

ZETOR RANGE 3 TRACTORS

8520, 8540, 9520, 9540

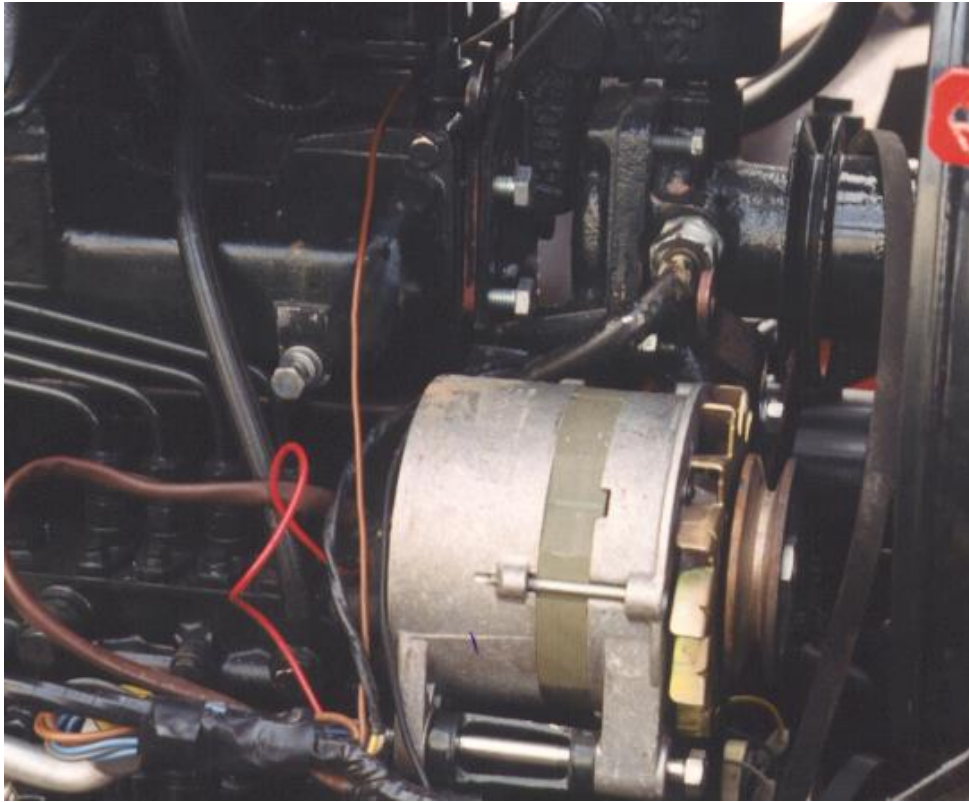
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ZETOR RANGE 3 INSTALLATION INSTRUCTIONS

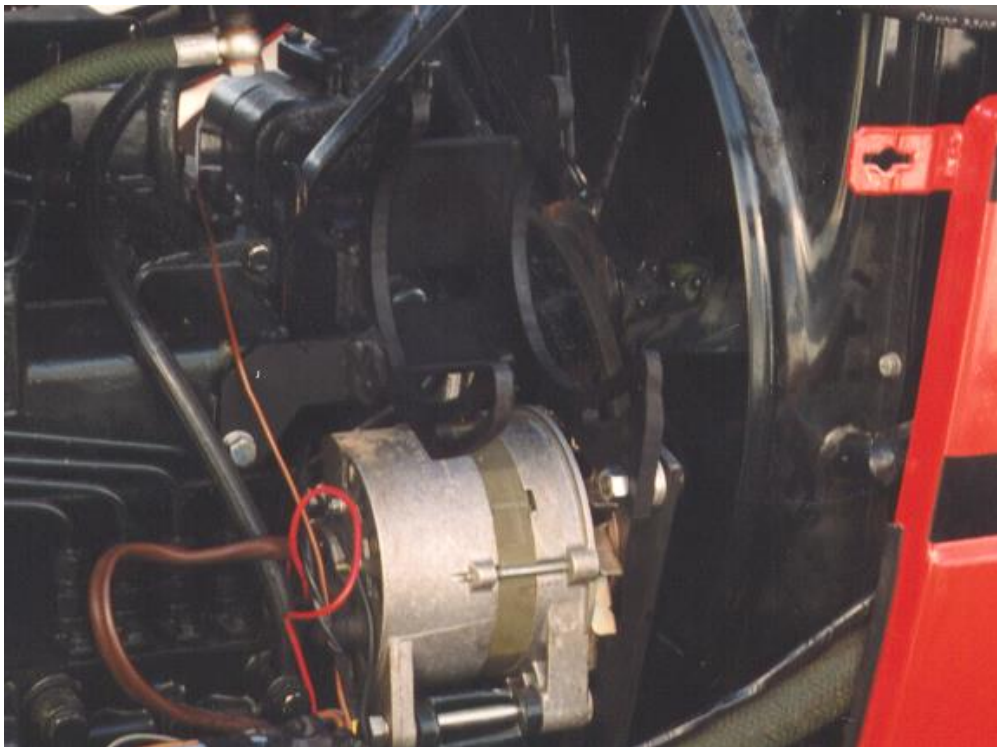
Compressor Mount:

The compressor mount is designed to be mounted on the right hand side of the engine above the alternator. The crankshaft pulley should come with an open drive groove from the factory specifically for driving the air conditioning compressor.

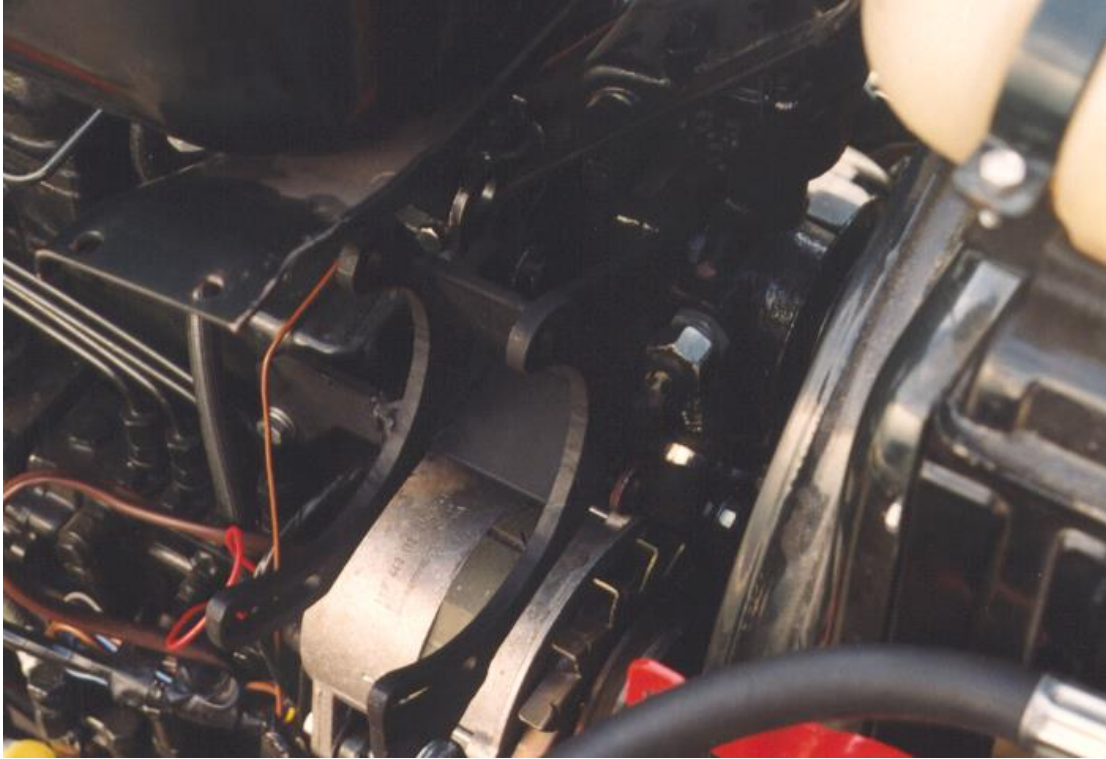
1. Remove the engine cowlings and shields. This will allow for access to the engine and front of the tractor for easier component installation.
2. Some of the Range 3 tractors were supplied from the factory with a second sediment bowl on the underside of the fuel tank. See the attached technical bulletin on how to remove and reroute the fuel lines if this bowl is present.
3. Remove the alternator tightener arm. Remove the main alternator mount bolt and replace with the one supplied in the kit (5mm longer).
4. Rotate the alternator down as far as possible. Replace the factory drive belt with the AM50 belt provided. The heater pipe may have to be bent slightly to allow the alternator to rotate past it.
5. Install the main body of the compressor mount as shown in the picture below. There is a 1/8" thick 8mm diameter O-ring included in the mount hardware kit that should be inserted between the mount plate and the intake manifold with the M8 x 100mm bolt passing through it. This is to eliminate the possibility of air leaks between the mount plate and the intake manifold.
6. Install the new alternator tightener bracket by using the threaded hole on the compressor bracket and the hardware provided. Use the 1/2" spacer provided on the alternator end of the tightener arm. Tighten the alternator with the 8mm captive nut assembly in place for tightening.
7. Install the compressor onto the mount as shown in the pictures. Make sure the oil fill port is oriented 'UP' and the two cut off ears are down and to the inside. Tighten the compressor with the AM57 belt provided in place. A small portion of the fuel tank support bracket may have to be cut away to allow for compressor tightening.



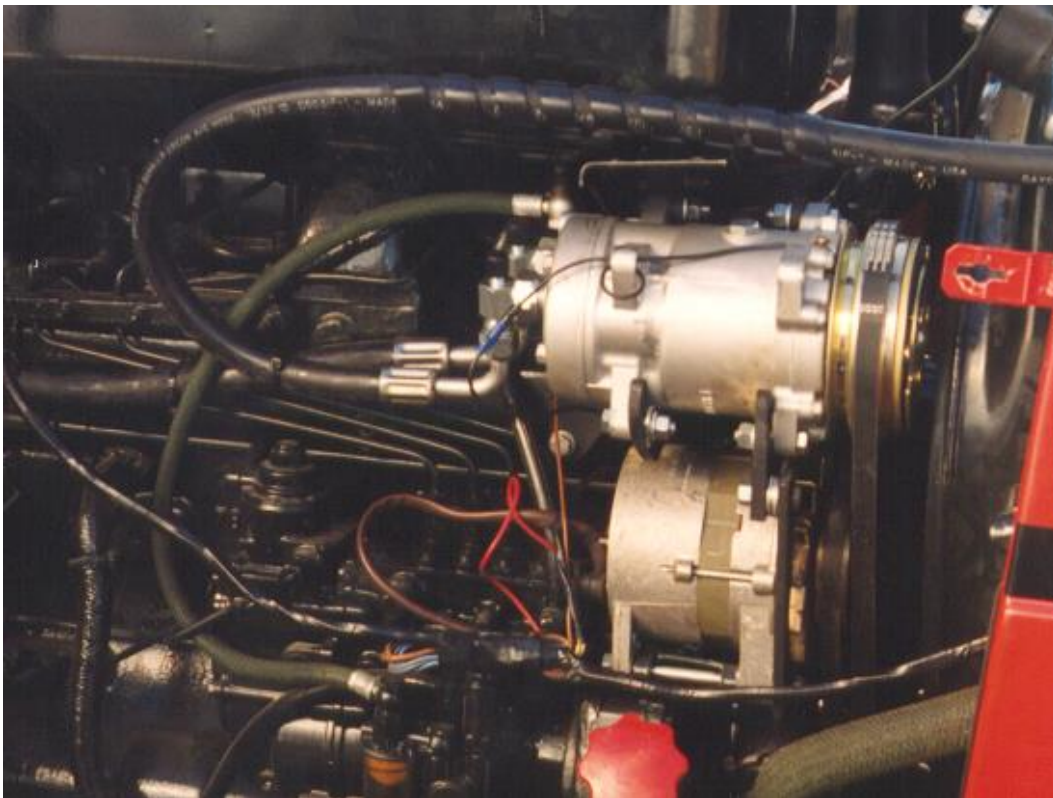
Mount location on engine above alternator.



Compressor mount in place.



Top view of compressor mount in place.

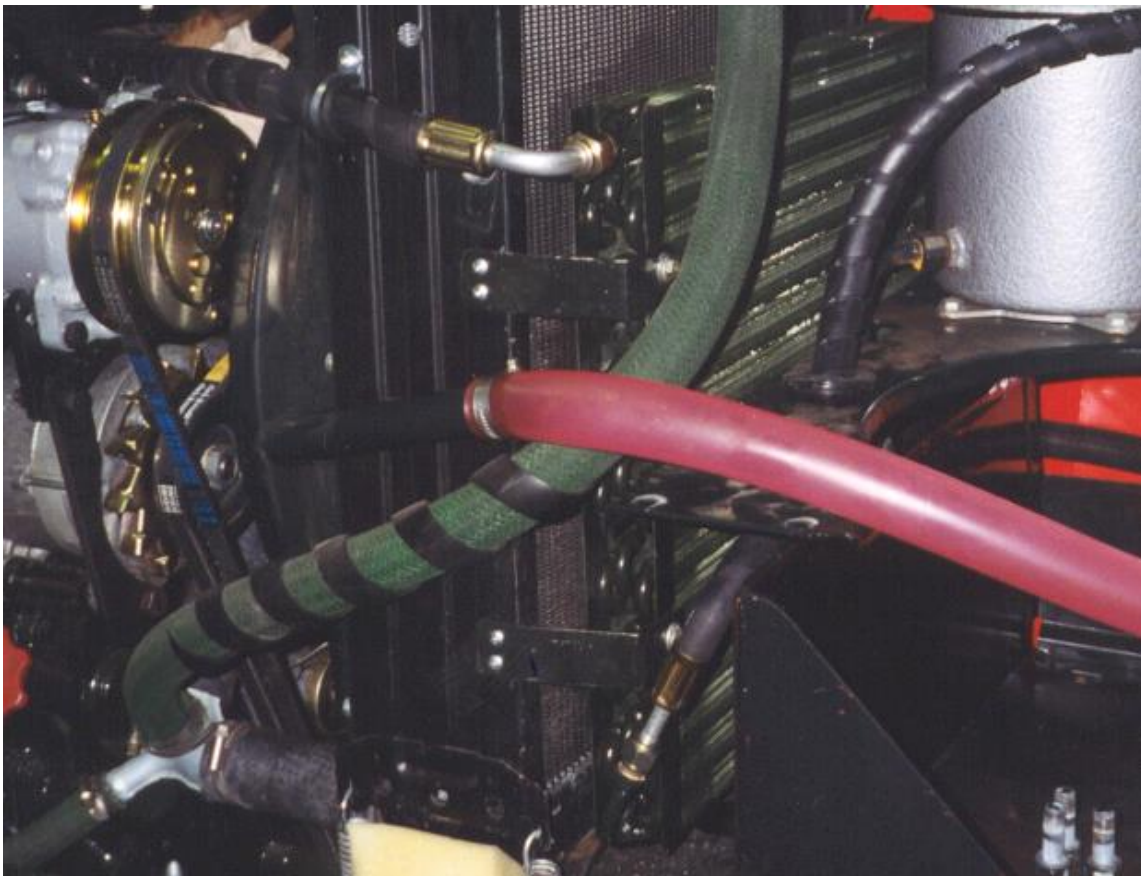


Compressor mounted in place with alternator below.

Condenser Mounting:

The condenser on the 8520 through 9540 tractors is designed to be mounted onto the front of the radiator. The arrangement is such as to allow for a large enough 'trash gap' between the condenser and the radiator to allow easier cleaning of the radiator and condenser.

1. Slide the condenser down in front of the radiator until the top of the condenser is approximately 3 1/2" down from the top of the finned area of the radiator.
2. Secure the condenser in place using the self-drilling screw and washers provided. The condenser brackets are designed to allow the installer decide on the amount of space to allow between the radiator and the condenser. Set the spacing you desire and screw the brackets to the sides of the radiator frame.
3. Note the 13/32" hose clamp on the side of the radiator frame shown in the picture.

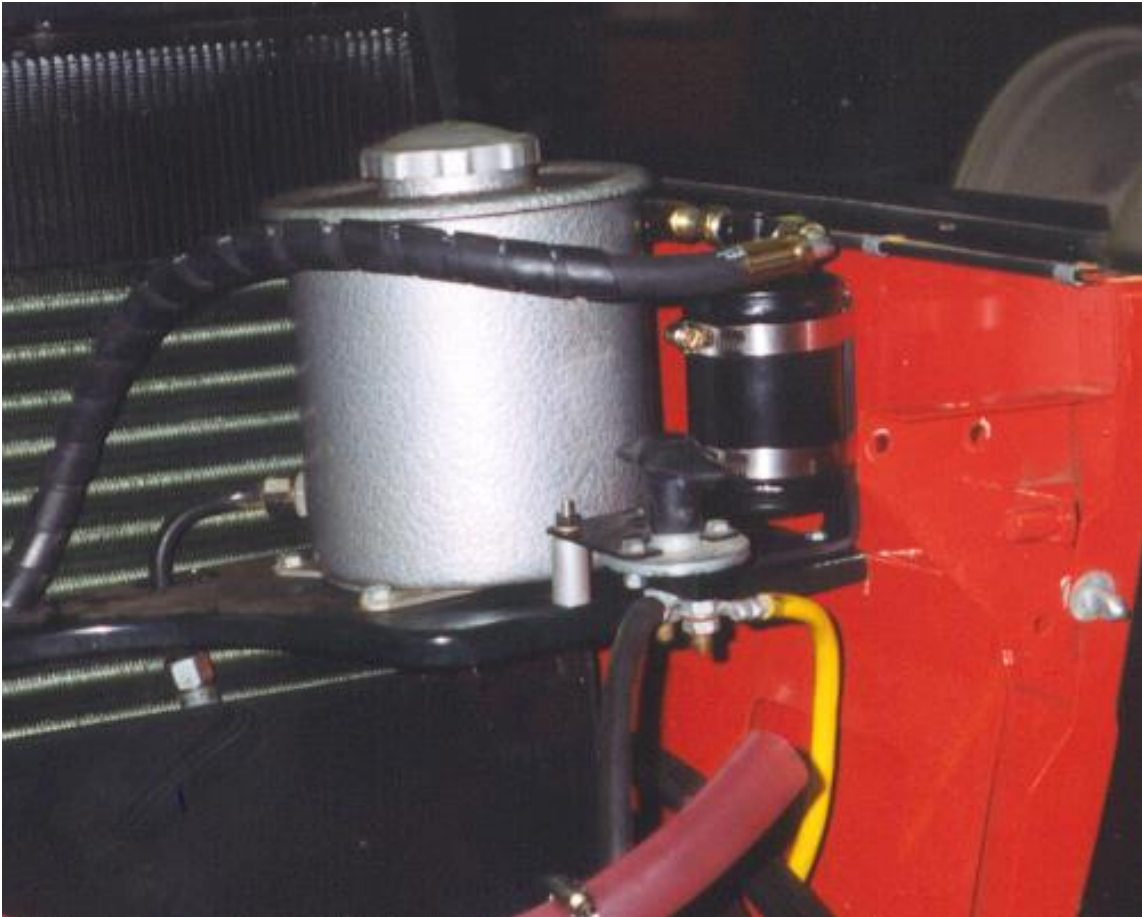


Right side of condenser secured in place.

Receiver-Drier Mount:

The receiver drier is mounted in front of the power steering tank at the front of the tractor.

1. Remove the disconnect switch from the mounting holes at the front of the tractor in front of the power steering tank.(not all machines)
2. Install the 90o dryer bracket in front of the power steering tank using the two existing holes from the disconnect switch. The upright arm of the bracket is toward the side of the tractor. Bolt on the supplied adapter bracket for the battery disconnect switch, if present.
3. Secure the dryer to the mount using the two #48 gear clamps provided. The inlet side of the dryer is connected to the hose coming from the condenser bottom fitting. The outlet side is connected to the hose running back toward the cab.
4. Remount the disconnect switch beside the dryer by bolting it to the adapter bracket. (not shown in picture)



Drier mounted on bracket.

Evaporator Coil Installation:

The evaporator coil is mounted in the existing heater box alongside the heater coil. The factory blowers and controls are utilized for this system.

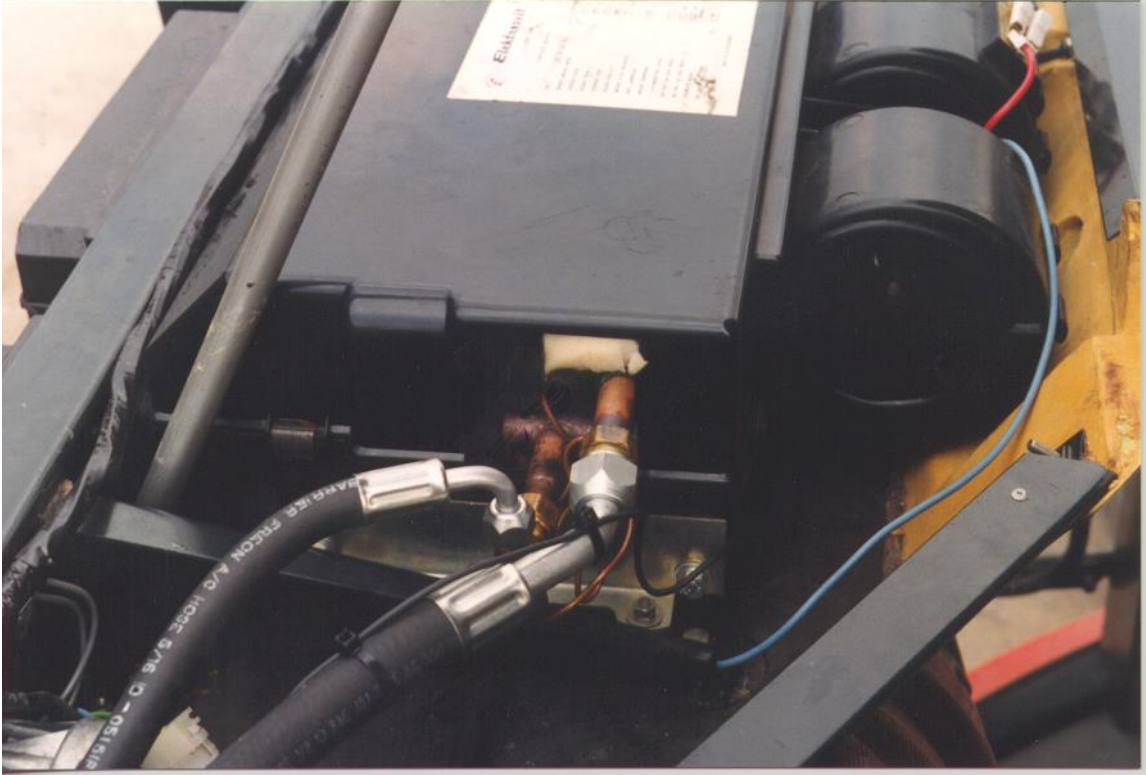
1. Access the heater assembly by raising the roof panel and propping open.
2. Remove the cover to the heater box by removing all the spring clips around the box.
3. Slide the evaporator coil into the box with the fittings pointing out the left-hand side. The coil should slide down the inside existing ridges in the box and does not need any further securing.
4. File a small groove in the box just to the right of the blowers to give the thermostat probe access to the interior of the box. Insert the thermostat probe into the coil approximately 2" up from the bottom and approximately 1/3 of the way down the coil from the expansion valve end.
5. Notch out the lid of the box to accommodate the evaporator fittings. Use the template supplied at the end of the instructions.
6. After the system has been installed and leak tested, reinstall the lid and tar tape around the notch and fittings to seal the box and to prevent condensation from forming on the lines outside the box.



View showing routing of thermostat probe into box.



Open evaporator heater box showing heater core in place.



Evaporator/heater assembly with core reinstalled.

Copper Tube Assembly:

The copper lines allow the refrigerant to be run up the left-hand column line without any problems.

1. Slide the complete tubing assembly, including the clutch wire, down the left front column.
2. Install the 1/2" nylon tube clamp as shown in the installation picture below.
3. Stuff foam in around the tubes at the top and bottom of the column.
4. Make the hose connections at the evaporator coil fittings. The lines and fittings are already crimped onto the column lines. Make sure the O-rings are in place on the fittings at the evaporator. The evaporator connections are shown in the evaporator installation pictures above.



Column lines at top of column with nylon clamp and clutch wire shown.

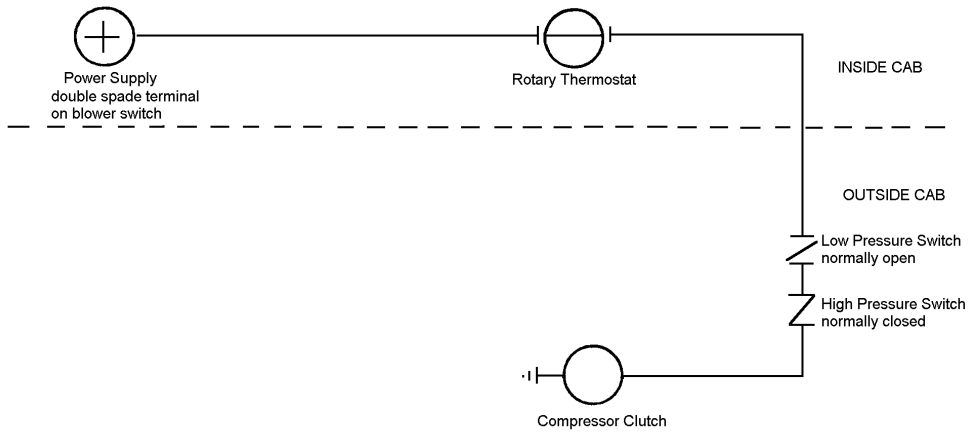
Electrical Assembly:

The electrical system draws power from the blower switch in the factory panel. The system itself is all wired in series and contains the thermostat, pressure switches and compressor clutch.

1. Mount the thermostat as shown in the panel with the blower controls.
2. Remove the knockout plug and bevel the inside of the hole with a knife or round file to accommodate the recessed mounting washer for the thermostat.
3. Install the thermostat through the hole from the backside and place the recessed washer over the end of the thermostat. Thread the nut onto the thermostat and tighten down. Install the knob.
4. Determine the blower live wire at the blower switch. This is the wire that is live in any of the blower 'ON' positions.
5. Unplug this wire from the blower switch and plug the double spade terminal adapter onto this terminal. Reconnect the wire from the blower switch onto one of the double spade terminals.
6. Connect the 8" 14ga red wire supplied to the double spade terminal and then to the thermostat. Use either terminal on the thermostat. Plug the clutch wire into the other terminal.
7. From the bottom of the column, the clutch wire is run with the suction hose toward the compressor. Connect the two pressure switches in series and then to the compressor clutch terminal.



Thermostat location on panel.



Wiring diagram for 8520 through 9540 without electric condenser fan.

Drain Tubes:

The integrated drain pan in the heater/evaporator box has the drain tube extensions in place but no lines leading out of the cab.

1. Connect the straight drain tube to the left side outlet and the 90o elbow tube to the right side outlet.
2. Route the tubes out of the cab through the existing holes along the front wall of the cab.
3. Drill holes in the handrails running down the outside front columns of the cab and thread for 1/8" NPT pipe. Install the pipe nipples in the handrails and insert the drain tubes over them and connect them using the clamps provided.



Drain tube locations and set-ups.

Hose Runs:

ALL FITTINGS ARE 'O' RING FITTINGS AND REQUIRE AN 'O' RING SEAL TO BE PLACED OVER THE END OF THE PILOT TUBE ON THE FEMALE FITTING. ALL SEALS SHOULD BE LUBRICATED WITH REFRIGERANT OIL TO MAKE A POSITIVE SEAL.

13/32" Hose Compressor to Condenser:

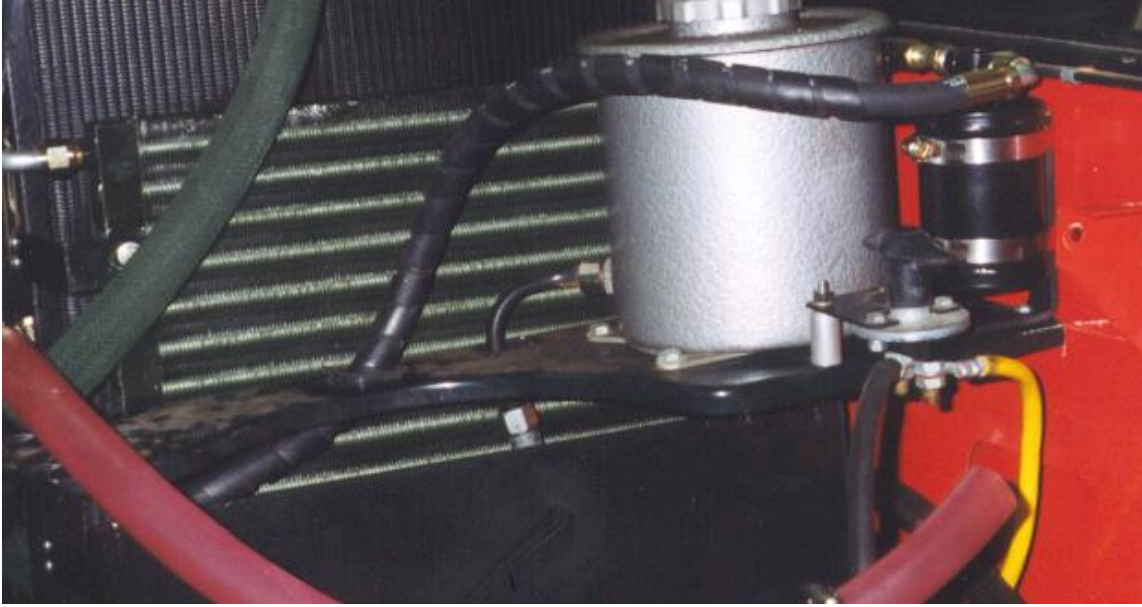
1. Install the 13/32" rotolock fitting on the discharge port of the compressor with the teflon gasket. The teflon gasket fits into the recessed groove on the discharge port on the back of the compressor.
2. Connect the 90o fitting closest to the R-134a charging tee to the rotolock fitting and loop the hose around behind the fuel tank support and over to the condenser. (See picture of compressor in place on mount).
3. Attach the other 90o fitting to the top fitting of the condenser. Secure the hose to the side of the radiator housing using the #8 single hose clamp provided.



Discharge line routing showing clamp on radiator frame and connection at condenser.

5/16" Hose Condenser to Dryer:

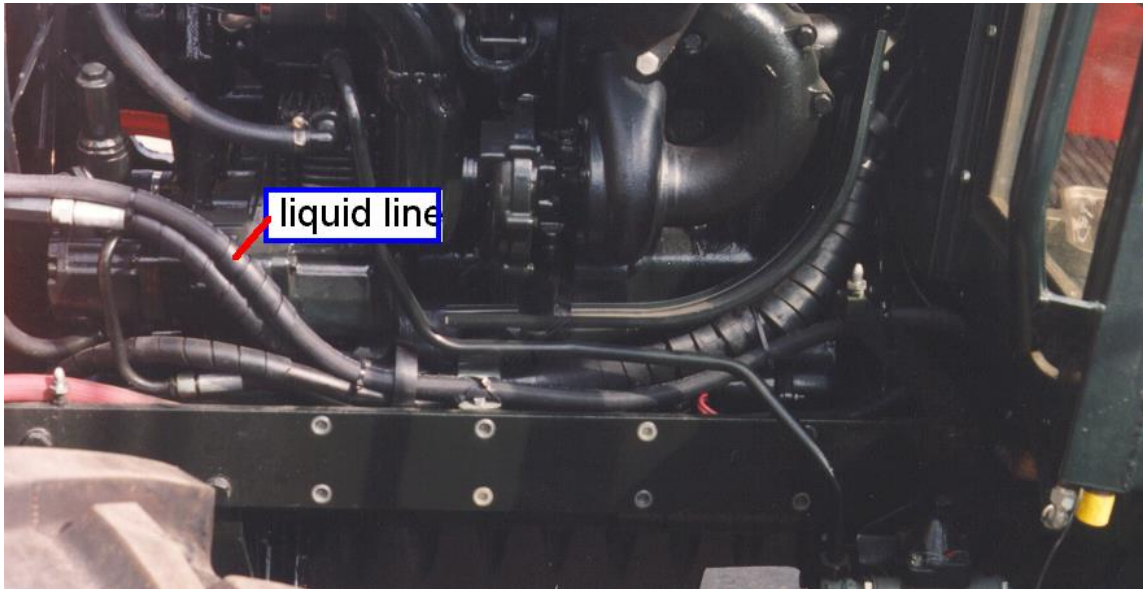
1. Connect the straight fitting to the bottom fitting on the condenser so that the hose comes up across the front of the condenser.
2. Route the hose beside the power steering fluid reservoir and around to the inlet fitting of the dryer. Connect the 90o fitting to the dryer.



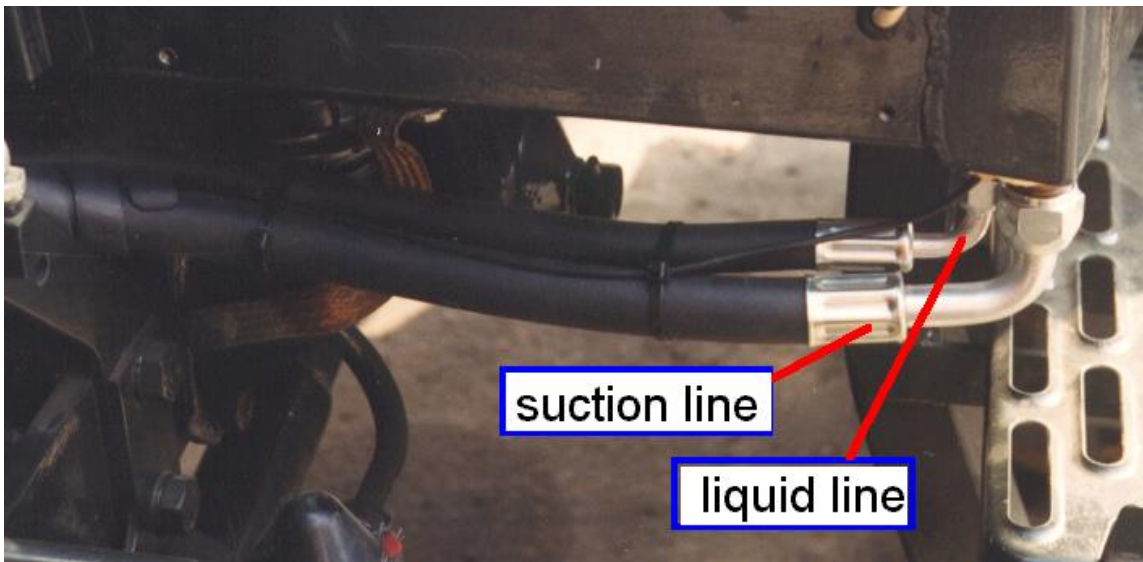
Liquid line from condenser to drier. Also shown is drier outlet fitting (STR).

5/16" Hose Dryer to Bottom of Column Line:

1. Connect the straight fitting to the outlet side of the drier and run the hose down along the side of the radiator with the hydraulic hoses.
2. Feed the hose back beside the engine and over the starter. Loop the hose around the back of the side-cover mount and over to the bottom of the column.
3. Connect the 90o fitting to the smaller copper fitting at the base of the column.



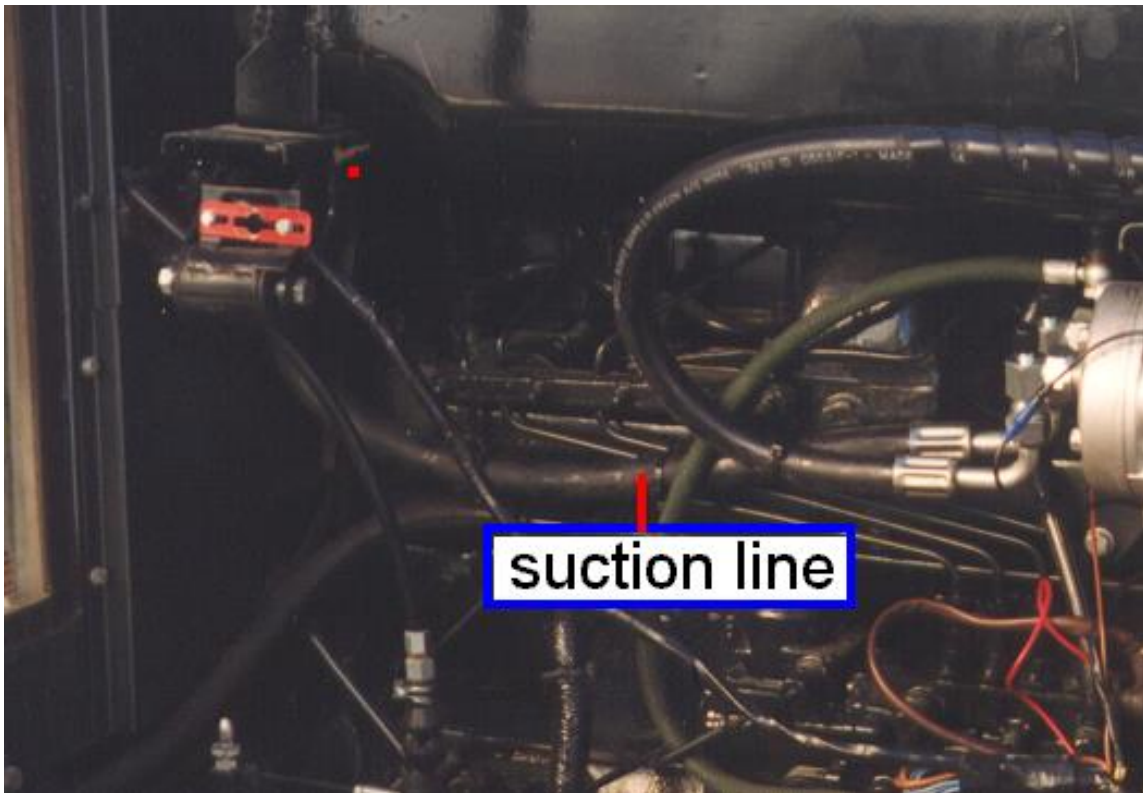
Routing of liquid line along engine.



Lines at base of column showing set-up.

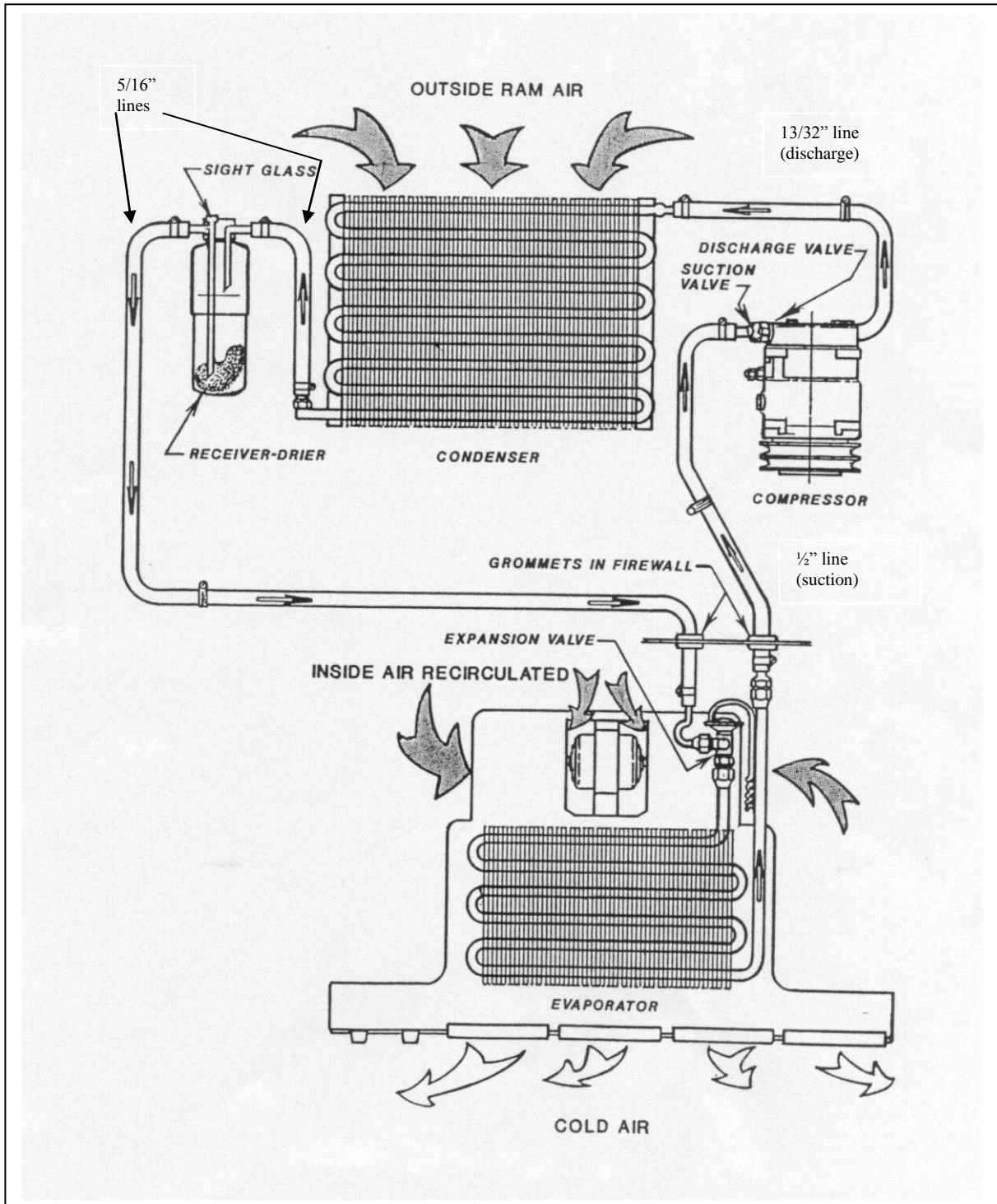
1/2" Hose Compressor to Bottom of Column Lines:

1. Install the 1/2" rotolock fitting on the suction port of the compressor with the teflon gasket in the same manner as the 13/32" discharge port fitting.
2. Install the 90o adapter fitting onto the rotolock assembly for the low-pressure switch. This will allow the switch to be oriented so that it will not interfere with the fuel tank.
3. Connect the 90o fitting closest to the R-134a charging tee to the rotolock and run the hose back along the engine, around the fuel tank support and across to the other side of the tractor.
4. Run the hose down beside the hydraulic hoses and over to the base of the column.
5. Connect the 90o fitting to the larger copper fitting at the base of the column.



Suction line routing from back of 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.
-
- 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.

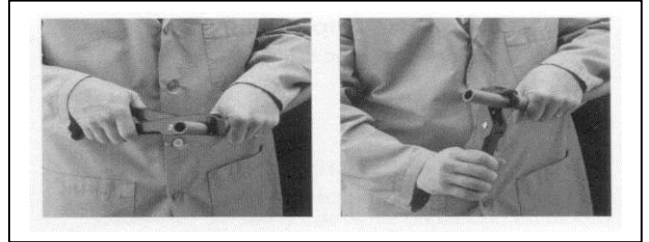
By looking at all these different factors, the area of an evaporator coil most likely to be the coldest can be determined.

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.

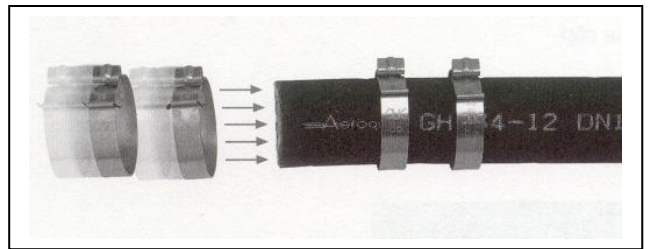
If the thermostat doesn't cycle off after a reasonable cool down period, and the air outlet temperature has dropped below 40° F, the cut in and cut out settings should be adjusted until the compressor is cycling on and off regularly. Let the system run for a decent time period (at least 15 min) and then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

Aeroquip E-Z Clip Assembly Instructions

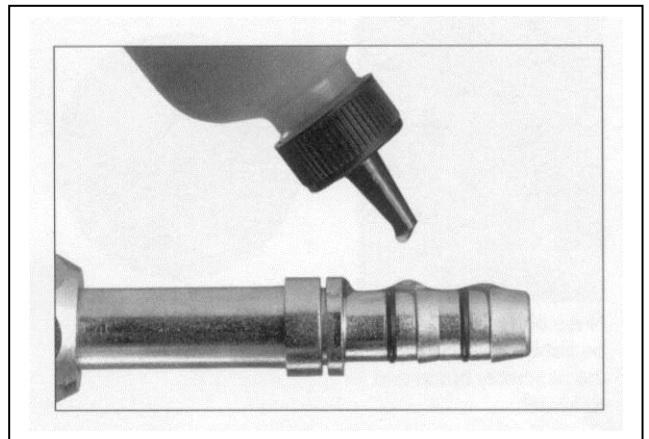
Step 1. Cut the hose to proper length with an appropriate cutting tool. Aeroquip's hand held hose cutter has been specially designed for cutting all non-wire reinforced hose, such as GH-134 Multi-Refrigerant hose. Be sure the cut is made square to the hose length.



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.



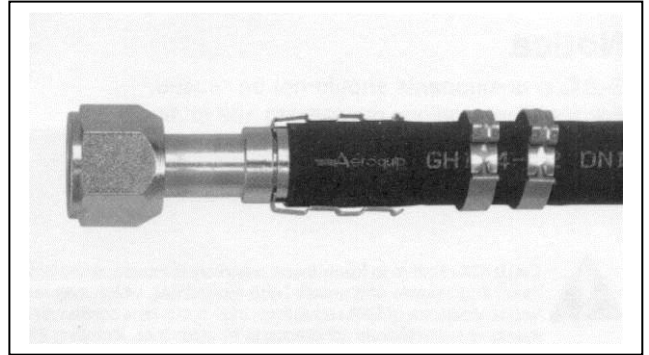
Step 4. Insert the nipple into the hose. To ensure that the nipple is fully inserted, check the gap between the cut end of the hose and the shoulder on the nipple. Care should be taken to avoid kinking or other damage to the hose during nipple insertion. NOTE: Be sure to wipe excess oil from the nipple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



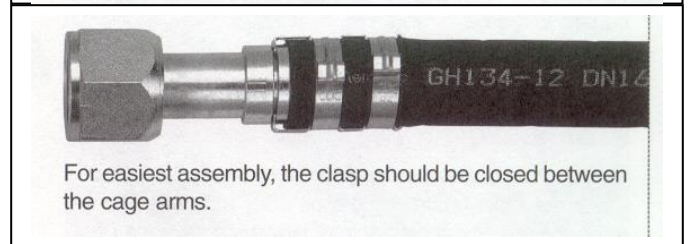
Step 5. Snap the cage into the groove on the nipple. The arms should extend over the hose length. When the cage has been correctly installed in the cage groove, the cage will be able to rotate in the groove.

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.

