FAFCO

SOLAR POOL HEATING

SunSaver ST™

Owner's Manual

Contents

Your FAFCO Solar System

Thank you for your investment in the FAFCO Solar System.
Since 1969, our goal has been to design, test, and produce solar heating systems that will help you get additional swimming pleasure from your pool. Please read the following pages carefully to get the most out of your FAFCO solar heating system.

What you can expect from your FAFCO Solar System?

As wonderful and abundant as solar energy is, performance results are conditional. With systems being installed in every part of the world with widely varying weather and climatic conditions, temperature results may vary. With these considerations in mind, and assuming you're having sunny weather with your system on, **you can expect it to:**

1. Heat the water 2 to 5 degrees F. every time it passes through the system.

2. Raise your pool's temperature 5 to 15 degrees F. over a period of several days of good weather.

3. Eliminate or significantly reduce the cost of operating your fossil fuel pool heater, but not necessarily replace it, during the colder less sunny months (a pool cover will enhance #1 & 2 above).

4. Give you years of trouble free service.

SYSTEM SPECIFICATIONS

DESCRIPTION:	The SunSaverST™ Solar Collector is manufactured in Chico,California. The collector is a specially developed, highly stabilized polyolefin and is of parallel, circular channel design with separated tubes. It is unglazed, uninsulated, and designed for low temperature applications such as swimming pool heating, heat pumps, aquaculture, and hydroponics.
DIMENSIONS:	Header Length = 50.875 in. (1.29 m) Width (Panel body) = 47.5 in. (1.21 m)

Overall Dimensions:

Overall Dimensions	Effective Area
4 ft. X 8 ft. (1.22 X 2.44 m)	30.8 ft^2 (2.86 m^2)
4 ft. X 10 ft. (1.22 X 3.05 m)	38.8 ft^2 (3.60 m^2)
4 ft. X 12 ft. (1.22 X 3.66 m)	46.6 ft^2 (4.33 m^2)

FLOW:

Maximum recommended flow = 8 gpm per panel
3.47 psi head loss (1,817 l/hr, 0.244 kg/cm^2)
Minimum recommended flow = 3 gpm per panel
0.48 psi head loss (681 l/hr, 0.034 kg/cm^2)
Recommended flow = 4 gpm per panel
0.87 psi head loss (908 l/hr, 0.061 kg/cm^2)

PRESSURE:	**NORMAL OPERATING PRESSURE**	**MAXIMUM INTERMITTENT PRESSURE**
80°F (27°C)	0 to 30 psi (0 - 2.2 kg/cm^2)	45 psi (3.21 kg/cm^2)
212°F (100°C)	0 to 5 psi (0 - 0.35 kg/cm^2)	5 psi (0.35 kg/cm^2)

70°F (21°C) Measured burst pressure of panel body = Over 300 psi (21.0 kg/cm^2)

TEMPERATURE:

Normal operating temperature = 60°F to 90°F (16°C to 32°C)
Maximum continuous operating temperature = 212°F (100°C)
Maximum intermittent temperature (unpressured) = 250°F (121°C)
Melt temperature = 338°F (170°C)

FREEZING: The system should be drained before freezing conditions occur.

WEATHERABILITY: Weatherometer, accelerated outdoor exposure, and other extensive laboratory testing demonstrates long-term weatherability of SunSaverST™ collectors (see warranty). Additionally, FAFCO's experience of over 30 years and over 1,000,000 collectors installed confirms that the proprietary stabilization and high mechanical strength results in negligible warranty over the twelve-year warranty period.

WEIGHT:

Without Water:

4 ft. X 8 ft.	12.2 lbs (4.54 kg) or 0.38 lbs/ft^2 (1.85 kg/m^2)
4 ft. X 10 ft.	14.3 lbs (5.34 kg) or 0.36 lbs/ft^2 (1.76 kg/m^2)
4 ft. X 12 ft.	16.47 lbs (6.15 kg) or 0.34 lbs/ft^2 (1.67 kg/m^2)

With Water:

4 ft. X 8 ft.	46 lbs (17.2 kg) or 1.44 lbs/ft^2 (7.03 kg/m^2)
4 ft. X 10 ft.	53.8 lbs 20.1kg) or 1.35 lbs/ft^2 (6.59 kg/m^2)
4 ft. X 12 ft.	61.7 lbs (23.07 kg) or 1.29 lbs/ft^2 (6.28 kg/m^2)

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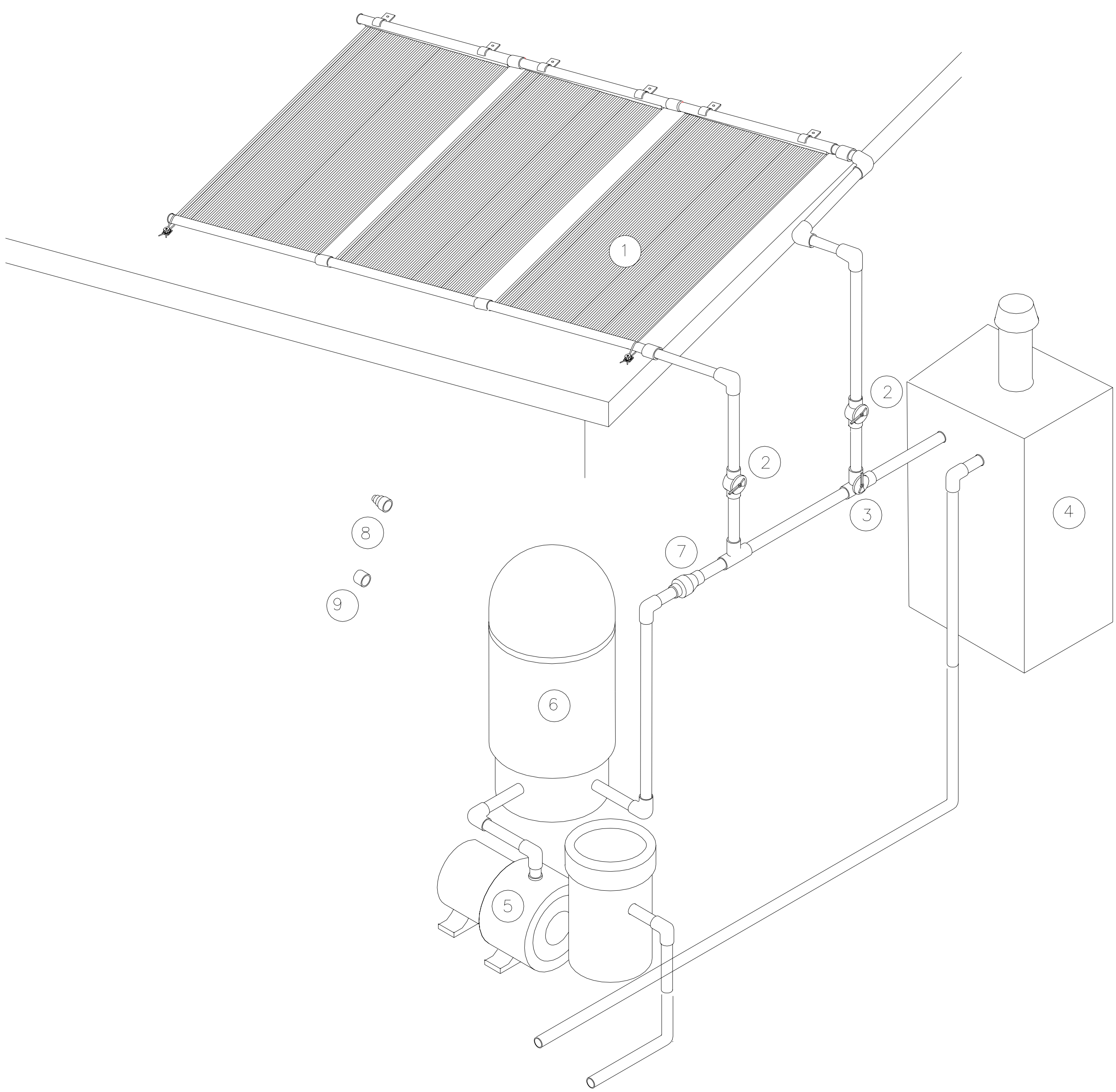
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WHAT DO THE VARIOUS COMPONENTS DO?

1. The Solar Collectors

These are the heart of your system. They are the "heat exchangers" that collect the sun's heat and transfer it to the fast-flowing water that is being pumped through them from bottom to top for optimum efficiency.

2. The Isolation Valves

These two valves are manually operated to isolate the solar system from the filtration system—primarily used when backwashing the filter, or at any time it is desirable to isolate the Solar Collectors (i.e. winterization).

3. Diverter Valve

Diverts the pool or spa water to the Solar Collectors.

4. Your Heater

It is only needed for supplemental heat boost. You turn the heater off and on manually, or use automatic controls.

5 & 6. Your Pump and Filter

These are compatible with your FAFCO Solar System and will continue to do their job whether or not the solar is turned on. When cleaning the filter the solar system should be isolated to prevent debris from entering the system.

7. Check Valve

When the pump (5) shuts off, the Solar Collectors (1) will drain. The Check Valve prevents the water in the panels from flowing backwards through the Filter (6) and backflushing it into the pool.

8. Vacuum Relief Valve

The recommended location is at the highest point in your system, but it can also be installed at other locations to break the vacuum and allow the Solar Collectors to drain.

9. End Caps

These seal the headers on the end Solar Collectors in the System.

BEFORE YOU CALL FOR SERVICE

If The System Does Not Appear To Be Heating The Pool:

1. Are the filter and leaf trap clean?
2. Have you been refilling the pool with a lot of cold water lately?
3. Has the weather been marginal?
4. Have you been using your pool cover as instructed?
5. Are the panels operating "cool" to the touch on a sunny day?

If There Are No Initial Bubbles When Solar Turns On:

1. Ensure that the pump is running.
2. Check the isolation valves to make sure they are open.
3. Make sure the control valve is in the correct position.

Tiny Champagne Bubbles

If tiny champagne bubbles continue past the initial purging of the panels (3-5 minutes), this may be an indication that the water circulation through the panels has been reduced to the point where the vacuum relief valve is admitting air either continuously or intermittently. Check the pump, filter, and leaf trap for cleanliness and proper operation. If the bubbles continue with the solar turned off, check the piping leading to the pump for a suction side leak.

Some small bubbles may always be discharged into the pool due to the particular operating characteristics of the individual system. They do not affect the operation of the system nor impair the proper function of any other pool equipment.

PREPARING FOR FREEZING CONDITIONS

The types of installations which are most prone to freeze damage are systems that have panels below the pool water level, systems where the collectors lie flat on the roof or patio cover, or systems which have a piping configuration which does not allow for gravity drainage of the water. All systems, when shut down for the winter, must be checked to ensure that they are completely drained.

1. Turn the Solar Valve off.

2. Ensure that the pump and filter are not running.

3. For panels below pool level, item 7 must be done before proceeding to item 4.

4. Open any manual drains.

5. Remove end caps at the lowest panel.

6. Let the system drain for **at least one hour.**

7. Close the isolation valves.

8. Turn on the pool equipment, ensuring that the solar valve is turned off. Let the system run for at least 5 minutes while checking to make sure no water is coming out of the end cap area of the panels.

9. Reinstall end caps.

When Freezing Conditions Are Over and you want to start up your Solar System again:

1. Check that the solar valve is in the off position.

2. Ensure that the pump and filter are not running.

3. Make sure that the end caps and vacuum relief valve are installed and the clamps are properly tightened.

4. Close the drain valve.

5. Open both isolation valves.

6. Turn the solar valve to the on position.

7. Turn on the pump and filter.

POOL SERVICE/MAINTENANCE

Whenever service is required for other components in your pool system (pump, filter, heater, plumbing, etc.), refer to this manual for instructions on isolation of the Solar System and operation of the equipment.

OPTIONAL AUTOMATIC SOLAR CONTROLS

Various optional, electrically operated solar controllers are available from a variety of manufacturers. These controls allow for varying degrees of automation in the pool environment. Controls may be available from the dealer where you purchased the panels or from a pool supply house. You should read and follow the manufacturer's directions in installing these controls to ensure their proper operation and your satisfaction.

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