

# **INSTALLATION INSTRUCTIONS**

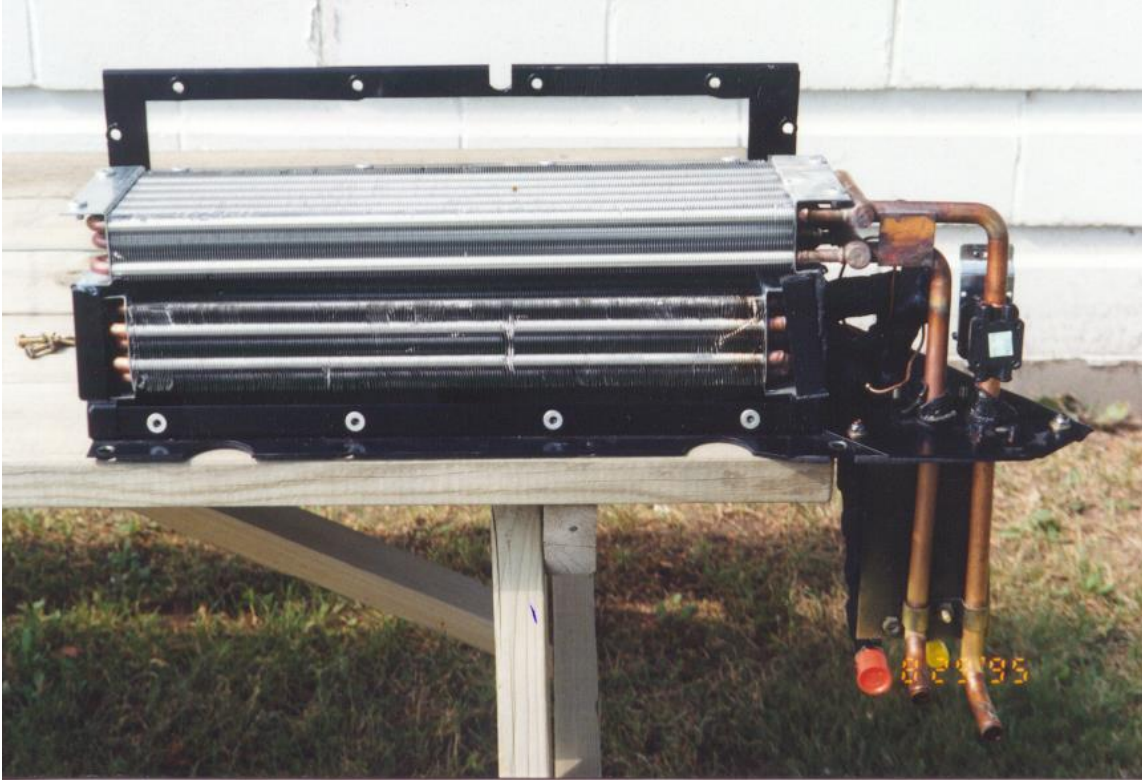
## **CAT 938F WHEEL LOADER**

HAMMOND AIR CONDITIONING LTD  
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1-800-267-2665  
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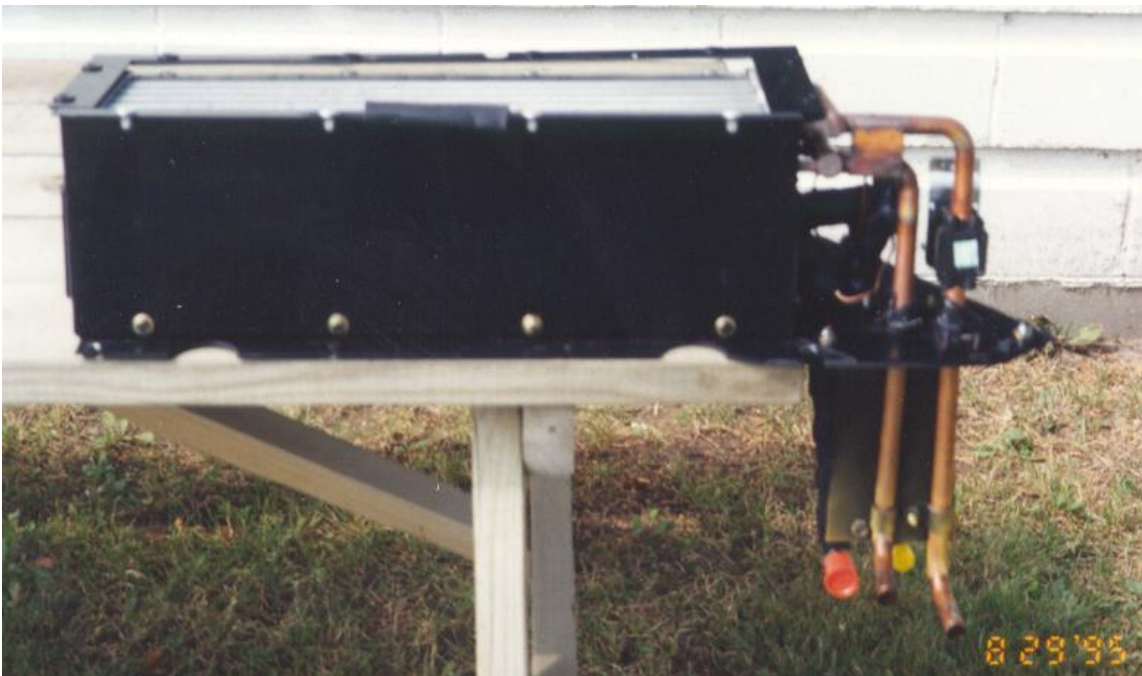
## **EVAPORATOR COIL:**

The evaporator coil mounts with the heater coil in the assembly, which is mounted in front of the operator's location. This assembly is accessible from the front of the machine.

1. Remove the access panel from in front of the cab. This will allow access to the heater/blower area. Remove the heater box from the machine.
2. Remove the cover from the heater box and remove the spacer blocks from under the heater. The process is easiest if the heater core is completely removed.
3. Insert the evaporator assembly into location. End caps are provided to replace the original spacers.
4. Secure the refrigerant lines to the bracket extending down. A new plate is provided with cutouts for the lines. \*\*The washer nipple will have to be re-installed on the plate\*\*.
5. Re-install the heater core and re-secure the cover.
6. Install the thermostat probe into the coil at this time, as it will be easier than when the unit is back in the machine. There is a hole present for this.
7. Check to be sure the drains are clear and re-install in the machine.



Heat /cool assembly with cover off.



Assembly with cover on.



Assembly with thermostat and probe in place.

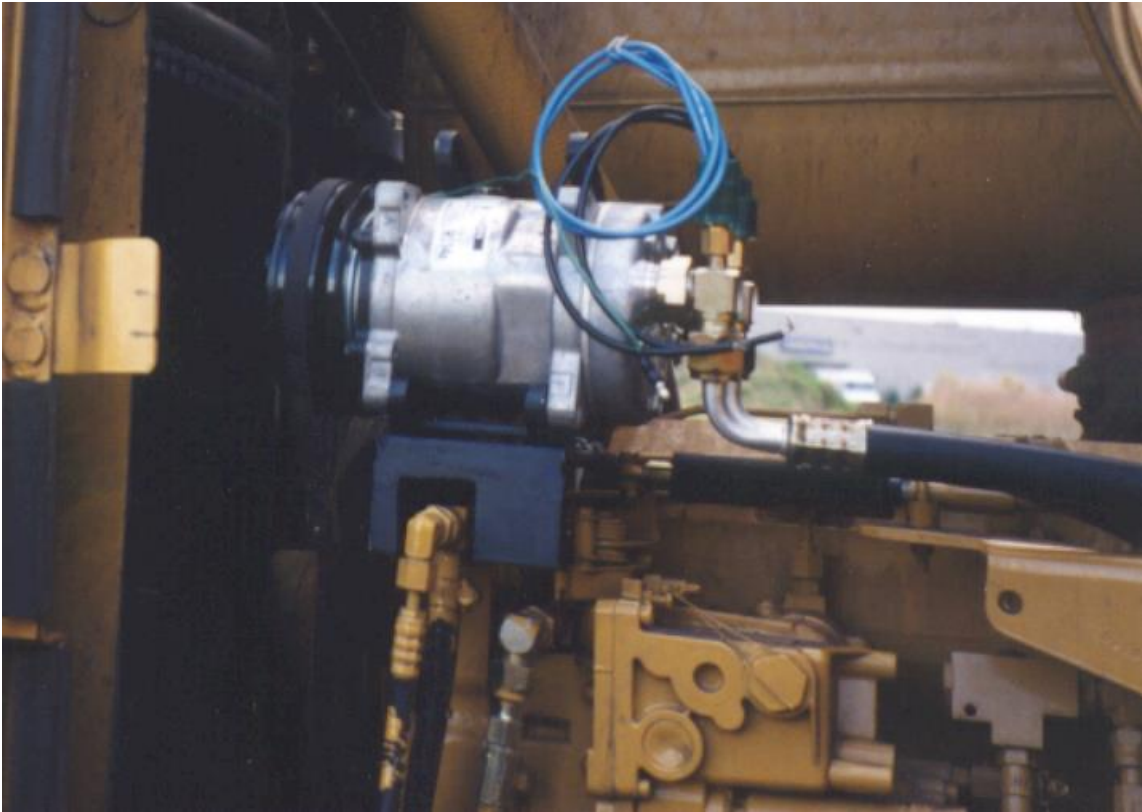


Underside of cab showing hoses to evaporator.

## **COMPRESSOR:**

The compressor mounts on the right hand side of the engine and drives off an open pulley on the crankshaft. The compressor mount bolts on the factory mount point just ahead of the injector pump.

- 1) Install the compressor mount.
- 2) Install the compressor onto the mount.
- 3) Install belt and tighten. The belt is an AM-60.



Compressor in place showing line runs.

## CONDENSER:

The condenser mounts on the engine side of the fan screen.

1. Set the condenser assembly in place as shown in the pictures.
2. The mounting brackets on the outboard side of the condenser must be positioned with the holes then marked for drilling. Drill the marked holes for mounting through the radiator shroud.
3. The inboard mounting arrangement is the locking bar set-up standard for the fan screen mounting arrangements. Insert the slightly bent locking bars through the fan screen and tighten into place. Thread the locking bolt with the large flatwasher into the open threaded hole on the bar and tighten into place.
4. Bolt the outboard frame into place with the hardware supplied.



Lower left (outboard) mounting bracket.



Upper left (outboard) mounting bracket.



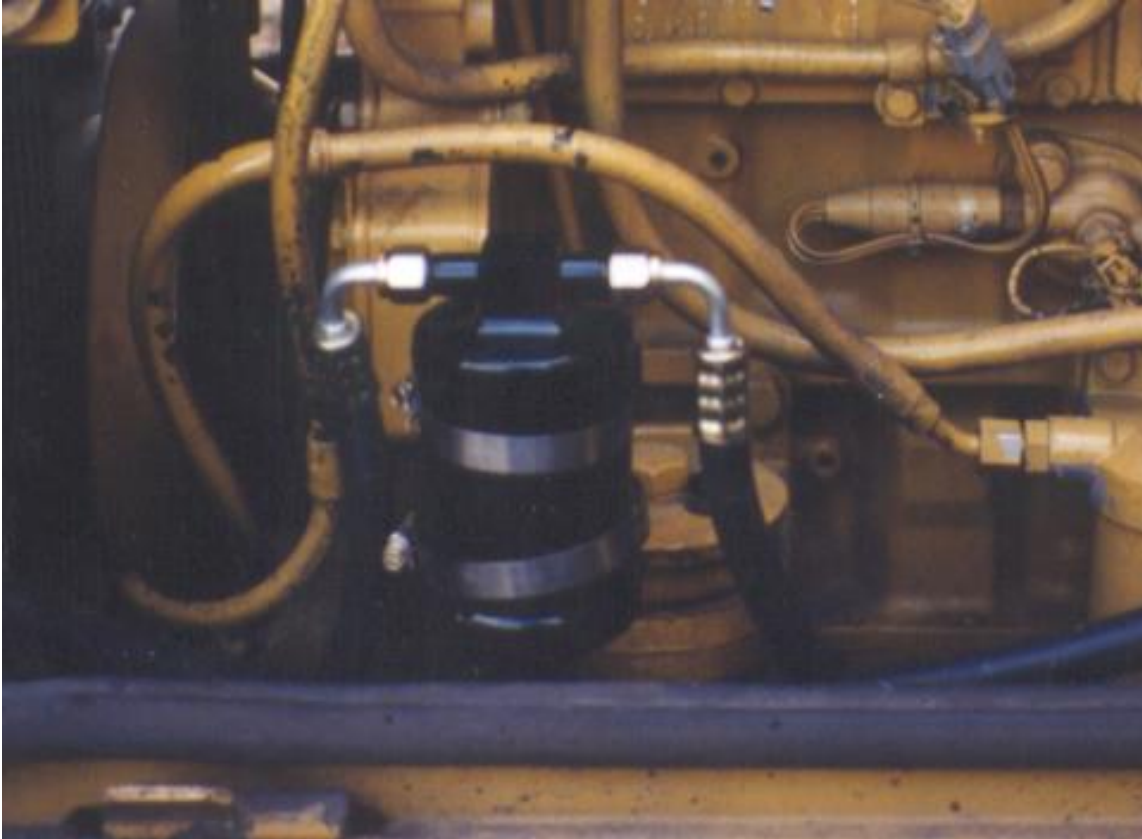
Fittings at top of condenser (view from inboard – right side).



### **RECEIVER DRIER:**

The receiver drier is mounted on an open bolt on the engine immediately below the compressor.

1. The drier bracket is bolted to an existing location with hardware supplied.
2. Attach the drier to the bracket with the two #48 gear clamps provided.
3. Orient the drier so the 'INLET' fitting is toward the condenser.



Drier in place.

## HOSE ROUTING AND INSTALLATION

The hoses and fittings necessary for installation are supplied complete. Rotolock style service valve fittings are supplied to attach to the compressor and care must be taken to ensure that the suction fitting (with the larger male fitting) is on the suction port of the compressor (marked S or SUC).

### 13/32" Hose Compressor to Condenser:

Install the discharge side rotolock fitting onto the compressor with the white square cut nylon seal in place. Install the pre-crimped 90o fitting with the 134a charging port to the compressor rotolock. Route the hose to the condenser and install the other fitting to the top fitting on the condenser.

### 5/16" Hose Condenser to Drier:

The liquid line comes pre-assembled with two separate assemblies. The shorter section of hose runs from the condenser to the drier. Connect one 90o fitting to the condenser and loop the hose down with the 13/32" hose and up to the drier. The other 90o fitting connects to the drier. On the longer hose, connect the 90o fitting to the outlet side of the drier and run forward under the cab to the front of the machine. Connect the straight fitting to the evaporator fitting under the cab.

### 1/2 Hose Evaporator to Compressor:

The suction line runs from the compressor to the evaporator outlet fitting. The 90o fitting with the charging port attaches to the compressor suction rotolock. The hose is routed forward with the 5/16" line and connects to the evaporator outlet fitting.

### **\*\*\*NOTE\*\*\***

**Use O-ring seals on all fittings and lubricate with a small amount of refrigerant oil.**

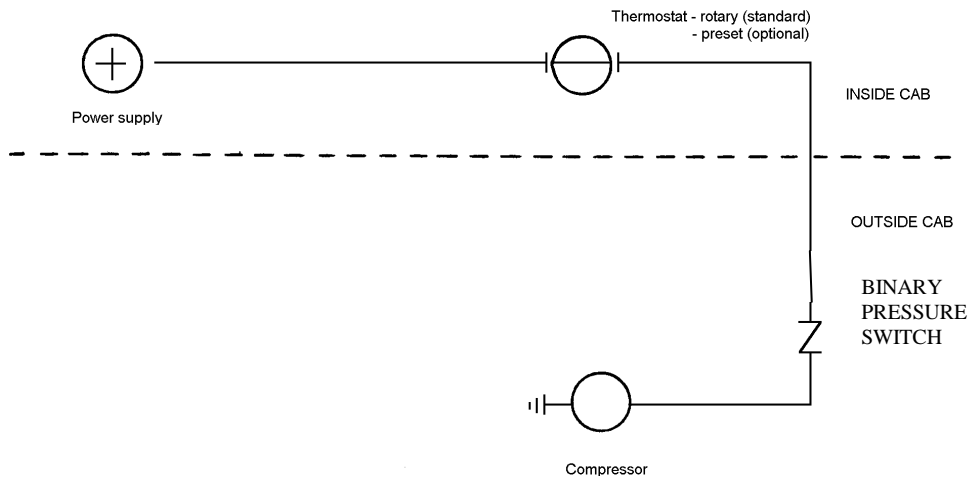
**Hosewrap and secure the hoses where required to prevent chafing and rub through.**



Hoses under cab.

## ELECTRICAL:

Mount the thermostat on the evaporator cover somewhere near the blower motor. Find the clutch wire running off the blower switch, it will be live in all blower positions on the A/C side of the switch, and cut the wire out of the bundle. Extend the wire with enough length to reach the thermostat terminal. Crimp on a female spade connector and install the wire to the thermostat. Connect the 14ga black clutch wire to the other terminal on the thermostat and route it down out of the heater compartment and along with the 5/16" hose. At the pressure switches, connect the clutch wire to the first press switch lead. Connect the other lead off the first switch to one lead of the second switch. Connect the last lead to the clutch wire on the compressor using a male and female spade connector.



## 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.
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- 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.

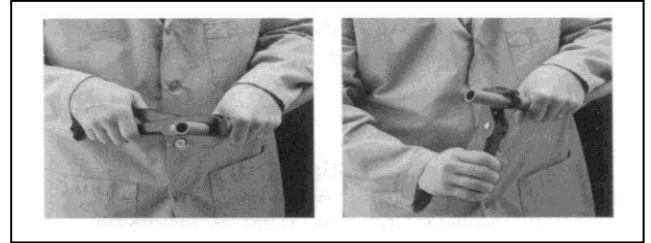
By looking at all these different factors, the area of an evaporator coil most likely to be the coldest can be determined.

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.

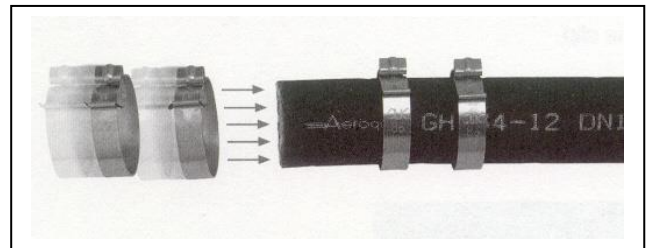
If the thermostat doesn't cycle off after a reasonable cool down period, and the air outlet temperature has dropped below 40° F, the cut in and cut out settings should be adjusted until the compressor is cycling on and off regularly. Let the system run for a decent time period (at least 15 min) and then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

## Aeroquip E-Z Clip Assembly Instructions

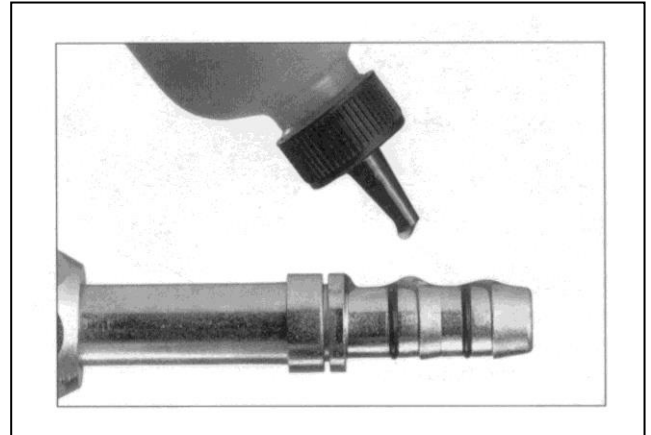
Step 1. Cut the hose to proper length with an appropriate cutting tool. Aeroquip's hand held hose cutter has been specially designed for cutting all non-wire reinforced hose, such as GH-134 Multi-Refrigerant hose. Be sure the cut is made square to the hose length.



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.

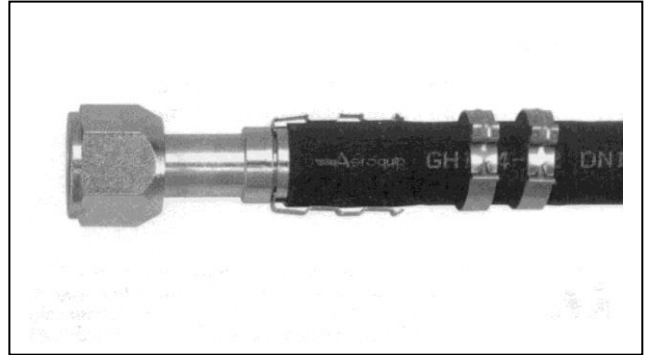


Step 4. Insert the nipple into the hose. To ensure that the nipple is fully inserted, check the gap between the cut end of the hose and the shoulder on the nipple. Care should be taken to avoid kinking or other damage to the hose during nipple insertion. NOTE: Be sure to wipe excess oil from the nipple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

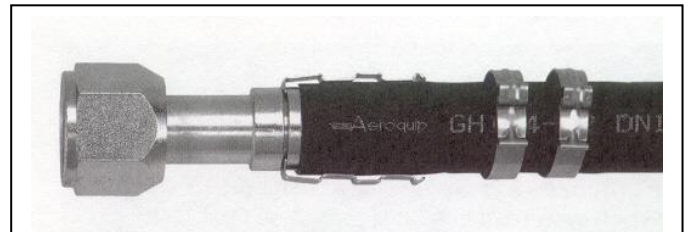


Step 5. Snap the cage into the groove on the nipple. The arms should extend over the hose length. When the cage has been correctly installed in the cage groove, the cage will be able to rotate in the groove. This step **MUST** be performed to ensure:

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.

