Tunnel Boat Performance News #178 - August 15, 2016

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Victory Team Make it 3-in-a-Row at 2016 XCat Lugano GP

What a Fantastic Event, this is the FIRST TIME powerboats have been allowed to race on this lake which has taken the organisers two years to gain permission. Large crowds turned out to witness the Lake Lugano Grand Prix. Spectacular side-by-side-action was delivered right in the heart of the town.

A Fantastic win for the ARIF AL ZAFFAIN and NADIR BIN HENDI of the Victory Team after a clear start and maintaining the lead throughout the race reach speeds of up to 160 Kmh making it 3 Wins in a row. The first and only penalty of the race was given to boat number 22 CARPISA YAMAMAY for destroying a Buoy on one of the turns on the circuit.

After the teams completion of 2 long laps saw the positions stabilize with Victory Team in 1st place, Abu Dhabi Team in 2nd and Gold Coats Australia in 3rd. Around Lap 11 we saw boat number 6 pull out with possible mechanical issues."...

After Victory Team and Abu Dhabi Team completed their final long lap, Gold Coast Australia came out of nowhere to pass RASHED SUHAIL AL TAYER and FALEH KHALFAN ALMANSOORI of Abu Dhabi Team and slot themselves into 2nd place, it was a magnificent lap from TOM BARRY COTTER and ROSS WILLATON of Gold Coats Australia making up so much time to achieve the second place position being only 6 seconds behind the leaders.

There was a great battle going on in the background with MIKAEL BENGTSSON and ERIK STARK of Swecat and PAL VIRIK NILSEN and BRETT LUHRMANN of Team Australia with

SHAUN TORRENTE and MIKHAIL KITASHEV of the New Russian team New Star not giving up for a 4th place. It was Team Australia that took 4th place and SALEM AL ADIDI and EISA AL ALI of the Dubai team taking 5th place leaving us with a final battle between in the New Star and Swecat giving us a nail biting finish with a neck and neck burst right to the end where Swecat finally took 5th place by a nose. It was a terrific performance by both teams as Swecat was nearly a no starter due to the crash with Lady Spain in the Practice Run earlier today. New Star should be very happy and pleased to make it in the top 6 at their Debut Race here in Beautiful Lugano.

Official Results For The 2016 Lugano GP are:
Victory Team – Completed Race in 00.41.53.31
Gold Coast Australia – Completed Race in 00.42.00.04
Abu Dhabi Team – Completed Race in 00.42.29.83

Read more at xcatracing.com
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Torrente's Mistake Hands Carella a Solid Victory F1H2O in Evian

Sunday, 17 July, EVIAN (France): Veteran three-time World Champion Alex Carella of Team Abu Dhabi mixed talent with luck for 48 laps and ended up coming home with a well- earned 11.72 second victory at the second round of the 2016 UIM F1H2O World Championship at the 20th Grand Prix of France on Lac Leman in Evian, France.

The event, which was attended by representatives of leading international sporting federations, including the I.O.C., F.I.A. and F.A.I. along with the President of the U.I.M Dr. Raffaele Chiulli, saw the 20 drivers from 12 different nations honor the victims of the recent tragedy in Nice with black ribbons adorned on their boats as they lined up on the starting grid.

Carella took off from pole position with the American Victory Team driver Shaun Torrente driving his brand new French built Moore boat coming up alongside the Italian who had the inside lane through the commitment buoy and moved into an immediate lead.

French driver Philippe Chiappe, leading the championship after his win in Dubai back in March, was holding a solid third as he chased the battling pair but four seconds in arrears. The defending two-time world champion would once again have heartbreak on home waters for the second straight year. His Mercury engine stopped on the 21st lap earning no points on the weekend to the disappointment of the tens-of-thousand along the two kilometer circuit.

Meanwhile, pushing forward was Swedish driver Jonas Andersson of Team Sweden who made it all the way to third place before dropping out with engine maladies on the 19th lap.

The eyes of the crowds were all finally focused at the front of the field as both Torrente and Carella were trading fastest laps in their epic duel for the lead. The Florida driver finally powered past his ex-teammate on the 10th lap building up a five second lead, until, he made the mistake of the race, sliding into and hitting the outside pin in turn number three and bringing out a yellow flag, forcing the Victory Team driver to do a drive through penalty dropping him down to fifth place.

Meanwhile, Carella was cruising alone in first place. Behind him a series of titanic battles ensued with Torrente storming up and reaching Swedish star Erik Stark of the Emirates Team as they fought for fourth place for many laps.

Torrente finally passed the ex-F2 World Champion as Stark would eventually retire in 11th place on the 39th lap. Meanwhile, 22-year-old Filip Roms of BABA Racing had charged from

10th at the start to third place. He was then gifted second when Chiappe dropped out moving him up to second place for the first time in his career.

This is when the most heated of duels started. A drama filled final ten laps began as Torrente, now in third place, hounded the young driver, who, in only his 23rd start was forced to cover his position for lap after lap. The two, now setting new lap records with Torrente's 49.89 being the only sub 50 second tour in the 48 lap event.

At the end, Alex Carella cruised home winning his 12th career Grand Prix and moving into first place in the points standings with 35. Roms came home in second just eight tenths of a second ahead of Torrente in his slightly damaged Moore hull earning 12 more points and moving into second in the championship fight with 24 points.

Local drivers Cedric Deguisne of Maverick Racing had a well-earned fourth position a lap behind the leader, with fellow Frenchman Christophe Larigot of F1 Atlantic Team. Marit Stromoy came home sixth after starting seventh for the EMIC Team, with Portugal's Duarte Benavente sliding into seventh place after qualifying eighth in his F1 Atlantic Team Moore built boat.

See more at: F1H2O.com.

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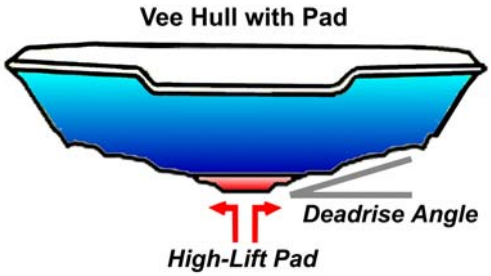
FEATURE: "Vee Pad Performance Analysis"

[This article uses the AR Vee Boat Design Program© software to illustrate the performance analysis of a vee-pad hull design].

Vee-Pad design optimization is a delicate balance, solved by AR's unique analysis and VBDP

software. We have developed a unique analysis technique that allows designers to see the delicate balance between lift/drag forces of a vee-pad hull. The method allows us to isolate the lift/drag forces for vee-pad, vee (bottom) surfaces, aerodynamic surfaces and lower-unit appendages. This distinctive approach gives the opportunity for designers, builders, owners and operators to optimize the vee-pad dimensions and orientation to fine-tune the lift gained from the "pad" portion and "vee surface" portions of hull design. The VBDP© software employs the unique "Vee-Pad design optimization" technique and provides detailed performance prediction results and graphic performance output that allows for easy 'balancing' of vee-pad/vee surface load distribution for any vee hull design/setup arrangement.

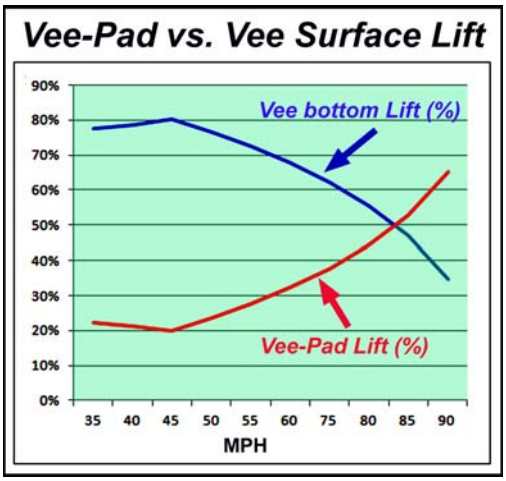


How it Works

Some "Vee"-bottom boats have a flat surface at the very bottom (keel) called a "pad." This pad allows for more planing surface aft, and while there is a corresponding sacrifice of some softness in ride, this modified vee-type hull design allows for super-fast speeds!.....

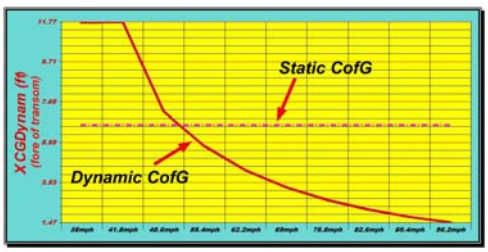
The pad is a relatively flat planing surface configured to the aftmost section of a vee shaped hull. The pad (or low deadrise centre-section) usually extends sufficiently forward, so that the transition from the vee to the flat running surface is gradual, and usually exhibits some deadrise in the forward section of the extension. The pad has several performance advantages:

Balancing Act - the high-performance vee-bottom can be a challenge to drive at high speed. Deeper vees (15°–20°deadrise) must be balanced on a thin keel edge, often exhibiting an unsettling lateral instability, as it “rocks” from side to side. The pad provides a wider platform on which the hull will ride - making it easier to balance at higher speeds.



High Lift - The flat pad generates much more efficient Lift than the vee'd bottom shape. Hydrodynamic theory dictates that, in general, a steeper angle of vee (e.g. 20° deadrise)creates less Lift than a shallow angle (e.g. 10° deadrise). The extreme case is the completely flat pad that has zero (0° deadrise) that creates very high Lift for it's small wetted surface area. The result of this "extra Lift" is a dramatically reduced hydrodynamic Drag and more speed!

During acceleration mode, the pad vee hull gets Lift from the vee-hull sections, as well as the flat pad section. It needs this entire lifting surface at lower velocities, to Lift he weight of the hull. As the speed increases more and more, the required Lift is generated more by the flat pad, and less by the veed surfaces. The pad takes on more of the Lift, and more of the veed surfaces become "unwetted". Now there is LESS drag, and a resulting speed increase is quite noticeable. Experienced pad-vee drivers will recognize the "pop" that occurs when the hull reaches that special velocity where the hull "breaks" away from the veed lifting surfaces and rides on the pad alone.



Optimization of Vee-Pad design - Vee-pad design dimensions and configurations have traditionally been established by "trial-and-error" methods or "duplication" of other designs. These methods can be costly, time consuming and can generate disappointing final results since the ultimate design is not necessarily optimized for the subject design hull.

The AR© "Vee-Pad design optimization" technique allows us to attain an effective 'balance' of vee-pad/vee surface load distribution for any vee hull design/setup arrangement. This 'balance' of 'Pad Lift' with 'Vee surface Lift', should be optimized for each unique hull design based on hull weight, configuration, power and speed requirements.

Optimization of vee-pad dimensions must be based on hull weight, configuration, power and speed requirements. Vee-pad characteristics can then be established, including:
-pad width
-pad length
-pad deadrise
-pad height

Dynamic Stability - The 'Static CG' of a hull is the location of balance of the hull and payload deadweights while boat is at rest. But this is a small part of the important balance of a performance hull. The combined center of ALL the LIFT forces and all the DRAG forces (sponsons, center-pod, vee surfaces, center-pad, aerodynamic surfaces, lower unit, etc.) while a boat is under way, is called the 'Dynamic Center of Forces' or 'Dynamic CG'. The 'Dynamic CG' location changes throughout the operating velocity range and is the most important design measure to consider when 'balancing' a performance boat.

The unique balance of vee-pad forces and vee surface forces in a vee-pad hull make the DYNAMIC balance of the hull important in the design process.
[see also AR's 'Advanced Dynamic Stability Analysis research brief']

Summary - The AR© "Vee-Pad design optimization" analysis approach can complete an effective 'balance' of vee-pad/vee surface load distribution that will maximize performance and improve dynamic stability.

Read more in this article on "Vee Pad Performance Analysis".

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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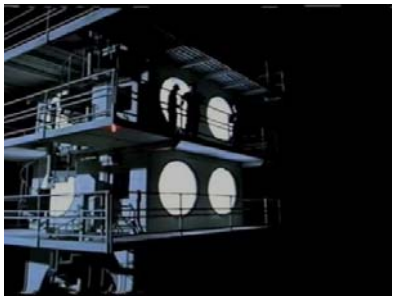

Video - Mercury Lake X

Mercury Racing commercial, NASA style.

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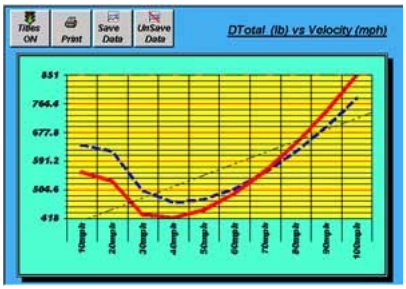
NEW TBDP/VBDP Ver 8.6 software release!



See the newest Version 8.6 "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. Easy Auto 1-2-3 Performance Wizard. Now Vee hull and Tunnel hull design in same software package.

Version 8.6 has NEW screen layouts, NEW input variables, more performance analysis, output data/graphics, more reporting. Also includes the NEW 2016 Motor Wizard update with over 2050 OEM engine choices. NEW input variables and NEW 5-screen input format. Performance results with 500+ performance data points and 50+ trending graphs showing full velocity range. Animated 3D Chart display for Lift/Drag component contributions through Velocity range. And lot's more!!

See some of the new update features here, and all the high performance TBDP/VBDP features here.

See more at AeroMarine Research

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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]*

Get the new TBDP/VBDP software! Buy Now

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"How Trim Angle & engine height affect performance"
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See you next time!

/Jimboat