

INSTALLATION INSTRUCTIONS

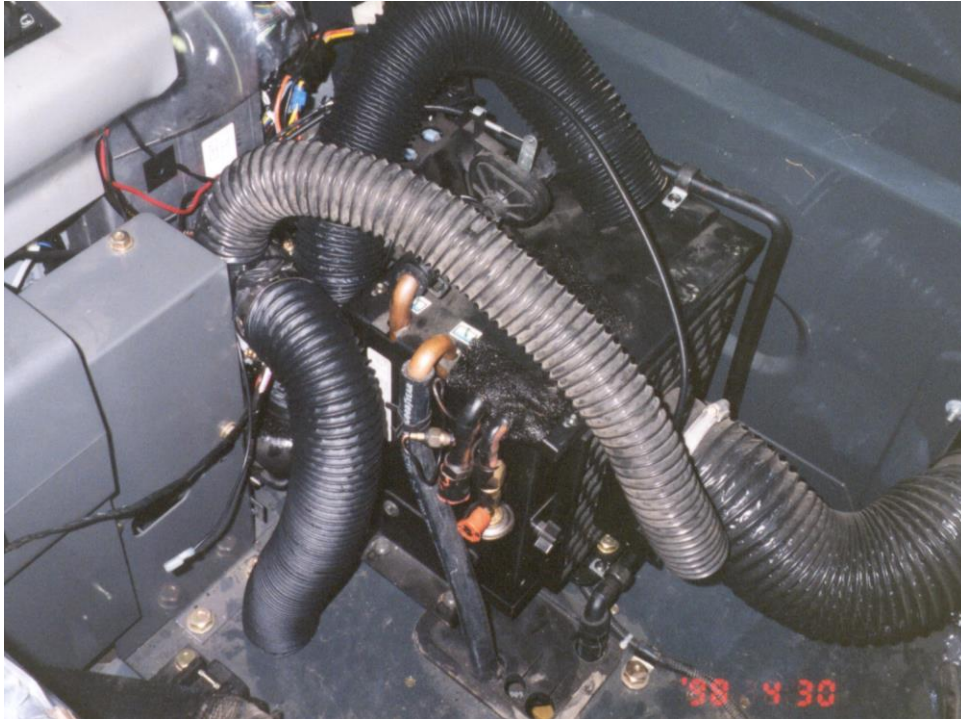
KOMATSU PC400 LC-6 EXCAVATOR

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NOTE: THIS PACKAGE IS FOR THE CUMMINS ENGINES (MODEL #MTA11) WITH THE 'EAGLE' HEATER ASSEMBLY ONLY.

EVAPORATOR:

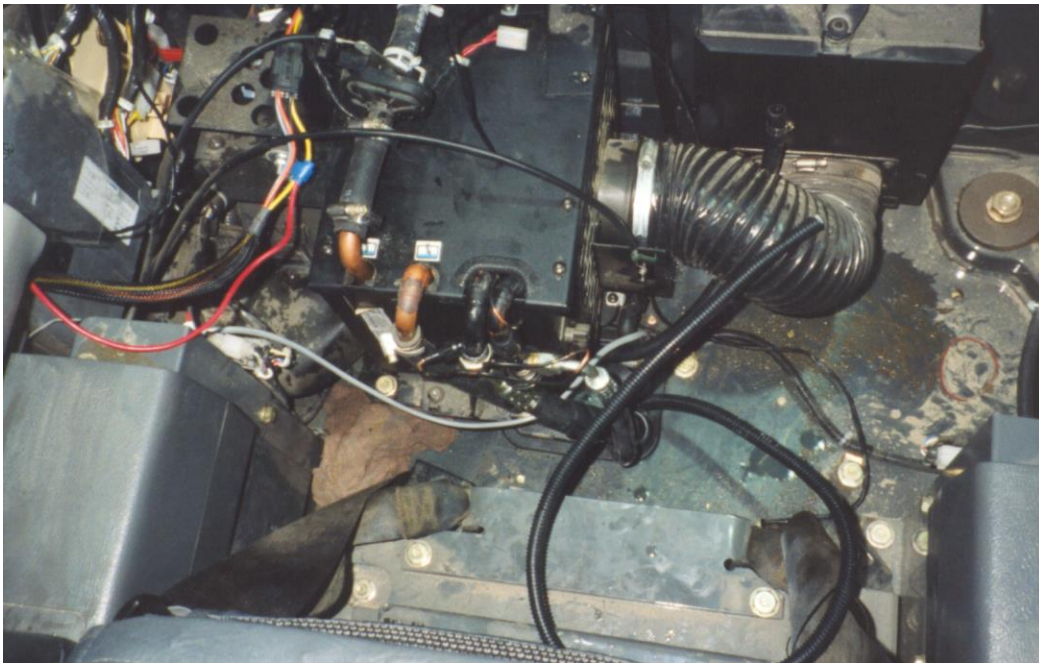
The evaporator/heater box mounts under the 'lunch boxes' behind the seat and under the plastic moldings.



Heater mounted in location with evaporator in place.

1. Remove the plastic cowling and 'lunch boxes' behind the operator's seat along with the existing heater blower box.
2. Access the heater box assembly and open the top of the box.
3. Install the cut down threaded drain elbows and extend the drain tubes through the floor.
4. Insert the evaporator coil beside the heater coil and secure in place. Drill a hole in the cover over the evaporator assembly in order to insert the thermostat probe into the coil. Use a 1/8" or 3/16" drill bit for the hole.
5. Cut the hose adapter into the outlet duct running forward from the evaporator/heater assembly and connect

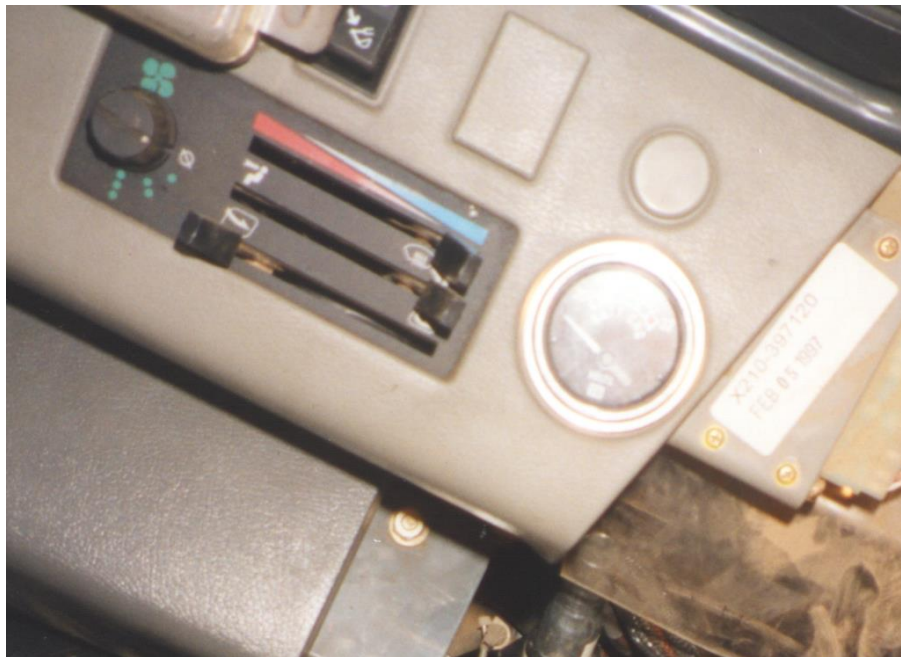
- the Y adapter to the outlet hose and the two feeder hoses to the rear rectangular louvers.
6. Neatly cut the rectangular louvers supplied into the factory louver locations at the back of the cab.
 7. With a hole saw cut a hole in the side panel of the right hand "lunch" box in the cowling behind the operator's seat and insert the banjo fitting and nut supplied. This is to take the 1 ½" flex duct from the adapter cut into one of the 2 ½" flex duct feeder lines to the rear louvers.
 8. Mount the thermostat on the back cowling or on the panel to the right of the operator. Drill a 7/16" hole to take the shaft of the thermostat and secure. Feed the probe down into the evaporator coil. The probe must be inserted approximately 6" into the coil.
 9. Re-install the lid to the heater/evaporator box
 10. Connect A/C lines to the evaporator fittings and tar tape all exposed metal that could sweat from condensation.
 11. Install the rectangular louvers in the factory knock out areas on the tops of the plastic cowlings. Install the 2½" flex hose onto the two outlets in the top of the heater box. Cut roughly to length for connection to the rectangular louvers on the cowlings.
 12. When the system has been charged and tested for operation (mechanically and electrically) reassemble the cowlings and do the final hookups and mountings to them.



Evaporator in place with lines connected.



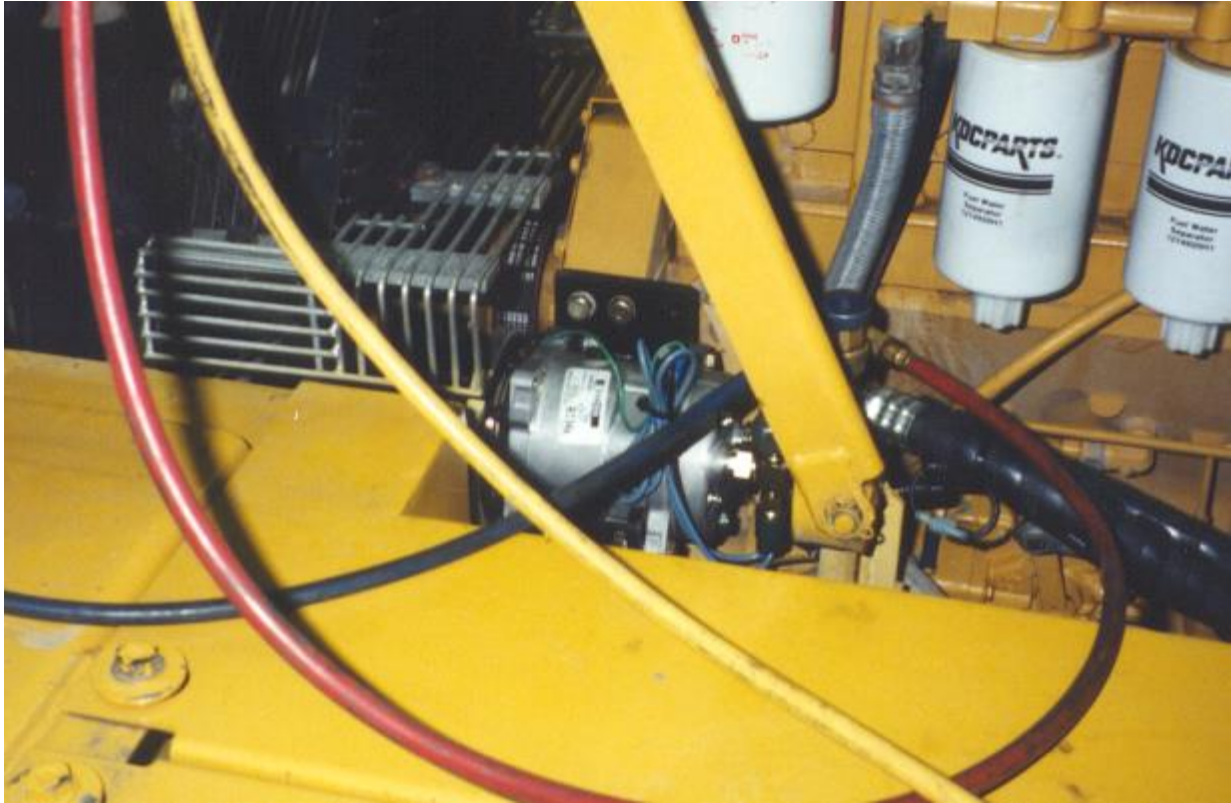
Flex duct connections on outlet air duct.



Operator's control panel. Thermostat location in round blank at top right.

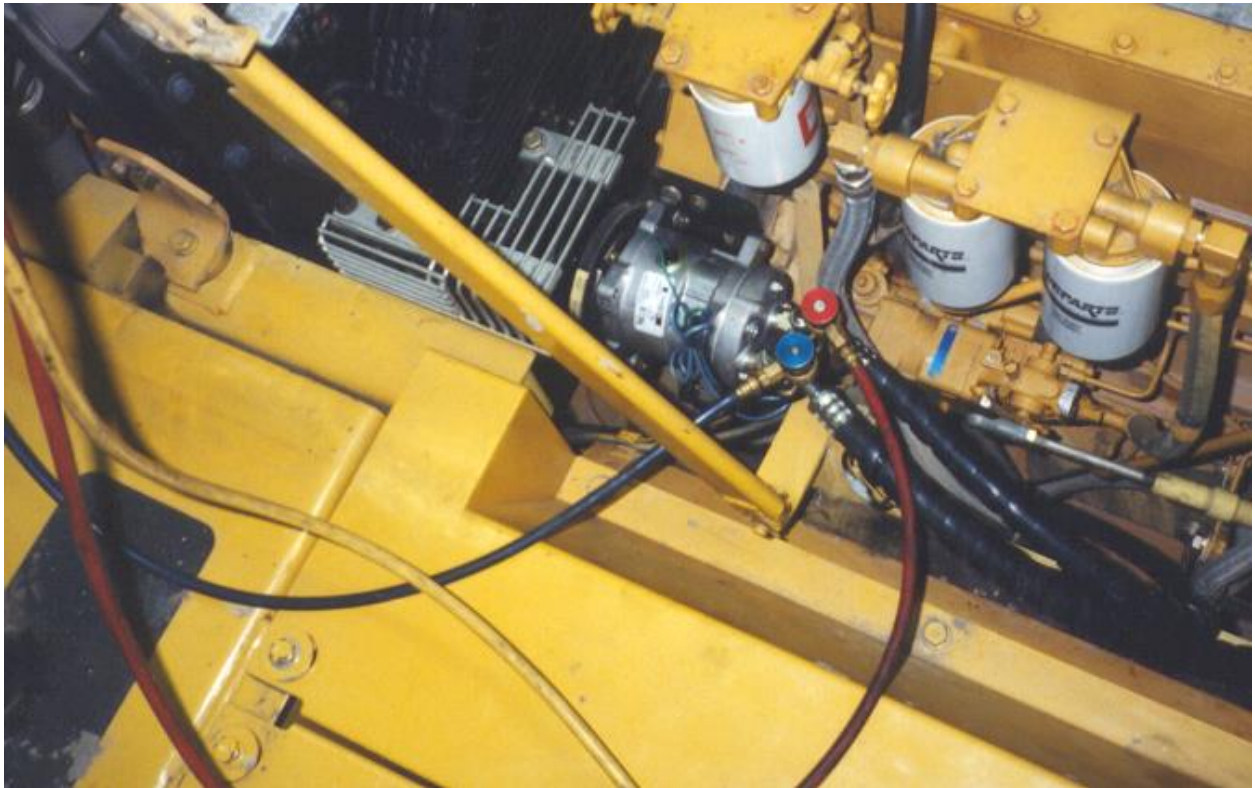
COMPRESSOR:

The compressor mounts to the engine on the location shown in the pictures, on the left when facing down the engine toward the fan.



Location of compressor on engine.

1. Open the engine access panel and expose the mount location on the side of the auxiliary drive pulley housing.
2. Bolt the compressor mount to the mount point with the metric hardware provided in the kit. Mount the compressor on the integral adjuster ears with the oil fill port oriented up.
3. Install the belt supplied around the compressor and the auxiliary drive pulley on the fan hub. Tighten the belt using the integrated tensioning arms on the mount.



Top view of the compressor in place.

CONDENSER MOUNTING:

The condenser is configured for mounting in front of the radiator.

1. Open the access to the radiator face and remove any screens in front of the radiator.
2. The condenser mounts are bolted on the frame in front of the radiator and to the floor of the compartment outside of the radiator.
3. Set the condenser assembly (with attached brackets) in place as shown in the pictures and mark the location of the holes for the mounting hardware. Drill the holes out for 3/8" hardware (we recommend using 7/16" or larger holes) and mount the condenser as shown with the hardware supplied in the kit.
4. Make sure the radiator screen (if present) has clearance to slide out.



Condenser mounted in location.



Left side of condenser mounting bracket.

RECEIVER DRIER:

The receiver drier is mounted to a mounting point on the radiator access door frame immediately in front of the condenser assembly.

1. Mount the straight drier bracket to the existing bolt on the door frame in front of the condenser assembly (see picture).
2. Mount the drier to the bracket with the two #48 gear clamps. The 'INLET' fitting should be pointed to the left as viewed from the access door.
3. Connect the short 5/16" hose with the two 90° fittings to the condenser and to the drier as shown in the picture.



Drier in location with hose from condenser.

HOSE RUNS:

5/16" Hose Drier to Evaporator:

The 5/16" hose runs from the drier back behind the radiator into the engine compartment and forward under the cab with the suction line from the compressor. Both hoses go under the cab of the excavator and up through the large grommet in the floor. The 5/16" hose connects to the inlet fitting on the expansion valve. One 90o fitting is connected at the drier and the other 90o fitting is for connection at the expansion valve.

13/32" Hose Compressor to Condenser:

The 13/32" hose is run from the compressor to the condenser out of the engine compartment alongside the radiator and out to the condenser. The compressor fitting is the 90o fitting with the integral charging port. Connect the discharge side rotolock fitting making sure the white nylon seal is properly in place. The high pressure switch (black leads) will be on this fitting. Connect the pre-crimped hose end fitting to the rotolock and run out to the condenser. Connect the 90o fitting to the upper fitting on the condenser.

1/2" Hose Compressor to Evaporator

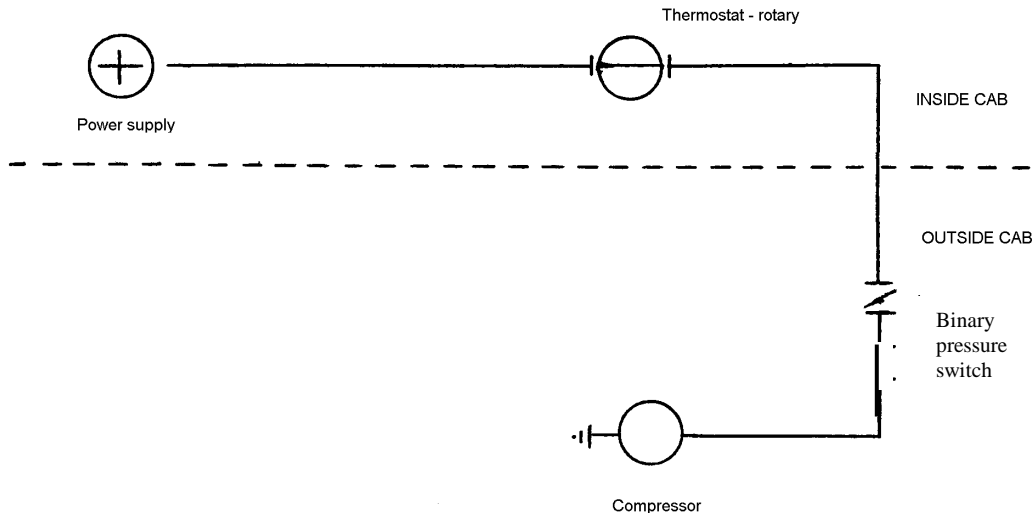
The 1/2" hose runs from the compressor to the evaporator through the engine compartment, under the cab and up to the evaporator fitting through the large floor grommet.

Connect the rotolock fitting on the suction side of the compressor. This fitting will have the pressure switch oriented 'up' instead of 'out the end' as on the discharge port. The 90o fitting at the compressor end of the hose has already been crimped in place and has the 134a charging port in place. Connect to the rotolock fitting at the compressor and run out under the cab and up to the suction fitting of the evaporator. Connect the 45o fitting to the evaporator coil suction fitting.

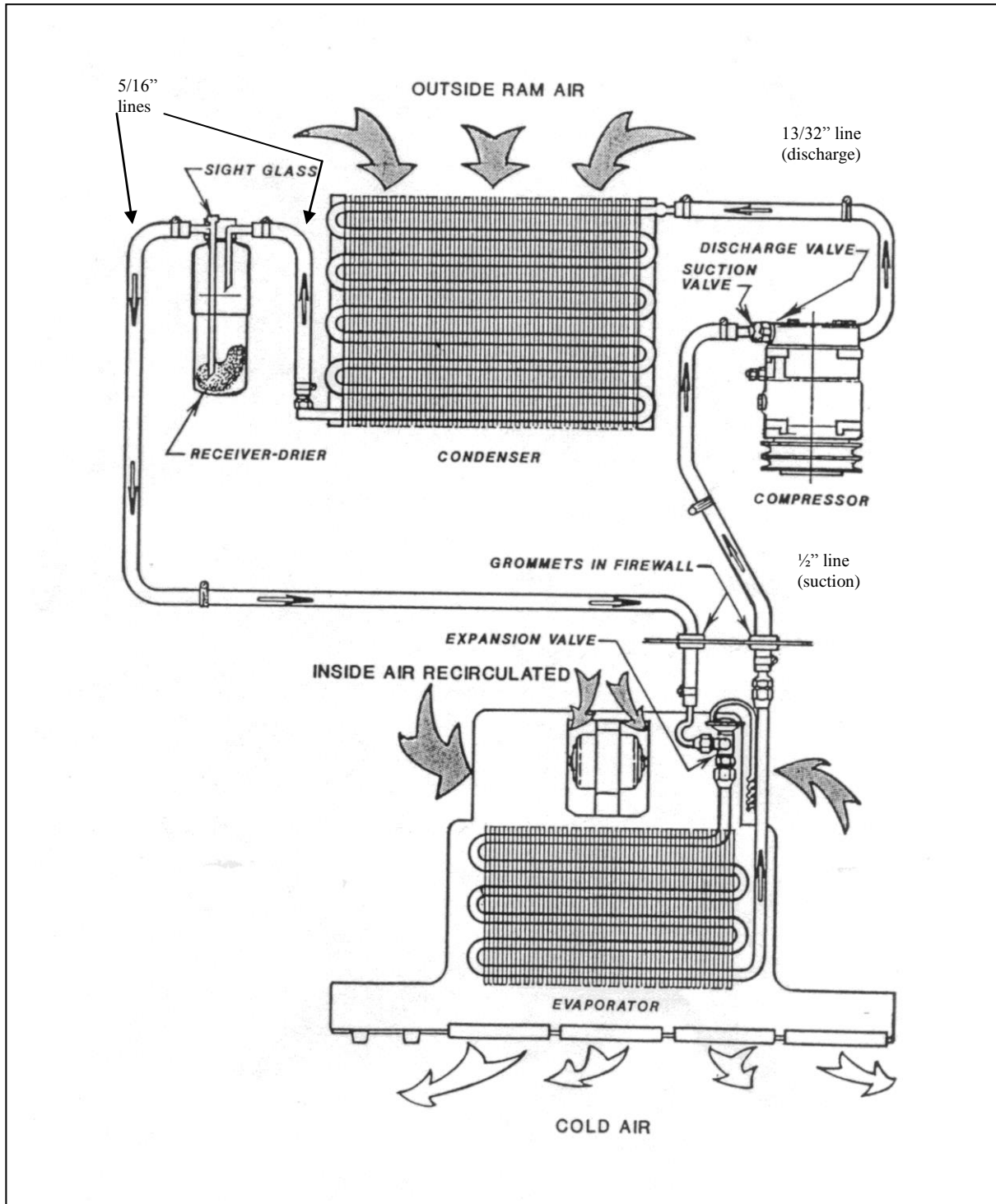
Hose-wrap exposed sections and any places the hoses may rub. Secure using cable ties and clamps where necessary. Use refrigerant oil on the O-rings at the sealing surfaces to ensure a proper seal.

WIRING:

Wiring for the PC400 LC-6 Excavators in this engine/heater configuration is set up using the thermostat as the primary A/C controller. Take supply power off the blower switch and ensure that the power is on only when the blowers are on. Run a 14ga wire from the blower power and into the thermostat. Run the 14ga black clutch wire out to the compressor with the hoses and connect the switches in series and then the compressor.



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.

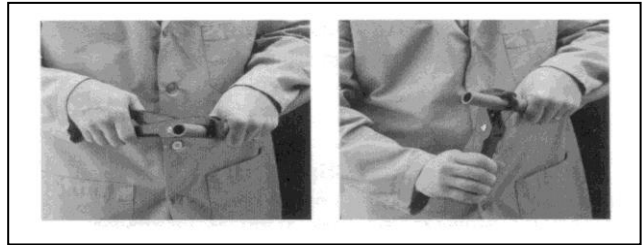
By looking at all these different factors, the area of an evaporator coil most likely to be the coldest can be determined.

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.

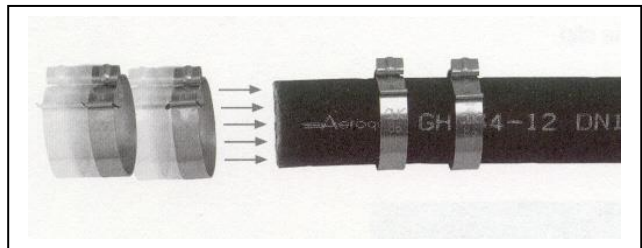
If the thermostat doesn't cycle off after a reasonable cool down period, and the air outlet temperature has dropped below 40° F, the cut in and cut out settings should be adjusted until the compressor is cycling on and off regularly. Let the system run for a decent time period (at least 15 min) and then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

Aeroquip E-Z Clip Assembly Instructions

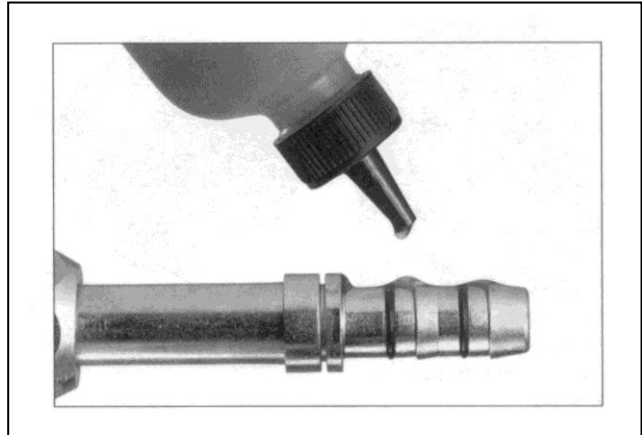
Step 1. Cut the hose to proper length with an appropriate cutting tool. Aeroquip's hand held hose cutter has been specially designed for cutting all non-wire reinforced hose, such as GH-134 Multi-Refrigerant hose. Be sure the cut is made square to the hose length.



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.



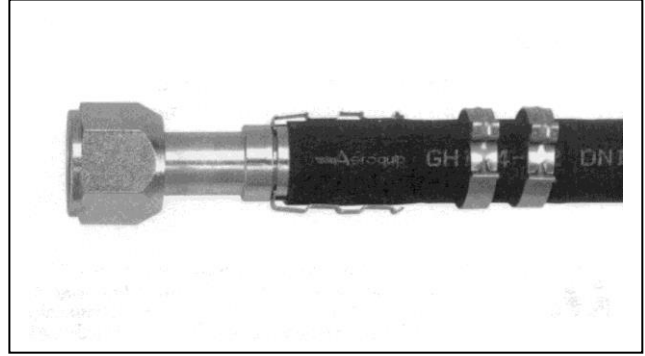
Step 4. Insert the nipple into the hose. To ensure that the nipple is fully inserted, check the gap between the cut end of the hose and the shoulder on the nipple. Care should be taken to avoid kinking or other damage to the hose during nipple insertion.

NOTE: Be sure to wipe excess oil from the nipple and hose.

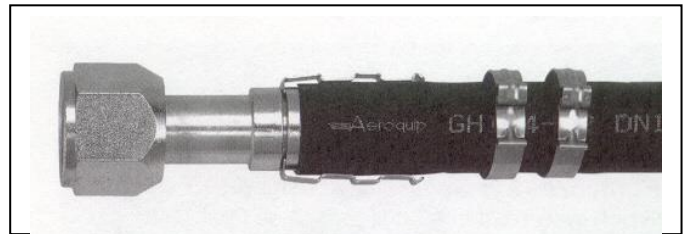


Step 5. Snap the cage into the groove on the nipple. The arms should extend over the hose length. When the cage has been correctly installed in the cage groove, the cage will be able to rotate in the groove. This step **MUST** be performed to ensure:

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.

