

Ocean Voyaging Preparation and Planning

Part I: INTRODUCTION

Undertaking a circumnavigation of the world in your own yacht is not only an activity, which takes a substantial amount of time but one which requires considerable planning and preparation. If you join a rally such as the World ARC, the feat can be accomplished in 15 months. However, most cruisers adopt a more leisurely approach and take up to 5 years and even longer. The more leisurely approach means that the vast majority of circumnavigators are retirees in their 50s and 60s, most of whom are double-handed married couples or partners of long standing. However, there are younger couples often with young children, who are able to take a sabbatical or break from work in order to achieve this ambition. In some cases, they break their circumnavigation and return to work in order to obtain the necessary funds to continue. There are also single-handers, who fall into both categories.

In our case, our circumnavigation started when we left the Solent on 1st June 2014 and finished when we crossed our outward track on arrival in Martinique in the Caribbean on 8th March 2018. Cruising up the east coast of the USA this summer has given us ample time to reflect on how well prepared we were for this challenge and the lessons we have learnt in this regard, which might be of assistance to those contemplating such a venture in the future.

While undertaking a circumnavigation had been a long-held ambition for both of us, the requirements of career, children's education and caring for elderly parents meant waiting until these responsibilities were no longer a consideration before we could start the serious business of planning and preparing for this undertaking. With the death of my mother in 2012 the opportunity arose to do so. Once her affairs and estate had been settled I agreed to retire in April 2013 with my wife Anne following suit several months later. This would give us approximately a year to get organised. We reckoned that we would need at least this long in order to prepare both ourselves and also prepare and equip our yacht, as well as making the necessary domestic arrangements for a long term absence. At this point, we also set a target date for our departure, as it is all too easy to let your departure date slip if you do not have a target.

Part II: PERSONAL TRAINING

The first task was to ensure that we were both personally prepared and equipped for this challenge. While both Anne and I were very experienced offshore sailors with many thousands of miles under our belts, neither of us had experience of a long ocean voyage. When I mentioned this to a member of my yacht club, he suggested that we should join the Ocean Cruising Club (OCC), of which he was then Vice Commodore. He mentioned that the OCC has an excellent mentoring programme, which pairs members, who are experienced circumnavigators, with potential circumnavigators in our situation. While the normal requirement for membership is to have undertaken an ocean voyage of 1000 nautical miles in a vessel under 70 feet, one is able to join as an associate member with the intention of achieving this requirement within 3 years.

The mentoring programme seemed to be exactly what we both needed and we promptly joined the OCC and signed up for the programme. A little while later we were very fortunate to have Dick and Pam Moore appointed as our mentors. Their circumnavigation in *Aliesha* - their Halberg Rassy 36 had taken them 9 years in the previous decade. They had overcome significant challenges along the way including a major lightning strike while on the east coast of the USA and the replacement of their auxiliary engine while in the Red Sea. They invited us to come and spend a day with them at their home in Lymington, where we spent a very rewarding time picking their brains and sounding them out on our ideas. Their advice was invaluable and it was very reassuring to know that we would be able to draw on their experience in the future as and when the occasion arose. If you are in the same

situation as we were prior to undertaking an ocean voyage, I would recommend joining the OCC and benefiting from its mentoring scheme without hesitation. Details can be found on the OCC public website.

Another source of useful information and advice is the World Cruising seminar run by the Cruising Association (CA) at their headquarters in Limehouse London in February each year. The principal speaker is usually Jimmy Cornell, who has several circumnavigations under his belt and is the author of several useful books on planning and undertaking ocean voyages. Further details of these publications are available on his website - CornellSailing.com. The Cruising Association also runs a Blue Water Cruising section, which organises an Atlantic crossing group each autumn and various rendezvous around the world, as well as hosting an annual get together and talk at Limehouse in August and publishing a newsletter at least twice a year. We have certainly found membership of the CA helpful in our preparation for the circumnavigation and during the event itself. It is worth noting that attendance at the CA Limehouse events is open to non-members, although the cost is slightly greater.

We also felt that it was important for us to update our first aid and sea survival skills by attending the relevant RYA courses. In addition given that we intended to install an HF radio one of us would need to obtain an HF licence and attend the relevant course to achieve this. Anne duly obtained her HF licence. Both of us already held VHF radio licences.

Part III: ACQUIRING A SUITABLE YACHT

Concurrently with our own preparation, we needed to acquire and equip a yacht for this purpose. We felt that our Jeanneau 40, while an excellent yacht for coastal cruising in Channel waters, where we had sailed her for the previous five years, was not primarily intended for serious ocean cruising. We wanted a class A ocean cruiser such as a Hallberg-Rassy, Oyster or Malo, which have the scantlings and build quality to cope with the serious conditions, which one can potentially encounter on an ocean crossing. After looking at several such yachts in the 40- to 45-foot range including a Malo 42 in Plymouth, we decided that the Malo was the right yacht for us. In particular, we liked its deep, well-sheltered aft cockpit. Nearly all Hallberg-Rassys, Najads and Oysters in this size range have centre cockpits. Our search then focussed on the Malo 42 and eventually through the internet we found two for sale in the Netherlands, which were both newer and in better condition than the one in Plymouth.

There was not much to choose between the two. However, we chose Sofia because she had been very lightly used for a 12-year-old yacht and had been yard maintained during her previous ownership of eight years. Fortuitously for us, Sofia was also an estate sale, which had been on the market for over a year. This was an important factor in terms of our budget. Although she was a quality yacht, she had not been used or fitted out for ocean cruising and we would need to allocate a significant sum from our budget to equip her for this purpose. So we were very lucky to obtain Sofia for a bargain price.

Once Sofia was back on our berth on the Hamble River the serious task of equipping and preparing her for the circumnavigation began. This task fell into two broad categories. First was equipping her with the systems that she would need for ocean cruising, but did not possess. The second was upgrading her existing systems and equipment so that Sofia would be as well prepared as possible and minimise the possibility that she might require extensive work at some point in our circumnavigation. The main items of equipment that fell into the first category were self-steering gear, communications equipment including a HF radio and satellite telephone, a watermaker and additional power generation capacity.

Part IV: UPGRADE TO EXISTING FITTINGS AND EQUIPMENT

Concurrently with sourcing and installing the equipment necessary to equip Sofia as an ocean cruiser we also reviewed what might be required to upgrade her existing set up and inventory. We looked at three main areas; the hull, the rig and the sails.

Hull

In the case of the hull Sofia had a substantial number of DZR/zinc through hull fittings. We decided to replace them all with bronze fittings and to have this work carried out when Sofia was hauled out to have her anti fouling renewed. In this regard, we decided to replace conventional antifouling with Coppercoat. The principal advantage of switching to Coppercoat is that it lasts for approximately 10 years and avoids the necessity of having to renew the antifouling on a regular basis. While it does not prevent the growth of weed and barnacles on the hull, all that is required on lift out is for the hull to be hosed off with a higher pressure hose. The initial application requires the hull to be blasted down to the bare gel coat and all traces of the previous antifouling to be removed before the Coppercoat is applied with the temperature at an appropriately warm level. The upfront cost is expensive. However, when the cost of coats of conventional antifouling is compared over 10 years with Coppercoat the cost is comparable. It is not impervious to damage and scratches will inevitably occur due to contact with mooring chains and grounding. We have had to touch it up twice. The first occasion was in Opuia NZ in December 2015 and the second in Darwin Australia in July 2017. We have found it to be effective and would certainly choose Coppercoat again.

Rig

Sofia has twin headsails with a furling Genoa and furling Staysail. She has a tall three spreader Selden mast with in-mast furling for the mainsail. While this arrangement is undoubtedly convenient, we would have much preferred a fully battened mainsail with three reefs and a stack pack. We decided to persevere with the in-mast furling, as we had used this arrangement previously on several charter yachts. With the benefit of hindsight, this was a mistake, as our reservations about in mast furling were born out during our circumnavigation. The mainsail had significant jams in the mast in New Zealand, Australia and the South Atlantic. We were fortunate that none of these jams occurred in very strong conditions and we were able to rectify the jam on each occasion. Nevertheless, we felt very uncomfortable each time. Unless the sail is furled perfectly with appropriate tension maintained on the outhaul, it will be prone to jam. This situation is exacerbated by vertical battens. When we arrived back in the Caribbean in March 2018 after the latest jam in the South Atlantic the Doyle loft in Barbados removed the battens from the existing main and made the replacement mainsail without them! Thus far we have not had a reoccurrence. However, if we were placed in the same situation again we would have switched over to a fully battened mainsail before embarking on our circumnavigation or purchased another yacht with a fully battened mainsail for this purpose.

Replacing all the standing and running rigging was a requirement for two reasons. The first was for insurance purposes. Most insurers expect standing rigging to be replaced after 10 years and Sofia's rigging was original and already 13 years old. The second was for our own peace of mind. We wanted to start our circumnavigation with new rigging knowing the wear and tear that would be placed on the rig in the years ahead. However, fitting new rigging should not lull one into a false sense of security, as problems with the standing rigging have been ongoing throughout our circumnavigation; occurring in 2015, 2017 and 2018. As a result of this experience, we check the rig on a regular basis ourselves and have the rig inspected professionally before every major ocean crossing. At this point we were also unaware that after the rig or major sections thereof have been replaced, the rig needs to be properly tuned and, if necessary, the tension on the lower shrouds and diagonal shrouds adjusted. If the tension on the rigging is either too tight or too loose, then problems are likely to occur. We also learnt on our circumnavigation that the only way for the rig to be properly inspected is for the mast to be removed so that all the tangs and bolts can be checked thoroughly. We now know much more

about our rig and rigging in general than when we started. When we had our rigging replaced we were not present when the mast was stepped back and the rig set up. This was a mistake. If you are in the same situation, make sure that you are present and see exactly what tension the riggers place on each section of the rigging and insist on a subsequent tune-up with the same riggers present.

By comparison, replacing all the running rigging on the mast together with the Genoa and Staysail sheets was very straightforward. The only addition that we made to the rig was to add an additional pole so that we could pole out both headsails when running downwind. This meant adding a second car to the pole track. While the original pole was mounted permanently on the mast we decided to locate the new pole on the deck. In this way, it could be used as the basis of a jury rig in the event of the main rig being lost overboard as a result of dismantling.

Sails

At the time we purchased Sofia it was clear her sails were tired and needed to be replaced. We asked the Doyle loft in Southampton to make us a new suit of sails before we set off on our circumnavigation. The Genoa was replaced in 2013 and the Staysail and Mainsail in early 2014. However, we retained the existing Staysail, as this had not been so heavily used and still set well. We thought that new sails would see us through our circumnavigation. However, we significantly underestimated the toll that wear and tear would take on them. The clew on the Main needed repair after the Atlantic crossing and both Main and Genoa needed repairs and servicing in New Zealand in 2015, New Caledonia in 2016, Australia and South Africa in 2017 and Martinique in 2018. By the time we reached South Africa at the end of 2017, it was clear that the Genoa needed to be replaced and that the Main was on its last legs. We had a new Genoa made by the Ullman loft in Cape Town and a new Main by the Doyle loft in Barbados. We have retained the old Doyle sails as spares even though storage is problematic. The one issue to which we did not pay sufficient attention before we set off was sailing in light airs. Sofia is a heavy displacement yacht and struggles to make progress when the wind is below 10 knots; especially when fully loaded for an ocean crossing. As we subsequently discovered these conditions pertain for a considerable amount of time on a circumnavigation. In our experience, it is a sad fact that ideal wind conditions for perfect sailing are a rare occurrence. The solution to keep moving in light airs is to have a self furling Code Zero mounted on a short bowsprit. With the benefit of hindsight, we should have fitted one.

Part V: SPECIALIST EQUIPMENT REQUIRED

Self Steering Gear

For self-steering gear we opted for the Hydrovane system. It has proved to be an excellent choice, which has served us extremely well throughout our circumnavigation. However, it's considerable weight means that great care needs to be taken when securing it to the transom if the permanent fitting is not to work loose. In our case, we placed substantial stainless backing plates behind the mounting brackets. This arrangement has worked well. Even so after 4 years, the bolts on the bottom bracket had started to work loose. Consequently, careful monitoring of the mounting brackets is required; particularly when the system has been in place for some years.

The system has a wind vane and rudder, which are both removable. The bright red canvas wind vane is subject to sun degradation and in our experience lasts about two years, so you need to start out with the appropriate spares or be prepared to order replacements en route. The rudder is quite substantial, which is one of the reasons that we were attracted to the Hydrovane, as it can act as jury rudder if the yacht's main rudder has been damaged. Initially, we decided not to antifoul it. This was a mistake, as it quickly becomes covered with weed and barnacles if left in the water for any length of time. We recommend that you use Coppercoat or a hard antifouling for this purpose and remove it when stationary for more than a day or two.

HF Radio

The choice of HF radio in the UK is essentially limited to the ICOM 801. Fitting it is a complex task, which requires a professional. The control box and handset are normally located in the vicinity of the chart table together with a PACTOR modem, which is required if you want to have the capacity to download emails and weather Grib files via the HF set. Space in the transom has to be found for the tuner, which needs to be located as close to the aerial as possible. In most cases, the aerial is installed using the backstay. The alternative is to have a very substantial whip antenna mounted on the pushpit. Both tuner and aerial need to be grounded using either a ground plate or the KISS system. The ground plate involves a through hull fitting and therefore the additional cost of a lift out. The KISS system entails fitting a long insulated copper wire from the tuner forward through the yacht. We opted for the KISS system, as it avoided installing yet another through hull fitting. In our case, the wire runs from the tuner in the stern lazarette through the lazarette and under the fuel tank beneath the berth in the port rear cabin. Wiring this system altogether and to the battery bank was a time consuming and difficult task, which took a total of two days.

At the time we installed our HF set up in early 2014, which included a PACTOR modem, the satellite-based system Iridium Go was not available as a means of obtaining emails and weather information while on an ocean passage. What we discovered on our circumnavigation was that HF coverage in the Indian and South Atlantic oceans was distinctly patchy due to the paucity of HF shore stations. Faced with the same decision today we would opt for Iridium Go over a PACTOR modem. We would still retain an HF set in order to be able to participate in HF radio nets while on passage.

Satellite Telephone

When we started out our intention was to use the HF/PACTOR modem for regular access to emails and weather information. However, we decided that it was important to have a satellite telephone to deal with emergency situations. We were fortunate to be given an old Iridium model by my brother. Given that emergency use was our primary consideration we found that the package, which best suited our needs, was one provided by Applied Satellite Technology (AST). This provided us with 600 minutes per annum at a cost of \$600. However, the minutes cannot be rolled over into the next contract. The satellite telephone came into its own when we had a major rigging failure during our Pacific crossing in 2015. It enabled us to discuss the situation with our riggers back in the UK and order replacement rigging for delivery in the Marquesas. It has also proved to be very useful on several subsequent occasions. It should be noted that while at that time of our departure Iridium enabled the provision of data downloads via satellite telephone by providing drivers for computers using Microsoft 10 software, with the advent of Iridium Go this provision is no longer available.

WiFi Access

Given our increasing reliance on the internet for access to such services as online banking and credit card accounts, we looked into this question in some detail. Our initial solution was to acquire a WiFi booster, which we would haul up to the lower spreader using one of the courtesy flag halyards when we needed it. However, its range never lived up to the advertised billing and after a while, the booster itself became waterlogged and ceased to function. We have not replaced it. Instead, we now rely on data SIM cards purchased from local telecommunications companies around the world for use in our mobile telephones and use the personal hotspot function to access the internet. This approach has served us well. However, the cost of data and the coverage provided varies significantly from country to country. Some of the best and cheapest coverage is to be found in the Pacific islands. In comparison, Australia and New Zealand were very expensive.

Watermaker

Next on our list was a water maker. Here after considerable research, we selected an energy recovery system manufactured by Baitek. It is essentially an Italian version of the American Spectra system. The thinking behind our purchase was premised on its energy recovery credentials, which meant that we would be able to power it using solar power without recourse to the generator or main engine. It was also on offer as a special deal at the Southampton Boat Show. However, our subsequent experience with it has been singularly unsatisfactory. Significant problems started appearing on our Atlantic crossing and by the time we reached New Zealand at the end of 2015 major components had failed on three separate occasions.

Given that this track record was unlikely to improve we decided while in Opuia in 2016 to replace the Baitek with a much simpler system produced by Open Ocean. It is based on a high capacity pump, which means that we have to run the generator or main engine to operate it, but we found that we were having to do that with the Baitek system in any event, as our solar capacity was not sufficiently reliable. The Open Ocean system has the added advantage of producing twice as much water each hour. It has worked well for the last three years. In our experience, energy recovery systems are more trouble than they are worth. In our encounters with other cruisers on our circumnavigation the two systems, which cause more problems than any other on ocean-going yachts are energy recovery water makers and generators.

Additional Power Generation Capacity

Energy Audit

Next we reviewed Sofia's power generation capacity. The domestic battery bank had been replaced as part of the purchase package and she was already equipped with a Mastervolt Whisper diesel generator. However, we did not want to rely on the generator or main engine to keep the batteries topped up on a daily basis during an ocean crossing, so investigated both wind and solar power options. In order to determine what capacity we needed in terms of amp hours, we carried out an energy audit of Sofia's electrical systems. You will find on most modern yachts that the list of such systems is considerable including chart-plotters, radar, navigational instruments, domestic and navigational lights, VHF and HF radios, fridges and deep freezers, microwaves, induction hobs and last but by no means least power sockets for charging mobile telephones, laptop computers and iPads. In doing so we were mindful of the advice not to run down the charge in our domestic battery bank by more than 10% in any given 24 hour period if we wished to preserve the life of our batteries.

Solar Power

Our initial solution was to acquire two Solbian flexible solar panels, which would be mounted permanently on the coach roof. While very expensive they could be walked on without causing any damage. However, we discovered on our circumnavigation that the disadvantage of deck mounted panels is that they are often in the shade for long periods, which degrades the panel's performance by as much as 50%. This was particularly the case in the tropics. Both panels had ceased to function by the time we reached Cape Town and needed to be replaced. However, even before we started out on our circumnavigation a two-month long test cruise in the summer of 2013 revealed that the two deck-mounted panels were not generating sufficient capacity. Therefore we acquired two further hard panels, which we mounted on swivel brackets on the pushpit. This meant that the panels could be tilted to face the sun and thus maximise performance. Based on our experience we would certainly recommend this option for mounting solar panels. Hard panels are also significantly cheaper than flexible ones. At this point, we had not ruled out wind power but decided to see how we could manage with 4 solar panels before going down this route.

Wind and Towed Generators

By the time that we reached the Canaries in the autumn of 2014, it was clear to us that we needed to supplement the solar panels with a wind generator. After carrying out considerable research and consulting other cruisers we opted for the D-400 manufactured by Eclectic Energy on the basis of its reliability, quiet operation and the company's reputation for excellent after sales service. It is not cheap and needs a substantial mounting pole or bracket due to its weight. That said, it has proved to be an excellent choice, which has worked flawlessly. It is particularly effective in a windy anchorage or when sailing with the wind forward of the beam in 15 knots apparent or more. However, it is not particularly effective when sailing downwind when the apparent wind is often much less than 15 knots.

Given that much of one's circumnavigation is spent travelling downwind in these conditions with at least one half of the yacht in shade, the combination of solar and wind power is not a complete solution to one's power generation needs, if you wish to avoid using the diesel generator or main engine to top up your batteries while on ocean passage. What we have discovered on our circumnavigation is that the solution to addressing this deficit is to fit a towed generator. Examples are the Watt and Sea and Duo-Gen generators. The latter has the advantage of being convertible between wind and towed configurations. While deploying a towed generator does result in a slight reduction in boat speed, they do generate power when one is sailing downwind at night in moderate wind conditions, which is not the case with wind and solar systems. However, both systems are expensive to acquire and fit. While we have decided not to pursue this option with our voyage nearly complete, we would give it serious consideration, if setting off again. With a powered generator (either fitted or portable), solar panels, a wind generator and a towed generator, you will be covered for all power generation eventualities. However, the outlay on acquiring and fitting all of these systems will be substantial.

Part VI: NEED FOR SELF RELIANCE

While the areas just listed above constituted the principal elements of our preparation activity and budget, they were by no means the only ones. We discovered that there were a plethora of other areas to be addressed before we would be ready to depart. Much of what follows centres on the importance of self-sufficiency; a point which had been seriously emphasised by our OCC mentors. When you have a problem at the midpoint of a 3,000-mile ocean passage there are no engineers, riggers or sailmakers available to assist or chandleries to provide the item of equipment that might be required to help fix it. You have to be able to deal with the problem yourself. Consequently, you must be personally prepared and have the right tools, equipment and spares to cover likely eventualities. I cannot say enough to emphasise the importance of this requirement! When we set off, even though we were forewarned and really well prepared in this regard, as a result, we did not appreciate fully just how many breakages and issues we would need to deal with during our circumnavigation and the ongoing nature of this aspect of ocean cruising. No sooner have you fixed one problem than another one rears it's ugly head!

By way of personal preparation we both attended the RYA Diesel Maintenance course. I have been very fortunate that Anne quickly demonstrated a natural aptitude for this aspect of yacht maintenance and has proved to be a very capable engineer right from the outset. She has successfully tackled a multitude of problems along the way with a combination of skill, perseverance and improvisation. We ensured that we had a comprehensive set of manuals for both the yacht itself and all of the systems on board. We consulted manufacturers on what spares we should carry both for regular maintenance and also for dealing with potential breakages. In particular, we looked at what parts or items were particular to our yacht or might be difficult to obtain outside the UK, if we needed to replace them.

The list of potential spare parts can quickly grow to the size that would not disgrace the inventory of a small chandlery, so it is important to prioritise them based on their “mission critical” nature and the amount of storage space available. What I mean by “mission critical” is would the absence of the required spare part bring your circumnavigation to a temporary halt. It is also important to develop a stowage plan for spares so that they can be accessed quickly and easily; particularly in an emergency.

A very important element of preparation and developing self-reliance is acquiring a comprehensive and detailed knowledge of how one’s yacht performs and how the plethora of systems now to be found on a modern yacht operate. In our case, we took Sofia on a two-month cruise to the West Country in the summer of 2013. This was not a holiday, but an opportunity to learn as much as we could about how Sofia performed, familiarise ourselves with the newly installed equipment and develop an onboard routine. It proved to be extremely useful and revealed a number of shortcomings, which we were able to address in the ensuing months prior to our departure.

As well as preparing ourselves we realised that we needed to have the appropriate tools and equipment to deal with regular maintenance, minor repairs and major emergencies such as a dismasting.

Part VII: SPARES

Next we assembled the spares packages to maintain and, if necessary, replace key items for the Yanmar engine, generator, water-maker, winches, windlass and both Lavac and Raritan heads. Inevitably attention focused on the replacement items. In the case of the Yanmar engine, we opted for a spare alternator and a saltwater pump. So far we have had to make use of the latter and not the former. If we were to start over again, we would almost certainly add a starter motor to the list. Similarly, with the Whisper generator, we purchased spares for all the control switches and have had to replace the exhaust temperature switch on two occasions.

The advantage of having the spare on board is that it is there when you need it. You avoid the hassle of trying to source it locally or the inevitable delay if it has to be shipped from the UK or elsewhere. Shipping in spare parts is not only time consuming but can prove expensive into the bargain. While you should not have to pay duty on an imported item as a “yacht in transit”, in quite a few countries you have to use an agent to process the item through customs at considerable expense. There can also be additional charges in lieu of customs duty. For example, in French Polynesia, a charge is levied to process the imported item both into and out of the territory, which equates approximately to what the duty would have been!

DINGHY AND OUTBOARD

Our previous yacht had a conventional inflatable dinghy with a soft bottom and 4 hp Mercury outboard. Given that Sofia did not come with a tender and outboard, we transferred our existing tender and outboard over to her. This arrangement was perfectly satisfactory for cruising in Channel waters. However, the advice from our mentors was that we would need a hard bottomed RIB by the time we reached the Pacific given the amount of coral encountered when beaching and potentially a more powerful outboard in order to achieve fast, dry dinghy rides. We decided to explore both options once we reached the Caribbean, where we could potentially obtain both items duty-free in St Martin. Before we even reached the Caribbean we were fortunate to acquire a Ribeye dinghy from another OCC member. The paint on the hull had started to peel off the aluminium hull and as it was only months old and under warranty Ribeye replaced it with a new one. Given that we were in Lanzarote at the time Ribeye did not want the old one back. Consequently, we picked it up for a real bargain price!

We decided to persevere with the 4 hp outboard. However, our mentors were correct. It was not

sufficiently powerful get the Ribeye up onto the plane and we endured many long and wet dinghy rides as a result. With the benefit of hindsight, we could have acquired a 9.8hp two-stroke outboard in the Caribbean relatively cheaply and it would not have weighed any more than our four-stroke 4hp Mercury.

During our preparations, we did not give any consideration to fitting davits on the stern for the dinghy. Our primary focus was on fitting the Hydrovane self-steering gear to the transom. However, during our circumnavigation, we have noticed that a considerable number of ocean cruising yachts; particularly larger ones with more substantial tenders and outboards are fitted with davits. There is absolutely no doubt in our minds that such an arrangement makes the business of both launching and stowing the dinghy much quicker and more convenient than stowing it on deck, as we do at present. Given that we do not believe that it is sensible to tow a dinghy unless the conditions are very calm and the distance involved very short, as we have seen too many dinghies including our own loss in this manner, we would give serious consideration to fitting davits, if starting over again. That said, we would continue to stow the dinghy on deck for long passages.

VIII: EMERGENCY AND SAFETY EQUIPMENT

Emergency Equipment

We were already in possession of a comprehensive tool kit from our previous Sofia, which would enable us to deal with most maintenance issues and minor repairs. Consequently, our focus was on obtaining the equipment that we would need for major emergencies. We acquired both a heavy-duty bolt cutter and an angle grinder, which could be powered by the diesel generator, for the purpose of cutting away the standing rigging quickly in the event of dismasting. We had emergency plywood boards made to fit the coach roof hatches and windows in the event that these were smashed in by storm damage. We also acquired a supply of dynema rope to replace damaged standing rigging or set up a jury rig in the event of dismasting. In addition, we purchased a parachute drogue for deployment in heavy weather conditions,

Safety Equipment

Ocean voyaging is a serious business so ensuring the safety of the yacht and crew is a very important element of one's preparation. Both elements need to be properly equipped and prepared for this challenge. We carried out a review of Sofia's safety equipment. While she was equipped with a life raft she lacked an EPIRB and grab bag.

Life raft

Our principal task was to ensure that the life raft was inspected, serviced and equipped for ocean passages. It is important to retain the service documents as proof that the life raft has been serviced and is "in date", as this information can be required during inspections carried out by the authorities in countries such as Portugal and others along the route; particularly in the Pacific. Stiff fines can be imposed if this information is not available. It is also important to note the service interval, as this will almost certainly be shorter than the duration of your circumnavigation and you will need to find an agent along the way, who is able to service it and plan accordingly. In our case we subsequently had it serviced in Auckland and then again in Durban.

EPIRB

We transferred the EPIRB from our previous yacht, which meant that we had to update our registration with the Maritime and Coast Guard Agency (MCA). It is important to ensure that the information that they hold for you and your yacht is correct and up to date. If you activate your EPIRB

in the event of an emergency, it will almost certainly be the Maritime Rescue Coordination Centre (MRCC) Falmouth, which coordinates the emergency response regardless of where you happen to be in the world at the time. It is important to have up to date contact information for them, as we discovered that the contact number and email address changed during our circumnavigation. This can easily be done by checking their website on a regular basis. We programmed their number into our satellite telephone and also have it noted down on the “abandon ship aide memoir” located next to the HF handset.

Grab Bag

The grab bag for our previous Sofia had been based on the requirements of coastal/cross channel cruising and we had not given the contents much serious thought. However, having read “Survive the Savage Sea” by Douglas Robertson about how his family survived for 38 days after being shipwrecked in the Pacific, it was clear that our commercial grab bag was inadequate. It needed to be supplemented by a handheld GPS, batteries, binoculars, flares as well as more food and water. As all of the food in our grab bag is tinned it was important to include a tin opener, as not all cans could be opened on a ring pull basis. It is also worth noting the contents of your own liferaft in order to avoid duplicating unnecessary items.

As a result of this review, we now have three grab bags. The first contains food and other emergency supplies and equipment. The second only contains water sachets as found in life rafts. The third is for valuable items such as passports, ships papers, and wallets. We only put the latter in the grab bag for ocean voyages. It is too inconvenient to constantly retrieve them from a grab bag while coastal cruising. All the bags are located close to the companionway so that they can be reached quickly in the event of an emergency.

Personal Lifejackets & Harnesses, Personal EPIRBs, AIS Locators and MOB alarms

Our approach here was based on the premise that prevention is better than cure. This meant using one's harness and ensuring that it is attached to the jackstay or clip-on points in the cockpit at night or in rough weather in order to avoid falling overboard. However, in the event that one of us did fall overboard, we wanted to maximise the chances of survival by ensuring the quick recovery of the casualty. To this end, we acquired ocean category life jackets and equipped them with both personal EPIRBs and AIS locator beacons. The latter item was particularly important as we would be double-handed. In this situation, it is not possible to dedicate one person to constantly keep an eye on the casualty as is stipulated in every MoB drill. The AIS locator, which activates when the life jacket makes contact with the water, enables the person remaining on board, to have a good chance of locating the casualty even in the dark, as the location of the casualty immediately appears as an icon on ones' chart plotter. That said, in a double-handed scenario both parties must be equally familiar with how to handle their yacht in a man overboard situation. Sadly in too many cases, this has not been the case with disastrous consequences.

It should be noted that whereas the AIS locator beacon is automatically activated as soon the life jacket is inflated in the water, this is not the case with the personal EPIRB, which has to be manually activated by the casualty. We also fitted our life jackets with a sharp folding knife in a pouch on the life jacket belt. The reason for doing so is to enable the casualty to cut away the safety harness in the event that you fall overboard and are still attached to the yacht, but in the water and being towed along at speed. If you are unable to cut away the safety harness, you will quickly drown.

The one safety item, which was not on the market at the time of our departure, but is now available, is a man overboard (MoB) alarm system. One such example is the CrewWatcher MoB system manufactured by Weems and Plath. It is based on a personal beacon activating an alarm on a mobile

telephone in the event that the wearer falls overboard or goes out of range for any reason. The package comes with two personal beacons, but more beacons can be acquired for additional crew if needed.

Sun Damage and Chafe Prevention

As well as being prepared for emergencies our mentors advised us on the need to protect the yacht against damage from sun and chafe. In order to provide protection against the sun Anne set about making covers for all the hatches, the life raft, the outboard and the winches. Similarly, for chafe prevention, we fitted protection to both the ends of each spreader and the back of each spreader. Anne also made a full-length awning, which is mounted over the boom. However, we have not made as much use of it as we originally expected.

Part IX: GROUND TACKLE

Given the amount of time one spends at anchor on a circumnavigation having the suitable ground tackle is an important consideration. Sofia came equipped with a 30kg Bruce main anchor together with 60 metres of chain and 20 metres of rope. The kedge anchor is a 15kg stainless steel Bruce with 10 metres of chain and a tape reel. We had heard mixed reports of the holding capacity of Bruce anchors, but our experience with the Bruce main anchor has been entirely favourable. Once bedded in it holds really well and we have only dragged twice in four and a half years. Once in the Caribbean, we acquired a 25kg Rocna as our secondary anchor, which can be deployed with 10 metres of chain and rope or just rope depending on the nature of the bottom. We have only had to deploy it on relatively few occasions, but it has worked well and is a very good insurance policy. At the same time, we acquired a 15kg Fortress anchor for use as a stern or kedge anchor. It's a combination of light weight, strength and ease of stowage (as it can be easily taken apart) make it well suited for this purpose. Both the main anchor and chain we re-galvanised while we were in Bunderburg, Queensland in 2016 at the conclusion of the Down Under West rally and the work was undertaken as part of a job lot with several other yachts, which kept the cost down to a very reasonable level.

Part X: CHARTS AND CRUISING GUIDES

Allowance in one's budget also needs to be made for the acquisition of both paper charts and electronic charts for the chart plotter, as well as pilot books and cruising guides. In addition courtesy flags are required for each country that one intends to visit. The cost of these items should not be underestimated. While these items can be acquired along the way, even the initial outlay necessary for a passage from the UK to the Caribbean will be considerable.

Part XI: MEDICAL REQUIREMENTS

We also reviewed the contents of our first aid kit. On board our previous Sofia we had a commercial "offshore" kit. While this provided the basic requirements for everyday needs, a quick perusal for the internet revealed that it would require significant augmentation to be sufficient for ocean passages, where the time before proper medical assistance and treatment is available may be considerable. What we had hoped to find, but was not available at the time, was an authoritative list for ocean cruisers produced by an organisation such as the OCC, CA or RYA. At that time the choice lay between kits produced by the likes of Ocean Safety and Medical Support Offshore, which were primarily focused on commercial use and superyachts, on the one hand, and drawing on the lists of experienced ocean cruisers, a number of which were available, on the other. Given that the former was more comprehensive than we required and very expensive, we opted for the latter approach.

We found three examples of lists of the medical supplies required provided by experienced ocean cruisers and based our own list on them. As many of the items are classified in the UK as prescription

drugs, we then had to obtain a doctor's prescription for them. Although most GPs in the UK are not familiar with this situation, we were fortunate that our GP was prepared to issue a private prescription for them. Since our departure, we are glad to see that the OCC is now providing more definitive advice on medical kits for ocean passages in the Forum section of its public website.

Given the number of medical items that need storage, we have packaged them on the following basis. The first container contains day to day requirements such as plasters, aspirin and antiseptic ointment in our original first aid kit. The second set of containers is for emergency /specialist use and are clearly marked based on the type of treatment required; for example "burns". Each container has a list of contents in the lid. The final container is for prescription drugs. We maintain a folder containing all the original prescriptions and have a printed list of prescription drugs. The latter is often required as part of the information required to clear in. Given that we have always been able to support the list with the original prescriptions, we have never experienced a problem. However, in certain countries, a prescription drug, which may be perfectly legal in the UK, may be illegal there. So it is always worth checking beforehand.

When it comes to replenishing prescription drugs, we found this to be a relatively straightforward procedure in Opuā, New Zealand. Opuā is the main port for ocean cruising yachts clearing both in and out of New Zealand. The local GPs are familiar in dealing with the requirements of visiting yachts and are very happy to authorise repeat prescriptions and if required additional prescriptions.

Part XII: INSURANCE ISSUES

When we discussed our intention to undertake a circumnavigation with our existing insurers they told us that they did not provide cover for blue water cruising. When sounding out insurers at the Southampton Boat Show it quickly became apparent that most insurers in the UK do not provide this type of cover. The choice at the time in 2014 was limited to Pantaenius, Topsail and Admiral. We opted for Pantaenius as they have a flexible approach to premiums based on geographic location. For example when cruising across the Pacific premium rates are four times the rates applicable for UK waters. However, on reaching New Zealand premiums revert back to comparable UK rates. Pantaenius also offer a reduction on the excess payable in the event of a claim to members of the Cruising Association. We have found them to be very efficient and helpful in dealing with various enquiries throughout our circumnavigation and dealing with the one claim, which had as a result of partial rigging failure in the Pacific in 2015. The Lloyds surveyor, whom they appointed to assess our claim, told us that they were much the best insurance company he dealt with. Whichever insurance agent you choose to arrange your cover, the premiums are going to be substantial and constitute a significant element of your cruising budget and you need to make allowance accordingly.

As well as arranging cover for your yacht you need to arrange suitable travel insurance cover for yourselves. There are not many companies providing cover for 12 months spent overseas on a yacht. The most suitable cover we found was the Yachtsman Gold policy provided by Topsail. They have a close association with the Ocean Cruising Club and provide a 10% discount on premiums to their members. The cover provided is worldwide. However, an additional premium is payable for a visit to the USA due to the high cost of medical care there. Following a recent change of underwriter the duration of a visit to the USA is now limited to 89 days. Given that the normal length of visitors visa is 6 months, this restriction is far from convenient. That said, Topsail have dealt with the three claims made during our circumnavigation very efficiently and settled them promptly. In similar fashion to worldwide cover for yachts the premiums are expensive and increase significantly when one reaches the age of 65.

Part XIII: PETS

When my mother died we inherited her fox terrier and debated at some length whether the dog should

accompany us. However, our two-month test cruise in the summer of 2017, when she came along to see if this would work out, quickly revealed that taking her would have been for our benefit rather than hers. Therefore, we abandoned the idea. However, on our circumnavigation, we have encountered a number of cruisers who have been accompanied by their pets.

A number of points need to be borne in mind if you decide to go down this route. The first is to ensure that your pet is properly vaccinated, documented and chipped. The second is to appreciate that having a pet will significantly increase the bureaucracy and expense involved with clearing in and out of most countries and finally a number of countries will not allow you to visit if you have a pet on board. Even if one is allowed a pet on board in country restrictions will often not allow them ashore and if these conditions are breached then heavy fines can ensue. We know of one couple in Fiji, who had lost their cat ashore and were fined \$1500 on departure.

Part XIV: ON BOARD OFFICE

One of the most useful pieces of advice that we received from our OCC mentors was to ensure that Sofia was equipped with an on board office. Just as you have a study or the equivalent space at home ashore, you need the same capacity afloat when your yacht becomes your home for several years. We had not really thought about the need for a printer on board, but the small black and white printer, which we then acquired, has proved to be absolutely invaluable. It has been used countless times during our circumnavigation to print off copies of passports, clearance papers, crew lists and other documents. We do not have a printer/scanner as mobile telephones now have the capacity to photograph and send copies of documents.

In addition to the printer we have two laptop computers. One is used for navigation and downloading weather Grib files from the PACTOR modem. The other is used for office work and providing access to the internet when in harbour or coastal cruising. In addition both of us have iPads. With the ever increasing number of "apps" for navigation, weather and tides now available on iPads these devices are becoming increasingly useful for navigational planning.

Part XV: SHORE-BASED CONSIDERATIONS

Arrangements for house and car

While a considerable amount of time needs to be devoted both to personal preparation and also preparing and equipping one's yacht, one should not underestimate the time and effort involved in leaving your affairs back at home in order before one departs for foreign climes. Decisions need be made about what to do with your house and car. Many cruisers sell up or rent out their home while they are away. However, as our OCC mentors pointed this means that you have no home to return to in the event of either a family or medical emergency. Their firm advice was not to do so. We were minded to heed it but found ourselves in something of a quandary when our insurers informed us that they would not insure the property, if it was left unoccupied for more than 90 days.

Our solution to this problem was to find lodgers for our property. While a lodger's agreement entitled them to a room in our home and we are fortunate in this respect in having a self-contained bedroom and bathroom in our basement, "de facto" they have had the use of the whole house while we are away. For us it means that we have the right to return to our home, if we need to do so and have the additional advantage of lodgers looking after our home while we are away. It is an arrangement that has proved to be mutually beneficial and we are fortunate that they have been model occupants. However, it should be noted that time needs to be set aside to find suitable lodgers, draw up a suitable lodgers agreement and brief them on the details of occupancy. For example how to operate the alarm, who to contact in the event of a problem with the property et cetera. We left them with a detailed printed aide memoir in this regard.

Given that we expected to be away for at least 4 to 5 years we decided to sell our car and were fortunate that the sale date coincided with our departure date. Had that not been the case we would have hired a car in the intervening period. We have also set aside funds to purchase a replacement on our return.

Mail and Personal Administration

Given that we did not want our lodgers to be flooded with our mail, we had to plan what should be done with it. Our first step was to go “paperless” wherever possible. Most banks, companies and organisations offer this option rather than sending out statements and circulars in hard copy. The advantage of the internet is that you can now keep track of bank, credit card and other statements wherever you happen to be in the world at the time. The second step was to notify family and friends; particularly those who regularly sent letters and Christmas cards not to do so until our return, but contact us by email instead. The third was to set up a “post restante” address for replacement bank and credit cards when they came up for renewal while we were away on our circumnavigation. We have used my sister in law’s address for this purpose.

Before we left we asked all our banks and credit card companies to extend the renewal date on our cards so that the renewal occurred after our return. However, only American Express were willing to do so. We have found that obtaining replacement bank and credit cards to be one of the more frustrating aspects of ocean cruising. In our experience postal systems around the world are neither timely nor efficient. In one case a credit card for me, which was sent registered mail to my cousin in Durban, somehow ended up in San Francisco! Needless to say it eventually arrived long after we had left. What has worked well for us is to use the OCC’s excellent worldwide port officer network to hold mail for us. That said, you need to allow plenty of time for postage and plan accordingly.

Part XVI: FINANCIAL PLANNING AND BUDGETS

Operating Budget

Working out an appropriate budget for ocean cruising will inevitably depend on personal circumstances and preferences. We decided to set up and operate two separate budgets each serviced by separate bank and credit card accounts. The first budget we termed the “Operating Budget”. This covered food, fuel, fees, moorings and entertainment, where outgoings occurred regularly on a monthly basis on the one hand and on the other communications, travel insurance and travel costs/flights where outgoings were much less frequent and appropriate funds could be set aside on a monthly basis.

Given that we wished to avoid foreign currency transaction costs wherever possible we researched the market for suitable bank and credit card companies where we would not incur these charges. In the Norwich and Peterborough Building Society we found a suitable bank and set up a current account for monthly transactions and a savings account to set aside funds for less frequent transactions. This arrangement worked very well until the Norwich and Peterborough decided to withdraw the provision of current accounts in 2017. We have now reverted to Barclays for this purpose given that it is extremely difficult to set up a brand new bank account in the UK from overseas and we already had joint accounts with them.

Our requirement for a suitable credit card company was met by the Post Office. We use it for the vast majority of purchases. Given the fact that Electronic Point of Sale (EPOS) systems, which can handle both debit and credit card purchases, are now available worldwide; even in the more remote Pacific islands, it is no longer necessary to hold large amounts of cash on board. We are able to monitor transactions and the monthly statement online and pay off the monthly bill in full by this means.

Taken overall annual expenditure against the various headings in the Operating Budget has matched the available allocation, although on a month by month basis some cross-subsidisation inevitably has occurred.

Yacht Maintenance and Repair Budget

The second budget we termed the “Yacht Maintenance and Repair Budget”, which is serviced by Nationwide Building Society current, saving and credit card accounts. Foreign transaction costs are not applicable. This budget covers all items of expenditure relating to the yacht including insurance, regular maintenance items, annual haul outs, any in year repairs and equipment replacement costs.

Our original monthly allocation to cover this anticipated expenditure was in our opinion substantial given that Sofia and all her systems were in excellent condition before we set off. Even though the allocation has been increased during our circumnavigation we have continued to underestimate the level of expenditure required. This has largely arisen as a result of the requirement to replace big-ticket items such as the diesel generator and both Genoa and Mainsail during the circumnavigation, which we had not anticipated at the outset. The lesson learnt from this experience is that even if you have spent a substantial sum on preparing your yacht for a circumnavigation, you still need to set aside a sufficient contingency or reserve fund to cover unanticipated expenditure in addition to what you budget for anticipated maintenance and repairs. Owning a yacht is always a more expensive undertaking than you make allowance for; particularly when it is in use for 365 days a year!