



ORC

Let's hunt

It's been a few years since a serious custom all-carbon raceboat has been built for domestic use, rather than export, in the US but this year's previously scheduled ORC/IRC Worlds did at least help reignite some of that interest. For Victor Wild and his Fox team the aim was to improve on their Botín-designed Pac 52 that was part of the short-lived Pac 52 Class on the US west coast, having made an early exit for the east coast in search of more diverse racing and a serious bid towards the Worlds in Newport. Accordingly, *Fox 2.0* represents the latest in TP52 design development, but tweaked 'Ichi Ban style' to be more competitive for mixed inshore/offshore handicap racing. Coupled with the latest in foil, rig and deck technologies, the result is an effective inshore and short offshore racing platform employing the best features of both disciplines.

Adolfo Carrau and his colleagues at Botín Partners, production designer Paolo Periotto and manager Filippo Cravetto are fast to point to their partnership with Pure Design & Engineering in New Zealand for their expertise in advanced composites and credit this for some of their steady advances in 52 design. Working with their Super Series teams, Botín and Pure also host a comprehensive post-season debrief every autumn to further inform incremental improvements for their next generation designs.

'52 design is now extremely refined, it's hard to believe but we are now in the 15th or maybe 16th generation of TP development,' said Carrau. '*Fox 2.0* is one more step forward and is close to being like the other latest-generation inshore Botín 52 – *Bronenosec* – but with a design and engineering benchmark that is more offshore-oriented like [Matt Allan's multiple Hobart Race winner] *Ichi Ban*,' adds Periotto. 'In this sense it's a hybrid design – yet still without compromise.'

For example, after employing Pure's composites expertise both *Bronenosec* and *Fox 2.0* were able to eliminate a forward bulkhead – and yet in the case of *Fox* still retain adequate stiffness in the hull panels to not flex unacceptably in a seaway offshore. The specifications here are complex: more is needed than a simple addition of a few stringers to the structure plus an extra layer of pre-preg.

'A lot of credit should also go to the handful of speciality builders who now know these 52s inside out,' said Periotto. 'They have the build process determined and refined extremely well. For example,

when a honeycomb core is needed for the forward panels they know it's not easy to find core of this type that is of consistently high enough quality, so they build into their process the fabrication of multiple test panels to identify the right batches of material.'

Construction by Longitud Cero was on schedule and pristine. Carbon pre-preg skins over Kevlar honeycomb cores above the waterline and foam core below for slamming loads give the lightest and stiffest hull and deck structure yet still exceeding GL standards.

Given the modest amount of coastal and short offshore sailing in their programme, some additional reinforcement was also included in select areas, producing some additional weight, but not much and deemed worth it for the additional reliability. Conversely, project manager Keiran Searle reckons, 'Only a few kilos were saved in the choice of a partial honeycomb core, but it's worth it even with the IRC rating bump; and ORC has no similar strength penalty.'

A tidy little Lombardini engine is also substituted for the Yanmar Saildrive combination mandated in the Super Series regulations, saving a further small amount of weight that was reinvested in extra structure where it is helpful to deal with the additional offshore sailing loads never seen by European Super Series designs.

Other adjustments not found in Super Series designs, due mainly to the requirements of occasional offshore use, extend beyond structural solutions with some sailing systems similarly reconfigured.

For example, every winch on *Fox 2.0* is interconnected, allowing maximum flexibility using the six winch drums; coarse and fine-tune jib controls are accessible from the rail; and either tiller steering or wheels can be fitted with only 30 minutes needed to swap between the two. 'Victor usually likes to steer starts and upwind,' said Searle, 'so we made sure that the deck layout would accommodate this.' Cravetto reckons the boat in current mode is ready for coastal racing, but 'would still require further waterproofing on deck to be ready for anything serious offshore, like *Ichi Ban*.'

While *Fox 2.0* may have the strength of *Ichi Ban* and the design heritage of *Bronenosec*, in the measurement data it is not the same as either. Not constrained to fit the Super Series box, *Fox* is slightly deeper, stiffer and has more horsepower than *Bronenosec* yet still squeaks in under the 16.40 upper CDL limit for ORC Class A.

GRETCHEN DORIAN



Many of the earlier and sturdier TP52s continue to be found racing out of sight of land and when well sailed are equally competitive on handicap as their inshore brethren. *Fox 2.0* (left) incorporates many offshore nuances from Matt Allen's *Ichi Ban* – practically unbeatable now in Australia. But don't overlook that Allen packs his crew with some of the best pro sailors on the planet. *Fox 2.0* currently sits midway between the Super Series TP52s and *Ichi Ban*; she has yet to receive anything like the same waterproofing detailing as the multiple Hobart race winner to keep the ocean outside where it belongs

At 7,128kg she is heavier than the 6,950kg of the Super Series boats, and is 110mm deeper in draft. Keel construction is milled steel fin/lead bulb, with pockets built into the bulb to tweak righting moment as needed. Compared to the old Pac 52 *Fox* (under new ownership now and rechristened *Natalie J*) *Fox 2.0* has a longer bowsprit, taller rig and more sail area – 176.5m² upwind, 376.8m² offwind – yet still enjoys a more favourable ORC GPH number.

Carrau claims not much ORC optimisation has been done for this design – he admits they have focused more on IRC in recent years – other than to incorporate design and build elements that simply make sense to be the fastest boat in Class A when ORC scoring. 'We did not slow anything down simply for rating purposes,' said Carrau, 'but focused on what will make this boat as fast as possible.'

The pronounced bevel at the shear is an unrated feature that reduces weight and windage, while the use of carbon standing rigging does attract a small ding in ORC, but not enough to outweigh the unmeasured benefit in reduced pitching moment in choppy conditions (the benefit in stability is, however, measured and rated).

Fox 2.0 arrived in the US on schedule from Spain with a full summer of racing planned in Newport to prepare for the Worlds, but when this was cancelled the boat was sent to the Great Lakes to race among a small circuit of ex-Super Series and ex-Pac 52s that have steadily migrated there to new homes.

This attractive Great Lakes mini-circuit includes two regattas and a long race in Harbor Springs, Michigan, with some also taking in the 200-mile upwind Bayview-Mackinac Race in place of the longer Chicago-Mac Race which was also cancelled. *Fox 2.0* will later head back east for the rescheduled New York YC Regatta and the club's rescheduled Rolex Race Week in September, followed by a possible stop in Annapolis for the ORC East Coast Championship before heading to south Florida for the offshore races of the SORC.

In spite of the disruption to the team's carefully laid plans, looking forward things are more promising, with the boat and crew proving competitive among the fast-improving Great Lakes group – which includes those Quantum Racing all-stars who are not otherwise employed in New Zealand. Better times in prospect.

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