

A 3 Year HotVac Cure to a Serious Problem

She Traveller *Dev*, successfully completes a lengthy programme of treatment for a nasty case of osmosis



Dev after the work was completed: a sleek underbody

Dev is a She 9.5m Traveller built in the UK at South Hants Marine's yard at Chandlers Ford in 1974. This article covers the period 2011 to 2013, when she underwent thorough osmosis prevention treatment using the HotVac system.

Following the 2011 annual S&S gathering, while *Dev* was still in the River Fal, the outer end of one of the single-crosstree rig spreaders dropped.

Later in the year, she was surveyed by Winterbothams & Partners of Portsmouth. Underwater dampness readings ran from 20% to over 25%, with 14% for the topsides. An infill of wood at the aft end of the keel was also damp. There was a long crack either side of the forward end of the keel where it joins the hull. They also found a single line fracture about a third of the way down the starboard side of the plywood anchor locker bulkhead in the fore cabin.

There were no blisters on the hull but there was water in the rudder and blisters on its surface. Two holes were drilled in the rudder to allow the water to run out.

In the low November sun small deflections were seen on port and starboard topsides in line with the forward lower shrouds below the chainplates.

At the 2012 Southampton Boatshow I received an offer for osmosis prevention treatment and topsides repainting from Hayling Yacht Company. I knew they used the Hot Vac process, having checked it out on their website. It appeared that osmosis treatment might be completed over the winter and that drying might be achieved without peeling the gelcoat. Unfortunately I did not question the small print which stated that if epoxy had been used previously peeling was likely to be necessary. *Dev* had been peeled and epoxied several times since 1974.



Deflection on the port side

As the topsides were faded it seemed sensible to have a re-paint. They appeared otherwise to be in good condition

The initial quote was accepted and in October 2012 I took *Dev* to Hayling Yacht Company's Mill Rythe Marina. She was lifted out before Christmas and the underwater area including the keel was shot blasted. She was then moved into the yard and blocked off with numerous posts on firm ground.

Hayling Yacht Company suggested I ask my surveyor to inspect *Dev* before and after the osmosis prevention treatment and when sufficient dryness had been achieved. Outside in the yard, with the mast stepped, the surveyor hammer tested the underwater area and indicated areas where delamination might exist.

Before the mast was taken out, the yard tweaked the backstay and the crack at the forward end of the keel mentioned in the 2011 survey was seen to open.

In early January *Dev* was moved into the paint shed where the use of a scraper resulted in long ribbons of paint, indicating lack of adhesion. Full preparation including a priming coat was needed - apparently the key between coats can only be achieved with a coarse abrasive. The topsides were painted in navy blue with a white strake above and the gold line and name were

applied. During the preparation for painting, drying of the underwater area was started.

In February I contacted Bart Draijer, the S&S Association's GRP Hulls Secretary. During much correspondence Bart described the fin and skeg hull as "a plastic bowl with a lid glued on top" – lacking the longitudinal stiffness of the traditional long keel. He had several suggestions for increasing the stiffness of an old boat. In the end I opted for an additional layer of cloth on the underwater area, also suggested by Hayling Yacht Company. Bart emphasised the importance of not over-tightening the backstay and always releasing it when tension is not needed.



The hotpads in action

The photo shows progress of drying using the hotpads without peeling the gelcoat. Even at this early stage the dryness forward is down to 5% and 4%. Rust on the keel had developed after the earlier shot blasting whilst *Dev* was outside in the yard. The pipe attached to the hotpad is subject to vacuum and allows drainage of water and unwanted crystalline deposits; the electric cable is for the heating element. As the next photo shows readings varied within a small area.



Variable readings and evidence of delamination

We had agreed to peel areas where de-lamination was suspected, part of which is shown in the photo.



The new topsides

This shows the repainted topsides. Drying stopped temporarily as *Dev* was moved from the paint shed into the yard where she collected a coating of snow and some water into the after locker and bilges. Before final work started it was important to check there was no water in any internal areas: lockers, bilges, the heads, holding tanks and the engine exhaust system, wherever they are close to the outer surface.



Continuing progress

This photo shows progress back in the shed. At this time it was decided that a full peel was needed and a superior treatment that included the addition of one layer of 40 biaxial cloth using an epoxy resin, over the underwater area, excluding the keel and rudder. Peeling and grinding produced a lot of glass fibre and resin dust; boiler suit and breathing mask were needed for work on board.

The next photo shows the after end of the peel and the holes to drain the rudder. Areas that had not responded adequately to the hotpad needed an infrared

heater. Another photo shows the rudder after coating with Gelshield 200.



After the peel



The repainted rudder

The surveyor inspected the hull for dryness and found a number of small areas where dampness was still well above the general level of 5% and asked for drying to continue until all areas were no more than 5%. This took several weeks.

I had asked for the rudder bearings to be replaced, however corrosion of the rudder tube meant that a new upper bearing would not stay in place. The fuel tank was removed to enable replacement of the original bronze tube with a new fibre one.

There are further photos on the website which show the area marked out to apply the biaxial cloth, the smooth finish achieved by grinding off surplus material between the hull and keel flanges, after the joins in the cloth have been smoothed over, and the final coat of Awlgrip antifouling and the green gelshield on the base of the keel.

In August the surveyors' moisture meter showed readings below 5% for the entire boat and it was taken

out into the yard on 3rd September. The time before launching allowed me to complete the replacement of the fuel tank and interior fittings and for the yard to thoroughly clean outside and in.

Dev was relaunched on 17th September 2013.

[The help of Bryn Darbyshire and Michael Rother, surveyors with Winterbothams and Partners, Portsmouth, and Richard Blake of the Hayling Yacht Company, Hayling Island, are kindly acknowledged.]

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Editor's note: space constraints necessitated removing some photographs and detail from Robin's original article, the full content of which can be seen on the Association's website.