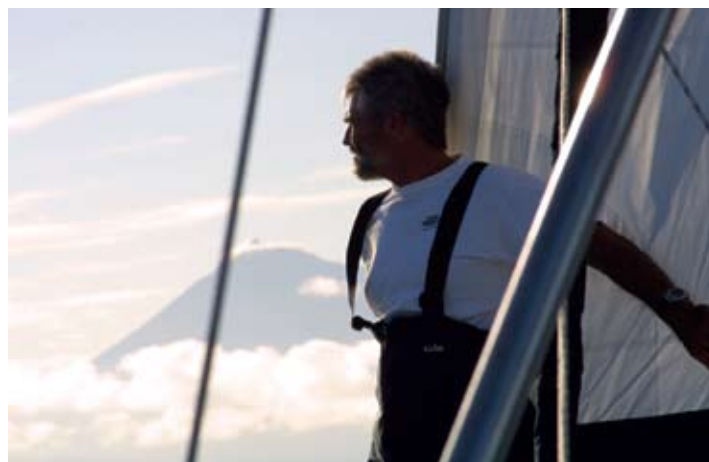




Mike Harker

Help! I'm sinking



We join Mike on the penultimate leg of his circumnavigation aboard his Hunter 49, Wanderlust. He weighs anchor from St Helena, heading for Miami ...

While preparing to depart from St Helena in the South Atlantic, I put a waypoint on my Ray Marine chart plotter at the equator and 30 degrees west longitude. The only paper charts I carry are the three Pilot Atlases for the three major oceans. When I left Miami nine months ago, heading towards Panama by way of Jamaica and the western Caribbean, I used the *Atlantic Pilot Atlas* book of charts that also include the Caribbean and Mediterranean.

Sir Robin Knox-Johnston writes in the Foreword of this indispensable book: "During the nineteenth century the first major effort was made to collate and publish weather routing information. The US Bureau of Charts published monthly charts containing the average wind and currents. These were the first Pilot Charts, and the modern pilot chart has the sound base of over 150 years of data collection."

These three books – Atlantic, Pacific and Indian Ocean Pilot Atlas – along with Jimmy Cornell's *World Cruising Routes*, have been my principle source for planning my circumnavigation and weather routing. With their combined information they simply tell me when I can safely be in any ocean of the world and for how long. Of course I have daily weather prognosis from my GRIB files and I even look in on OCENS when in doubt, but this informs you of the current weather and can only predict a

forecast for around five days in advance. I will be sailing out in the open waters, without land, for about six or seven weeks!

This particular passage, from St Helena to Antigua, will be my longest and the most unpredictable of any voyage I have undertaken so far. Instead of sailing with the constant Trade Winds westwards around the world, I shall be traversing the South Atlantic Ocean, crossing the Equator into the Caribbean and finally into the North Atlantic Ocean from South to North. This route crosses several different wind and current patterns and the infamous Doldrums just north of the equator. I was hoping that nothing would go wrong.

I weighed anchor from the roadstead of Jamestown, in the early hours of December 28th. The Christmas festivities and newly acquired friends had left me in joyous spirit. I had studied the Pilot Atlas and read Jimmy's pages for this imminent leg the evening before departure, and put three waypoints on my Ray Marine chart plotter. The first was just off the southwest corner of Ascension Island, 700 miles to the NW of St Helena. I will usually set a waypoint mark on the plotter, additionally marking any dangerous rocks, small islands or atolls, to highlight my awareness while crossing oceans.

I tend to keep the plotter on a rather large scale to show my progression, which means that some of the small atolls do not show up on the charts unless you reduce to the smaller scale.



I follow my intended course on the electronic chart all the way to my destination in the smallest scale readable, just to mark anything that may be in the way but not easily visible. Then I go out on the chart scale with the visible waypoint marks highlighted. This has kept me from any surprises so far, and I'm sticking with a good thing when I feel it.

Ascension Island is not a very welcoming destination. I had been told that cruising vessels are not welcome, even for a short visit. The island is under British government control, but its main purpose over the last forty years has been as a US tracking station for orbital traffic and a site for the Space Network supporting NASA. The very first Mercury capsules were tracked from this station on their inaugural orbit and every spacecraft launch since has been scientifically followed from Ascension. It is restricted territory. So I did not intend to stop but instead put a waypoint mark just off the SW tip to keep me on my route but out of danger.

The Pilot Atlas has suggested routes for steam ships and alternatives for sailing vessels to take better advantage of wind conditions. My route was to follow this Pilot's suggestion by crossing the equator at exactly 30 degrees W longitude with a curving arc around the Caribbean islands and finally into Miami, from where my voyage began. Ascension Island and Antigua were almost exactly on my route, and with 4,500 miles to go, my first planned stop was English Harbour.

The first three days out from St Helena I was sailing on a starboard tack, with an 18-20 knot wind blowing onto my starboard quarter; I made good progress and was 500 miles

closer to Antigua. Very fine sailing and refreshingly almost the exact opposite tack and wind direction from my voyage so far. Across the entire South Pacific and again, across the Indian Ocean, the wind had always been off the port quarter or beam: six months of port tack. Now it was from the other side, coming from South Africa and curving counter-clockwise as high pressure does in the southern hemisphere. This was GREAT. This wind would push me along at a good clip in the right direction.

Then it stopped.

Within minutes the wind died, from 18 knots down to 2 knots in under an hour. I hoped this wouldn't be a repeat of the five days' "dead calm" I had experienced in the Timor Sea just a few months previously. Now, as I had then, I started the Yanmar. Its use had totalled very few hours so far, less than 900, for this entire voyage. The winds had allowed me sail almost completely around the world.

I had identified that running the engine at around 1800 rpm was the most economical. This maintains the little 4 cylinder just off the turbo and limits the fuel consumption to around one US gallon per hour. The big 3 blade Flex-o-Fold prop keeps the boat speed at around 6.5 knots, which was my intended average for crossing oceans. I had enough fuel aboard to probably motor all the way to Antigua should the wind completely abandon me. My expectation had been for no wind near the equator in the Doldrums, but that that was still a long way ahead.

It must have been about 30 hours later, while still motor-sailing at my chosen 1800 rpm, that I was rudely awakened by



a loud alarm. The Ray Marine system has a built-in alarm, emitting the same sound for all warnings. I know it well, whether for an approaching ship on radar, AIS, engine overheating or reaching a waypoint. At first I thought I was reaching my waypoint off Ascension, but that couldn't be. I was still 200 miles away. And this alarm sounded different; I had not heard this alarm before.

I followed the bearing of the sound around the cockpit until I reached the port wheel where I saw, down by the ignition key, a red light and a loud alarm buzzing continuously. I knelt down to read the label on the small panel.

It read: "High Water Alarm"

High water?

I was sinking!

I rushed down the companionway stairs and lifted the board above the deep bilge.

Water had completely filled the bilge up to the floorboards. I tasted the water. SALT! Oh my God, I WAS sinking!

What was I to do?! I remembered where all the through-hull sea-cocks were located and went around the entire boat lifting the sole boards and reaching down into salt water to shut off the sea-cocks. I went back on deck to shut off the Yanmar, collected the two buckets tied to lanyards and the extra hand pump. I dipped the bucket down into the bilge and just tossed the water up above the stairs out onto the cockpit floor knowing it would drain out the stern of the yacht. I noticed that the extra "High-Water Bilge Pump" located just below the floorboard above the bilge was also pumping water overboard. When the water was finally below this pump, it automatically shut off and the alarm stopped confirming that I was getting more water out of the bilge than was coming in. I was making headway. That fact made me feel good – more water out than in.

After what felt like hours, but was probably just only minutes, the water was far enough down the bilge that I began using the hand pump. Finally the level of the water was near the bottom but the small pump at the base of the bilge was NOT pumping. I reached down and removed it from its fastener finding a piece of paper clogging the hole. Once I had fastened the pump back onto its bracket it began pumping the water back out.

But there was still salt water coming into the bilge from somewhere. I went around all the bulkheads and looked for leaks. No leaks anywhere in the hull. Next I removed the engine cover and looked into the engine area, including all the hoses and connections. No leaks. Then I discovered water



running behind the alternator. It was salt water. In order to find the leak, I had to remove the salt encrusted Balmar alternator and bracket.

It looked like a stream of salt water was coming up out of the cooling water impeller housing, about the strength of a little boy taking a pee. But where was the water coming from? I had closed the sea-cock that enabled salt water to enter through the hull of the boat and pumped into the intercooler to cool the hot, self-contained cooling system of the Yanmar. Yet salt water was still streaming out of a hole in the bronze pump housing, not the connecting tubing or hose clamps where you would normally expect a weakness.

Then I noticed something above the impeller pump. The intercooler was probably still full of sea water and gravity was forcing it through the hole in the pump housing. I got out the Yanmar book and looked up "intercooler". Sure enough there was a drain plug at the other end of the intercooler. As I was about to get a wrench and unscrew the plug, I thought that I better get something to catch the draining salt water. You don't want salt water getting on the outside of the engine. But as I looked again I realised the entire engine had already a crust of salt sticking to everything. The salt water had been streaming out of the leak directly into the spinning Balmar alternator. I just unscrewed the drain plug and let the water run over the engine and finally back down into the bilge.

The leak stopped! That was it, a hole in the bronze impeller pump housing.

I carry tools and spares to fix just about anything: an extra bilge pump, freshwater pump, connectors, pipes and tubing, an "offshore repair kit" for the Panda generator and many extra impellers, but NOT a spare pump.

What was I to do? How could I get my engine working again out in the middle of the South Atlantic Ocean 1,200 miles west of Africa, 1,400 miles east of South America and over 4,000 miles to the nearest Caribbean island?

How would YOU fix the leak?

You can't just glue something over a hole on the impeller housing. When the engine starts, the impeller spins and pumps salt water up into the intercooler under pressure. That pressure would surely blow anything glued onto the outside of the bronze housing. I needed something stronger that would hold up against the constant water pressure until I could get a replacement pump, probably for the next month or so.

I needed to fill the hole but I could not get to the impeller housing bolts as they were blocked by the engine mounting bracket. I would need to lift up the entire engine about an inch or so to get the bolts out to remove the impeller housing.

Alternatives?

How about getting the proper size stainless self-threading screw. I had plenty of those. I could take an oversize one and



screw it into the hole making its own thread as it went in. I tried the first one, but it didn't groove the bronze hole enough to withstand the pressure. I got out a larger screw and it threaded into the hole perfectly; however it was too long and would probably damage the spinning impeller. So I backed it out, cut off the end and filled the hole and the screw threads with 3M 5200 sealant. This is a wonderful product to have aboard a boat. The sealant works well, even in or under water, remains pliable but seals completely, but it does need time to "cure" overnight.

While letting the sealant dry, there was still a lot to do to get my little Yanmar engine to work again as it had a crusty layer of salt covering everything. I got down the buckets and put fresh water and a little liquid soap in each. I rinsed the engine as best I could with clean water mixed with 50% white vinegar to reduce the alkaline effects, then wiped down what I could reach. After all this was dry I sprayed everything with the water displacing product, WD40. It looked clean again, but there was still some oxidation from salt on the starter connections. And the alternator and the separate regulator were encrusted with salt. I needed to remove them. I do not have a spare starter motor but I did have a second Balmar alternator with built-in regulator. I cleaned the starter motor as best I could, re-installed it and waited for the 5200 sealant to cure.

After exactly 24 hours, I imagined that the sealant was dry and the screw would hold as well as could be expected. I tried to start the engine. Nothing. Not even the sound of the solenoid clicking. I was stuck. My mechanical skills and experience were at an end. I needed help, out in the middle of an ocean.

I have an Iridium Satellite phone and so called Eddie Breeden at Hunter Marine customer service. He gave me the number of the Yanmar specialist, Doug Dykens. Doug talked me through a number of procedures and about a dozen trial starts but still nothing. Then "Dr Yanmar" said, "Let's try something. Hold the 'Stop' button in and jiggle the starter key five times, then turn on the starter key and push the stop button in and out quickly five times. Let's see what happens."

I did just that. And it worked! My engine was running again. Doug said to let it idle 10 minutes and check everything out then run it in gear at 1500 rpm for 30 minutes, then call him back. When calling on the SAT phone from anywhere in the world, including from the middle of the South Atlantic, the cost is US\$2.50 per minute. But it was certainly worth it.

About 45 minutes later I called Doug back with the good and then the bad news. The Yanmar engine was running



The leak and (inset) Mike's fix.

smoothly but there was no charge coming out of the new Balmar alternator. Doug said to call the Balmar factory and talk with their specialist Dale English. Doug would call him first and explain the situation. 30 minutes later I called Texas and Dale said the problem was that Hunter does not use the built-in regulator on my model alternator but instead uses the separate Balmar regulator mounted on the firewall. I would have to take the alternator apart and re-wire it to again use the internal regulator feature and bypass the external regulator.

After about two hours I was ready to try again; everything worked perfectly.

I was headed towards Miami again. I had been drifting for three days with no wind, no engine and a leaking boat. Now the boat leak was fixed, the engine ran well, the alternator was charging and the wind came back.

At my predicted average speed of 6.5 knots I expected to get into English Harbour, Antigua in five or six weeks. I only needed to cross the Equator into the Doldrums, go through a few storms and motor or sail another 4,000 nautical miles with a screw and some glue keeping my engine from flooding my boat.

I needed some luck.

Next time: Discover how Mike fares on the final stage across the Atlantic to Miami.