

What transformation do you mean, did I miss something, is probably your question reading the head of this story. Well, this story has a long tail, so let's go back!

Once upon a time there was a sailing boat called Zeezwaluw.....

Years ago, the first year sailing in the Mediterranean Sea we were in need of a bimini at hot sunny



days as well as extra energy to top up the batteries, foremost while at anchor. As you know the elegant aft side of Zeezwaluw, she is beautiful but slender. So Riens thought very hard and tried several times to make a drawing of a "kind-of" frame for a solar panel on her elegant behind. However hard he tried, he could not find a sensible and attractive frame to hold a solar panel or a bimini. In the



meantime, to protect us against the sun the sewing machine produced two sun covers. The first one was a cockpit-wide sun-tent whilst at anchor. For the windless and very hot sunny days when sailing on the engine, a large blue canvas awning which hung in-between aluminium poles over the cockpit gave us shade. Sailing days with winds over 15kn no awning, only liquid sun protection was available which gave us a nice tan though. For the time being, the bimini sunk to the bottom of the wish list.



But still in need of more amps, Riens designed a movable and adjustable frame to hold one solar panel of 100W. Once this frame with the solar panel was delivered at Zeezwaluw, it could be placed on the foredeck and adjusted to the sun, while at anchor.

It gave us some more amps to consume, but still not enough when we decided to stay at anchor for several days.

So the next winter we bought a "Chinese" generator running on gasoline. This turned out to be perfect, it gave us the amps we needed and we could even use the power tools for it gave 220V as well. So we were more or less happy for many years while sailing in the Mediterranean.



Already during longer sailing trips in the Med, we discovered that once

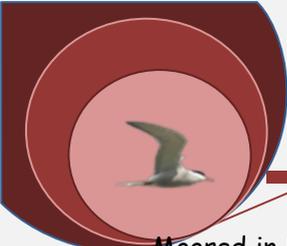


under sail, the towing generator gave us many amps. Once, due to lack of space, the solar panel was transported from the storage inside Zeezwaluw to the top of the turned dinghy. Riens fitted a 12V socket in an extension of the air-vent and a second regulator. Now the solar panel was also able to help the towing generator to charge the batteries. This combination produced so much energy that the

batteries were really topped-up all the time during long sailing trips.

The weak point in the energy supply was still at anchor conditions. Especially when the day's shortened in the "winter" and we had to rely on the nearly reliable Chinese generator. We worked on the energy consumption by means of (Chinese) solar anchor lights and solar reading lights for the cockpit, but it was not more than a drop on a hotplate.





Moored in Las Palmas, we met Marc and Lisbeth of the LED-shop (<http://www.theledshop.es>). They do have LED-lights and equipment but also batteries and solar panels. So we treated Zeezwaluw with LED-lights to reduce the consumption of amps and 3 new AGM-batteries to store more amps. ([see the LED-light project](#)) Subsequently we asked Marc about solar panel prices, brands, ordering and availability.



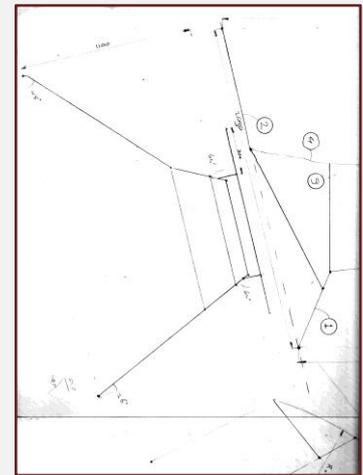
The price of solar panels in the Canaries turned out to be a third of the price compared with mainland Spain or the internet prices of The Netherlands. So we seriously thought about buying solar panels to solve our amp problem.

Drawing again

Riens went back to the drawing table to make a design containing all our wishes; 1st the new frame should hold 2 adjustable solar panels of at least 100W each, 2nd the frame should be the base of a bimini or sun tent covering the cockpit under sailing conditions in winds over 15kn.

It turned out to be as difficult as the preceding times he tried. The aft of Zeezwaluw had not grown like ours, so..... It kept difficult to design a frame which was not wider as the stern and sticking out or in the way when the passerell was fixed at the stern.

The first design was functional but awful to look at and skydived into the bin very quickly. The second one looked a bit better, but we were still not really satisfied but it had to be this one or again nothing at all. So the production drawing for the inox- shop was made and ready to explain our wishes to them.



We talked about our doubts of the to-be-frame with a friend. He told us friends of him had exactly the same problem, but solved it by including the first pair of stanchions in front of the push-pit in the base of the frame.

The final design

This story intrigued Riens and he started drawing again. With the new wider base of push-pit and stanchions the available options to shape a frame were endless. In only a few days the final design for the frame was born on the chart table. First; it would cover the area above the wheel. Second; it was not in the way of the passerell nor sticking out. Third; it had space for 2 adjustable 100W solar panels and Riens could easily stand underneath! To test the design we projected the frame shape over a photo of "Zeezwaluw" and this time we did not raise second thoughts nor generated grave sickness.

Very delighted with this result, Riens went to the INOX- shop the very next day. The shopkeeper



didn't speak English and Riens' Spanish was not yet really developed but the drawing in between them acted as an intermediate. To Riens's relieve the shopkeeper was able to understand





Transformation of Zeezwaluw

his drawing. He gave an estimate which was significantly less as we had expected while the man promised to produce the frame within 3 weeks. Finally we should have endless amps at anchor and after the placing of the frame at Zeezwaluw a bimini could be made.

It is now the right time to order the solar panels at the LED-shop. Marc and Lisbeth ordered the 2 Luxor mono-crystalline panels from Germany, the NOA movable fixture from Sweden as well as a new regulator from the US. The 10mm² electric cable and all the other necessary bits and pieces were gathered by Riens in the various shops in Las Palmas. In the end the working assembly would be a joyful European-American affair, hopefully working well together.

As the INOX-shop had promised the frame was ready in time. He even asked Riens to come over to the shop to confirm the frame was according his drawing, before they welded it.



We prepared the push pit in time for the final welding was done at Zeezwaluw 2 days later. Once the frame was in place it was as it mends to be. The INOX-legs of the frame were in line with the shape of the spray hood and backstay in a natural way.



Now the time arrived to start the construction of the bimini.

We decided against a blue bimini like our spray hood due to the fact that dark coloured bimini's accumulate more heat as lighter ones. Ours should become a beige one. So Ineke measured and estimated the quantity of Sunbrella, webbing, thread and needles. Luckily the shop to buy the Sunbrella and other kit was nearby, because the bundle of 15m fabric was very heavy to carry.

Starting from scratch

The bimini project turned out to be a difficult one, for the reason that it had to be made without an example of an old one. Secondly Ineke had never made a bimini previously therefore how and where to start this one-off design????? Well, to give it a professional go, she started with the centrepiece for this would carry all the extensions.

The carefully taken measurements and drawing at the fabric was the first stage. The cutting followed after much deliberation if the design was correct and would fit after the sewing machine was set to work. The extra





difficulties were in the vertical tubes to accommodate the base for the solar panels.

We were not able to pull and tighten the fabric over the frame as you normally do for a bimini, nevertheless we became resourceful and therefore able to do the trick.

To give the design something extra (more or less a house design), leather was applied at overlapping and end parts to protect it against chafing. It took a while, including correcting a few beginners mistakes, but in the end the centre part was complete. With the used 5cm wide Velcro, the tension of the bimini could be adjusted at the various flaps. Satisfied with the result, 5cm wide Velcro was also stitched at the outside of the centre part to fasten the extensions like the side & back panels. After the side panels were completed and fastened to the centre part it looked great already.

An extra feature

During the construction of the Sunbrella bimini centre-part, Riens had a brilliant idea about extending the basic inox-frame to get a genuine bimini. He designed a swing-able arc with on both legs a sort of elbow. The bow would be attached to both sides of the basic inox-frame and able to swing out in full or out from the elbow. This would give us the opportunity of two bimini's; one could be used during sailing, while the longest possibility would cover the complete cockpit, during hot and sunny days when the spray hood was removed.



Like the first order, the inox-shopkeeper was enjoying the special design Riens lay in front of him. Again, he was able to understand and produce this part. In a week's time, he phoned us that the extra arc was ready and would be transported to the boat the next day. Once fitted to the basic frame it was perfect in line with his big brother arc.

As soon as the extra arc was in place, measurements were taken for the construction of the 2 forward Bimini extensions.

Another 12m of Sunbrella was enough for both of them as well as 2 parallelogram-shaped side panels. At the end, the construction consisted of 7 parts, all attached to each other with Velcro and



tightened down with webbing and clips where necessary. The last and final project was to sew shade-cloth (kind of netting) into the back and 2 aft panels. The 30cm of this cloth gave us more visibility while it kept 90% of the sun out but let the wind through. The end result turned out to be perfect.



While Ineke was quite busy with the sewing, Riens was very busy with the mounting of the solar panels on top of the frame.



Transformation of Zeezwaluw



He was pulling cables from the aft of the boat through lockers and underneath floors to connect the panels to the voltage controller, batteries and instrument panel. There were days when we both needed a lot of space to work in. Coordination about work was therefore essential.

Sometimes the sewing atelier was in the cockpit while inside floor boards were taken away. It looked like dancing around each other but finally the last bits and pieces were done.

Testing and final adjustments

Testing the solar panels after all the connection were applied was great, they were working perfectly and easy to direct to the sun. So we are very pleased with the whole project.



Due to the fact that we are still in the marina and connected to 220V shore power, there was no need for working solar panels. To stop them working, we made 2 covers out of the same Sunbrella as the bimini. After the covers were produced and put on the panels, they were still producing amps!!!! Yes the sun went straight through the beige fabric, who would have thought about that!

So the next move became, making another set of covers out of thick PVC. These would be placed over the panels where after the Sunbrella followed. These two sets of covers did the trick for 99,9%. Still some current is coming through. We assume the white underside of the solar panels is the source for this minor current.

The stainless steel frame and bimini project were completely finished by the end of October. Nearly 3 months from the first pencil stroke to the last stitch and attached screw. We realized this project was not even on the job list so it must be fun. You wonder if it is time to relax or start another mega project for the crew????

You have to wait until the next travel letter to read more about our ongoing projects.

Riens and Ineke Elswijk



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