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Safety remains top priority for XCAT Series in 2016



While all eyes were on the thrilling action on the water at the final two rounds of the 2015 UIM XCAT World Series in Dubai and Abu Dhabi last month, there was plenty going on behind the scenes with a view to next year's Series.

International safety expert, consultant and author of several powerboating books Bob Wartinger, representing the UIM Medical and Safety Committee, conducted a series of tests with the organisers of the XCAT World Series during the final two rounds of the 2015 season to ensure the best

possible safety practices.

As a former powerboat world champion himself, the American has exceptional inside knowledge of the sport and exactly what it takes to protect the drivers in the event of an incident on the water.....

Wartinger spent his time in Dubai and Abu Dhabi meeting with the UIM officials, XCAT Racing's Sport Department and Medical and Safety crews as well as all the teams and drivers to assess the way forward.

And there was no better illustration of just how important safety measures are than when the world witnessed the Six boat of Matteo Nicolini and Tomaso Polli do a submarine dive during the Dubai GP – footage of which went viral on social media.

"It stopped within a boat's length so that's about 10m when they were doing 140 or 150km/hr. That is a tremendous load on the human body," explained Wartinger.

"So we need to get the head and neck restraints on – we'll see those for next year. We'll see seats that hug and support the body better, and there may be some discussions about

helmet improvements that will be agreed on as a standard," he added. "While I've been in Dubai I've been crawling through boats to have a look and I brought head and neck restraints and devices that are being used in other motorsports that could work here so the XCATs can see what they look like. "Then we've been using the dunk tester practice to see that they work in the water and yes, they do. Now there's a break and the boats won't run until the start of next season, so there's time to make some significant improvements for the 2016 XCAT World Championship," added Wartinger.

"XCAT racing has a good safety record but I believe the drivers can perform better and have less fatigue with slightly better seats, seat belts and better belt placement for example. "We have several ideas for sure – some will become mandatory and some will just be recommendations for the future, like better air systems inside the masks and full face helmets. "Most of these changes are easy to implement – and will make a big difference to the safety aspect of this extreme sport," explained Wartinger who added that future testing will also be done to better understand the forces on the boat during racing to be able to check the strength of the structure of the boats accordingly. "If we get that knowledge it will help tremendously," he said.

CEO of the WPPA Ronan Morgan was particularly pleased with the progress that was made during Wartinger's two-week visit. "As a thrilling, high-speed sport, there are, of course, always risks involved and that is why we have the safety of our drivers as a top priority. Bob is the leading expert in this field and we will certainly take his recommendations on board moving forward. "It's no use being reactive in these sorts of matters, so the UIM & the promoters of XCAT racing, are being proactive in constantly striving to improve on every aspect of driver and event safety and we are very proud of our impeccable safety record."

XCAT racing is now looking forward to an exciting 2016 calendar, with the introduction of the 4-stroke Mercury ROS engines from March next year..

Read more at XCatRacing.com
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CTIC China Team's Philippe Chiappe romps home in F1H2O Dubai



French driver and two-time world champion Philippe Chiappe made the perfect start and was in a class of his own in winning the inaugural Grand Prix of Dubai at the opening round of the 2016 UIM F1 H2O World Championship. French driver and two-time world champion Philippe Chiappe made the perfect start and was in a class of his own in winning the inaugural Grand Prix of Dubai at the opening round of the 2016 UIM F1 H2O World Championship.

The CTIC China Team driver got a clean start and was pushed hard by Team Abu Dhabi driver Alex Carella. The three-time champion tried extremely hard to find a way past Chiappe, but that never happened as the Frenchman held on for his sixth career win....

Even after Sweden's Jesper Forss had spectacularly flipped out of the race with just over 20 laps remaining, the CTIC China Team driver was able to fend off another late Carella challenge to start the defence of his world title in perfect style with a victory by 1.75 seconds.

The driver from Rouen said: "It was a great way to start the season and a great day for my team, as my young teammate 'Leo' Xiong managed to finish fifth for the best run in his career.

"The restart was no problem, as we had clear water, but the final few laps and a lot of traffic on this small 1.96 kilometre (1.22 mile) race circuit forced me to make every move a smart one in the final moments with Alex hovering right behind." "It worked out in the end and it's nice to go home with 20 points in the bank heading to my home race in Evian, France in mid-July."

Carella said: "I tried everything I could to find a way to get close to Chiappe, but couldn't quite do it. "I'm hoping we can find that little bit extra in France and this time take the victory there in July."

Team Abu Dhabi's other driver Thani Al Qamzi, who had qualified sixth, dropped out early on lap seven and wasn't a factor.

Victory Team driver Shaun Torrente of Miami had to claw and scratch his way to the podium with a third place finish after starting fifth. The American finally passed Jonas Andersson of Team Sweden with a nifty move on the restart at the two-thirds mark of the race, earning him 12 valuable points for the home team.

"Yeah, I battled with Jonas all day long," said Torrente. "We had great fun and I really enjoyed the restart. I'm worn out but satisfied with a podium start to the season."

With the top four drivers finishing on the same lap, Chinese driver Xiong, a lap down, had the best finish of his career with a fifth after qualifying seventh off the dock. [\[back to top\]](#)
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FEATURE: "How Does Deadrise Affect a Vee-Pad?"

We often have requests to explain factors that influence the working of performance powerboat hulls. We recently had a question about the deadrise of the Pad on a vee-pad hull. Should the pad be flat? Or should it be slightly veed? Or more-veed?

Flat pad or veed pad?



The amount of deadrise in a planing pad is a tricky design decision. What is good for one boat might not be good for another. Pads are usually part of a vee hull design as a method of increasing total hydrodynamic lift capability and increasing top speed. There are dozens of design and setup factors that impact performance, and most of them also influence each other. This makes prediction of performance a complex business. The

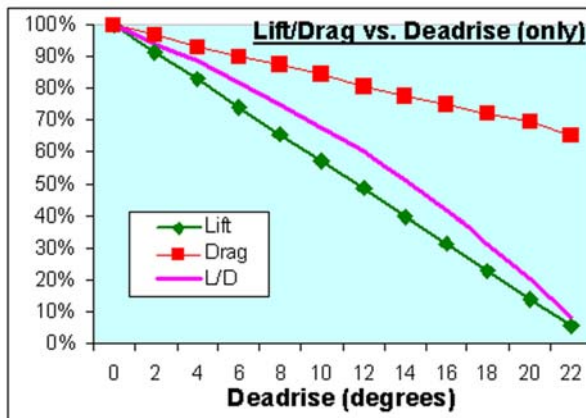
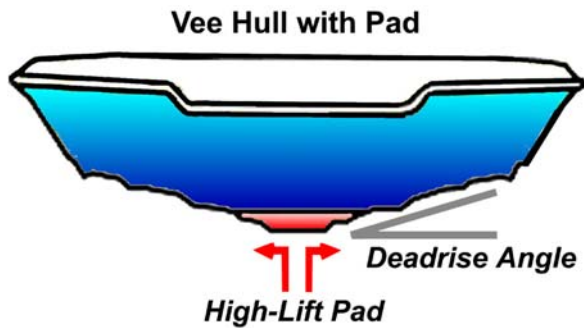
good news is that most of these factors can be calculated at the design stage, and so we can design a boat or its modifications for the intended performance. [We use [VBDP](#) and [TBDP](#) software to do the hard work for us]

Deadrise affects hydrodynamic lift efficiency

A flat pad (zero deadrise) really is the most efficient lifting surface. But it's not a simple issue to consider. The Lift of a planing pad is dependent on many factors....angle of attack, width/length ratio (called Aspect Ratio), velocity, deadrise, pad depth (height), also the vee hull surfaces design and hull aerodynamics too.....

Let's use an example. For a typical angle of attack for a boat at a particular velocity, the Lift is more efficient (better) with a pad of deadrise=zero, than it is if the pad has a greater deadrise (like, for example, 16 degrees). This is because the pad generates less efficient lift with greater deadrise, which is a bad thing. The drag, however, is also less with the greater deadrise pad, which is a good thing. BUT - the lift reduction is more dramatic (with increasing deadrise) than is the drag reduction (lift reduces more than the drag does). So the overall effect is less lift efficiency with pads of higher deadrise angles.

The measure of this overall "efficiency" is called L/D ratio. The higher the L/D ratio, the



more efficient is the design. For example, the L/D for a zero deadrise pad is 2.4 times more (better) than the same sized pad with a 16 degree deadrise. The drag of the zero deadrise pad is slightly more (+30%) than the 16 degree pad, but the lift is over 300% better than the 16 degree pad. So the zero degree pad has more drag, but it has MUCH more Lift - and so overall it is operating at much higher efficiency (2.4 times) than the 16 degree pad.

Aspect Ratio (width/length) affects Lift/Drag efficiency too!

There is another reason too! Since there is less lift with the higher deadrise pad, the hull needs more wetted surface area to support the weight of the boat. So more of the pad length must be wetted. This means a lower Aspect Ratio (Width/Length) - which reduces the Lift/Drag efficiency even more.

So for the example of the 16 degree deadrise pad, the longer wetted surface (lower AR) reduces its L/D even further -

and so after accounting for the change in wetted surface and AR, the "zero deadrise" pad is actually 2.6 times more efficient (L/D) than the same sized pad with a 16 degree deadrise.

It is always a compromise

Of course, all boat design is a compromise. A higher deadrise can offer a better water entry, and a softer ride, and better tracking. And a higher deadrise is less susceptible to Porpoising. Also remember, the angle of attack (trim), velocity and aerodynamic effects can also change the whole picture. So the decision isn't always obvious. But it is certainly worth considering when you're designing your hull with a planing pad.

See more Performance Articles at: www.aeromarineresearch.com

[Note: Do you have any of your own questions on performance hull design? Send your question or story to <mailto:jimboat@aeromarineresearch.com?subject=TBPNews>]

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Video - Record Breakers

These are the Record Breakers- Doc Jones, former racing driver. Coordinator of a team seeking a new world speed record, for outboards. Hugh Entrop, designer of the boat, that will make the assault. Entrop shares responsibility, with Jones. Gerry Wallin, driver of the hydroplane, that seeks the

record. The 27 year old Wallin, is a top ranked competitor, in the Great Pacific Northwest. [\[click for video\]](#) [\[back to top\]](#)

NEW TBDP/VBDP Ver 8.5 software!



See the newest Version 8.5 "Tunnel Boat Design Program" and "Vee Boat Design Program" software. *"The best TBDP/VBDP release ever!"*

Dozens of new features, enhanced results. Performance optimization, speed prediction, stability analysis, porpoising analysis, acceleration, elapsed time, and allot more!

See your hull's performance results throughout the full operating velocity range. Now Vee hull and Tunnel hull design in same software package.

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See 13th Edition ["Secrets of Tunnel Boat Design" book](#) (ISBN# 1-894933-30-3)
See ALL the TBDP/VBDP [features](#), [screen samples](#), and ["how-it-works"!](#)

Review: [TBDP V8 at Scream & Fly magazine](#). [*"Tunnel Boat/Vee Boat Design Software is the very best and most comprehensive performance evaluation tool available. It has been evaluated by Scream And Fly, and has proven to be extremely accurate and easy to use. Version 8.4 is the most robust yet" - Scream and Fly mag, March 2015*]

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