

# Installing Solar Vents

by Paul Esterle  
Contributing Writer

Let's face it: our boats usually spend more time closed up and unused than they do being used. We take great pains to seal them up and prevent water leaks from getting below. Unfortunately, this also keeps needed fresh air from circulating below. The result is the common, musty "boat smell" often found aboard.

Fresh air circulating through the boat reduces the mold and mildew growth that help produce the funky air below. This airflow is important even during the winter-time in reducing condensation below.

One method to provide some fresh air circulation is solar vents. These units have solar cells to provide power for a ventilating fan. Many also have a rechargeable battery to keep air flowing at night. I recently installed two of these units aboard

one of my boats and am pleased with the results.

## Vent designs

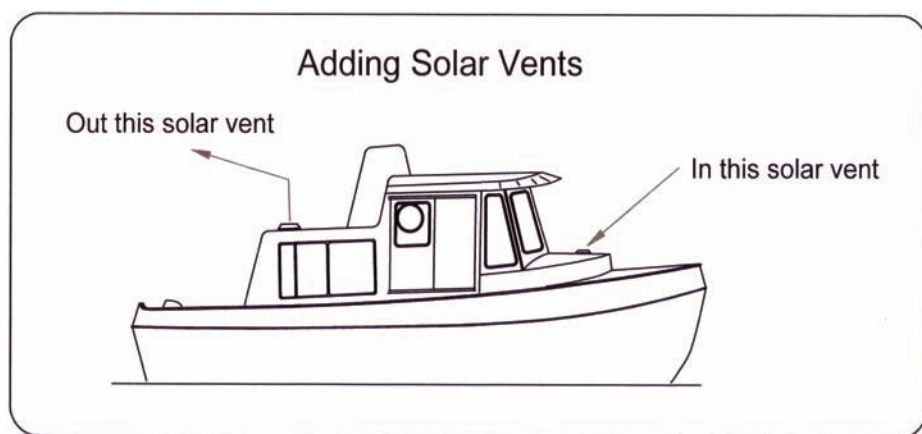
As with most boat-related things, there are choices. First, the most common of these solar vents are produced by the Nicro Division of Marincor and can be found at most marine stores. They are available in two basic sizes, three-inch and four-inch diameters. These dimensions refer to mounting dimensions, not the fan size.

Nicro also produces a range of deck plates, with screw-in or pop-out covers. One style of their solar vents fit these deck plates. These vents can be removed and replaced with the deck plate cover in case of wind, waves, and water. The bad news is that this style of vent can be removed quite easily by others, and at over a hundred dollars a pop, this can be expensive.

The second style of vent is screwed directly to the boat and cannot be removed without disassembling the vents and unbolting it. An inner slide is used to seal the unit from water intrusion, but that seal is not as effective as the O-ring in the normal deck plate. Unless you plan to go offshore, the slide seal should be adequate.

These vents are available in either white plastic or stainless steel. The stainless steel variety are not solid stainless. Rather, a thin stainless cover is added over the plastic base. This does provide protection from UV rays, which will eventually breakdown the white plastic.

Both styles of vents can be installed in decks or hatches, including ones made of Lexan or Plexiglas. Nicro also makes a line



of accessories for finishing off the interior side of the vents. These range from cover plates, trim rings, and insect screens to soft vinyl covers.

In my case, I decided to go with the permanently installed solar vents, figuring that a twenty-foot boat that is used on a lake wouldn't need the removable units. The vents I purchased came with insect screens, inside trim rings and two different fan blades. One fan blade is designed to force air in, and the other is to push air out of the boat.

## Air Flow

The ability to configure the vent to pull air in or push it out is useful in setting up a constant flow of air in a multi-vent installation. One vent helps, but two or more vents are more effective.

I decided to place one vent in the bow hatch and the second in the sliding companionway hatch. One of my key reasons for doing so was to avoid having to deal with sealing the deck core, required if I placed them in the deck itself. One of the

major causes of wet decks and core rot is improperly sealed deck openings, like the ones needed for these hatches.

If your installation requires the vents to be installed in the deck itself, seal the core. This is done by digging the core out around the vent opening.

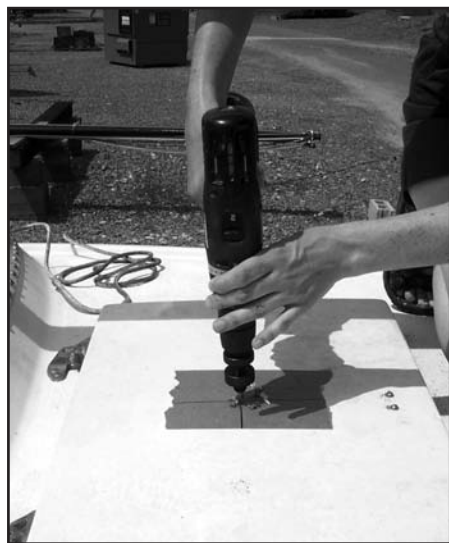
I configured the vent in the bow to pull air in and the vent in the companionway to force air out. The fan blades are changed by simply pulling one fan off the motor shaft and pushing the other one on. The only caution is to avoid pushing the fan too far on the shaft and binding it against the motor case.

## Installation

The vent installation is quick and easy. My daughter and I installed one vent in less than an hour.

The first step is to cut the hole needed to mount the vent. The nominal three-inch vents I purchased called for a 3-3/4 inch diameter mounting hole. This hole

**Continued on Page 5**



Paul drills the pilot hole.

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can be made by using a hole saw or with a saber saw. Hole saws these diameters are not stocked in your local home improvement store. I purchased mine online from Jamestown Distributors (www.jamestowndistributors.com), one of my favorite online tool suppliers.

I made an "X" of masking tape in the approximate center of the mounting area and then measured the center exactly, marking it on the masking tape.

If you use a saber saw to cut the hole, mark the diameter with a compass and then drill a clearance hole in the center to start the saber saw cut. Cut slowly and keep to the line as accurately as possible.

Using the hole saw, I first removed the outside hole cutter and drilled a pilot hole. After re-installing the hole cutter, I centered the hole saw in the pilot hole and proceeded to cut the finished hole. I was careful to keep the hole saw level with the surface of the hatch and cut evenly.

The next step is to take the vent apart to access the base and mounting holes.

The top cover – including the solar cells, motor, and battery – are removed by taking out three screws. These screws have small O-rings around the heads; don't lose these, as they seal the seals and motor.

Removing the top cover leaves the vent base and its three mounting holes. I placed the vent base, centered in the opening, and drilled the three mounting holes through the hatch. I used 10-24 stainless steel machine screws through the base with nylock nuts on the bottom side.

Here is a hint: after you drill the first hole, place a screw in it. Then drill the second hole and place a screw in that hole. That keeps all the holes in alignment.

With the mounting holes in the hatch drilled, I turned the vent base upside down and applied a thick bead of sealant around the mounting spigot and the mounting holes. My sealant of choice in this application is BoatLIFE LifeCaulk. After poking the three 10-24 screws through the holes, I placed a neoprene rubber washer on each of the screws.

These rubber washers are key to getting a god seal around the base of the vent.



**One part of this process includes drilling mounting holes.**

They allow the vent-mounting screws to be tightened but prevent squeezing out all the sealant. A thick sealant line is necessary for a long-lasting installation, as it accommodates the different rates of expansion and contraction between the hatch and vent.

Once the vent base was properly mounted, all I had to do to finish the in-

stallation was to fasten the top cover back in place, making sure the O-rings around the mounting screws were still in place.

All told, installing a solar vent like this took about an hour from start to finish. I got them both installed just in time for the start of a big heat wave in our area. Both fans stayed busy moving air through the cabin around the clock.



**Pictured above is the vent base fastened in place.**

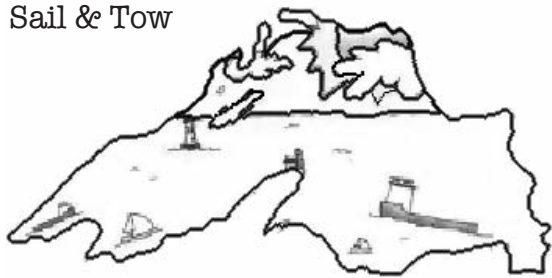


**Here is the finished vent, fully installed and already running.**

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