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Game changer!

A TRIUMPH OF TECHNOLOGY (SO KEEP GOING)

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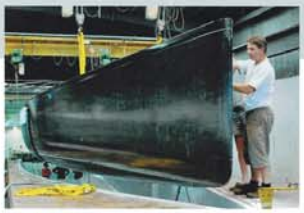

While the first flying-keeler seen in *Seahorse* (Issue 359) was designed for the lakes, Reichel-Pugh's new 42-footer is to be Hobart capable. Given Imoca 60s regularly fly their keels this should not seem remarkable, though being found to windward at a busy Hobart start could be smelly... Unlike the European 'ringed' design, this boat relies on a curved sliding fairing to keep the waterflow content

AUSTRALIA

Calling number two, please

As Jo Richards' 'tubular canting 40' nears completion in Italy (*Seahorse* January 2010), so a keel should also soon be flying down under with the launch of one of the most radical CBTF designs imaginable for Ian Oatley.

The groundbreaking concept, four years in the making, has evolved through the coming-together of three names already strongly associated with frontline Grand Prix CBTF boats: Oatley, McConaghy and Reichel-Pugh. This time, however, the 'Oatley' involved isn't Bob, owner of the Sydney-Hobart record-holding supermaxi *Wild Oats XI*, and the man who essentially pioneered canting keels into that corner of the sport. Instead, it's his son, Ian, who like his father has a desire to look into doing things differently when it comes to sailing.

In common with Richards' Italian lake racer, Oatley's new 42ft design is out to exploit to the full the performance gains from canting keels by taking the process to the limit – a limit that sees the entire keel fin and bulb, when fully canted, at near 90° to the perpendicular: to a point where it is completely clear of the water. The formula means no drag, and the need for even less ballast.

Ratings and handicap considerations don't come into the equation for the boat: pleasure and speed do. She's designed primarily for sailing with minimum crew on Sydney's Summer Twilight racing scene with the occasional regatta thrown in – but unlike her European counterpart she will also be capable of doing Cat 1 races... like the Sydney Hobart.

It was Ian Oatley's always fertile mind that germinated the thought for the new boat. It came after his body, and those of four equally competitive sailing mates, exceeded their 'use-by' date when it came to extracting maximum excitement from windsurfing. It was a forced retirement!

'I then bought a Farr 36 and we jumped aboard in the hope we'd enjoy some good high-speed one-design racing,' said Ian. 'But the class didn't happen in Australia, so we decided to have some fun and tweaked the boat to the limit. We did a lot of things, including fitting a canting keel, then we ran out of things to do and got a bit bored with it all...'

The retired sailboarding gang decided a new boat was the answer, and there were two prerequisites: they wanted to stay together as a team, and it had to be an exhilarating boat to sail – a bit of a hang-on-and-hope, just like they enjoyed when sailboarding. That meant the yacht would be between 40ft and 45ft overall, be of the CBTF configuration and as light as possible.

'I wanted a boat that, instead of loading up when hit by a gust, would see an instant transfer of power and would take off, just as you experience with a sailboard,' said Oatley. 'I also wanted to come up with a way of getting rid of the canting keel from the centreline; something I'd discussed with Macca [John McConaghy] when we were putting the canting keel on the 36. We bounced some ideas, and then when I sat down with the gang to talk through what would be the ultimate boat, it suddenly dawned on me: a carbon ring around the boat that would transfer the keel from side to side.

'That was four years ago, and we immediately briefed Jim Pugh on the concept, then after that we brought John Reichel to Australia for a meeting with Macca, Dad, brother Sandy and me, so we could walk him through it. He grasped it, and by the end of the day the concept was getting legs.'

The end result is a canting-keel yacht where the efficiency of the ballast weight is optimised, the design displacement is less than a grand-prix yacht of similar size (under four tonnes), and the righting moment has increased to what was previously only achievable in much bigger boats.

The team at Reichel-Pugh explained how it works: 'The concept is executed by canting the ballast fin and bulb along a rail system that follows the sectional shape of the hull. The fin head is supported by four pivoting trucks with rollers to provide an efficient low-friction contact with the rails. The components are recessed into the hull and are enclosed by a flush sliding cover that maintains a fair hull shape at any cant angle. The fin is actuated by two hydraulic cylinders attached to the head of the fin through a reverse purchase system. Keel cant angles greater than 80° are achieved by this system without disrupting the layout of the deck.'

As the design developed there was still some small degree of uncertainty: they were venturing into the unknown. So, before the build began, a full-scale mock-up of the keel area was created at McConaghy Boats' facility at Mona Vale, in Sydney, to further analyse the operation of the canting arrangement, and also to perfect the intricate details of the sliding cover.

With that done and everything working nicely the button was pressed last May for construction to start. The carbon pre-preg, Nomex-cored hull was built in a female mould that had been constructed at the McConaghy facility in China using a five-axis CNC mill. The deck was made using a female mould plus some flat panels so production time would be reduced.

Ian Oatley is treating this as a full grand-prix project, so much so that the keel can be locked at a range of cant angles to meet Yachting Australia safety requirements. The keel and major winches will be hydraulically powered, as will the forestay ram and backstay deflectors. The rig will come from Southern and the sail wardrobe, which includes a no-compromise square-top mainsail, and a powerful upwind Code Zero off the bowsprit, will be from North.

With all that in place and the yacht – to be named *Parriwi* – launched, Oatley and his crew will then have to learn to handle their projectile before competing at Audi Hamilton Island Race Week in August: 'We are going into the unknown,' says Oatley with a grin. 'We do not know what will happen when the keel comes out of the water and there is a 10 per cent increase in righting moment, and we do not know what effect the separation of the drag effect of the foil will have. It's going to be interesting!'