

# CARBONICS

Advanced Composite Engineering & Manufacturing for Marine & Industrial Applications



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Photo: Billy Black

*LION'S WHELP, 65 ft. Alden schooner built by Portland Yacht Services, features all carbon spars by GMT Composites and is shown racing in the 2003 Shipyard Cup alongside the 107 ft. wishbone ketch SINTRA.,*

## CLASSIC MEETS CARBON: GMT SPARS LION'S WHELP

By Ben Sprague

This summer I had the good fortune to sail in the Wooden Boat Regatta aboard the GMT sparred SONNY, an Empacher designed 70 footer built by Brooklin Boat Yard in 2000. After finishing the first day's racing from Castine to Camden, Sonny was motoring in to Camden harbor. Heading out of the harbor toward the outer mooring field was a beautiful white schooner reminiscent of John Alden's schooner yachts of the early 20<sup>th</sup> century. It took me but a moment to recognize LION'S WHELP on her inaugural cruise away from her home of Portland Yacht Services.

Standing on the foredeck with my fellow crew members, I remarked that GMT had built the spars for the newly launched beauty. Came the reply, "THOSE ARE CARBON?!" After explaining how we had built the spars (both masts, spreaders, three booms and spinnaker pole) and had them painted to look like wood, my companions were shocked. Even to the trained eye (and there were 8 of them staring at the boat) the spars looked the genuine article. Add to that a healthy dose of bronze hardware and the traditional aesthetics were extremely convincing.

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## MISCHIEF GETS SUPER CHARGED!

By David Schwartz

What do you do when you are the owner of a company that builds carbon masts and also own a boat with an aluminum spar? Well, after you get tired of listening to "sincere" questions like, "When did GMT develop the technology to weld carbon?", you make the decision to refit your boat with carbon.

In many ways, my boat, a Lyman-Morse built, Seguin 40, is very similar to most candidates for a rig up-grade. We love the boat as we are able to both cruise and race her without having to strip all the equipment off when we're racing. The boat, with an 18000 pound displacement, is not a light weight flyer. She has a full wooden interior that is comfortable for knocking around the coast of Maine or down in the Caribbean. All this weight adds to pitching so that going upwind in light air and a sea is a bit ugly. Even with 7 1/2' draft, we are still a bit on the tender side. In addition, the aluminum mast was 15 years old. The paint was shot and there were areas of local corrosion. The mast was not quite stiff enough. We often had to put on the runners to prevent pumping or ultimately, snapping the mast. From our experience with other customers, I knew that a well designed carbon mast would

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Photo: Billy Black



**GMT's carbon fiber "Faux Bois" spars lend strength and beauty to LION'S WHELP's cloud of canvas as she sails to weather during the Shipyard Cup.**

**CLASSIC MEETS CARBON  
cont.**

GMT won the contract to build the spars for LION'S WHELP over two years ago. From the outset, builder and part owner Phin Sprague of Portland Yacht Services required masts that were bullet proof, could survive cap shroud failure and compliment the traditional appearance of the boat. Phin, John G. Alden Naval Architect Niels Helleberg and Project Manager Jim Plagenhoef had very specific requirements for the details of the spars. Custom tooling was indicated for the masts and main boom with complex shapes and tapers resembling those that would have been built in the 1920's. GMT President and Engineer David Schwartz worked closely with Phin and his team to meet their every requirement. Custom bronze castings were used for gooseneck fittings, boom ends and track.

GMT's experience with blending the high tech world of pre-preg uni-directional carbon with classic wooden boats goes back more than a decade with the first carbon spar for a Concordia yawl (CROCODILE). GMT's first "Faux Bois" masts were for an 82 ft. yawl ZANNA, designed by Landing School Design Director Steve Dalzell, which has a very tra-

ditional look with long overhangs and graceful sheer. Built in 1995, ZANNA sailed for 7 years and over 70,000 miles before her spars were removed for inspection and maintenance. By that time a section of "Faux Bois" finish had been badly scarred by an errant full length batten end in a blow. The ideal touch up solution presented itself. An area was masked off and a new section of faux finish applied duplicating the look of a wooden scarf splice. The end result was a paint repair that not only restored the beauty of the

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**LION'S WHELP's main boom outboard end features a custom bronze cap with sheet and preventer attachment points as well as a stylized lion's head. Main mast detail showing bronze gooseneck hoops and inboard boom end belaying pins.**



Photos: David Schwartz



**GMT NEWS**

As the summer sailing season grinds to a halt in the Northeast, we at GMT are proud to report that more boats than ever are winning with GMT carbon spars. The following is a sampling of some of the top finishes. If we've missed your top finish with GMT carbon, let us know! The Annapolis Newport Race saw two of the four phrf classes won by GMT sparred boats. Y2K, Swan 68, won Class 1 while GAYLARK, Swan 38, took the top spot in Class 3. Gus MacDonald's PANACEA, Hinckley Pilot, finished second in class in the Marion Bermuda Race. Closer to home, Tom Burrows' WARRIOR I, Sabre 38 placed third in her class at Block Island Race Week. Great news was heard from the Great Lakes as Dave Verdier's RETREIVER, Alden 52 ft. yawl, placed first in Class and won the Chicago-Mackinac Trophy Division. In the Open Division, ALCHEMY, Andrews 77 (GMT rudder) won Overall and Division line-honors and second place in Division

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# GMT NEWS

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on corrected time. In the Port Huron-Mackinac Race, EQUATION, Andrews 70, (GMT rudder '03) finished first while ALCHEMY was second. BLACK MAGIC, Hinckley Competition 41, placed second in Class in the PHRF New Englands equipped with her 11 year old GMT carbon spar.

Summer marked the shipping of GMT's second big rudder for Vitters Shipyard in the Netherlands. The massive blade (16 ft. x 5 ft.) will be installed on an Ed Dubois 43 meter sloop later this fall.

In addition to LION'S WHELP, the summer marked launchings of newly sparred CONSULTING TIME, Morris 48, HOMEFREE, Morris 52 and HOI AN, Brooklin Boat Yard 50.

Conrad Humphries has chartered the GMT sparred Finot 50, formerly called Cray Valley. He will race the red rocket in the double-handed Transat Jacques Vabre, scheduled to start later this fall.

Summer was also a busy time for GMT Sales Manager Will Rogers and Director of Marketing Ben Sprague as they traveled the region supporting customers in a range of venues. GMT again displayed at the Wooden Boat Show in Maine where GMT sparred HOI AN, Brooklin Boat Yard 50 ft. sloop, (see photo p.4) made her debut. GMT was on hand in Southwest Harbor to help The Hinckley Company celebrate its 75<sup>th</sup> anniversary. GMT was also a sponsor of Hodgdon Yachts' Shipyard Cup in Boothbay Harbor, Maine. Later this fall, Will Rogers will attend the Cruising Rally Association's pre-race event for the start of the Caribbean 1500 in Charleston, SC. GMT is a main sponsor of the CRA's series of rallies.



Photo: Billy Black

***With her new all carbon fiber mast MISCHIEF, Sequin 40 built by Lyman-Morse in 1988, saved more than 110 lb. aloft and is noticeably faster on all points of sail.***

## MISCHIEF cont.

eliminate these problems. It would add both to performance and to our enjoyment of the boat.

Now that I knew what the customer (me, myself and I) was trying to accomplish (at GMT we always try to tailor-fit the product to the needs of our customer), we set out to design the new mast. The first decision was to match the height of the old mast. We had a number of sails that were far from ready for the scrap

heap. Overall performance was good and we didn't need to add sail area for light air. We then chose a carbon section that had the same outside dimensions as the current section. There was just no room in the boat to go with anything larger. We wanted a stiffer section. We tailored the laminate along the length of the spar to achieve a new mast that would be about 20% stiffer than the old one. To maximize weight savings, I chose to go with a carbon

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## NEW PROJECTS

Work is nearing completion on a 120 ft. Stoway spar for a 110 footer. GMT's largest mast section built to date (24" x 11") will save more than 1500 lb.. aloft compared to an equivalent aluminum mast.

GMT Composites was awarded the contract to supply masts and rigging for two new boats under construction at K&M Yacht building in Holland. Both boats, a 65 footer and a 76 footer, are designed by Gerry Dijkstra & Partners. In addition a custom boom for a 53 footer has also been ordered. Later this

fall work will commence on the rig for a Brooklin Boat Yard 47 being built for a repeat GMT/Brooklin Boat Yard client.

Introducing the GMT Park Avenue Pocket Boom! GMT already builds the best looking Park Avenue booms on the market. We have now improved them by adding a deep cavity within the boom in lieu of a flat or curved deck. This simplifies flaking and storage of the mainsail. Two booms have already been ordered. Watch for photos of this exciting new product in the next CARBONICS!



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## MISCHIEF *cont.*

masthead, spreaders, goosenecks, instrument box and sail track. As we do with many of our re-fit customers, we traded ideas on spar details so that the new mast would function better than the old one. The entire process was more fun than I thought it would be. It was exciting to watch the spar take shape throughout the construction process.

The new mast along with a new set of standing rigging made by Ocean Yacht Systems (401-682-2488) and running rigging by New England Ropes (508-678-8200) went into the boat this spring. The high gloss paint job (All Paint 401-253-7399) enhanced the beauty of the boat. The all-up weight of the old rig (including electrics, standing and running rigging) was 469 pounds. The new rig was 113 pounds lighter. During the first sail, the performance improvement from this 24% reduction in total spar system weight became apparent. The weight reduction aloft was the equivalent of 600 pounds of bodies on the rail. The stiffer section allowed us to get more headstay tension. The boat sailed closer to

the wind. No longer did we see changes in sail shape as the mast no longer pumped when we hit a wave. When a puff hit, the boat heeled less. The boat just felt more powerful and solid. She surged forward in conditions where, in the past, she would heel and pitch. Everyone agreed that the new spar had made a good boat even better.

Now, after a season of racing and cruising, the benefits of the refit are even clearer. We had a wonderful racing season even with the 3 second-a-mile rating increase that the carbon rig carried. In the 34 regional and local (Rhode Island and Massachusetts) races that we competed in, Mischief finished in the top three 27 times. We just had more speed to weather in all conditions than we had in past seasons. Cruising was also better. I am no longer ribbed about sailing around with an aluminum mast. We never had to put the runners on during the entire season. Improvements in the design of mast details made sail handling much easier when just the two of us were aboard. Even cocktails are more pleasant since we no longer have to look at a run down, corroded spar.

*GMT sparred HOI AN, Brooklin Boat Yard built, Bob Stephens designed 50ft. sloop sails for the first time in waters off Center Harbor, Maine.*

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## CLASSIC MEETS CARBON *cont.*

finish, but enhanced the authenticity of the spars as well.

This versatility was a key factor in the decision to have LION'S WHELP'S rig treated with the "Faux Bois" finish. Touch-ups are easier and more successful to execute. Based on ZANNA's history, general maintenance is far less than with varnished wooden spars. With continued increase in the number of boats being built to the "spirit of tradition", blending hi-tech materials with classic elegance and beauty, we will likely see more carbon spars look just like wood. Call us today to learn more about upgrading your classic!

**GMT**  
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