

TECHNICAL REPORT

CLEANING & POLISHING

There is not a lot of maintenance for a solar panel, but there are some things that are important. On a regular basis you should check your solar panel and ensure it is clean and has no bird poo or other substance that may shade cells in the panel. Also check over each panel and look for anything that does not look 'right'.

Shading of cells (or part of) means that the sunlight is unable to get to the silicon cell below. While the panels are fitted with by-pass diodes to minimize this problem, any restriction will create some resistance in the flow of electricity within the panel. This resistance will not only lower the performance of the panel, but produce higher heat in the panel at the point of resistance. It is essential to minimize this as far as possible by cleaning and polishing.

CLEANING

Your polymer panel should be treated much in the same way as the clear screens on your boat. Rinse the panel very well with fresh water before cleaning so that any buildup of salt or foreign matter is not allowed to scratch the surface. Wash with soapy water and rinse off well.

When clean and dry, apply a coating of a plastic protectant such as "Plexus" – available from your marine chandlery. Rub this in well so as not to leave 'smear marks' on the panel surface.



POLISHING

On a less regular basis you should lightly polish the surface of the solar panel. Regardless of your cleaning regime, the polymer panel spends its life laying flat and facing upwards. Fall out from cars, boat engine exhaust, city soot, salt build up, dust and dirt will land on your panel. To a large extent, this can be removed with a light plastic polish. You can see what polishing does to a 12 month old solar panel in the image below.



The lower section has been exposed to normal conditions in Pittwater (Sydney) for 12 months. The top section is the same panel after polishing.

Polishing a solar panel requires the right product and the right technique. DO NOT use any polish, but use a specific polish designed for plastics such as the Novus range or 3M (<http://www.autogeek.net/3m-plastic-care.html>).

Generally hand polishing is recommended. If you use a power polisher it MUST be on very low speed. It is easy to burn the surface of the panel with friction – this is also the case if polishing the clear screens on a boat. Apply a small amount of polish over 2 or 3 cells in the panel. Rub evenly with a circular motion to remove the buildup of contaminants. We use the Novus #2 (fine scratch remover) first to ensure that all contaminants are removed. Then apply the Novus #1 (plastic clean and shine) to bring the panel surface back to clean and shiny. Same way with 3M products.

It is essential to take your time with this process. Rushing will only encourage you to push hard on the panel surface and we don't want to damage the silicon cells – we are just trying to clean the surface. If you find that it takes a long time, it would be better to repeat the process more regularly. It is much easier to clean a panel once every 6 months than once a year!

