



A terrible sight from the bow of any yacht, but particularly horrible if you are barely one-third into a race around the world...

All the king's horses and all the king's men... (but this time they could)

VO65 class manager James Dadd and the resurrection of the Vestas

I write this sitting in a cramped office I share with Matteo Bisio (Persico project manager), Mike Vittorio (Farr Yacht Design) and Neil 'Coxy' Cox (Vestas shore manager) where the sound of grinders against carbon has thankfully now been replaced with what would be the quiet of laminating... if it weren't for the thumping music that seems to drive all boatbuilders on.

So how is Team Vestas Wind? Well, boat #6 just went back into one piece. Two days ago the original deck met her new hull. Many may look at the wreck that arrived here and consider that the front half didn't look bad at all, and as such all we needed to do was build a new piece of hull and get back in the water. The reality is that this is not a custom one-off. The only way this boat is going to get back into the race is if she is a true one-design again.

To me there was only one way of making sure the two hull halves lined up and that was to have only one piece. The only alternative was to sand the surviving half back to carbon, remove the bowsprit and collision bow and set her back in the hull mould, then hope that you got it right and scarf the new bit in. This would still create a small joint, but with modern techniques that really is a minimal weight gain. But what if the old part didn't go back in exactly the

same place? The only time we would find that out was after she came back out of the mould. By then it is far too late, and not only have we missed the deadline for Vestas to get back into the race but we would have a boat that was of no use to the next race.

To me the decision was simple. For the boat to be a one-design it needed to be a combination of old components and, where they were damaged, completely new components. The assembly then had to be completed in exactly the same way as the original. But there were two big potholes ahead: we didn't have the time to replace everything that got damaged and at such short notice the original build consortium of Green Marine, Multiplast, Décision and Persico didn't have the time or personnel to do the work. Fortunately, Persico did have a building they could make available with the hull tool already stored next door.

Marcello Persico also thought that with some key personnel available, and the possibility of getting more from other yards down south, they could take on the lion's share of the work. But they would not be able to build a new deck in time as well as everything else. So it was agreed the original deck would be saved and the portion from the mainsheet pod aft replaced, with a joint between the new part built at Multiplast and the original. So we would have a repair to an old component – not ideal.

My view on this is the same as for any other boat currently racing. The class rules are written specifically to cope with the

possibility that one of the boats could need a major repair. The corrector weight pockets are intentionally filled so the fleet is all the same weight, all with correctors, allowing for repairs to be done with no weight penalty. So Vestas had 43kg she could gain before the corrector pockets were empty.

That sounds simple, but not only does the weight have to be within the limits, but the distribution too. Of this weight, 28kg is at the traveller bulkhead and 15kg at the J3 tack bulkhead. So if all the weight was gained at the bow then she could only gain 15kg before going out of class. Luckily, this boat has most correctors aft, where they are needed in this instance. But 28kg still isn't much to play with when the boat weighs 12,500kg. Furthermore, repairs to the existing structure would only be approved with the same criteria as the rest of the fleet. If an item was too badly damaged, or a similar repair had been rejected in the original seven builds, then this would be rejected here too, irrespective of whether or not it meant the end to the fight to get afloat again.

A good example is the main keel bulkhead D. This is a substantial structure and not only forms part of the keel support assembly, it also acts as the main support for the mast. There was minimal damage where this joins the hull at the forward end of the reef damage and following ultrasound investigation it was clear the main structure was still 100% sound. However, to install it back into the new hull the whole assembly needed disassembling. ▷

BRIAN CARLINVESTAS

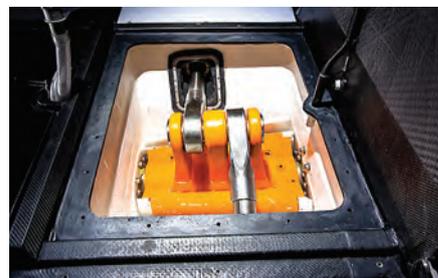
Construction of this bulkhead is not a trivial affair, as it contains a huge amount of additional reinforcement, so retaining this could save weeks, not just days. However, unfortunately in the process of this dismantling it was not possible to separate the main keel assembly (known as the ram tray) from the bulkhead without further damage. It was decided at this point that had this bulkhead been presented during the original build with this much alteration to the original specification it would have been rejected. As such the same decision was made here and a new piece was built.

At this stage I am normally asked why I care – surely we will let the boat back in and simply turn a blind eye, or change the class rules to suit. But if that was the case then why write the class rules in the first place? The reality is (and fundamental to this project from the moment *Vestas* cleared the reef) the only way this boat will be at the dock in Lisbon is if she is a fully compliant Volvo Ocean 65. If not I will not sign the certificate and she will not rejoin the race. And I have the complete backing of (CEO) Knut Frostad and (COO) Tom Touber in this matter. There is absolutely no point in having a nearly OD boat on the racecourse; that will destroy the fleet and the event quicker than losing a boat.

So ultimately we end up with a combination of old and new, rebuilt in the same way as the original boat. It is also the simplest approach. The whole VO65 project has revolved around the need for consistency from day one. Many people ask me about measurements and tolerances. But the approach is that this is not a measurement-driven class. I said from the start that I wanted to get to the stage where none of the build team would need a tape measure. The components are built in tooling that means they have to come out the same shape, and jigs are used so that they will only fit in one place when assembled.

This is all great, but it means assembly is driven by a strict process. For example, the soft padeyes that retain the safety equipment are fitted using a jig that fits on a longitudinal between the hull and a bulkhead. The longitudinal goes in with a jig between the hull and a bulkhead. The bulkhead is fitted using a jig between the hull and a mould plant, and the hull is laminated against this plant that is bolted into the hull mould. Each step has a fixed sequence. All the Persico team has to do is speed that up and not make any mistakes. Simple...

At this stage the list of new components is a lot longer than the list of old. But without those old components we would never have been in the position we are – ahead of our best-case scenario with the guys about to crack open the hull mould seven days ahead of the schedule on our cramped office wall. Originally the deck went on with the hull in a jig to replicate the hull mould. As we don't need the hull tool to build another hull immediately, and the assembly jig is in Hythe, that is one step in the process that has evolved.



BRIAN CARLINVESTAS PERSICO

Top left: a new keel tray goes into the replacement *Vestas* hull shell at Persico; it can be clearly seen (top right) where the old and new deck come together; cutting away (left) starts of the destroyed hull from the salvageable deck; finished keel head (right). Opposite page: the sad wreckage of a grand prix offshore yacht arrives back in Europe

The next milestone will be the official weigh. That is a long way off. We need to complete the internal fit-out and juggle this with getting the branding completed and getting the boat to Lisbon during a busy period... (Coxy has just told us that most roads in Europe are shut to wide loads because of religious celebrations). But there is no way Coxy will be thwarted by something as trivial as religion.

Joking aside, this official weigh will be the most important stage of this process, and if the weights are too high then there is no solution. I will have to turn to all the guys at Persico and tell them that although they have done an amazing job, the task was, in fact, impossible, as many have said.

I have absolutely no doubt, though, that no one could have done a better job than these guys. The passion and drive to achieve the goal of getting Team Vestas Wind back in the race have been way beyond what anyone could have asked for. I just hope the numbers are good. But if they are not I will not make excuses or find solutions. If the numbers are too high, you will all know... as we will not have the whole fleet back together in Portugal.

Nothing is indestructible

Blue Robinson talks to Volvo boatyard manager Nick Bice...

Seahorse Magazine: What scheduled big stuff did you plan for Auckland?

Nick Bice: Throughout the race we have three levels of service: the full service, the partial and a minor service. The full service was in Alicante pre-race, to get all the boats to ground zero. That took place again in Auckland, with the fleet having done roughly half the miles of this race and to prepare for the Southern Ocean. A full service means pulling every single component apart and putting it back together – sails, keel systems, winch systems, electronics.

SH: Involving how many people?

NB: I have 17 in my core team; but in Auckland we had over 60 people, with extra engineers from suppliers like North, Southern, Cariboni and Harken.

SH: Issues emerging...

NB: Nothing we didn't expect, which means our planning was OK. The boats are in a lot better condition now than at the start, as we regularly service them and every month they come out of the water, whereas pre-race some of the teams only lifted their boat a couple of times. Plus we have a regular part replacement schedule and follow it rigorously. All the teams knew before the start which parts were going to be changed, and paid for this as part of the entry fee. So if a winch pull is still looking good but it is part of the service schedule it will get replaced. This is taking the one-design concept and applying it to the servicing of the boats. What this means is regardless of budget your boat is in the same condition as the next team's.

SH: What do teams say about the boats?

NB: They are extremely strong; possibly this is a double-edged sword as no one has found the limit yet – but that will come, and then we will see some genuine breakages. There are also the usual smaller gremlins which we have mostly ironed out.

SH: Padeye and outrigger issues...

NB: The most publicised early breakage was *Dongfeng's* padeye. Whether that was extra loading by the crew or the padeye having been compromised previously, we don't know. We saw there was a problem and addressed it by engineering new parts in collaboration with Spinlock and applied them to the fleet. Part of the process was we changed every padeye on every boat for leg 2, as we couldn't build the new ones in time; then in Abu Dhabi we replaced them with the re-engineered padeyes.

SH: Outriggers – is that operator error?

NB: Yup. It's such a performance gain using the outriggers... but the harder you push, the closer to the edge you get. The outrigger height is adjusted manually and we set clear parameters; go past these parameters and the outrigger will break. The breakages we have seen are either from them being used beyond the parameters and dynamic loads we don't know about – or teams simply pushing too hard, we will never really know which it is.

SH: Plenty of learning there...

NB: Sure. And some of these guys may never have sailed with outriggers before.

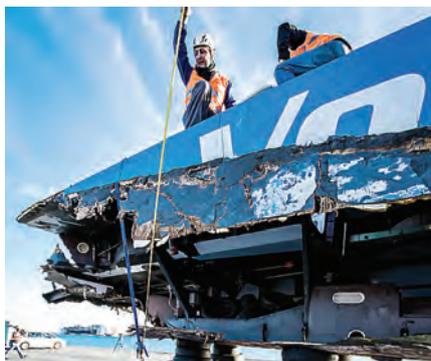
SH: Rigs?

NB: Teams are bending rigs a lot more than predicted – some teams more than others – which could mean issues. Nothing is indestructible and the teams still need to manage their own risk. With a rig failure like *Dongfeng* I am sure that we will go back through the data and see what caused it. But within the parameters the rigs are designed for they are incredibly strong.

SH: What about Itajaí?

NB: Scheduled service is taking place, with anything reported from leg 5 factored in (*Dongfeng* is a special case). We have a good system; crews send a job list from the boat, shore managers put that job list into a smart-sheet, which generates reports to the suppliers so everyone can prepare prior to the boats arriving. It's important the teams use the process, otherwise boats turn up and we don't know what we are dealing with.

SH: How are they managing such tight sail inventories?



NB: Very well. With no sails added in Auckland we are seeing new sails coming onboard in Brazil. There are four replacement sails and at this stage we think this strategy has worked well; we are confident teams will make it round without major sail issues. Of course there have been little rips, but there has generally been a good reason why that has happened.

SH: Are some boats managing their sail inventories better than others?

NB: Yes. Abu Dhabi look after their sails very well indeed. It is clear they don't drag sails or sail bags across the non-skid deck at all... some teams do and it is readily apparent. Don't forget they have only 11 sails to get around the world so they have to look after them. This is driven by the wealth of knowledge on *Azzam* – particularly with sail guru Phil Harmer.

SH: A couple of halyards went on leg 4?

NB: A couple of jib locks went. Basically the spigot on the end of the halyard goes up

into the lock which sits on a fork, and the way the boats are being sailed is loading that spigot in a different orientation to what was thought. There may have been too much movement, point-loading that spigot, so Southern Spars re-engineered the lock, inserting a Nitronic 50 sleeve, so the spigot could not move and you now rely on the soft strop for the orientation of the halyard.

SH: What have you learnt from *Vestas*?

NB: Everyone saw the images of the boat on the reef – the structure taking that punishment is a huge credit to all the designers, engineers and builders. Any other boat would have been ground to a pulp. *Vestas* is basically now my second project...

SH: Has it raised any suggestions on modifications or placement of safety gear?

NB: Definitely on placement of safety gear. An example is we moved all the safety gear away from the stern. Yes, they went on a reef and took out the back of the boat, but if you broke a rudder and the stern flooded you would have trouble accessing your safety gear, so we moved it all amidships.

SH: Generally...

NB: We're not there yet, Blue. We all dread a crew overboard situation – but the crews are in better shape with these boats. They are a lot safer with the big coachroof, they are safer on deck with a good bit of rocker. I don't think anyone has really nosedived yet, certainly compared with a Volvo 70.

I think crews are in the best shape they have ever been, apart from 1974 when you went round in a Swan 65 with a roast dinner at night and a nice bottle of red wine. □



THE NEXT GENERATION OF HIGH PERFORMANCE

Designed for straight-up speed by Mark Mills and built to a superior level of seaworthiness by USWatercraft, the new C&C Yachts will blow your doors off.

The C&C 30 One-Design offers the thrill and technology of grand-prix sailing in a size that's fun, easy to sail, and affordable. The powerful, new Redline 41 is a superior racer and cruiser. Visit us online to learn more.

c-cyachts.com

Checkmate Sailing
Hamble Point Marina
Hamble, UK

EMV Nautic Group
Jardines de San Telmo s/n
Palma de Mallorca, Spain

A Division of USWatercraft, LLC
Built in the USA
sales@c-cyachts.com

