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Vendée Globe & Volvo Ocean Race – The experts point of view on the breakages

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Nineteen out of the thirty boats which started the single handed Vendée Globe race have been forced to retire to date through breakages. Meanwhile, only four teams out of eight managed to finish leg 4 of the Volvo Ocean Race and make it to Qingdao, China, in racing mode. What are the reasons for the high percentage of failures? Is the situation acceptable, is it just simply "nature of the game"? We asked some of those closest to the races for their views…

Loïck Peyron, Vendée Globe skipper (Gitana)
Ken Read, Volvo Ocean Race skipper (PUMA)
Marcus Hutchinson, Volvo Ocean Race Communication Director
Pat Shaughnessy, President, Farr Yacht Design
Dominique Wavre, Vendée Globe skipper (Temenos) and IMOCA President

Why are there so many breakages in offshore regattas (VOR and Vendée)?

Loïck Peyron: There have been breakages ever since the Egyptians started sailing on boats made out of papyrus, because sailing is a mechanical sport. What we observe in this Vendée Globe is that there are no common causes for failures; every failure is different.

Some people say that we were pushing too hard, but I don't think it is the case. When I lost my mast, the sea was flat and the wind wasn't strong. Both Michel Desjoyaux and I have sailed on multihulls, and our limit seems to be much further up than for sailors who haven't sailed on multihulls. In fact, I found that the fleet was sailing quite slowly and conservatively when Mich came back and overtook them. On a multihull, you just can't afford to go over the limit. But in the Open 60's, if you make a mistake you will broach or heel, but that's it; the boats are extremely strong.

Loïck Peyron (c) gitana-team.com, sailing under jury rig

The problem is not in the structure; it is in the peripherals. There have hardly been any structural problems with our boats – unlike in the VOR, where they have had many structural failures, which isn't good for the event. What usually happens in the Vendée fleet is that a small (& usually cheap) piece breaks; then there is a cascading effect that leads to a disaster. But the structures remain sound and the sailors safe.

The major difficulty of our event is its duration. You don't see this anywhere else, in no other sport. It is really extreme!

Ken Read: Boats have always been breaking, that's nothing new. We ask the designers and the engineers to build the lightest possible boats and that's what they do, so we can't blame them. They could build bullet-proof boats, but that's not what we want. Basically, it's all down to finding the middle ground.

Marcus Hutchinson: Yacht racing is a mechanised sport and racing around the world is an extreme sport. When you mix the two together you often get this sort of situation. The VOR, is a balance between seamanship and high competition with the best yacht racers in the world competing. Some legs are pure athletic sport and some are mostly seamanship. The secret to success, other than total preparation, is to be able to balance the two and move from one mode to the other as required. Experince is everything. Many brilliant young sailors with Olympic success don't have the capacity to make experienced deep sea blue water seamanship decisions. Many old salty sea dogs with the ocean miles behind them don't have the competitive instinct to push hard enough to win and the instinct to move on a windshift automatically. Mixing these two skill sets and balancing the authority has been the mark of the four boats that made it to Qingdao unaffected.

Ericsson Racing Team (c) Dave Kneale / Volvo Ocean Race

Dominique Wavre: There are definitely too many breakages and we must address this. I see several reasons for this: first, twenty (out of thirty) boats are new and they probably haven't sailed enough miles before the Vendée. The conditions were tough during the first night, and there were also some severe storms in the South, but this is not an excuse as we all knew where we were going. Also, during the last two editions of the race, there we no major storms and may be some designers and engineers "forgot" how tough it can be down there. The safety and solidity requirements have definitely not been met. Finally, the boats are becoming more and more complex; they have more appendages, more electronics etc… There are therefore more risks of failures. The general feel is that many boats were conceived for a big transat, and not for going around the world.
It's also interesting to note how varied the problems are from a boat to the other; unlike the VOR where there seem to be a lot of structural problems.

Pat Shaughnessy: The breakages and failures which have drawn recent attention are of course resulting from many different causes. Ignoring any failures which are the direct result of negligence, I think we can say that the majority of failures we see in races like the Volvo Ocean Race and the Vendee Globe result from pushing the performance boundaries of our sport.

Pat Shaughnessy (c) farrdesign.com

Sailing is the most complex form of transportation on the planet partly because it exists in two mediums. Within that complex problem, new areas of performance are being rapidly explored in a very public forum. This exploration makes us all pioneers in the process. If we look over our shoulder into the aerospace or automotive industries we can see that by comparison we have drastically limited budget, resource, and tools with which to explore our significantly larger problem. Our sport offers few places for this development to occur so that it may trickle down into more common user levels.

When the public looks at the Volvo Ocean Race or the Vendee Globe race it might be useful to also know the objectives of the class of boats which participate within that race;

From the Volvo Open 70 rule - Fundamental Rule Policy:

- The Volvo Open 70 Rule is intended to produce fast, single mast monohull keelboats of similar performance, suitable for long distance racing offshore at the highest level of the sport. The need for safety and self-sufficiency is paramount. The Rule is intended to foster gradual design development leading to easily driven, seaworthy yachts of high stability, requiring moderate crew numbers. Any development that is contrary to this policy may give rise to a Rule change.

From the IMOCA Open 60 rule - The aims of the Association are as follows:

- To bring together the skippers of Open 60' Boats, as well as any other parties interested in the development of these sailing boats.
- To administer and organise the activities of the Open 60' Class.
- To establish the Class Rules and to further their development in terms of technique.
- To manage and co-ordinate the international calendar of events for these boats.
- To apply and promote respect for all matters concerning rules, Regulations and prescriptions of the International Authorities (ISAF) and National Authorities (MNA).
- To promote navigation and competition with these boats.
- To encourage research into new techniques and their application in the domain of safety of navigation, but with particular reference to technological innovation in the domain of performance.
- And in a general sense to conduct any activity in the interest of its members and to contribute to the development of the Open 60'.

The key words that need to be taken from these two rules are;
- Safety
- Design development
- Seaworthy
- Research
- Safety (again)
- Technical innovation
- Performance

So within these two rules we have a place within our sport where exploration and innovation is expected to occur as we seek performance, and in time, a resulting safety and seaworthiness built on that knowledge. The general public needs to understand that innovation is a work in progress.

Were the conditions exceptionally tough?

LP: The first night was really brutal but the rest – what I have seen of it – was OK. I think some guys have had bad weather. Seb Josse had a big one in the South. But other than that the conditions have been normal.

KR: We know the course and its difficulties since day one, so there's no excuse. Our boats are made for reaching and running, not for beating in heavy seas. Perhaps we should integrate this factor more in the future, but then they will be slower downwind. You need to pick your poison!

Roland Jourdain / Veolia Environnement (c) Jean-Marie Liot / DPPI / Vendée Globe

MH: On Leg 4 from Singapore to Qingdao the sailing conditions, and particularly the sea state, were tough, tougher than maybe some expected, but on the whole the leg's fundamental difference was that it was sailed upwind as opposed to downwind. Volvo 70s have not had a huge priority placed on them in the past to be upwind performers. For this race the course is different. Legs 3 and 4 have had a significant proportion of upwind sailing. The boats were designed or modified with this in mind. Some of them may not have been sufficiently well configured structurally for prolonged upwind sailing in really big seas.

DW: The first night was tough, and there were some severe storms in the South, but nothing unusual.

Are the boats too fragile?

LP: We could build unbreakable steel boats, like they do for some regattas where people pay to compete… It's an option. Now, is it what we want, what the sponsors, the public want?
It's a matter of compromise. The problem we face is that our budgets are fairly low – very low in fact compared to the Volvo Ocean Race. As a consequence, the engineering of our boats is not enough sophisticated and the sailors are very involved in technical choices. Perhaps some boats were built too lightly and some sailors have definitely been mistaken by their suppliers, for example when keel parts broke when the sailors had specifically said they didn't want to take any risk there even if it would cost 20, or 100 kilos!
It is not my case; my boat is very conservative and I don't think I would change much in hindsight. The reason why I lost my mast is probably a consequence of the radar falling during the first night. It was very bumpy and it banged on the mast until the morning. If there had been a protection in Kevlar I would probably not have lost my mast.

KR: It's a question of compromise. The new high tech computer software allows designers to define the theoretical loads. However, there is a big difference between strong enough and tough enough. I don't think we have anticipated the toughness factor well enough. There has been a lot of abuse, and lack of anticipation.

MH: As explained earlier by virtue of this being a race if the boat is built too heavy it will be slow, if it is built too light it will be fast but will break. Finding the balance in design and construction terms and finding the balance in sailing and handling the boats in all conditions is what the test of the VOR is all about. It is sad that some boats have had structural failures but I would point out that none of them have been catastrophic failures and all boats have either made it across the finish line or to another port safely on their own.

(c) Gabriele Olivo / Telefonica Blue / Volvo Ocean Race

DW: The lightest boat is going to win; but if you want to win, first you need to arrive! I think that the designers have a big responsibility. The problem is that they have completely different interests than the competitors or the sponsors. In order to make money, the designers often try to push research and tests before the race; they develop new features that are not always necessary and don't promote sustainability and safety. We need to solve this gap, because sponsors are not going to accept this any longer.

PS: A completely unbreakable boat doesn't necessarily guarantee a winning result. More often than not a boat which is designed and built near the limits but sailed within those limits will represent a winning solution. In order for that to occur the user needs to set safety and performance expectations, the performance criteria need to be understood, the designer and builder need to deliver on those goals, and the boat needs to be used within those limits during the race.

Is it acceptable (from a sailor's, sponsor's, race organizer's point of view)?

LP: I think it's all down to individual responsibility; the way we sail, the way our boat is designed and built. We all know where we are going and how long it will take; our boats and our way of sailing must reflect this. Now for sponsors, this can obviously be a problem. It's paradoxical, because until recently our sport was too cheap to attract big corporations. Now it has changed, partially thanks to the Brits. But we need to be more sustainable.

KR: At PUMA, everyone understands the issues and the dangers, but it would be a tough conversation if we were stuck in Taïwan repairing our boat and I had to explain why; I feel sorry for those who have to. Having said that, the conversation would also be tough if we had a very solid and slow boat and I had to justify why we are trailing… It's a tough compromise. What you see, is that the skipper's responsibility is huge, and not only during the race but also in the choices made before. I have always said that you win the race before it even starts.

Marcus Hutchinson (c) Sandra Behne/Bongarts/Getty Images

MH: It is always distressing to see boats breaking and teams retiring from a leg of the VOR. Each of the stoppover ports in the VOR makes a huge effort to promote the event's visit to that port and to mobilise the media and the public to come and see the teams and watch the inport racing. Many sponsors base their sponsorship on what happens in port and not what happens at sea. It would be much better if all boats made it to every port but at the same time keeping the advances in boat building, crew handling and the motivation of the best sailors in the world to compete at this level is also another reason sponsors get involved. It is about managing expectations.

DW: The sailors have different points of view on this. They can sometimes be very hypocritical when they have a big budget… For example, I have been fighting for years against putting tungsten in keels. What's the point; what does it add? Nothing; it's just an extra cost.
This situation obviously makes it hard for sponsors, and for our future as pro sailors. I think that most partners understand the sport and its difficulties, but I don't think they accept this high number of breakages.

PS: I don't think that anyone wants to see their boat unable to complete a race due to a failure. Most of the participants have a clear goal to win the particular race they are entered in. In order to do so they will need to manage many risks and tradeoffs.

What should be done to improve this in the future? Tougher rules?Stronger and heavier boats? Or accept that it is part of the evolution?

LP: Our measurement rule is very open and I think it is good. If you restrict the rule, the consequence is that the boats will become more expensive, but it won't make them any safer and not necessarily stronger.

An area where offshore sailing could improve is whales or containers tracking devices. We should scare the sea mammals ahead of us, and be able to spot semi-submerged containers. This would really help. We already had this problem 20 years ago and nothing has changed.

KR: The mystique of the race is to push the boundaries, and it should stay like this. I don't think tougher rules would change anything. The fact is that rules are made to be pushed and we can't blame the rules makers. The equation must include how the boat is being handled. There should probably be more exchanges between the sailors and the designers & engineers. Deep down, it's all down to seamanship, in the way you sail your boat but also in the way you conceive, build it and prepare it. You can't point the finger at one element.

Ken Read (c) Rick Deppe / PUMA / Volvo Ocean Race

MH: There are many things that can be done and a lot of work has been going on continuously since before the start of this race on all manner of improvements for the next race. One of the key priorities is to attract more teams to compete in the future. To do this we have to get the cost of being competitive in this race under control. We have to also make sure that a higher proportion of the existing fleet is used again in the next race and that these boats are competitive.

A clear and coherent path to the future of the VOR is being drafted at the moment and will be available before the end of this race. It does include tougher rules, some intelligent rules

and some great new initiatives. With regard to making boats tougher that is something that will come from the experience of designers, builders and the sailors based on what the requirements for the next race will be.

There are a lot of moving parts in a race like the VOR. Trying to place the blame for a failure on one area is very difficult and ultimately unfair. Many groups are responsible for the integrity of the boats, the event organiser in publishing the rules and route of the race, the designers and builders for working together and making sure the finished product is as close as possible to what was conceived, the shore team and sailors to make sure that the boat is correctly operated and maintained when at sea and in port.

Selling a project like this to sponsors is tricky as it is sometimes difficult to impart the full picture of what will happen as this 'roadshow' travels around the world to the financial decision makers. This is also part of the challenge of the VOR. It is a complex and ultimately hugely rewarding race, one of the reasons it has attracted the best people in the business and has remained as the pinnacle of offshore racing for nearly 40 years.

Dominique Wavre (c) dominiquewavre.com

DW: Changing the rules won't help. I'll give you an example: if we adopt a one design, strong keel, like some people suggest, the boats will be heavier and therefore more powerful. As a consequence, other things will break, for example the rig or sails. In the past, some "experts" have also recommended that we add steel stanchions or lifelines, but then you will have to have someone measuring how thick they are, if they are hollow etc… At the end of the day, the only thing that works, or should work, is common sense.
Having said this, there are areas that we can improve. First of all, the security. When a boat is upside down like Jean Le Cam, the sailor should be able to communicate with the outside and that's easy. The pharmacy should also be easily accessible; the notices on the flares much clearer etc…
Regarding the reliability of our boats, the hull structure and the strength of the keel are life threatening elements that need to be addressed in priority. One solution would be for the architects and the engineers of different projects to bee forced to communicate, for example through an independent assessor. Finally, I think that we should simplify the boats, restrict their power and control the costs better.
To conclude, I would say that the Vendée Globe is the ultimate regatta. It is a race by elimination, because no assistance is allowed. This should remain so, but the target should be to have 50% of boats crossing the arrival line. We have gone too far and 30% is definitely not much.

PS: Rules and standards certainly play a role in preventing serious loss. The rules and standards of tomorrow will need to be fed by the exploration and failures of today. Our sport needs to have arenas where exploration can be made, and while we make that exploration we need to do it with the understanding that failures will inevitably occur when we explore new areas. That process needs to be better communicated so that the general public isn't just fed failure after failure. We need to remember that we have science because we want to learn. We have sport because we want to compete. Science and sport can exist together happily, but with some expectation of failure along the way.

We are interested in your views on the business of yacht racing. Please send any comments to media@maxcomm.ch and we will publish a selection in future Newsletters. Please note only names will be included and no contact details will be published, or distributed to any third party.