



SOUTHERN AIR STREET ROD & SPORT TRUCK APPLICATIONS

IMPORTANT-READ THIS!!

Instructions are developed around vehicles fitted with standard production equipment. If additional equipment is installed by a modification center, dealer or etc., it is the installer's responsibility to use good shop practices in routing and securing all hoses to prevent rupture or fracturing of fittings due to vibration or vehicle operation.

IMPORTANT!

This installation requires a basic knowledge of refrigeration systems and the service of a qualified technician. These instructions document the steps necessary for the installation of this unit but do not detail standard workshop procedures or safety practices.

READ THIS!

For the air conditioning system to operate properly, it must not contain moisture or dirt particles.

Leave all protective caps in place until final installation of the component. Use clean, dry refrigerant oil on all threads and sealing surfaces when making fitting connections. Use a backup wrench to avoid twisting or bending fittings.

IMPORTANT – USE CAUTION!!

Automotive air conditioners operate under high pressure and use a refrigerant that can be dangerous if not handled properly. Service and repairs should only be performed by those individuals who possess the mechanical skills required and have a basic understanding of refrigeration systems and their operation and who are familiar with and follow approved safety procedures.

SOUTHERN AIR LIMITED WARRANTY

PARTS AND LABOR WARRANTY

Southern Rods warrants each new Heat/Cool system for a period of **24 months (parts only) from date of purchase**. This covers both workmanship and material. This warranty does not cover any part or unit which has been subject to misuse, neglect, accident, alteration or that has been repaired by others.

This warranty does not cover any defect which is caused by improper installation, modification or maintenance of this unit or its components. Normal wear is not considered as a defect.

This warranty covers only parts found defective and no compensation will be made for labor or other charges connected with reinstallation or removal. This is not limited to but includes: damage, alterations, or modifications to the vehicle, even if required for removal of the system. Replacement part(s) will be sent upon return of defective part(s) for inspection by Southern Rods. All shipping charges will be assumed by Southern Rods. Provided the part(s) is/are found to be defective.

Systems installed in vehicle that uses an electric fan as the only means of cooling the engine and/or cooling the condenser coil, must incorporate appropriate controls for that fan so that any time the air conditioning compressor is rotating, the fan will be moving sufficient air across the condenser coil to prevent abnormal pressure from developing within the air conditioning system. Any damage to the air conditioning system caused by failure to control the fan, as stated above, will not be covered by this warranty.

REFRIGERANT LOSS POLICY

No compensation is allowed for loss of refrigerant (or Freon) regardless of type of refrigerant (or Freon) lost or the reason for the loss. No compensation is allowed for removal or reinstallation of refrigerant (or Freon) regardless of the type of refrigerant or reason for removal or reinstallation.

ELECTRICAL COMPONENTS, WIRING, ETC.

This warranty does not cover any charges relating to improper or faulty wiring. Any compensation requested for incorrect wiring in our wire harnesses are subject to what the manufacturer of the wiring harness allows. Southern Rods assumes no responsibility in this area.

COMPRESSOR POLICY

All compressors are subject to manufacturer's warranty policy. Please allow 30 days for defective compressor repairs, if they cannot be corrected at Southern Rods's facility.

DATE _____

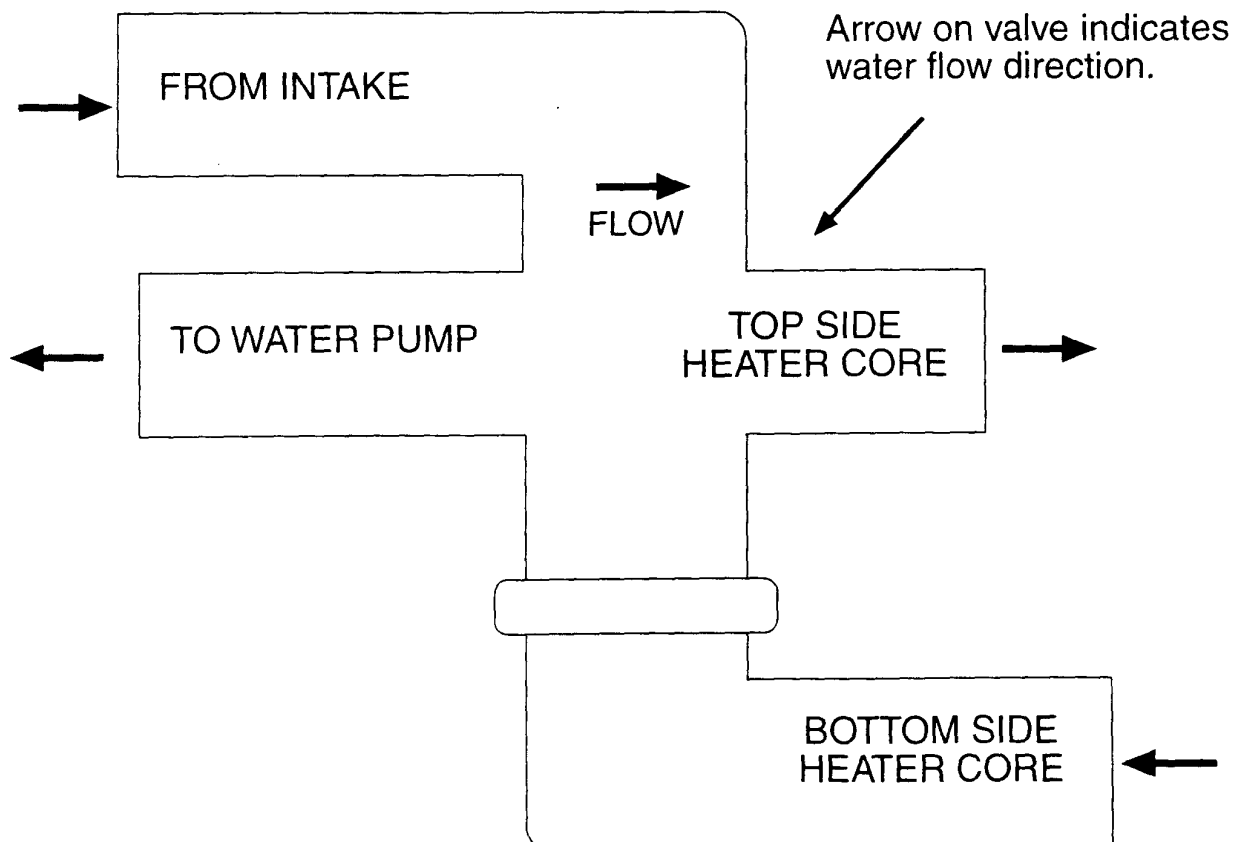
IMPORTANT!!!!
HEATER HOSE & HEATER SHUT-OFF VALVE
INSTALLATION INSTRUCTIONS

Two (2) 5/8" heater hoses are required to hook up your heater. These are **not** supplied. The supplied heater hose shut off valve must be installed by splicing the pressure to the unit line and install according to the "IN" (motor side), to "OUT" (unit side), or to unit.

NOTE: The water pump heater hose outlet is not the pressure hose. The intake line is the pressure hose. This is the hose the shut off valve attaches to. If you are in doubt, leave it off and start your engine. If the shut off valve is put on the wrong line, the unit will not blow cold.

Any questions regarding this information, please call the tech line at (864) 848-0601.

ELECTRIC WATER VALVE FLOW DIAGRAM



*INSTALLATION INSTRUCTIONS FOR STREET-RODS 1 - 1 *

A. PREPARATION:

- #1) Check parts received against the parts list for broken or missing parts.
- #2) Disconnect battery as a safety precaution.
- #3) Drain and retain coolant from the radiator.
- #4) Disconnect and cap transmission coolant lines from the radiator.
- #5) Remove engine fan and shroud.
- #6) Remove radiator for easy drive pulley and condenser installation.

NOTE: On some vehicles, removal of the radiator is not necessary.

B. COMPRESSOR DRIVE PULLEY:

- #1) On some vehicles you will be able to use a groove on the original drive pulley, in others you will have to install either a replacement or an add-on compressor drive pulley.
- #2) Refer to the illustration supplied with the adaptor kit for detailed instructions for installing the specific drive pulley.

CAUTION: When installing a drive pulley, be certain the seating surfaces are clean and that all the bolts are tightened evenly.

- #3) Check for pulley wobble.

C. INSTALLING THE COMPRESSOR AND THE CLUTCH:

- #1) The clutch wire will be attached to the thermostat wire routed along the 1/2" suction hose.
- #2) Place compressor mount in its approximate mounting position. If at this time it becomes apparent that the compressor mounting bolts will be inaccessible when the compressor mount is attached to engine, it will be necessary to install the compressor first, then attach

the compressor mount assembly to the engine. If the compressor mounting bolts will be readily accessible, secure the compressor mount to the engine, then install the compressor to the compressor mount.

D. INSTALL THE COMPRESSOR MOUNT ASSEMBLY:

- #1) With the mount held in its mounting position, determine the mount attaching points and the engine bolts to be removed.
- #2) Follow the instructions contained in the adaptor kit to determine the proper length and size of bolts and spacers to be used when installing the compressor mount.
- #3) Tighten all bolts evenly to prevent warpage of the mount.

NOTE: On aluminium block engines, use "anti-seize" compound on all bolts.

- #4) Install the idler eccentric/s and idler pulley/s when applicable. The idler pulley/s must align with the compressor clutch and drive pulley within a plus or minus 1/16". Idler pulley alignment can be corrected by adding or subtracting the spacers and/or spacing washers, found in the idler sack assembly, between the eccentric and the idler pulley.

NOTE: When installing the idler pulley/s the "snap" ring of the pulley must be to the front, and the shoulder bolt should be tightened to 40-45 ft. lbs. of torque.

E. INSTALL THE CONDENSER:

- #1) Place the condenser 1/2" to 3/4" in front of the radiator with the refrigerant fittings on the same side of the radiator as the compressor. The 1/2" fitting must be on the top and the 3/8" fitting on the bottom.
- #2) With the condenser in the mounting position, determine the location and position of the condenser brackets to be used. The condenser may be secured in position by attaching brackets to the condenser flange then to the radiator cowl.

NOTE: It may be necessary to modify or trim some parts of the vehicle to obtain clearance for the condenser.

- #3) Secure the refrigerant hoses to the condenser.
- #4) Secure the condenser in position.

#5) Reinstall the radiator in its original position.

F. INSTALL THE FAN:

NOTE: A heavy duty fan will improve the efficiency of the cooling system in any vehicle; therefore, we recommend their use for maximum unit performance. It will be important to use a heavy duty fan when the vehicle is driven in parts of the country that have sustained temperatures above 90 degrees F. or when driven in heavy stop and go traffic. Be certain the fan clears the clutch, drive pulley and radiator.

G. INSTALL THE DRIVE BELT:

Install the compressor drive belt around the pulleys and adjust belt tension by rotating the idler eccentric. If a belt tension gauge is used, new belts should be tensioned 90-100 lbs. and used belts 65-75 lbs. If a belt tension gauge is not used, a properly adjusted belt will depress 5/8" per ft. of belt span.

CAUTION: Do not over tighten belt.

NOTE: The belt should be checked for tension after few hours of operation:

H. POSITIONING THE STANDARD UNDER DASH EVAPORATOR CASE ASSEMBLY (For custom evaporator kits, following the instructions supplied with the custom evaporator):

- #1) Hold the evaporator case to mounting position parallel to the underside of the dash. Insure sufficient clearance for accelerator pedal, glove box, and other accessories. Mark hold location for mounting brackets and condensate drain hoses (these brackets are a universal type angle bracket and may be adjusted to meet any mounting situation). **Remember: UNIT MUST BE MOUNTED SO IT WILL DRAIN PROPERLY. SUPER FROST UNITS MUST BE TILTED SLIGHTLY.**
- #2) After marking hole locations for refrigerant hoses, mounting brackets, and drain hoses, remove evaporator case from vehicle.
- #3) Remove and relocate switches or other obstructions attached to the underside of the center section of the dash.

I. LOCATE HOLES FOR CONDENSATE DRAIN HOSES:

- #1) Locate holes for condensate hoses in floorboard behind the evaporator case assembly location. Check hole locations to be sure hoses will not be obstructed on the underside of floor board when installed. **Remember: BE SURE DRAIN IS AT THE BOTTOM OF UNIT OR YOU WILL GET A FREE BATH. SUPERFROST UNITS MUST BE TILTED SO THEY WILL DRAIN.**

- #2) On cars with carpeted flooring, instead of a rubber mat, cut carpet with knife using an "X" pattern. Lift carpet insulation and cut to provide clearance for hole saw so that carpeting and insulation will not snag and unravel on the hole saw.

J. INSTALL REFRIGERANT HOSES:

PRECAUTIONS:

- (I) Use refrigerant oil on all hose fittings and connections.
 - (II) Caps and plugs should not be removed until refrigerant hoses are ready to be connected.
 - (III) Avoid sharp bends when installing hose and do not clamp hoses too close to the compressor. Route the hoses so that they do not touch *hot or moving parts of engine*.
 - (IV) Where hoses pass through firewall and radiator cowl, install grommets to prevent cutting hoses on sharp metal edges. Grommets are supplied, *if a hose kit has been purchased*.
- #1) These steps **must** be followed to install hose on a push-on fitting:
- a. Cut the hose with a knife and clean any fragments out of hose. Do not use hack saw.
 - b. Oil the inside of the hose and outside of the fitting.
 - c. Ferule must be positioned over the end of hose and flush with end. This must be done in order for ferules to be properly positioned on hose and over barbed section of fitting.
 - d. Push hose on the fitting with rotating motion until fitting is completely inserted in the hose.
- #2) Slide necessary grommets on before installing hose. Crimp refrigerant hose as needed.
- #3) Cut 13/32" refrigerant hose to length and install on compressor discharge valve.
- #4) Insert 1/2" refrigerant hose through hole cut in the firewall and connect the 1/2" hose to the evaporator.

CAUTION: Be sure to remove the rubber plug from the suction connection at the evaporator. Cut hose to length and install on the suction port of compressor.

- #5) Insert 5/16" hose through hole cut in the firewall and connect the hose fitting to the evaporator expansion valve. In most units, expansion valve must be installed on unit.

NOTE: This hose must be routed by the receiver drier and with enough length to cut the hose and connect it to the receiver drier fittings.

- #6) After the hoses are connected to the evaporator, wrap the metal portion of the suction hose and exposed portion of the expansion valve diaphragm on the evaporator. This will prevent these lines from forming condensation which might drip on the floor of the vehicle.

- #7) Locate suitable place for the receiver-drier on fender well of vehicle and secure. Receiver-drier should be as close to upright as possible.

IMPORTANT: Inlet of receiver-drier faces condenser and outlet faces the evaporator, do not reverse the receiver-drier.

- #8) Remove all A/C hoses and have the ferules crimped to secure the fitting. Reinstall and tighten to insure seal.

- #9) Cut the 5/16" refrigerant hose at location of receiver drier. Install hoses to the receiver-drier.

- #10) Install crimped hoses as necessary to secure hoses in position. Secure all hoses.

K. INSTALLING ELECTRICAL WIRING:

Refer to wiring diagram for installing wires. **EACH UNIT IS DIFFERENT.**

L. INSTALL EVAPORATOR CASE ASSEMBLY:

Install evaporator drain hoses. Using screws, mount evaporator case assembly to dash, extending condensate drain hoses through holes in floorboard. If hoses do not extend through floorboard, water draining from the evaporator pan will damage carpet. **REMEMBER: BE SURE UNIT WILL DRAIN.**

M. EVACUATE AND PARTIALLY CHARGE THE SYSTEM:

- #1) Add refrigerant to the system until a pressure of 40psi is reached on the high and low side gauges. Check for leaks with a leak detector or soap solution and repair as necessary. Dye is also recommended.

- #2) Attach manifold gauge to compressor valves.
- #3) Attach manifold gauge charging hose (center hose) to vacuum pump and start pump. Open both manifold valves slowly to prevent discharge of oil from the compressor and triple evacuate the system to 29" of mercury.
- #4) Close both charging manifold valves for 5 minutes. Check low side reading before closing. If reading shows a rise in pressure after closing valves, check the system for leaks.
- #5) Repair leaks as necessary. Reevacuate the system.
- #6) Close the manifold valves and disconnect the charging hose from the vacuum pump.
- #7) Attach the manifold charging line (center line) to the charging valve on the refrigerant can or drum. Be sure that the can or drum is right side up for refrigerant.
- #8) Open the refrigerant can or drum charging valve to allow the refrigerant to flow into the charging line.
- #9) Partially open the charging line fitting at the manifold gauges to purge air from the line. Purging is very important because air and moisture in the line will cause problems in the system. As soon as the line is purged, tighten the fitting.
- #10) Open the refrigerant can or drum charging valve all the way and open manifold valve to suction service valve. Do not attempt to charge the system through the discharge service valve as it will create increased pressure in the refrigerant can or drum; and the can or drum may explode.

N. FULL CHARGE INSTRUCTIONS:

- #1) Start the car engine, get on fast idle, and on hot days, place a large fan in front of the radiator blowing on condenser coil and radiator.
- #2) Connect the second can of refrigerant to the charging hose and continue to charge the system.

CAUTION: Vent the air from the charging hose before proceeding with the charging operation.
- #3) Check the sight glass and when all the bubbles and foam disappear from the sight glass, the unit is fully charged. (134A system may still look cloudy).

NOTE: Normal systems charge 2 to 2 1/2 lbs. of R-12. 1 1/2 to 2 lbs. of 134A or 80% of normal R-12 charge.

- #4) Close the low side manifold gauge valve. At a temperature of 80 deg. the low side the low side gauge should read 20-40 psi. and the high side gauge should read 180-200 psi. (higher on warmer days and lower on cooler days).
- #5) Close the refrigerant can or drum charging valve all the way and disconnect charging line from refrigerant can or drum.

CAUTION: Be certain that the charging line is pointed downward and away from the face and other parts of the body as well as from the vehicle paint.

- #6) Disconnect the manifold lines from the compressor and replace the compressor valve port caps.

O. CHECK OUT AFTER CHARGING:

- #1) Allow engine to run at fast idle.
- #2) Test unit for leaks.
- #3) Check fan speed control switch for proper operation.
- #4) Check thermostat to be sure that unit cycles on and off. This should be done with doors and windows closed. With car interior cool, the compressor clutch should be made to disengage and engage by moving the thermostat lever or knob.
- #5) Road test the car. Be sure and check for engine overheating and noises which may be caused by the installation.
- #6) Recheck the belt tension. (Refer to step G-1, installing drive belt.)
- #7) After repairing any discrepancies found during checking and road testing the vehicle is ready for delivery to the customer.

Please follow these steps for Heater Hose Routing:

- A. Route hose from the intake manifold toward the unit. Install the water control valve in this line. Continue from the water control valve to the top connection on the coil.
- B. Route hose from the water pump to the remaining coil connection.
- C. Fill radiator with coolant. Note: Antifreeze must be used with this system! Check for leaks.
- D. Start engine and run until engine reaches normal temperature. Open the water control valve and select fan speed. The system should be circulating heat.

Superfrost

WIRING

6. Reference the "WIRING DIAGRAM": (FIG. 2)
Insert the capillary tube from the thermostat into the coil through the hole in the top of the case. The tube should be inserted approximately 2 1/2 to 3 inches.

CHARGING SYSTEM

It is recommended that a qualified technician evacuate and charge your system.

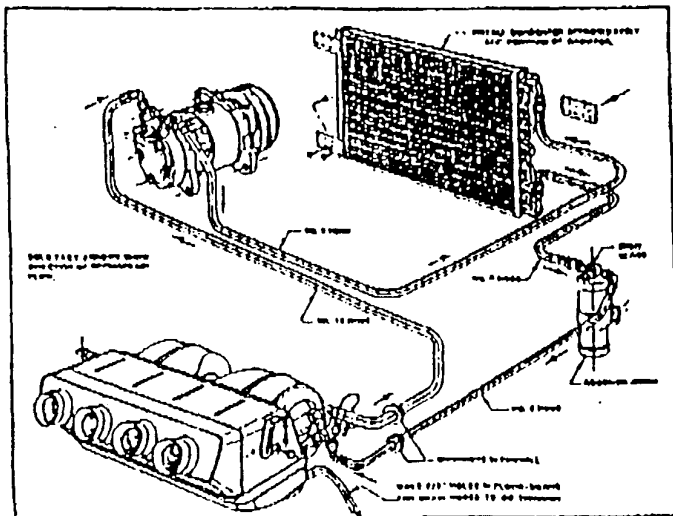


FIG. 1

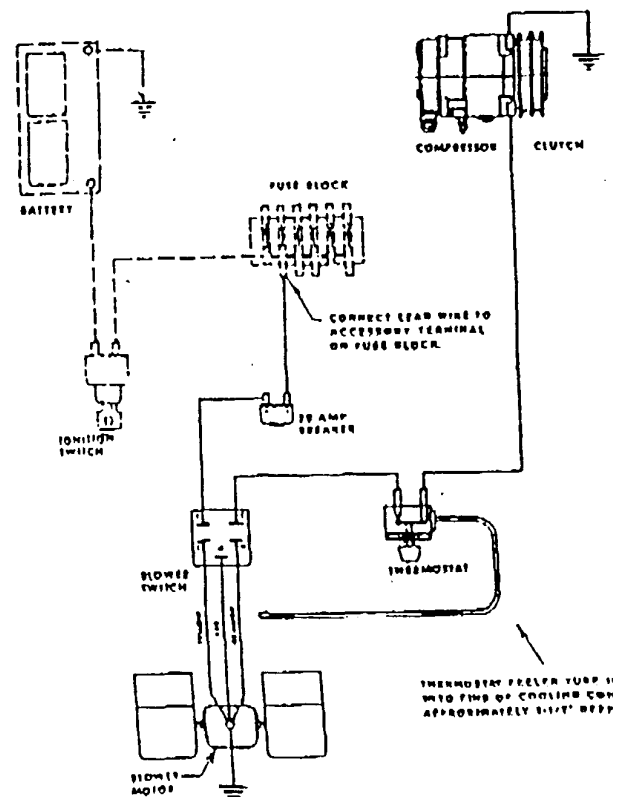


FIG. 2

The heat/cool evaporator unit was designed to be concealed behind the dash of your vehicle. Installation may vary depending on your particular application, preferred mounting and hose routing preference. Take your time, carefully plan your installation before drilling or cutting.

Superfr.

MOUNTING EVAPORATOR UNIT

1. Before installing the evaporator unit, close any holes that would allow heat to enter the car. It is suggested that the car's interior be fully insulated. This includes the firewall, floor, kick panels, door panels, and headliner.
2. When planning to mount the evaporator unit, keep in mind that the drain outlets must always be to the bottom so that the unit can properly drain. The unit needs to be tilted downward ten to fifteen (10-15) degrees to assure proper drainage. The outlets will be facing the dash, with the blower motor near the firewall.
3. The unit is supplied with universal mounting brackets. Three brackets should be used to mount the unit. These may be formed, recut or drilled to fit your needs. They should be attached to the evaporator using the 1/4-20 bolts which are supplied with the kit. The unit can be securely mounted using the dash, firewall, kick panel, or any custom support.

ROUTING DUCT HOSE

4. Now that the unit is mounted, mount the dash louvers. Fit and cut duct hose to assure clearance.

Note: When fitting the duct hose, keep in mind that the air flow will be enhanced through a hose that is slightly stretched. Shorten hose to insure that it is pulled tight, and route with a minimum of kinks or sharp bends to increase flow performance.

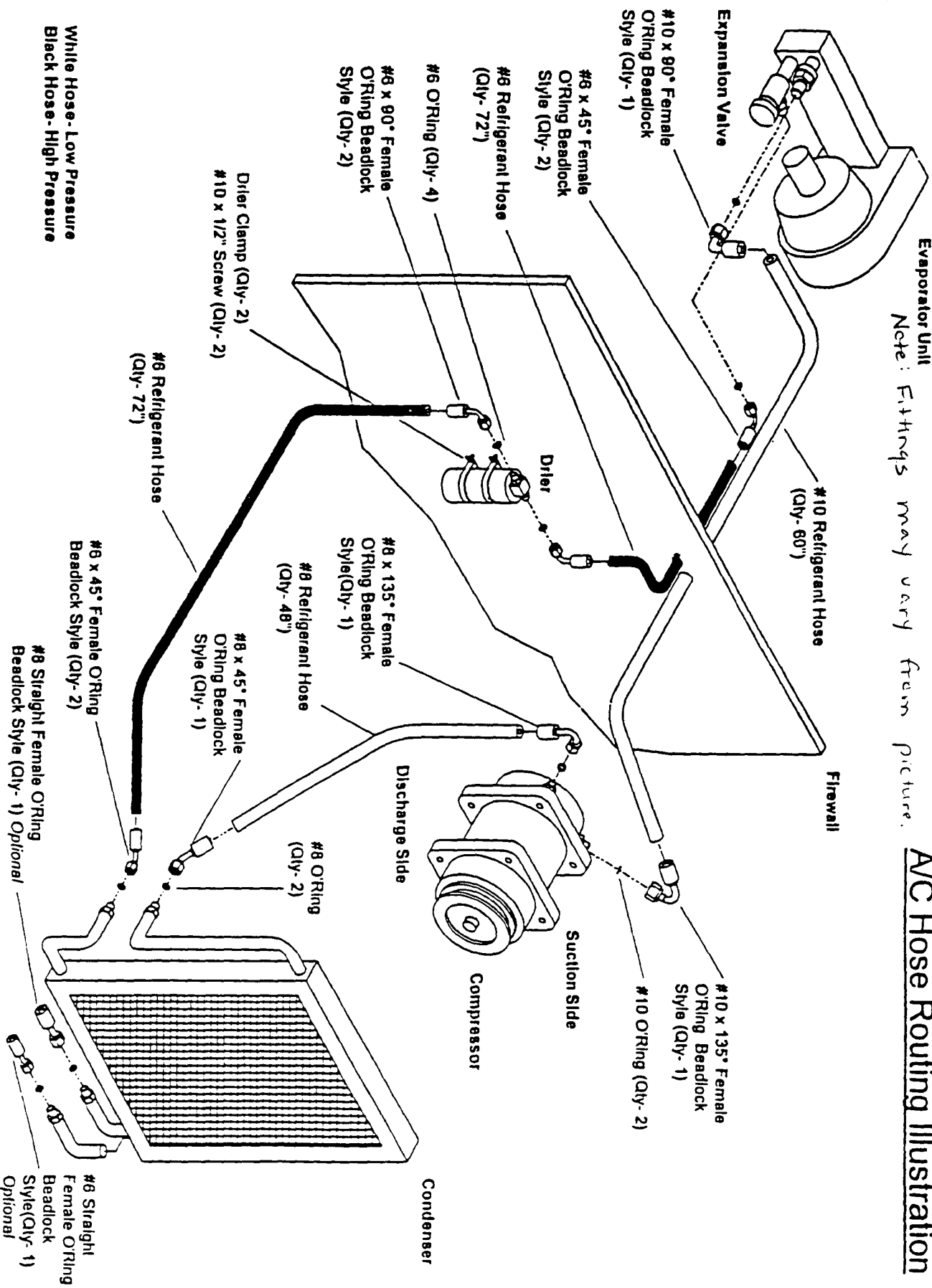
HOSE ROUTINGS

5. Reference "A/C HOSE ROUTING INSTRUCTIONS" : (Fig.1) Run refrigeration and heating hoses. Hoses should be connected and tightened with the unit out of the car and on a work bench. Use two wrenches to tighten fittings to assure connections are tight without breaking the tubes away from the coil. Wrap exposed metal on fittings with the prestite tape provided to prevent condensation. NOTE: BE SURE EXPANSION VALVE IS TIGHTENED. (USE BACKUP WRENCH WHEN TIGHTENING.)

A/C Hose Routing Illustration

Note: Fittings may vary from picture.

Evaporator Unit



2003 MAXI I

1. Assemble the switches to the Switch Box as follows: FIGURE 1

- A. Peel the backing off the Graphics Panel and carefully attach the Graphics panel to Switch Box front.
- B. Install the (2) two, (5) five terminal fan switches, one temp control switch, to the Switch Box from the back side and attach and secure with the switch nuts at the front side.
- C. Slip the plastic nut covers over the switch nuts, and attach the knobs.
- D. Install A/C Switch and secure with the switch nut.
- E. See wiring diagram to connect wiring to switch.

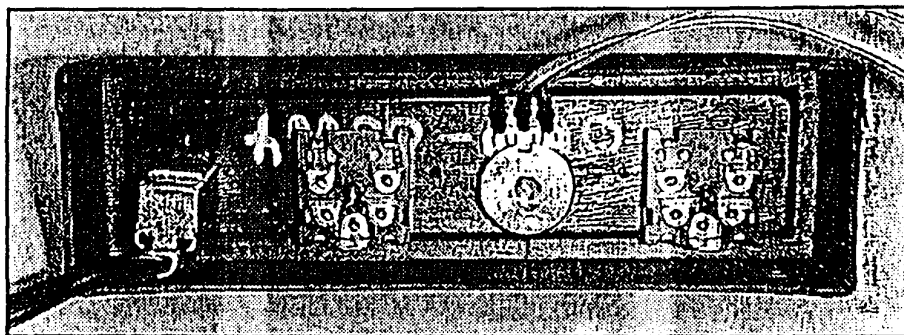
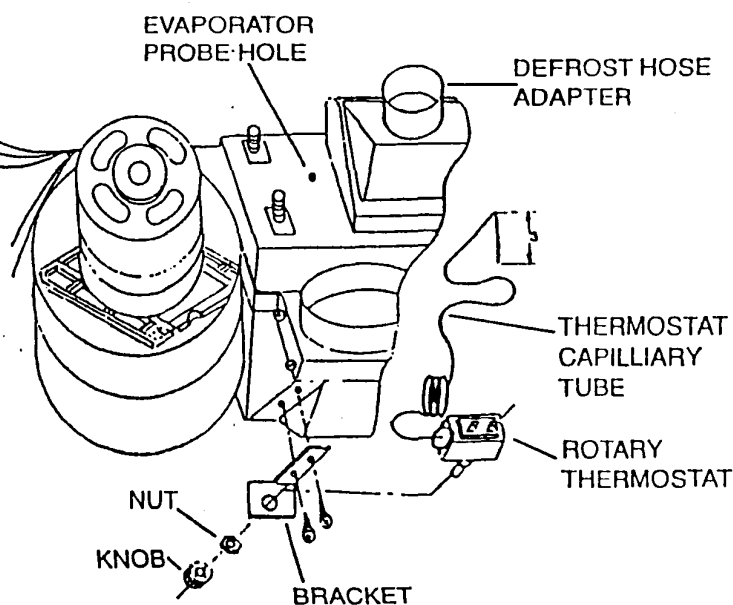


FIGURE 1

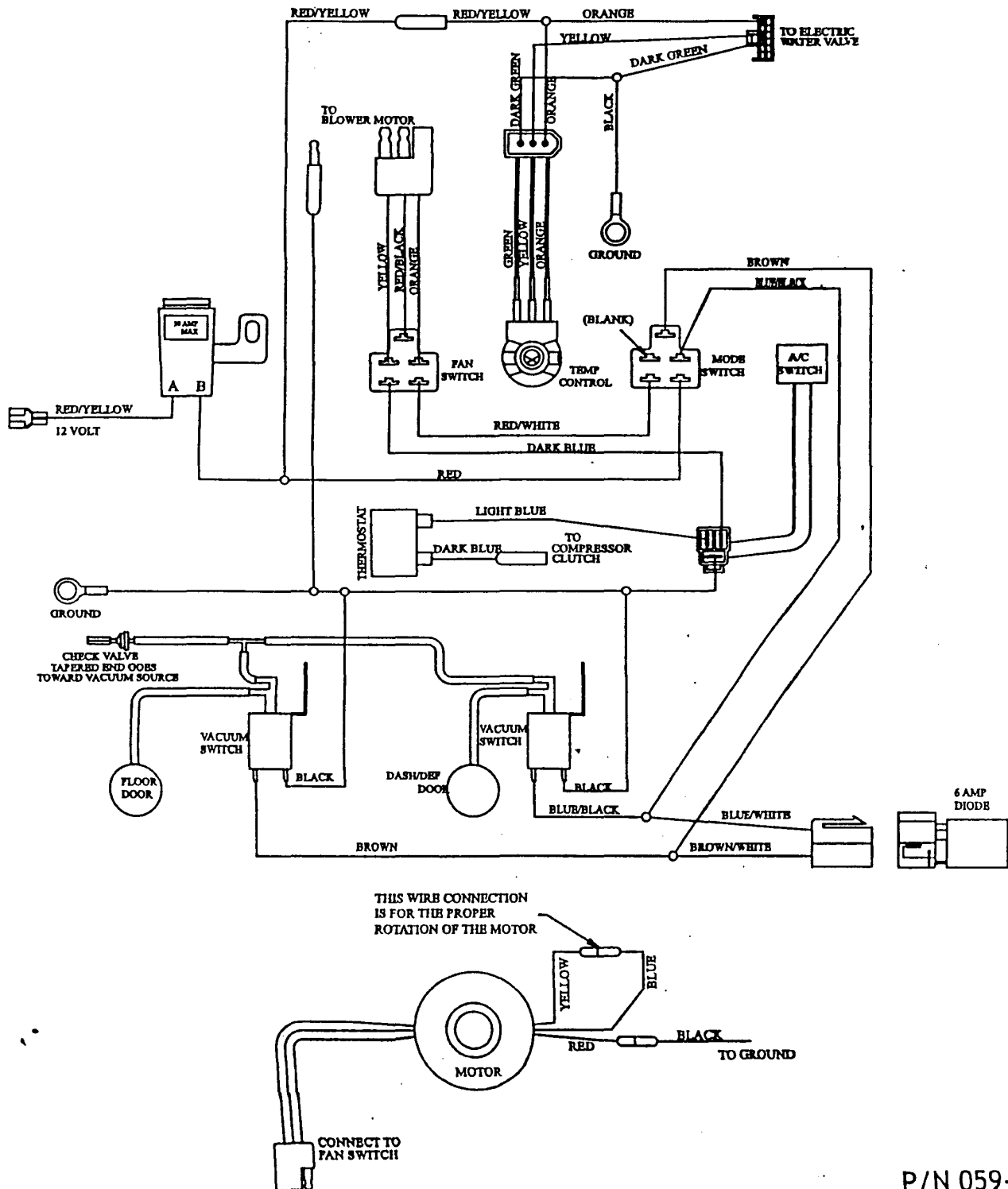
2. It will be necessary for the technician to install the rotary thermostat to the evpaorator unit.

- A. At the end of the thermostat capillary tube straighten (3") three inches of tube, and then carefully bend a rounded 90° angle.
- B. Pre-form and route the capillary tube from the probe hole in the evaporator case to the thermostat bracket mounted on the evaporator case.
- C. Insert the thermostat capillary tube (3") three inches into the evaporator unit, now attach the rotary Thermostat to the Evaporator bracket with the switch nut, and attach the knob.



P/N 059-00027
March/2002

MAXI I WIRING DIAGRAM



2003 MAXI II

1. Assemble the switches to the Switch Box as follows: FIGURE 1

- A. Peel the backing off the Graphics Panel and carefully attach the Graphics panel to Switch Box front.
- B. Install the (2) two, (5) five terminal fan switches, one temp control switch, to the Switch Box from the back side and attach and secure with the switch nuts at the front side.
- C. Slip the plastic nut covers over the switch nuts, and attach the knobs.
- D. Install A/C Switch and secure with the switch nut.
- E. See wiring diagram to connect wiring to switch.

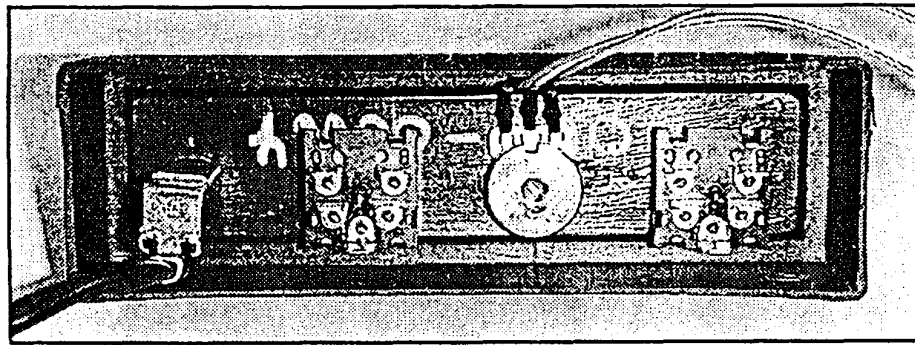
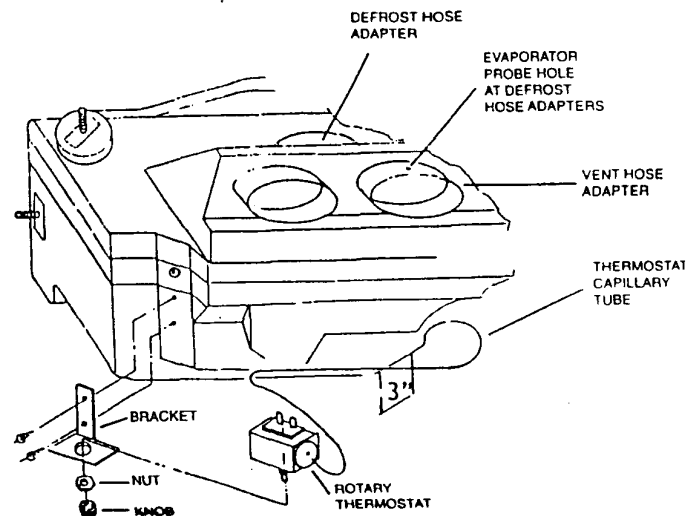


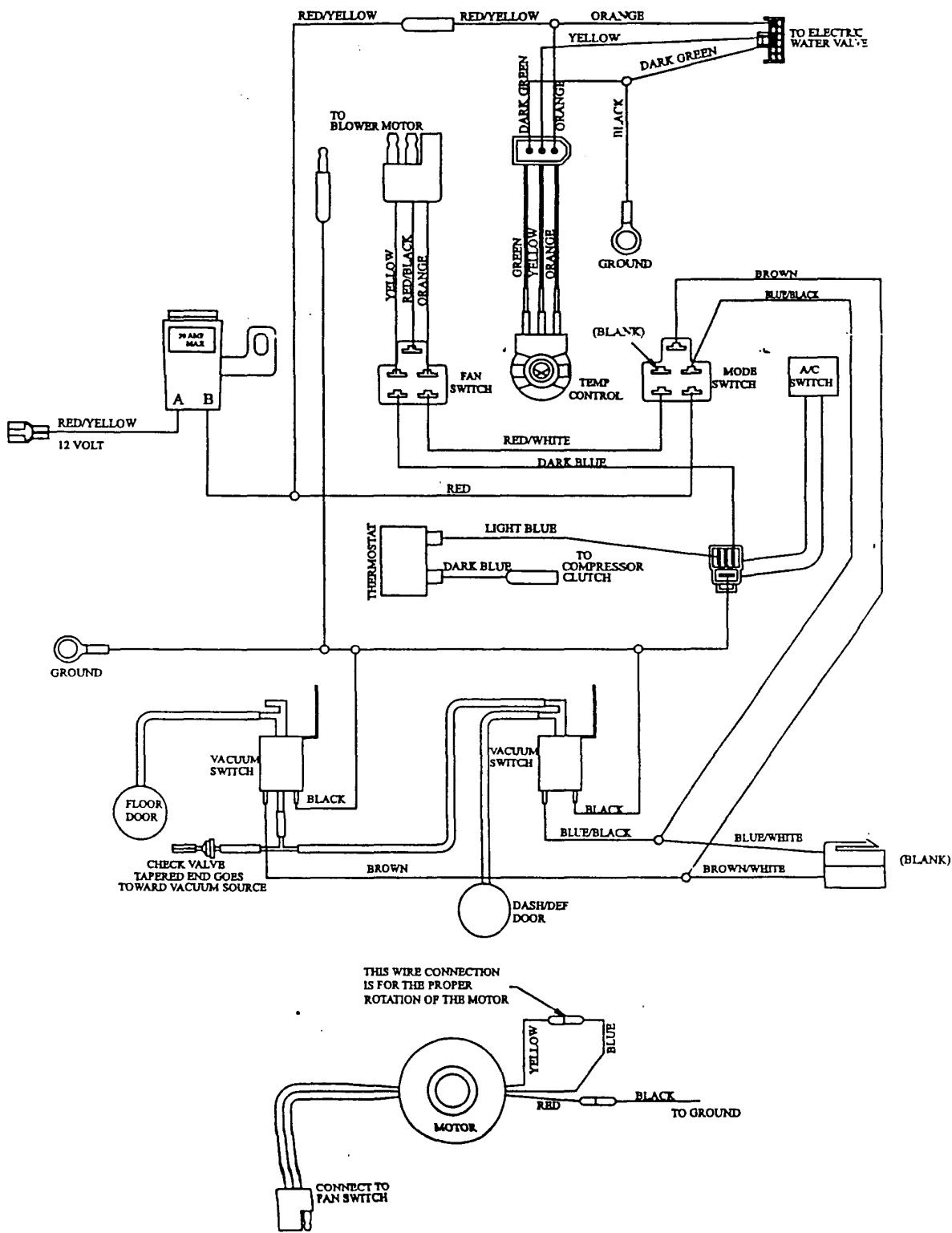
FIGURE 1

2. It will be necessary for the technician to install the rotary thermostat to the evaporator unit.

- A. At the end of the thermostat capillary tube straighten (3") three inches of tube, and then carefully bend a rounded 90° angle.
- B. Pre-form and route the capillary tube from the probe hole in the evaporator case to the thermostat bracket mounted on the evaporator case.
- C. Insert the thermostat capillary tube (3") three inches into the evaporator unit, now attach the rotary bracket with the switch nut, and attach the knob.



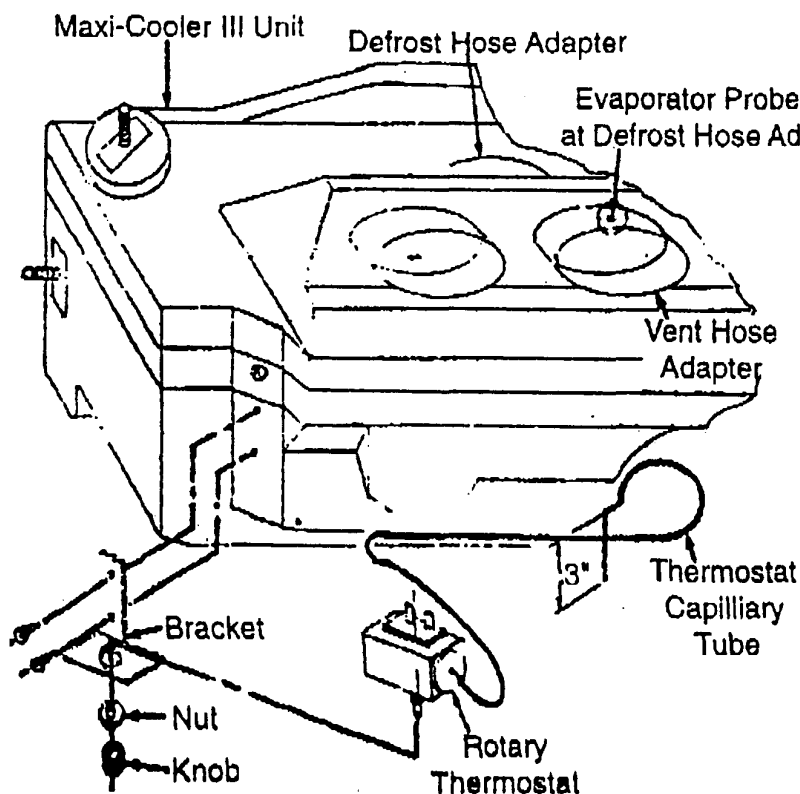
MAXI II WIRING DIAGRAM





. It will be necessary for the technician to install the rotary thermostat to the evaporator unit.

- A. At the end of the thermostat capillary tube straighten (3") three inches of tube, and then carefully bend a rounded 90° angle.
- B. Pre-form and route the capillary tube from the probe hole in the evaporator case to the thermostat bracket mounted on the evaporator case.
- C. Insert the thermostat capillary tube (3") three inches into the evaporator unit, now attach the rotary Thermostat to the Evaporator bracket with the switch nut, and attach the knob.

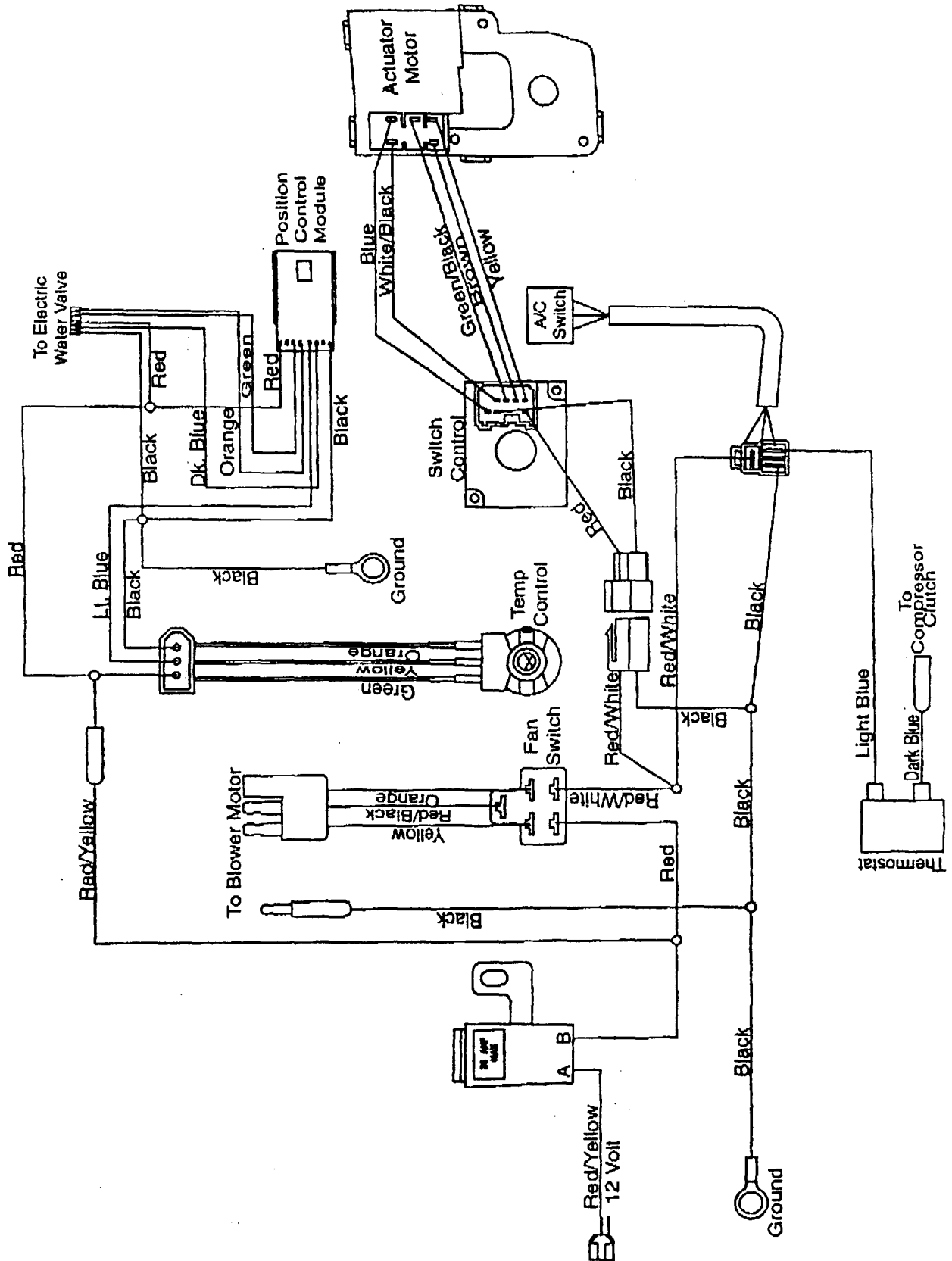


CAUTION

Make sure the capillary tube is clear from all hot, sharp, or moving parts after the installation is complete.

P/N 059-00029
August/2002

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WIRING DIAGRAM
MAIN III