# INSTALLATION INSTRUCTIONS

# D350-E & D400-E ARTICULATED TRUCKS

Condenser:

The condenser mounts in front of the radiator on existing bolt points. Bolt the entire frame assembly with the condenser and drier attached to the radiator frame using the hardware supplied in the kit.

Compressor:

The compressor mount attaches to the engine on the top where the lift bracket is originally installed. Remove the lift bracket and the small attached bracket to expose the four bolt points. Bolt the mount into place using the bolts and hardware provided. Bolt the compressor onto the mount with the hardware included. Ensure the oil fill plug on the compressor is facing upward. With the AM-50 belt provided in the kit, or with a Cat substitute belt, install the drive belt around the open pulley on the fan hub and the compressor. Tighten the compressor.

Evaporator:

The evaporator is factory installed and should be complete with the expansion valve in place. Remove the operators seat and the cover over the heater/evaporator location and check for the presence of the evaporator. Leave the seat out and the cover off until the hoses are hooked up and the system pressure tested. If your truck does not have the evaporator in place contact us immediately to get the evaporator assembly. Ensure that the dust caps are in place on the open fitting ends preventing dirt and moisture from getting into the system. If they are not in place we highly recommend replacing the valve and flushing the core.

Hoses:

The hoses are provided in bulk lengths with one end pre-crimped with a fitting. A selection of fittings is provided for the other hose end to ensure that all possibilities are covered. The 13/32" hose runs from the back of the compressor (hooking up to the discharge side rotolock fitting) and forward around the right side of the radiator (from the operators perspective) to the top fitting on the condenser. Cut the hose to length and use the fitting supplied which will give the best fit with the least strain and crimp using a beadlock crimper. The 5/16" hose runs from the drier outlet back around the radiator with the 13/32" hose and then over under the cab. The evaporator is under the seat and the hoses come up from underneath into the evaporator compartment through existing holes. Feed the 5/16" hose up from underneath and cut to length. Install the appropriate fitting onto the end and crimp into place. The 5/8" suction line runs from the rotolock fitting on the back of the compressor to the outlet side of the evaporator. Run the hose along with the 5/16" hose and up into the evaporator compartment. Cut to length and crimp on the appropriate fitting from the ones supplied.

Use the 1/2" spiral cut hose wrap provided to protect the hoses from sharp corners and anywhere they may rub and wear. Tie the hoses with the cable ties provided to help prevent chafing and to secure them from coming into contact with any moving parts.

Electrical:

The electrical set up is as standard for Caterpillar systems. The existing blower switch is set up as a two-way switch and at most will require the removal of a stopper post to allow the selector to be moved to the Air Conditioning side of the switch. Take power off the A/C live post on the back of the switch and run a wire to the thermostat. The thermostat can either be pre-set by the installer and attached near the evaporator core with the probe secured in the coil or it can be mounted in the console and will allow the operator some control of the temperature. When using as a pre-set thermostat turn the knob all the way to the right and then back approximately $1/12^{th}$ of a turn to the 'detent' point. This will allow the compressor to cycle prior to the point where the evaporator would freeze up. Run the black clutch wire with the wire loom out of the cab and down through the pressure switches to the compressor.

Charging:

With the system completely installed it is a good idea to test the system for leaks and operation prior to charging with refrigerant. Using NITROGEN, pressure test the system for leaks. We recommend using a minimum pressure of 250 psi and a maximum of 350 psi. At this time you can also check for operation of the system. Turn on the blowers and switch to A/C. Ensure the thermostat is turned on and check to make sure the clutch is engaged on the compressor. If any part of the system is not functioning, call for assistance.

When the system checks out, evacuate with a two-stage vacuum pump to a minimum level of 400 microns or for approximately 30 minutes. This will ensure that the system is moisture free and will operate properly. This system will operate best with a charge of 3.25 lb. +/- .25 lb. of R-134a. Use of any other refrigerant will void the warranty.

**NOTES:**

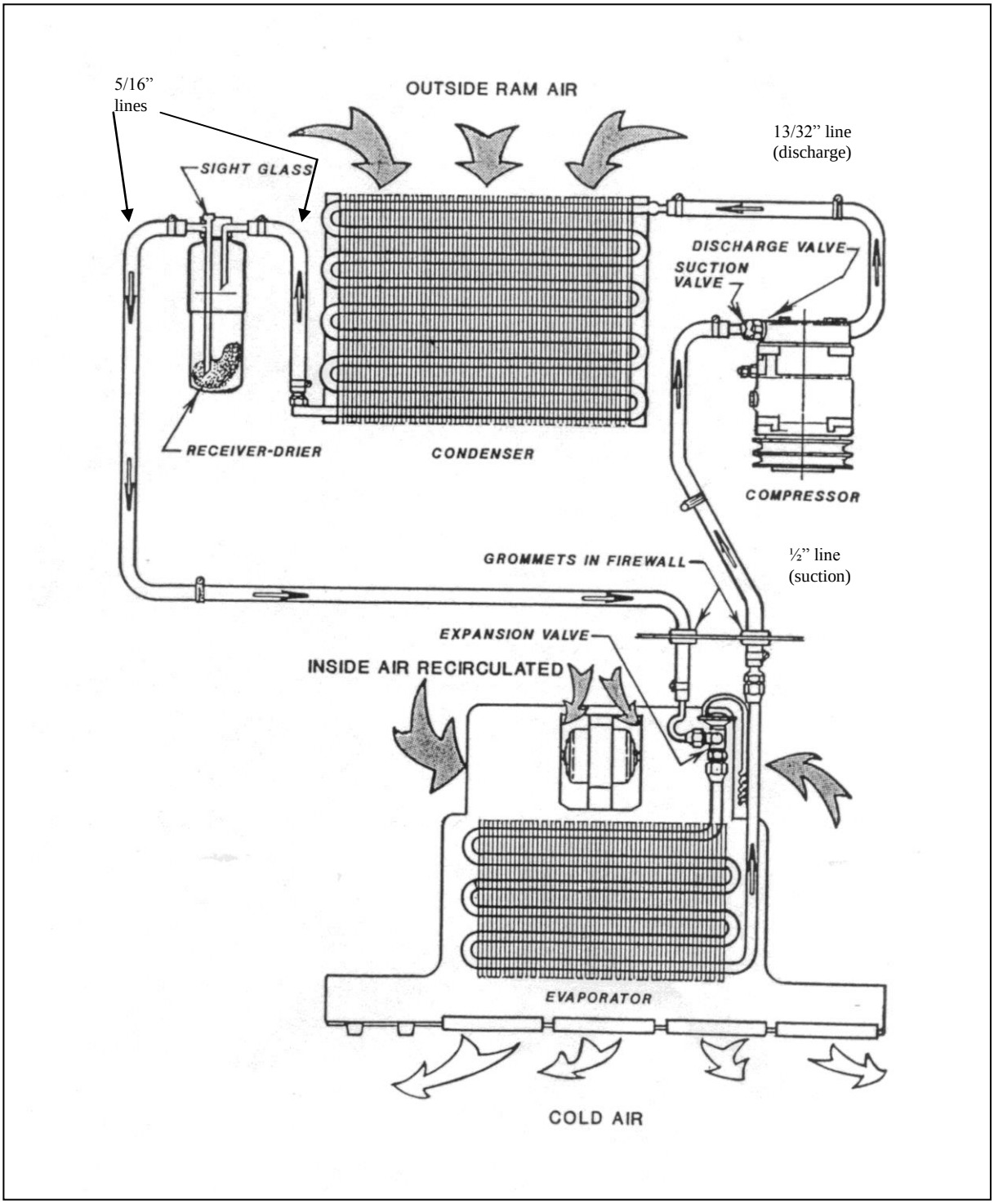
Lubricate O rings and sealing surfaces with refrigerant oil (PAG or POE) when installing.

Add one to two ounces of refrigerant oil (PAG) to the system after installation and prior to charging.

For additional sales or service assistance call our toll free line:

## 1-800-267-2665

# 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.

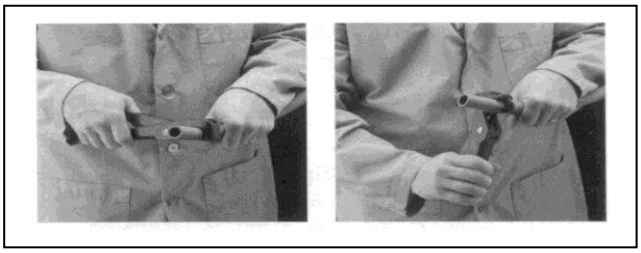
By looking at all these different factors, the area of an evaporator coil most likely to be the coldest can be determined.

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.

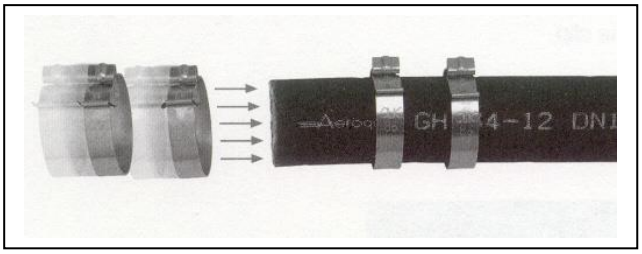
If the thermostat doesn't cycle off after a reasonable cool down period, and the air outlet temperature has dropped below 40° F, the cut in and cut out settings should be adjusted until the compressor is cycling on and off regularly. Let the system run for a decent time period (at least 15 min) and then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

# Aeroquip E-Z Clip
## Assembly Instructions

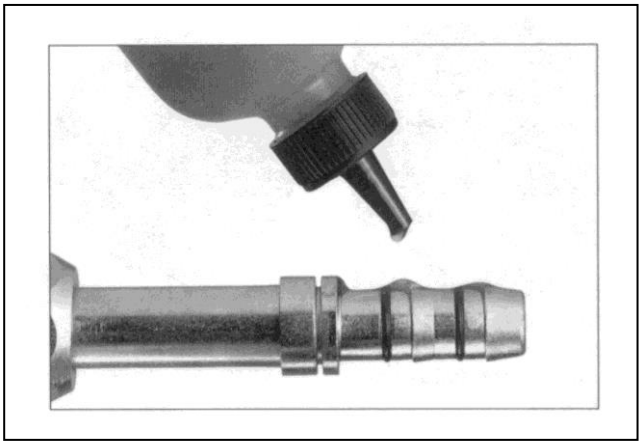
Step 1. Cut the hose to proper length with an appropriate cutting tool. Aeroquip's hand held hose cutter has been specially designed for cutting all non-wire reinforced hose, such as GH-134 Multi-Refrigerant hose. Be sure the cut is made square to the hose length.



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.



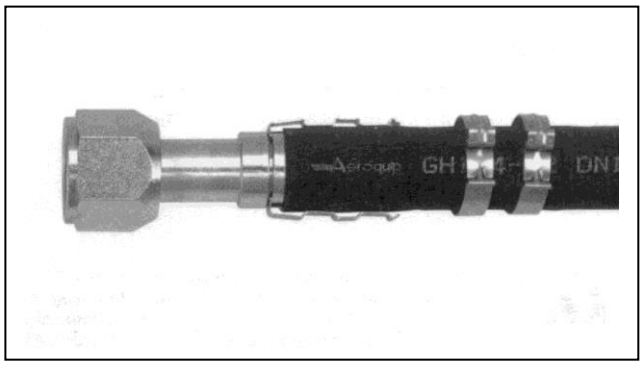
Step 3. Lubricate the nipple with a generous amount of the refrigeration or A/C system's compressor lubricating oil. This MUST be done to lower the force of nipple insertion.



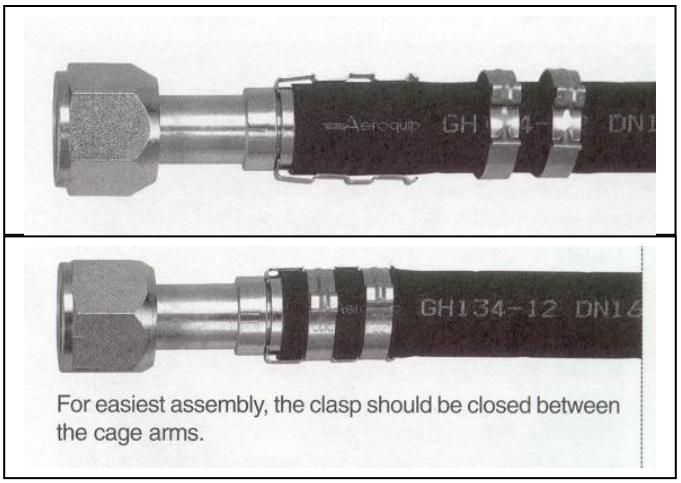
Step 4. Insert the nipple into the hose. To ensure that the nipple is fully inserted, check the gap between the cut end of the hose and the shoulder on the nipple. Care should be taken to avoid kinking or other damage to the hose during nipple insertion.
NOTE: Be sure to wipe excess oil from the nipple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