This material was provided as a sidebar to "The Dollars and Sense of Solar Panels" in Blue Water Sailing, February 2005. Because of file sizes due to the large number of photos, I made this a separate PDF for posting on TheBoatGalley.com.

# Sidebar: Where to mount those high-watt panels

High wattage solar panels aren't tiny. Seventy-five to 120-watt panels are generally about two feet wide by four to five feet long, and they weigh 25 to 30 pounds. Where do you put enough panels to total 400 or 500 watts on a typical 35- to 45-foot cruising boat??

The ideal spot is never shaded, always perfectly aligned with the sun, out of walkways and dinghy boarding areas, not likely to have tools dropped on it, unlikely to foul lines and secure in heavy seas. Okay, so no position on board is perfect. What are the likely options?

Cruisers are nothing if not resourceful. A walk around our marina here in Mexico revealed a number of locations, seen below. There are a few things to think about in planning your installation:

- It's possible to create your installation so that you can adjust the panels throughout the day for peak power generation. However, most boats swing sufficiently at anchor and move with the waves so that the panels are almost never optimally aligned. Many cruisers opt instead to mount the panels in a fixed horizontal (or very nearly horizontal) position and figure that this provides a good compromise – and doesn't require them to remember to check the position of the panels every few hours.
- Horizontal panels need to be rinsed off with a damp rag (fresh water) every few days – dust and salt will collect on them and decrease the performance. Vertical panels generally need less cleaning.
- Panels need to be secured in large seas and storms so that they won't be ripped off the boat. Some cruisers remove them and store them below in such situations, but many "quick connect" electrical connections will quickly corrode if used above deck. Others simply tie them down (or originally installed them) so that only the narrow edge of the panel is presented to the wind.
- Many boats use the Helm Quick-Mount or Permanent Rail Clamps to attach panels. The rail clamps have to be securely mounted to the panels, but we have not heard of them failing. See the second photo below for an example of how many boats attach these to the panels and stainless rail.
- If you are in a hurricane area, any installation is potentially vulnerable to flying objects hitting a panel and damaging it. We've now been in the vicinity of two hurricanes (Kenna and Ignacio) and had a direct hit by a third (Marty). We don't know of any boats that suffered damage to their panels by flying debris, but several did damage them when boats banged together or were driven into mangroves, marina pilings, or ashore. Of course, they had considerable other damage as well.

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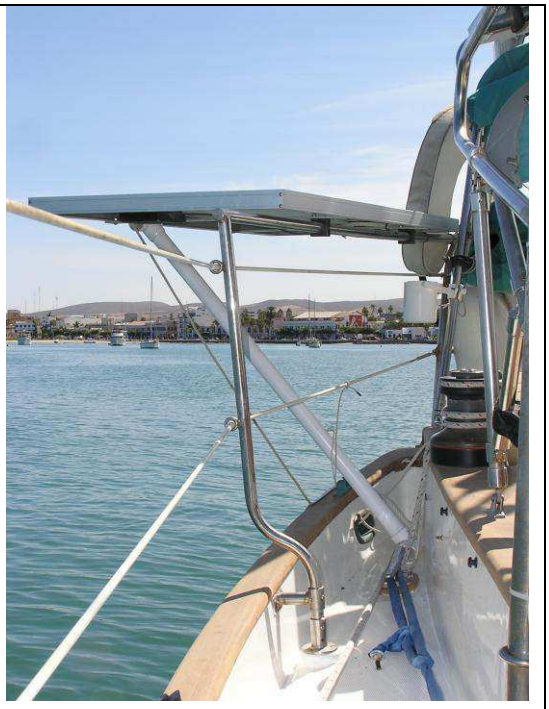
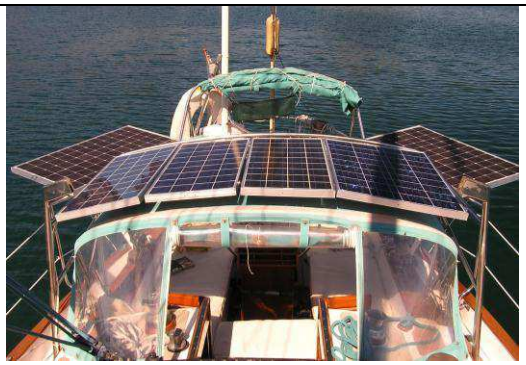
| • **Winged out around the transom.** One of the most popular locations, many cruisers replace their top lifeline around the cockpit with stainless tubing, and attach panels that can be angled to catch the most sun or lowered when docking or in large seas. We use PVC tubes to hold the panels horizontal, coupled with a piece of line brought down through the hawse holes and cleated off to keep them from flying up in a gust. Be sure to attach a small "keeper line" from the PVC to the boat – it's easy to drop the PVC when putting the panels up or down.<br><br>We've talked to several cruisers and none reported having panels break lose in storms. During Hurricane Marty, which went directly over us, we tied the panels in the "down" position and had no damage. The down side to this location is the loss of visibility when panels are down and a little less walking space between the lifeline/panel and dodger. We improved the space issue by having our stanchions bent in an "S" shape so that the top was further outboard. |  |
| • **Winged out abeam.** Other cruisers have engineered stainless support brackets that swing out further forward. This helps the visibility problem but the panels may be more shaded by sails and the panels are a little more likely to get in the way of the dinghy. The supports, which are usually connected to the stanchions, have to be engineered so that they don't produce too much torque on the stanchions and cause failure. Attach two lines to the outboard end of the panel to hold it in the correct fore-and-aft position. |  |
| • **Over the dodger and/or bimini.** Generally out of the way, the drawbacks are that they are in a fixed position and thus less efficient, can be shaded by the sails or boom gallows, and reefing lines can catch on them when raising or lowering sails if you're not careful. On *¿Qué Tal*, pictured here, we use a boom brake to hold the boom well out to one side, and remove our boom gallows when at anchor. |  |

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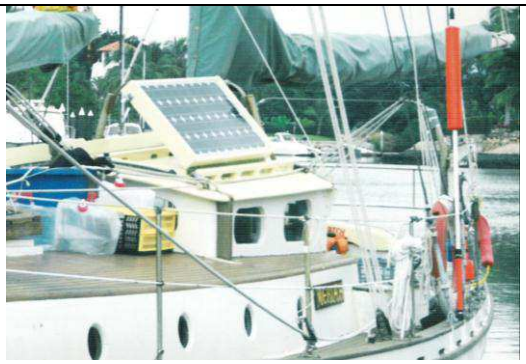
| • **On deck or a pilot house.** Same benefits and drawbacks as over the dodger, although the panels can be made to tilt up to better align them with the sun. |  |
| • **On an arch.** This is good if they don't interfere with the sails, but it can create extra windage and it's harder to reach the panels to keep them clean. |  |
| • **Over dinghy davits.** Simple and out of the way if you already have davits. Harder to reach to keep clean. |  |

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| • **On a pole.** This provides a lot of options for adjustment to best catch the sun, but also requires a lot of tweaking each day as the sun moves and the boat swings. Less need to rinse off, but must be taken down in strong winds. |  |
| • **Moveable panels.** A couple of boats had panels that can be moved from one side to the other depending on where the most sun is, and one boat (shown here) just tied a panel on wherever there was good light. |  |

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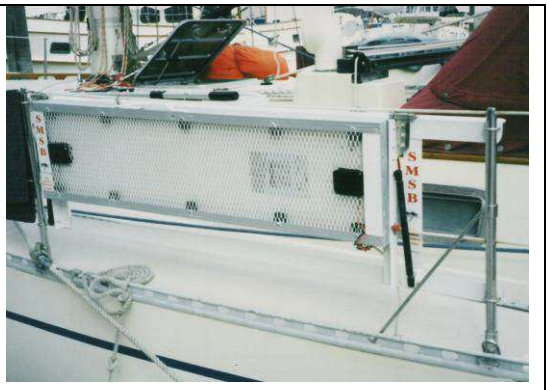
| • **Foldable panels.** These take up less room, are relatively easy to mount on existing stanchions and stow away very neatly if you don't want them up while in a marina or at sea. The downside is that they are considerably more expensive. |  |