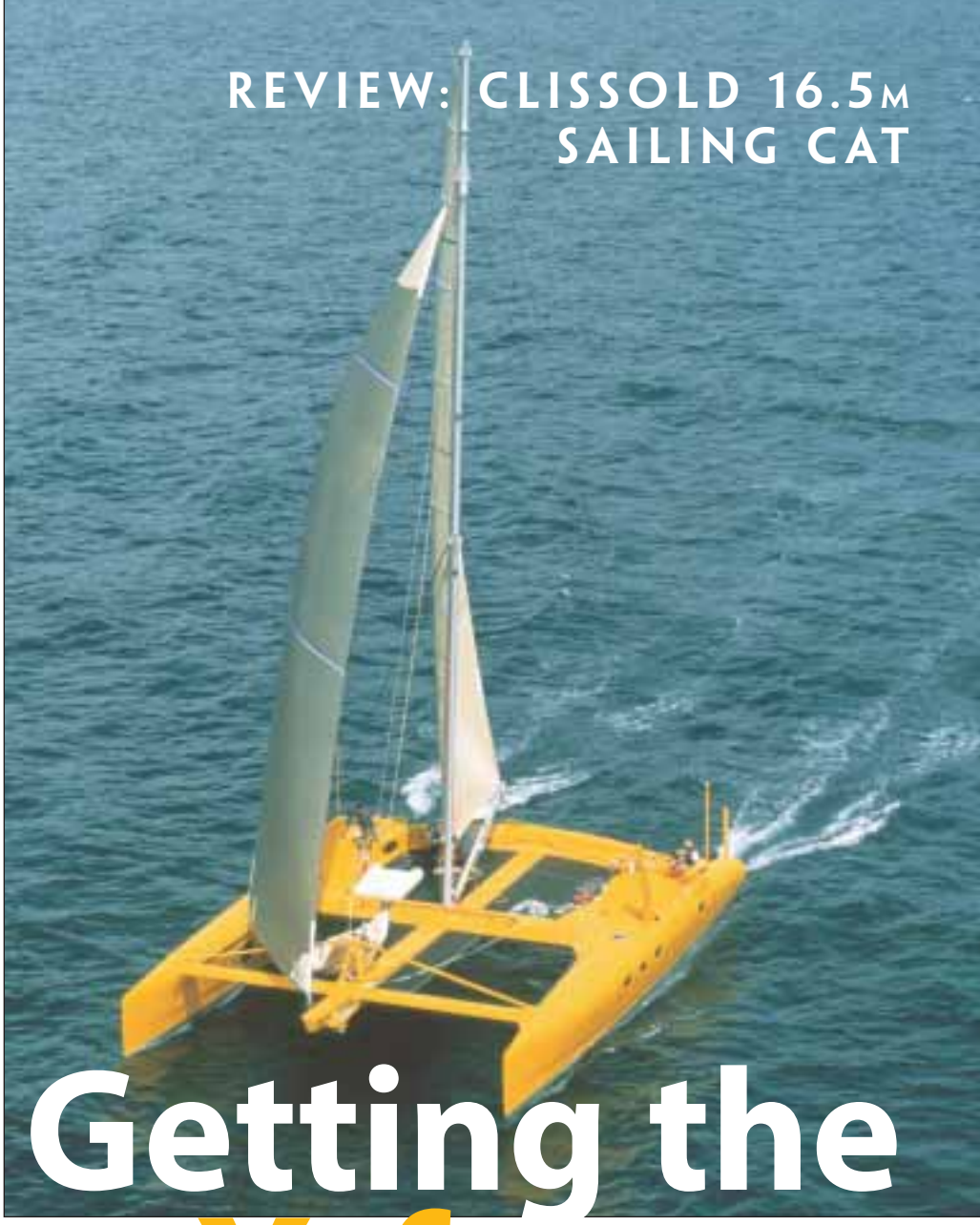
BOATING
NEW ZEALAND

REVIEW: CLISSOLD 16.5M SAILING CAT



Getting the X-factor

OWNER JON VINCENT'S INITIAL VISION SOUNDED simple enough – an offshore capable, short-handed racing catamaran. But it is the near-fanatical attention to detail of himself and multihull designer Tim Clissold that gives *X-Factor* – dare I say it – her x-factor.

FROM TOP: Clissold designed transom-hung rudders for simplicity and draft control.

Stylish mounts for the navigation lights.

Razor-sharp: *X-Factor*'s fine bows promote good performance but interior accommodation takes the penalty.

MAIN PICTURE: *X-Factor* in the Coastal Classic in October. Photo: Terry Fong.

Firstly, neither wanted the traditional, open racing catamaran of two hulls linked by three aluminium beams – a flexible structure under pressure, and wet and windy for the crew. Instead, *X-Factor* is a highly engineered, one-piece platform, designed to provide maximum stiffness under sail, and a safe and comfortable platform for the crew.

The vision also embraced nice aesthetics, controllable handling, easy two-handed sailing, comfort and specific requirements about weight, performance, on board systems and a moulded, seamless

BOAT REVIEW FOR **BOATING NEW ZEALAND** BY **JOHN MACFARLANE** ▮ PHOTOS BY **MIKE HUNTER**

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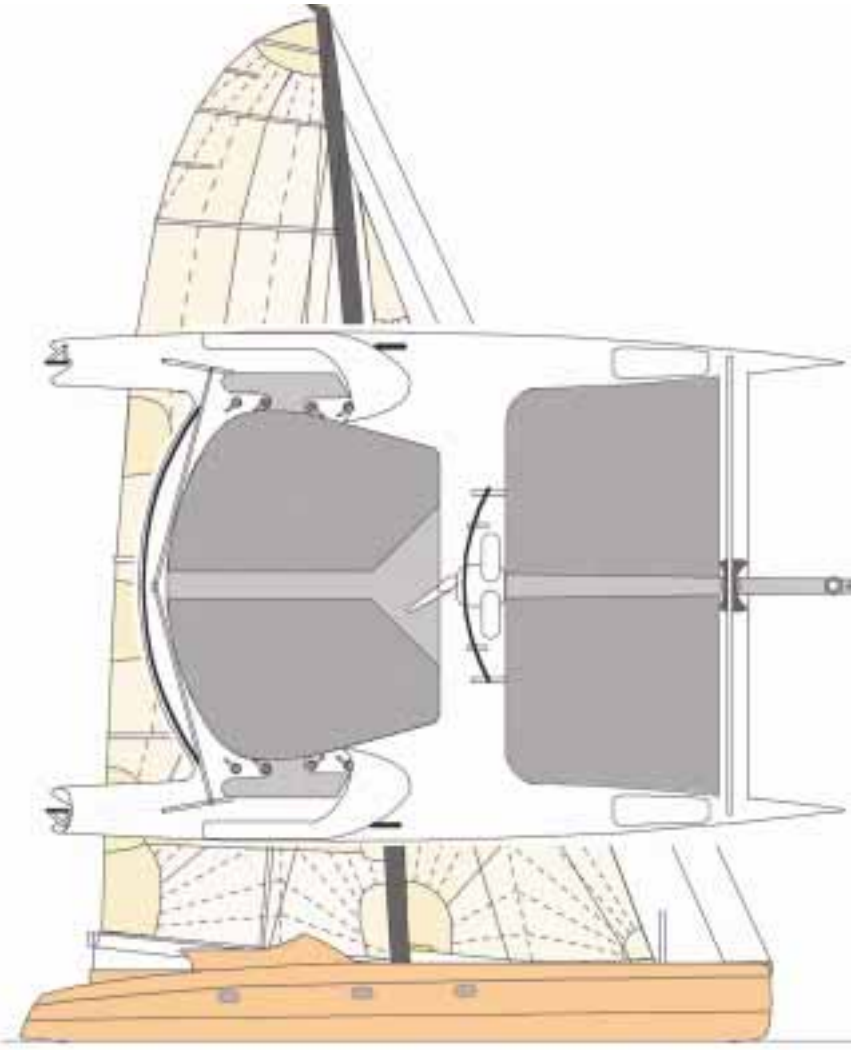
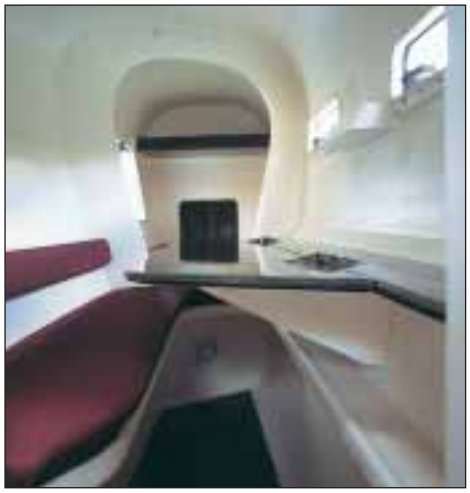




look. A tough ask, but Clissold relished the challenge of his biggest project.

In such projects – large, composite, high-tech and multihull – the designer becomes a co-ordinator of a team. Apart from drawing concepts and figuring hydrodynamics, Clissold facilitated Vincent's vision with considerable input from structural engineers Hi-Modulus, boatbuilder Steve Salmond and his team at New Zealand Multihulls, mast designer Chris Mitchell and composite supplier, SP Systems. The boat's seamless look reflects the working relationship among these parties.

FROM LEFT: ***X-Factor's*** **futuristic styling is like art in carbon fibre, in the accommodation, nav station and galley .**

Achieving stiffness in the basic platform was a major objective because it's critical for a tight forestay and the ability to point upwind – an Achilles' heel of many catamarans. This is predominately achieved by a central structure linking the fore, main and rear beams.

This brings several benefits. It stiffens the catamaran diagonally and longitudinally, transfers compression loads from the fore beam back into the main beam, and helps the rear beam carry the significant mainsheet loads. By extending forward past the fore beam, the structure carries masthead extras, the anchor and, internally, an extendable prod for the screecher – code zero in monohull-speak.

The aft Lumite trampoline area is huge, seven metres wide and six metres deep but, divided by the centre structure into two areas, it remains firm underfoot. Across the front, the raised main beam supports mast and boom. Aft, the symmetrically curved rear beam cradles the mainsheet track. The cockpits each contain two workstations – a helm and mainsheet station aft and the headsail/gennaker trim station midships, with seating outboard.

The inboard side supports the self-tailing winches at hip height and has open bins below for the rope tails. A cut away in the middle provides a passageway to the trampoline, allowing quick and safe inter-hull movement, essential when short-tacking. A curved, raised screen across the front of each cockpit shelters crew and the interior entrance from wind and spray and, by extending aft, helps shelter the helm.

Vincent didn't want a large wing mast because its windage can take over when docking, so the rotating mast on *X-Factor* has a conservative 400mm chord.

There are no spreaders; the mast is kept in column by virtue of its carbon structure, an impressive engineering feat by Chris Mitchell and Hi-Modulus. Apart from the Dyform stainless forestay, each side has double backstays and fore and aft lowers in Aramide. The fore lowers can be removed and replaced by a half-height forestay to carry a staysail in strong winds, which concentrates drive midships with a deeply reefed main. They can also be removed when using an overlapping genoa or reacher.

All fittings are bonded to the mast – another huge challenge, according to Clissold, because carbon has a relatively low resistance to tearing, although there are some mechanical fastenings as back up.

With offshore use in mind, with its working sails, *X-Factor* has a relatively conservative Bruce number of 1.6. In light conditions this has the potential to be cranked up by adding screechers and other extras. The sail wardrobe from North Sails will consist of a masthead gennaker and screecher, an 85% screecher which can be sheeted as a genoa on light days by removing the forward lowers, a half-height staysail, self-tacker and main. Jon Vincent brought forward the launching date to compete in the Lindauer Coastal Classic and although Norths Sails was able to meet the new date for the working sails, some of the bigger sails were yet to arrive.

There are lockers just aft of the fore beam mounting which conceal the canards, small forward daggerboards. These are not a new idea but generate a mixed reaction among multihull aficionados. Clissold and Vincent wanted them to balance the boat when flying masthead extras, which have a tendency to pull the centre of effort forward, causing lee helm.

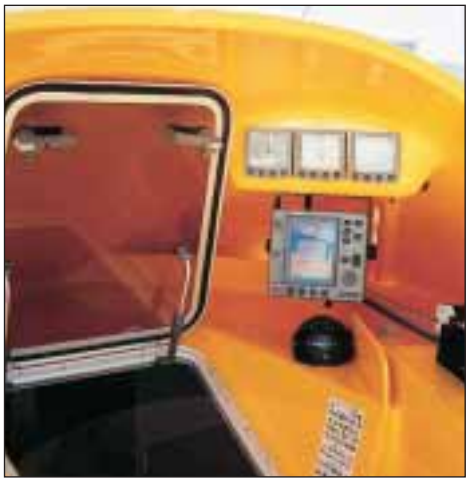
Lowering the canards moves the centre of lateral resistance forward, balances the helm and helps lift the boat to windward. The arguments against canards include their added complexity and wetted surface area, and a potential reduction in manoeuvring ability. The main centreboards are deep – a draft of 2.5m when fully down – and they are controlled by the usual raising and lowering ropes which come aft to self-tailing winches.

Bucking a trend towards under-hull rudders, Clissold designed transom-hung rudders for simplicity and draft control. He maintains the laminar flow rudder sections he specifies do not ventilate at high speed. The tiller placement provides a comfortable and relatively sheltered position, and allows the helmsperson to easily reach the main traveller and mainsheet. This necessitated a linkage joining tiller and rudder, which incorporates gearing – more on this later.

Given that all the accommodation had to fit within relatively narrow hulls, the interior is modest in size, but adequate for the intended purpose. Each hull has a single bunk forward and a snug double aft, both with opening hatches on the inboard chamfer panel for ventilation, viewing and emergency access.

The port hull midships contains a head/shower and navigation station, while the corresponding portion of the starboard hull contains a dinette and galley. Simple in concept, the interior has been built with obvious care. There is nary a speck of timber in sight and, as with the rest of the catamaran, the interior is a credit to boatbuilder Steve Salmond. There were examples of his carbon fibreglass art everywhere, including the strategically placed footsteps to the interior, locker hinges, rudder gudgeons, fender holders, seagull striker, anchor holder, moulded scallops for the shrouds and centreboard control blocks.

The original plan was to power *X-Factor* with retractable outboards and there were many ideas on how to retract



ABOVE FROM LEFT: The centre structure divides the trampoline into two areas, keeping it firm underfoot.

The anchor rests secure and out of the way in its customised stowage.

Near-identical stations either side of the cockpit take care of headsail trim, instruments and access below decks.

them. None were totally acceptable and eventually Vincent opted for twin Lombardini 27hp diesels. These are mounted in sealed lockers well aft and custom-built, shaft drive, twin-bladed Gori folding propellers. Thus far, these have been free of the unfortunate multihull tendency to spring open at more than 20 knots and start the engines. Vincent has experienced that on a previous multihull, and is closely monitoring this aspect.

THE SAILING

Our sailing trial of *X-Factor* took place on a sunny afternoon. Unfortunately, the promised afternoon sea breezes didn't eventuate and most of the time we had no more than five to 10 knots of breeze and with the coloured sails still to come, we were under

X-Factor at the start of the Coastal Classic. Her platform is designed for maximum stiffness under sail.

Fittings moulded into the cat demonstrate the boat's detailed planning.

working sails only – main and self-tacker – and were seriously underpowered.

Even in these sticky conditions, *X-Factor* proved slippery, regularly matching wind speed in the lulls and exceeding it in the puffs. The working sails looked great and matched the mast well. The forestay sag was minimal; *X-Factor* is impressively stiff under load.

Attacking a few ferry wakes showed pitching well dampened, good bow buoyancy and the spray rails working well. The 16.5m length of *X-Factor* has allowed Clissold to use a performance-orientated, length to waterline beam ratio of 18:1. *X-Factor* is proportionally finer in the stern than some of his previous designs.

The 2003 Lindauer Coastal Classic race at Labour Weekend gave a strong indication of *X-Factor*'s potential. Prior to the event, she had barely sailed and was yet to include her full sail wardrobe, yet she finished second on line, just seconds behind the New Caledonian catamaran *Rogntudjuu*. Vincent says *X-Factor* reached speeds of up to 24 knots during the 120nm race.

No such luck during our test. However, late in the day, as we were short tacking up the harbour amid the Wednesday evening keelboat racing fleet, the breeze firmed a little and *X-Factor* responded with brief squirts to 11-12 knots. The increase in boat speed was so smooth it was easy to miss it unless watching the log.

We tried the canards, but there was little difference in helming with them up or down. To be fair, they are designed for higher wind speeds than the light conditions we had. Vincent says they were used to great effect on the final, 10nm beat from Cape Brett to Russell during the Coastal Classic, with *X-Factor* climbing as high as any of the chasing monohulls.

Despite the 10.6m beam, docking at Westhaven proved a doddle. The helmsperson controls the twin Lombardinis with a remote on a lead, and can move around for the best view.

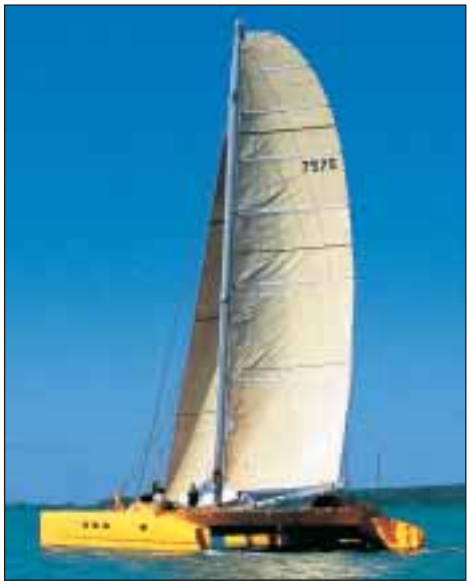
My overriding impression of *X-Factor* was ease of use. The helm is comfortable, the winches are an excellent height, and sailing controls are intuitively arranged. This is a boat that can be driven hard and remain in control. Access to trampoline and mast is excellent, and there is nothing to trip over – especially important on such a quick boat. The wind and spray deflectors do a nice job of sheltering and provide a safe, dry place to store wet weather gear, cameras and charts.

As with any project of this size and complexity, there are a few minor teething issues. The gearing ratio between the tillers and rudders results in a heavy helm, but should be a simple matter to solve by changing the geometry of the linkages, or possibly the rudder foils. The headsail self-tacker needed a little persuasion to self-tack and some of the fittings in the rigging will be replaced to a more appropriate specification. Again, all easily solved. Vincent has a great attitude towards his project, realising it's all part of a process. Fast boats are seldom just created – there's always fine-tuning required to develop the full potential.

CONCLUSION

X-Factor has taken many thousands of hours of thought, planning, communication and skilled workmanship to bring from vision to reality. The bright yellow paintwork is a statement, but *X-Factor* is no show pony. While she appears deceptively simple, this catamaran is a powerful proclamation of logical thought and complex engineering.

Ultimately, *X-Factor* should be judged by her performance on the race track. While she has made a highly promising start – a close second in virtually her first outing – she is yet to officially earn the title of New Zealand's fastest multihull. I believe that honour won't be long coming.



SPECIFICATIONS

loa	16.5m
lwl	16.0m
beam	10.6m
draft	0.5m-2.5m
displacement – cruising	6800kg
displacement – racing	6300kg
sail area, main & 100%	141m^2
bruce number	1.6
wl to wlb	18:1