

AeroMarine Research TBDP Performance Boat Report

TBPNews #97 - March 14, 2006

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

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- 1) FEATURE ARTICLE - "Why do the boats create rooster tails?"

FAQ: This question comes to us from one of our readers (DS)- "Why do the boats create rooster tails".

Response: I've had many people ask me about the "lost energy" in a performance boat's roostertail. You are all right - there is a lot of energy to pump that much water into the air.

Definition: "Rooster-tail - A projected mass of fine particles of water, having an arced shape similar to that of a rooster's tail."

The rooster tail is the result of propeller hydrodynamics - the displacement of water used to generate the thrust to propel the boat forward at great speed. The 200+ hp or so of engine power is converted through an outdrive to thrust of about 1300 pounds (or more) at 60 mph. That load is pushing against the water. Some of the water just can't stay where it belongs, especially if the angle of the trim is trying to push the bow of the boat up - and hence the water at the rear up too! So this is why thrust is more efficient when the motor drive is trimmed "in", with a "thrust-line" angling down into the water.

Surfacing propellers also contribute to "rooster-tails". The surface piercing propellers run half in and half out of the water and usually display a rooster tail into the air behind the boat. While these surface-piercing props experience much less drag and are much less susceptible to cavitation, they also expel a certain amount of water "normal" to (straight up from) the water surface. Since this happens as the prop also generates forward thrust at the expense of the static water, the result is a "flow" of water up and back from the propeller.

Larger diameter and/or smaller pitch props will usually generate lower rooster tails - but this won't always mean better performance. It is most always, like everything in performance powerboating, a trade-off or compromise.

***** TBPNews *****

- 2) J.D. Power Report On Boating Industry's Finest

February 2006 - PCM, Honda, Mercury and MerCruiser rank highest in customer satisfaction in four engine segments in the J.D. Power and Associates 2006 Marine Engine Competitive Information Study(SM).



With improvements in both product satisfaction and quality, Mercury Marine ranks highest in two of four engine segments. Mercury ranks highest in the direct-injected (DI) two-stroke outboard segment, and Mercury MerCruiser ranks highest in the EFI stern drive segment. Honda ranks highest in the electronic fuel-injected (EFI) four-stroke outboard segment for a second consecutive year. While Pleasurecraft Engine Group (PCM) ranks highest in the EFI inboard engine segment. Overall customer satisfaction with marine engines is determined based on performance in six factors ranging from starting ease, quietness at cruise, reliability, fuel economy, shifting smoothness and lack of engine fumes.

***** TBPNews *****

3) New 'SECRETS OF PROPELLER DESIGN' book

NEW RELEASE! The NEW (2006) publication "Secrets of Propeller Design", by performance powerboat designer, Jim Russell (Jimboat) includes sections on Propeller design, Pitch, Rake, Skew, Venting, Cupping, Propeller Types, Fundamentals of Cavitation, Ventilation, Blowout, Slip, Nosecones, Labbing, Gearcase design, Surface Drives, and Speed Calculation formula. Fundamentals of cavitation, ventilation, "BlowOut" - and how to avoid problems.

Advantages of all types of props - including cleaver, chopper, round-ear, weedless, racing cleaver. 3, 4, 5 & 6 blade propeller design & performance discussed. Propeller cup, rake, pitch, skew, venting, and effects on performance.

The "History & Design of Propellers" section presents a detailed accounting of how the first "screw" applications were invented, and how they led to early ship propulsion. Outlining "How a Propeller Works", parts and functions of a properly designed propeller, including material selection and "advanced propping" techniques, gearcase design and nosecone application is outlined.

Speed prediction formulae and propeller selection methods. This is a "must have" book for serious boaters, designers and enthusiasts that have "a need to know".

See details of the NEW publication at: <http://www.aeromarineresearch.com/historyofpropellers.html>

***** TBPNews *****

4) Powerboat Racing on TV

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

Author Jim Russell (Jimboat) is the powerboat design technical consultant on a new National Geographic special for "Thrill Zone" series...Wednesday, March 29, 2006 at 11:00P - details at: <http://channel.nationalgeographic.com/channel/ET/daily/20060329.html>)

"Professional powerboat racing is one of the most death-defying sports in the world. Competing at speeds that often reach 200 mph, their boats are marvels of engineering but even the most technologically advanced can crash. From Formula One Racers to Offshore Powerboats to Unlimited Hydroplanes, Extreme Powerboats takes viewers up close with the world's fastest boats, the sport's best drivers, and the most advanced technologies".

Also airs: Saturday, April 1, 2006, at 10P; Sunday, April 2, 2006 at 1:00A; and Wednesday, April 5, 2006 at 1:00P, Saturday, April 8, 2006 at 10:00A

Check out details at: <http://channel.nationalgeographic.com/channel/ET/daily/20060405.html>

Watch for other show dates on the AeroMarine Research website!

http://www.aeromarineresearch.com/NatGeo_thrill-zone.html

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5) Honda (UK) Formula 4-Stroke releases 2006 calendar



February 2006 - The UK's premier powerboat championship, the Honda Formula 4-Stroke series, releases its 2006 Grand Prix calendar. This season the Honda fleet will race for the first time on Tyneside as well as return to Cowes, where the series last raced in 2003. The championship will also return to the popular 2005 locations of the Isle of Man, Plymouth and Liverpool.

The world's largest offshore powerboat series enters its eighth season with more boats than ever before in both the 150hp and 225hp championships, with confirmed entries of 18 in each class. Cowes and Plymouth are both important venues for powerboat racing: Cowes because of its heritage and the challenge of the 'Round the Island' course and Plymouth because the Honda Formula 4-Stroke Grand Prix combines with the British round of the international UIM Class 1 Championship. The Tyneside location of South-Shields has been chosen because of its excellent spectator credentials.

The 2006 Honda Formula 4-Stroke 150hp and 225hp championships each feature ten rounds at five Grand Prix around the UK. 2006 Honda Formula 4-Stroke Grand Prix calendar:

Steam Packet Company Grand Prix of the Isle of Man June 24/25

Grand Prix of Tyneside July 22/23

Grand Prix of Plymouth August 5/6

Grand Prix of Cowes August 26/27

Grand Prix of Liverpool September 9/10

***** TBPNews *****

6) Mercury launches 'Next Generation' of OptiMax

Mercury Marine announces the introduction of the next generation of OptiMax engines.

While each of the OptiMax engine families underwent changes, the most dramatic differences are in the 3.0 liter models, which range from 200 to 250 horsepower. Mercury targeted the noise levels of these engines and was able to achieve up to six decibels of sound reduction in the 3.0L family. Another change is the adaptation of the gear case that was designed for the Four Stroke Verado, which features a robust construction and higher blow out speeds than the FleetMaster currently used by the 3.0 liter.

Another key element to the new OptiMax engines is a new cowling for the 2.5 and 3.0 liter families, which features an innovative air intake with aggressive curves for improved aesthetics. Also, the new OptiMax features next generation propulsion control module (PCM) that completes millions of calculations each second, controlling everything from oiling ratios to injection timing, and monitors all engine functions for faults. If a fault that could be damaging to the power head occurs, Engine Guardian has the ability to limit the engine's power to a reduced safe level. Mercury's SmartCraft technology will also get an upgrade - including Descriptive Text, an enhanced information protocol between the engine and the operator that will give the operator more detailed information about any engine faults or warning horns by displaying the information on the face of a SmartCraft gauge.

Mercury's exclusive Digital Throttle & Shift (DTS) system will continue to be offered as an option on two OptiMax models, the 200 and 225. DTS provides smooth, instantaneous shifting and throttle response for a sports-car-like feel, and it also streamlines the rigging processes.

***** TBPNews *****

7) Jimboat writes Feature article in HB and F&PB magazines

* Jimboat writes Feature article in Family & Performance Boating magazine.

'The Bottom Line' - "Why does a Pad make a vee Hull faster?" is the FEATURE in the F&PB September 2005 issue.

Get your copy of the full article at:

<http://www.aeromarineresearch.com/adverts/Vee%20Pad%20Design.html>

* Jimboat writes Feature articles in HOTBOAT & F&PB magazine



"10 Smokin' Speed Secrets Revealed..." - Jimboat has new article in February 2005 HOT BOAT magazine. "If you don't want to make expensive modifications to your hull or engine setup, then here are some tips for getting the most performance from your current setup. By Jim Russell, author of "Secrets of tunnel Boat Design" [editor-HB]

Check it out at: http://www.aeromarineresearch.com/adverts/HB_Feb2005.html

* "Winterizing your Performance Outboard" - Jimboat has new article in Jan2005 issue of Family & Performance Boating. Check it out at: http://www.aeromarineresearch.com/adverts/F&PB_Jan05.html

* "What a Drag" - Trim Angle & Engine Height Can Reduce Drag and Increase Speed", by Jim Russell, author of "Secrets of Tunnel Boat Design book [editor-HB]. See September 2004 issue of HOT BOAT Magazine. Or get your own copy of the feature article at:
http://www.aeromarineresearch.com/adverts/HotBoat_Sept2004.html

* "10 Safety Tips" - The author of "Secrets of Tunnel Boat Design" offers ten safety ideas for high performance go-fast boats [editor-HB]. See August 2004 issue of HOT BOAT Magazine. Or get your own copy of the feature article at: http://www.aeromarineresearch.com/adverts/HotBoat_August2004.html

***** TBPNews *****

See you next time!

/Jimboat

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>>>>> Tunnel Boat Performance News >>>>>

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"PropWorks2" software for propeller selection and powerboat speed prediction

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AEROMARINE RESEARCH - Tunnel and High Performance powerboat specialists

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