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A NEWSLETTER FROM HAARSTICK SAILMAKERS

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January, 2009 – HAPPY NEW YEAR

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Fiscal 2009

The 1st quarter of our 2009 fiscal year has just ended on 12/31/2008. In early October, I was very concerned about the year to come, as the national economy looked like it was headed for the dumpster, and sails are not usually considered as mandatory purchases like food, mortgage, gas, taxes.

However, I have been very pleasantly surprised by the response of our customers this fall. While not a record volume of new sail orders, our 1st quarter total of new sail orders was 14% HIGHER than our past 11 year average, and only 10% less than the 1st quarter average of the past two years (both of them records). I think we are very fortunate to be as busy as we are, and I want to thank all of our customers that have made this possible.

I would also like to thank our sailmaking crew for their excellent work this fall. Not only have all our new sails looked beautiful at inspection, but we constantly improve the overall quality of our workmanship and do so in a very efficient manner.

Although we are just starting the winter season, we are all thinking about the coming season of sailing, and look forward to another great year of sailmaking. March 1st, 2009 marks 39 years

since the founding of Haarstick Sailmakers in March 1970, and I am looking forward to many more years, doing what I love the best- designing sails.

-Steve Haarstick

Don't Wait Too Long to Order New Sails, Our Production Schedule is Filling Up

With all the talk of a slow economy we were worried about keeping busy this winter, but so far so good. If you are thinking about a new sails for the 2009 season don't wait too long. Our Spring Production Schedule is already filling up. Please call or e-mail with any questions. We would be happy to send a quote out to you so please feel free to ask. We look forward to hearing from you.

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J/24 Class Approves Aramid (Kevlar/Technora) Genoa's:

SAILCLOTH DURABILITY

-by Steve Haarstick

The J-24 class has just approved the use of alternative fibers in their genoas: "a rule change proposal to allow genoas to be constructed with woven ply and/or laminated ply made from one or more of polyester fiber, aramid fiber and HMPE fiber in addition to traditional woven materials. Aramid is marketed under trade names such as Kevlar and Technora, and HMPE under trade names such as Spectra and Dyneema, and polyester under trade names such as Pentex. The motivation for this proposal is to create a longer lasting genoa and provide more value for the sailors."

This change in the types of fibers allowed in sail cloth will have a profound effect on the price of the genoas, but will these newly allowed fabrics really provide a more durable sail? Will the promised increase in durability match the added cost of these sails? I'm assuming that this is what the proponents of this dramatic change are promising when they claim that these new fabrics will provide "more value".

What is the definition of durability? I would assume that it means that the sail has minimal change in shape with use. But, what kind of use are we talking about: flogging the sail in heavy air, ultraviolet exposure, chafing on spreaders, the mast, and the lifelines? What about the permanent shape change due to overloading, or change due to shrinkage? What about tear strength? I know a few sailors that consider any tear in their sail as evidence that the cloth is not durable.

How do you go about measuring durability? Do you document the number of tacks taken in defined wind strengths? Have you reviewed the precise amount of flogging before the start of a race, or when reefing, and the measured velocity of the wind at each instance? Is the cloth compared to another cloth that sustains EXACTLY the same usage conditions? I have never seen any evidence of this kind of on the water testing. Even if you take photos of your sail when it is new and compare them to photos at the end of the season, that might tell you if you need a new sail, but does that tell you that the cloth is defective?

What is your concept of durability? If you were a serious contender in a major regatta like a World's Championship would you measure in anything but a brand new sail? For this level of racing, durability as defined by tear strength, minimum shape change with use, UV exposure, or fabric overloading is not a consideration. Anything but a brand new sail is unacceptable. Durability is important only to the extent that the sails must last throughout the one regatta or in the case where two suits are allowed, at least half way through.

On the other extreme, the offshore cruiser may have more concern with the ability of the fabric to resist tearing, UV resistance, and sufficient reserve strength with prolonged use to avoid overloading the cloth in extreme conditions.

If a cloth is soft and stretchy when new, but doesn't show as much percentage increase in stretch after "prolonged" use (prolonged is not defined), does this make the cloth more durable? That is, a very stretchy sail cloth has dramatic changes in the shape of the sail with wind velocity, but these shape changes may not seem to increase that much with usage. Does this make this cloth a better choice when durability is the major concern?

What about a very low stretch fabric that has minimal shape change with wind velocity, but shows a greater loss of initial strength with use? Even though it has much less stretch both when new and used than the above fabric type, does this make this fabric more durable, or less durable?

What about fabrics that have considerable shrinkage after they have been flogged? Shrinkage produces noticeable discontinuities in the shape of the sail, because the shrinkage is not uniform throughout the surface of the sail. It is concentrated in the areas of the greatest flexing: like the front of partial battens, along the perimeter of patches, at the inside edge of leech and foot tablings. Most racing sailors would view sails with severe shrinkage distortion as no longer competitive.

Finally, is tear strength a valid test of durability? Very soft polyesters woven with heavy deniers in the fill and warp would have the greatest resistance to, what I call "dynamic" tearing. That is the ability to resist tearing on impact. A very stiff fabric with even the same weave would have a much lower tear resistance. While many laminates have tear strength that are extremely high in "static" tests, the heavy scrim threads are locked in place when the cloth is laminated, and can tear more easily, as each thread breaks before bunching up. UV exposure can also severely affect the tear (and subsequent) breaking resistance of many fibers, Polyester, Pentex, and especially Kevlar.

However durability is defined, the question then is: how does one know which fabrics are the most durable? Is it reasonable to rely solely on empirical observations of sails that are in use? How do you make a comparison between two different types of cloth, by "on-the-boat" observations? As pointed out above, there are so many variables involved in this type of durability "measurement" that any scientific method of testing would completely ignore this type of "testing".

Yet, this "on the boat observation" is what suffices as "durability results" in the vast majority of opinions that are voiced. How can any objective conclusion be made by on the water observation without rigorous controls in place? These are the basis of the opinions that have been bantered about in the J-24 class. The class has approved the use of Kevlar and the above listed fibers (but not Carbon) in their class genoas. There have been a lot of discussions about

the “improved” durability of Kevlar, and even some on the water testing of Kevlar prototype sails by the biggest Sailmakers in the class.

How does any one KNOW that Kevlar will be more durable? One sailmaker actually “tests” two genoas made from different Kevlar constructions. These tests were conducted in 10-12 knots of wind, and no existing Polyester or Pentex used as a comparison.

This change has been approved, in my opinion, solely on speculation. You would think that some reasonable justification would be required before the J-24 class would allow the use of a fabric that has the strong possibility of increasing the cost of a J-24 racing genoa by 25% to 35%, without any certainty that this will result in a longer racing life. In fact, there doesn't seem to be evidence of any attempt to define cloth durability: no test data of any kind was ever presented (to my knowledge) that showed Kevlar sails last longer than Pentex sails.

There are so many variables in testing between different types of fabrics with boat for boat testing, that it is very difficult, if not impossible to make these comparisons. Both boats have to be sailed together, in the same wind velocity, make the same number of tacks, flogged for the same amount of time, and all of this documented carefully until differences in shape and performance losses become measurable. I have seen sails that had less than a season's use, but looked like they had been dragged behind a car for 100 miles. On the other hand, I have also seen the same type of cloth used in other sails that still looked pretty good after 10+ years of use. In short, observational conclusions are worthless, when defining sail cloth durability!

I believe that our IMPACT FLUTTER test program is currently the best, and, to my knowledge, the only way to compare the durability of different fabrics in a controlled, and consistent test program. Is our Impact Flutter testing program a 100% duplication of the real experience of the fabric in use? NO, it is not the same as pounding the full sized genoa into the shrouds in a 25 knot blow, but it does simulate this, and gives us a RELATIVE measure of the loss of strength and shrinkage with severe flogging that occurs with all different types of fabrics from woven Dacron to Pentex, Kevlar, and Carbon laminates. The ability to run an accurate and repeatable fatigue testing program over many years on EVERY batch of upwind cloth we purchase has given us thousands of tests that cover a large range of fabrics that are commercially available!

It is my opinion that the increase in stretch due to flogging is the primary measure of a fabric's durability. The results of our Impact Flutter testing do NOT indicate that Kevlar laminates in general are more durable than Pentex laminates! There are such vast differences in the Impact Flutter tests results between different types and constructions of Kevlar laminates, that it is definitely not true that all or even any Kevlar laminates would make a more durable J-24 genoa. In many cases, the racing life of a Kevlar J-24 genoa could be less than that of a Pentex, or Polyester version.

This cloth change will make it more expensive to race J-24's at the upper levels of class competition, as new genoas will still be required at major regattas by the most competitive sailors. The added cost of Kevlar, Technora, Spectra, or Dyneema fabrics will NOT be minimized by a similar increase in durability. The only purpose of this change is to just make a change and hope for the best.

It's Not Too Late for Discounts:

WINTER DISCOUNT PROGRAM: RACING, CRUISING, FREEDOM SAILS: NOW - 12/31/2008:

10% DISCOUNT FOR ONE SAIL, 15% FOR TWO OR MORE SAILS

REDUCE DISCOUNT 2% WHEN USING A CREDIT CARD FOR PAYMENT

ALL INFORMATION REQUIRED TO BUILD THE SAIL MUST BE AVAILABLE TO US BY 10/31/2008

FREIGHT AND NYS TAX EXTRA WHERE APPLICABLE

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ALL INFORMATION REQUIRED TO BUILD THE SAIL MUST BE AVAILABLE TO US BY 10/31/2008

FREIGHT AND NYS TAX EXTRA WHERE APPLICABLE

For above Discounts payment terms are as follows:

50% deposit with balance due on completion prior to shipment, or pick up OR within 30 days of invoice if stored at our loft for the spring. Storage for new sails is free.

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Beneteau First 235 North Americans

& Lake Ontario Challenge Cup Regatta

1st – Jon Flowerday on “Pandora”

2nd – Scott Nichols on “Practice”

Nice work guys and sorry for taking so long to get this up.

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Genoa \$1200 (used 3 regatta's)

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