ENERSOL

SINCE 1979

SOLAR PRODUCTS INC.

Installation Manual

NOTICE

THE WORK AND PROCEDURES SHOWN AND DESCRIBED IN THIS INSTALLATION MANUAL ARE INTENDED FOR USE BY PEOPLE HAVING AVERAGE SKILL AND KNOWLEDGE OF THE SUBJECTS.

CAUTION

IF YOU ARE INEXPERIENCED IN USING ANY OF THE TOOLS OR EQUIPMENT DEPICTED OR ANY OF THE PROCEDURES DESCRIBED OR ARE IN DOUBT THAT THE PROCEDURES SHOWN IN THIS PRESENTATION MAY NOT BE SAFE IN YOUR CHOSEN SITUATION CONSULT A PERSON SKILLED IN THE PERFORMANCE OF THE PROCEDURES, EQUIPMENT ETC. DEPICTED IN THIS PRESENTATION ARE NOT NECESSARILY APPROPRIATE FOR EVERY SITUATION ALWAYS USE COMMON SENSE AND KEEP SAFETY FIRST.

THE MAKERS OF THIS PRESENTATION DISCLAIM ANY LIABILITIES FOR INJURY OR DAMAGE ARISING OUT OF AN FAILURE OR OMISSION TO PERFORM THE WORK OR PROCEDURES SHOWN AND DESCRIBED IN THIS PRESENTATION.

YOUR PERFORMANCE IS AT YOUR OWN RISK.

Installation

Roof Application

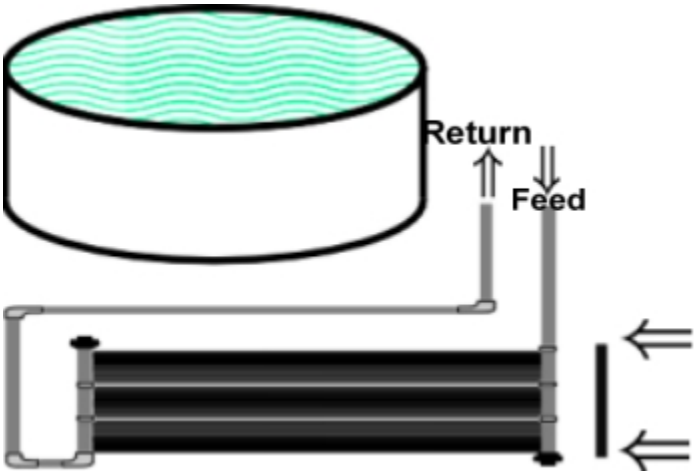
Important

Use a chalk line to reference tilt

Tilt Panels 6” for every 40’ to drain water back to lowest point

Take panels to roof and unroll

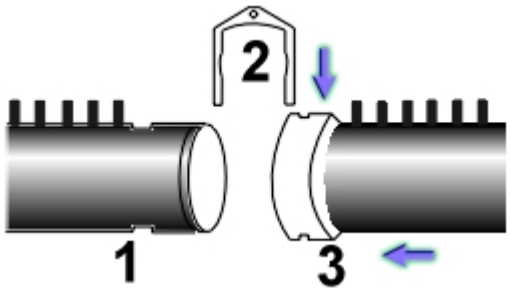
Above Ground Application



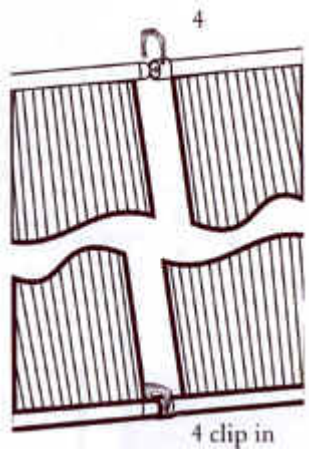
We recommend a sheet of black plastic under the solar panels.

Support headers with 1” x 6” lumber on both ends

To Connect Headers:



1. Lubricate ‘O’ Ring
2. Push installation tool into header clip slot
3. Push header together
4. Remove installation tool and insert clip



Use top strap across the top row every two feet

Apply generous amounts of roofing cement

Screw lag bolts through roofing cement into roof

Note: Never use top straps on bottom

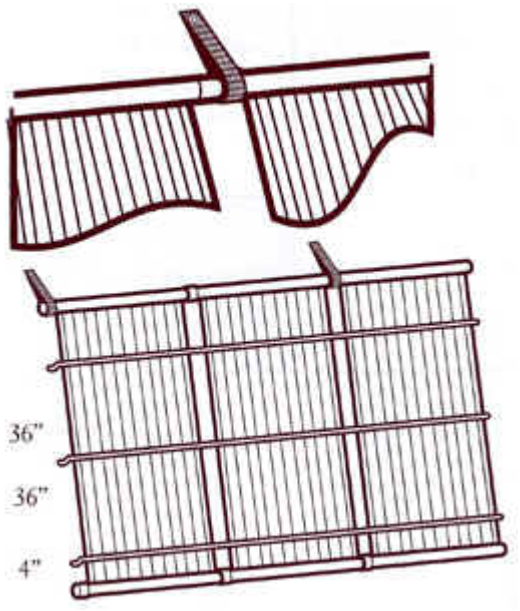
Top Strap

- Top strap every other section across top only

Cross Strap

- Cross strapping four inches from bottom
- Every three feet up thereafter
- Do not tighten cross strapping too tight, to allow for expansion

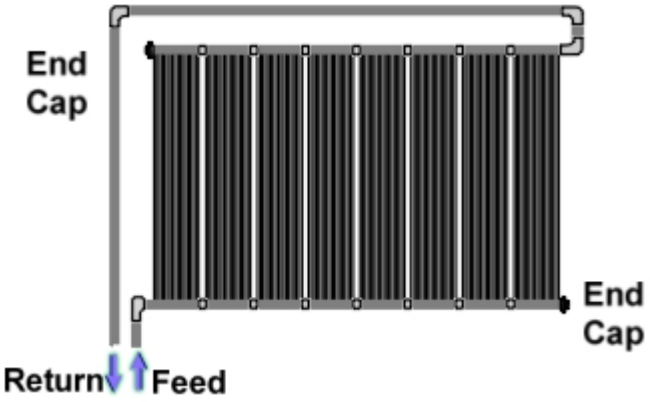
Stagger Lag Bolt Location on Cross Strapping



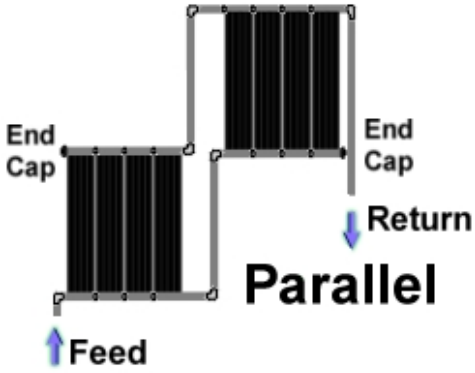
Use roof sealant liberally with all lag bolts into roof.

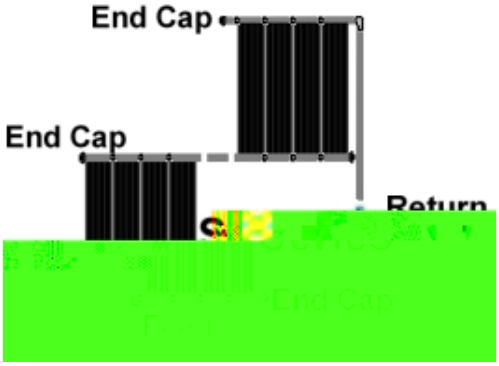
System Plumbing

Typical Roof



Typical Split Roof



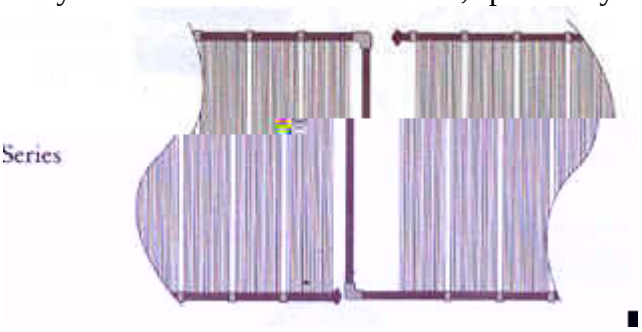


Note: Never put feed & return lines on the same side

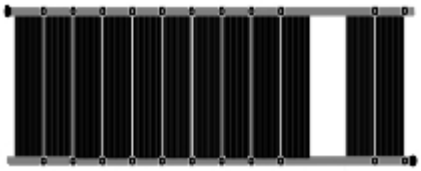
Flow Rates

Maximum pool pump size- ¾ - 1 hp pump
If pump is more than 1 hp., you MUST follow flow rate instructions on page 9.
Maximum flow rates 2.5 gpm per 1 ft section
Maximum operational pressure 25 psi

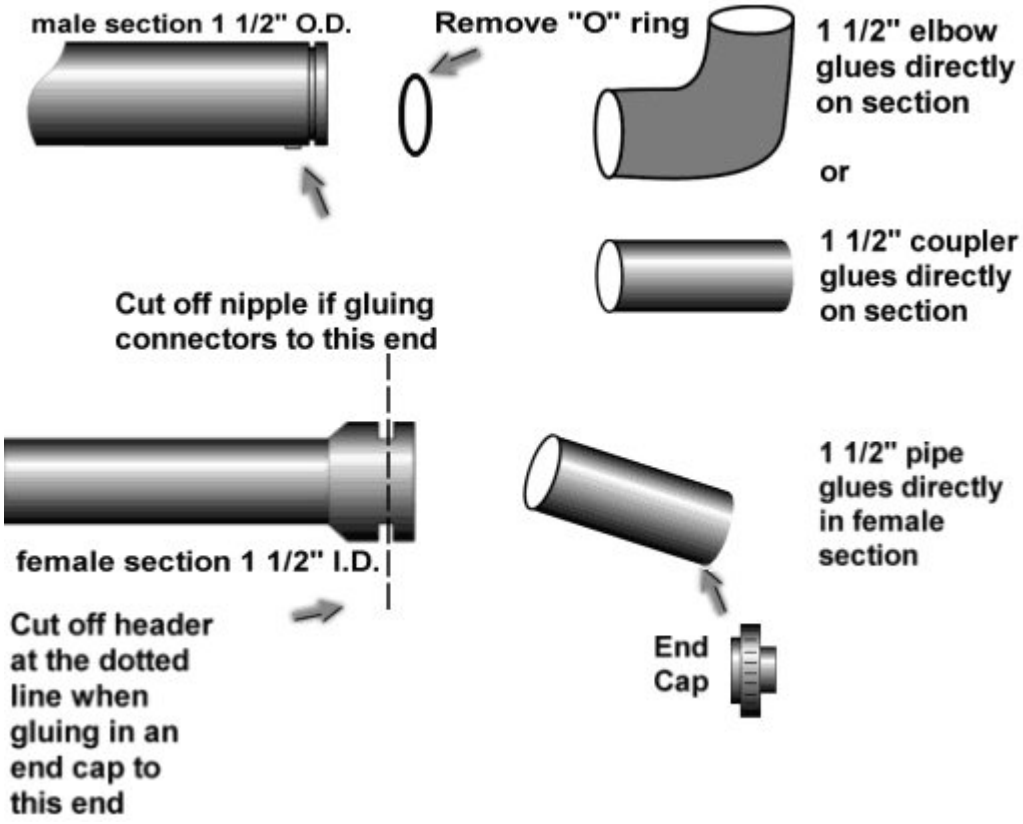
Do not put more than 28 sections (7 boxes) together.
If you have more than 28 sections, split the system in series as shown.



If less 12 sections (3 boxes) are put together,
hook plumbing up in parallel as shown

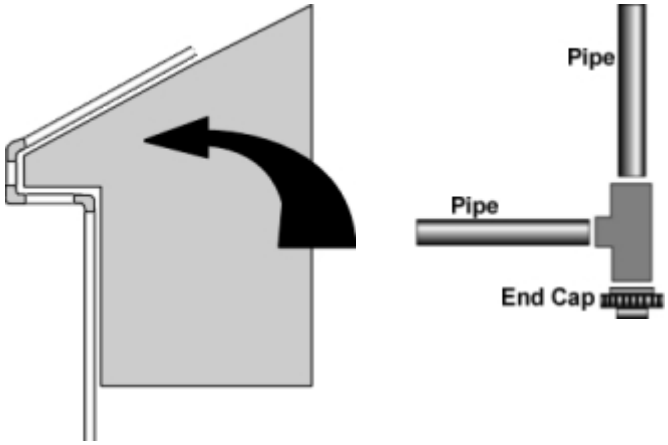


To Join PVC Pipe to the Header:



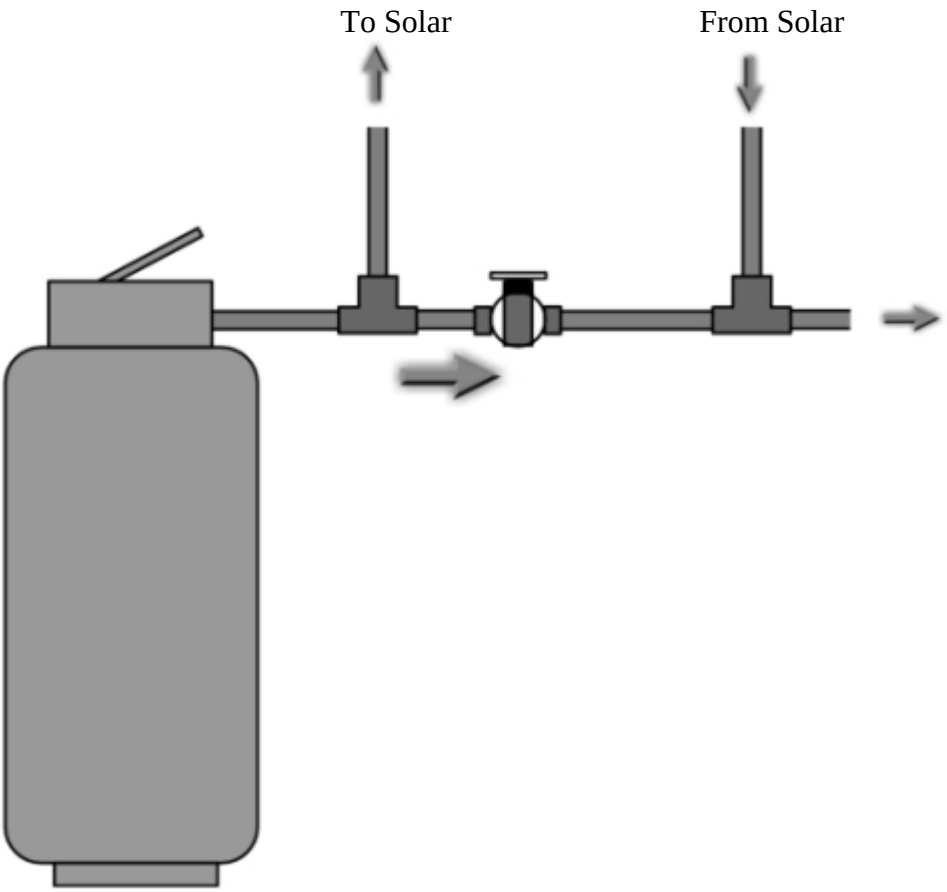
Use teflon tape on end cap threads
When gluing use only Weld On 711 PVC Cement and follow instructions on the can.

Plumbing Off the Eve Trough and Down the Side of the House



To ensure plumbing is straight
Any low points in plumbing use a tee and end cap. This will allow for drainage in winter

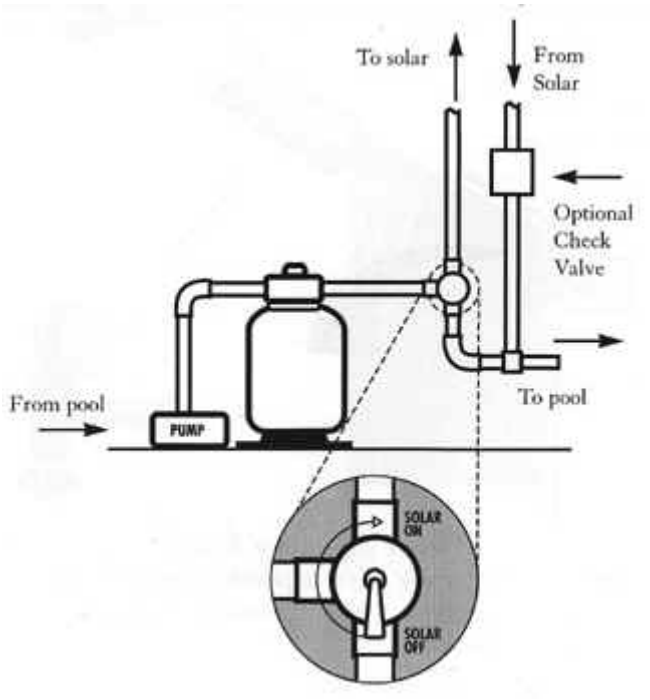
Plumbing A Manual Solar Control Valve



Ball valve open - bypass solar (solar off)
Ball valve closed - feed solar (solar on)

Plumbing Automatic Control Valve (Optional)

Follow manufacturers instructions for installation of automatic control panel, motorized valve and sensors

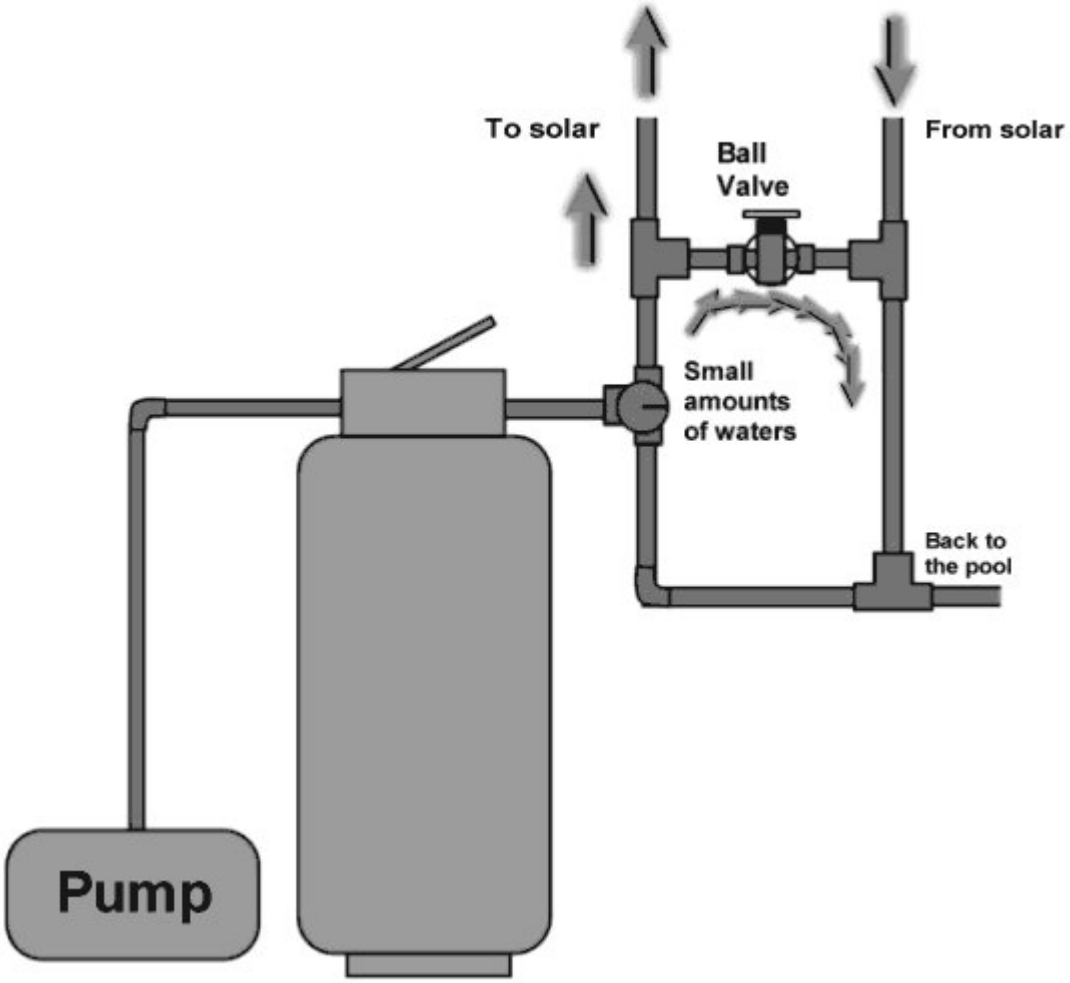


Sensor Failures

Use an Ohm meter to check the resistance in the sensors. The Ohms readings should correspond with the sensor temperature.
Use the following chart to determine if the sensor is sensing proper temperatures.

^{o}F	Ohms
70	11.8
75	10.5
80	9.2
85	9.2
90	7.5
95	6.5
100	5.8
110	4.6
115	4.1
120	3.7

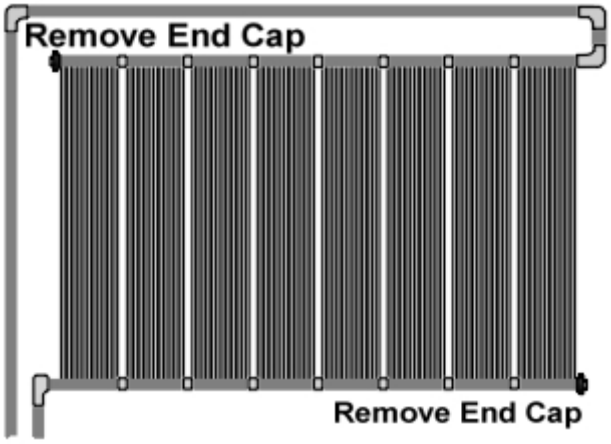
Flow Rate



If pressure is too great through system, install a ball valve between the feed and return lines. Open the ball valve gradually to reduce flow or pressure to panels.

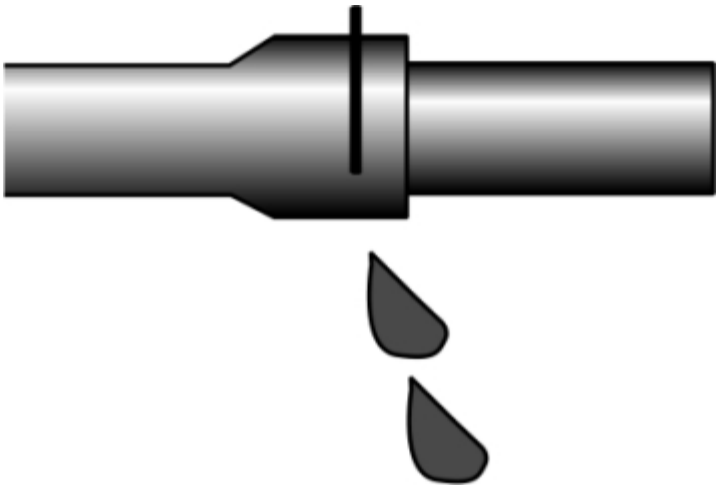
Winterization

In climates when water freezes solar panels pipes and valves must be drained of all water for the entire season.



Use blower or vacuum cleaner to blow out any lines
Check for loose lag bolts, leaves or debris
Rotate valve ½ way and shut off power
(this will ensure no water is trapped)

If a Section Develops a Leak:



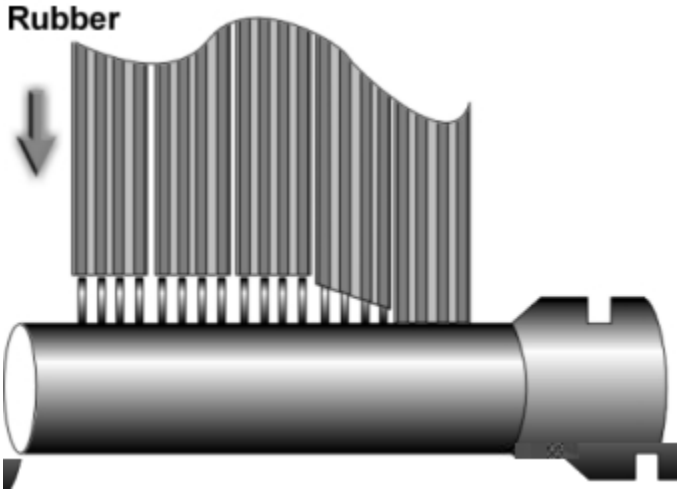
Use The Following Steps to Repair Problem:

1. Allow 5 to 10 minutes for “O” ring to seat
2. Replace “O” ring if marked, pinched, nicked or cut
3. Use “O” ring lubricant as supplied
4. Glue header joint as last resort using Weld On 711 PVC cement

* always use installation tool when disconnecting or connecting sections

Header Replacement or Rubber Replacement

Any header section or length of rubber can be replaced.
Attach tubes to the headers by simply sliding them over the nipples.
Warm the ends of the tubes in hot water momentarily. Push each tube on until it contacts the header and completely covers the nipple (no clamps are needed).



Always use a clip tool when disconnecting

First Aid Kits available

Tube Repair

For small isolated holes

If a leak happens...

Insert Splicer

Emergency first aid kits are available