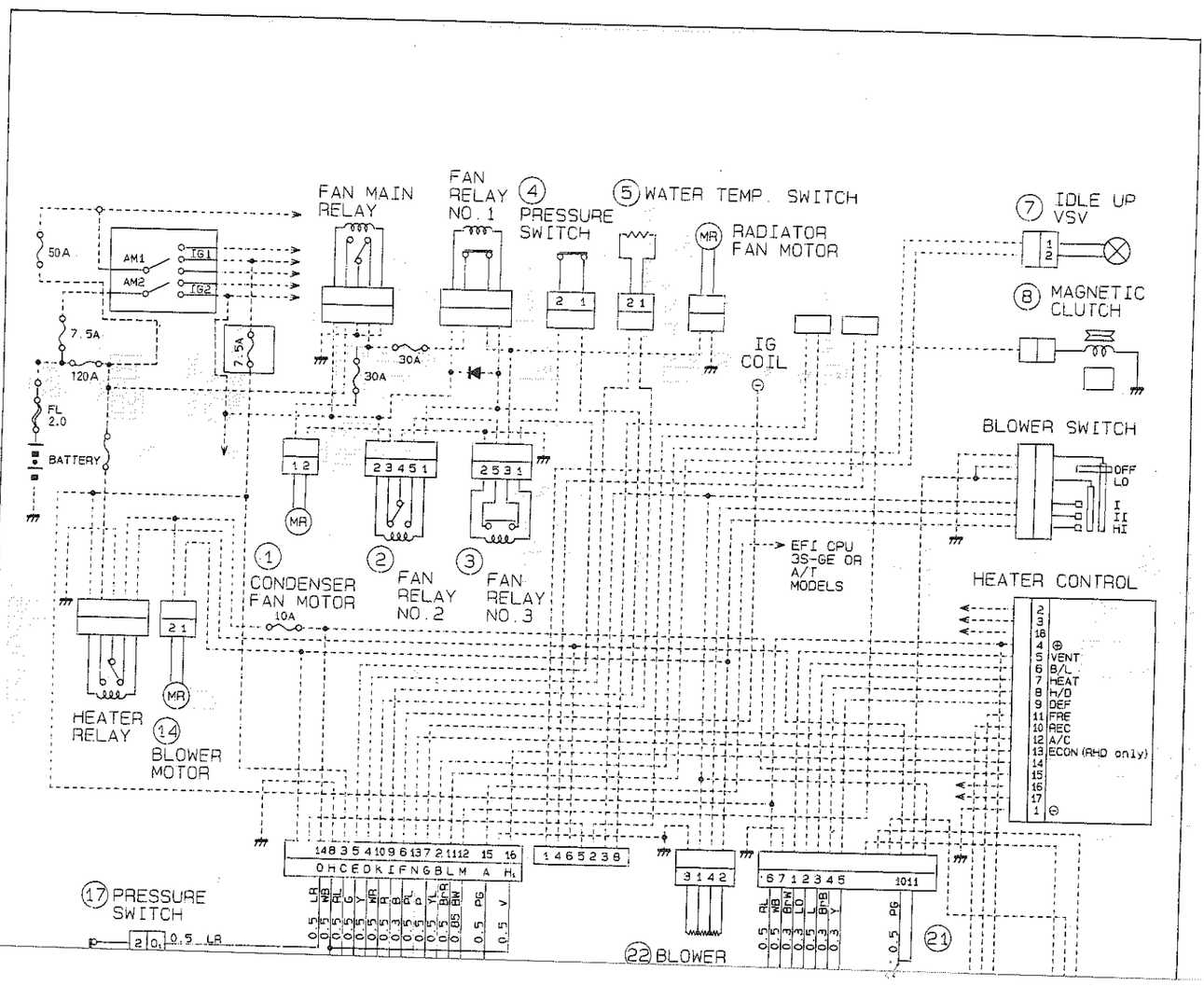
I. MR2 (SW20L, 21L)



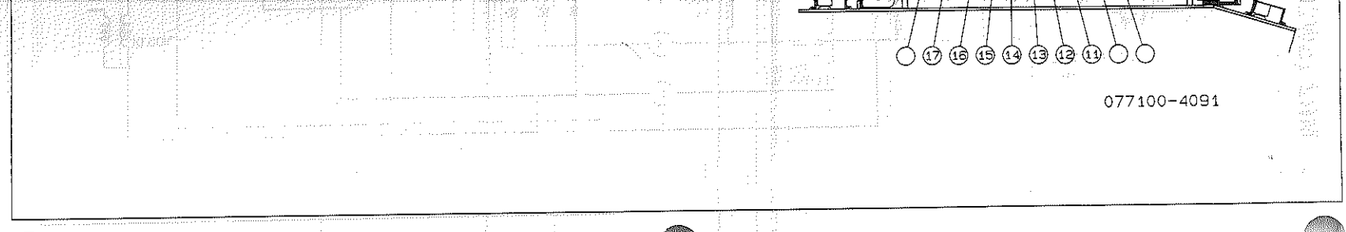
II. PREVIA (TCR10L, 20L)

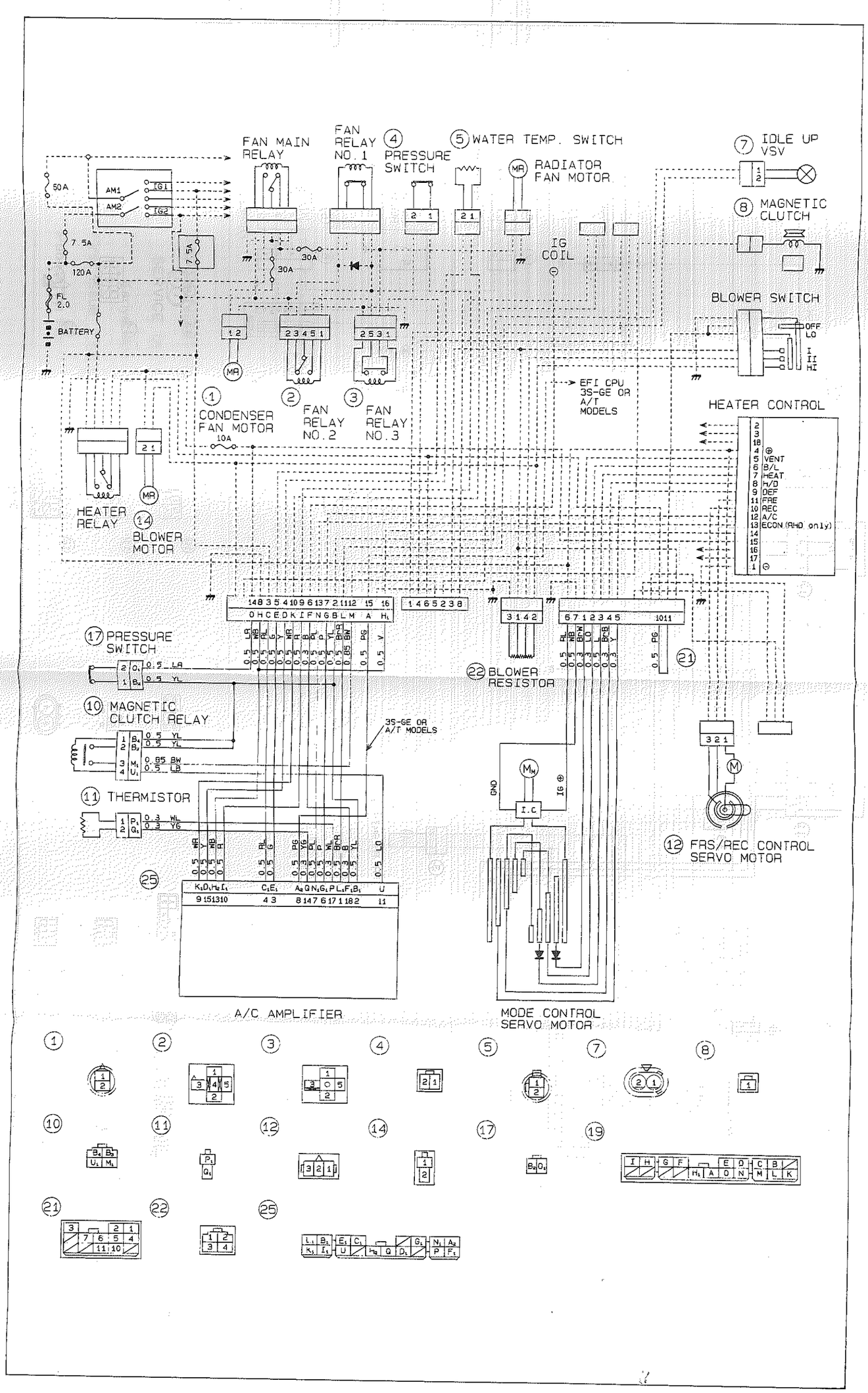


I. MR2 (SW20L, 21L)



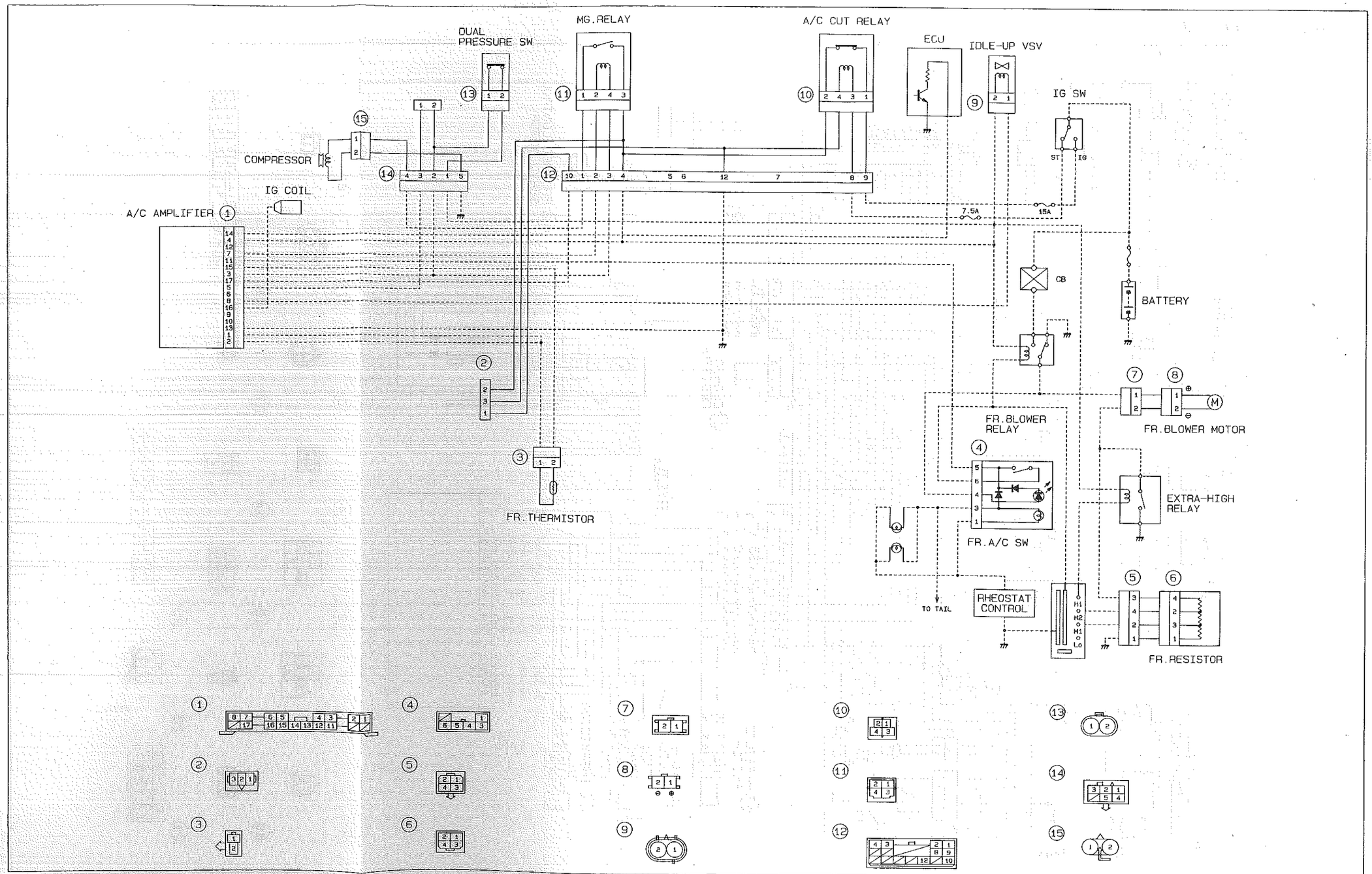
WIRING DIAGRAM





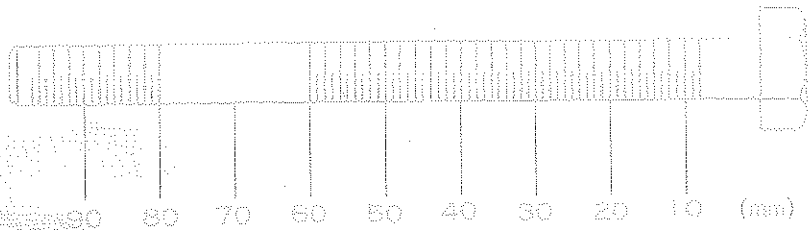
WIRING DIAGRAM

II. PREVIA (TCR10L, 20L)



TOYOTA MOTOR CORPORATION
NIPPONDENSO CO.,LTD.

BOLT LENGTH RULER (mm)



BOLT DIAM. & HEX. HEAD (mm)