AeroMarine Research
TBPNews - Performance Report

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TBPNews #100 – May 31, 2006

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>>>> **Tunnel Boat Performance News** >>>>>> (over 7000 members!)

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******************** TBPNews ******************

1) 24 Hours of Rouen Race - Everybody wins!

May 1, 2006. World Championship UIM Circuit Endurance - Continual rain throughout the 2006 Rouen 24 hour marathon could not dampen the spirits of the Evinrude camp as they filled 1st and 3rd places.

As usual the endurance race was littered with hard luck stories. But for the Class 3 (3 Litre engines) Team RMSM BRP made up of Peter and Nelson Morin, Xavier Lebleu and Fabrice Boulier, the ordeal was worth the discomfort as they collected overall victory. Mercury was saved total humiliation as 'NaviKat 'crewed by Seb Lemoine, Eric Doublet, Tony Bentdin and Stephane Lemoine filled 2nd spot. Evinrude collected the bronze award when their second Team RMSM BRP rig of Rudy Revert, Eric Clapisson and Frank Levillian stormed across the line in 3rd place. Yamaha powered hull of Talent Frédéric, Dron Cyrille, Ruffin Alexandre won the Class 1 (1 Litre) race.

The Evinrude EMTEC are basically untuned 2 stroke pleasure boat engines that comply with all the latest environmental regulations. Their power and superb reliability in this race is bound to create interest to the circuit racing fraternity.

Here are the top finishers...

- 1st 02 TEAM RMSM BRP, Morin Peter, Lebleu Fr Xavier, Larigot Christophe, Morin Nelson, Evinrude

Epa, Molinari CL.3 802 laps (1st overall, 1st Class3)
- 2nd 32 NAVIKART, Lemoine Sébastien, Doublet Eric, Bourdin Tony, Lemoine Stéphane Mercury Epa, Moore CL.2 779 T. (1st Class 2)
- 3rd 03 TEAM RMSM BRP TOUAX, Revert Rudy, Boulier Fabrice, Clapisson Eric, Levillain Franck Evinrude Epa, Molinari CL.3 750 laps
- 12th 49 WRB, Talent Frédéric, Dron Cyrille, Ruffin Alexandre Yamaha, Demante CL.1 468 Laps (1st Class 1)

Check out full results, photos at: http://www.24heuresrouen.com/
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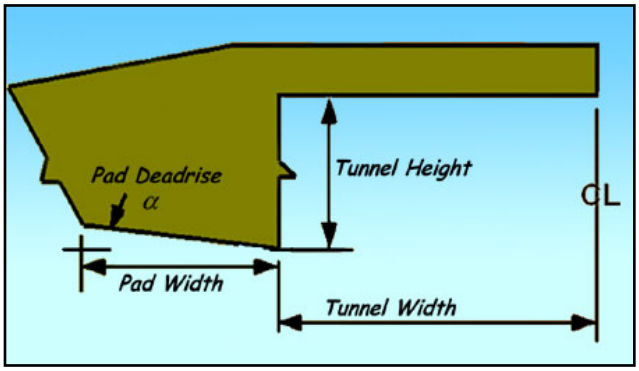
2) Feature Article "*What a difference an inch makes*"

(Tunnel height and how it works)

We have countless requests to explain factors that influence the performance of tunnel boats or ModVP hulls. There are dozens of factors that impact performance, and most of them also influence each other. This makes prediction of performance a tricky business. The good news is that most of these factors are controllable (by design/setup). We rely on computers, and our "Tunnel Boat Design" software to do the work for us...but understanding the factors is the key!



One factor is ***Tunnel Height*** - the height of the tunnel at the aft-most location, measured from tunnel roof to the aft sponson bottoms (running pads). The tunnel roof and deck surfaces are really a wing in what is called "close proximity ground-effect". This aerofoil is influenced by it's proximity to the water surface. A smaller tunnel height will increase Lift/Drag ratio of the tunnel hull "wing", improving lift characteristics. Regrettably, it also brings the tunnel roof closer to the water surface, risking increased wetted surface if water conditions (waves) cause "splashing" to the tunnel roof and sides. The design of this feature is, as most are, a compromise of performance factors.

Two kinds of Lift: Lift is generated in two ways. Planing sponson bottoms create 'hydrodynamic' (water) Lift. Aerodynamic lift is generated by relative air flow over tunnel and deck surfaces. The relative significance of these forces *changes as the speed increases*. At lower velocities aerodynamic lift may account for less than 5% of total lift, sponsons supporting nearly all the boat's weight. At higher speeds aero-lift can account for over 80% of total lift. For every pound of aero-lift we get, the sponson (hydrodynamic) lift (and drag) is reduced accordingly, giving dramatic improvements in the tunnel boat performance.

Example: A 24ft offshore catamaran with 2X250hp outboards may achieve top speed of 105 mph in 26 seconds with a tunnel height (HC) of 16 inches. Changing HC to 12 inches will generate more (approx. +15%) Lift, and top speed of 107+ mph in 22 seconds. And there's dozens of OTHER factors influencing performance.....but, later!

See more Performance Articles at: http://www.aeromarineresearch.com/articles.html
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3) Cappellini Wins for 7th Time at Portugal

May 28, 2006 – Defending World Champion Guido Cappellini of the Tamoil team stormed to the front of the field from his 4th starting position to take the lead on the first turn of 60 lap event to win for the 7th time in 8 races at the Grand Prix of Portugal. This was the 2nd Round of the 2006 UIM F1 World Championship.

The native of Como, Italy was pushed hard, first by his young rookie teammate Ivan Brigada who would later crash out on the 43rd lap, followed by another Italian Francesco Cantando who came charging up from 7th to later be classified back down to 7th with an illegal pass and being docked a lap.

The race once again became a battle between American Scott Gillman of the Emirates Team who came up strongly from 6th on the grid to hound Cappellini lap after lap settling for 2nd 1.60 seconds for the 2nd straight year in Portugal and taking over the points lead in the championship with 30 points in his quest for his 4th World Title.

In the fourth spot was first time racer in UIM F1 World Championship for power boating Jonas Andersson of Sweden as the F2 World Champion had a steady drive starting 14th and finishing 4th in his first ride with the Rainbow Team.

Emirates Team driver Scott Gillman now leads the championship with 30 points and 2 straight runner-up places, with Tamoil Teammates Guido Cappellini and Ivan Brigada both with a win a piece 2nd with 20 points. Fifteen different drivers have now scored points and with two rounds down and the series switching to the birthplace of the sport, Como, Italy on the 15th and 16th of July, the championship looks wide open with seven drivers within 18 points of each other.
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4) Powerboat Racing on TV

*** "Thrill Zone: Extreme Powerboats" - National Geographic powerboat show

Author Jim Russell (Jimboat) is powerboat design technical consultant on a new National Geographic special for "Thrill Zone" series...Wednesday, July 19, 8:00PM; Thursday, July 20, 3:00AM; and Saturday, July 22, 4:00P

Details at: (http://channel.nationalgeographic.com/channel/ET/daily/20060719.html)

Watch for other show dates on AR's website! http://www.aeromarineresearch.com/NatGeo_thrill-zone.html
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5) DAC Racing tests the new crash boxes

May 4, 2006 - It was a boat more rounded than ever that attracted attention. Testing at DAC Racing with Guido Cappellini was the first F1 tunnel with the new security crash boxes required by the 2007 UIM rules - compulsory next season.

Lateral strengthening of the cockpit for increased driver safety is obtained with two lateral bulkheads. DAC, already designing a new 2007 hull, tested for the second time. The study used modern CFD computerized systems, which allowed technicians to simulate fluid dynamics tests to improve performance of the new appendages. Guido Cappellini personally tested the new safety solution, and with flat water and light wind drove 25 laps. Differences were aerodynamically minimal on straight; more marked in cornering due to added cockpit weight. Further tests will optimize balancing, weight setup, and other parameters to the final compromise.

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6) Jimboat's Feature articles

Jimboat writes Feature articles in HotBoat and Family&Performance Boating magazines.

- 'The Bottom Line'-"Why does a Pad make a vee Hull faster?" - F&PB-Sept 2005
- "10 Smokin' Speed Secrets Revealed..." - HB-Feb2005
- "Winterizing your Performance Outboard" - F&PB-Jan2005
- "What a Drag" - Trim Angle & Engine Height Can Reduce Drag and Increase Speed" - HB-Sept2004
- "10 Safety Tips" - HB-Aug2004

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See you next time!
/Jimboat
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software for tunnel and high-performance vee-hull design, and "PropWorks2" software for speed prediction and propeller selection at the AeroMarine Research web site: http://www.aeromarineresearch.com