

WA500-1
INSTALLATION INSTRUCTIONS
KOMATSU ENGINE/ DENSO HEATER

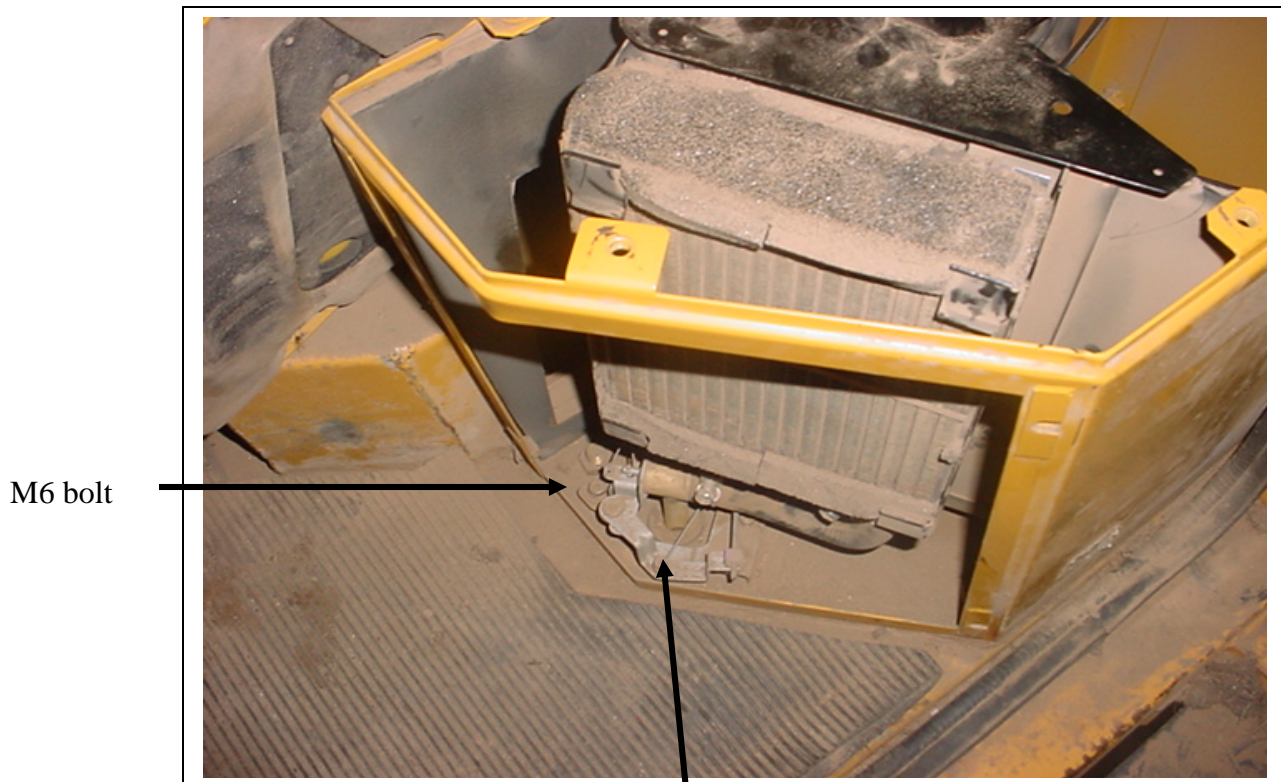


CALL: (519) 485-5961 OR 1-800-267-2665
FAX (519) 485-3745 OR 1-888-267-3745

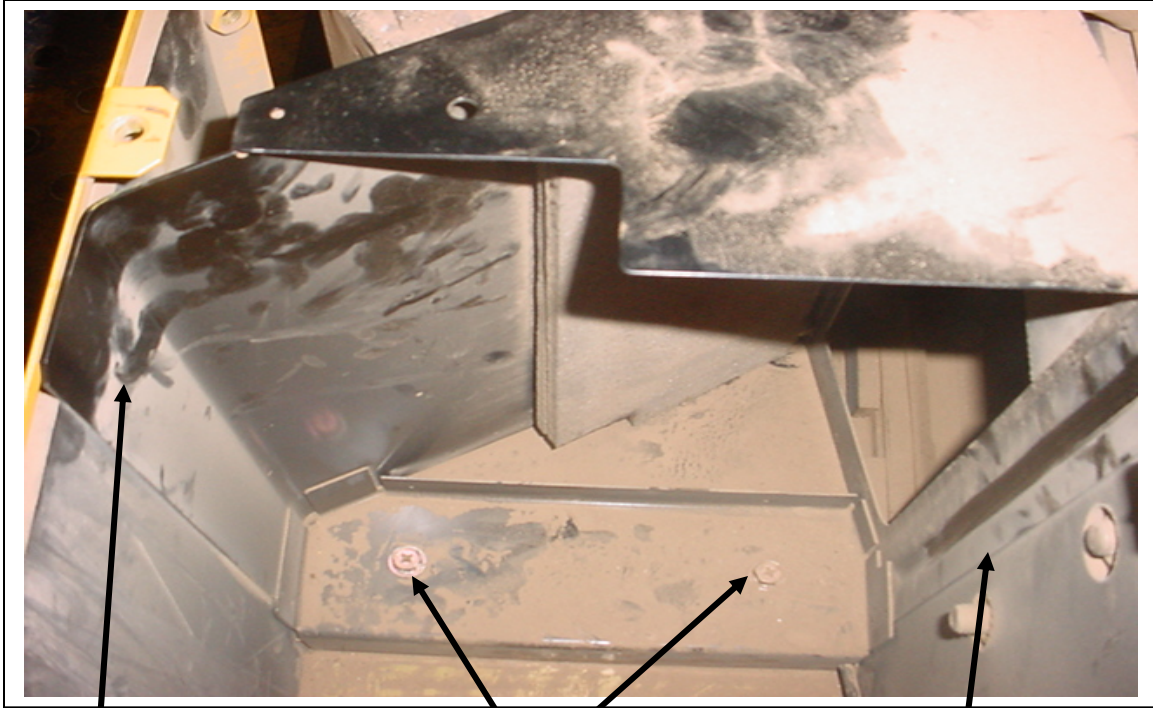
EVAPORATOR



Remove the lid from the heater box by removing the six or seven M6 bolts and disconnecting the electrical plugs and control cables.



Clamp off the heater lines under the cab and disconnect them. Remove the two or three M6 bolts holding the heater core assembly in the box.



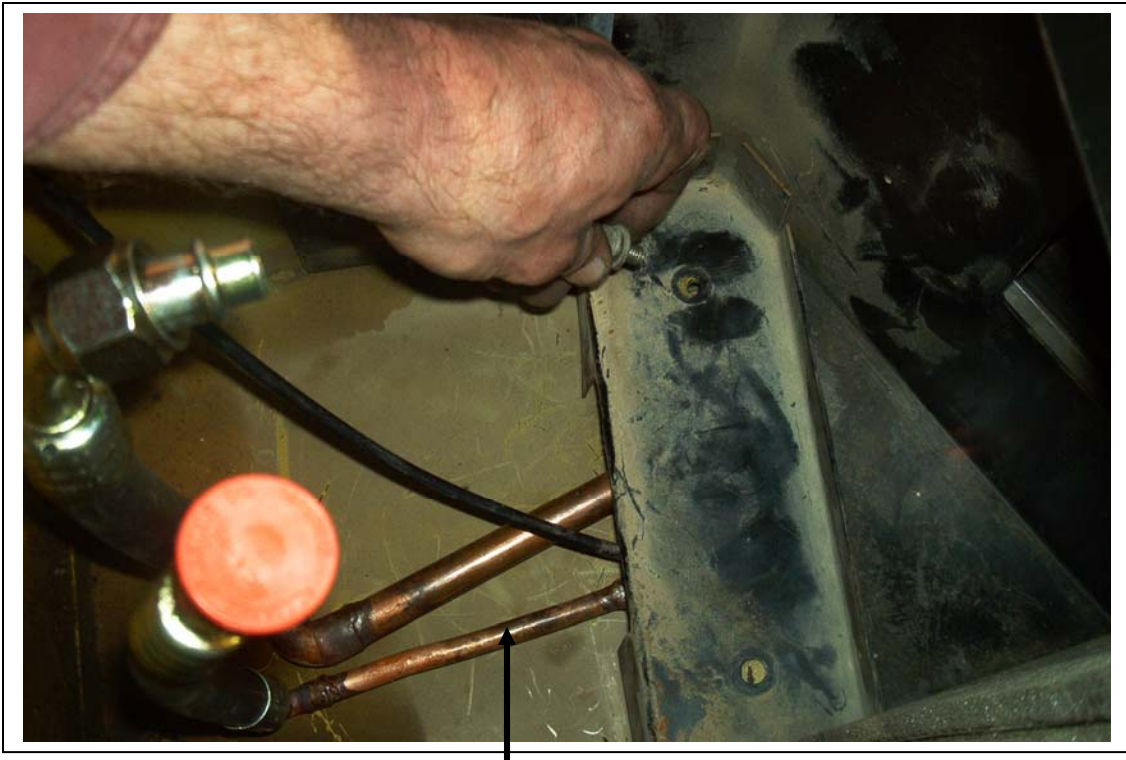
Use self drilling screws to fasten the evaporator coil to this flange.

Remove to pull heater assembly out.

Use self drilling screws to fasten the evaporator coil to this flange.



Notch out area under heater frame to allow A/C lines through to the A/C evaporator coil hook ups. Seal the area with foam or tar tape when done.



Bulkhead lines installed before A/C coil is mounted onto the heater assembly. Run the clutch wire here as well.

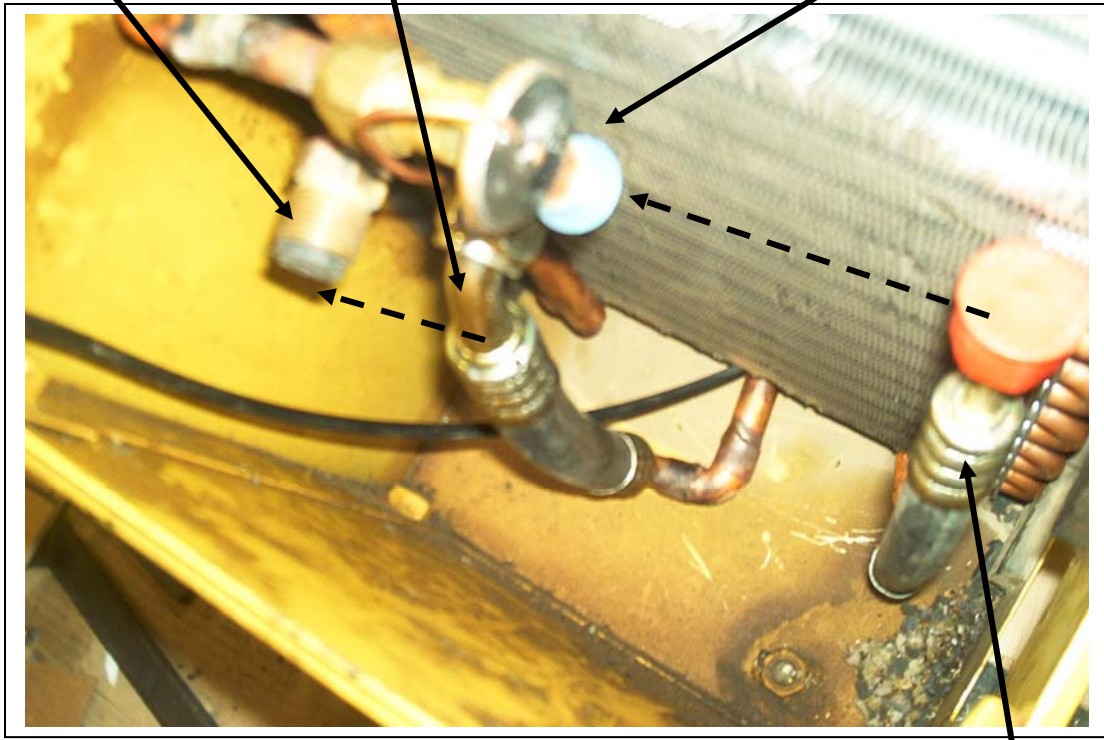


Screw the A/C coil to the heater assembly flanges so the top of the coil is just below the top of the flanges. Use the self drilling screws provided. Screw the coil to the flanges outside the box and then re-assemble after the bulkhead lines are installed.

1/2" fitting on coil

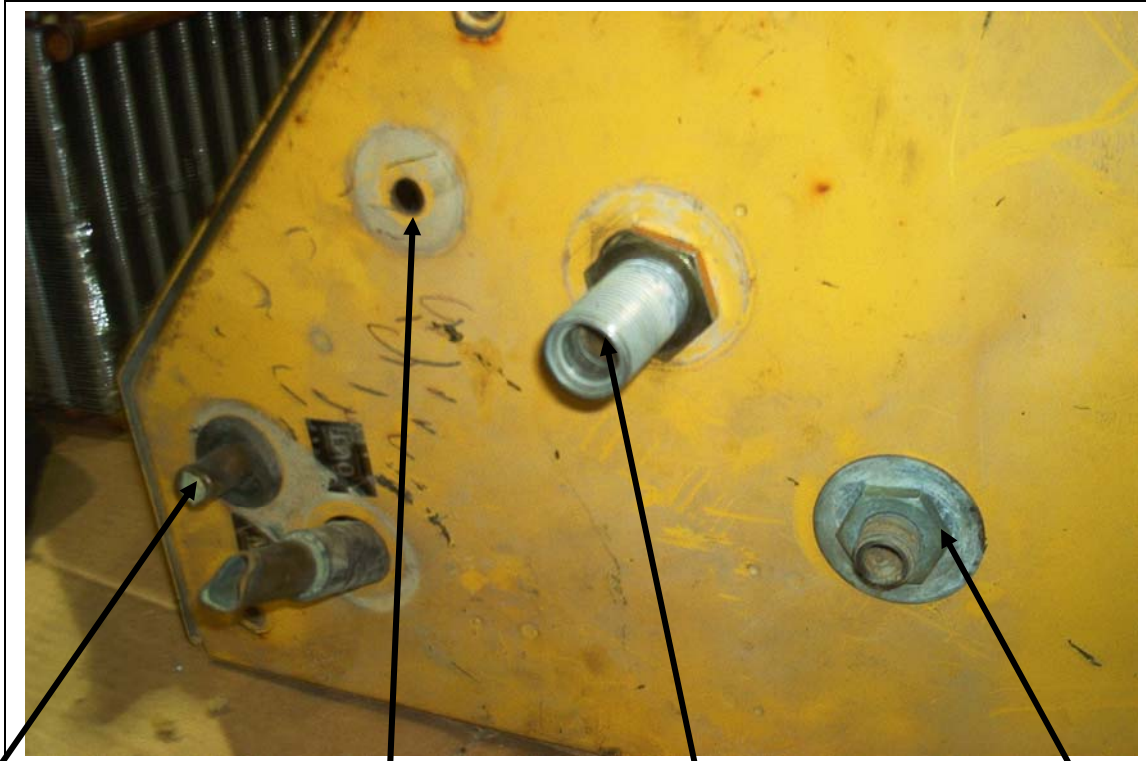
1/2" bulkhead line. (swing over and attach.)

5/16" fitting on expansion valve



Once the coil is installed, connect the bulkhead lines to the evaporator coil. Use the 'O' rings supplied.

5/16" bulkhead line. (swing over and attach)



Run the 14g black clutch wire out of the box through this grommet beside the heater line.

Drill a 1/4" drain hole here.

Drill a hole here for the 1/2" bulkhead fitting to exit the box. Mark the existing holes in the thick floor plate before removing the box.

Drill a hole for the 5/16" bulkhead here.



Run the 14g black wire from the thermostat through this grommet down into the bottom of the heater box.

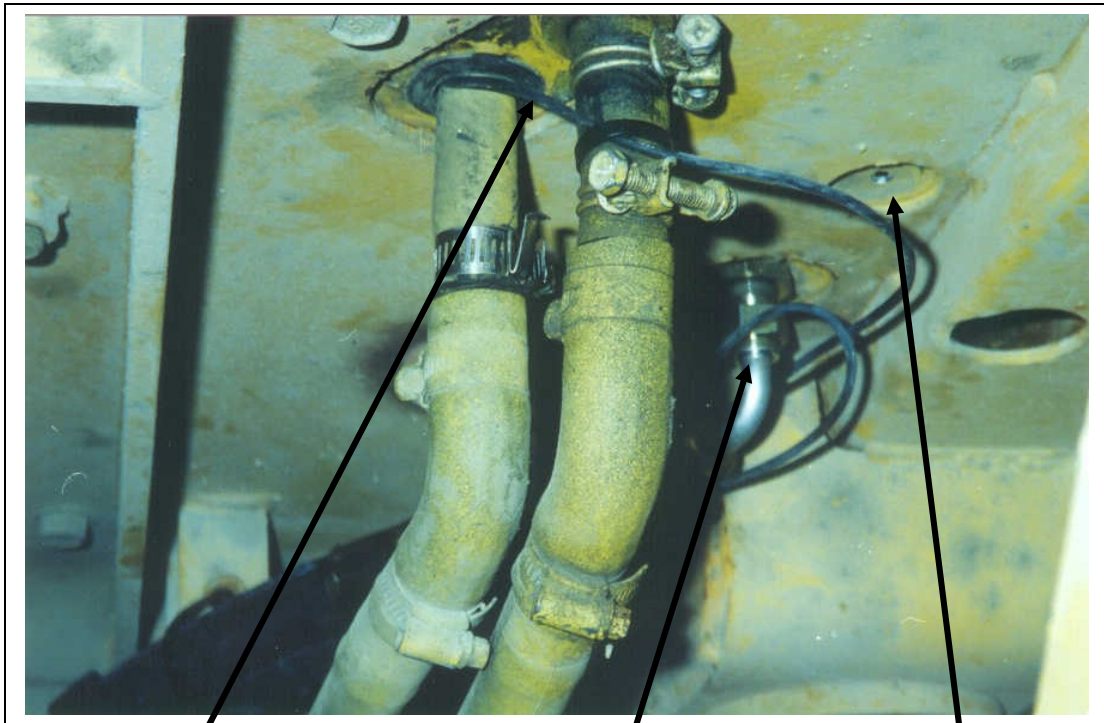


Add ball louvers to this panel for increased air flow in the cab.



Thermostat location

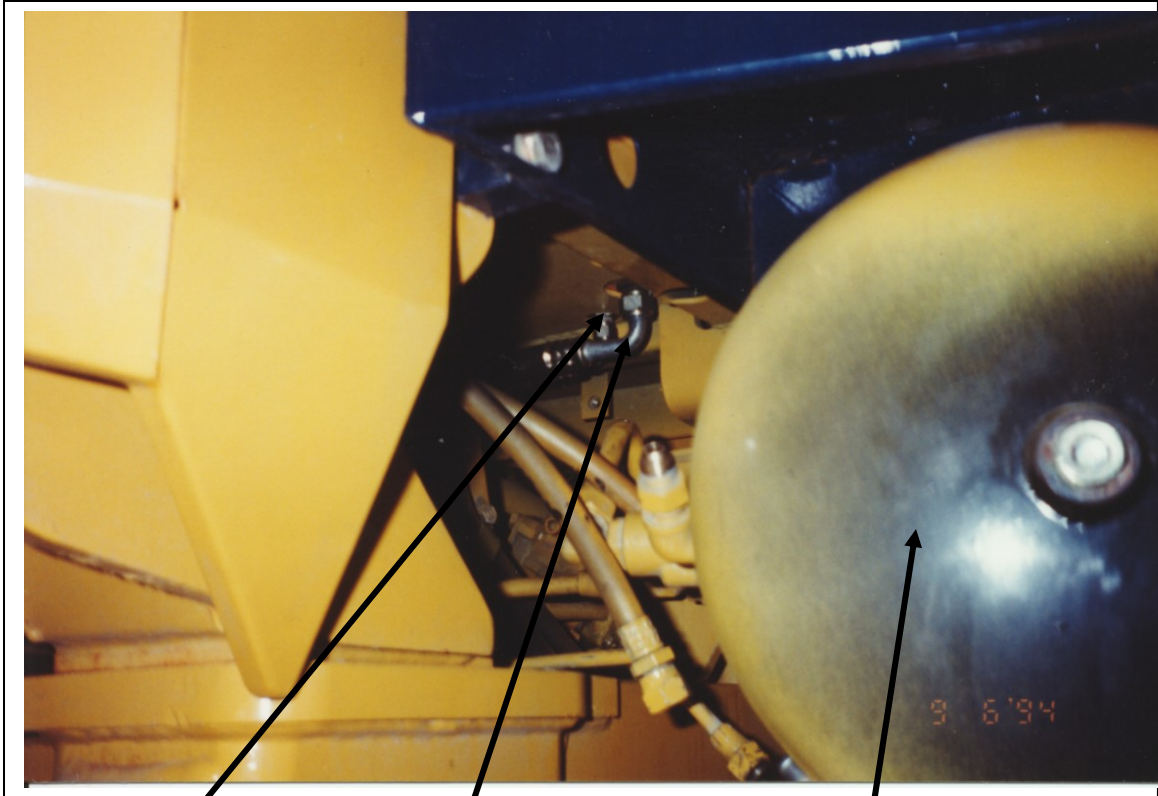
Add two round louvers into this removable front panel.



Clutch wire coming out of box beside heater lines.

1/2" AC line at bulkhead fitting

Drill a 1/4" hole for drainage



5/16" hose connected to bulkhead fitting.

1/2" hose connected to bulkhead fitting.

Remove the air tank for better access if it is in the way.

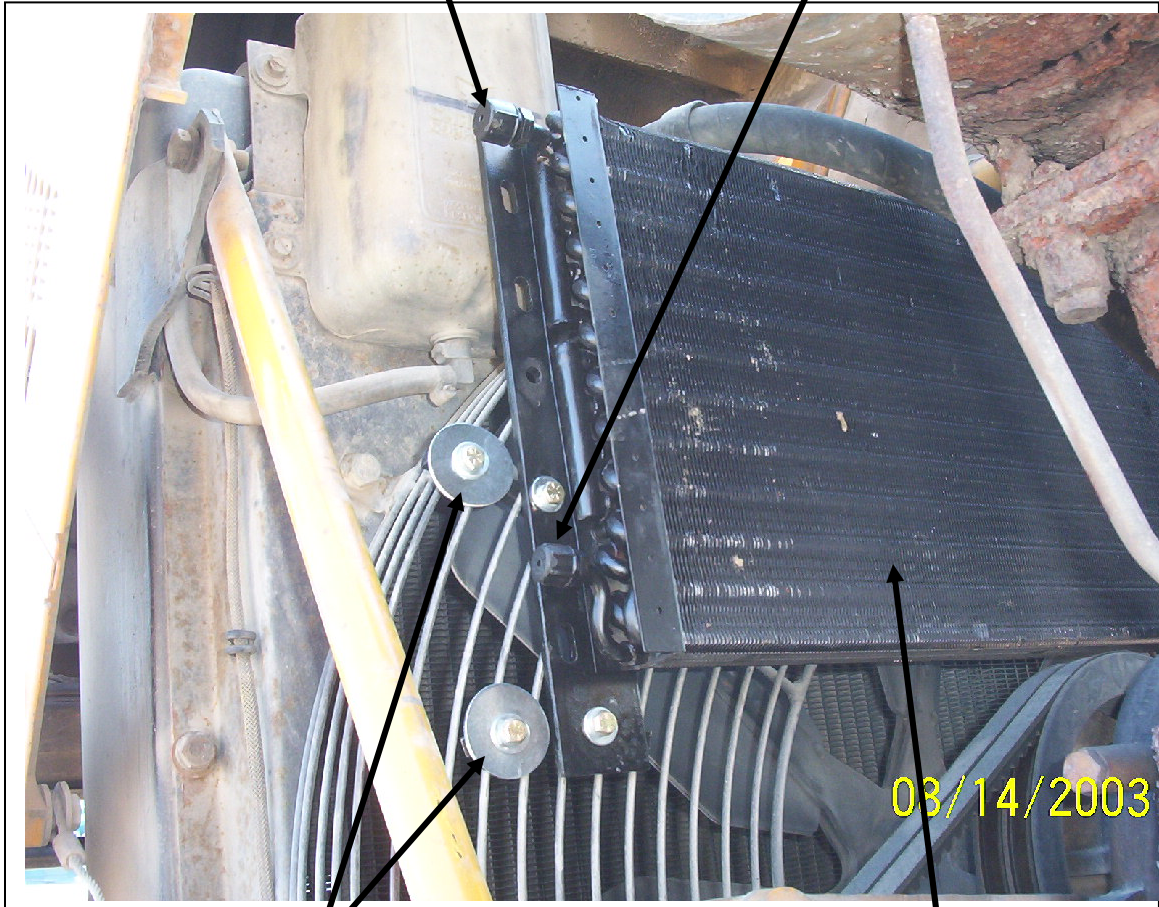
Before removing the heater box for the evaporator coil upgrade, trace the holes in the floor plate onto the bottom of the box so they can be drilled for the evaporator bulkhead pipe work.

CONDENSER

The condenser mounts to the fan screen for best airflow and easiest cleaning.

13/32" fitting at condenser

5/16" fitting at condenser



Mounting brackets/ screen locking bars

Condenser coil

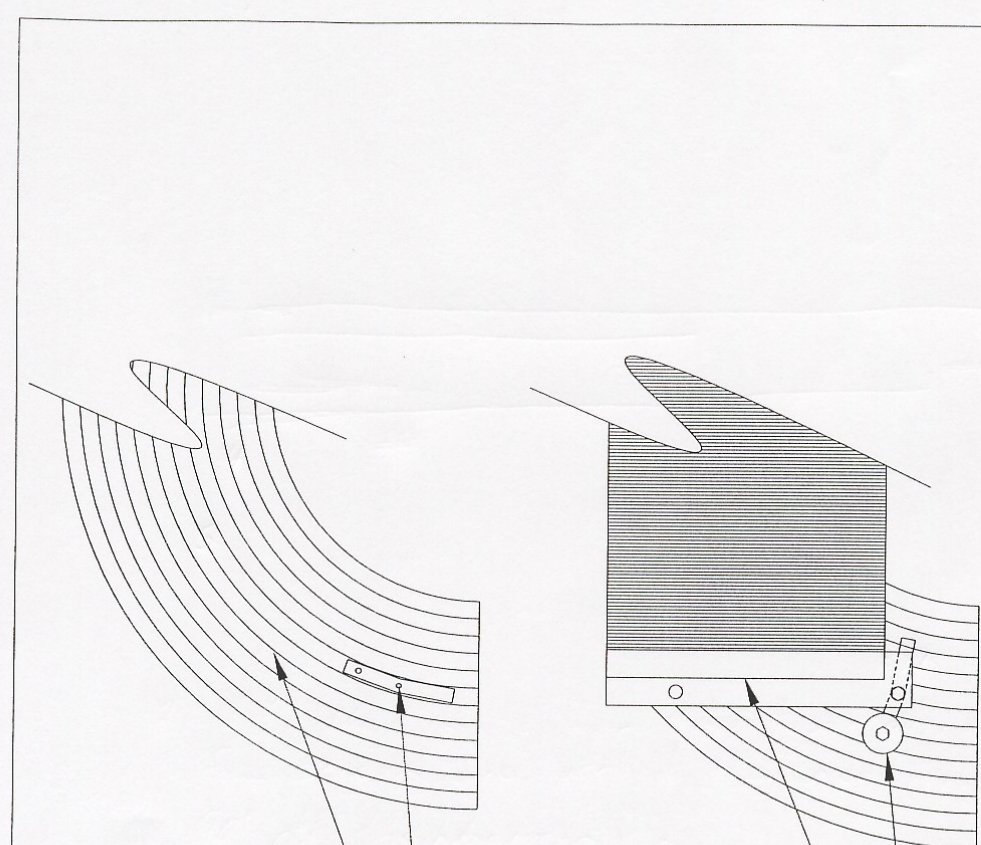
Stand off bracket for top left condenser corner.

Self drilling screws to mount bracket to radiator shroud.



Mounting brackets/ screen locking bars.

Bend to length on site and screw to fan shroud with self drilling screws.



SLIP THE SPINLOCK
BETWEEN THE FAN
SCREEN BARS

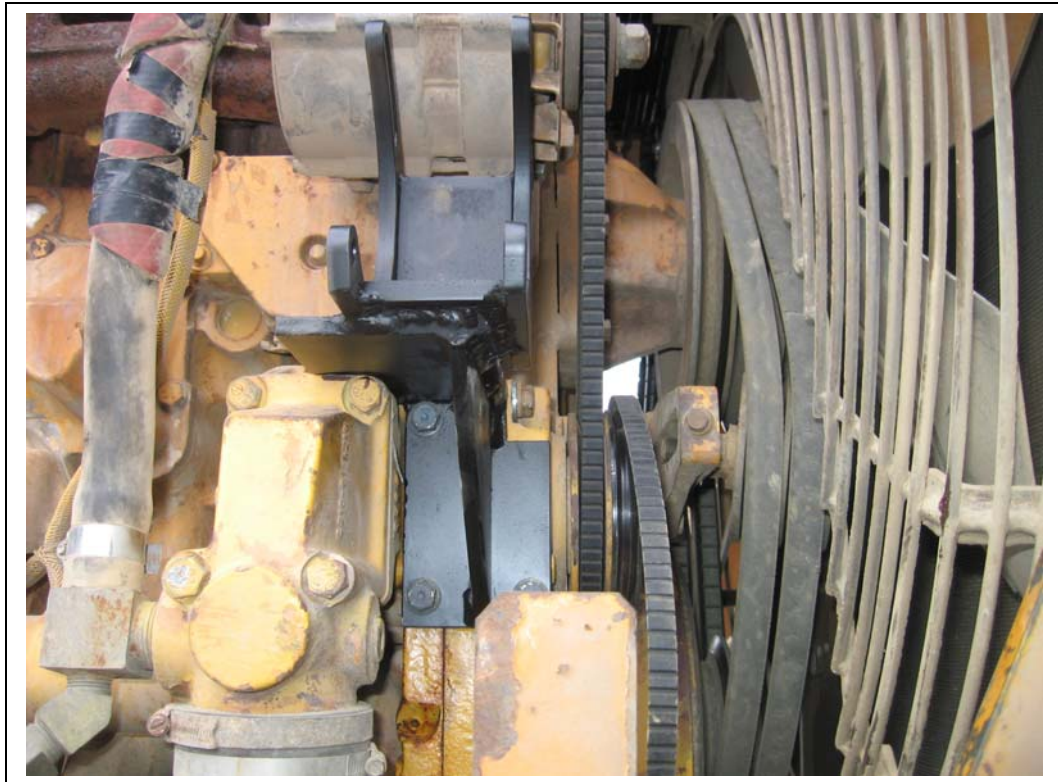
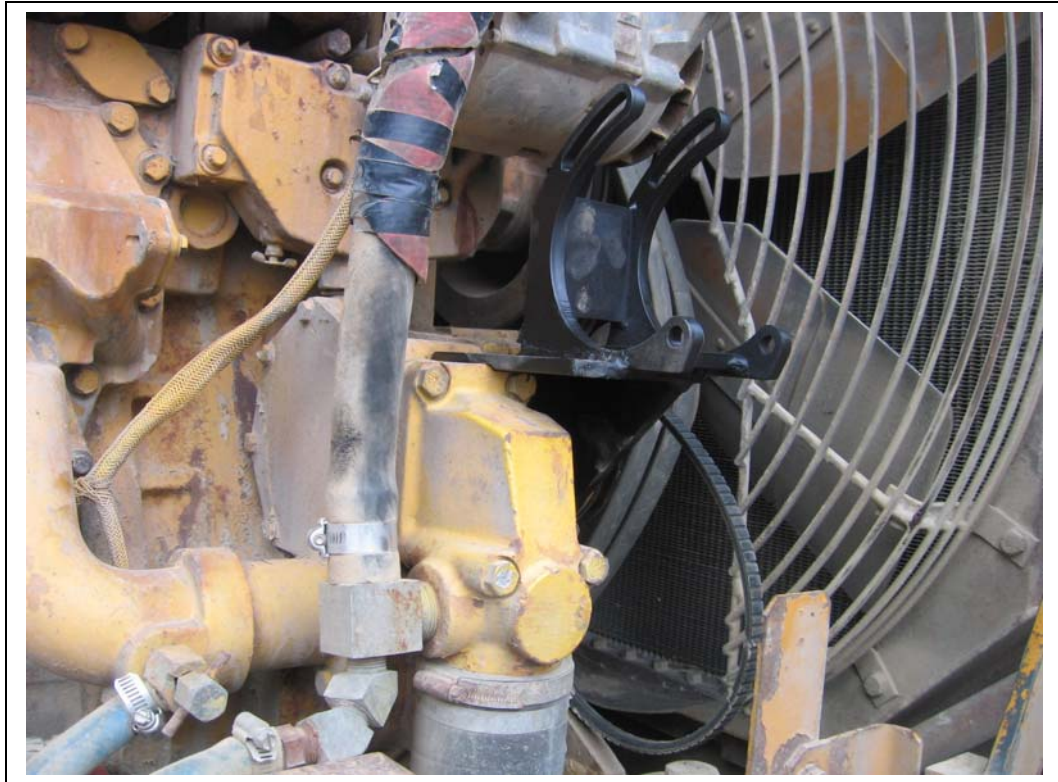
FAN SCREEN
SPINLOCK

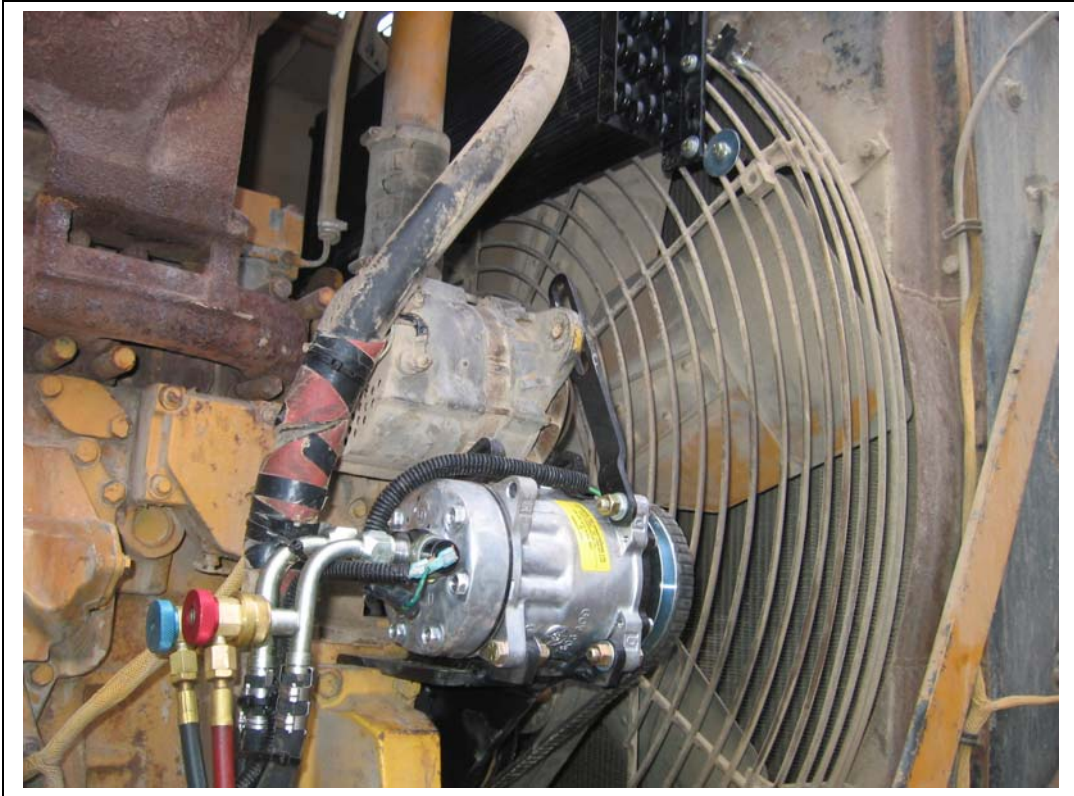
AND ROTATE 90 DEG.
AND TIGHTEN DOWN

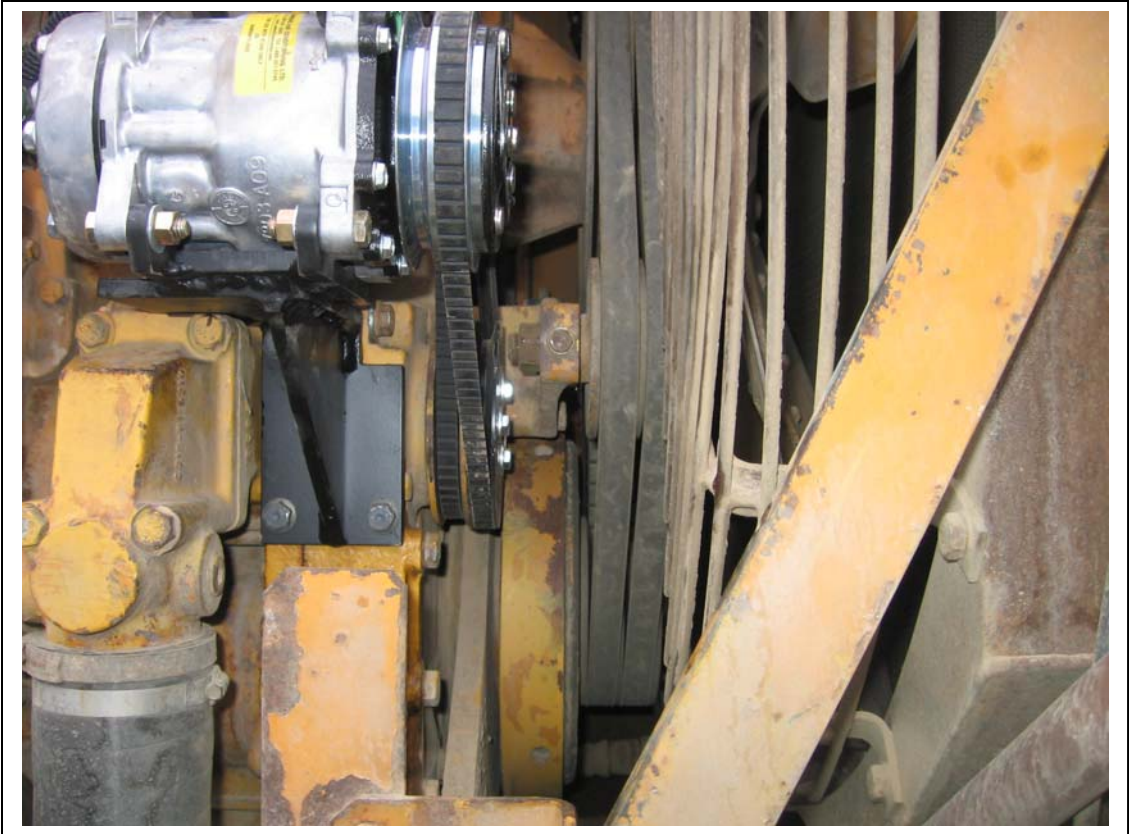
CONDENSER
FENDER WASHERS

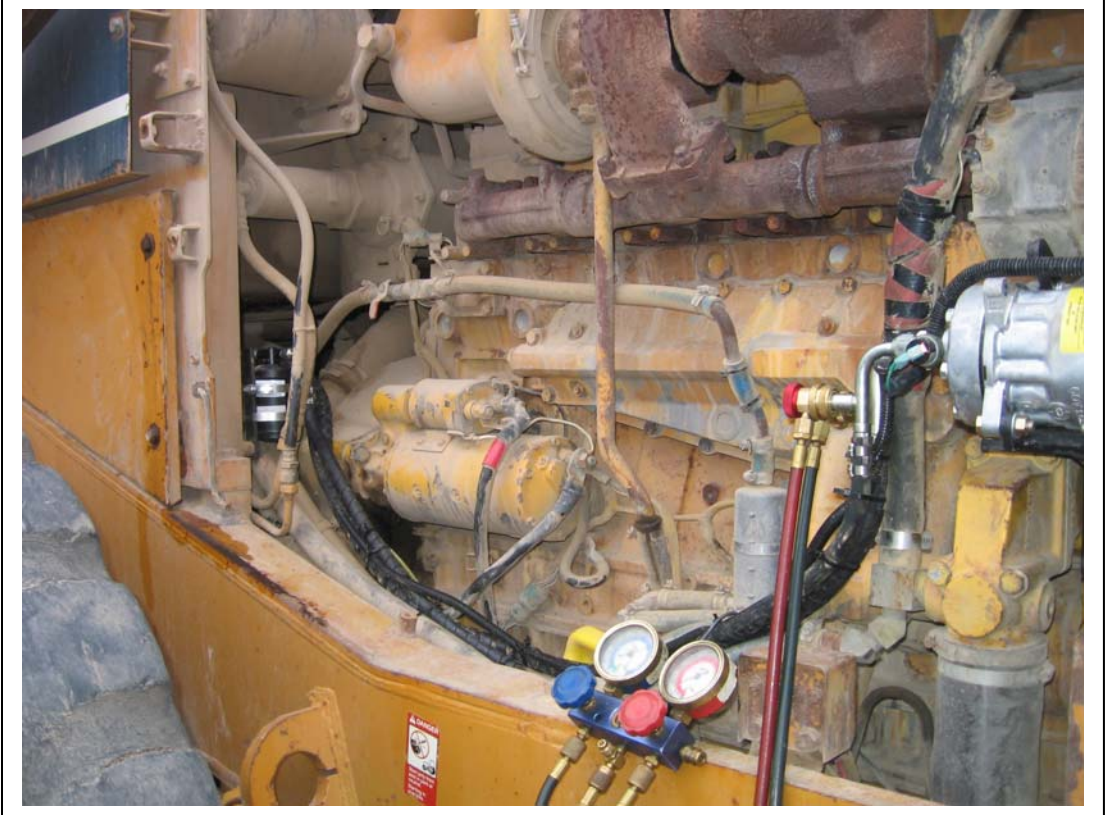
DRAWING TITLE:		SPINLOCK INFO.	
DRAWN BY:	J.S.		
APPROVED BY:	J.L.		
MODIFIED ON:	MAR. 15, 2002		
REV.:	0		
UNITS:	S.A.E.		

COMPRESSOR





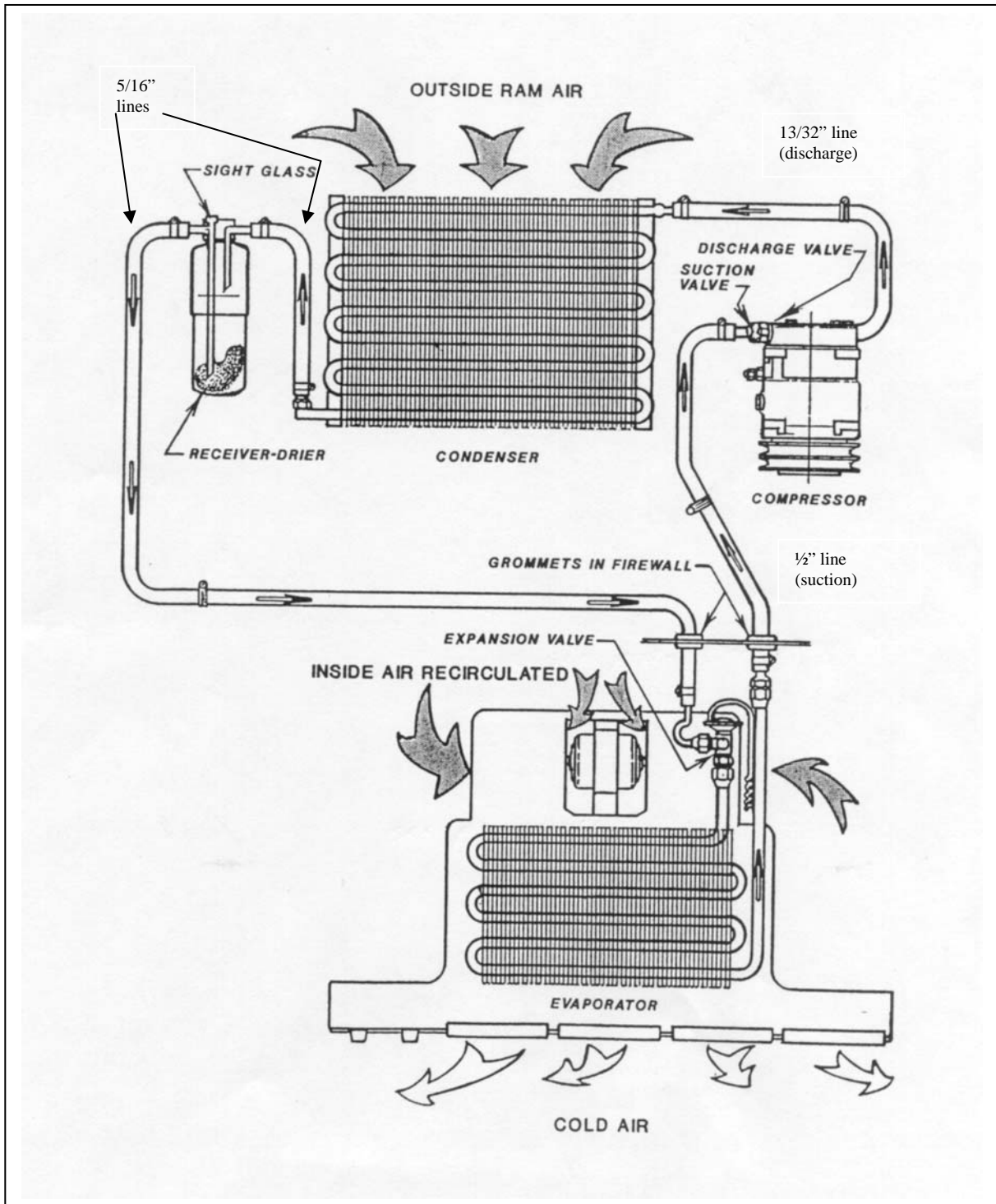




CHARGING AND TESTING

- 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.
-
- 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.

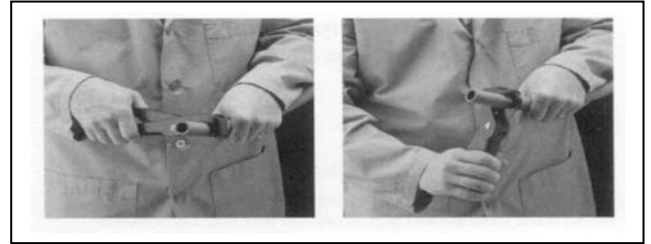
By looking at all these different factors, the area of an evaporator coil most likely to be the coldest can be determined.

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.

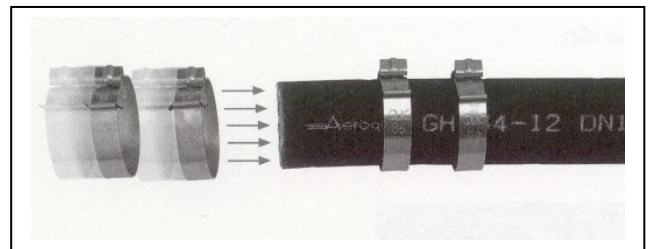
If the thermostat doesn't cycle off after a reasonable cool down period and the air outlet temperature has dropped below 40° F, the cut in and cut out settings should be adjusted until the compressor is cycling on and off regularly. Let the system run for a decent time period (at least 15 min) and then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

Aeroquip E-Z Clip Assembly Instructions

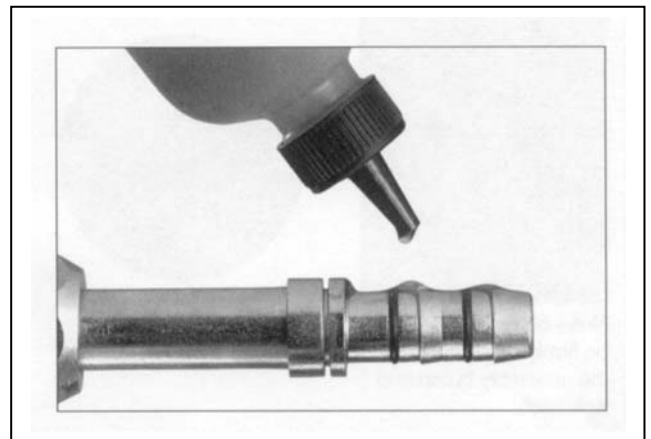
Step 1. Cut the hose to proper length with an appropriate cutting tool. Aeroquip's hand held hose cutter has been specially designed for cutting all non-wire reinforced hose, such as GH-134 Multi-Refrigerant hose. Be sure the cut is made square to the hose length.



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.



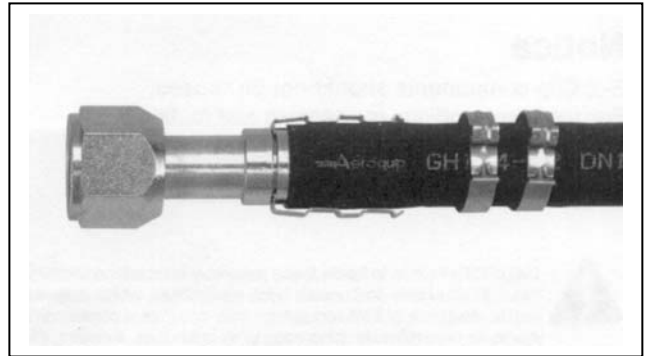
Step 4. Insert the nipple into the hose. To ensure that the nipple is fully inserted, check the gap between the cut end of the hose and the shoulder on the nipple. Care should be taken to avoid kinking or other damage to the hose during nipple insertion.

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

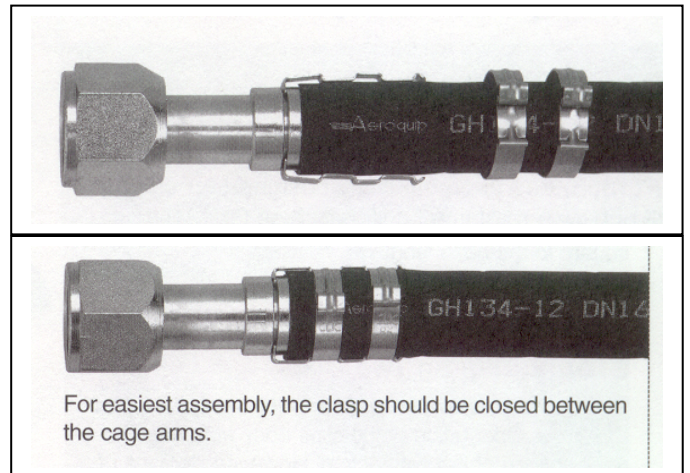


Step 5. Snap the cage into the groove on the nipple. The arms should extend over the hose length. When the cage has been correctly installed in the cage groove, the cage will be able to rotate in the groove. This step **MUST** be performed to ensure:

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.

