

**INSTALLATION INSTRUCTIONS**  
**KOMATSU WA320-3 WHEEL LOADER**



1-800-267-2665

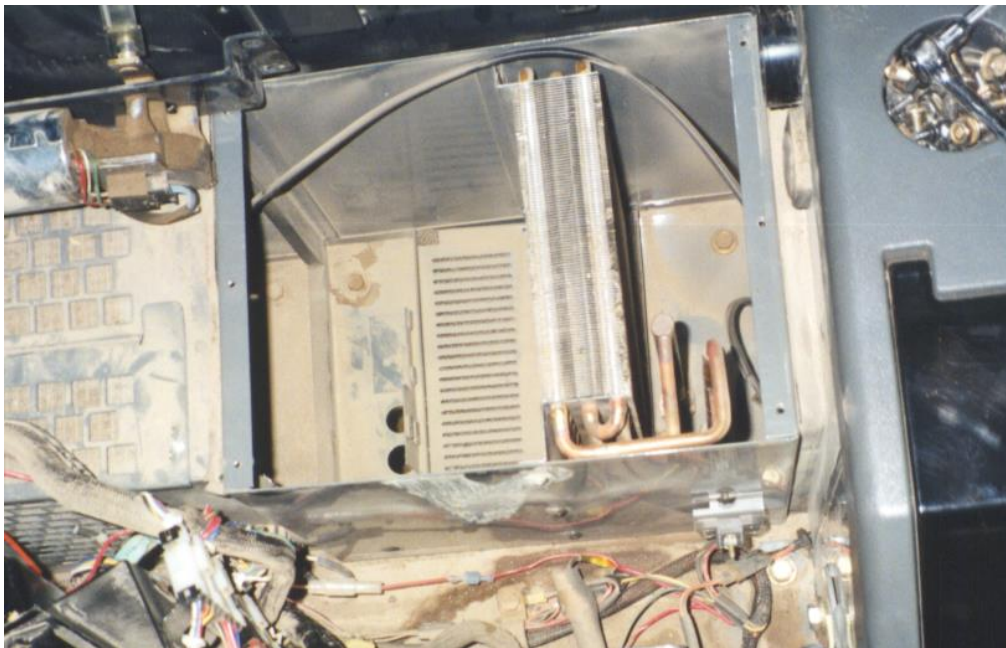
1-888-267-3745 (FAX)

## KOMATSU WA320-3 INSTRUCTIONS

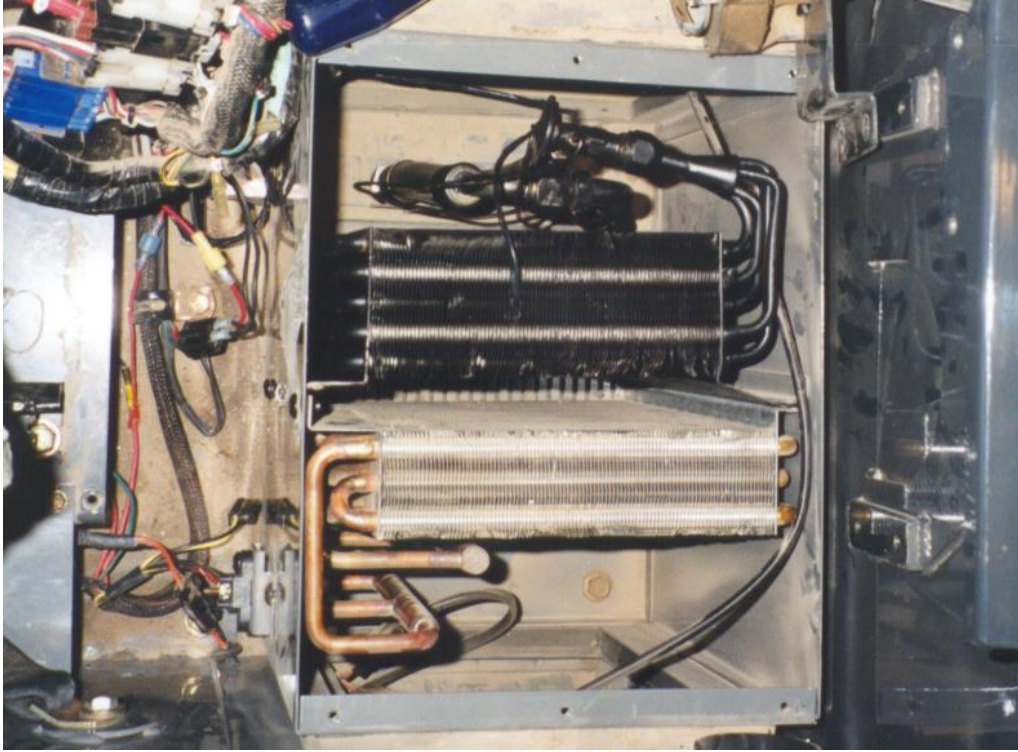
### EVAPORATOR COIL:

The evaporator coil goes alongside the heater core in the heater blower assembly behind the operator's location.

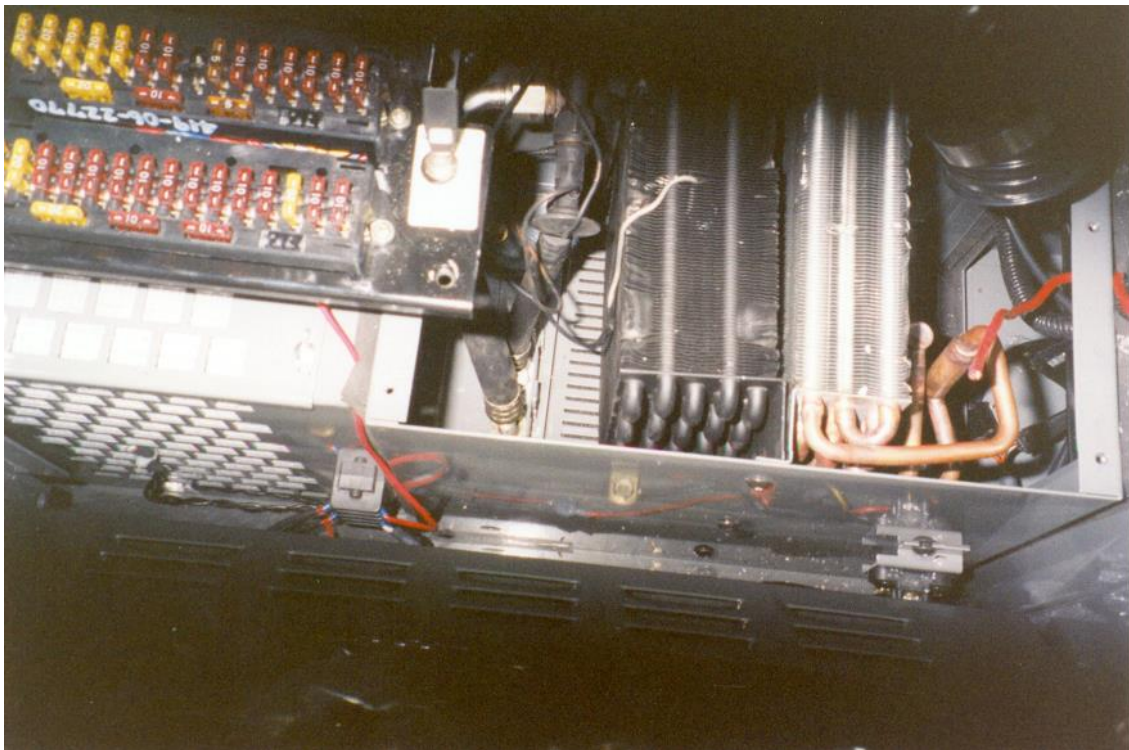
1. Remove the housing from around the heater unit behind the seat.
2. Open the top to the heater box and expose the heater core.
3. Open up the plugged holes for the hoses to pass through the bottom of the heater box. Install the ¼" NPT nipples into the drain pan to pass through the floor.
4. The hoses will be pre-assembled to the coil and expansion valve and the bulkheads routed down through the openings in the floor of the box. (see pictures) Insert the evaporator coil and secure in place using the hardware supplied.
5. Route the thermostat probe into the box and insert into the evaporator coil approximately 4" to 6".
6. Reassemble the top of the evaporator/blower box after the system has been tested for leaks and operation.



Evaporator location beside heater coil.



Evaporator showing hoses to bulkheads at floor.



Close up view of evaporator set-up.

## **CONDENSER:**

The condenser mounts between the engine fan and the radiator on a purpose built frame.

1. Remove the fan screen, engine fan, and fan hub assembly in order to set the condenser and frame assembly into position.
2. With the fittings on the left (as viewed while installing – right side of the machine) set the condenser frame and assembly into position on the existing threaded holes and secure with the hardware provided.
3. At the bottom of the shroud surrounding the radiator assembly cut a 2” hole with a hole saw to insert the hoses into the compartment for the condenser. Smooth the edges with a file to prevent damage to the hoses.
4. **Before re-installing the fan screen make sure the hoses are run into position and tested with the system complete.**

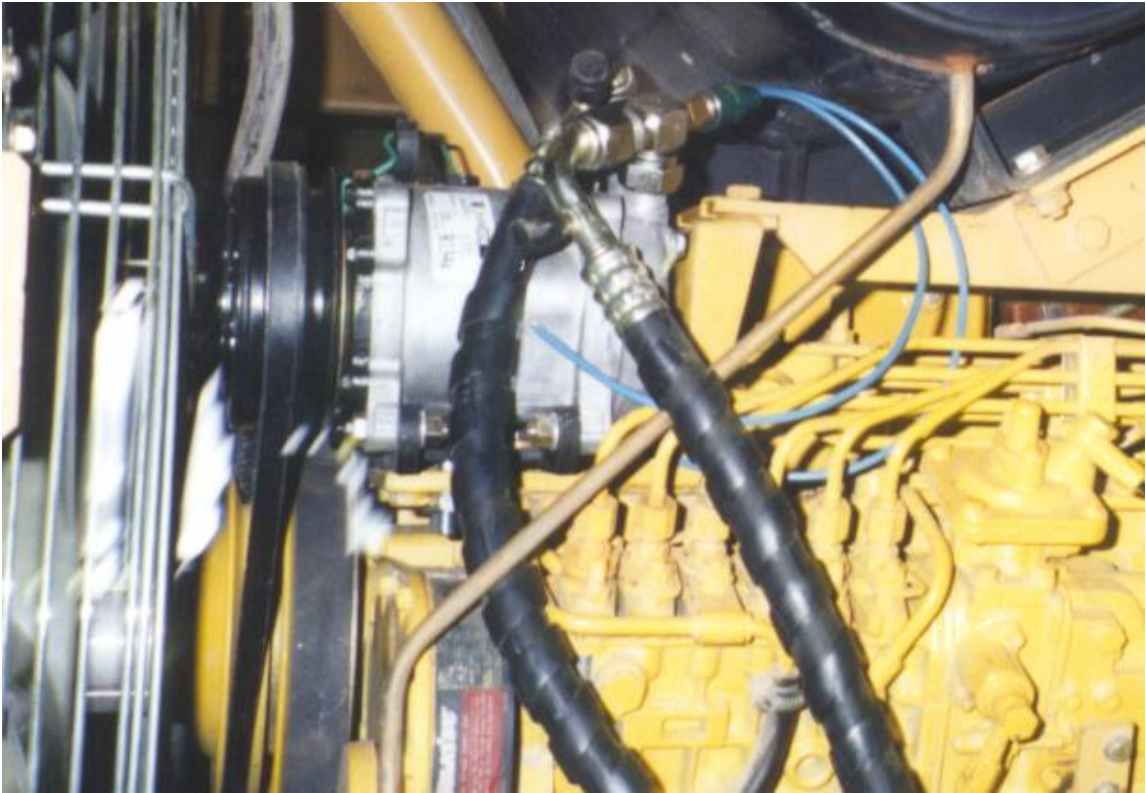
## COMPRESSOR:

The compressor mounts on the right hand side of the engine on the top and drives off of the open pulley on the fan hub.

- 1) Install the compressor mount with hardware provided in the kit. Install the compressor onto the mount with the hardware provided. Ensure the oil fill port is oriented up.
- 2) Install belt provided and check for correct alignment.
- 3) Tighten the belt using the integrated tightener function of the mount.



Mount location with compressor and hoses.

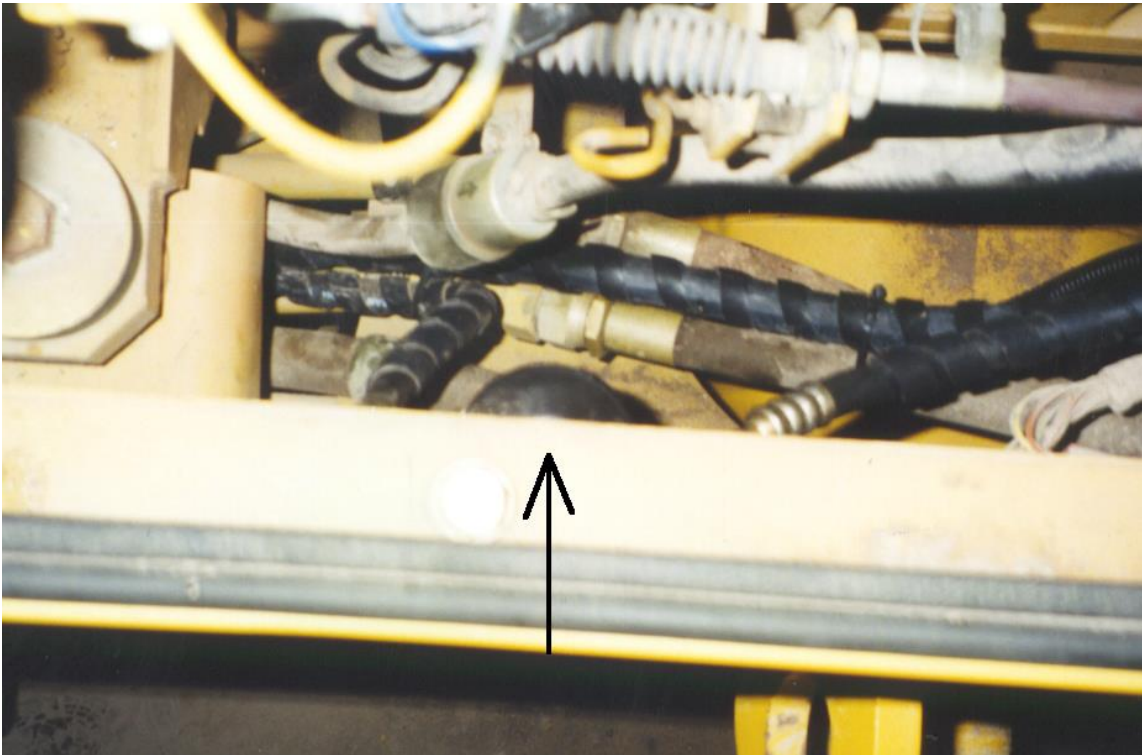


Compressor mounted and in place with drive belt and hoses.

## RECEIVER DRIER:

The drier mounts on the right frame of the loader just forward of the rear motor mount.

1. The receiver drier mounts against the right side frame of the machine just ahead of the rear motor mount on that side and across from the throttle control assembly.
2. Using the existing bolt and hardware mount the drier bracket in place.
3. Attach the drier to the bracket with the two #48 gear clamps provided. Make sure that the “IN” fitting of the drier is oriented toward the radiator.



Drier in position on right side frame member.



View of drier against frame.



## **HOSES:**

The hoses for the air conditioning are all pre-crimped on both ends and require no crimping by the installer.

1. The 13/32" (#8) hose runs from the compressor discharge rotolock fitting (the one with the pressure switch with black leads – high pressure) runs down from the compressor down to the frame, along the frame with the 5/16" hose and through the shroud to the condenser. The hose runs up and connect to the top fitting on the condenser.
2. The first 5/16" (#6) hose runs from the condenser to the drier. Connect the straight hose fitting to the lower fitting on the condenser and then loop the hose up and around to join the 13/32" hose and run out through the hole in the radiator shroud. The 5/16" and 13/32" hoses run along the frame to the point the 5/16" hose splits off to the drier and the 13/32" hose goes to the compressor.
3. The other 5/16" hose runs from the drier to the bulkhead fitting through the floor under the evaporator assembly. Run this hose forward along the frame member, with the 5/8" hose from the compressor, up under the cab. The 45o fitting at the evaporator end is connected to the bulkhead fitting showing through the floor of the cab.
4. The 5/8" (#12) hose runs from the compressor suction rotolock fitting (the one with the pressure switch with blue leads – low pressure) runs down from the compressor with the 13/32" hose and then forward toward the cab with the 5/16" hose. Feed under the cab with the 5/16" hose and connect to the bulkhead fitting showing through the floor of the cab.



Hoses routed under cab also showing drain extension.

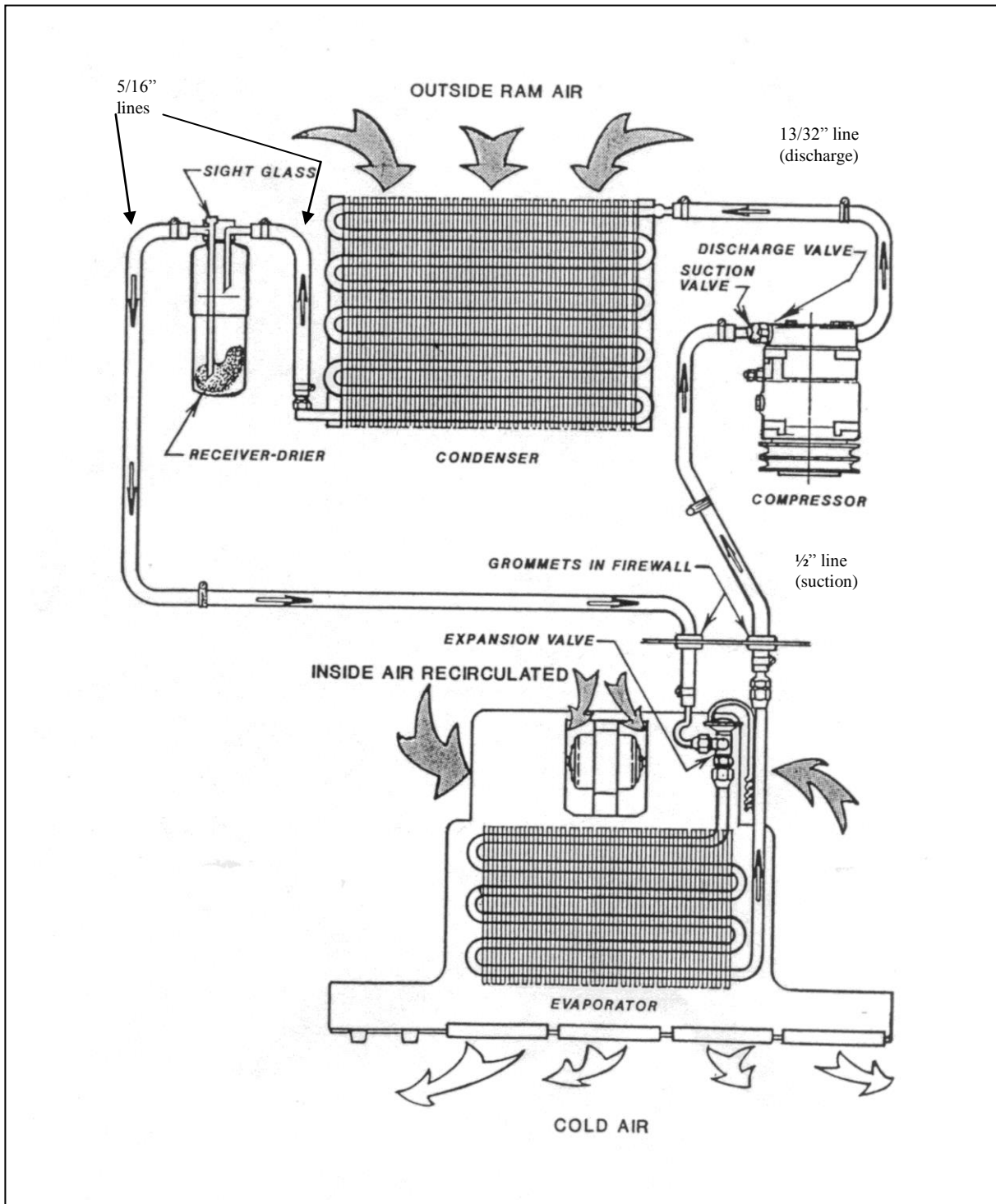
**ELECTRICAL:**

The electrical arrangement for the air conditioning system is tied in with the factory installed controls on the dash.

## 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.

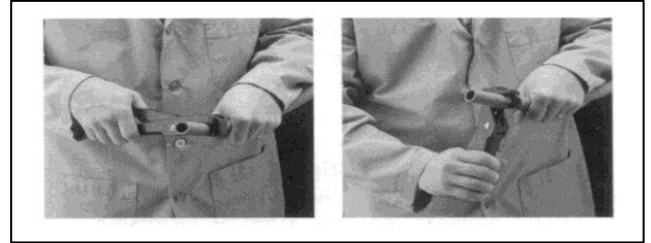
By looking at all these different factors, the area of an evaporator coil most likely to be the coldest can be determined.

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.

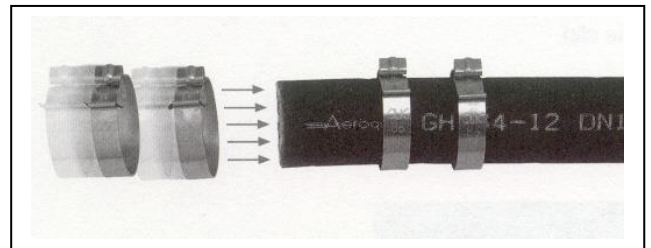
If the thermostat doesn't cycle off after a reasonable cool down period, and the air outlet temperature has dropped below 40° F, the cut in and cut out settings should be adjusted until the compressor is cycling on and off regularly. Let the system run for a decent time period (at least 15 min) and then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

## Aeroquip E-Z Clip Assembly Instructions

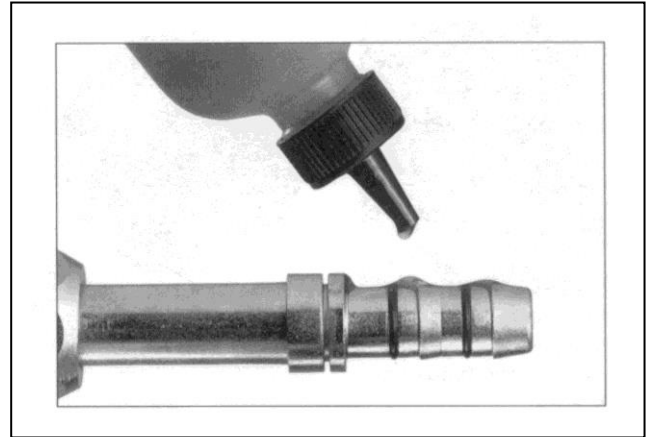
Step 1. Cut the hose to proper length with an appropriate cutting tool. Aeroquip's hand held hose cutter has been specially designed for cutting all non-wire reinforced hose, such as GH-134 Multi-Refrigerant hose. Be sure the cut is made square to the hose length.



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.



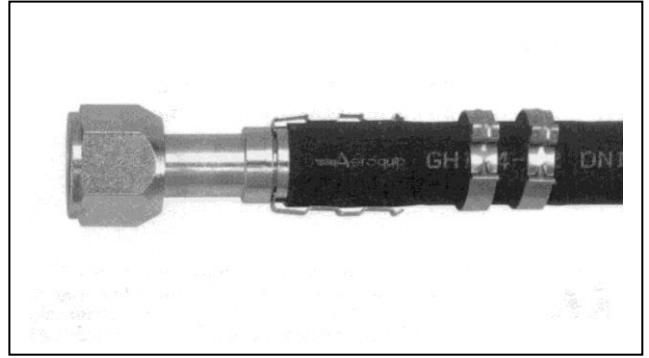
Step 4. Insert the nipple into the hose. To ensure that the nipple is fully inserted, check the gap between the cut end of the hose and the shoulder on the nipple. Care should be taken to avoid kinking or other damage to the hose during nipple insertion. NOTE: Be sure to wipe excess oil from the nipple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



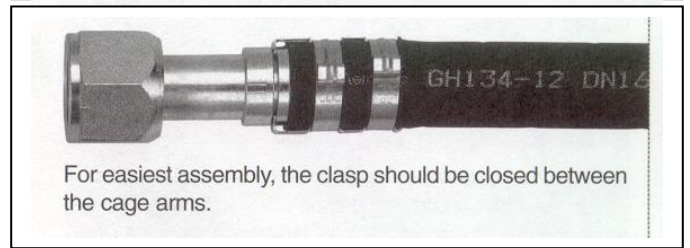
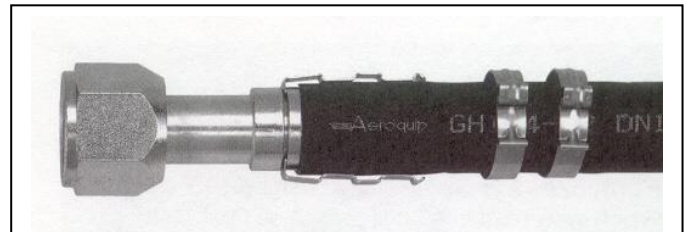


Step 5. Snap the cage into the groove on the nipple. The arms should extend over the hose length. When the cage has been correctly installed in the cage groove, the cage will be able to rotate in the groove. This step **MUST** be performed to ensure:

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.

