

# TC48 TEREX Mini Excavator

## Installation Instructions



1-800-267-2665

1-888-267-3745 FAX

**Compressor mount:**

The compressor mounts on top of the engine just beside the air cleaner. It uses the top radiator support bracket as one of its mount points.



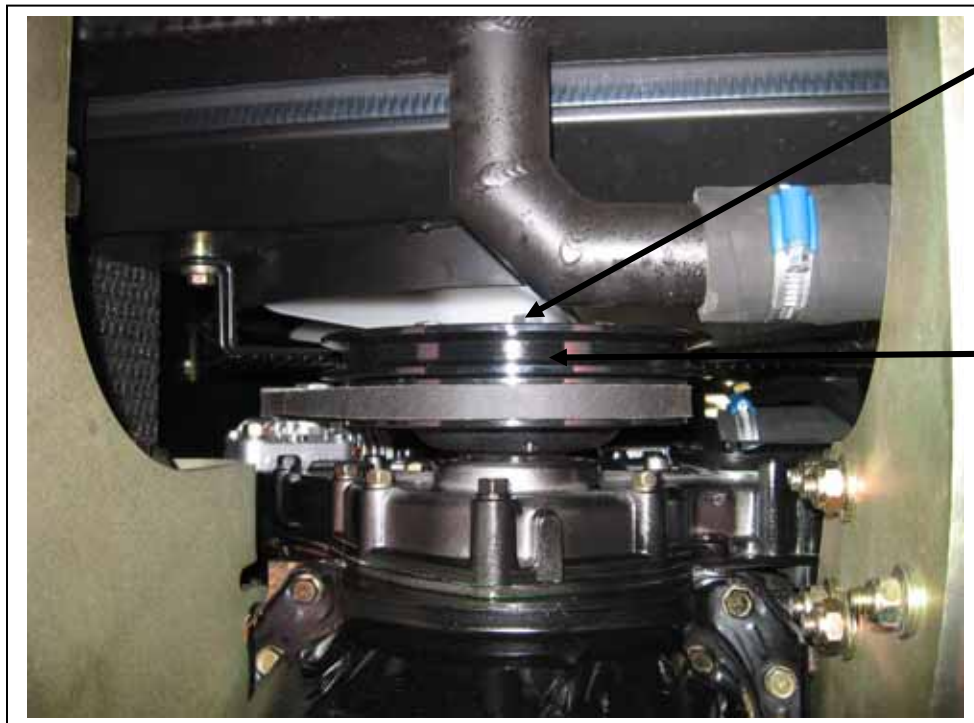
Remove fan screen for installing the compressor and mount.

Top radiator support bracket.

An extra pulley is bolted to the crank pulley to drive the compressor.



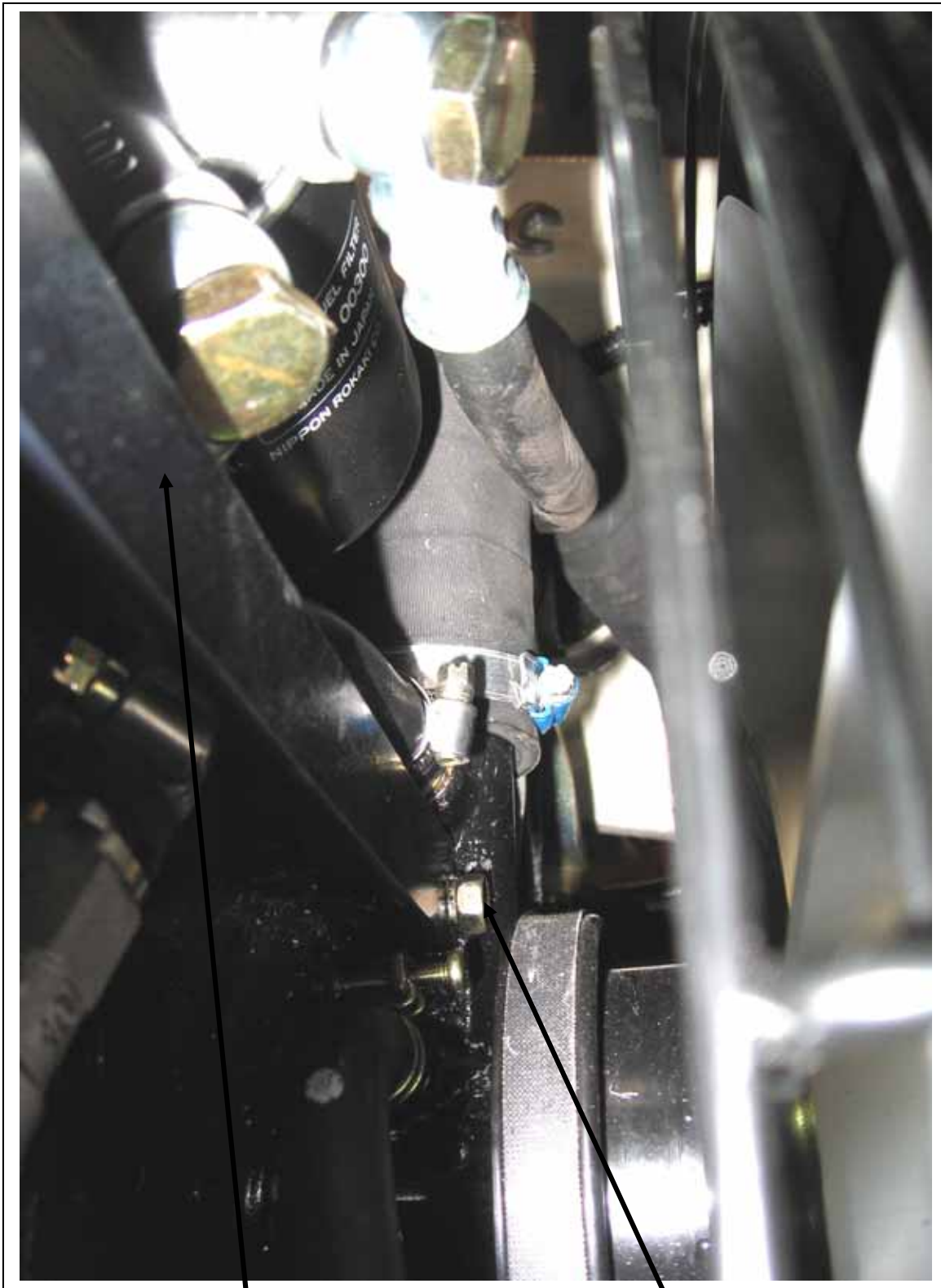
Existing crank pulley has four threaded holes for mounting the extra pulley.



Mount bolts for extra

Extra pulley in place.

The belt for the compressor will have to be squeezed between the lower rad hose and the pulley.



Compressor mount  
stiffener bracket.

Loosen this bolt on the water  
pump and slide the slotted end of  
the compressor mount stiffener  
bracket behind it. Re-tighten the  
bolt.



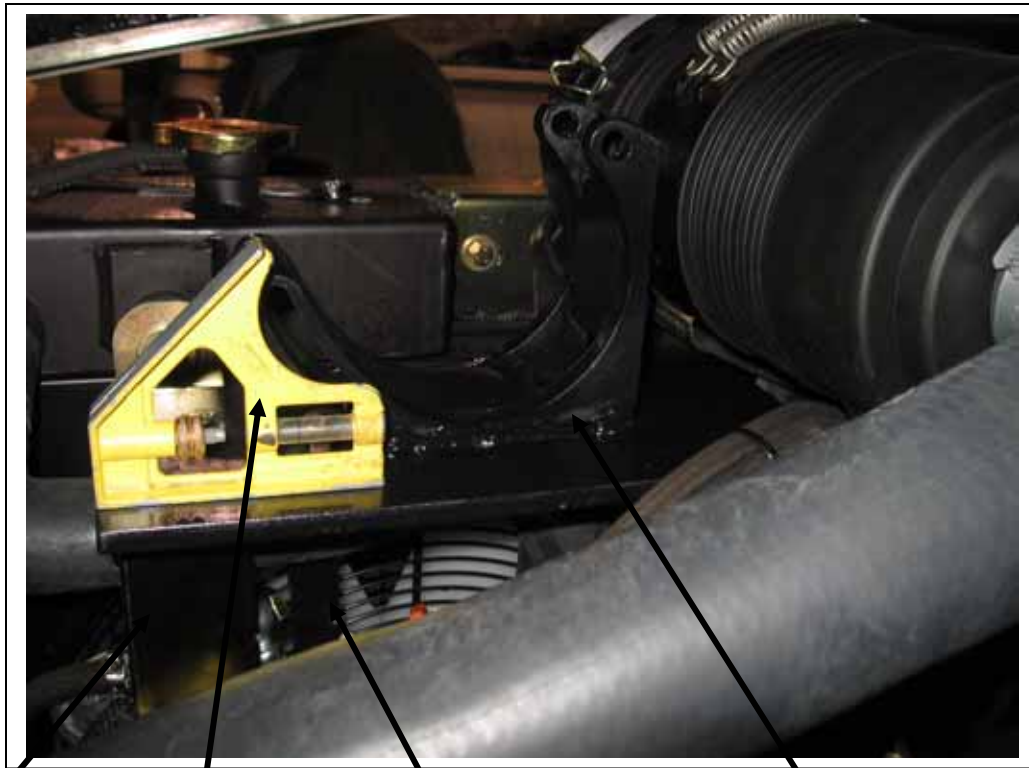
Main mount bracket

Remove the engine lifting eye bracket from above the alternator and ahead of the exhaust manifold before setting the main compressor mount bracket in place. Set the main mount bracket in place ovetop of the top radiator support bracket and the compressor mount stiffener bracket with the right side of the mount bracket sliding down beside the engine head.



Bolt the right side of the main bracket to the original location of the engine lifting eye bracket. Leave the bolt loose until the mount is leveled.

Use a level to adjust the mount bracket side to side and front to back. When level, mark the two mount holes onto the top radiator support bracket. Drill two holes to fit 3/8" bolts.

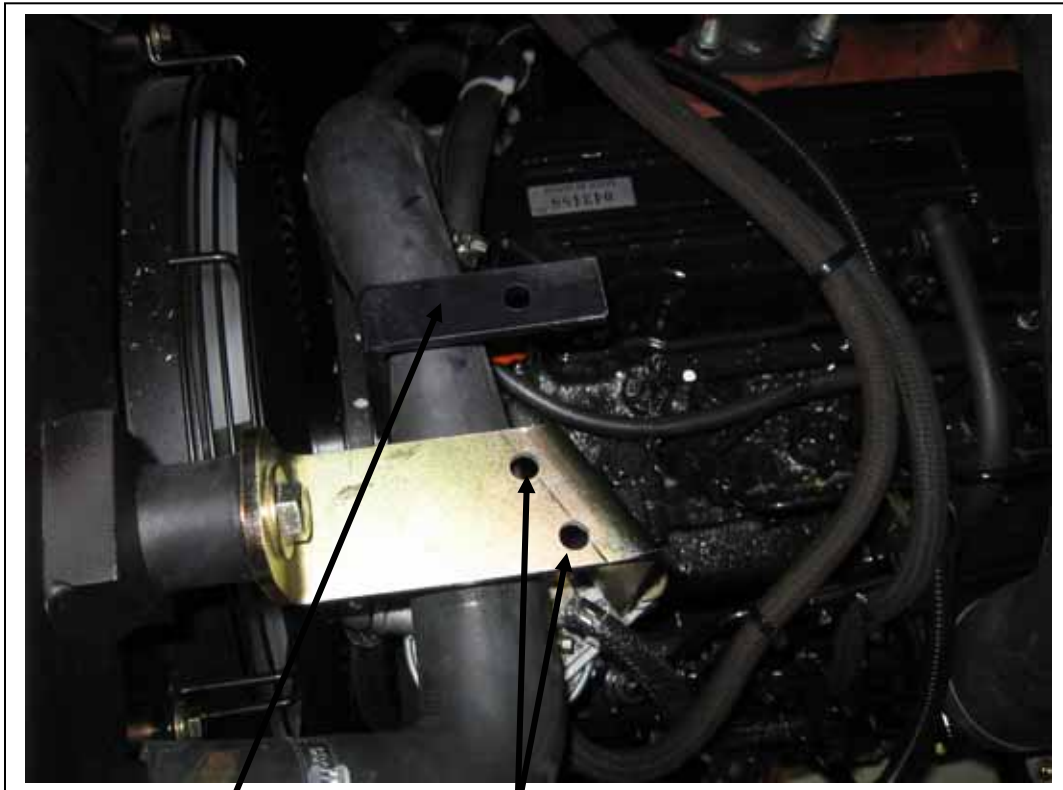


Top radiator support bracket

Level

Compressor mount stiffener bracket.

Main compressor mount bracket.



Compressor mount  
stiffener bracket.

Holes drilled in top radiator support  
bracket

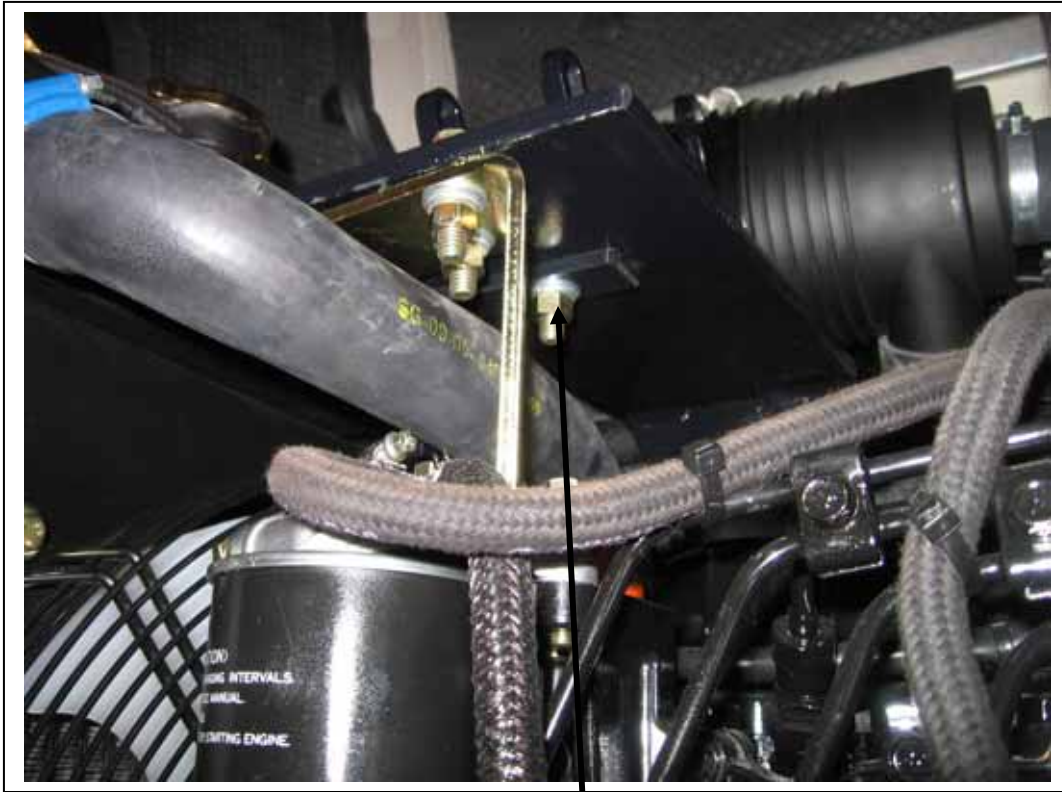


The top radiator support bracket may not be exactly bent to 90°. Washers may be required to shim the main compressor mount bracket so that it sits level front to back on the engine.

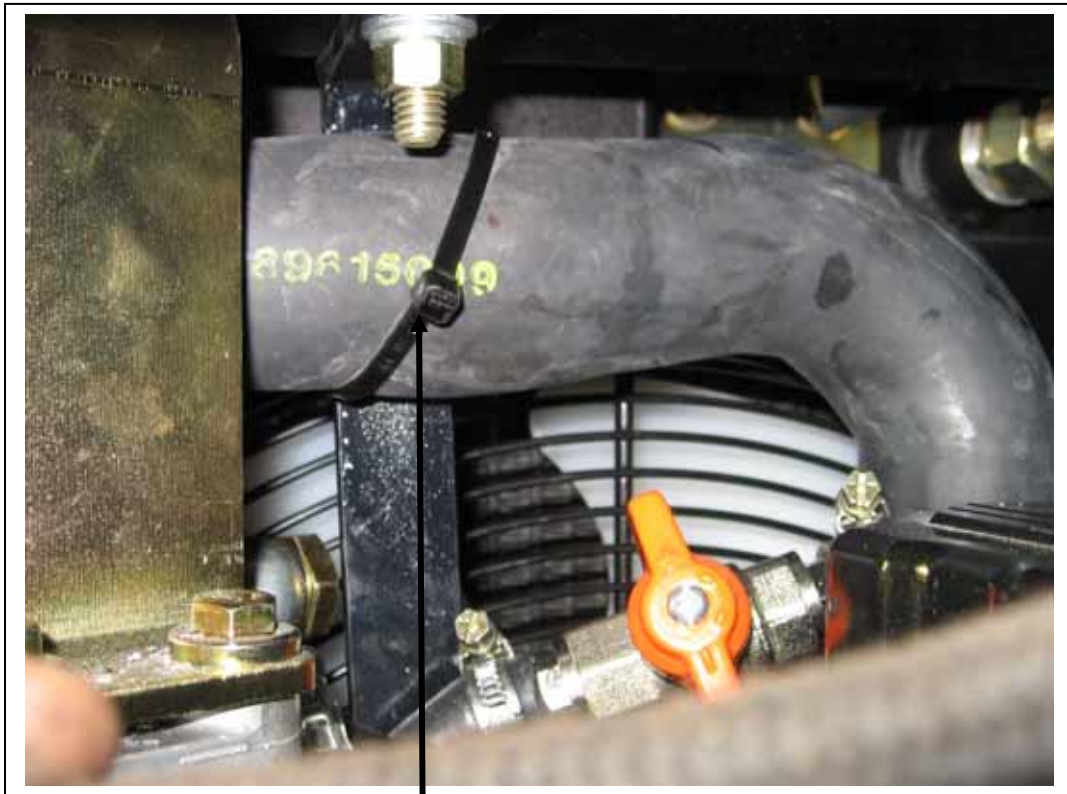


Washer shims between the main compressor mount bracket and the top radiator support bracket.

3/8" bolts



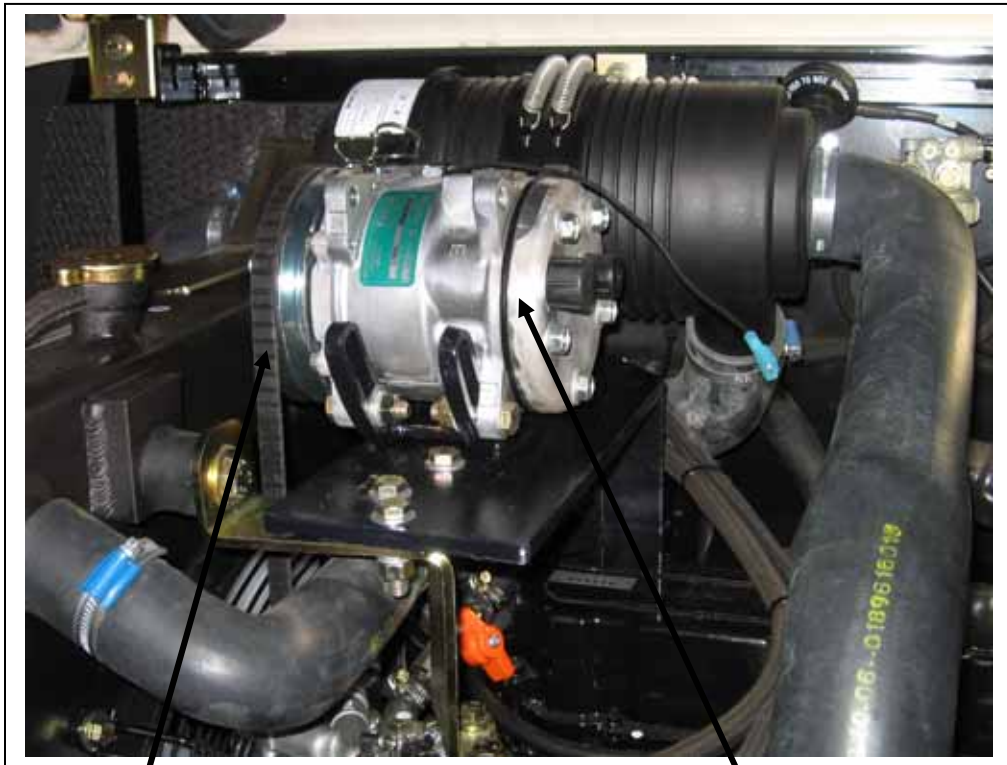
3/8" bolt on compressor stiffener bracket.



Tie the upper radiator hose to the compressor mount stiffener bracket.

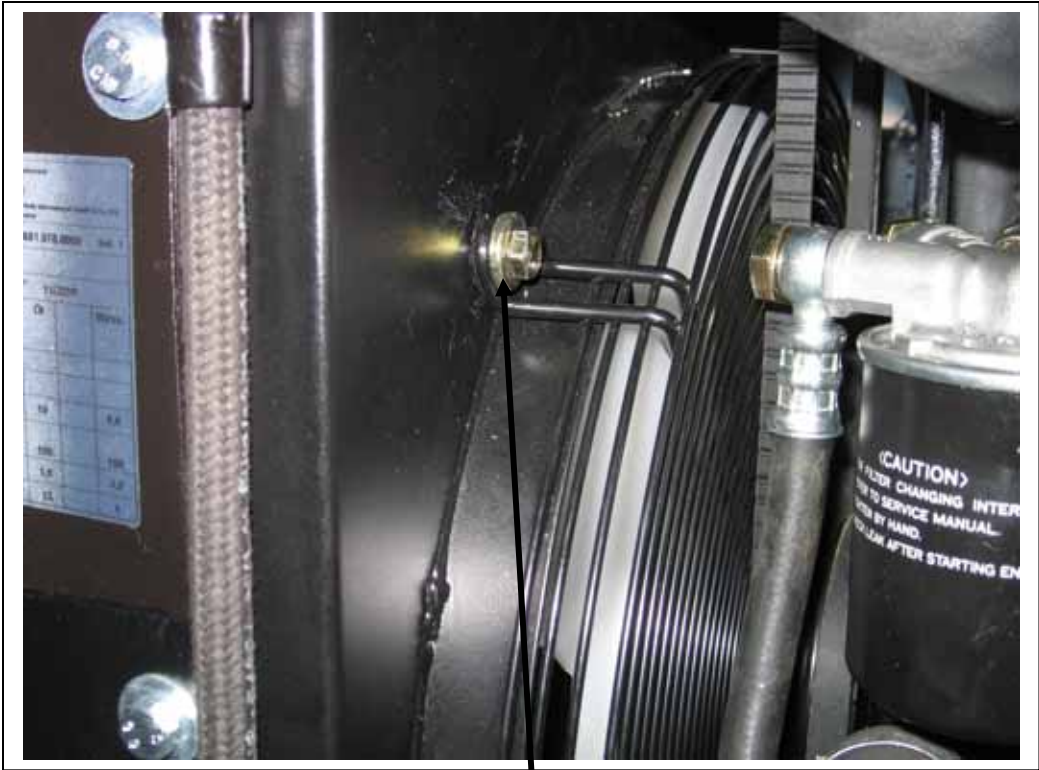


Tie the heater hose to the compressor mount stiffener bracket.



17650 belt from the crank to compressor , passing on either side of the fan pulley.

Compressor in place on mount bracket.



Fan screen reinstalled with extra washers removed from between the fan shroud and the screen feet.



Four washers removed from the fan screen.

**Condenser:** The condenser is located on the air inlet side of the radiator between the radiator and the rear engine compartment panel brace.



Air deflector plate

Engine compartment stiffener pipe

- Steps: 1 Remove the air deflector plate from in front of the radiator. Remove the engine compartment stiffener pipe from in front of the radiator.
2. Loosen the 2<sup>nd</sup> and 3<sup>rd</sup> bolts from the top on each side of the radiator frame. Remove the bolts on the back side of the rad. They will be reinstalled once the condenser is slid into position.
  - 3, On the cab side of the rad there is a thick foam gasket glued to the rad frame. To accommodate the condenser mounting bracket the foam must be separated from the rad using a sharp knife from 1" above the 2<sup>nd</sup> bolt to the 1" below the 3<sup>rd</sup> bolt. This will allow the condenser mount bracket to slide onto the bolts flush with the rad frame. Once the bracket is installed the foam can be glued over the condenser bracket to return it to its original location.
  4. Remove the fitting side bracket from the condenser and install it onto the rad frame loosely.

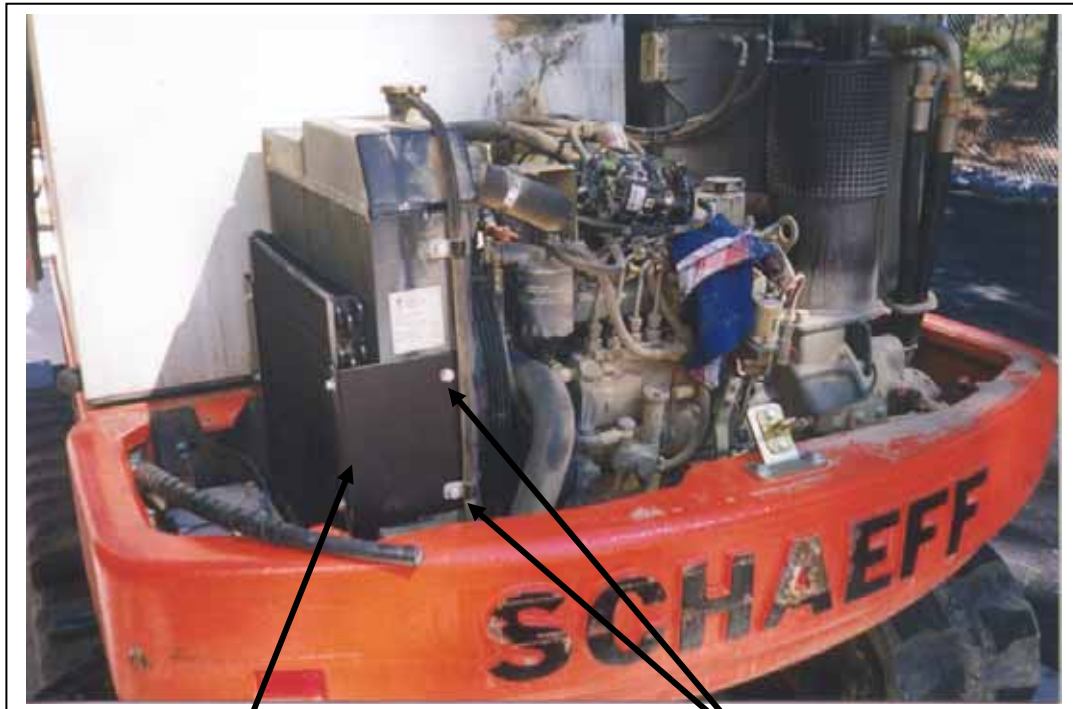


Foam gasket

Fitting side condenser  
mount bracket

Condenser

5. Slide the condenser in between the loosely installed fitting side bracket and the rad until the rear condenser bracket line up with the two bolt holes on the rad frame. Reinstall the original bolts in the holes to secure the condenser frame. Reinstall the 1/4" bolts previously removed from fitting side condenser frame and tighten the two loose M8 bolts to secure the cab side of the condenser.



Rear condenser bracket

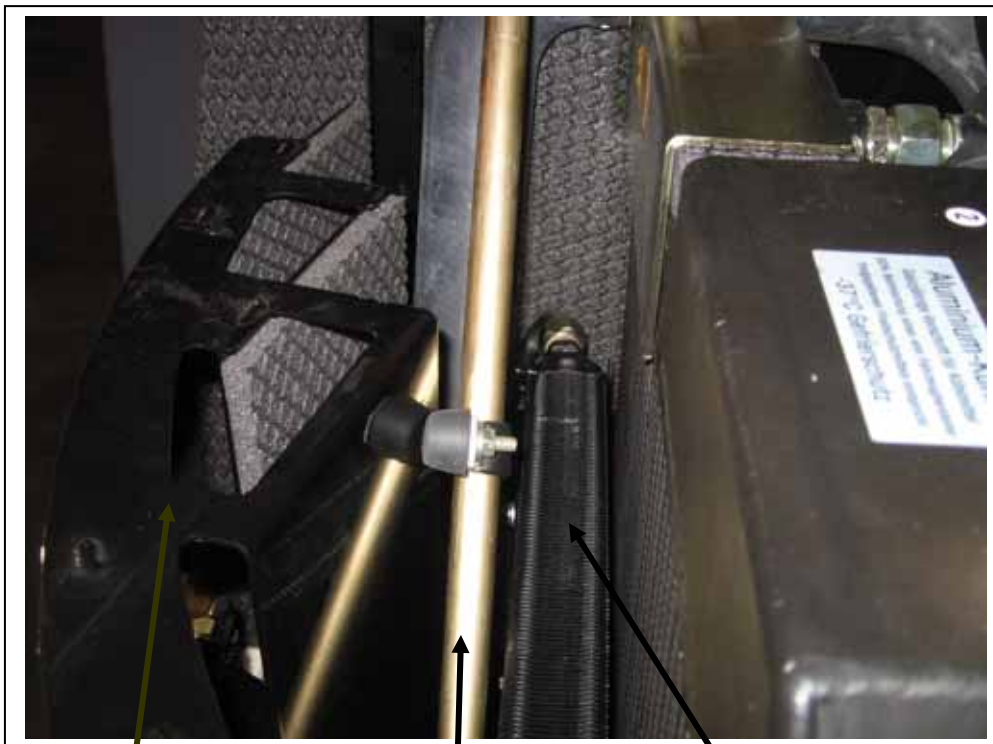
2<sup>nd</sup> and 3<sup>rd</sup> holes

6. Check clearance around the condenser and between the condenser and radiator to ensure nothing can rub and cause damage.



Bend the lower condenser fitting out a bit for easier access with wrenches or attach the 5/16" hose straight fitting to it before installing the condenser.

7. Reinstall the air deflector plate and the engine compartment stiffener pipe back in front of the radiator.



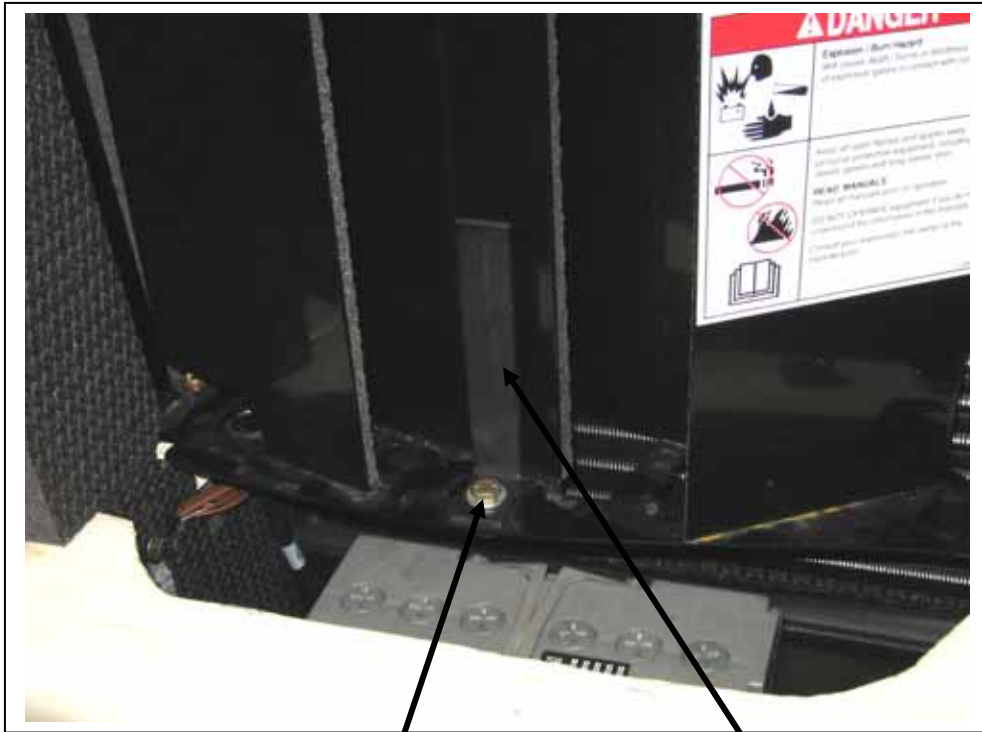
Air deflector pipe

Engine compartment stiffener pipe

Condenser



**Receiver drier:** The receiver drier is located in front of the condenser..



3/8" x 1" bolt

90° drier bracket

Drill a hole as shown to mount the 90° drier bracket.

5/16" 90° fitting  
from condenser

5/16" 90° fitting to  
evaporator expansion valve



Clutch wire from  
thermostat

Receiver drier c/w  
binary switch

#48 gear clamps

Clutch wire to  
compressor



Drier side view

**Electrical System:** The electrical system for this machine has been made as simple as possible. It consists of an inline ATO fuse, an A/C on/off push button switch, a rotary thermostat, a binary pressure switch, the compressor field coil and the 14 gauge wire to connect them all.

Steps:

1. The A/C on/off push button switch and the rotary thermostat are installed onto the control panel on the right side of the operators seat. The push button switch is mounted on the last rocker switch cap beside the blower switch. Drill a 9/16" hole on the last switch cap. Remove the 4 Phillips screws from the panel so it can be lifted up to gain access to the back of it. From the backside of the panel slide the switch up through the hole and secure it in place with the retaining nut supplied on the switch. Make sure the switch is mounted with the "AC" in a readable position.
2. The rotary thermostat is mounted in a drilled hole on the vertical surface of control panel behind the fuse board. Drill the hole to a 7/16" hole. Insert the threaded stem of the thermostat through the hole from the back side of the panel. Slip the large flatwasher over the stem from the outside of the panel and secure it in place with the retaining nut supplied on the thermostat. Apply the thermostat decal to the large washer then install the thermostat knob onto the thermostat.



A/C on/off push button

Thermostat

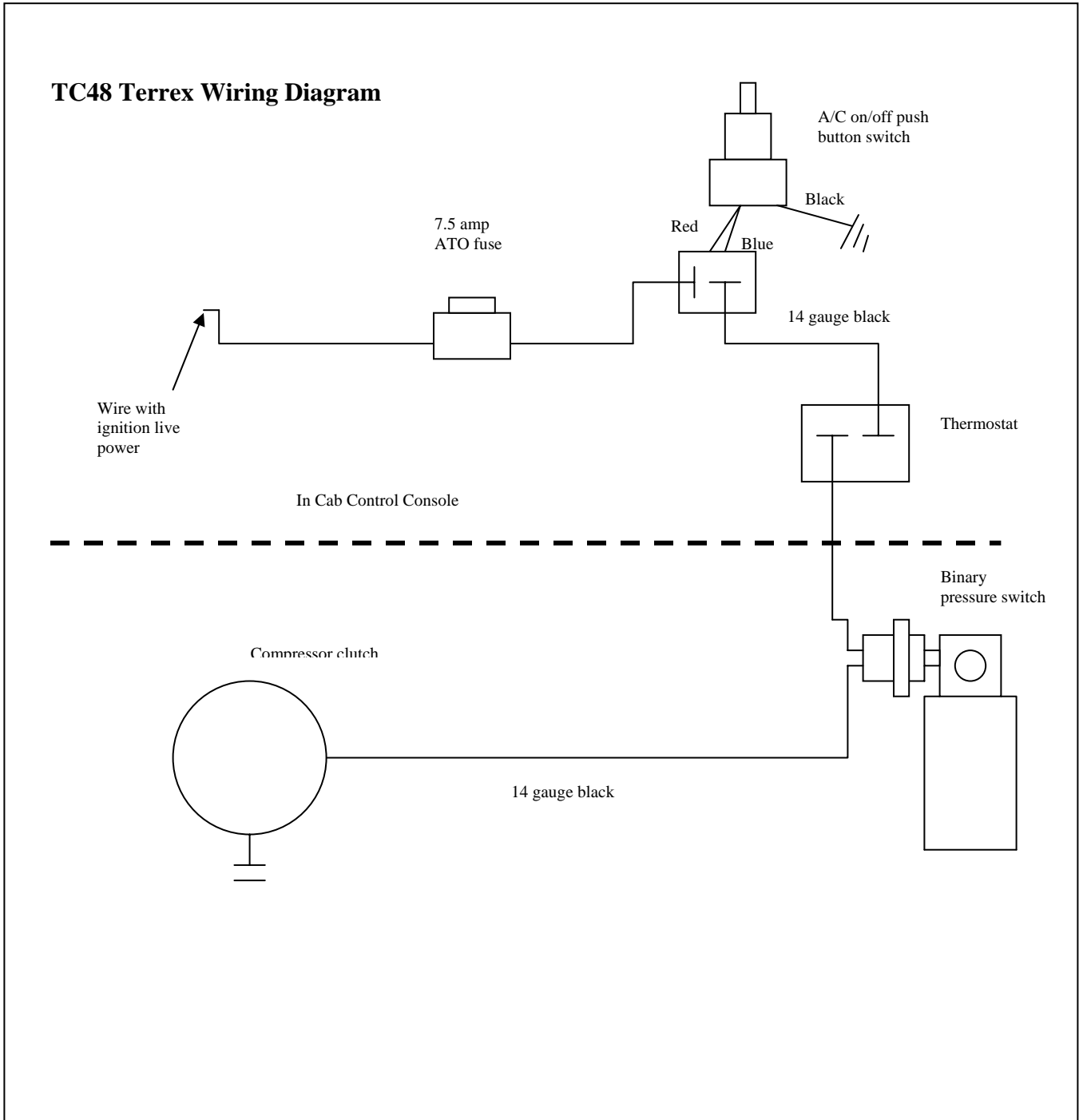
3. Draw ignition live power from the auxiliary wire beside the fuse panel. Use the inline ATO fuse holder as the wire to run from ignition live power to the A/C on/off button. Use a female QDT on the other end of the ATO fuse holder to connect to the red wire on the A/C on/off switch. Install the 7.5 amp fuse into the holder.



Ignition live power wire found down beside the fuse panel. Access by lifting up control panel.

4. From the blue wire terminal on the A/C on/off switch run a 14 gauge wire to the thermostat terminal. Use female QDT's on both ends of the wire. Ground the black wire on the A/C on-off switch so the switch will light up when on. From the other terminal on the thermostat run the long bundle of 14 gauge black wire in loom around and out the back of the right hand console through the existing grommet. Between the console and the rear cab wall the wire should meet up with the A/C hoses and heater hoses. Follow the 5/16" A/C hose all the way out to the binary switch on the drier. Connect the 14 gauge black wire to the binary switch using a female QDT. From the binary switch the wire should double back on its route until it can follow the 13/32" hose up to the compressor. At the compressor connect the 14 gauge black wire to the

clutch wire using a female QDT. If there is not a male QDT already on the clutch wire at the compressor, cut the bullet connector off and install a male QDT. Secure the wiring along its route by tie wrapping it to the A/C hoses or any other appropriate items.



**Evaporator Heater Box:** The evaporator heater box is located under the operators seat in the location of the original heater box. Air flow passes through the original louver and defrost pipe as well as two extra louvers mounting to either side of the operators seat. The blowers are controlled by the existing blower switch and wiring.

Steps:

1. Remove the operators seat from the cab by unbolting the metal plate that the seat sits on. Remove the four, M8 bolts, two in front of the seat and two behind the seat. Lift the seat and plate out through the cab door. Remove the arm rests from both sides of the cab. Remove the right seat belt mount. Remove the rear storage tray from between the left and right consoles. Remove the plastic radio cover from the right rear corner of the cab. Remove the floor mat. Remove the floor access plate from the front right side of the cab. Slide the plate out through the right side under the door frame. Remove the front access panels from both the left and right consoles.



Existing blower  
wiring harness

Seat removed

Heater removed

Front access panel removed



Floor access plate removed

2. Remove and discard the perforated panel that divides the small storage area from the heater box. Unbolt the heater box from its mount plate. Disconnect the defrost flex duct from the pipe on the bottom of the heater box. This must be done through the small floor access panel previously removed. To give better access to this area unbolt the control linkage frame just to the left of the access hole. This will allow the control linkage frame to be moved down and to the side. Loosen the gear clamp securing the flex duct and slide the flex duct off the pipe.



Control linkage  
bolts

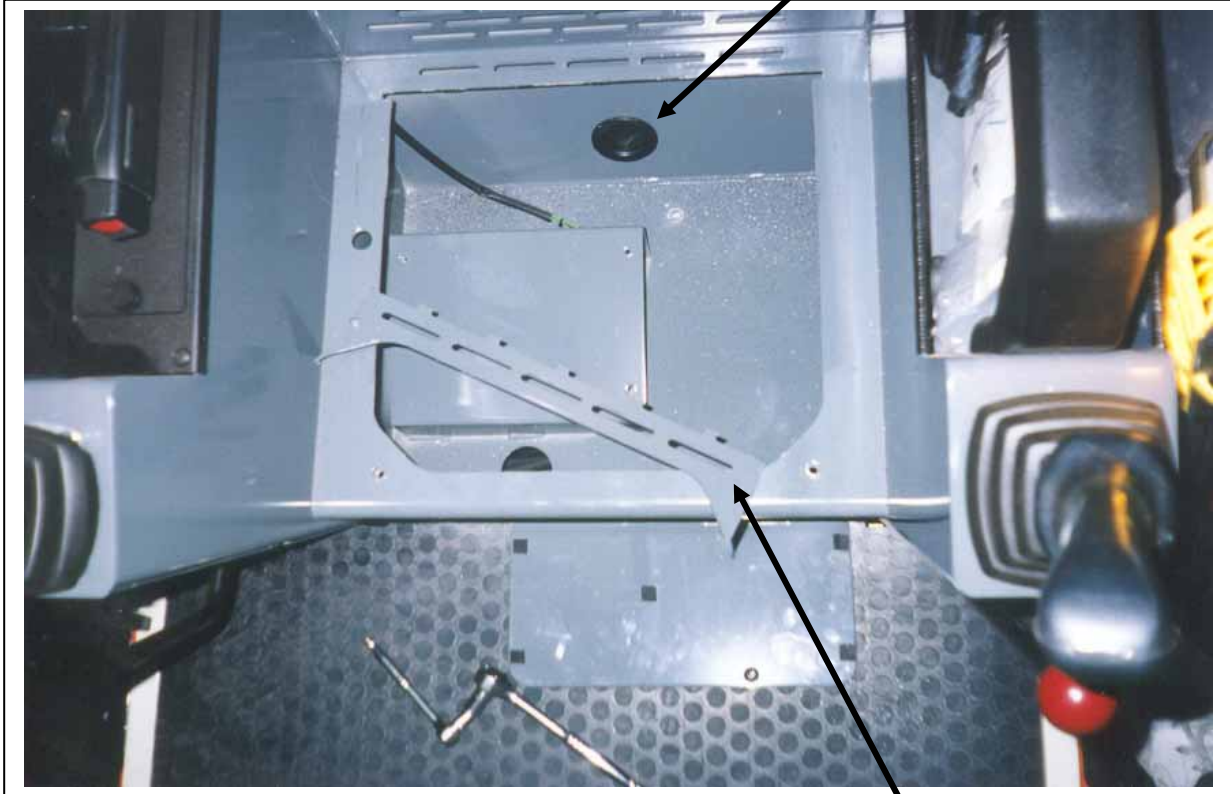
Defrost pipe hole  
in floor

Heater lines  
clamped off

3. Unplug the blower wires from the heater box then remove the heater box from the machine. The heater and mounting hardware are not reused.
4. Before installing the heat/A/C box, some of the perforated metal at the back of the lower section of the seat platform must be removed. Cut straight back from the sides of the existing hole below the seat to the back of the second row of long slotted holes. Cut along the back of the second row of slotted holes to remove enough metal to install the new heat/A/C box.



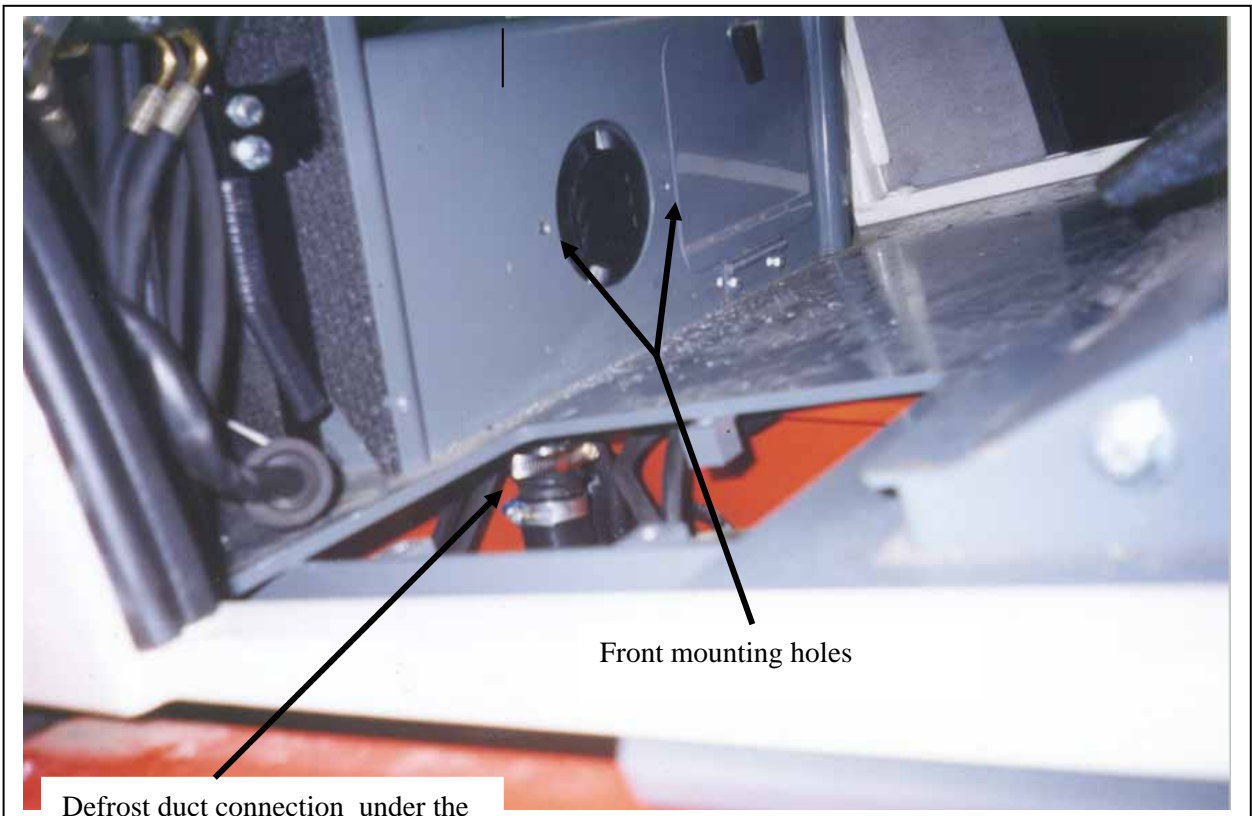
Hose grommet in back wall



Metal piece removed  
from lower seat frame

5. Using the supplied template mark and drill two 3/8" holes in the front louver face of the seat platform. The holes go to either side of the original front louver hole situated in front and below the seat. The right edge of the template butts up against the right side console and sits tight to the floor of the cab. Ensure any dirt buildup is removed from the floor so the template sits correctly.

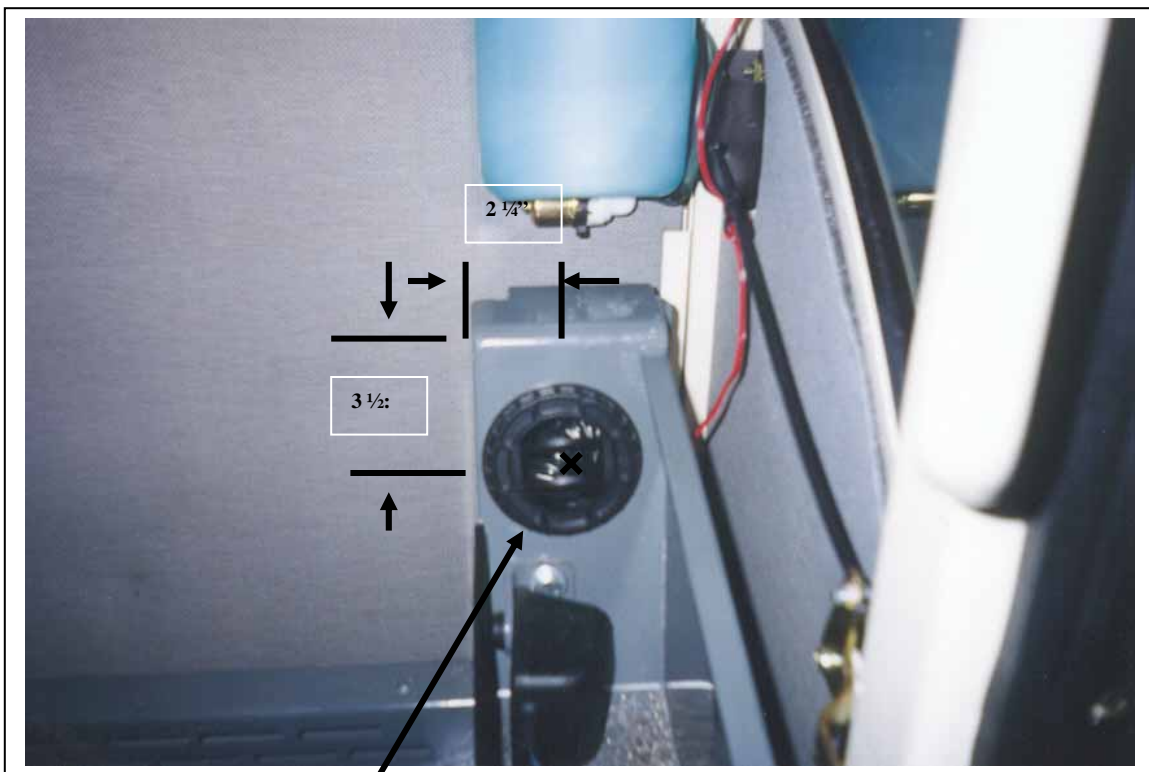
Front mounting hole template in place



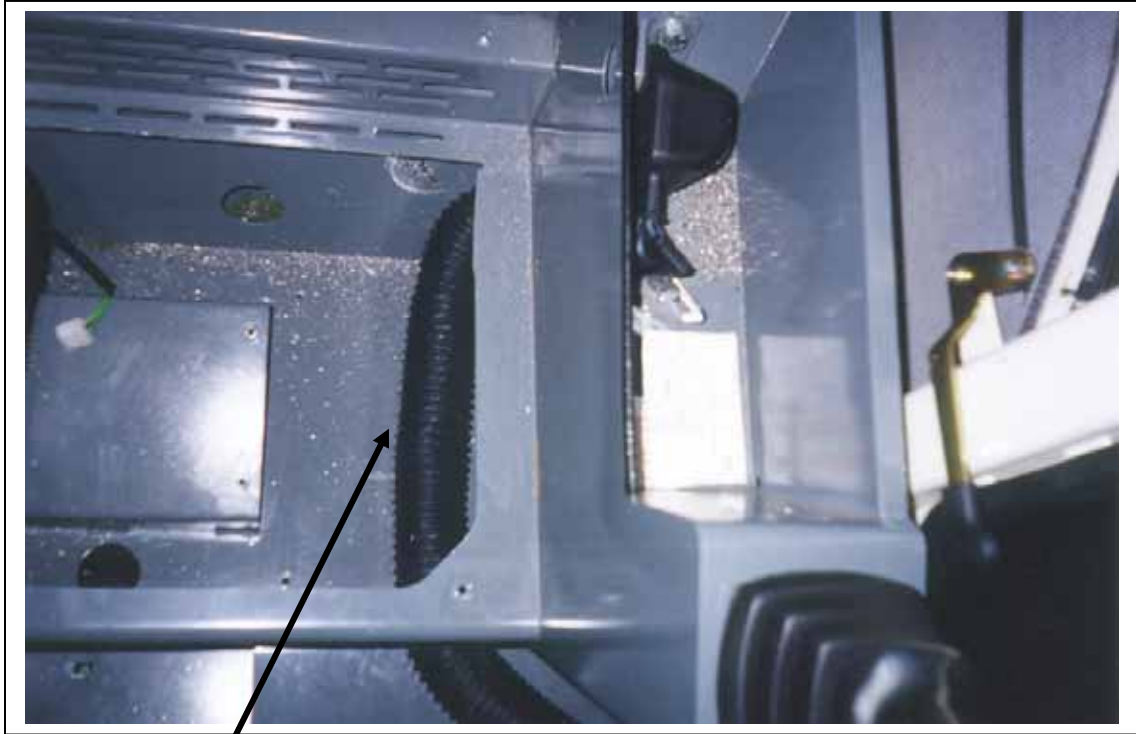
Defrost duct connection under the cab floor

Front mounting holes

6. A 2 ½” flex duct must be run on each side of the heat/A/C box area before the box is installed. On the left side console, just below the plastic side cover, a 3” hole must be drilled approximately 3 ½” to center from the top of the metal console, 2 ¼” in from the inside edge, to center. The flex duct and louver for the left side has been pre-assembled due to special modifications necessary to accommodate the narrow space behind the left console. Feed the flex duct down through the 3” hole and fish it through into the heater/A/C box area. The round hose must be squeezed through an oval shaped slot in the lower back corners of the heat/A/C box area. Pull the hose through until the louver can be snapped into the hole. The tapered side of the hose adapter in the louver must be pointed down in order to achieve the proper airflow through the duct. The flex duct can be cut to length and connected to the hose adapter on the left side of the heater/A/C box once the box is loosely in place.



Left hand louver  
in place

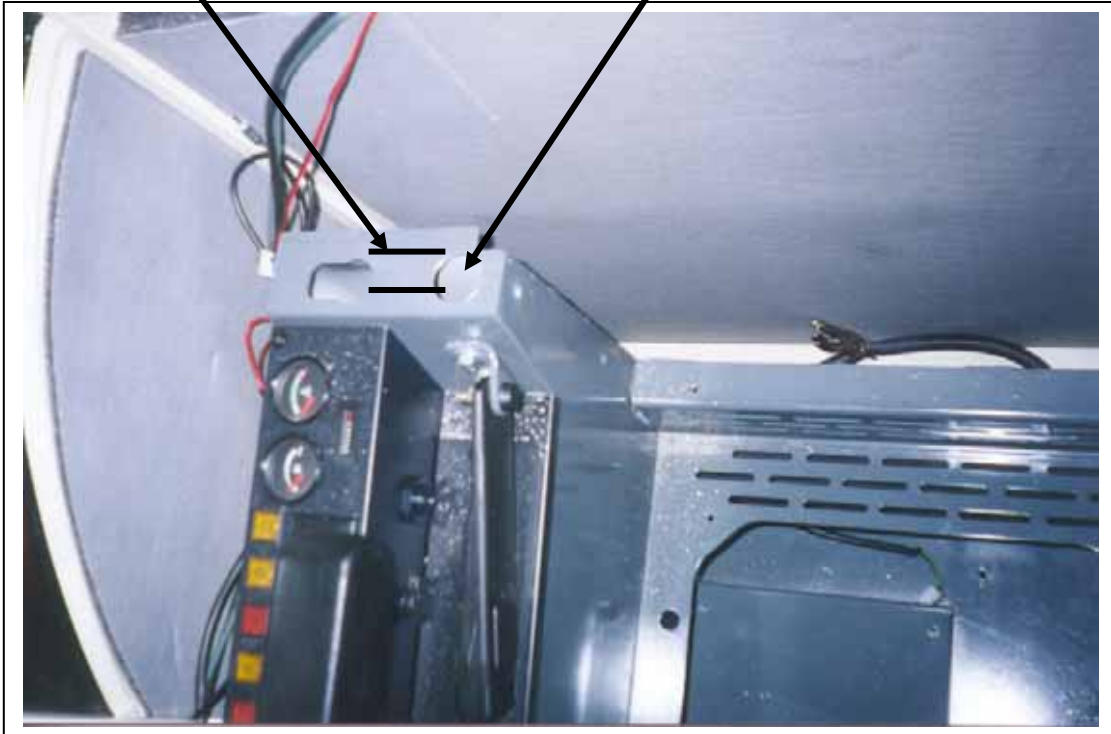


Left hand flex duct run  
in place

7. The 2 ½” flex duct for the right side console doesn’t have the louver pre-assembled to it and mounts up in the plastic radio cover above the metal console. Mark the limit of the plastic cover with a pencil on the top of the metal console at the back of the cab. Just inside the mark, cut a 1 ¾” hole so the edge of the hole is a ¼” in from the pencil marks. Use a saw to slot this hole over to the pre-existing hole towards the right edge of the cab. File the sharp edges on the hole because the flex duct must be squeezed through this slot. The hoses can be fed either from the top slot or the bottom slot. Once the hose is in place from the front of the heat/AC box area up through the top slot of the right hand console, the heat/AC box can be placed into position.

Cut metal out here

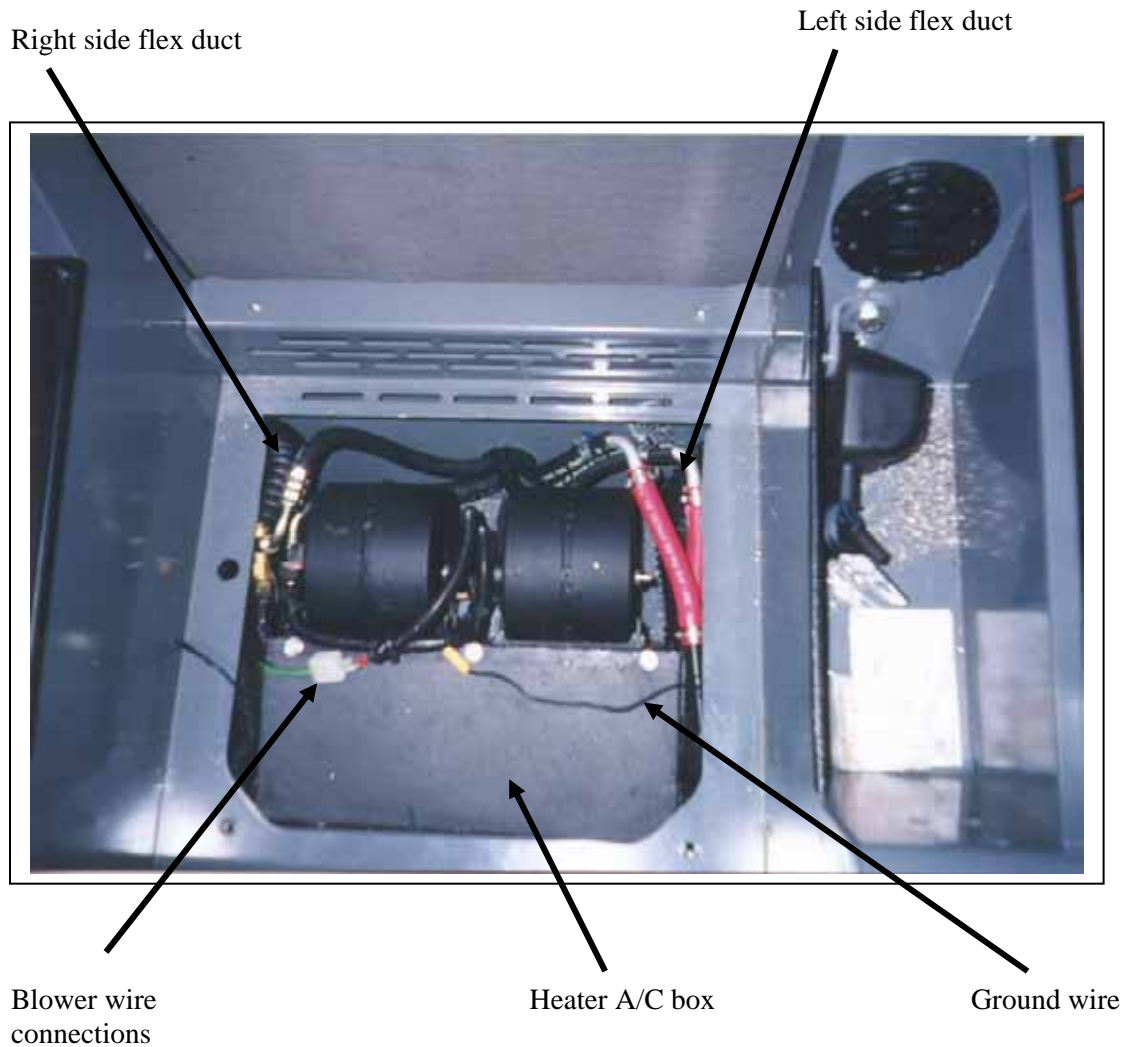
1 3/4" hole





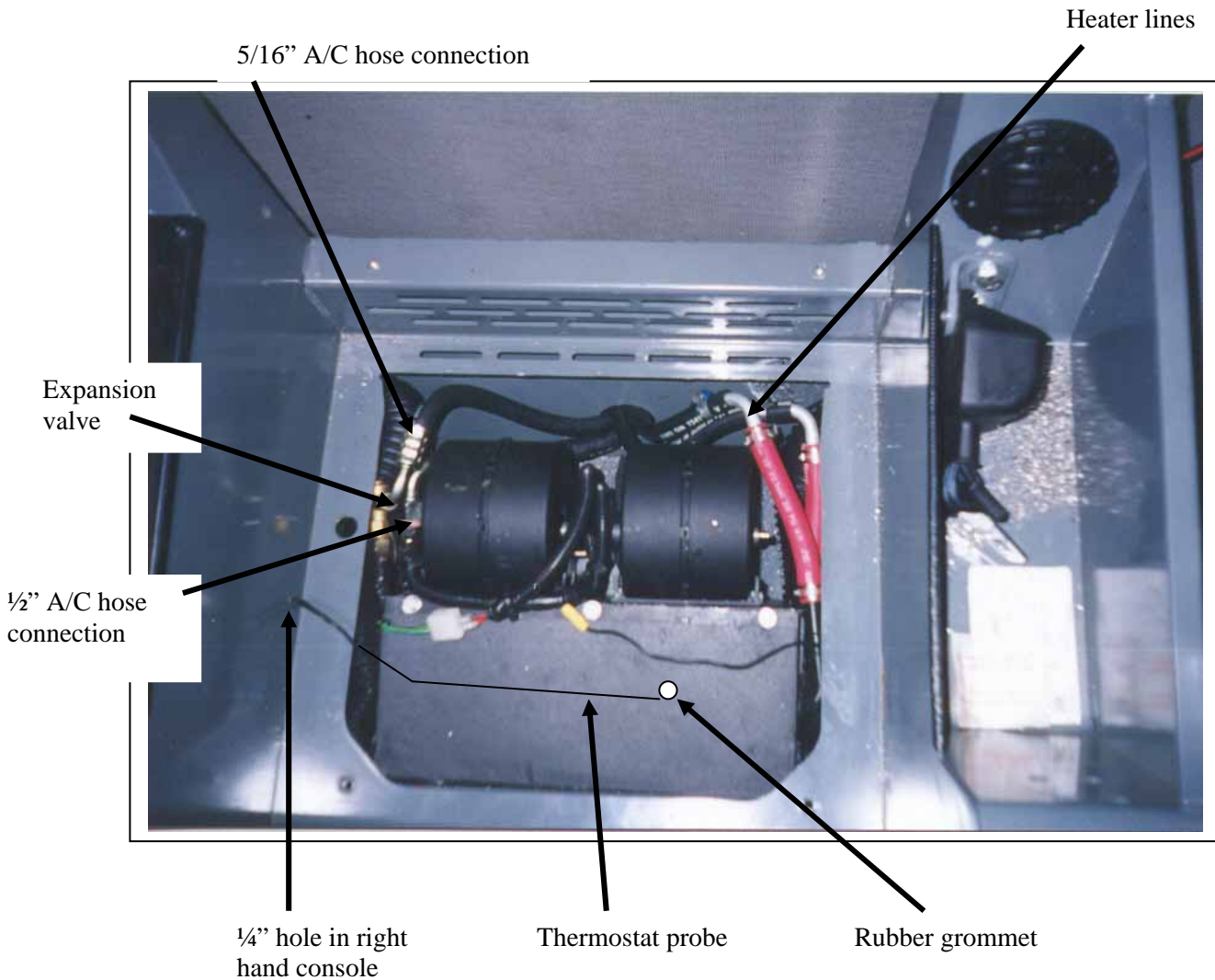
Right hand flex hose lower section

8. The heat/AC box slides into place by tilting the right side of the box down under the side of the hole and sliding to the right and forward. Before sliding the box into place, connect the right flex duct to the right hose adapter and secure in place with a tie wrap. It is not possible to do this after the box is in its final location. As the box is being slid into position, the 2" flex duct and the 1/2" drain tube must be directed down through the round hole in the cab floor where the original heater defrost pipe had been. When the box is settled into place, check that the three mounting holes for the heat/ac box will line up. Do not bolt the box into place until the A/C lines have been connected to the evaporator.



9. Cut to length and connect the left side flex duct to the left hose adapter and secure into place with a tie wrap. This can be done through the access door on the seat frame.
10. Run the A/C hoses into the heater/ac box compartment through the existing grommet in the back wall of the compartment. Connect the 1/2" line to the large fitting on the evaporator. Use a 1/2" O- ring and oil all contact surfaces of the fittings using PAG refrigerant oil. Connect the 5/16" line to the expansion valve outlet. Use a 5/16 O- ring and oil all contact surfaces of the fittings using PAG refrigerant oil.
11. Once the A/C lines are connected, the heater/ac box can be bolted into place using the 1/4" hardware supplied in the kit for the front two holes and an existing M8 bolt for the rear holes.
12. The wiring for the blower motors can now be connected. Using a test light or similar tool, determine which wire is the low speed wire from the blower switch and plug the orange wire from the heater/ac box into it. Determine the high speed wire from the blower switch and plug the red wire from the heat/ac box into it. Connect the ground wire from the heater/ac box to any bolt on the

cab. The rear mount bolt for the heater/ac box is a convenient location for the ground.



13. Route the heater lines back through the grommet into the heater/ac box area and connect them to the 90° splices existing on the heater/ac box.
14. The thermostat probe needs to be routed over to the heat/ac box and inserted 5" deep into the ac coil through the rubber grommet in the lid of the heater/ac box. A 1/4" hole needs to be drilled in the right hand console just above the ledge of the seat frame. Run the thermostat probe from the thermostat through the 1/4" hole in the side of the console and across the top of the heater/ac box. Insert the probe 5" deep into the coil through the rubber grommet.
15. To mount the air louver in the plastic radio cover drill a 3" hole in the plastic cover with the center of the hole 4" up from the bottom of the cover and 4" in from the left edge. Re-install the plastic cover and pull the 2 1/2" flex duct



through the 3" hole. Cut the duct to length and secure it to the hose adapter with a tie wrap. A short screw can be used to eliminate the possibility of the duct slipping off the adapter. Snap the louver assembly into place in the 3" hole.



3" Louver snapped  
into place

Plastic radio  
cover

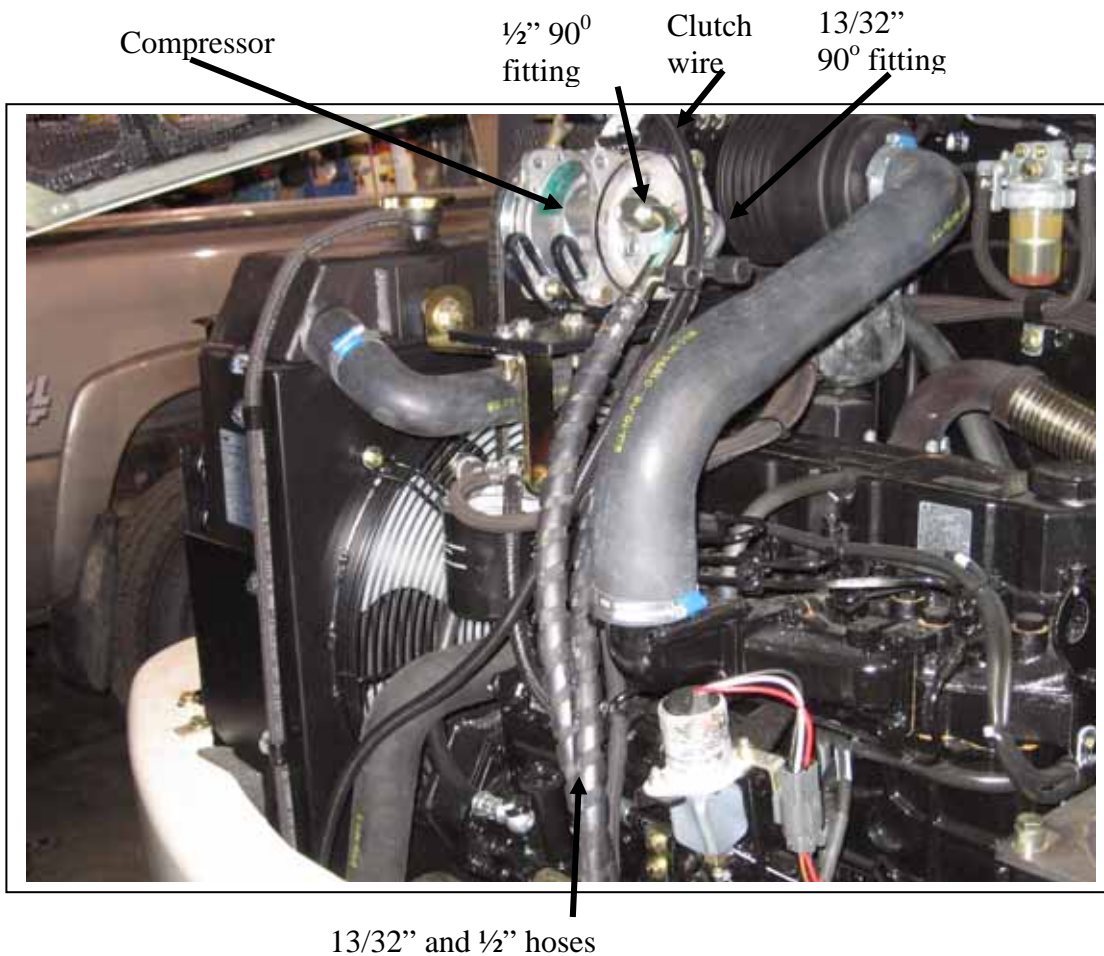
16. Once all these steps have been accomplished and the system tested the cab can have all of its components re-installed.

\*\*\*\*NOTE\*\*\*\* If a machine doesn't have a heater originally, heater hoses will have to be run and connected to the engine by the dealer or installer. The blower switch will also have to be installed but the wiring harness for the blower exists.

**Hose runs:** The A/C hoses connect all the major components of the system together. They are all precut and crimped. All the fittings require the proper sized o-ring to be installed on them and all contact surfaces to be lightly oiled with refrigerant oil before final assembly on the machine.

Steps:

1. Starting at the compressor the ½” hose with the 90° fitting and 134a access port on it connects to the suction side fitting. From the compressor, the hose runs down beside the engine and loops back towards the rad. The ½” hose then crosses the bottom of the engine along the radiator support frame and goes through a hole in the engine compartment wall. From there the hose travels upward through another hole in the floor of the cab following the heater lines. The hose is now just behind the heater/ac box area. Run it through the grommet and connect it to the evaporator outlet as described in the heater/ac box installations instruction.





13/32" hose going into radiator compartment through an existing grommet.

1/2" hose on radiator support frame



1/2" line on radiator support frame

5/16" line from drier outlet coming out of the radiator compartment through an existing grommet.

Hole in engine compartment wall.

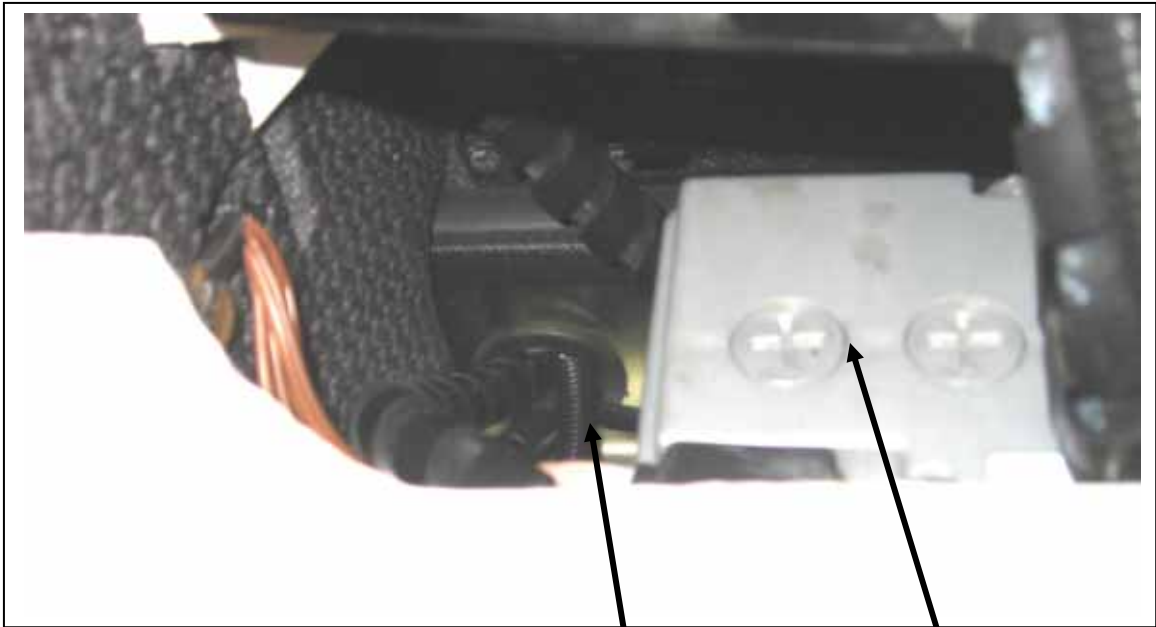
2. The 13/32" line attached to the discharge fitting at the compressor. The 13/32" hose follows the 1/2" hose down to the radiator support bracket and then continues into the radiator compartment through an existing grommet. The 13/32" hose is run up beside the battery to attach to the top fitting of the condenser.



Battery

13/32" hose and clutch wire  
passing through existing grommet

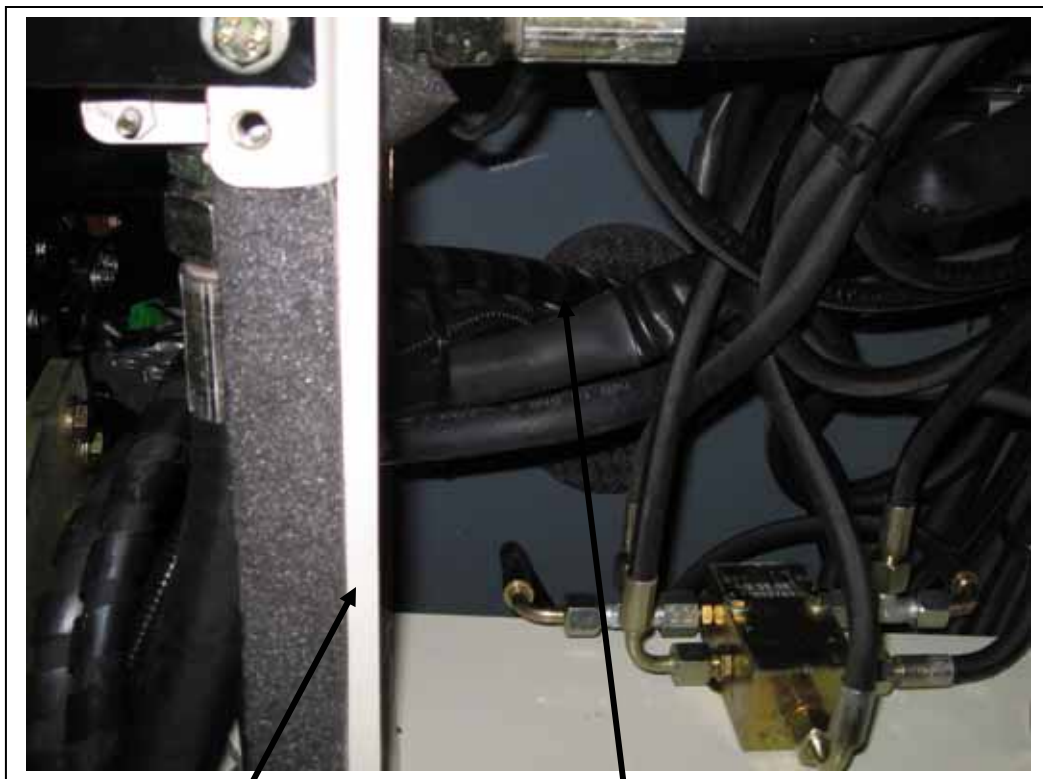
3. The 5/16" line (short one with one 90° and one straight fitting) is connected to the bottom fitting on the condenser with the straight fitting. The hose is looped around under the air deflector palte and up to the inlet side of the drier. (marked in)
4. The long 5/16" line attached to the outlet side of the drier and is run down and across the back of the battery. It then passes through an existing grommet on the lower inside end of the radiator compartment and runs back to the cab side of the engine along the radiator frame. At that point it runs the same route into the heat/ac box as the 1/2" hose. The 5/16" hose is then connected to the expansion valve as described in the heater/ac box installation instructions.



5/16" line running out of the radiator compartment through an existing grommet.

Clutch wire from the thermostat

Battery

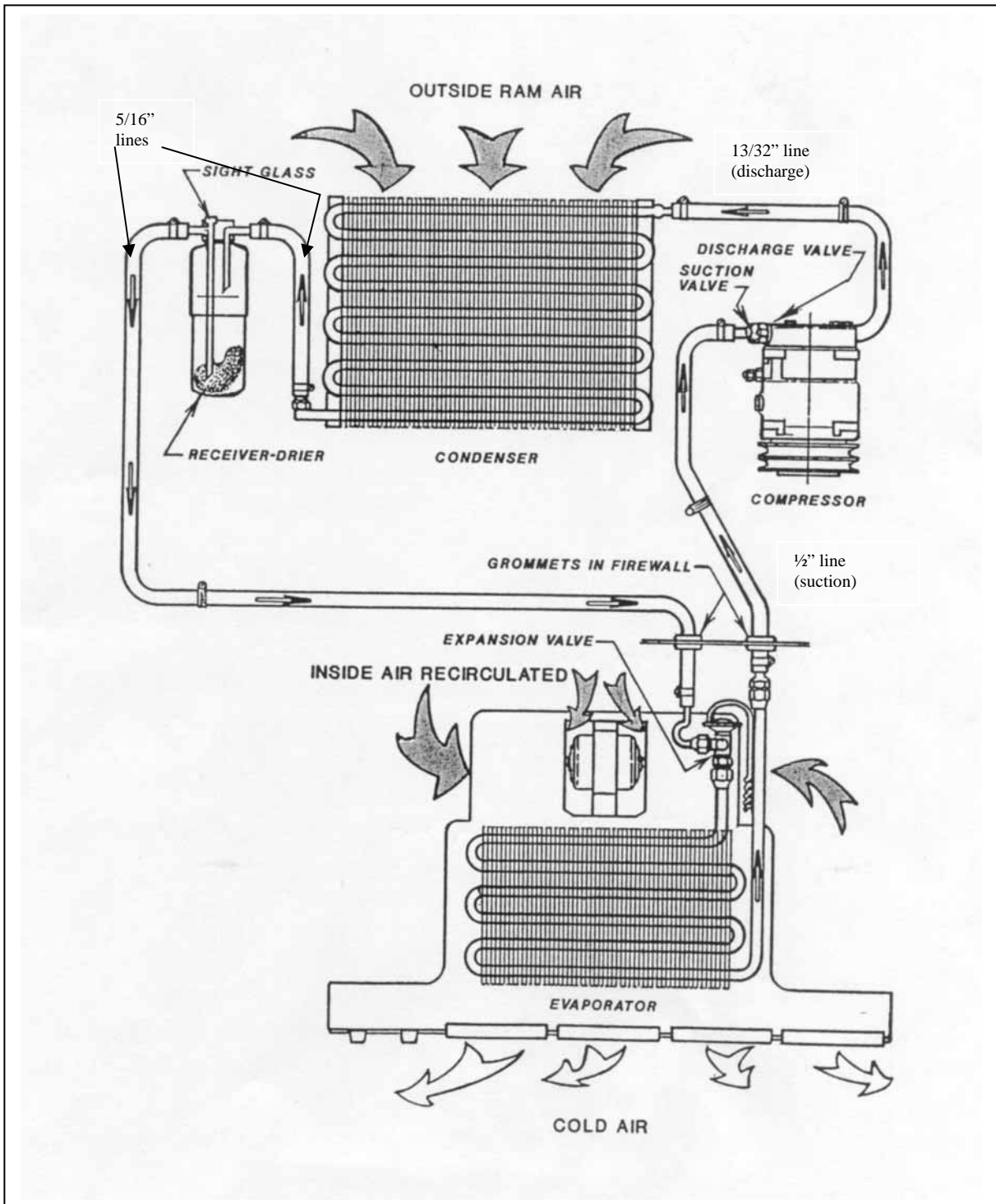


Engine compartment wall

Hoses and clutch wire going up through the floor into the back of the cab.

5. When all the hoses are connected the system should be pressure tested to 250 psi using nitrogen and checked for leaks.
6. Vacuum the system for ½ hour and charge with 2.35lb (± 0.1 lb) of 134a refrigerant. Any other type of refrigerant use will void all warranties on the system.

## 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.

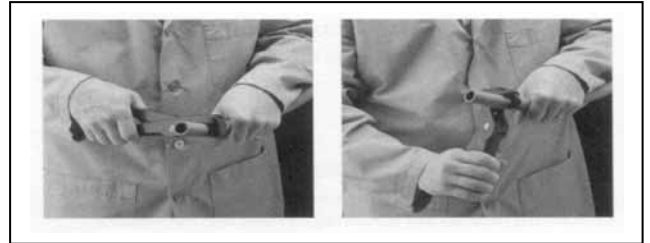


Once the probe is inserted, the A/C system needs to be tested. Run the system to ensure that the thermostat is cycling the compressor off at the appropriate temperature. A core temperature ranging between 25° and 30° F should cause the thermostat to cycle off. The air temperature at the vent outlet closest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

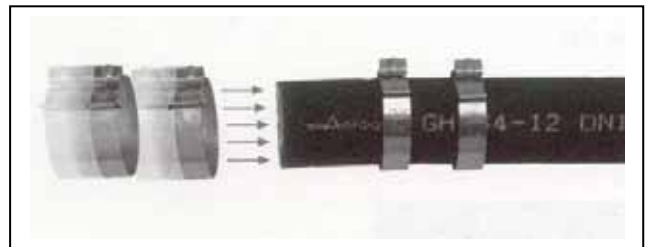
If the thermostat doesn't cycle off after a reasonable cool down period, and the air outlet temperature has dropped below 40° F, the cut in and cut out settings should be adjusted until the compressor is cycling on and off regularly. Let the system run for a decent time period (at least 15 min) and then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

## Aeroquip E-Z Clip Assembly Instructions

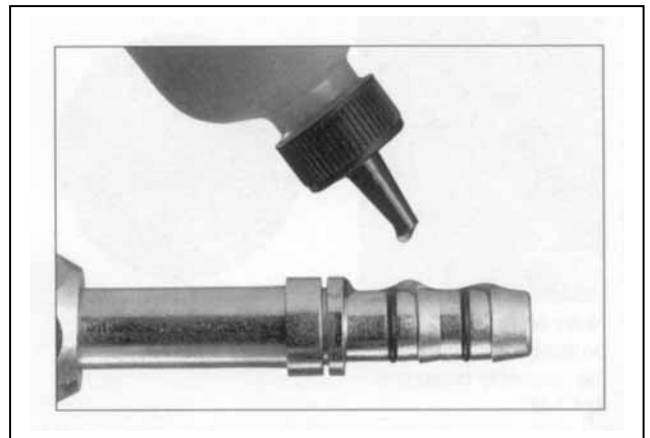
Step 1. Cut the hose to proper length with an appropriate cutting tool. Aeroquip's hand held hose cutter has been specially designed for cutting all non-wire reinforced hose, such as GH-134 Multi-Refrigerant hose. Be sure the cut is made square to the hose length.



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.

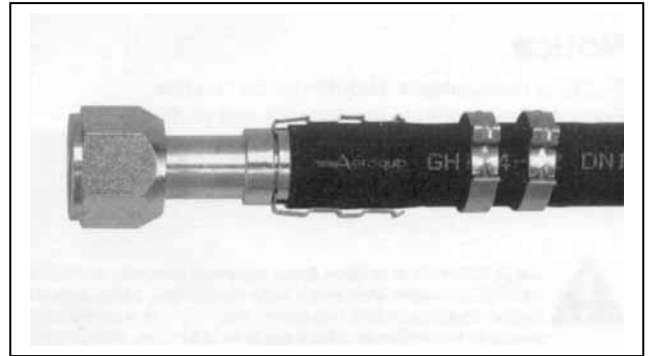


Step 4. Insert the nipple into the hose. To ensure that the nipple is fully inserted, check the gap between the cut end of the hose and the shoulder on the nipple. Care should be taken to avoid kinking or other damage to the hose during nipple insertion. NOTE: Be sure to wipe excess oil from the nipple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

