

INSTALLATION INSTRUCTIONS
FUCHS MHL 360 SCRAPHANDLER
OLD MOUNT
SERIAL # 0060 AND DOWN

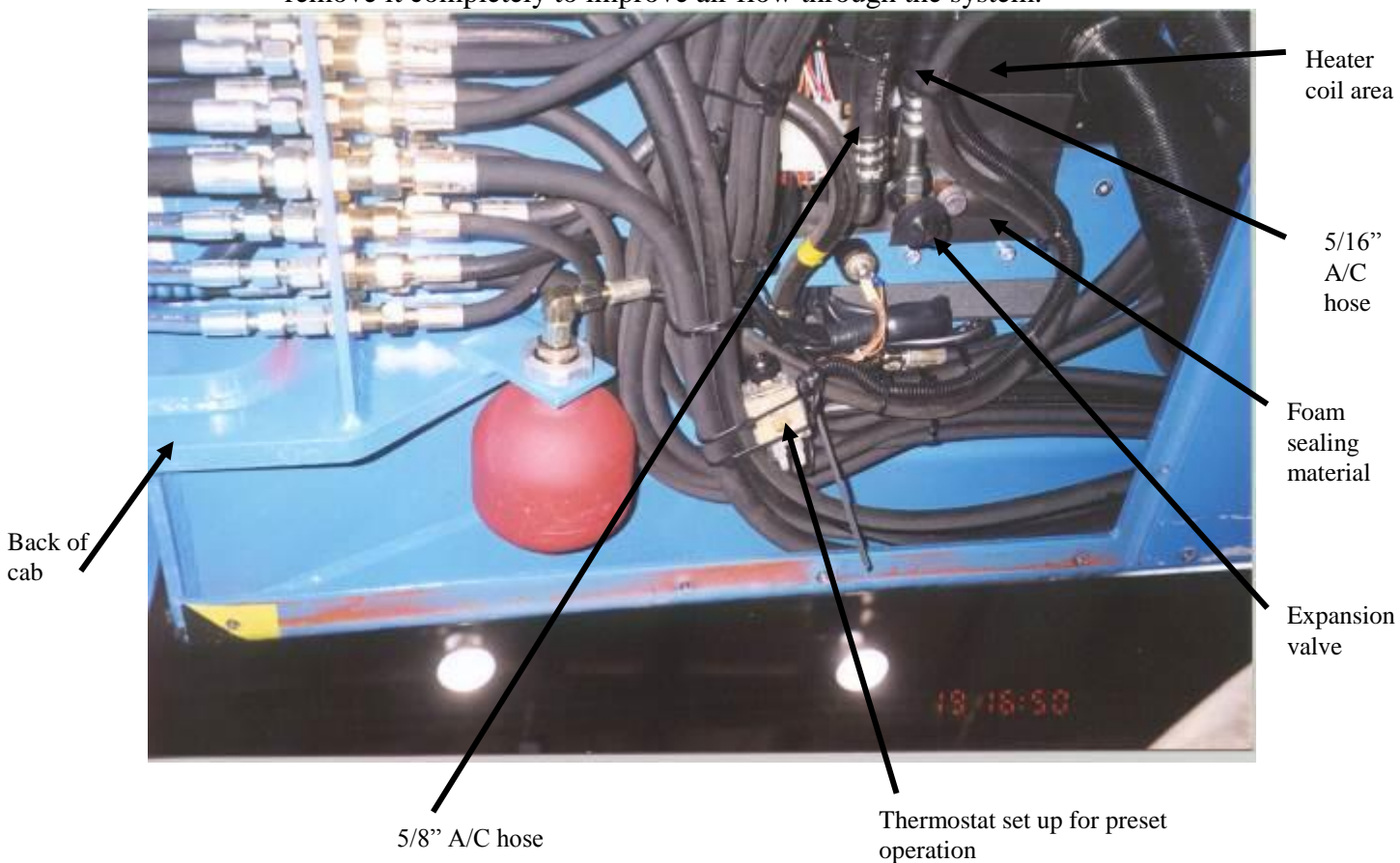
SCHAEFF OF NORTH AMERICA
1-877-907-8300
1-214-357-6884 (FAX)

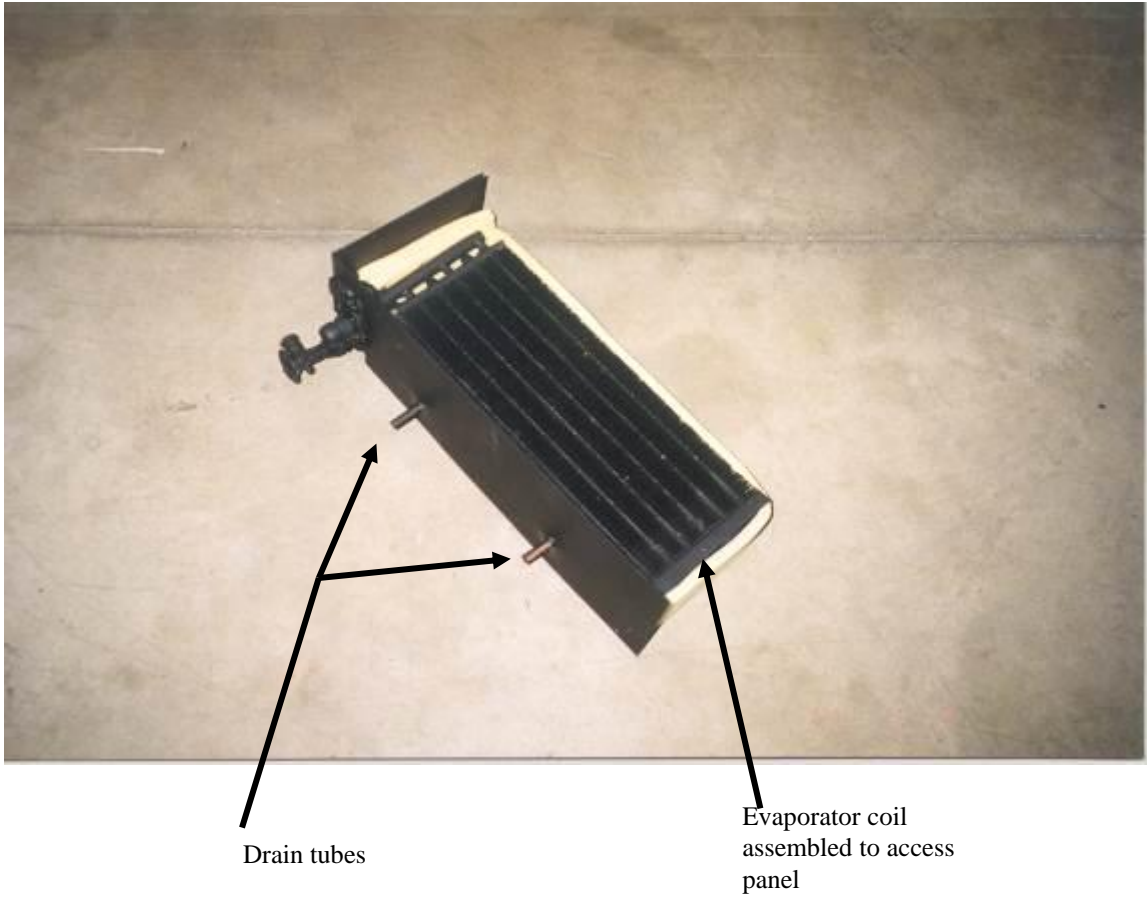
FUCHS MHL 360 INSTRUCTIONS

EVAPORATOR COIL:

The evaporator assembly mounts into the existing heater/filter/pressurizer setup that is located under the operators seat. It is accessed from under the cab by removing the metal cover panel.

1. Remove metal panel from under cab.
2. Remove the existing access panel from the bottom of the heater box just to the rear of the heater coil. This is held in place by three or four Philips screws.
3. Slide the new access panel complete with evaporator coil and inserted thermostat probe up into place and fasten. Make sure any air gaps are sealed. If no use is being made of the existing heater coil, it should be possible to remove it completely to improve air flow through the system.





4. Install short sections of drain tube with restrictors onto the drain outlets and clamp in place using the #4 gear clamps provided.

COMPRESSOR:

The compressor is located on the lower right engine mount and is driven off of a pulley that is added to the crank.

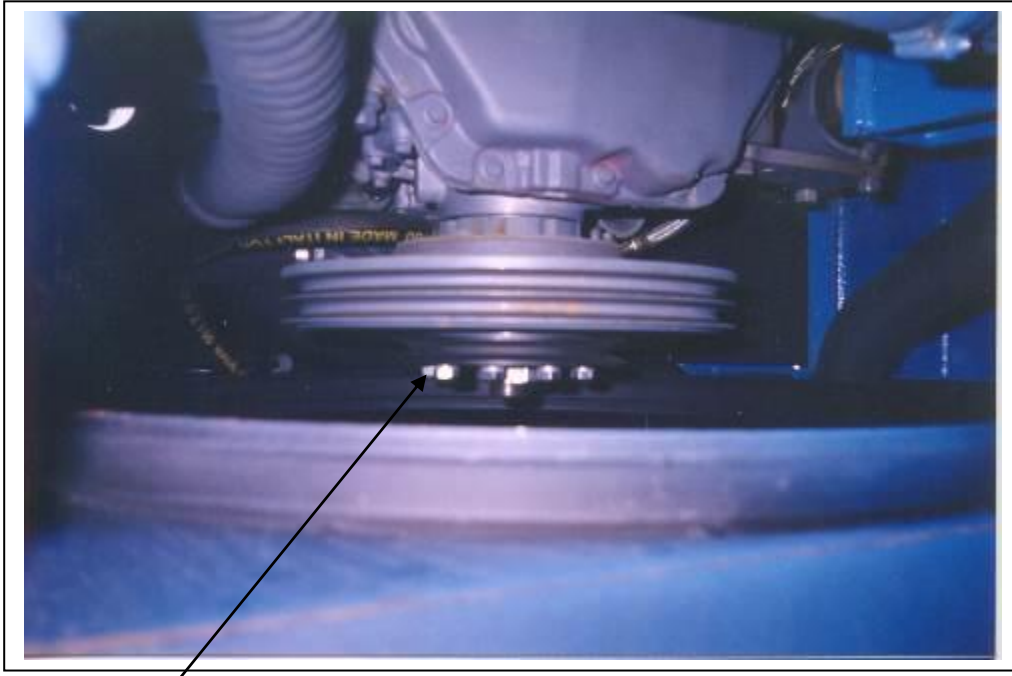
Mount installation

- a) UnBOLT the engine fan from the crankshaft hub. Remove the four M10 bolts.



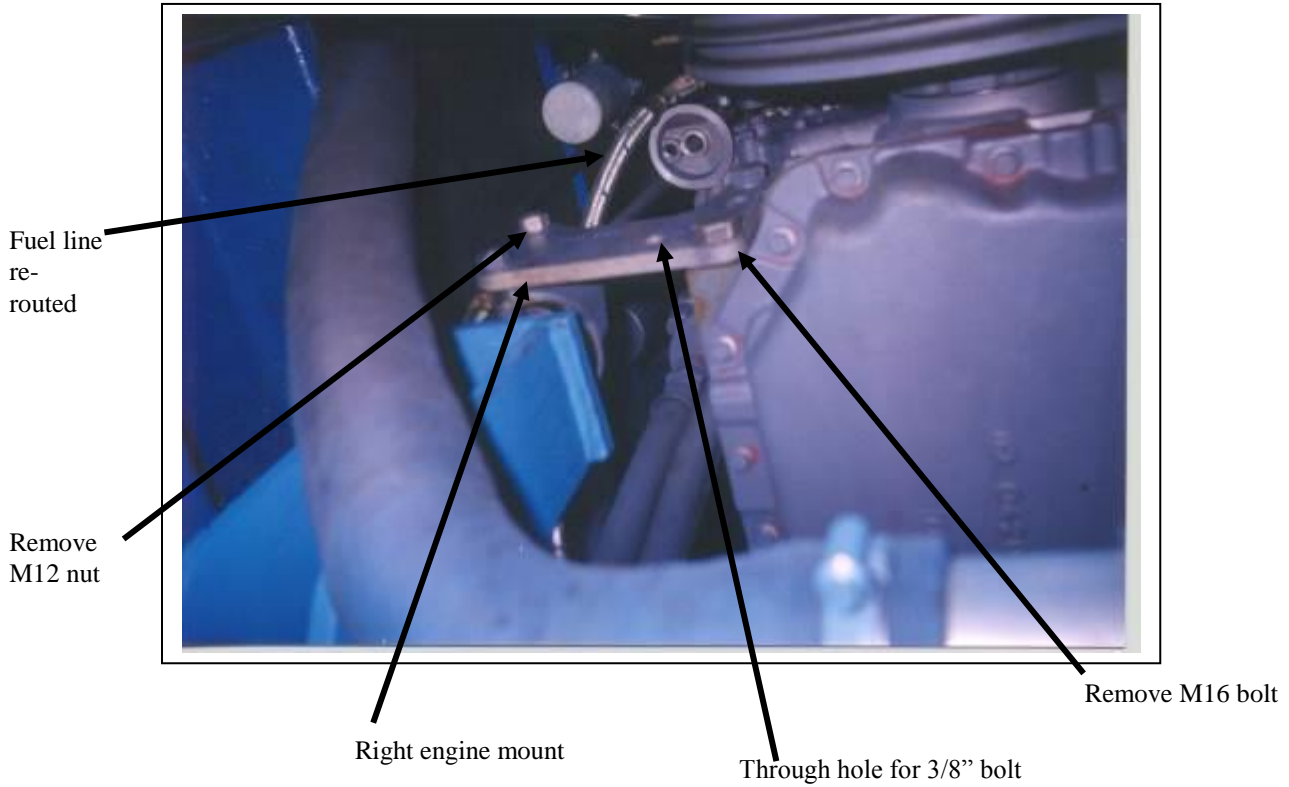
Crank pulley hub

- b) Remove the existing 9 bolts from the pulley hub, place the supplied pulley over the hub and re-bolt using the longer M10 x 90mm hardware supplied. Use blue locktight on all crank and mount bolts.

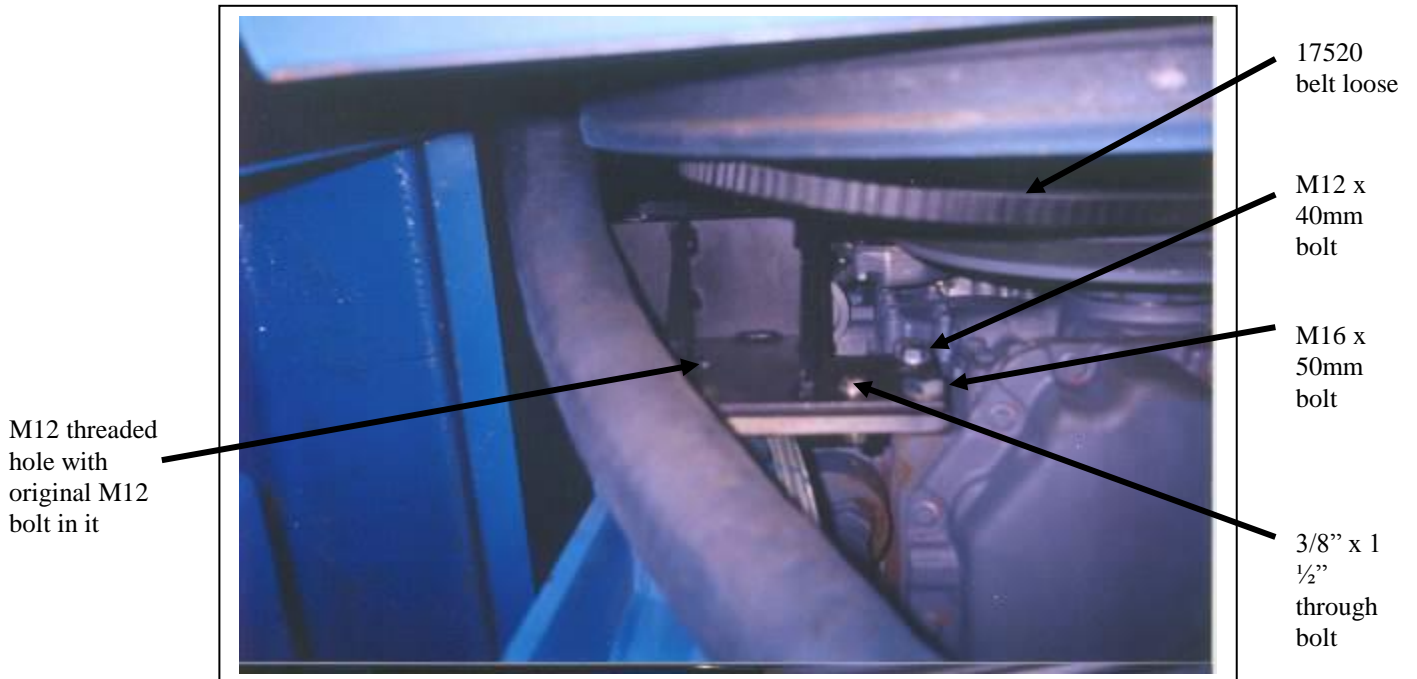


Add on pulley in place
on the crank (fan not
re-installed)

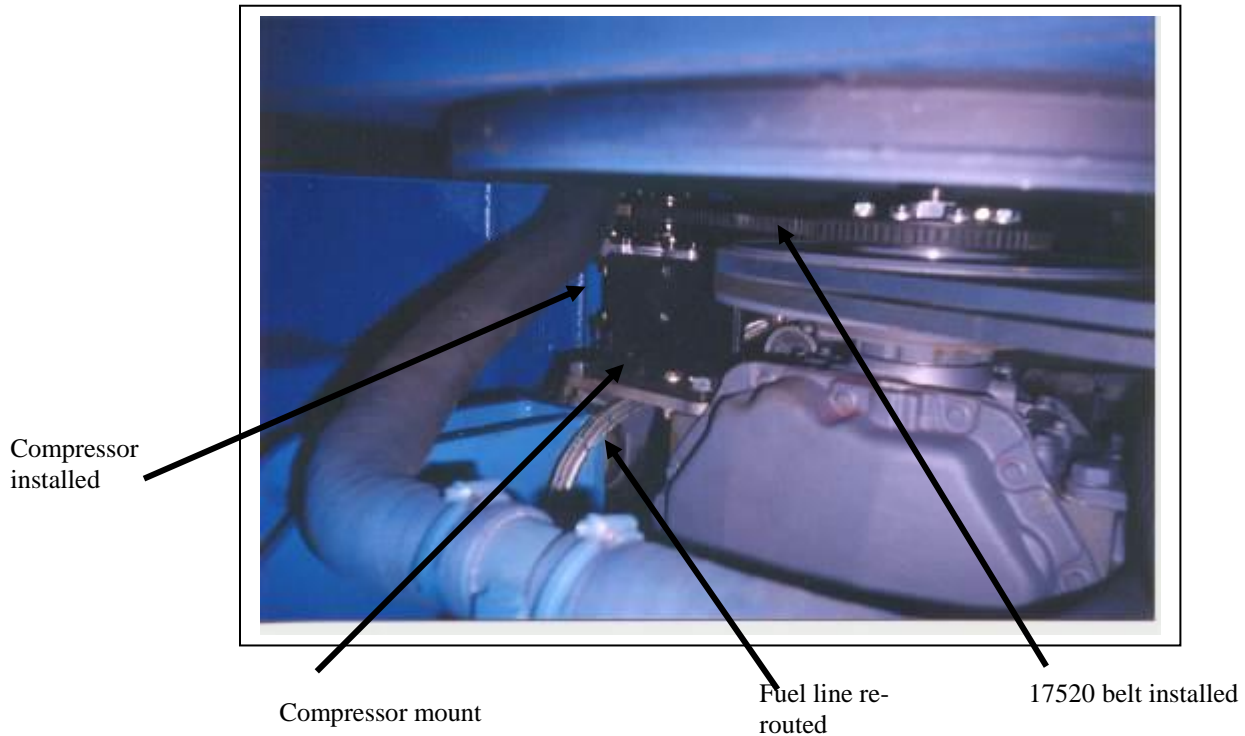
- c) Place the 17520 belt over the pulley.
- d) Replace the fan and retighten.
- e) The braided steel fuel line must be re-routed from the radiator side of the right engine mount bracket to the engine side of the bracket. Disconnect the fuel line at the fuel pump, re-route the line to the other side of the engine mount and re-attach it. Have the fitting pointing to the rear of the engine as much as possible. Ensure that the fuel line is protected from rubbing once the compressor has been mounted.
- f) Remove the M16 bolt from the lower mount hole on the back engine mount bracket. Remove the nut from the upper M12 bolt on the rubber end of the engine mount.



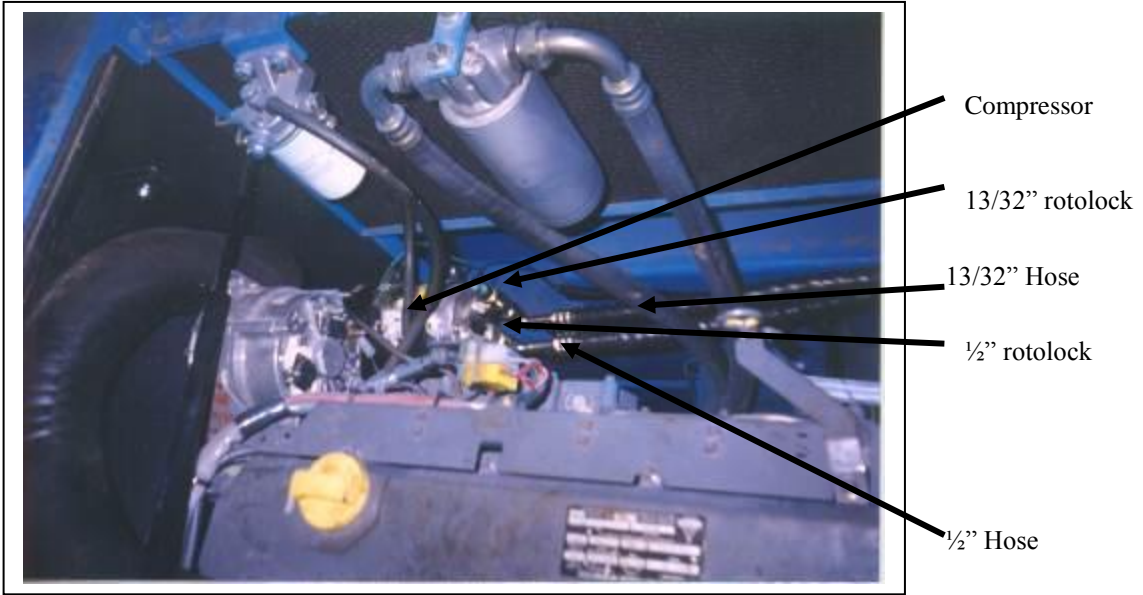
- g) Set the mount into place on the fan side of the back (right) engine mount bracket. Thread the upper M12 bolt on the rubber end of the engine mount into the M12 threaded hole on the compressor mount bracket. Use the M16 x 50mm bolt in the kit to replace the shorter original M16 bolt. Install the M12 x 40mm bolt into the mount hole directly above the lower M16 mount bolt. Use the 3/8" x 1 1/2" hardware in the through hole to the outside of the M16 bolt. Use locktight on all mount bolts.



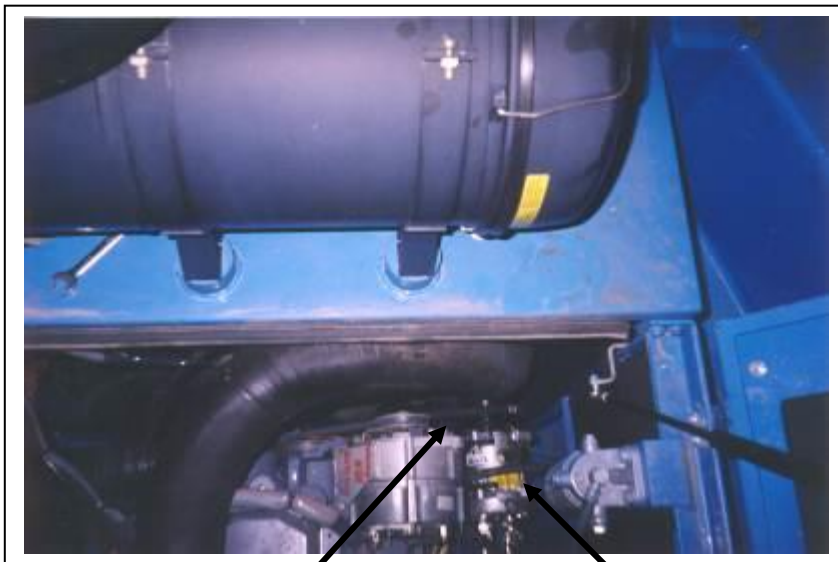
- h) Place the compressor into the tightener ears and loosely bolt in place using the 3/8" hardware provided. Install the 17520 drive belt around the compressor and crank pulley. Tighten the compressor and secure it in place.



- i) Install the rotolock fittings provided onto the back of the compressor. Use the white nylon gaskets to seal the rotolocks to the compressor. The gasket is inserted into the groove cut into the end of the fittings on the compressor. Put a few drops of PAG oil onto the nut and flange mating surface of the rotolocks so they don't bind when tightening. Install the 13/32" rotolock onto the discharge fitting on the compressor with the binary pressure switch pointing up (outside fitting). Install the 1/2" rotolock into the suction fitting on the compressor with the 134A access port pointing up (closest to engine).

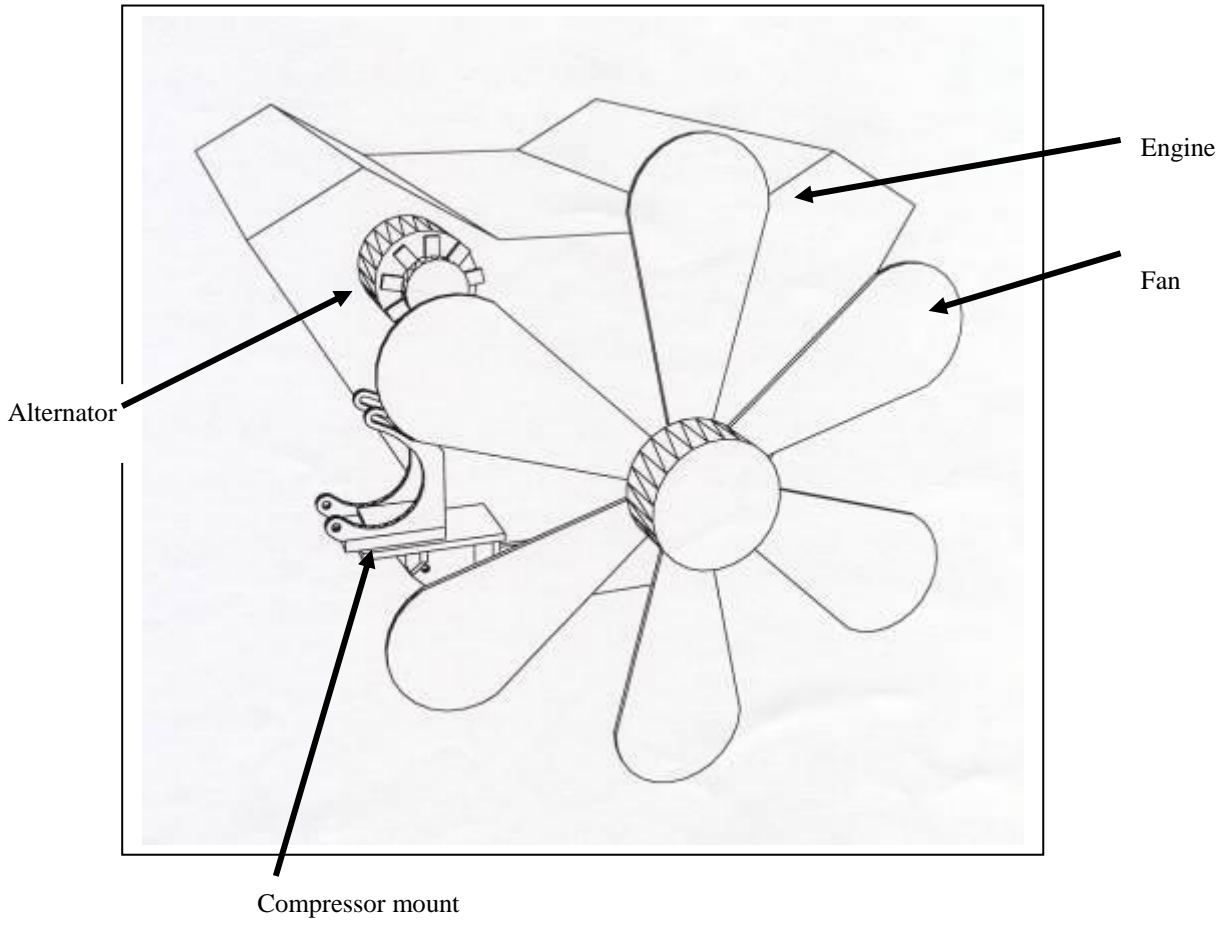


- j) Hose wrap and secure out of harms way any wire runs, rad hoses and fuel lines that could come into contact with the compressor, belt or mount.



17520 Belt

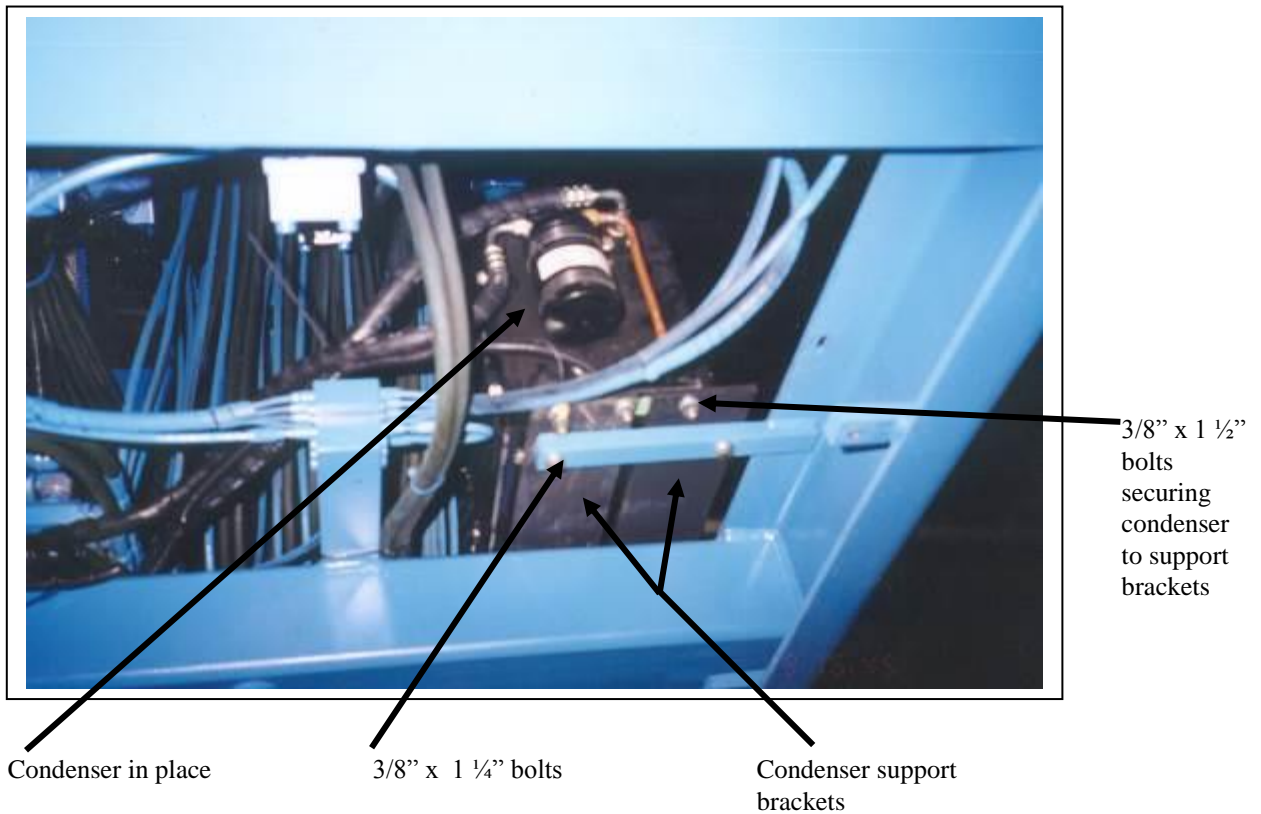
Compressor



CONDENSER:

The condenser is mounted below the cabs hydraulic arms on the left side of the machine just in behind the removable side panel that is ahead of the hydraulic tank.

1. Remove the side panel located ahead of the hydraulic tank.
2. Install the two condenser support brackets across the two existing support beams extending out from the side frame of the machine. Secure onto the support beams by installing a $3/8''$ bolt up through the existing holes on the support beams into the threaded holes on the support brackets.

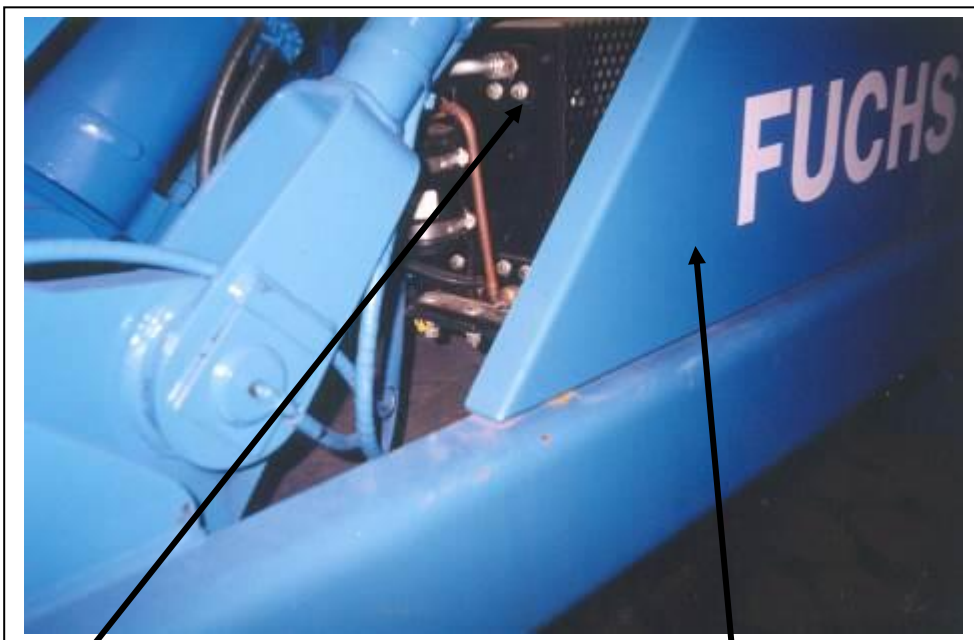


3. Place the heavy duty electric condenser onto the support brackets and bolt in place using the 6, $3/8'' \times 1 \frac{1}{2}''$ bolts provided.



Condenser in place

4. In extreme environments it may be necessary to cut a hole in the side panel in front of the condenser intake area to allow for improved air flow into the condenser. A 6" high x 18" long hole would be adequate. A piece of 8" x 20" perforated steel has been included in the kit along with 60" of edging and 1/4" mounting hardware.



Condenser behind side panel

Side panel in place

5. Ground the condenser to the machine by crimping a 3/8" yellow ring connector to the black wire coming out of the condenser and bolting the connector to one of the bolts securing the support brackets to the frame, or attach it to a convenient ground lug.



Mounting bolts
1/4" tapped holes

Cover screen

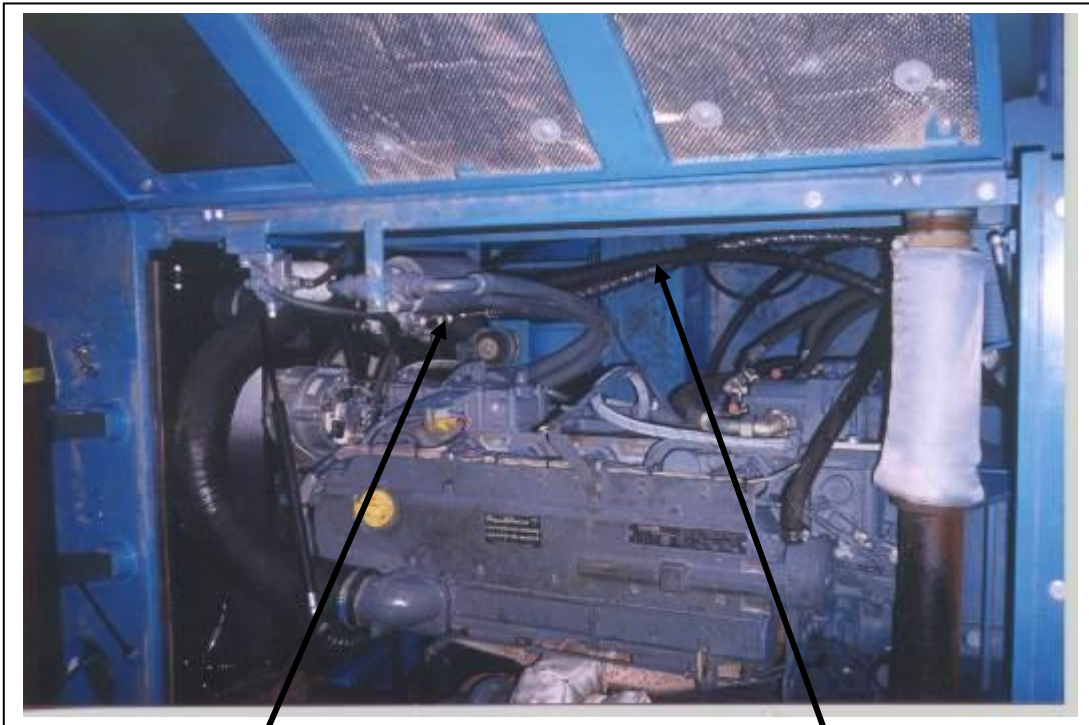
(shows cut-out on a 350, similar for a 360)

HOSES RUNS:

The hose runs on the MHL 360 are quite long and have to be run carefully to accommodate the telescoping cab design.

Steps:

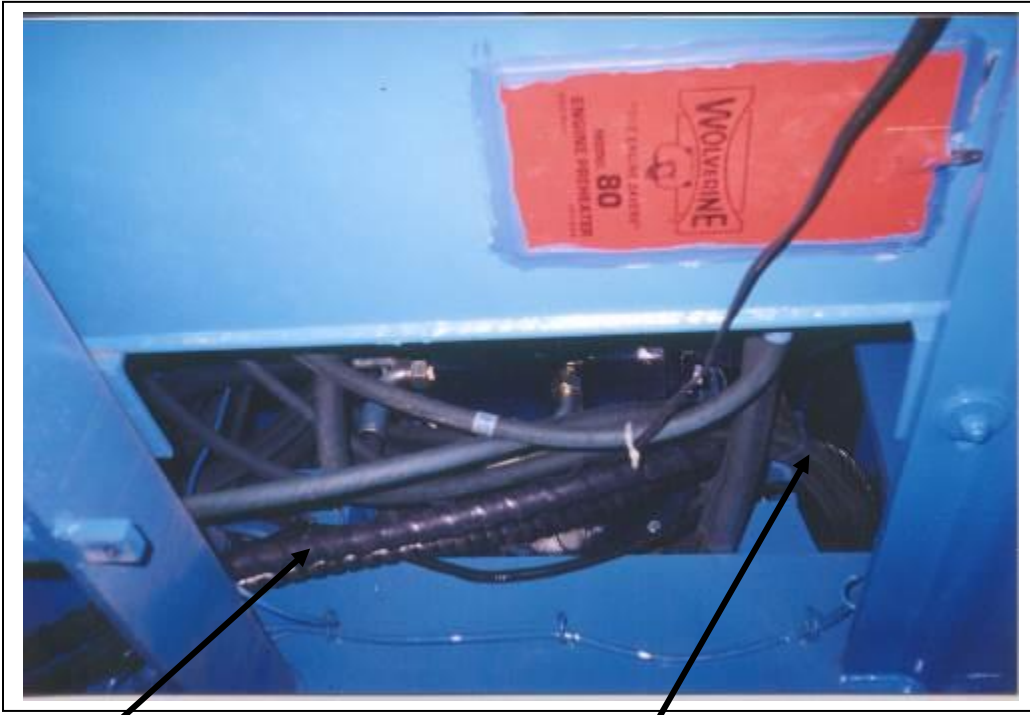
1. Connect the 90° 5/8" suction line fitting with the low side access port to the suction rotolock on the compressor. This is the rotolock closest to the engine. Connect the 90° 13" discharge line fitting with the high side access port to the discharge rotolock on the compressor. This is the rotolock closest to the back of the machine with the binary pressure switch.



90° 5/8" suction line fitting

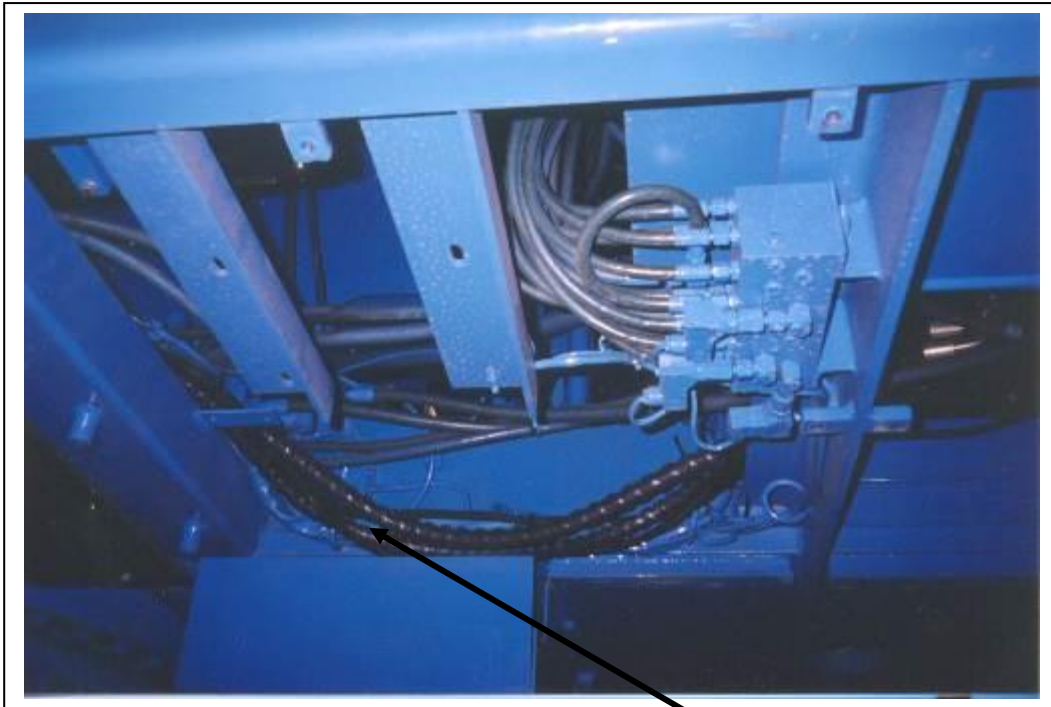
13/32" and 5/8" Hoses and wiring running down the right side of

2. Continue the hose run down the back of the engine compartment. Both hoses run around under the main hydraulic pump. There the hoses run under all the hydraulic hoses and over to the electric condenser.



Hoses running under the hydraulic pump towards the electric condenser

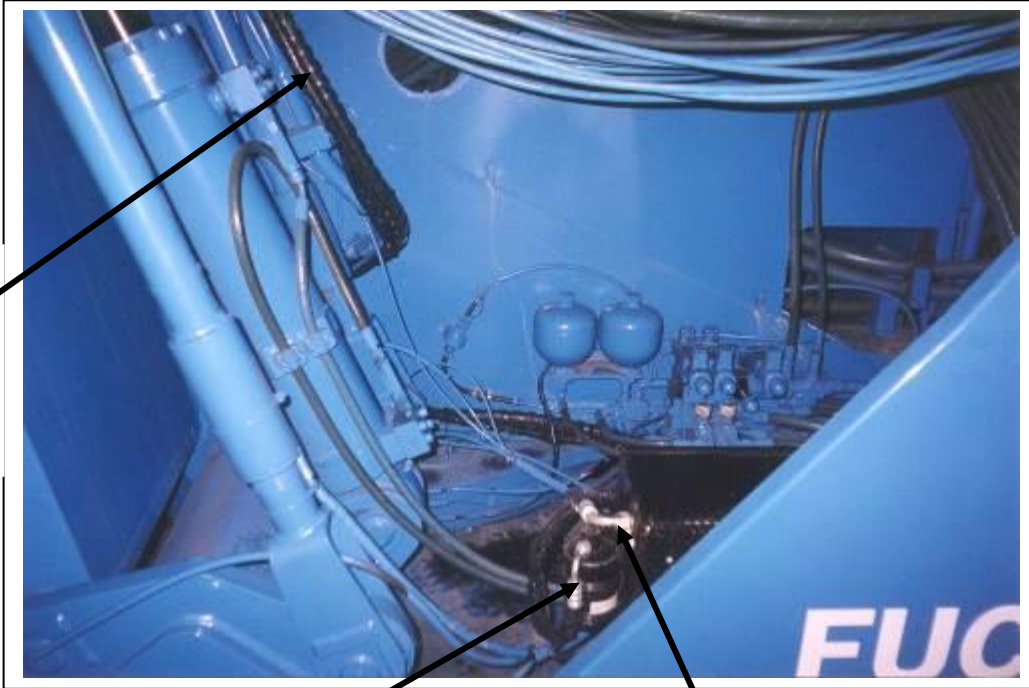
Hoses and clutch wire coming out of the engine compartment



Hoses and wiring continuing towards the electric condenser

3. Connect the 13/32" hose to the inlet of the electric condenser. Use the correct "o" ring and oil all contact surfaces.

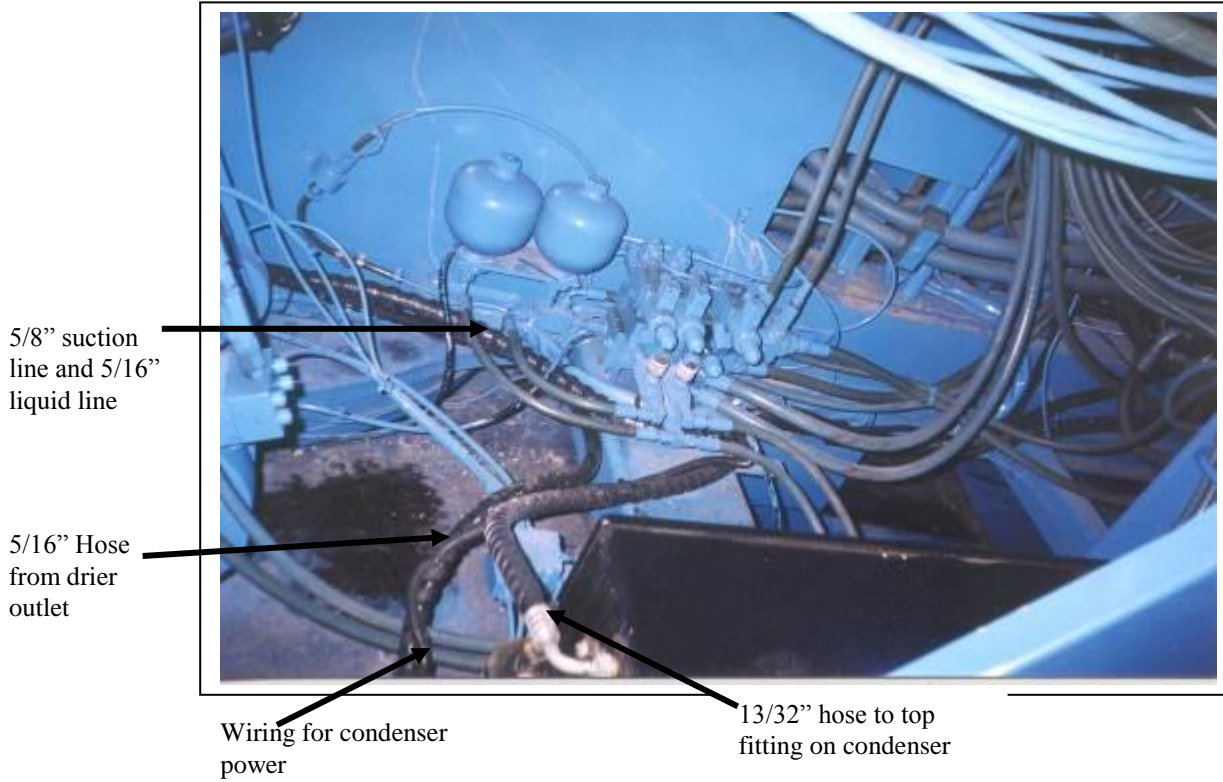
Hoses and wiring following the factory wire bundle



5/16" Hose at drier outlet

13/32" Hose at condenser

4. Before reaching the electric condenser the 5/8" suction line splits off from the 13/32" discharge line and follows the electrical harness that runs up to the cabs hydraulic lifting areas.



5. Connect the 5/16 liquid line up to the outlet fitting on the drier and route it over to the 5/8" suction line. Run both the hoses along the existing wiring harness all the way to the cab. The harness must be followed, so that when the cab is raised and extended the A/C hoses won't be ripped out or pinched.



Hoses and wiring following the factory wire bundle



Hoses following factory wire bundle down to the cab.

6. At the back of the cab the hoses run underneath the cab with the other hydraulic hoses and loop around to the fittings at the evaporator. Connect the 5/16" liquid line to the expansion valve. Connect the suction line to the outlet fitting of the evaporator. See pictures in evaporator section. Use the correct "o" rings and oil all contact surfaces.

ELECTRICAL

The electrical system for A/C system is contracted by the clutch terminal on the blower switch located on the front right control panel in the cab.

Steps:

1. Remove the side panel on the front right control panel to access the blower wiring. Determine which wire coming from the blower switch has 24 volt power whenever the blower switch is turned on any speed. Splice into this wire and run it to the a/c on/off toggle switch through a 5 amp inline ATO fuse. The toggle switch should be mounted to the right of the ignition key on the same control panel as the blower switch. Drill a 7/16" hole to mount the toggle switch into the panel, if there is not an existing hole.



A/C on/off
switch

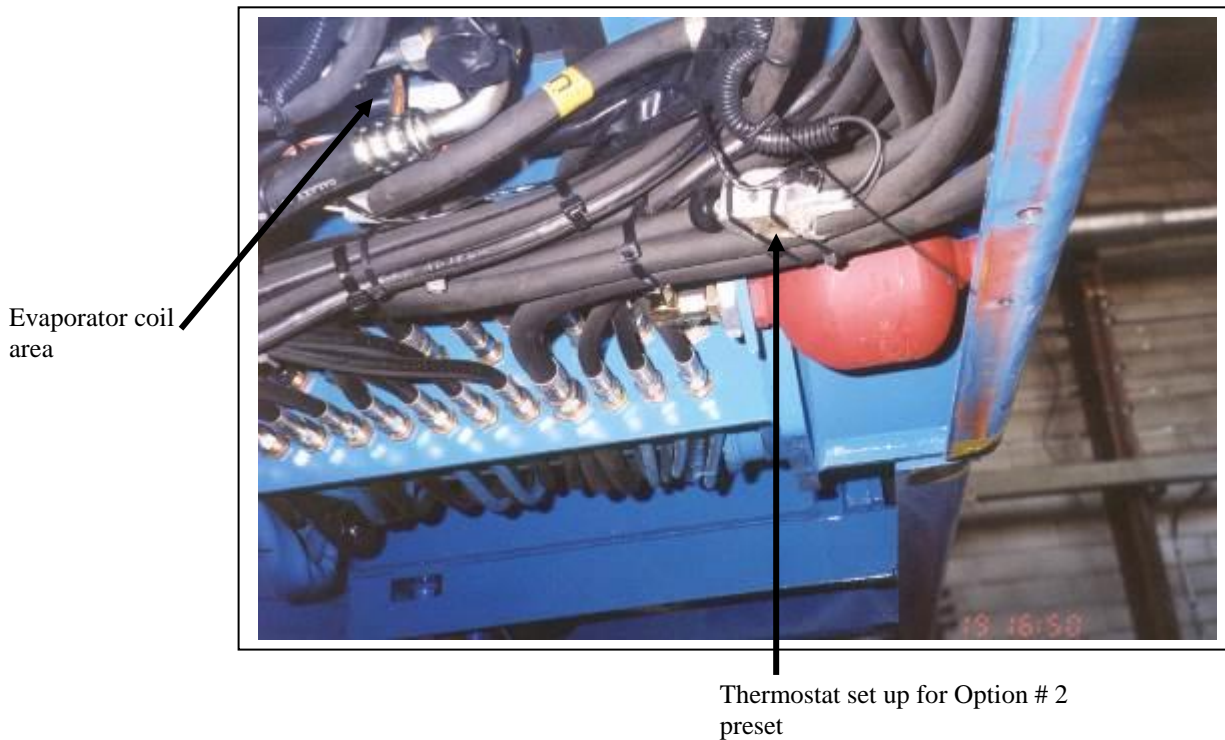
Thermostat location
for option # 1

2. The thermostat setup can be handled in two ways:
 - 1) Dash mounted beside the A/C on/off switch

2) Remote mounted near the evaporator coil and pre-set at the time of installation

For option one: Drill a 1/16" hole in the switch panel to the right of the A/C on/off toggle switch to mount the thermostat. On newer machines the thermostat mount hole may already be present. Connect the 14 gauge red wire from the loom to the other terminal on the toggle switch. Connect the two 14 gauge black wires from the loom to the two terminals on the thermostat. It doesn't matter which wire goes to what terminal. Run the wire bundle and thermostat probe out through the floor and over to the evaporator hoses.

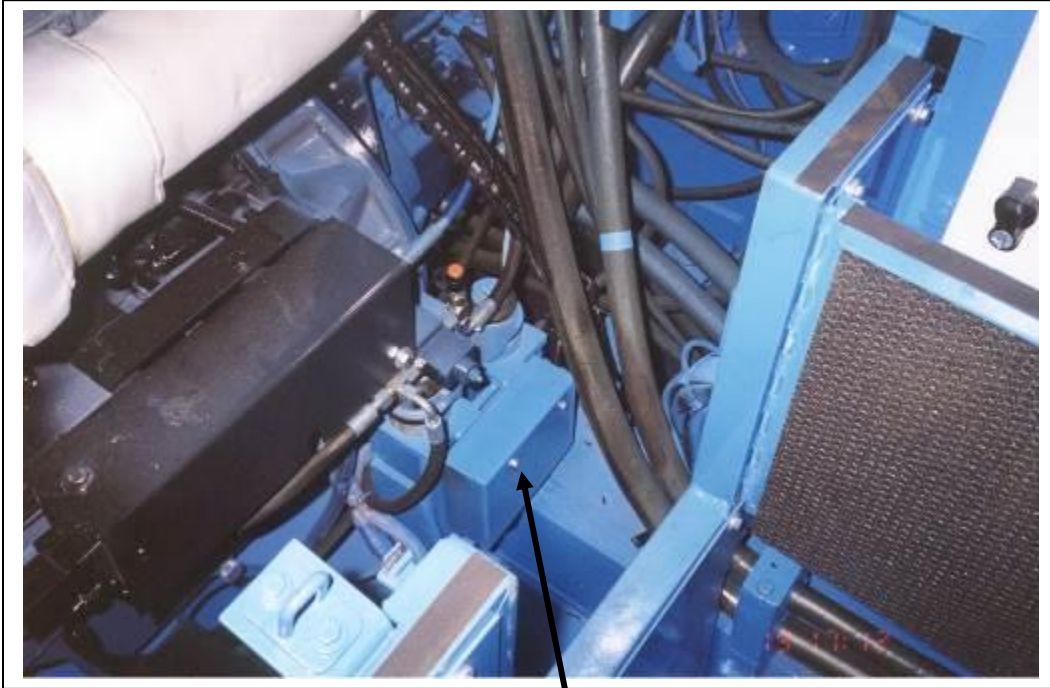
For option two: Connect the 14 gauge red wire from the loom to the other terminal on the toggle switch. Route the wire out through the floor and over to the evaporator area. Connect the two 14 gauge black wires from the loom to the two terminals on the thermostat. It doesn't matter which wire goes to what terminal.



3. Run the three 14 gauge wire in loom along with the A/C hoses out to the engine compartment by following the A/C hoses.
4. Once the wiring gets to the condenser area, have the 12 gauge red wire from the condenser join the wire bundle as it heads towards the engine compartment. If it was

not done during installation, ground the 12 gauge black wire from the condenser to a convenient bolt on the frame.

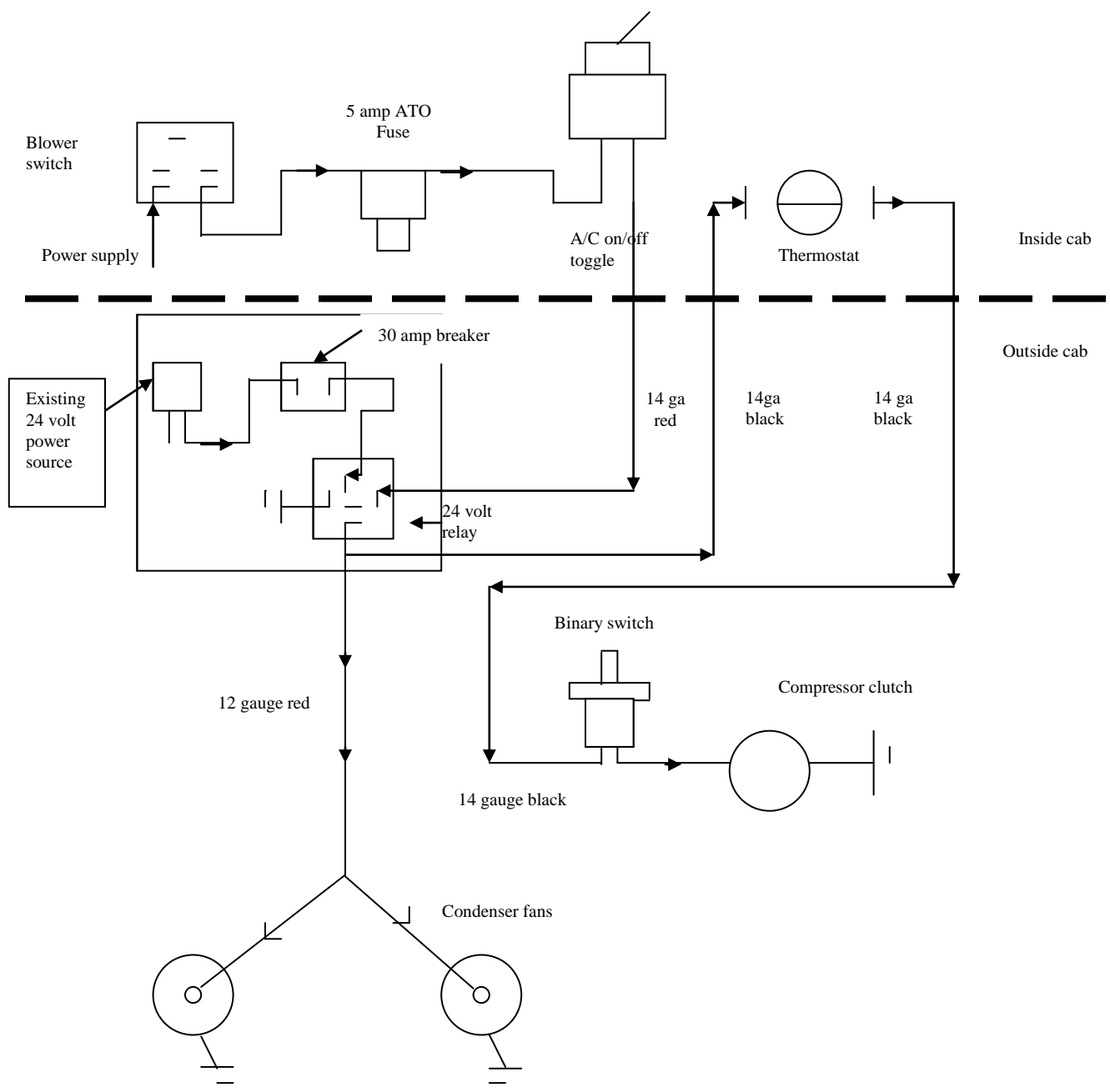
5. Just as the wire bundle enters the engine compartment, split one 14 gauge black wire out of the bundle. This one wire will continue along with the A/C hoses to the binary switch at the compressor. Connect the 14 gauge black wire to one terminal on the binary switch. Connect the clutch wire coming from the compressor to the other terminal on the binary switch.
6. Run the rest of the wire in the bundle over to the power distribution box located on the rear lower left corner of the engine compartment.



Power distribution box

7. Remove the cover from the power distribution box and mount the circuit breaker and relay on the back plate of the box. Draw 24 volt power off the main power terminal in the box and wire to the breaker using 12 gauge red wire. From the breaker run the 12 gauge red wire to the relays main power in terminal #(30). From the outlet of the relay there must be two wires, a 12 gauge red (from the condenser) and a 14 gauge (from the thermostat). Both wires can be crimped into one yellow female quick disconnect terminal. The control power for the relay comes from the red 14 gauge wire running from the A/C on /off switch in the cab. Connect this wire to either relay control terminals on the relay #(85) (86) and connect the other terminal to ground.
8. Test the electrical system before closing up any boxes or panels. Check the rotation of the condenser fans to ensure they are pulling air through the box. Check that there is power to the binary switch at the compressor. ****NOTE**** The compressor clutch will not engage until there is sufficient pressure in the system******

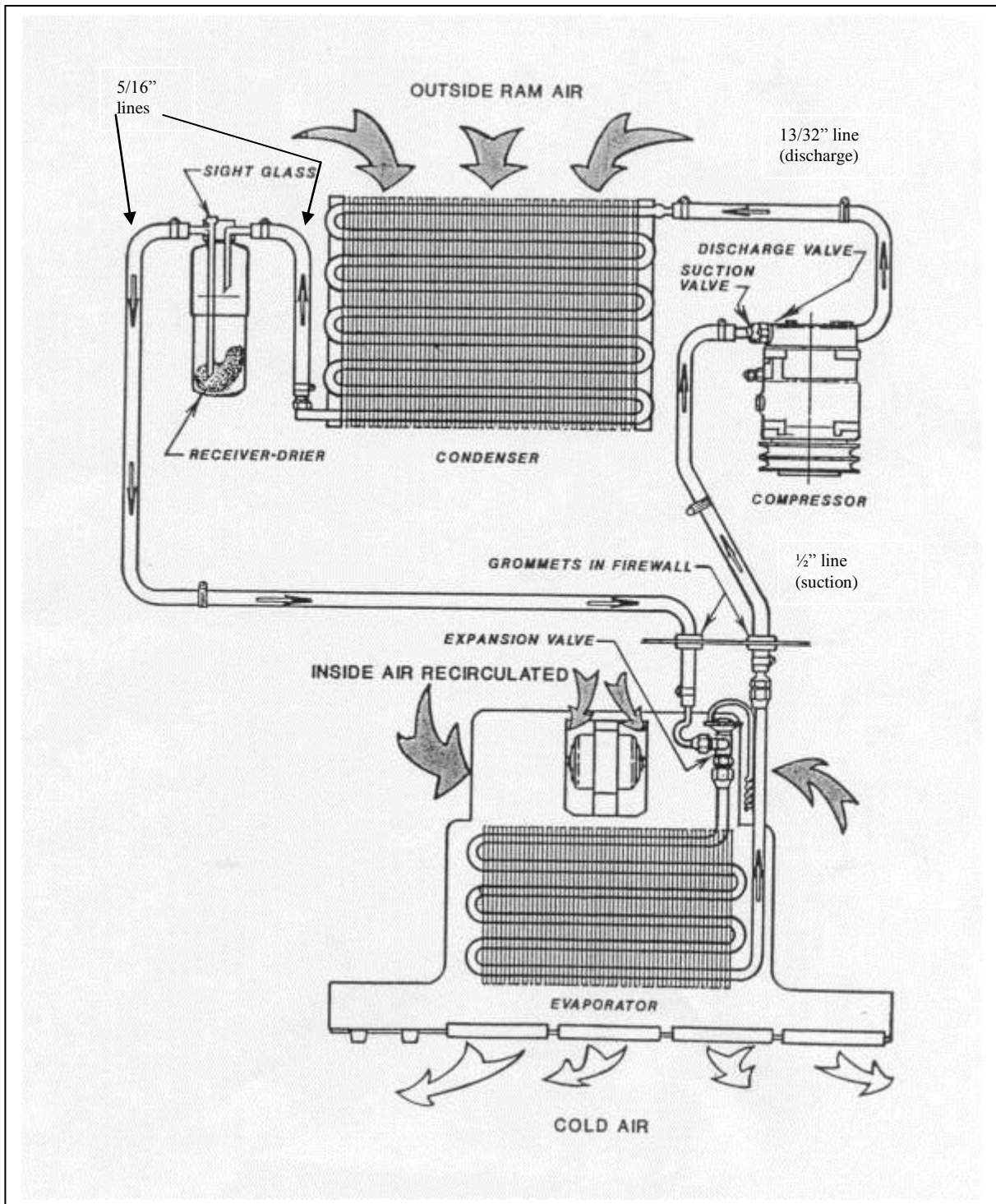
ELECTRICAL:



Final checks and charging:

1. Pressure test the system with nitrogen to at least 250 PSI and check all fitting and connections for leaks. The complete electrical system can be tested while there is pressure in the system as well.
2. Vacuum the system out with a good vacuum pump for ½ hour to 45 minutes. Ensure the system holds a vacuum to double check it for leaks. Add 4 oz of PAG oil to the system. Charge the system with 3 lbs of new 134A refrigerant. Run the system to test it. Check the temperature at the louvers. Add 134A refrigerant in 2 oz increments and check the air temp. A charge of 3 lbs 8 oz should be about right.
3. Check that the thermostat is cycling the compressor off before coil freeze up problems can occur. The thermostat can be adjusted with its rotary knob or the 2 adjustable screws on the body of the thermostat.

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.

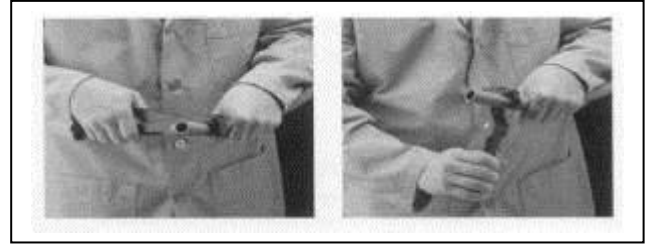
By looking at all these different factors, the area of an evaporator coil most likely to be the coldest can be determined.

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.

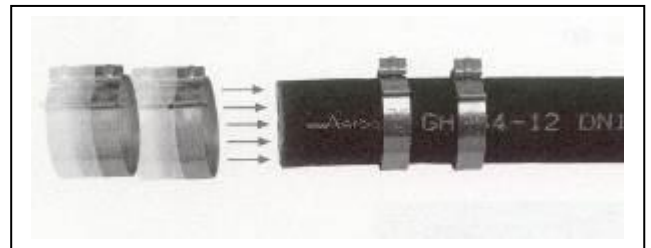
If the thermostat doesn't cycle off after a reasonable cool down period, and the air outlet temperature has dropped below 40° F, the cut in and cut out settings should be adjusted until the compressor is cycling on and off regularly. Let the system run for a decent time period (at least 15 min) and then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

Aeroquip E-Z Clip Assembly Instructions

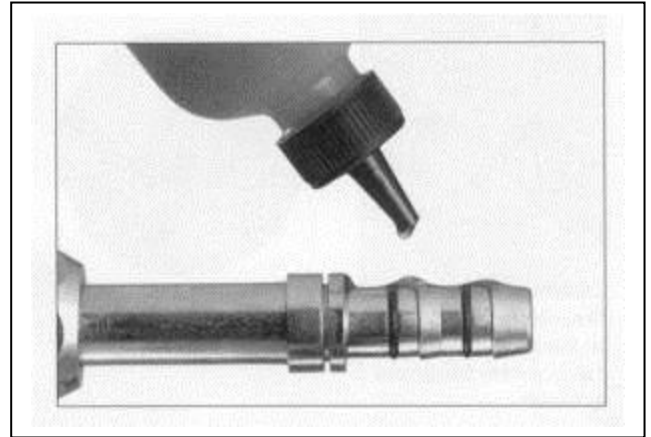
Step 1. Cut the hose to proper length with an appropriate cutting tool. Aeroquip's hand held hose cutter has been specially designed for cutting all non-wire reinforced hose, such as GH-134 Multi-Refrigerant hose. Be sure the cut is made square to the hose length.



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.



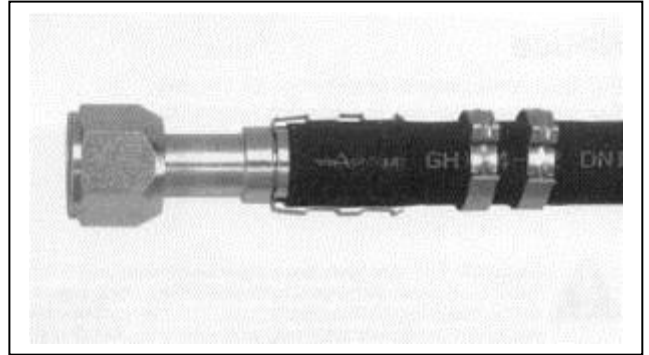
Step 4. Insert the nipple into the hose. To ensure that the nipple is fully inserted, check the gap between the cut end of the hose and the shoulder on the nipple. Care should be taken to avoid kinking or other damage to the hose during nipple insertion.

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

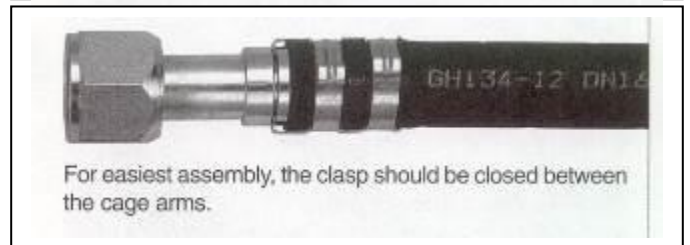


Step 5. Snap the cage into the groove on the nipple. The arms should extend over the hose length. When the cage has been correctly installed in the cage groove, the cage will be able to rotate in the groove. This step **MUST** be performed to ensure:

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.

