

INSTALLATION INSTRUCTIONS

CAT 988 B WHEEL LOADER



HAMMOND AIR CONDITIONING LTD
INGERSOLL, ONT.
1-800-267-2665
1-888-267-3745 (FAX)

CAT 988 B INSTRUCTIONS

EVAPORATOR COIL:

The evaporator coil goes alongside the heater core in the heater blower assembly above the operator's position.

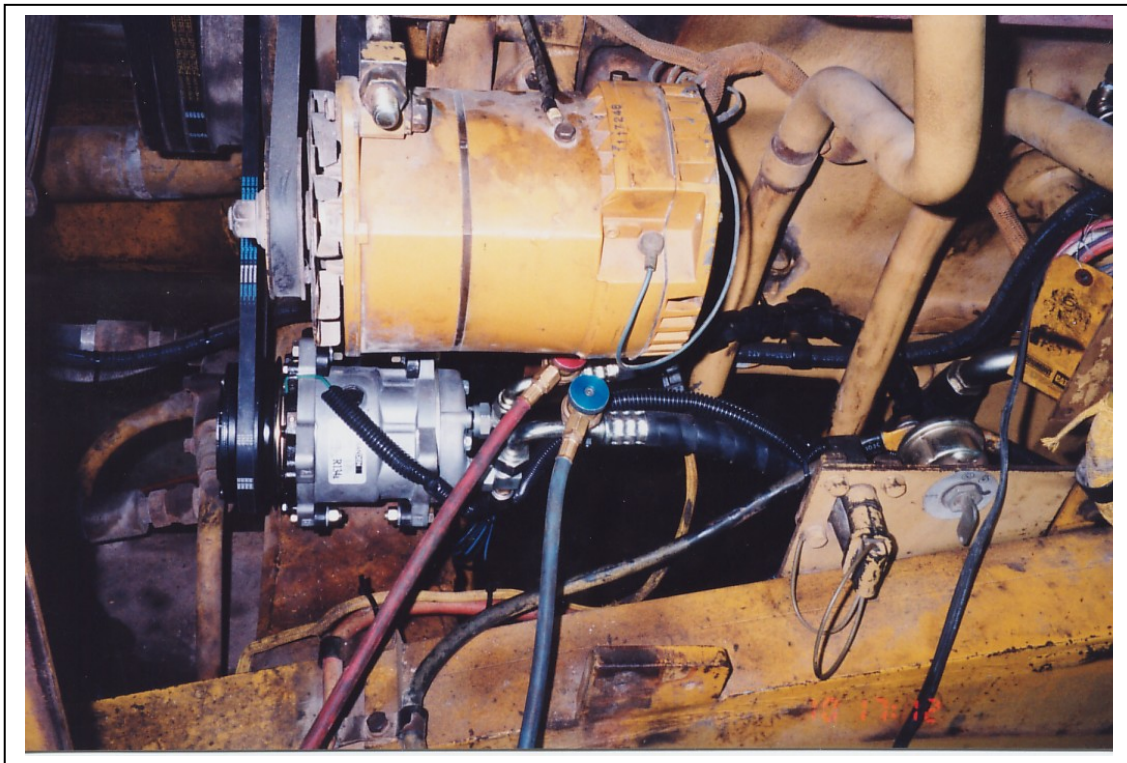
1. Remove the rooftop cover, then remove the inner cover over the heater box.
2. The evaporator coil is supplied assembled with the end brackets in place. The complete assembly is set into place beside the heater coil and bolted into place with the 1/4" hardware supplied. The two bolt points on the left of the coil are accessed from the return air filter area and the right hand ones are accessed from the right hand side of the air handling box in the roofline.
3. To fit the assembly into place it will be necessary to cut out a 1" wide by 6" deep section of the left side of the heater box to allow the evaporator hose fittings to fit through the side of the box. When the coil is in place the end cove plate (with the two grommets) can be screwed into place using the self-drilling screws provided.
4. The expansion valve can now be installed on the inlet side of the coil. The expansion bulb should be fastened to the suction fitting tube behind the equalization port and then tar taped.
5. Do not reassemble the blowers and filter assemblies until the system has been tested for leaks.
6. Note* refrigeration oil must be used on all o-rings prior to connecting all hoses.



COMPRESSOR:

The compressor is located below the alternator on the right hand side of the engine compartment

1. Bolt the compressor mount to the engine using the four holes in the engine block. The holes in the compressor mount are slightly larger to allow fine-tuning of the compressor belt. Install the compressor on the mount so that the fittings on the compressor point upwards.
2. Install a ½" v belt around the drive pulley and compressor pulley as supplied. There is a 17480 and a 17500 belt provided. Use the best fit.
3. Tighten compressor on tightener ears using bolts supplied
4. Install rotolock fittings on compressor using white nylon seals. 13/32 to discharge side 5/8 to suction side.

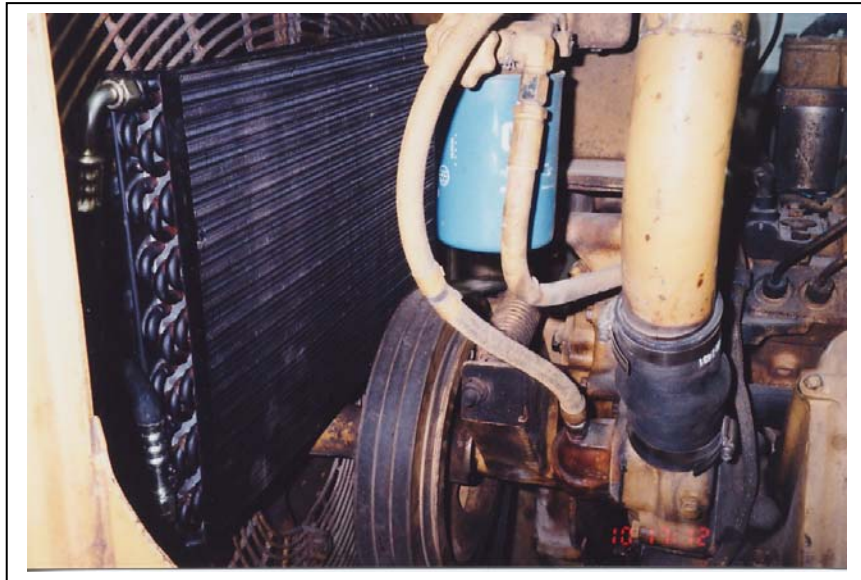


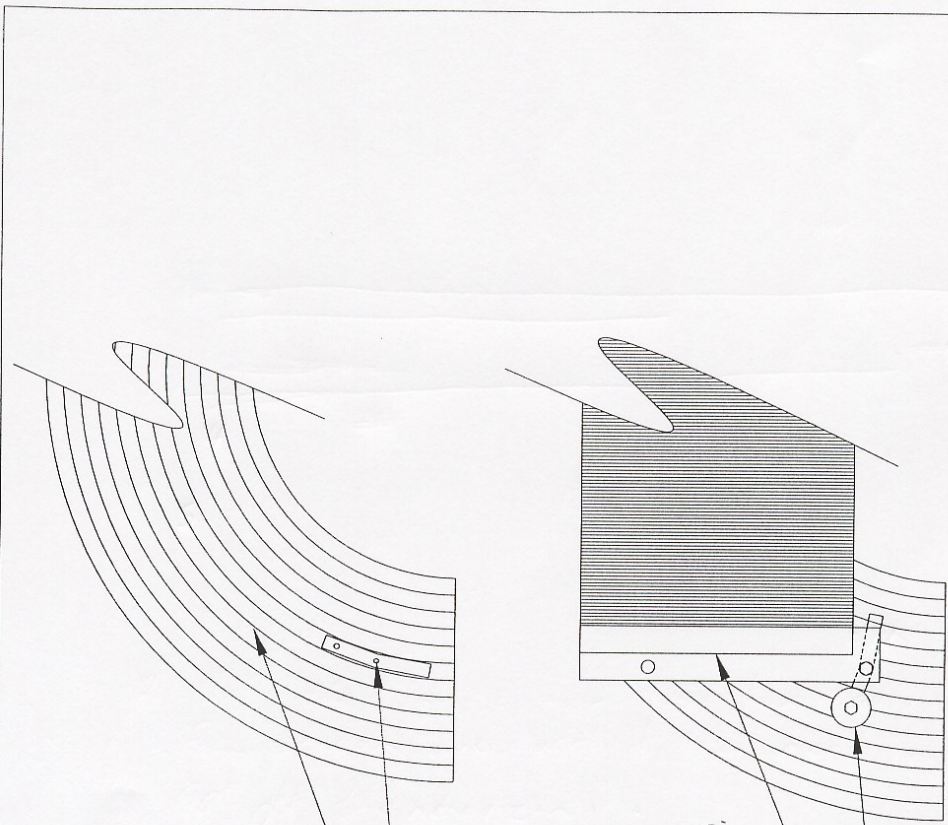
CONDENSER:

The condenser mounts across the face of the radiator fan screen above the fan hub.

1. Slide the condenser and frame in across the face of the radiator fan screen above the fan hub arrangement
2. The coil is mounted to the screen by using the 'spin-lock' fastener arrangement of the 3/8" bars with the locking bolts.

Inset the bars through the fan screen and turn 90o to the shroud screening. Tighten the bars in place and lock with the second bolt and the large flatwasher to prevent any possibility of the locking bars loosening off.





SLIP THE SPINLOCK
BETWEEN THE FAN
SCREEN BARS

FAN SCREEN
SPINLOCK

AND ROTATE 90 DEG.
AND TIGHTEN DOWN

CONDENSER
FENDER WASHERS

DRAWING TITLE:		SPINLOCK INFO.	
DRAWN BY:	J.S.		
APPROVED BY:	J.L.		
MODIFIED ON:	MAR. 15, 2002		
REV.:	0		
UNITS:	S.A.E.		

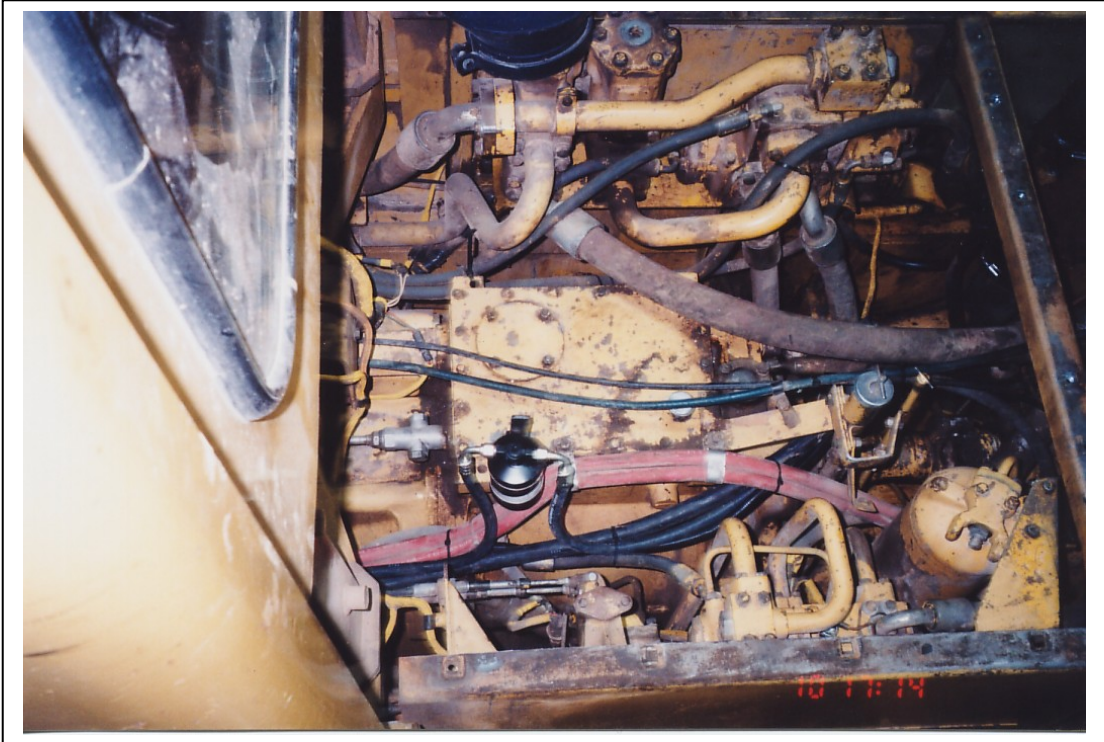
CONDENSER INSTALLATION WITHOUT FAN SCREEN

An optional condenser mounting arrangement is available for machines that no longer have the fan screen in place. A frame can be mounted to the condenser to allow it to be secured directly to the radiator frame. This option must be ordered at the time of the initial order.



RECEIVER DRIER:

The drier is installed under the left rear floor panel behind the cab. A drier-mounting bracket is supplied and bolts to the edge of the transmission cover. The inlet side points to the back of the machine. Secure the drier using the two #48 clamps supplied.



HOSES RUN:

5/16" HOSE: 1) Condenser to drier

Connect the 90 fitting on the 5/16" hose to the lower outlet on the condenser. Run the hose down underneath the compressor and up the side of the engine Compartment and down along towards the cab, coming out from the left hand floor board behind the cab. Connect the 90 fitting to the inlet side of the drier.

2) Drier to expansion valve

Connect the 90 fitting on the second 5/16" hose to the outlet of the drier and run up to the back of the cab wall. Access this area by removing the cover panel bolted on the back of the cab wall. Drill two 1 1/4" holes 3" apart to accommodate the 5/16" (and later the 5/8" hose) hose. Install grommets provided. Run the hose through the grommet and up the channel inside of the cab following the heater hoses it may be necessary to drill two more holes in the ceiling to install another two grommets. Run hose to expansion valve. Cut to length, leaving enough hose to produce some slack. Crimp the straight 5/16" fitting on the end and attach to the expansion valve.

13/32" Hose: Condenser to compressor

Connect the 90 fitting (with the service port) to the discharge side of the compressor. Run the hose down and along the frame up to the condensor. Using either a 90 or a 45 fitting cut the hose to length and crimp on fitting. Attach hose to inlet of condenser.

5/8" hose: Compressor to evaporator

Connect the 90 fitting with the service port to the suction side of the compressor. Run the 5/8" hose alongside the 5/16" hose up the cab and through the ceiling. Cut the hose to length and crimp on the 90 fitting supplied. Install hose on evaporator outlet.

Thermostat:

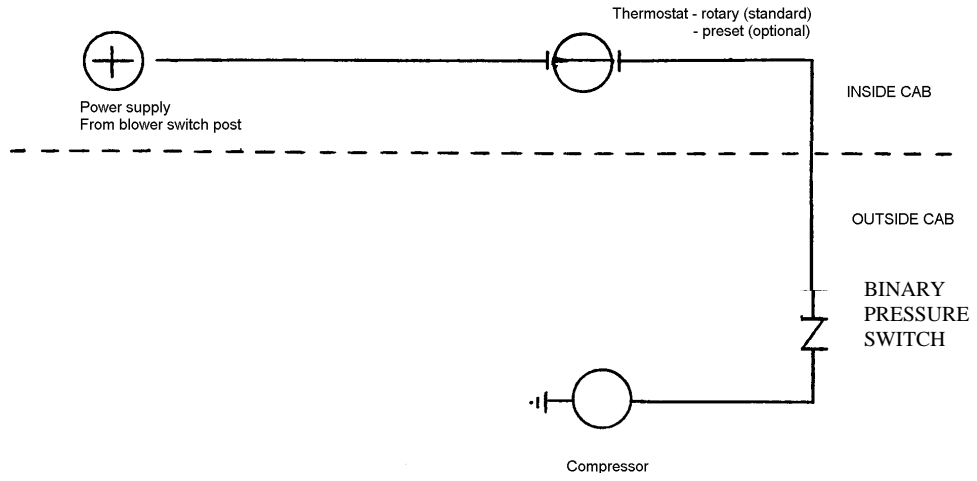
The thermostat is located in a knock out below the blower switch. Push out knockout install thermostat in hole. Install nut loosely. Take power from the blower switch to one side of the thermostat. (Make sure you only have power when blowers are operating). Connect the black 14 gauge black clutch wire to the other terminal on the thermostat. Run the thermostat probe along with the clutch wire along the blower wires into the heater box. Run the probe and wire over top of the heater core. Insert probe into the evaporator core half way down from the middle and 8" from the expansion valve side. Push the probe all the way through the coil with about one-inch through the other side. Bend the end over and push back through until secure. Run the clutch wire out of the heater box through one of the grommets in the heater box. Run the wire down to the compressor along side of the hoses. Connect the wire to the high - pressure switch located on the rotolocks. (Black wires) Join other lead from high-pressure switch to low pressure switch. (Green wires) The other lead from the low-pressure switch goes to the compressor.

When reinstalling blower panel it may be necessary to cut away some of the mounting flange to allow it to close. Once panel is in place tighten nut on thermostat.

INSTALLATION HINTS:

1. Once system is installed pressure test for leaks before reinstalling any hose covers or cover plates.
2. Use refrigerant oil on all o-rings when making connections.
3. Make sure all ends of hoses and all other components of system are sealed until installed. Any dirt in system will cause a malfunction and poor or no performance will result.
4. Hose wrap any hoses and wiring that may rub or come in close contact with sources of heat.
5. Use cable ties provided to tie up any loose hoses and wires.

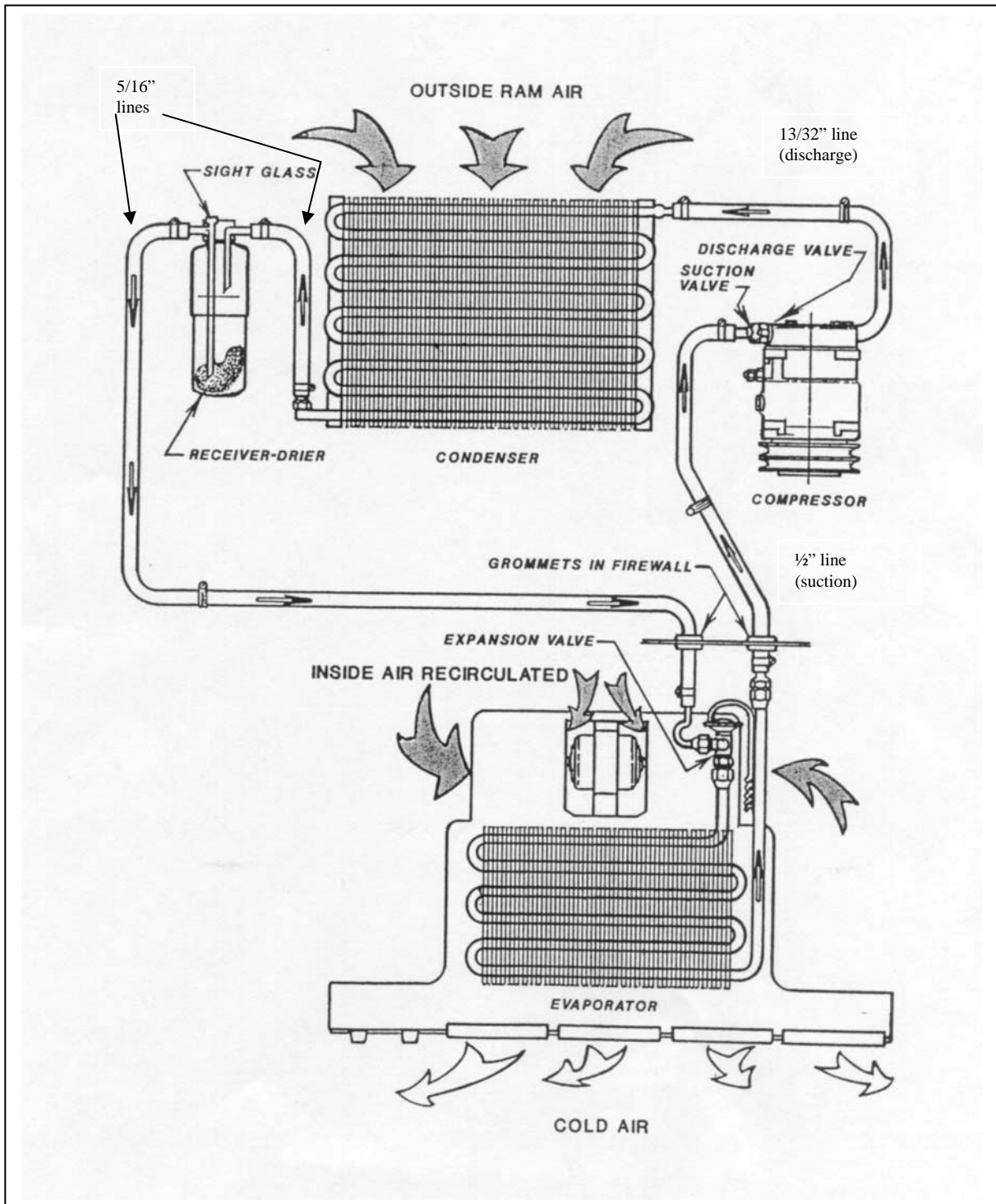
ELECTRICAL:



CHARGING AND TESTING

- 1) Pressure test the system using nitrogen to a pressure of 250 psi. Check for leaks.
- 2) Add 2oz of SP20 Sanden PAG oil to the system.
- 3) Vacuum the system for at least ½ hour.
- 4) Check that the vacuum holds.
- 5) Fill the system with 2.75 to 3 lbs of R134a refrigerant. **DO NOT USE ANY OTHER TYPE OF REFRIGERANT OR IT WILL VOID THE WARRANTY.**
- 6) Test the system. Check the cycling temperature of the thermostat. Adjust the thermostat settings if required to avoid coil freeze up problems. See the thermostat setting procedures at the end of these instructions.

Refrigerant Flow Pattern in a Standard Air Conditioning System



Thermostat Setting Procedures

- 1) Thermostat types
 - a) preset
 - b) adjustable
 - a) A preset thermostat is adjusted to its specific cut in and cut out temperatures when manufactured and does not have a rotary adjustment for the operator.
 - b) An adjustable or rotary thermostat has been manufactured to a predetermined cut in and cut out temperatures, but it is also operator adjustable to achieve the desired comfort level.

Both types of thermostats can have their factory settings adjusted by turning the setting screws on the body of the thermostat. One body type has the setting screws mounted externally and labeled for direction of rotation. The other body type requires the removal of the plastic end plate to expose the set screw.

- 2) Thermostat probe location: The location of the thermostat probe in an evaporator coil can be very important to achieve the maximum cooling potential of the coil while also preventing coil freeze-up. There is no set location for the thermostat probe to be put that will be optimum for all systems, but several rules of thumb may be followed:
 - a) Insert the probe in the coldest area of the evaporator coil.
 - b) Insert the probe from the top of the coil down, if possible.
 - c) Make sure that at least the last 3" of the thermostat probe are in the coil.

To find the most likely area where the coil is the coldest, consider these factors:

- 1) Direction of air flow through the coil.
 - 2) The coil area likely to have the lowest air flow.
 - 3) The inlet locations of the refrigerant into the coil.
 - 4) The inlet of the hotter outside air into the coil area.
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- 1) Usually the coldest side of the evaporator coil will be the air outlet side. Often the thermostat probe can be inserted between the last and second last row of tubes.
 - 2) The lower air flow area of the evaporator coil in most systems tends to be near either end of the coil. These areas will be colder
 - 3) The area of the coil that the refrigerant inlet tube(s) occupy should be the coldest part of the coil.
 - 4) If the system is equipped with an outside air intake, where and how that air is brought into the evaporator area can have a large effect on the coil temperature. If all the outside air is piped into the evaporator in one area, that area will be considerably warmer in hot weather.

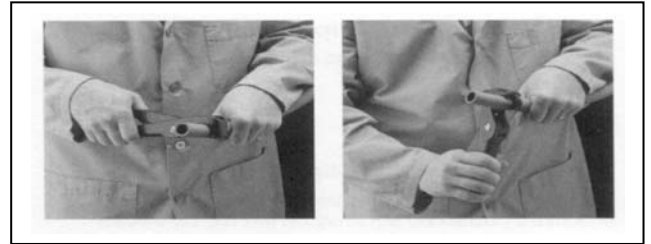
By looking at all these different factors, the area of an evaporator coil most likely to be the coldest can be determined.

Once the probe is inserted, the A/C system needs to be tested. Run the system to ensure that the thermostat is cycling the compressor off at the appropriate temperature. A core temperature ranging between 25° and 30° F should cause the thermostat to cycle off. The air temperature at the vent outlet closest to the evaporator coil should be between 38° F and 45° F when the compressor cycles off.

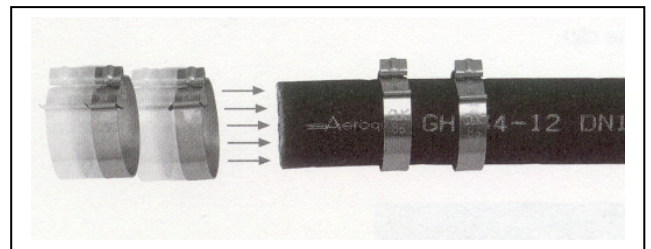
If the thermostat doesn't cycle off after a reasonable cool down period, and the air outlet temperature has dropped below 40° F, the cut in and cut out settings should be adjusted until the compressor is cycling on and off regularly. Let the system run for a decent time period (at least 15 min) and then check the evaporator coil for any signs of freezing.

Aeroquip E-Z Clip Assembly Instructions

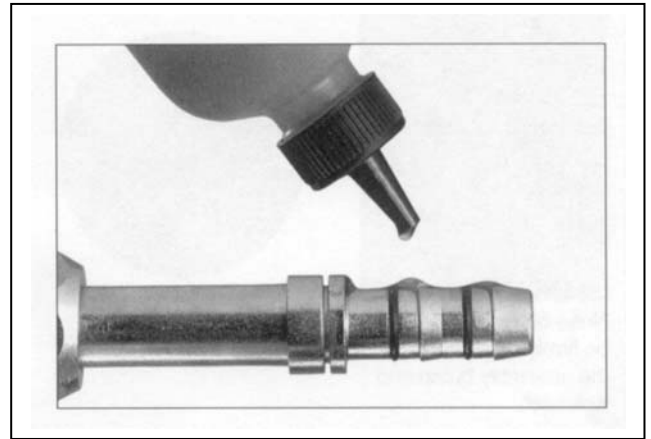
Step 1. Cut the hose to proper length with an appropriate cutting tool. Aeroquip's hand held hose cutter has been specially designed for cutting all non-wire reinforced hose, such as GH-134 Multi-Refrigerant hose. Be sure the cut is made square to the hose length.



Step 2. Install two proper-sized clips onto the cut end of the hose. Orientation of the clips does not affect the performance of the connection. However, for ease of assembly, both clips should have the same orientation. NOTE: Failure to slide the clips over the hose at this time will require the clips to be stretched over the hose or fitting later. This may permanently damage the clip.



Step 3. Lubricate the nipple with a generous amount of the refrigeration or A/C system's compressor lubricating oil. This MUST be done to lower the force of nipple insertion.

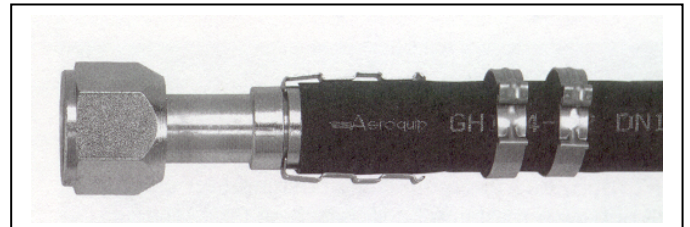
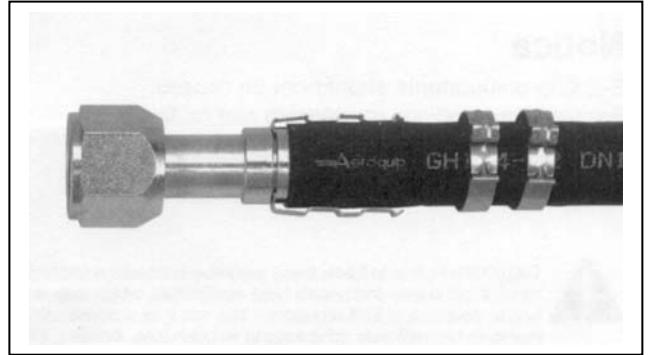


Step 4. Insert the nipple into the hose. To ensure that the nipple is fully inserted, check the gap between the cut end of the hose and the shoulder on the nipple. Care should be taken to avoid kinking or other damage to the hose during nipple insertion. NOTE: Be sure to wipe excess oil from the nipple and hose.

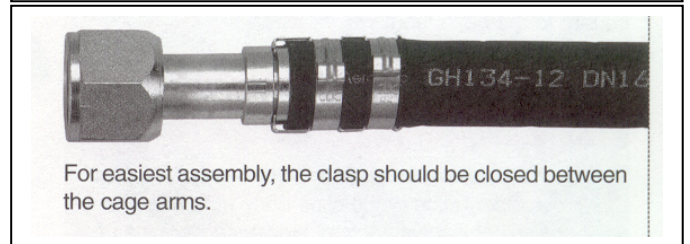


Step 5. Snap the cage into the groove on the nipple. The arms should extend over the hose length. When the cage has been correctly installed in the cage groove, the cage will be able to rotate in the groove. This step **MUST** be performed to ensure:

1. The clips will be located over the O-rings on the nipple.
2. The connection will be compatible with the connection's pressure rating.



Step 6. Slide the clips over the cage arms and into the channels on each arm.



Step 7. Use the pliers to close the clips. The pliers should be positioned squarely on the clip connection points and should remain square during the closing of the clip.

NOTICE: E-Z Clip components should not be reused.

