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SPIRITED 480 ROAM

the design

by Craig Schionning

For those of you interested in the technical specifications behind ROAM this is a boat designed for performance cruising and engineered to take the punishment of the seas. Striking the balance between performance and cruising can be challenging and it's difficult to suit every end user. The Spirited 480 is not designed for racing but it would certainly hold its own around the buoys in light trim.



I was lucky enough to spend a day sailing ROAM on her first test sail with main and headsail and could get a good feel for the design on most points of sail. The handling and performance was very similar to the Spirited 380 design but you could feel the extra speed and comfort given the additional length. As impressive as that was, that was sailing around the bay, the offshore performance has now been proven.

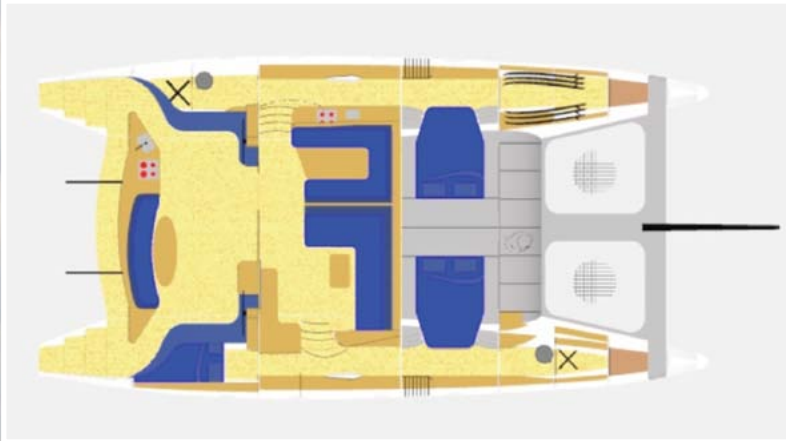
The Spirited 480 was designed with the benefit of all the experience gained from the Spirited 380. There was not much to change and most of the design features are the same however with added length comes extra speed, space and comfort.

ROAM has been customised in a few areas to suit Michael's requirements. To begin with most of the interior is to Michael's design with the galley down in the port hull making way for more space in the saloon which has a dining area adjacent to the galley and opposite a 'lounging' space. On the bulkhead behind the lounge area is a nav station. With Mick's plans of hosting large surfing safaris space in the bridgedeck

area was a priority. As well as this there was a large custom surfboard locker designed into the port bow which has a well equipped workshop in the aft end. The cockpit was also given the custom treatment with a barbecue nook on the port end of the aft seat assembly. To offset the use of space used for the surfboard locker on the port side forward, the opposite hull has a shower forward of the ensuite.

The Spirited 480 has been designed with performance in mind and the slim hulls allow the boat to run at very efficient speeds. The slender hulls also create a comfortable ride and motion as they cut easily through the waves in its path. The well sized performance rig drives the boat freely on all points of sail. Optimizing the sailing associated gear such as the deck hardware, rig and sails will go a long way to improving the boat's sailing performance. For example ROAM is fitted with Black Magic Harken deck hardware, an Allyacht Spars rig and high end Fiberpath Ullman sails. This combination really compliments the design and takes full advantage of its potential performance.

Another critical factor in this equation is weight. For all this to work optimally and to have a good power to weight ratio, carefully monitoring unnecessary weight is essential. This begins with the construction of the boat, minimizing excess resin, filler etc but also choice of equipment and fittings can make a surprising difference. Roam is fitted with Lithium batteries and will have a water-maker, items such as this can save weight in the hundreds of kg's. Michael also chose the Lombardini engines which are much lighter than any other engine of its size.



ABOVE: ROAM layout.
LEFT: A view of the high performance rig and sails.



SPIRITED 480 MAIN SPECIFICATIONS:

LOA	14.74m / 48' 3"
BOA	7.58m / 24' 8"
Draft	545mm / 1' 8"
Displacement Weight	8000kgs
Engines	17640 pounds
	Twin 40hp
	Lombardini
	saildrives
	(LDW1404MSD)
Mast Height	18.75m / 65ft 5"
Sail Area	134sqm / 1442sq ft
Bridgedeck Clearance	900mm / 2ft 9"
Motor Speed	8.5kts (cruise)
Sail Speed	14-16kts (cruise)
Fuel Capacity	300 Litres
Fresh Water	500 Litres
Berths	3 x Private
	Double Cabins
Kit Cost	A\$171,550 ex tax
Estimated Build Hours	5000
	Basic standard

Estimated Material Cost
To Basic Sailaway Stage A\$350,000

For more on this design follow:
www.spiriteddesigns.com.au

The structure of ROAM is end-grain balsa sandwiched between epoxy/E-glass skins. The hull and deck components are resin-infused and the flat panels are pressed under heat, ensuring an excellent resin/fibre ratio, good consolidation and a lightweight result. One of the main advantages of end-grain balsa core is that it is extremely rigid and very high in compression. The all-epoxy structure is a must to achieve a high performance design with good structural characteristics.

The DIY component of this project lets the builder take on the control of many areas, such as quality of assembly and construction, personalisation, as well as the final level of finish. The kit package assists in quick assembly and much less on-site laminating; the builder is focusing on mainly connecting all the supplied parts together rather than highly skilled and involved trade tasks. Included in the package are stylish composite integral fittings built into the structure such as the chainplates, stanchion and rail bases, forebeam and striker. The fact of the matter is that you simply can't go and buy a boat like ROAM, this is why Michael Hoult hand-built it!



I CHOSE THE SPIRITED 480 AS IT POSSESSES THE PERFECT BALANCE OF PERFORMANCE, BUILD SYSTEM, COMFORT AND AESTHETICS. TO DATE I HAVE NOT COME ACROSS A DESIGN THAT SURPASSES IT AND 'ROAM' IS THE ULTIMATE GLOBAL ADVENTURE VEHICLE FOR US.

Mick Hoult the builder and owner of 'Roam' is now using his boat for his global sail/surf adventure. The Spirited 480 is designed for performance cruising where luxury is accommodated. Go anywhere in comfort and at highly efficient speeds. The Balsa or Foam core and epoxy structure guarantee light-weight displacement and high strength while delivering excellent responsive handling. Internally the Spirited 480 has generous volume for modern open plan living with either 3 or 4 double cabins.

Choose from the number of interior designs or ask us about custom designing your ideal living space. The Spirited Assembly System (SAS) provides a fast and simple build platform enabling even the DIY builder to achieve their dream. The comprehensive kit package includes resin-infused light-weight epoxy hull and deck sections, Duflex structure and furniture as well as smaller moulded parts. 'The Spirit of success is simplicity... and intelligent design!'



Sail 380 480 | Race 380 | Power 230 400

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'ROAMING' THE SEAS!

by Craig Schionning

Michael Hault is now enjoying the fruits of his labour after spending six years constructing his Spirited 480 'ROAM'. I have the utmost of respect for any amateur builder who can achieve such a project demonstrating the level of dedication required to see it through to the end. It is to be commended that they manage to juggle everything in their busy lives and still make time for their project.

The original concept and design brief for ROAM was to be a 'Global Adventure Vehicle', and now there is a website to follow the 'adventure' (sailsurfroam.com). One of Mick's passions is surfing and this was integral to the chosen design. His intention was to access some of the most remote surfing spots around the world and have a comfortable living platform along the way. This can now be appreciated as you follow their adventures on the website with already amazing scenes of surfing spots and surfing skills displayed.

Sailing performance was also high on his list of priorities and ROAM has more than met the expectations in this area with the boat easily sailing at wind speed. The efficient easily driven aspect of this design means that there is little effort required to average high passage speeds. Michael has been feeding regular performance data back to us as well as posting this on the website for followers to see.

One of the stand-out benefits of building your own boat is that you can customize it to exactly the way you want it. Michael approached us to implement his



TOP: Sundowners on the tramps, now this is the life!

ABOVE: A great scene showing ROAM anchored in front of a perfect surfing spot!

CRUISING GEAR



Photo courtesy sailsurfroam.com



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TOP: ROAM can sail in as little as 4-5kts of breeze.

ABOVE LEFT: ROAM's saloon area, note the two zones.

ABOVE RIGHT: 5 Star dining in ROAM's cockpit thanks to Larissa.

design ideas which were then included in the building kit supplied, all he had to do was put it all together! ROAM was very much a family affair with all family members pitching in to help with the project. Michael's father John worked on the boat almost every day to keep the project moving. Friends also rallied around for any heavy lifting when required who I'm sure have been rewarded for their efforts now that ROAM is sailing! Michael has already publically endorsed this building system as one of the best around in his opinion.

ROAM was launched mid April 2015 in St Helens Tasmania and was immediately home for Michael. The following weeks saw small trips around the area before setting off across the Bass Strait to get the rig stepped in Melbourne. The sails were not going to be ready for a few weeks so the ROAM crew filled in time by cruising up the east coast and exploring every nook and cranny along the way. The sails were fitted in Cronulla near Sydney and Mick invited me along for the big day. The test sail went smoothly and ROAM lapped up the ideal conditions with some already impressive sailing performance.

I thought Michael was joking initially but the following day the ROAM crew set off for Tassie! With no time to waste they were romping down the coast and were back in St Helens 60 hours later! The regular ROAM crew consists of Michael, Larissa and his brother Andy. Soon after this they set off to circumnavigate their island state which is all documented on their website



with some amazing Tassie scenery. In usual ROAM fashion they examined every bay, inlet and river system on the coast and of course every potential surfing spot as well! But the coast is not the only thing of interest, the ROAM crew is well kitted with mountain bikes, hiking apparel and even abseiling gear, nothing is out of bounds! Their land based activities are captured on GoPro cameras for some exciting footage also posted on the website for everyone to see.

Larissa, Michael's partner is a new comer to sailing and living aboard but has a background as a nutritionist so has a keen interest in healthy cooking. This can be seen on the website with visits to local markets and now some of Larissa's recipes. Good health in

general is apparent with a regular Yoga session held on the foredeck with the entire crew involved. She has also written an interesting post of her experiences while being on board so far that can be seen on the sailsurfroam.com website.

She had this to say recently when asked about her new lifestyle:

"Being a part of the ROAM crew is the most exciting opportunity I have ever been given. Sailing is the ultimate freedom, every day is different and the thought of waking up somewhere I have never been before is invigorating. Life is not always calm sea's blue skies and bikinis but for me so far living aboard ROAM is a lifestyle I am loving every minute of and a future of many ocean passages to look forward to. – Liss"

It's always satisfying as a designer to see the boat being used for its purpose and enjoyed by its owners. Now we can all follow the ROAM adventures on their website and be part of their dream!



ABOVE: ROAM in picturesque Tasmania.

LEFT: ROAM on launch day.



IN THE ENGINE ROOM

**LOMBARDINI LDW 1404 SAIL DRIVES
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This series of exceptionally light and compact engines, features very high reliability in every condition; furthermore, the Spirited 48 ROAM project has been carried out in order to optimize durability and low fuel consumption without reducing the performance of the engine.

Four stroke marine diesel engines (LDW 502 M, LDW 702 M, LDW 1003 M, LDW 1404 M), fresh water cooled via heat exchanger, complete with zinc anode protection; cast-iron engine block (aluminium for LDW 502 M); reborable liners; one piece aluminium cylinder head; indirect injection with unit injector pump in the cylinder head; overhead camshaft with timing belt; vane type lubrication pump on crankshaft; fresh water cooling pump in the engine block; stainless steel water injected exhaust elbow; self-priming sea water pump; air filter; anti-corrosion surface treatment.

The original design concept as the pearlitic grey cast iron cylinder head with integral reborable "twin" arranged liners, with cross flow intake and exhaust pipes, has allowed the reduction of the engine length assuring at the same time an exceptional sturdiness. The LDW 502 M, which has been built with an aluminium engine block and reborable liners is the lightest of the FOCS series.

Excellent results have been obtained in reducing noise emission thanks to the location of the injection system in the cylinder head, to a ribbing system along all the engine structure and to the complete absence of gears.

The overhead camshaft is driven through a cogged belt, especially designed for heavy duty applications to ensure longevity of belt life.

The utilization of newly developed and 'Lombardini patented' pump-injector units, in place of a conventional system, incorporating separate fuel injection pumps and injectors, allows the elimination of fuel pipes and consequently provides a better injection timing with the result of great performance advantages.

The 'Lombardini patented' injection system has been tested for exhaust emission levels to the lowest limits. FOCS engines achieved high acclaim with regard to exhaust emissions being well below the EEC requirements.

The very accurate balancing of the moving components together with optimum combustion allows low vibration levels at all engine speeds.

Components subject more frequent checking are located in the upper part of the engine, just under the cover. This allows easy and low cost equipment maintenance.

The Lombardini Marine S-Drive transmission have been developed from our experience gained from years of sailboat racing. This experience in collaboration with many professional skippers helped us to devise two transmissions featuring the essential requirements of sturdiness and reliability whilst, at the same time, offering the minimum water resistance during sailing.

The shape of the submerged part of drive has been evolved to incorporate an excellent hydrodynamic profile with an extremely low drag coefficient, where the drive's section and chord are reduced to the minimum, for optimum boat speeds between 4 and 12kts.

The axial thrust is handled by a special conical bearing arrangement.

To make the installation easier, the drive has its own built-in sea water inlet and is supplied with a sea cock.

The clutch assembly has been developed to ensure soft and precise gear engagement. A technologically advanced metal-spray surface treatment on the bronze clutch cone allows the oil to drain quickly from the clutch when maneuvering, ensuring smooth, positive shifts.

Particular attention has been paid to the design of the gear teeth since mechanical noise mostly depends on the profile of the gears adopted. Conical gears with helical teeth incorporating a special involute shape, which allows continuous contact between the gear tooth surfaces, reduce gear noise. The GLEASON method is used during manufacture to guarantee minimum tolerances on the special alloy steel teeth, which are carburized and hardened for maximum life.

Lubrication throughout both the upper gear mechanism and the lower part of the drive is assured by utilizing a single oil path.

The oil is circulated by the pumping effect of the special gear profile.



The standard Spirited 480 engine installation is outside of the accommodation area allowing for more space in the aft cabins and keeping the noise, smells and heat external.

The large capacity of the oil sump in the drive allows longer intervals between servicing.

Oil cooling is assured by the contact of the drive with the sea water.

The drive is protected against corrosion by the use of a special aluminium alloy with a reduced copper content and stainless steel is employed for all shafts, nuts and bolts. Two electrochemical treatments, before and after machining, followed by an electro-deposition paint process and two coats of special marine paint protect the external surfaces. An extra large zinc, directly mounted on the drive provides protection against galvanic corrosion.

The sealing gasket is made from a special rubber resistant to both hydrocarbons and sea water. Its special shape in combination with the strength of the rubber ensure maximum life and durability and allows the drive to move independently from the hull, which promotes a pleasant sailing with no vibration being transmitted to the boat.

Particular attention has been taken with regard to weight reduction, in anticipation of applications on board racing boats; reinforcement ribs have been employed to increase the mechanical strength of the drive housing without reducing reliability.



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ONE ON ONE

WITH OWNER OF ROAM, MICHAEL HOULT

The driving force behind this project is Michael Houlton, we thought we would try and get some insight into this amazing story.

MHW: Why did you choose the Spirited 480 design?

MH: For our adventure cruising plans we were looking at boats about 45'. The Spirited 380 was being well received, both amateur builders and professionals were producing some great boats that were in line with what we were hoping to achieve. The 480 seemed like a natural progression of the 380 and we settled on it and got our project under way.

MHW: How did you find your dealings throughout your project with Spirited Designs?

MH: Spirited Designs produce a good product that comes as a comprehensive kit. They take pride and ownership of the design. The plans are well done and

describe the build sequence and requirements well. The ergonomics and aesthetics of catamaran design are second to none. I believe Spirited Designs are very professional in their approach.

MHW: How was the Spirited Assembly System and general building process?

MH: The system works. The moulded hulls and deck edges from Spirited Designs fitted up well with the flat panels that were produced and CNC routed and all came together in a shed in Tassie! Putting the time in at the design stage on the computer definitely made for time savings during assembly. The fit up of the kit was excellent and when you consider the curving 3D shapes involved and this was the first one, it's pretty impressive.

MHW: What was your favourite part of the build and also least enjoyable?

MH: My favourite part of the build was the initial main assembly. Once you have completed all your main parts; bulkheads, forebeam, bridgedeck etc, the hulls are lined up, bulkheads installed, bridgedeck, forebeam and even the decks. In one or two weeks you have the main structure in place and the spaces are defined. You can see what you are building! ... and then you get stuck into the 2km of taping you have just set up for yourself.

Least favourite is the ongoing time and financial pressures that are always going to be present on a project of this scale. Unfortunately it needs a lot of managing and detracts from what is otherwise a pretty fun creative operation.

MHW: In regards to the custom design features you implemented, did they work as expected?

MH: We are really happy how our ideas and layout designs were incorporated and fitted into the Spirited 480 model. I had drawn the layouts over other designs previously and after we settled on the Spirited 480 we worked with Craig to firm them up dimensionally. There are literally hundreds of ideas from other boats in ROAM, these were interpreted and implemented in our own way to make them work in with the fundamental Spirited 480 design.

MHW: What was your previous sailing and building experience before starting your project?

MH: I hadn't blue-water cruised or built a yacht before. However we are an 'ocean' based family. Surfing, sailing, fishing etc from an early age. We are also project people who aren't afraid or prefer to do work ourselves rather than employing others, this was by far our biggest project though. I'm an ocean engineer and work managing marine construction projects so can bring some skills from my professional life to the job as well to keep the organisation and planning side of things under control.

MHW: Was building your own boat as you expected and would you do it again?

MH: I think I did my homework so there weren't too many surprises. What I underestimated was not how many hours would be required but how much 'real life' takes place in six years. That meant I was not realistic about the amount of hours I could put in on the boat each year. Would I do it again ... not sure about that? I have built my dream boat and there may be only one boat in me ...

MHW: How was your experience working with epoxy?

MH: We are in Tassie, but not the cold wet part, so we found it conducive to all year round work. We had forgiving curing times and no cold related issues that would prevent us from working. From a health point of view we were conscious of the dangers and made

sure we used good quality PPE. For us good quality respirators were the most important as the dust and fumes are not good for anyone long term. The fumes off the paints are next level ...

MHW: Was building your own boat worth it?

MH: Yeah I think so. I have recently turned 32 and am living on my dream boat with my dream girl and my little brother. We are having the time of our lives at the moment!

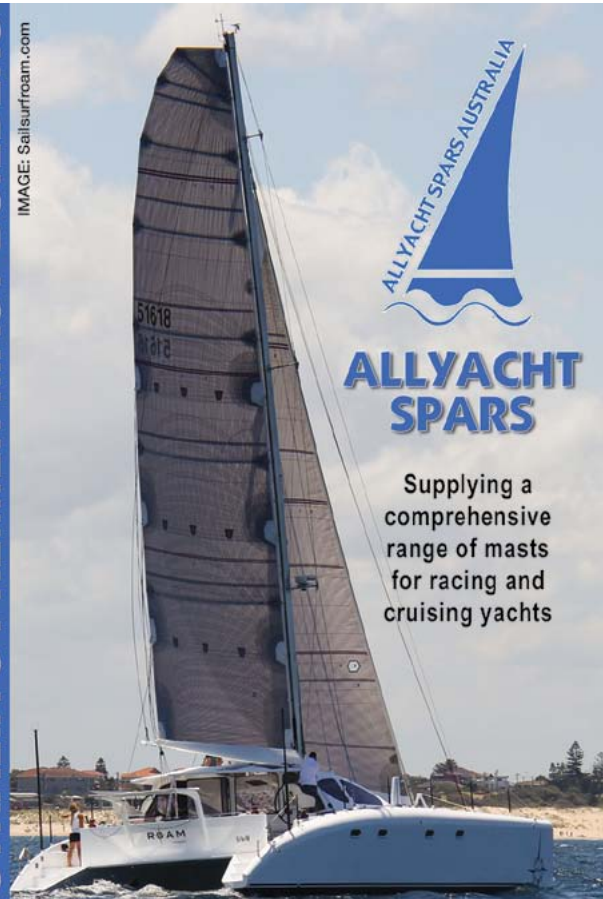
MHW: What are the main advantages of building yourself?

MH: Well the satisfaction of accomplishing a project like this, then being able to live on it and sail it wherever you well feel like is pretty good. There is also not a single part of the boat, piece of equipment or any single item on board that you didn't dwell, deliberate and eventually decide upon so you can without doubt say the boat is 100% how you wanted it!

MHW: What advice would you give anyone considering a project like this?

MH: Don't go into it without doing your homework. Don't kid yourself on the time you have, the \$ you will need or the skills and hard work required. Get to the

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workshop days put on by the designer, put in some days on someone else's project if you can and get to know what it takes to complete a boat. Websites like DIY Yachts will put you in contact with many people working on similar projects. There are so many boats being built all over the country and the knowledge and experience sharing within the amateur boat building community is amazing. Oh and build as close to your house as you can. There is a bunch of extra work to be done after dinner or to check that the last job you did for the day is behaving. Having the boat in the backyard worked well for us.

WE ARE REALLY HAPPY HOW OUR IDEAS AND LAYOUT DESIGNS WERE INCORPORATED AND FITTED INTO THE SPIRITED 480 MODEL

MHW: In hindsight how could you have streamlined the process?

MH: I think we ran a pretty good show. We did basically everything ourselves in a systematic and planned manner. Our workshop and build shed was well laid out. Once we got to the fairing and painting we got Russel and Kat from Mirror Image on the team as I had never picked up a spray gun in my life. I worked alongside them for a year to complete the boat. Although having employees on the job adds to the time and \$ pressures there is no way ROAM would be half the boat it is without the quality finish those guys gave it.

MHW: Now that ROAM is sailing, is the performance as you expected?

MH: We were expecting an efficient sailing performer and we have not been disappointed. We invested in the performance with our sails and hardware. I see a lot of

people interested in the electric and hybrid propulsion options which is cool but for us I would rather invest in the sailing potential and use the reliable diesels sparingly or when you really need them. We keep our environmental foot print light by sailing when others would be motoring.

MHW: Is the Spirited 480 a good live aboard design in your opinion?

MH: Yes we had a minimum of three people on board for six months now and have everything we need. There is a huge amount of space and headroom in the boat. It's as big as a house on the inside. You need to be careful with what you can carry and how you distribute the weight however. The hulls are slender and trim sensitive. The Spirited 480 is based on a 14:1 length to beam ratio. For live aboard cruising I definitely wouldn't want anything more slender.

MHW: Being your 'Global Adventure Vehicle', what are your cruising plans for ROAM?

MH: Well we are surfers first and sailors second so its waves and adventure for us. After six years in the shed we are due for some time with the hook down and surf a nice reef pass!

MHW: How does this design handle during a passage?

MH: It eats up miles on all points of sail. We have had between three and seven people on board during passages and at no stage do you feel crowded. Everyone can find their own space either in the saloon, cockpit or more privately in the cabins. Down wind is amazing. Upwind is upwind. As long as you have everything in your 'house' tied down you can go as fast as you are comfortable with. More often you are slowing down and keeping it civilized.

MHW: The ROAM crew all seem close, how do you all get along on board for long periods?

MH: Well Liss and I get along great; she's amazing and is taking so well to life afloat. Andy and I being brothers argue and carry on all the time. But we don't hold grudges and definitely tell each other what we really think at times ha ha. We are all a good team and bring our own skills. So far it's working out really well.

MHW: What are the roughest conditions you have encountered so far, and how did the design and the crew handle them?

MH: It's a big, wide, light, stable platform sitting on slender high sided hulls with fine entries and has decent bridgedeck clearance. So far nothing seems to bother it. We have had a taste of weather on all points of sail, but not storm conditions. We have had an afternoon in sustained winds over 40kts, a day of lighter winds but the wave rider buoy max was 6.8m, and a night of near gale winds on the beam offshore ... so once we have had all that at the same time I could better answer I guess.

MHW: What have been your favourite cruising grounds so far?

MH: The South West Wilderness in Tasmania went so far past our expectations. We had an amazing summer down there. I am so glad we took the time to experience it before sailing north. I couldn't recommend it highly enough. Both Bathurst Harbour and Macquarie Harbour are multiple times bigger than Sydney harbour, without however many million people to share them with.

MHW: You have been sailing only with your working sails; do you still plan to add a screecher or a spinnaker?

MH: It became apparent quickly that we needed to focus on setting up a staysail first. As the boat generates so much apparent wind when going upwind you go down through the reefs pretty quick and offshore keeping the boat speed below 10kts becomes a challenge. The staysail and two or three reefs keep

IT'S A BIG WIDE, LIGHT, STABLE PLATFORM SITTING ON SLENDER HIGH SIDED HULLS WITH FINE ENTRIES AND HAS DECENT BRIDGEDECK CLEARANCE. SO FAR NOTHING SEEMS TO BOTHER IT

things stable and comfortable. You are still making good speeds but handling quite small sails and light loads. I think that is something a lot of people don't tend to think of when looking at more performance orientated cruisers. **ie** If you want to take it easy you can put up tiny sail areas and make reasonable way on a platform that could withstand full gale force winds.

As for the screecher/Code 0 for cruising, I don't think we need it for now. The boat is fast enough anytime the apparent wind angle is forward of the beam in any wind. Rob Meizer from Ullman Sails has designed a furling spinnaker for the boat that I am saving up for at the moment. It will be a straight luffed sail to assist handling so we are hoping that will be the ticket to light downhill rides and will keep the engines off almost all the time.

MHW: What is your favourite point of sail and in what conditions?

MH: I really like going upwind in very light conditions. In 5-7kts TWS we would have 8-10kts AWS and make about 6kts SOG at 050° TWA, 038° AWA. The boat just glides upwind like the sails are magic. The ocean is flat and quiet and all is in balance. With the autopilot on wind-vane mode the boat just sails itself. You can't get much better than that. You are even at trolling lure speeds. Once the breeze fills in later in the day and you bear away you will be doing 12-16kts so no chance of catching fish then!