

# Sails

INCORPORATING OFFSHORE YACHTING



## SINGULARITY THEORY

AUSTRALIA-FIRST REVIEW OF  
McCONAGHY'S NEW MINI MAXI

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SAILING AT  
120KM/H ON  
SOLID ICE

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ISSUE #2



**BOUWE BEKKING**  
AN INTERVIEW WITH  
THE VOLVO OCEAN RACER  
TURNED AUTHOR

**THE LOUISIADES**  
CRUISE AWAY TO  
PRISTINE PAPUA  
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# WHEN TWO BECOME ONE

IS MCCONAGHY BOATS' *SINGULARITY* THE PERFECT COMBINATION OF HIGH-TECH RACER AND LUXURY CRUISER? GUY WADDILOVE JUMPS ABOARD A YACHT THAT SEEMS TO DO EVERYTHING EXCEPT COMPROMISE.

Check out the winners list in almost any of the major international yacht races of the past decade and you're sure to find something built by McConaghy Boats. Internationally famous names including *Alfa Romeo III*, *Leopard*, *Wild Oats XI*, and *Morning Glory* were all built by McConaghy, as were the first three finishers in the 2009 Rolex Sydney Hobart race. Since its beginnings in the late 1970's the Australian builder has gained a well-deserved reputation for producing high performance custom race winners, and this reputation is what brought one particular Russian client to the company's yard in Sydney's Northern Beaches.

Designed by Adrian Konyendyk at Lutra Design as a high performance cruiser, *Singularity* could possibly have been named *Duality*, after the way she bridges the gap between serious racing and comfortable cruising. The yacht's owner wanted a yacht that would be competitive in major international yachting regattas yet also had the ability to cruise with a small crew between races.

*Singularity* was constructed using high performance equipment and lightweight materials to achieve the balance between serious racing and luxury cruising without compromising either facet. Inside, the back of the boat is all business-

like while the front is for comfort. On deck there is a working cockpit aft and a more traditional, sunken cockpit area forward – despite the unmistakable racing ergonomics, guest comfort has not been sacrificed.

At the aft end of the accommodation (accessed from the working cockpit aft) is the navigation area with two pipe cots on either side. Being a functional area the finishes are black and white; anything that couldn't be built from carbon fibre has been finished in a matt white paint with no concession given to aesthetics. Forward of the nav station bulkhead things start to soften, with the passageway galley leading through to the main saloon finished in what the interior designer Mark Tucker of Design Unlimited describes as "a contemporary slant on Scandinavian style". The saloon and guest accommodation are finished in satin polished teak and Spinneybeck leather hide, and furnished with aluminium Charles Eames chairs. This may not sound like a lightweight racing interior and it is certainly not spartan, but interior fit out company Marxcraft has respected the strict weight regime laid down by the designers. Weight has been kept down by avoiding solid panels and using Nomex cores where possible, and even the bathroom furniture is Tecma carbon fibre (toilet included).



## A Singular Sea Trial

The *Singularity* team hired internationally known sailor and Volvo Ocean skipper Bouwe Bekking to optimise the sailing functions of the boat. Bekking and his team checked speed and performance perimeters against those set out by the designers, testing every sail configuration and wind angle in a range of wind strengths.

"We are sailing by ourselves, sailing against the numbers so it's not the same as racing," said Bekking. "But I think that the boat has a lot of potential in light air. She goes really well in light breezes when I compare numbers from the Volvo boats, which of course is a good benchmark.

The boat is sailing very well and although we are still at the early stages she is doing exactly what she is supposed to. The boat is going to the Mediterranean so it will be sailing in between six and 15 knots of breeze most of the time."





"Aside from the weight restrictions the main challenge of the project was optimising the available space within the hull," says Tucker. "The space was very limited compared to a typical cruising 80-footer. This is most noticeable in the saloon, where we had to build half of it raised over the canting keel structure. This was critical as the exterior profile of the yacht had to be kept low and sleek so we had to work hard with Gurit to achieve the right balance of the use of space for structure over interior volume."

Other than the master cabin forward the owner only required one guest cabin, situated to port and aft of the saloon. Both owner and guest cabins have ensuites. This configuration allows a generous amount of space to be given to the saloon area accessed from the front of the cockpit.



#### FORWARD THINKING

The forward master cabin and ensuite bathroom, which features one of the yacht's most exciting additions – a toilet bowl and seat made entirely from carbon fibre.

The deck has been set up with racing logistics firmly in mind. Aft of the twin helms in the working cockpit is a carbon plinth with three winches for trimming the main. Forward of the helmsman are the mainsheet traveller and the jib trim stations. All the winches and deck hardware on board is from Harken, while deck fittings are custom built from titanium or bead-blasted aluminium. The helm pedestals are almost a work of art in themselves, and are typical of the attention to detail you get when you sign up for a McConaghy boat. They are formed from carbon fibre over a sculptured foam core for an ergonomic, lightweight and stylish shape. Custom engine controls have been integrated into the design of the pedestals very discreetly – you need to know where to look in order to find them. A B&G display head is at the helmsman's fingertips, mounted alongside the keel controls on minimalist consoles integrated into the top of the pedestals.

The PLC (programmable logic controller) driven electro-hydraulic system aboard *Singularity* was developed by two Sydney companies, Olectric and Central Coast Hydraulics, who have worked together on over 25 racing boat systems. If the PLC is the brain in the system the main engine is the brawn. This powerplant is run continuously, providing hydraulic power to cant the keel and drive the winches, and also to drive the propeller in place of a directly driven coupling arrangement. A vessel of this size cannot reasonably operate a canting keel without hydraulics, and the amount of hydraulic load required to cant a keel of this size requires either a dedicated generator or the main engine to power it.

Using a PLC to control the hydraulics allows many layers of functionality to be added to the running of the boat. For example, not only can the winches be run at varying set speeds, they can be configured to run in different modes for various racing scenarios. The PLC system is sensitive to the hydraulic demand from any button being pressed around the deck, and ramps up the engine revs accordingly. The only minor limitation to the system is that canting the keel while the engine is driving the propeller can be a rather slow affair. However it's unlikely that this would inhibit performance as generally the two tasks would only coincide when the yacht is motor-sailing.



**SPLIT PERSONALITIES**  
The interior space is much like that of a smaller yacht due to the aft engine room, nav station (left) and crew bunks being separated from the main saloon. But the main saloon is bright and beautifully finished for cruising, while the aft quarters (accessed from the cockpit) are all about racing.

The PLC on *Singularity* offers levels of sophistication well beyond just the sailing systems. Most of the yacht's domestic systems have been integrated into the device, allowing some smart solutions to some traditional sailing problems. For example sensors on the canting keel ram detect the angle of the yacht's heel, and opens valves to draw fresh water from the inboard side of the windward water tank. This avoids the water pumps sucking air from the twin water tanks whilst sailing.

The carbon mast supplied by Southern Spars is rigged with Southern's Element C6+ continuous rigging. Using C6+ means that there are no rigging terminations at the spreader tips; the pultruded carbon fibre strands that form the rigging run continuously from the mast to the deck to produce a low profile spreader tip reducing both weight and drag. The sails were built by North Sails and wind tunnel tested.

McConaghy engaged Andrew 'Jacko' Jackson as project coordinator for the build, and he has since become *Singularity's* full-time skipper. The boat will run with a crew of two while cruising, with four permanent crew available and an additional 14 to 18 for racing. At the time of writing *Singularity* is being transported over sea to Europe, where she will enter the season's major yacht races including Les Voiles de Saint-Tropez, the Giraglia Rolex Cup and the Copa Del Rey in Palma de Mallorca. Her competitors had better be as well prepared as she is. ⚓

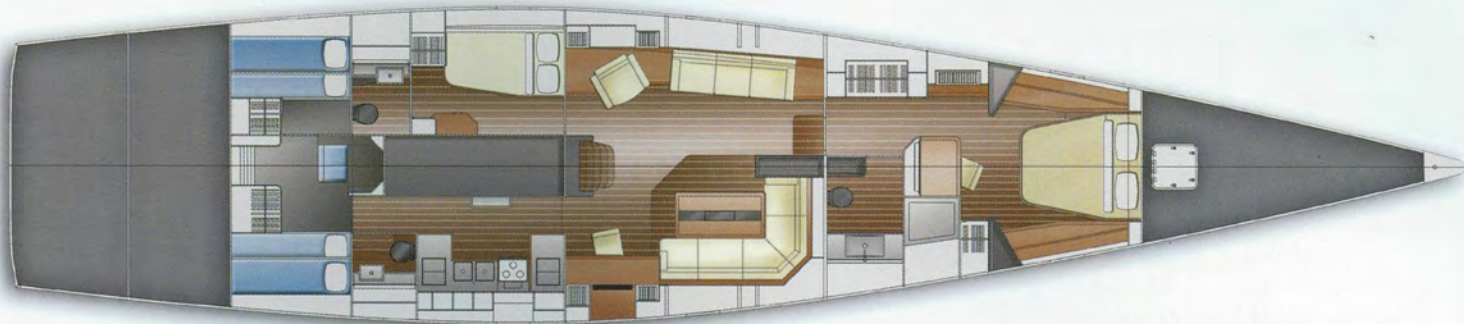
## Performance Figures

At the time of writing, Bouwe Bekking and his team of 'rock stars' were in the early stages of their VPP evaluation and tune up. With a true wind angle of 100 degrees and the code zero and staysail flying we consistently achieved 11 knots boat speed in seven knots of wind and 12 knots in nine knots of wind. Changing up to the A3 saw the speed push up to 13 knots in nine knots of breeze.



**MILLION DOLLAR VIEW**  
Above: The skipper's view with 80 feet of spectacular carbon fibre stretched out in front. Left: Signature touches from builder McConaghy on the carbon helm. Below: Sea trials off Sydney's Northern Beaches on a beautiful Autumn day.



**CONTACTS**

[www.mcconaghyweb.com](http://www.mcconaghyweb.com)  
[www.olectric.com](http://www.olectric.com)  
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<b>DESIGN</b>	Adrian Konyendyk / Lutra Yacht Design
<b>BUILDER</b>	McConaghy
<b>INTERIOR DESIGNER</b>	Mark Tucker / Design Unlimited
<b>INTERIOR CONSTRUCTION</b>	Marxcraft
<b>SAILS</b>	Alby Pratt / North Australia
<b>LOA</b>	24.5 m / 80.4 ft
<b>LWL</b>	22.9 m / 75.3 ft
<b>BEAM</b>	5.3 m / 17.5 ft
<b>DRAFT</b>	5.5 m / 18.1 ft
<b>DISPLACEMENT</b>	24.5 tonnes
<b>BULB WEIGHT</b>	8 tonnes
<b>ACCOMMODATION</b>	8

Singularity Lutra 80 -  
 Luxury interior constructed by  
 McConaghy Boats & Marxcraft Pty Ltd.  
 Designed by Adrian Konyendyk



Photography - Johan Palsson / Singularity

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