

# SunGrabber™

## IN-GROUND - SOLAR POOL HEATER -



### INSTALLATION AND OPERATION MANUAL

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**ATTENTION:** THIS MANUAL PROVIDES A DETAILED STEP-BY-STEP PROCEDURE FOR THE INSTALLATION OF THE SUNGRABBER™ SOLAR POOL HEATING SYSTEM. THE DIRECTIONS SHOULD BE FOLLOWED PROPERLY AND ONLY RECOMMENDED SUNGRABBER™ COMPONENTS AND HARDWARE SHOULD BE USED IN ORDER TO PROVIDE A TROUBLE FREE SYSTEM. READ THIS MANUAL COMPLETELY BEFORE STARTING. IF YOU HAVE ANY INSTALLATION PROBLEMS OR QUESTIONS, CONSULT YOUR LOCAL SUNGRABBER™ DEALER. ALWAYS CONFORM TO LOCAL BUILDING CODES.

**CAUTION:** SOLAR COLLECTORS ARE OFTEN INSTALLED ON THE ROOF OF BUILDINGS OR RESIDENTIAL HOMES. 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. WHEN INSTALLING COLLECTORS ON THE GROUND, DO NOT BUILD A RACK SUPPORT THAT CAN ALLOW CHILDREN TO ACCESS THE POOL.

## Congratulations!

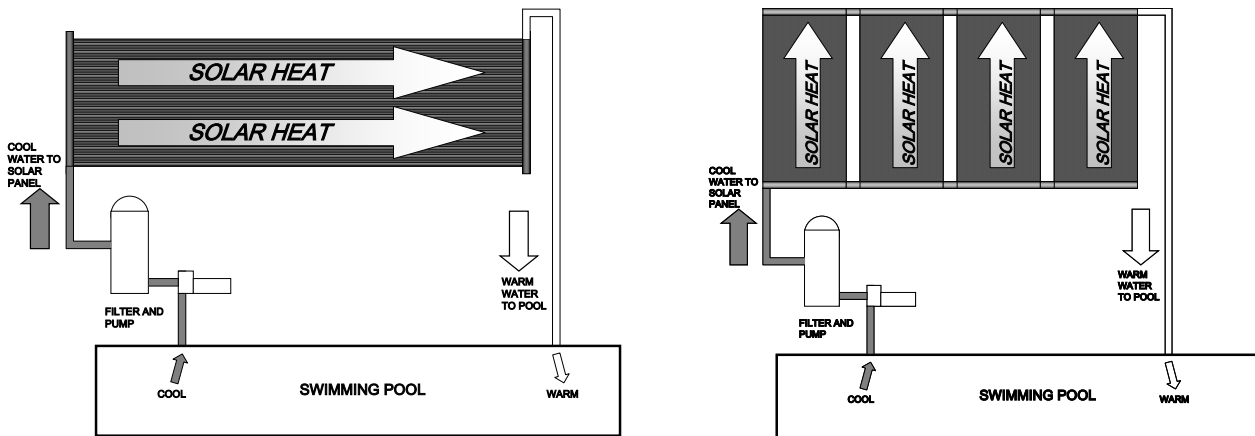
You are about to install a SunGrabber™ In-ground Solar Pool Heater (ING) - *The best solar pool heater made!* Based right here in the U.S.A., the manufacturer of SunGrabber™ pioneered polymer solar pool heaters over 30 years ago, and today takes great pride in being the largest and oldest manufacturer in the world. Backed by the longest and best warranty in the industry, your SunGrabber™ is state-of-the-art in solar pool heating technology, and will provide years of FREE HEAT for your pool! In fact, when sized and installed correctly, a SunGrabber™ will raise your pool temperatures up to 10°F, and extend your swimming season.



*Regular use of a solar blanket will enhance the performance of your new SunGrabber™ and allow you to enjoy a warmer pool!*

## HOW DOES THE SUNGRABBER™ SYSTEM WORK?

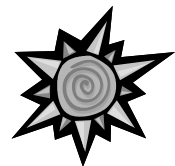
- The system is designed to be installed horizontally (20' panels) or vertically (10' and 12' panels)
- Pool water moves through the solar panel(s) picking up the sun's solar heat along the way.
- Warmed pool water is then returned back to the pool.
- During the day, between 2°F and 5°F of heat is added each time your pool water circulates through the solar panel(s).



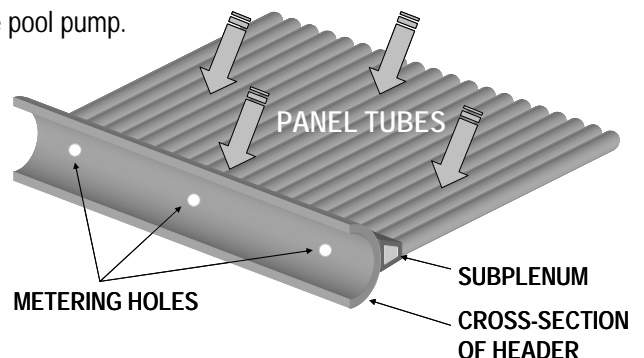
*If your pool water is too warm, circulate the pool water through the solar panel at night to cool your pool!*

## WHY IS SUNGRABBER™ YOUR BEST CHOICE?

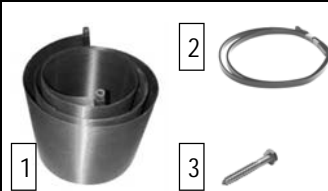

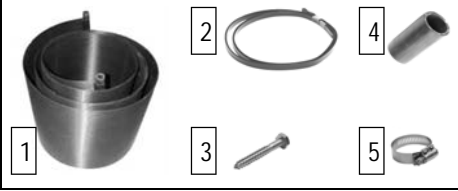
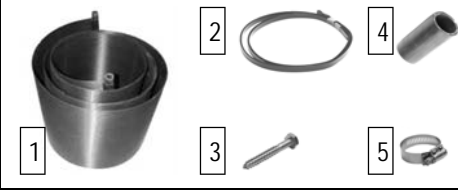
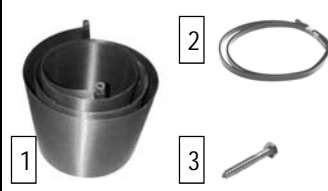
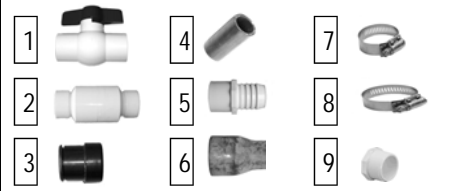
SunGrabber™'s patented tube-to-tube construction and water metering system provides even flow and heating along the entire width and length of the solar panel. These features eliminate inefficient hot spots associated with other solar brands.








1. Pool water enters the header and travels through the metering holes into the subplenum without creating excessive additional backpressure on the pool pump.
2. The subplenum evenly distributes pool water simultaneously to every panel tube.
3. The pool water then flows down the panel creating a fully-wetted surface that is in touch with the sun's solar heat.
4. A balanced fully-wetted surface optimizes transfer of the sun's available solar heat to your pool water.



# WHAT'S NEEDED TO INSTALL YOUR SUNGRABBER™?

SunGrabber™ Product		Box Contents by Item (Manual and Warranty Card Not Shown)		SunGrabber™ Product		Box Contents by Item (Manual and Warranty Card Not Shown)	
<b>ING (Compact) 40,000 BTU's</b>				<b>ING (Compact) 80,000 BTU's</b>			
<b>Box Contents</b>				<b>Box Contents</b>			
Item	Quantity	Description		Item	Quantity	Description	
1	1	2' x 20' in-ground solar panel		1	2	2' x 20' in-ground solar panel	
2	3	36" mounting straps		2	3	60" mounting straps	
3	6	2" x 1/4" stainless mounting screws		3	9	2" x 1/4" stainless mounting screws	
<b>Additional Parts Required:</b> (1) - System Kit, PVC Solvent Primer/Cement, Teflon™ Tape, Roofing Mastic, and plumbing from roof to pool equipment.				<b>Additional Parts Required:</b> (1) - System Kit, PVC Solvent Primer/Cement, Teflon™ Tape, Roofing Mastic, and plumbing from roof to pool equipment.			
SunGrabber™ Product		Box Contents by Item (Manual and Warranty Card Not Shown)		SunGrabber™ Product		Box Contents by Item (Manual and Warranty Card Not Shown)	
<b>ING (2) - 2' X 10' 40,000 BTU's</b>				<b>ING (2) - 2' X 10' 40,000 BTU's w/ System Kit</b>			
<b>Box Contents</b>				<b>Box Contents</b>			
Item	Quantity	Description		Item	Quantity	Description	
1	2	2' x 10' in-ground solar panel		1	2	2' x 10' in-ground solar panel	
2	3	60" mounting straps		2	3	60" mounting straps	
3	9	2" x 1/4" stainless mounting screws		3	9	2" x 1/4" stainless mounting screws	
4	2	1 1/2" rubber coupler		4	2	1 1/2" rubber coupler	
5	4	1 1/2" hose clamp		5	4	1 1/2" hose clamp	
				6	1	SunGrabber™ System Kit	
<b>Additional Parts Required:</b> (1) - System Kit, PVC Solvent Primer/Cement, Teflon™ Tape, Roofing Mastic, and plumbing from roof to pool equipment.				<b>Additional Parts Required:</b> PVC Solvent Primer/Cement, Teflon™ Tape, Roofing Mastic, and plumbing from roof to pool equipment.			
SunGrabber™ Product		Box Contents by Item (Manual and Warranty Card Not Shown)		SunGrabber™ Product		Box Contents by Item (Manual and Warranty Card Not Shown)	
<b>ING 80,000 BTU's</b>				<b>System Kit</b>			
<b>Box Contents</b>				<b>Box Contents</b>			
Item	Quantity	Description		Item	Quantity	Description	
1	1	4' x 20' in-ground solar panel		1	1	1 1/2" ball valve	
2	3	60" mounting straps		2	1	1 1/2" check valve	
3	6	2" x 1/4" stainless mounting screws		3	1	Vacuum relief valve (VRV)	
				4	6	1 1/2" rubber coupler	
				5	2	1 1/2" male rib adapter (MRA)	
				6	1	1 1/2" x 2" bell reducer rubber coupler	
				7	13	1 1/2" hose clamp	
				8	1	2" hose clamp	
				9	1	1" PVC Plug	
<b>Additional Parts Required:</b> (1) - System Kit, PVC Solvent Primer/Cement, Teflon™ Tape, Roofing Mastic, and plumbing from roof to pool equipment.							

## WHAT'S NEEDED TO INSTALL YOUR SUNGRABBER™? (CONTINUED)

SunGrabber™ Product	Box Contents by Item (Manual and Warranty Card Not Shown)	SunGrabber™ Product	Box Contents by Item (Manual and Warranty Card Not Shown)																								
<b>ING</b> <b>(1) - 4' X 10'</b> <b>40,000 BTU's</b>		<b>ING</b> <b>(2) - 4' X 10'</b> <b>80,000 BTU's</b>																									
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<b>ING</b> <b>(1) - 4' X 12'</b> <b>48,000 BTU's</b>		<b>ING</b> <b>(2) - 4' x 12'</b> <b>98,000 BTU's</b>																									
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SunGrabber™ Product	Box Contents by Item (Manual and Warranty Card Not Shown)	Additional parts required other than the System Kit and Panel Packs can be purchased at you local hardware store.  <b><u>TOOLS REQUIRED</u></b> Cordless drill 1/8" drill bit 7/16" socket and driver 1/2" ratchet Flathead and Phillips screwdriver 1/4" socket driver Tape measure Marking pencil Hack saw or PVC pipe cutter  <b><u>AVAILABLE SUNGRABBER™ ACCESSORIES</u></b> 1 1/2" X 2" Panel Add-on Adapter Kit Panel Add-on Kit Roof/Rack Mounting Kit Panel Repair Kit																									
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# INSTALLING YOUR SUNGRABBER™

The ideal location for your SunGrabber™ system is a south-facing pitched roof closest to your pool equipment with enough space to mount your panel(s). West-facing would be your second choice followed by east with north being the least desirable. Be certain that trees or other structures do not shade the location you select. The effectiveness of your SunGrabber™ system is dependent on the amount of direct sunlight. Survey the roof to confirm a proper fit.



*Make certain to avoid shaded roof areas.*

A 3/4 to 1 1/2 horsepower pump will generally handle installations up to 30 feet away from the pool equipment and one story high. Large systems and remote installation may require a pump with more horsepower. If your pool has a gas heater or heat pump, plumb your system in between the filter and gas heater/heat pump. You should see a reduction in your monthly energy bill!



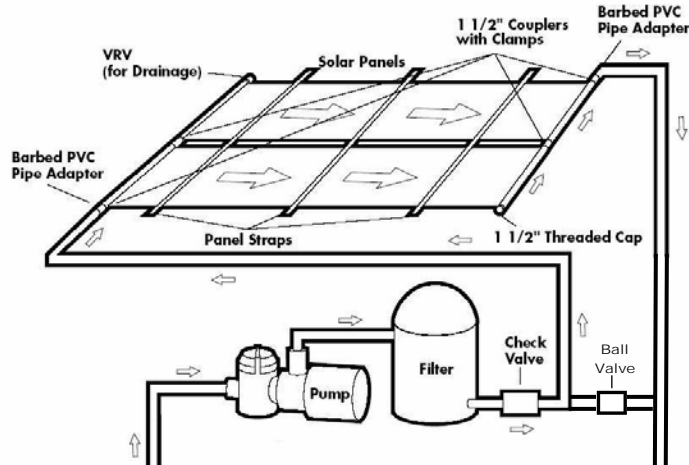
*When transporting panel(s) to the roof or rack and while positioning panel(s) before mounting, be sure they are not dragged over any sharp surfaces.*

**Note: The following procedure assumes a shingle roof; for other roof types including flat roofs, see the section on “Requirements for roof types other than shingle roofs”.**

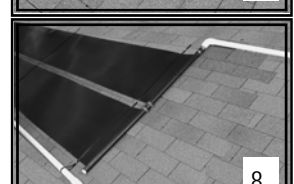
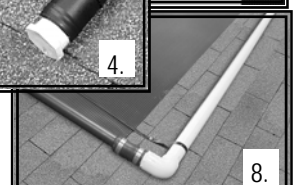
## HORIZONTAL INSTALLATION ON SHINGLE ROOF [2' X 20' AND 4' X 20' PANELS]

1. Determine the location of your panel(s). Lay out your system so that it declines slightly (about 1/4" of fall every 10') toward the bottom corner of the panel that feeds from your pool equipment. This is needed to ensure proper drainage for winterizing.

2. The three mounting straps provided should be positioned with one in the center of the panel, and one 5" in from each header. Mark the bottom row lag bolt locations. Position the first strap with 10" of under-hang below the lag bolt location, drill an 1/8" pilot hole, remove strap, apply adhesive to the pilot hole, re-position the strap, and screw the lag bolt through the strap into the roof. Install remaining two straps the same way. In Step 8, you will use the 10" underhang strapping and the same lag bolt to secure supply piping.



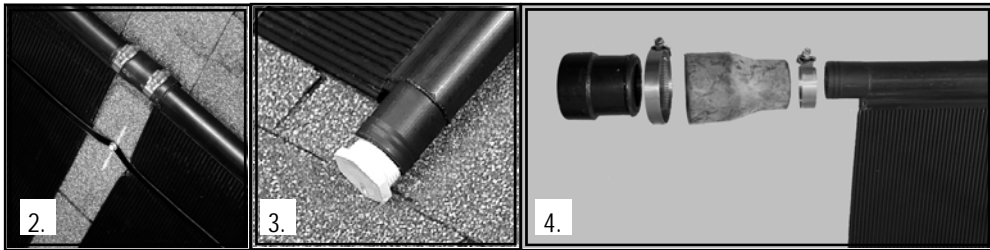
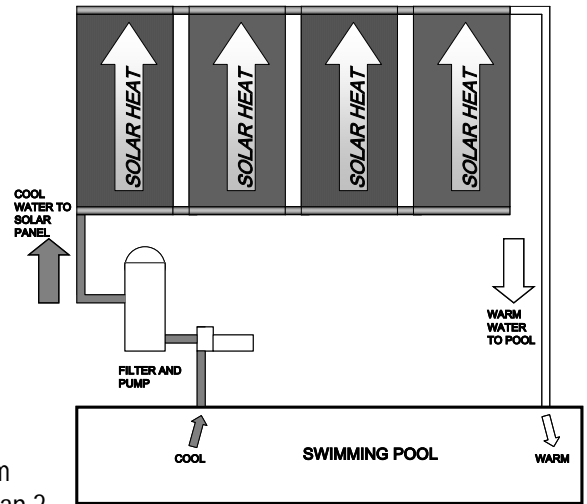
3. If this is a multiple panel system, connect all the panels using the rubber couplers and hose clamps provided with your system. Make sure each coupler is pushed on at least an inch past the raised ribs of the header adapters. Position hose clamps 1/4" from the end of the couplers and tighten.
4. Install the threaded PVC plug into the bottom corner adapter of the bottom panel that will not have plumbing running to it. Be sure to use no more than 2 wraps of Teflon™ tape on the threads of the plug.
5. Install the VRV and bell reducer as shown onto the upper most corner of the top panel that will not have plumbing running to it.
6. Install rubber couplers and clamps on the opposite corners that will receive plumbing. Insert 1-1/2" Male Ribbed Adapters (MRAs) with barbs into the coupler and secure with a hose clamp.
7. Follow Steps 1 and 2 for mounting remaining straps.
8. Construct plumbing as shown. Use extra strapping at the bottom to hold supply piping.



## INSTALLING YOUR SUNGRABBER™ (CONTINUED)

### VERTICAL INSTALLATION ON SHINGLE ROOF [2' X 10' PANELS]

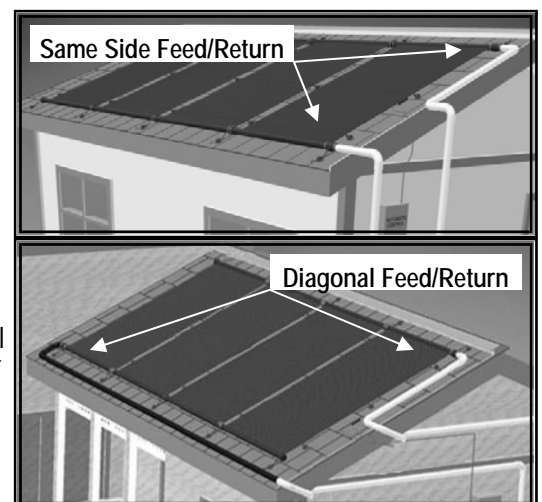
1. Determine the location of your panel(s). Lay out your system so that it declines slightly (about 1/4" of fall every 10') toward the bottom corner of the panel that feeds from your pool equipment. This is needed to ensure proper drainage for winterizing.
2. Lay out all panels and connect them together using the rubber couplers and hose clamps provided. Make sure the couplers are pushed onto the header adapter at least an inch past the raised barb, position the hose clamps 1/4" from the ends of the couplers, and tighten.
3. Install the threaded PVC plug into the bottom corner adapter of the bottom panel that will not have plumbing running to it. Be sure to use no more than 2 wraps of Teflon™ tape on the threads of the plug.
4. Install the VRV and bell reducer as shown onto the upper most corner of the top panel that will not have plumbing running to it.



5. Install rubber couplers and clamps on the opposite corners that will receive plumbing. Insert 1-1/2" Male Ribbed Adapters (MRAs) with barbs into the coupler and secure with a hose clamp.
6. The three mounting straps provided should be positioned with one in the center of the panel, one 3" down from the top header and one 5" up from the bottom header.
7. Starting with the strap at the top of the panel, mark the position of the first lag 2" off the edge of the panel, position the strap over the mark with one inch overhanging the lag screw location. Drill an 1/8" pilot hole, remove the strap, apply roofing mastic over the pilot hole, re-position the strap, and screw lag bolt through the strap into the roof.
8. Position the panel under the strap, pull the strap tight across the panel and install the second lag bolt.
9. Continue until all the panels are installed then construct plumbing from the panels to the pool equipment.

### VERTICAL INSTALLATION ON SHINGLE ROOF [4' X 10' AND 4' X 12' PANELS]

1. Determine the location of your panel(s). Lay out your system so that it declines slightly (about 1/4" of fall every 10') toward the bottom corner of the panel that feeds from your pool equipment. This is needed to ensure proper drainage for winterizing.
2. Lay down panels adjacent to each other and couple all panels together using the rubber couplers and hose clamps provided. Make sure the couplers are pushed onto the header adapter at least an inch past the raised barb, position the hose clamps 1/4" from the ends of the couplers, and tighten.
3. Install the threaded PVC plug into the bottom corner adapter of the bottom panel that will not have plumbing running to it. Be sure to use no more than 2 wraps of Teflon™ tape on the threads of the plug.

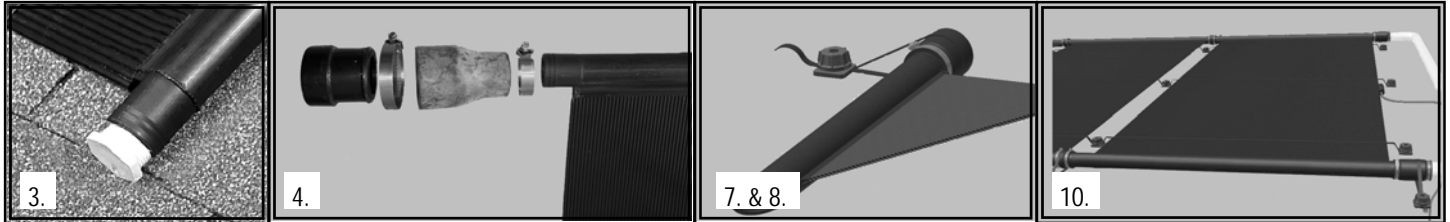


You can install up to (8) panels utilizing same-side feed/return and up to (12) panels utilizing diagonal feed/return.

## INSTALLING YOUR SUNGRABBER™ (CONTINUED)

### VERTICAL INSTALLATION ON SHINGLE ROOF [4' X 10' AND 4' X 12' PANELS] (CONTINUED)

4. Install the VRV and bell reducer as shown onto the upper most corner of the top panel that will not have plumbing running to it.
5. Install rubber couplers and clamps on the opposite corners that will receive plumbing. Insert 1-1/2" Male Ribbed Adapters (MRAs) with barbs into the coupler and secure with a hose clamp.



6. Mark a spot on the roof 4" to 7" above each coupler at the TOP of the assembled panels and drill an 1/8" pilot hole.
7. Start at one end of the assembled panels. Apply roofing mastic into the pilot hole and circular cavity on the bottom of a mounting base, insert 1/4" lag bolt, and screw the base to the roof.
8. Insert a 32" poly strap around the coupler, lay both ends into the base, draw tight, and screw on cap. These straps will prevent your system from sliding downward.
9. Use a 1/2" ratchet to tighten caps to bases.



**When tightening caps to bases make sure you do not spin the base as this will break the seal of your sealant.**

10. Install the 62" belly straps at the middle of the panels, and 10" down from the top header and up from the bottom header using the caps and bases, and following the same procedure as used in Step 7. Be sure to snug the straps prior to tightening the caps. Some caps and bases will have two overlapping straps.
11. Install the stretchy vinyl straps around the BOTTOM couplers following the same procedure outlined in Steps 6 thru 9. These straps secure the panel ends while allowing for expansion and contraction of your system.
12. Construct plumbing from the panels to the pool equipment.

### REQUIREMENTS FOR ROOF TYPES OTHER THAN SHINGLE ROOF

**Flat Tile or Barrel Tile Roofs:** Use 1-1/4" TAPCON Hex Head Screws (available at any local hardware store) in place of the provided stainless steel lag screws. This requires drilling a pilot hole with a 3/16 inch masonry drill bit in the tile before inserting the screw. Do not drill into the substrate below the tile; doing so can promote a roof leak if not done correctly. The mounting screws should be positioned 1" to 2" above the bottom edge of the tile. This will allow a space between the tile and the substrate due to the overlap in the tiles. On barrel tile roofs, try to lay out the panels so that the mounting holes are on the peak or top of the barrel tile. Be sure that the tiles that the panels are fastened to are secure. For high wind prone areas or where roof tiles are loose, consult your dealer for alternate mounting instructions.

**Cedar Shake Roofs:** If the cedar shakes are installed on top of a plywood surface, use a galvanized metal flashing (approximately 4" x 4") under each shake where the mounting screw will penetrate. Center the flashing under the penetration location before installing the screw. Drill a pilot hole and apply a generous amount of sealant into the hole. If the cedar shakes are installed on fir strips, contact your dealer for alternate mounting instructions.

**Flat Built-up Gravel Roofs:** Use caution when installing on this type of roof. The roof must be in good condition and be completely dry. If you are uncertain of the condition of the roof, consult a professional. At each mounting location remove the loose gravel in an area approximately 6" x 6". At the exact location of the penetration, remove the gravel which is embedded into the tar surface of the roof using a chisel or the back of a claw hammer. Scrap back the gravel until you have a smooth tar surface approximately 2" x 2". Apply a generous amount of sealant under the mounting hardware and over the head of the screw once installed. Using a 2" to 2 1/2" fender washer under the mounting hardware will provide additional mounting surface. The screw must be tightened to hold the hardware securely to roof surface; however, use extreme caution not to over tighten and strip the screw in the plywood. An alternate method is to have a roofing contractor install roof curbs where the mounting hardware will be installed.

**Open Beam Roofs:** Any ceiling with exposed beams must be checked to avoid the screw ends from penetrating into the interior space. Call for alternate installation method.

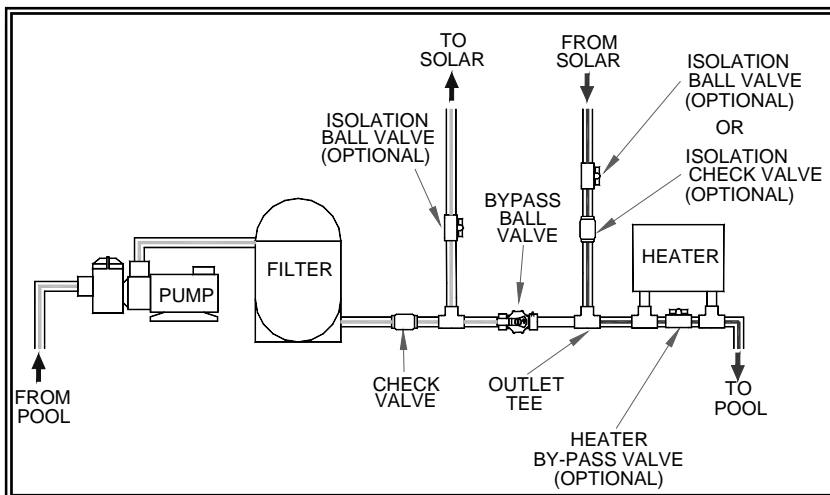
**Metal Roofs:** If the metal roof is installed on a plywood surface, you may proceed using the normal installation method. If the metal roof is installed on fir strips, the mounting hardware must penetrate into the fir strip to insure a good seal and to avoid bending the metal surface. If screw heads protrude above the surface of the roof, a substrate must be used to prevent damage to the panels.

**Rubber or Asphalt Modified:** This type of roof is typically installed flat. Using a 2" to 2 1/2" fender washer under the mounting hardware will provide additional mounting surface. Be sure to use a generous amount of sealant under the washer, between the washer and the mounting hardware, and on top of the mounting screw.

**Roof or Ground Mounted Rack Systems:** Rack systems can be made from pressure treated wood or aluminum. For roof mounted racks aluminum is preferred for its additional strength and longevity. See your dealer for rack mounting options.

## CONNECTING TO POOL EQUIPMENT

Install check valve and by-pass ball valve as shown. The check valve prevents the water in the panels from flowing backwards through filter and back-flushing into the pool. The by-pass ball valve allows you to manually activate and deactivate your solar system daily. When turning the system on, regulate flow using the by-pass ball valve. The solar system works best at flow rates ranging from 4 to 8 gpm per panel. To regulate flow, simply document the pressure on the pressure gauge of the filter with the by-pass valve open and the pool pump running. Then throttle the by-pass ball valve closed until the pressure on the filter gauge has increased (for a typical 6 to 8 panel system) more than what you originally documented. Give the system about 10 minutes to normalize, and then check the pressure gauge again. Additional fine-tuning may be required. Once set, mark the location of the by-pass ball valve handle so that you can simply and accurately activate and deactivate the solar system daily.



True Union isolation ball valves are recommended to make Winterizing your system easier. *NOTE: A MOTORIZED VALVE AND AN AUTOMATIC SOLAR CONTROL ARE OPTIONAL ITEMS AVAILABLE FROM YOUR LOCAL POOL DEALER.*

## HEATING YOUR POOL

When the system starts up you will notice tiny air bubbles flowing into your pool. This is the plumbing and solar panel(s) being purged of any air. This is normal and should last a few minutes. To check the performance of the system, turn off the pool pump. Wait 10 minutes and feel the surface of the solar panel. It should be hot to the touch. Now turn the pool pump back on and feel the panel getting cooler to the touch. The difference in temperature is FREE solar heat being added to your pool water!



**Warning:** *If the panel is full of water and has been sitting in the sun without the pump running, the water can get very hot. Hot water can cause burns, so be sure everyone is away from the pool inlet each time the system is turned on.*

For best results, turn on your solar system whenever your solar panels are in the sun. Turn the solar system off at night or when it's raining to prevent cooling the pool. If your pool system has a timer, set it to operate from 9 a.m. until 5 p.m. This is the best solar heating period. Using a solar blanket in addition to your solar pool heater will hold the warmth in the pool and help it heat more quickly. It is particularly important to use the blanket at night or when it's windy. If your pool becomes too warm during the season, turn the pump and solar on at night to help cool the pool.

## WINTERIZING YOUR SUNGRABBER™

A vacuum relief valve (VRV) is provided with your SunGrabber™ system to allow the panels to drain when the pump is off. All plumbing designs should allow for full drainage. Turn by-pass valve and pool pump off, and allow 30 to 40 minutes for drainage. Undo the isolation valves, remove the VRV, and allow the system to drain. Store your VRV. SunGrabber™ panels are designed to be left in place through the winter months as long as they are drained. If you question the drainage of your system you should disconnect each panel and raise each one up to check and see that no water is present.



**Freeze damage is not covered under warranty.**



## TROUBLESHOOTING

If you are having an issue with your SunGrabber™, please review this section and the Frequently Asked Question section that follows. Usually a resolution can be found in these two sections. If your particular issue is not found, please visit us on the web at [www.sungrabber.com](http://www.sungrabber.com) or contact our customer support department at 1-866-SUNGRAB (786-4722).

**Issue:** My system doesn't seem to be working.

**Resolution:** Turn off your pool pump midday in bright sunlight. After 10 minutes have passed, feel the solar panel. It should be quite warm to the touch. Turn your pool pump back on. Wait another 10 minutes and feel the solar panel again. It should be cool to the touch. The difference in temperature is the heat being added to your swimming pool and indicates that your system is functioning properly. Also, the water entering the pool from the solar panel through the pool inlet should be warmer than the surrounding pool water.

**Issue:** My pool is not warm enough.

**Resolution:** Your system should be up and running for five days to reach optimum temperature. Be sure the system is turned off during the night, or this will cool your pool. Be sure your solar system is getting sun the entire day or at least 4 to 6 hours preferable of afternoon sun, preferably on a south-facing pitched roof.

**Issue:** Flow from my pool inlet seems greatly reduced and filter pressure excessive.

**Resolution:** There will be some increase in backpressure on the filter and pump when the solar system is on. Check to see that your pool filter is properly cleaned.

## FREQUENTLY ASKED QUESTIONS

The following questions are those asked most frequently by our SunGrabber™ customers. If you have a question or concern about your SunGrabber™, your answer may be found below.

**Question:** Should I use a solar pool cover with my solar system?

**Answer:** A solar pool cover prevents evaporation and heat loss, especially at night when the outside temperature is cooler. If you do not use one, there is a good chance that the heat you added during the day will be lost at night.

**Question:** Can above ground pool solar panels be used to heat my in-ground pool?

**Answer:** SunGrabber™ does not recommend using above ground solar panels on in-ground pools.

**Questions:** Can I add on more panels if I want my pool warmer?

**Answer:** Absolutely. The more panels—the warmer your pool! Your SunGrabber™ system's modular design accepts additional panels very easily.

**Question:** Can I use my SunGrabber™ with a gas heater or heat pump?

**Answer:** If you have a gas heater or heat pump installed on your pool currently, simply install your SunGrabber™ between the filter and the gas heater/heat pump. You will notice a reduction in your monthly energy bill!

**Questions:** How should I time my automatic pool cleaner?

**Answer:** Set your pool cleaner to turn on after the solar system. This prevents air from entering and possibly damaging pool-cleaning equipment during startup of your solar system.

**Question:** I left my solar panel full of water through the winter and now some of the tubes are leaking. Can it be repaired?

**Answer:** Yes it can. You will need to order our "Panel Repair Kit" from your local dealer. It is very important that your SunGrabber™ is properly winterized each year. (Reference the "Winterizing Your SunGrabber™" section of this manual, page 8)

## CUSTOMER SUPPORT

If your issue was not addressed in our Troubleshooting or Frequently Asked Questions sections, please visit us on the web at [www.sungrabber.com](http://www.sungrabber.com) or contact our customer support department at 1-866-SUNGRAB (786-4722).

## WARRANTY

Your SunGrabber™ is backed by a limited 10-year warranty.



# **SunGrabber™**

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