



Cat magic

FOUR YEARS AGO TAURANGA KITCHEN MANUFACTURER DOUG HARRISON BEGAN planning a dream catamaran for himself and his wife Linda. The planning would span two years: looking at boats, talking to sailors and designers, formulating concepts.

With his vision clarified, Harrison began searching for a designer with the necessary flexibility to work with his vision. The search led to Warkworth-based multihull designer Tim Clissold, suggested by fellow multihull enthusiast and Team New Zealand structural design specialist, Andrew Kensington. As a bonus for being flexible, Clissold gained twofold when Tauranga sailors Frank and Josette Alefounder commissioned a sistership to Harrison's cat.

The two families built their boats side by side in a rented commercial shed in Tauranga. By working together, the amateur boatbuilders halved rental costs, maximised mould usage and benefitted from bulk purchase discounts. It



ABOVE LEFT: *Tarantella* has an unusual, athwartships, interior helmstation.

ABOVE RIGHT: *Wizzard's* galley and saloon area on the bridgedeck keep the cook part of the action. The galley is in the port hull on *Tarantella*.

ABOVE: Doug and Linda Harrison, standing, chat with John Macfarlane, left, and designer Tim Clissold in *Wizzard's* cockpit. Note the canopy system.

also meant there was always another pair of hands available at critical times.

There were also significant time savings from shared experience gained along the way. For example, the first hull took 10 weeks to build; the second, six weeks, and the third and fourth hulls took just over two weeks apiece. Harrison and Alefounder did the bulk of the work and the projects took two years from lofting to launching. And while the finished boats, *Wizzard* and *Tarantella*, are technically to the same TC 12.5 design, they subtly reflect their owners' preferences. Sisters, not twins.

I joined Clissold and Doug and Linda Harrison aboard their cat, *Wizzard*. Part of the discussion featured on the evolution of Clissold's designs. The rounded underwater sections of his early designs have become distinctly vee'd forward for wave penetration, with flattened aft sections to

support cruising weight and to dampen pitching. Clissold started his design career with small racing catamarans, but with a hull-to-beam ratio of 11.4 to 1, and a Bruce number of 1.34, the TC12.5 fits firmly into the fast cruiser category.

The lofty Harrison requested 1.98m headroom on the bridgedeck, so Clissold worked hard, and I feel successfully, to keep the TC 12.5 from resembling a block of flats. The boat is attractive, in proportion and belies its height and volume. Curved shapes help here – one reason for the foam sandwich construction. Other reasons for choosing foam core over cedar include the minimal cost differential, its easier workability and the lighter displacement. The hulls were built in vertically-split, frame and stringer moulds which, by rotating them 180 degrees, can be used to mould both sides of each hull.

This system has several advantages. Most of the laminating work is done working downwards, with gravity, and the bulk of the interior, including the painting, can be finished with the half hull in its mould.

High Modulus did the engineering to MSA standards and both boats were built under survey to allow the option of charter work.

Rotating masts on both boats improve performance, accepting the minor costs in weight and complexity. The mast section

is one which Foster developed for the Farrier 41, and proved an ideal fit for the TC 12.5. The section is a beauty; I especially liked the flanges cleaning up the airflow around the mast track and batten cars. The mast base is a slick piece of design, carefully engineered for smooth rotation and incorporating a lock to stop the mast jumping off. It allows the mainsail and gennaker halyards to run aft without binding during rotation. The roller-furling genoa halyard cleats on the mast.

A half-sliding, half-folding door separates cockpit and saloon/galley, the effect giving a seamless transition between indoors and out. *Wizzard* demonstrated a high standard of fairness and finish outside, but the interior showed a few signs of hurried workmanship to meet launching deadlines. Next time, Harrison says he would farm out the job of lining the interior with frontrunner; instant glue is well named and it's best left to the experts.

Sistership *Tarantella* is liveaboard home for the Alefounders. One big difference between the sisters' interiors is the galley placement. *Wizzard* has the galley on the bridgedeck facing aft, which keeps the cook part of the action in the cockpit. *Tarantella* has her galley midships in the port hull, which gives noticeably more room on the bridgedeck, and allows space for an interior helm position. She also has

TIM CLISSOLD - MULTIHULL DESIGNER

Tim Clissold served his boat building apprenticeship with Hopwood Yachts while studying small craft design. He gained composite experience working on Sir Peter Blake's *Steinlager* projects, helped build plugs for Bonito powerboats, and spent time at Lidgards Sailmakers. A keen Paper Tiger sailor, Clissold built many foils, hulls and sails for the Paper Tiger fleet, before designing his first catamaran, the twin trapeze, 5m *Viper* in 1993. His second design was the 7.9m racing catamaran, *Hard Drive* built in stressed plywood during 1996-7. He helped John Hughes build the catamarans *Occam's Razor* and *McMoggy*, whilst designing and building his 10m catamaran *Pulse*. This was launched 2002 and reviewed in Boating New Zealand, March 2002. Clissold has nine designs underway including a 16.5m racing cat in Auckland, and spends considerable time sailing *Pulse*.



a permanent island barbecue and sink bench outside, a clever feature which effectively gives it two cooking areas.

Both cats have bi-level cockpits which create two distinct areas. The lower level is for passengers, out of the wind and sun, and clear of ropes and controls. The upper level is for the sailors, and standing here gives access to the sailing controls with the Harken winches at an ergonomic hip level.

We had excellent conditions for our sailing test: flat water with a decent southeast breeze. *Wizzard* was tightly parked with a proa hard up aft and a racing catamaran just as close forward, combined with a contrary beam-on breeze.

This'll be good, I thought, glad I wasn't on the handlebars. However, with Harrison using the twin engines intelligently and a decent shove from Clissold we were off with nary a touch on anyone. *Wizzard* has Lombardini 30hp engines, driving folding, two-bladed propellers through shafts, allowing the boat to sit on the hard with props clear. Under power, *Wizzard* sat comfortably on eight knots in cruise mode, topping out at just over nine. *Tarantella* has 27hp Yanmar diesels and exhibits similar performance.

Visibility of the sails and the water ahead at the twin helmstations is excellent. However, at the helm this layout leads to a feeling of remoteness from the sea and of separation from the passengers. At tacking time it's a climb down, walk across, and then a climb back up to get from one helm to the other, and I would be concerned at the possibility of falling from the upper position in a confused seaway.

For a bridgedeck catamaran of this size,

Wizzard felt light, buoyant and responsive. She reacts quickly to the sea surface, but I could feel any pitching being immediately dampened. Under sail, performance was deceptive, the distance from the water reduces the sensation of speed.

On a broad reach in 15 knots of breeze, under full main and genoa, we sat comfortably on 10 to 12 knots.

A couple intent on taking it easy would find the set-up a particularly low-drama cruise mode. Clissold designed the TC 12.5 with a self-tacking headsail, however Harrison installed a roller furling genoa instead. When reaching this needs to be sheeted further outboard, a barber hauler would easily achieve this.

With Clissold champing at the bit, we had to test the gennaker. The prod slid out easily at the pull of a line – slick operation, this – and with the gennaker up boat speed quickly climbed to 16.4 knots. *Wizzard* felt decidedly frisky, and with Clissold and I still finding our way around the sailing controls we didn't hot the angles too much. *Wizzard* remained under full control and in the gusts was easily squared away to tone things down.

ABOVE: *Wizzard's* bows show their fine entry as she powers up under gennaker.

TOP: The accommodation in the starboard hull.

CENTRE: *Tarantella* has opted for the galley in the starboard hull.

BOTTOM: *Tarantella's* cockpit features a useful gas hob where much of the cooking is done in good weather.





With the breeze wind now a solid 20 knots, and Auckland fast disappearing to windward, we dropped the gennaker, and turned to test uphill performance. Wisely, Harrison called for a tuck in the main and a few rolls in the genoa. The single line reefing, nutted out between Clissold and A Foster and Co, worked smoothly, but as you would expect there is a fair amount of rope to be wound in. However, it can all be done from the helm position, which is a great safety feature.

I noticed a little untoward movement in the mast when sailing on the wind, but this was because the mast had not rotated as far as it should have. The side stays terminate on the side of the mast rather than at a central point at the front, but Fosters believe this is hindering mast rotation. They are developing a fitting to move the stays to a central point, which should markedly improve the automatic rotation. It was noticeable that speed picked up and the mast settled down as we played with the rotation manually. Clissold believes this is part of the fine-tuning in getting a multihull rotating rig to operate successfully without excessive weight.

The sisters use different rudder systems. *Wizzard* has transom rudders with an envelope system, allowing the blades to kick back in the event of grounding. These have advantages in building and when drying out, but can be prone to ventilate air at high speeds. Clissold specifies a foil shape to combat this, an American NACA laminar section (National Advisory Committee for

Aeronautics), which has a noticeably fine entry. A cut-out at the transom protects the rudder blades when backing up, but this creates some minor turbulence off the rear of the hull at speed.

Tarantella has simple fixed, under-hull rudders giving a cleaner exit, protection from ventilation, but none from grounding. Multihull rudders have always been a swings and roundabouts scenario.

On the subject of foils, Clissold was protective of the daggerboards, winching them up for reaching when boat speed exceeded 15 knots. As he says, they are too expensive not to look after them. Good to see them built deep enough that the top is held at deck edge when fully down, while sacrificial lower sections allow a margin of error in the event of a grounding.

The steering is light and gives minimal feedback. I found I had to concentrate on course keeping, or *Wizzard* could wander off without the helm letting me know, an unavoidable function of hydraulic steering. The spray rails were working well upwind – I watched the spray being pushed down and away. At the helm, conditions would have to be awfully bad before you got wet.

Walking around the deck underway was no problem; the side decks are flattened to give good footing and the metre-high railing is an excellent move. Steps at the front of the mast give easy access to the cabin top. The solid roof joining bridgedeck roof and radar arch is wide and strong enough to walk on when tidying the mainsail, and forms an important part of the canopy sys-

tem. The mainsheet is mounted on the rear of the radar arch. According to Clissold, this feature required some careful engineering to deal with the three tonnes of tension.

CONCLUSION

As a concept, the TC 12.5 works brilliantly as a fast cruiser. Under sail, *Wizzard* felt quick and responsive, without feeling flighty. While there is fine-tuning to be done, most obviously the mast rotation and genoa sheeting arrangements, the easy manner of the sailing performance seriously impressed.

There is enough genuine performance to excite the lads in the right conditions; this is tempered by the controllability to slow things down in bad conditions, or with inexperienced crew. Even in cruise mode the TC 12.5 will cover the ground smartly. On the living arrangement side of the balance sheet, the volume, spaciousness, ease of access throughout and all-round visibility, would make cruising sheer delight.



SPECIFICATIONS

loa	12.5m
lwl	12.0m
beam	7.0m
draft	1.8m-0.5m
displacement	5500kg
sail area, main & 100%	89m ²
bruce number	1.35
lwl to bwl	11.4:1

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