

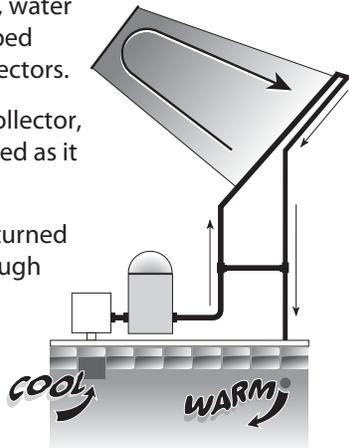
SOLAR ENERGY

Heating System for Above Ground and Inground Swimming Pools

INSTALLATION & OPERATION MANUAL

How Solar Pool Heating Works

- Using your pool pump, water is automatically pumped through the solar collectors.
- As sun shines on the collector, the water is then heated as it moves through it.
- The heated water is returned back to the pool, through your return lines.
- You enjoy your own heated pool with no fuel costs.



Why Solar Heat Works Best



- Water is heated as it moves through the many tubes in the solar collectors.
- Tube and web design traps heat and catches light as the sun moves across the sky.
- Tough polypropylene material won't rust, corrode or scale. Plus, the collector is reversible.

PLEASE READ THIS MANUAL CAREFULLY. YOUR ENJOYMENT OF YOUR SOLAR HEATED POOL AND YOUR WARRANTY ARE AFFECTED BY HOW YOUR SOLAR HEATING SYSTEM IS INSTALLED.

CAUTION: A) Solar collectors are often installed on the roofs of buildings. Unless you are very familiar with working on roofs and have the proper ladders and safety equipment for such work, you should hire someone with the necessary experience to do the installation. Failure to observe safe practices on a roof or other elevated structure may result in falling, leading to serious injury to you.
B) When installing collectors on the ground, do not build a rack support that could allow children access into the pool.

IMPORTANT

READ THIS ENTIRE MANUAL BEFORE STARTING

How Well Does Solar Heating Work?

A properly sized and installed system will raise pool temperatures 10 to 15 degrees during the season. You will only want to circulate water through the solar collector when the sun is shining. When it's cloudy or rainy, solar heating won't work as well (and you probably won't be swimming during those times), but your water will be back up to temperature after one or two days.

Do I Need A Special Pump?

If your pool pump is in good working condition, there shouldn't be any problem using your existing pump. A 1 HP pump will usually handle installations up to 30 feet away from the pool equipment and one story up. If the collectors are cool to the touch when the water is running through them on a warm sunny day, you are getting enough flow.

Where Can I Put The Solar Collectors?

Anywhere you get at least 6 hours of full sun during the day. The longer the collectors are in full sun, the better they will work. If you are mounting the solar panels on an angle (like a roof or rack), the collectors should face in a southern direction.

What Tools Will I Need?

- Power Drill
- 1/8" (3 mm) drill bit and a Phillips head bit
- Silicone sealant (GEI or equivalent)

What additional parts will I need to install the solar system on the ground or on a rack?

For a ground mount installation you will require 2 hoses - one that will reach from the pool equipment to the collector and one that reaches from the collector back to the pool.

WARNING! POSITION THE RACK SO THAT IT DOES NOT PROVIDE ACCESS TO THE POOL FOR CHILDREN.

How much will the solar system weigh when filled with water?

Each solar panel will weigh approximately 40 lbs when filled with water. There is very little additional load on your roof since the weight is dispersed over a large area.

For Above Ground Pools

Pool Sizes		Number of Solar Boxes	Area Needed
Round	Oval		
Up to 24'	12' x 20' - 12' x 24'	1	6 ft x 21 ft
27' - 33'	15' x 30' - 18' x 34'	2	12 ft x 21 ft

Use a Solar Blanket to hold in heat at night or during cold weather.

For Inground Pools

Inground Pools up to	Number of Solar Boxes	Area Needed
15' x 30'	1	6 ft x 21 ft
16' x 32' - 18' x 36'	2	12 ft x 21 ft
20' - 40'	3	18 ft x 21 ft

Use a Solar Blanket to hold in heat at night or during cold weather.

Product Kit Components

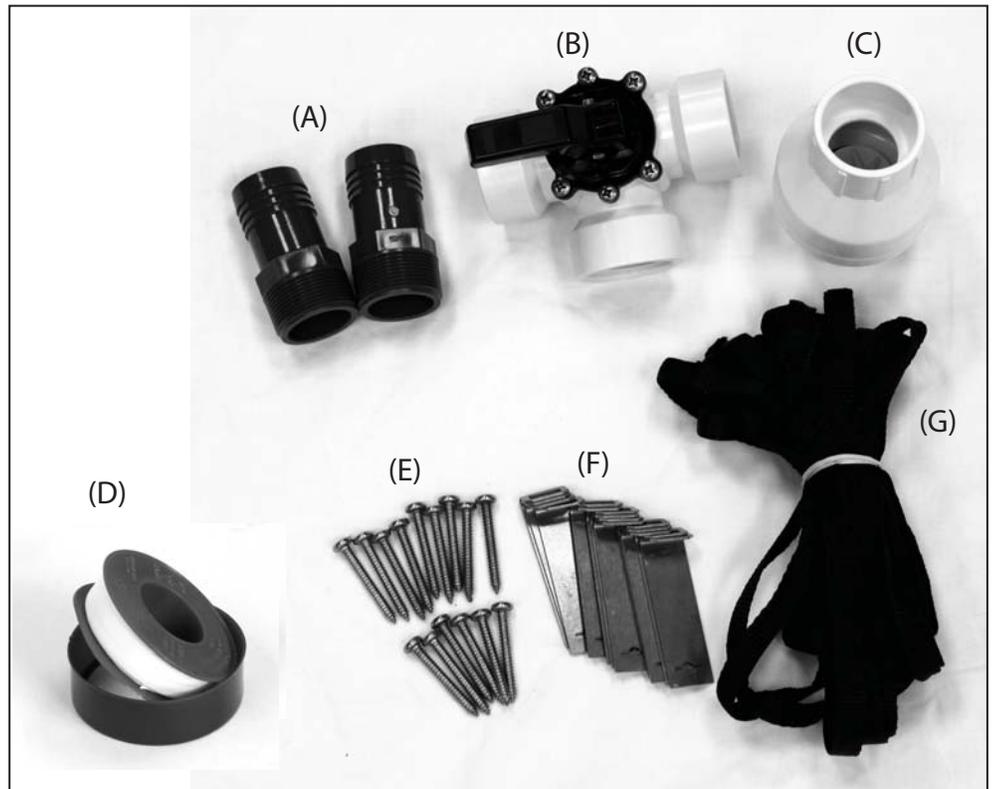
If you've purchased the base system kit, you should have the following:

System Installation Kit:

- (A) Barbed Connectors (for hose installation)
- (B) Three-way Diverter valve
- (C) Check Valve
- (D) Teflon Tape

Mounting Hardware:

- (E) Assembly Screws
- (F) Mounting Clips
- (G) Mounting Straps

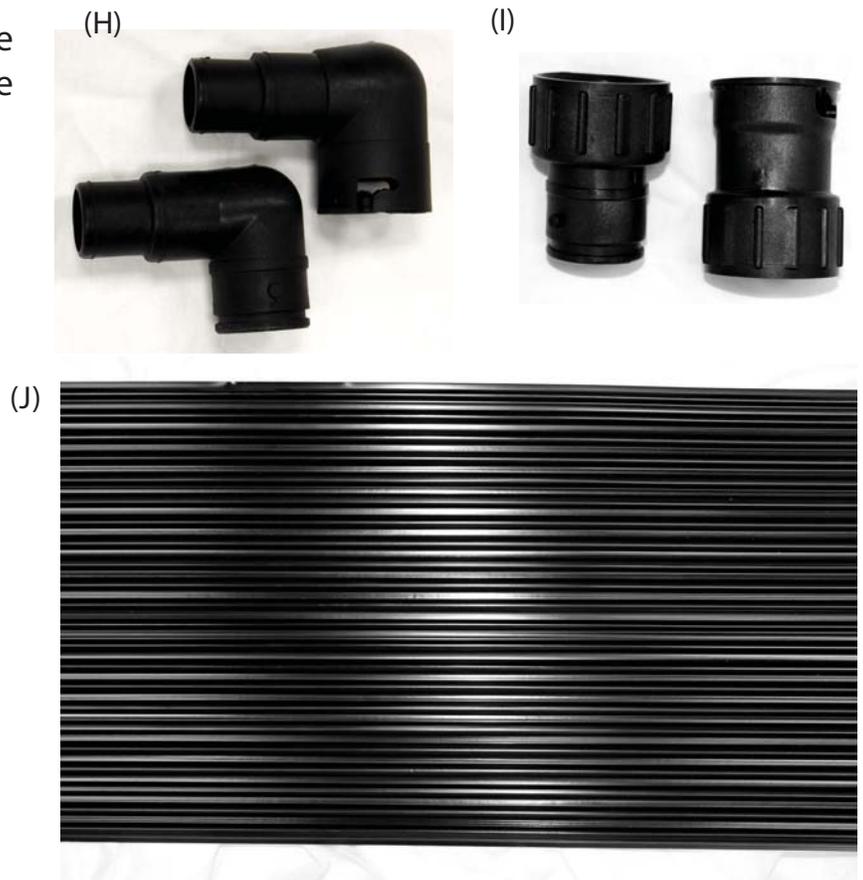


Additional sets (sets with or without the system installation kits) should have the following:

(H) Elbow Connectors - Above Ground Pools

(I) Straight Connectors - Inground Pools (Can also be used for both pool types if you mount the system on a roof)

(J) Solar Collectors



SYSTEM LAYOUT

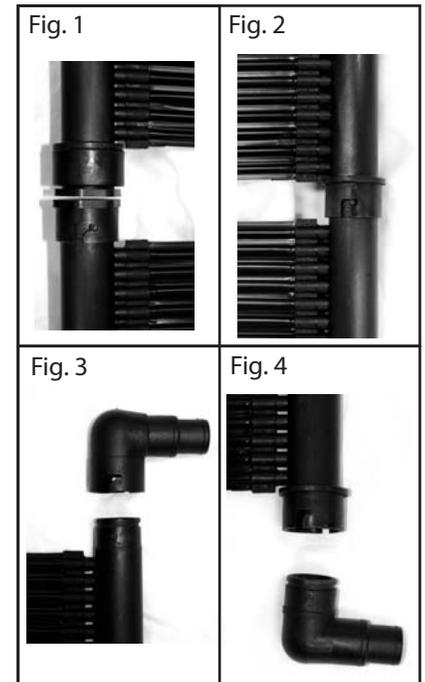
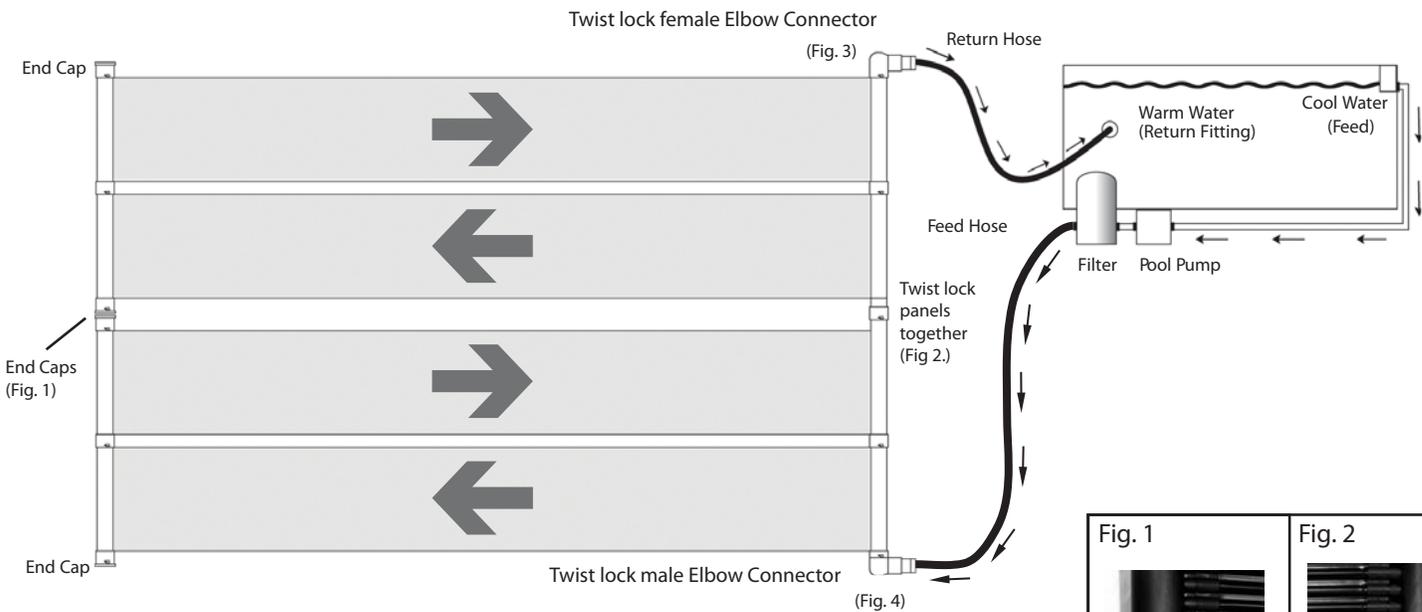
Single Collector (1 - Box)

For Above Ground Pools

5 ft. x 20 ft. panel assembly

Required:

- Phillips head screwdriver
- To install your solar heating system you will require 2 hoses - one that will reach from the pool equipment to the collector and one that reaches from the collector back to the pool (not included).



1. Provide an area that is free of any sharp objects with at least 6 hours of full sunlight a day.
2. Remove strap from collector and unroll it. Allow the collector to relax in the sun (30 minutes to an hour). DO NOT LAY COLLECTOR ON THE GRASS IT CAN DAMAGE THE LAWN UNDERNEATH! DO NOT WALK ON COLLECTOR.
3. Use appropriate male or female fittings on each end of inlet side of panel. (see Fig. 3, Fig. 4)
4. Turn off pool pump.
5. Go to pool and plug the round return fitting on the pool wall from the inside, so the water won't drain through (a winter plug works well).
6. Connect a hose from the filter to the lower elbow connector. Always fill the system from the bottom.
7. Connect another hose from the pool return fitting to the other elbow connector.
8. From the inside of the pool wall, remove the plug you placed in the round return fitting.

YOU ARE NOW READY TO START-UP YOUR SOLAR POOL HEATER

SEE NEXT PAGE FOR TWO COLLECTOR BOXES ILLUSTRATION

9. Turn on the pump. Check for leaks and tighten the connections that need attention.

NOTE: Upon start-up you will see air bubbles come through the return hose. This is normal and will stop after all the air has been purged from the solar heating system.

System Layout

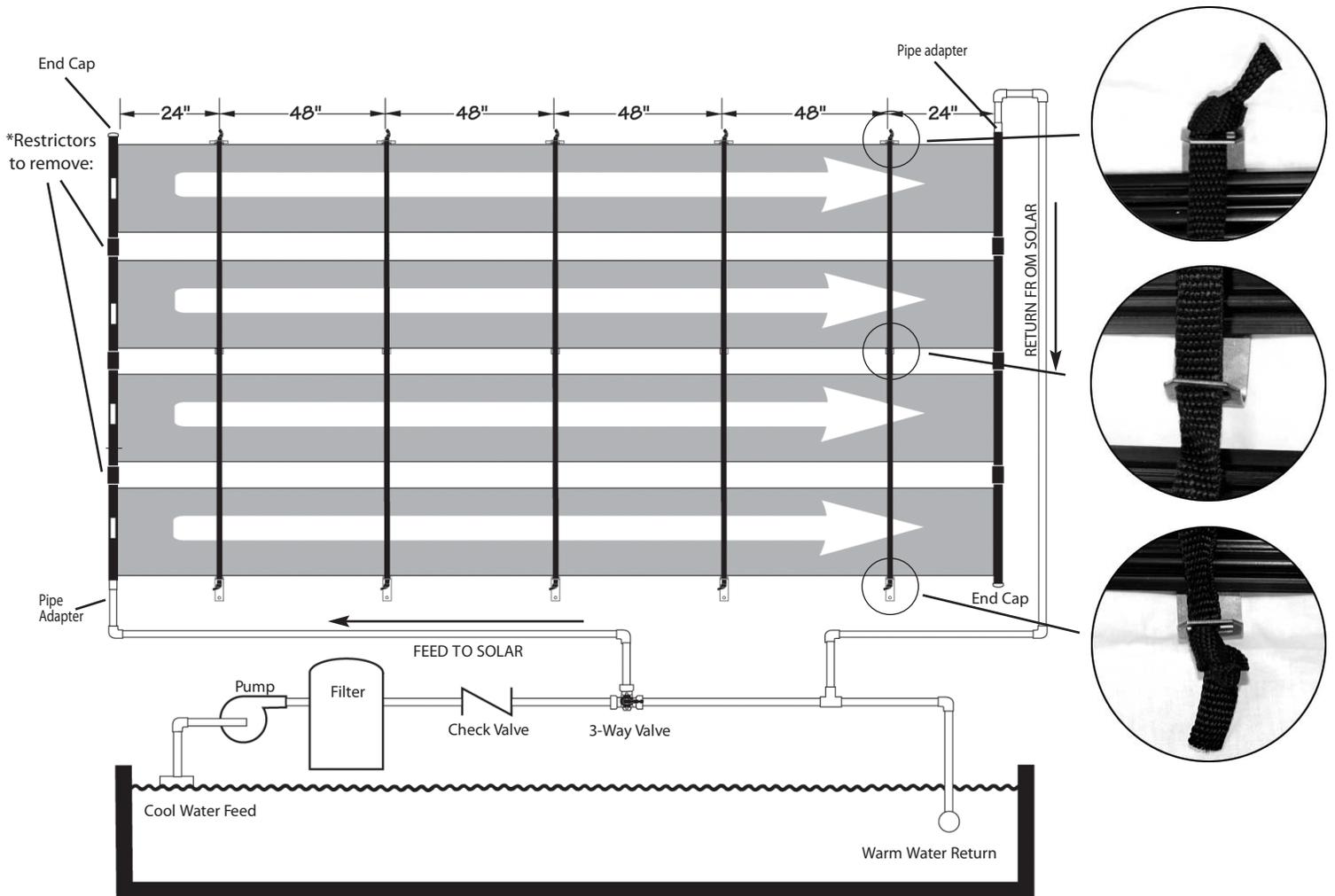
For Inground Pools
5 ft. x 20 ft. panel assembly

CAUTION: Unless you are familiar with working on roofs and have the proper ladders and safety equipment for such work, you should hire someone with the necessary experience to do the installation. Failure to observe safe practices on a roof or other elevated structure may result in falling, leading to serious injury to you.

For installation as an inground solar panel, the restrictors inside the pipe connectors MUST be removed.*

Required:

- Phillips Head screwdriver
- Power Drill
- 1/8" drill bit and Phillips head bit
- Silicone sealant (GE II or equivalent)
- Enough 1 1/2" Schedule 40 PVC pipe (or Flex PVC) for the plumbing going to and from your pool equipment and fittings.
- PVC Primer and Glue
- PVC Pipe and adapter not included



* Pipe Restrictor

Optional Mounting on Sloped Surface

Roof | Rack

1. Remove the collectors from the box and allow the collectors to relax in the sun (30 minutes to an hour). **DO NOT LAY COLLECTORS ON THE GRASS IT CAN DAMAGE THE LAWN UNDERNEATH!**
2. Allow at least one foot around the solar system for brackets, piping, and working area. Roof obstructions like vents should be taken into consideration when laying out collectors.

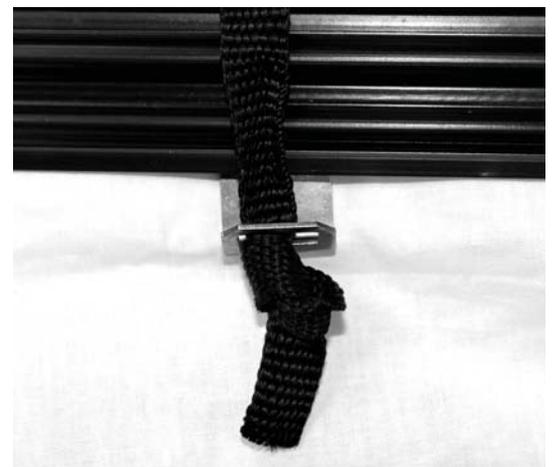
WARNING: DO NOT WALK ON THE SOLAR COLLECTORS

3. Determine the position of the top collector. The top mounting bracket will be located along the length of the collector. The collector should slope slightly toward the inlet point (where the water enters the collectors) to allow for drainage. The middle mounting bracket will follow the same straight line down the panel.
4. Drill 1/8" pilot hole for lag screws provided for all brackets. Lag screws should be long enough to reach the sub-roof under the shingles. Inject a generous amount of silicone sealant into the holes and onto the surrounding roof surface. Mount the bracket to the roof (as shown) with the bracket in between or outside the panels.

HIGH WIND AREAS: Additional strap kits can be purchased if needed.

ROOF INSTALLATIONS: It is suggested that you use rigid PVC pipe for roof installations.

Straps are provided in the proper lengths to span the collectors vertically. Start by tying the strap to the top of the bracket and run the strap to the bracket below it and tie to the bottom bracket.



Operation & Maintenance

Operation

1. The collectors should feel cool to the touch when the sun is shining on them and water is passing through. This means that the heat is being transferred to the water.
2. The water returning to your pool will be a few degrees (3-5 degrees) warmer than the pool itself. This is the most efficient way to heat a large body of water like a pool. Keep circulating the water and add a few degrees each pass.
3. Circulate water through the solar collectors at least 6 hours per day during the daylight hours on sunny days. If you circulate water through it at night, when it's overcast or on chilly days, you will cool your pool water rather than heat it. If you need to run your pump at night, divert the water directly back to the pool and bypass the solar system.

Winterization

YOUR SOLAR SYSTEM MUST BE DRAINED FOR WINTERIZATION! FREEZE DAMAGE IS NOT COVERED UNDER WARRANTY! YOU MUST DRAIN YOUR SOLAR COLLECTORS JUST LIKE YOU DRAIN THE REST OF YOUR POOL EQUIPMENT!

Remove the end cap at the top of the solar system. Remove the end cap at the bottom and be sure ALL the water is drained out of the system. Replace end caps and blow pressurized air through the system. After blowing them out, remove and store the bottom end cap for use again in the spring when you start up again. You can leave the collectors in place (as long as they are completely drained) and they will withstand even the harshest of winters. We recommend that you store your collectors inside in a warm dry place.

Collector Repair

IF A COLLECTOR DEVELOPS A LEAK

Your solar collector is warranted against defects in materials and workmanship (see warranty for details and limitations). If a leak develops for any other reason, you may use the repair method shown. The collector is not warranted against freeze damage.

SOLAR COLLECTOR REPAIR

This method allows for an easy and permanent, on-site repair of a collector by isolating the leaking tube. Referring to the figure at the right, locate the tube to be isolated. (End tube has been shown for clarity). Using a sharp utility knife, very carefully cut away approximately 1" of the tube at both headers. Drive a #10 sheet metal screw, preferably stainless, into the hole in the header. The screw must be between 1/2" and 3/4" long.

DO NOT OVERTIGHTEN! If the screw strips out, or if the repair leaks, use a #12 screw. This repair method will not void the collector warranty.

With proper care and winterization, you will enjoy your solar collectors for many years.

