CARBONICS

Advanced Composite Engineering & Manufacturing for Marine & Industrial Applications

GMT

GOETZ MARINE TECHNOLOGY PRODUCT BULLETIN • NUMBER SIX 1994/95

CHANTY: BLEND OF TRADITION AND TECHNOLOGY

In the last issue of CARBONICS we reported on the construction of the 5 carbon spars for the 52 foot ketch CHANTY. The boat was recently launched at Zimmerman Marine and the results have been nothing short of astounding. As promised we have included a photograph of the unique "wishboom" ketch-rigged yacht making her debut on the Chesapeake Bay early this summer. Project Manager Rupert Lyle remarked that the owners are extremely happy with their new boat. The finished product in this case was clearly a direct result of concerted efforts by all parties to supply the best yacht possible. The overwhelming success of the project is indeed testimony to the high caliber of workmanship at the Cardinal, VA yard of Steve Zimmerman.

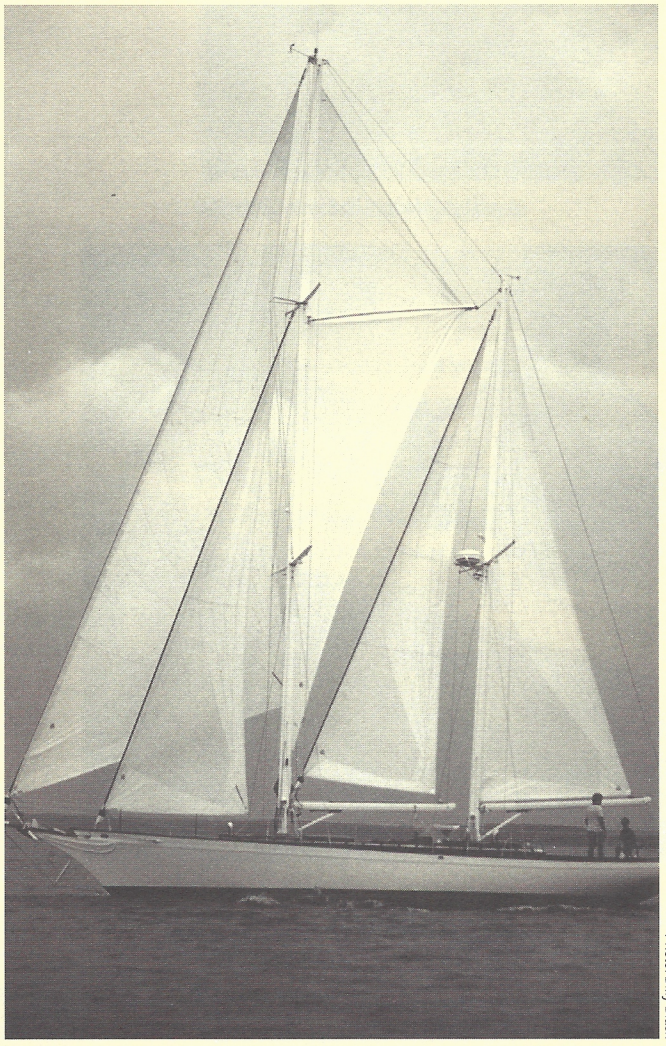

Photo: Billy Black

CHANTY under full sail plies southern Chesapeake's Mobjack River

The level of detail executed throughout this project is evident wherever one looks. This is especially true in the perfectly finished rig. From the internal sheeting arrangement for the wishboom supported main trysail to recessed cockpit and deck lights in the carbon booms, GMT built Chanty's spars to complement the extraordinary lengths Zimmerman went to in crafting the boat. Chanty is more than a beautifully designed and built classic ketch. She is a work of art.

Under sail Chanty is as able and comfortable as she is beautiful. The divided sail plan allows for a number of possible sail combinations to at-

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CARBON MASTS IMPROVE WITH AGE: THE LONGEVITY ISSUE

One of the most important considerations when the subject of carbon masts is raised, is that of long term reliability. Everyone knows that these spars are light, but will they withstand the test of time? If it's a GMT designed and built spar the answer is an emphatic YES!! Goetz Marine Technology was the first company to build carbon masts for cruising boats. We have built more masts for these boats than any other company. With the best track record in the industry we have gained considerable experience in what works in the long run.

GMT built its first carbon masts five years ago. Today, the spars on these boats are not only in great shape, but they appear to be aging more gracefully than their aluminum counterparts. PRINCIPLES is a Cherubini 48 that sails 12 months a year up and down the East coast, Bahamas, and Virgin Islands. Builder, Lee Cherubini recently visited the boat and commented, "Where painted aluminum spars the same age are showing signs of fading and blistering, the GMT masts look as new as the day they were installed." There are good reasons for this. Two part polyurethane paint adheres much better to composite surfaces than aluminum.

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GMT SPARRED BOATS READY FOR BOC

While GMT is known widely for its carbon spars for cruising boats, it is no stranger to the racing scene. Goetz Marine built 2 of the 4 carbon spars on US entries in the 94/95 BOC.

This past spring marked the installation of Goetz Marine Technology's second carbon mast slated for competition in the upcoming BOC around the world race. Hunter's Child received her GMT mast at the St. Augustine base of the Hunter Marine Racing Team.

The new carbon rig was one of a number of modifications made to the veteran race boat under the direction of skipper Steve Pettingill, Hunter Marine President Warren Luhrs, and Lars Bergstrom. The boat has a new bow, modified stern, and an "air induction" venturi slot designed by Bergstrom's B&R Designs. The taller mast will increase sail area for added light to moderate air performance gains and still give the boat added stability over her aluminum mast. North Sails' Jim Alsop estimates the mainsail area has increased 10% and headsail area will be 5 to 7% greater than what the previous sailplan provided.

The summer has seen Steve put HC through her paces. After bringing the boat north from Florida, final preparations were made for qualifying passages to the Azores and back. The return trip, we are told, was marked by a collision with a whale which brought the boat to a dead stop from 13 knots. Tony Lush, handling public relations for the Hunter campaign, commented, "While Steve was dismayed at hitting the whale, he was surprised and overjoyed to see that the GMT mast which obviously withstood significant shock loading was undamaged."

Alexandra, Andy Upjohn's entry in the open 50 foot class, has been logging some ocean miles as well. Andy trained over the winter in the eastern Caribbean and took the boat to Ft. Lauderdale in the Spring. Andy reported the rig is performing well past his expectations and attributes much of the boat's speed to her GMT carbon components. Following minor modifications in Florida, Andy sailed for the Azores in July and has reported some fast times. As the start date approaches for this world class event, we at Goetz Marine wish Steve and Andy a great race.

Photo: Billy Black

Steve Pettingill sets his sights on the start of the BOC

WHERE ARE THEY NOW? GMT ROLL CALL.

Newly GMT sparred in 1994: **WINDIGO**, an Alden Boothbay Challenger, has returned from extended cruising in Placentia Bay, Newfoundland. **PIETRONELLA**, Able Apogee 50 #04 designed by Chuck Paine, has completed her maiden voyage, a Trans-Atlantic passage to her new home port in the Netherlands. Recently commissioned S&S Hylas 49 and Bristol Custom 57 designed by Dieter Empacher are both equipped for bluewater cruising with GMT Stoway masts. **ROUTE 66,** the 68 footer built by Goetz Boats had a fast trip from Bermuda to the Azores reaching a speed of 28.5 knots. (Fasten your seat belts!) **WESTRI**, Apogee 50 #01 has transited the Panama Canal and is heading south for her circumnavigation of South America. Cherubini 48' schooner **PRINCIPLES** had a fast trip to Newport from the Bahamas: 1220 miles in 127 hours. David Walton's Hinckley Competition 41 **BLACK MAGIC** added a pair of carbon spreaders in preparation for the upcoming PHRF New England Championships. Racing in the New York Yacht Club's Sesquicentennial Regatta, Nick Brown's **QUADRILLE** won her class. Concordia yawl **CROCODILE** was on display at the Wooden Boat Show held for the first time in Southwest Harbor, ME.

GMT NEWS

GMT to build Freedom Yachts' free standing spars. Freedom Yachts has long been a pioneer in the use of carbon masts for production cruising boats. Freedom selected GMT as the best company to combine advanced design and manufacturing techniques to produce light, cost effective masts. We are all excited about working with the folks at Freedom!

GOETZ MARINE gets nod to build America's Cup components. Pact 95 has just awarded a contract to GMT to contruct appendages and spars for their IAC boat YOUNG AMERICA under construction at Eric Goetz Custom Sailboats. Construction team coordinator Gordy Wagner expressed his confidence that the GMT group would deliver the best components on time and on budget. As it did in 1992 GMT will be building parts for all three US syndicates.

CUSTOM 57 FOOT YAWL

We have recently completed construction and assembly of the full spar package for a Sparkman and Stephens designed yawl nearing completion at the Hinckley Company. The yacht is scheduled for sea trials in September and local cruising the remainder of the season. Beginning in the winter of 1995 the owners plan to embark on a circumnavigation with their family.

Pre-preg carbon fiber is regarded by Hinckley as the spar material of choice because of its superior strength to weight ratio. Combined with water ballast tanks the reduced weight aloft will reduce the heel angle under sail and dampen pitching in headseas. The mastheads, spreaders, jumper, and spinnaker pole are made of carbon as well.

In designing the masts for this boat, GMT president David Schwartz said, "Like many of our spar projects, this one called for careful coordination with both the designer and builder due to the individual nature of some of the equipment on these masts. This is something our company has become known for as more and more customers take advantage of the versatility in design carbon offers." Goetz Marine is pleased to be building its 9th and 10th carbon masts for the Hinckley Company.

New Projects

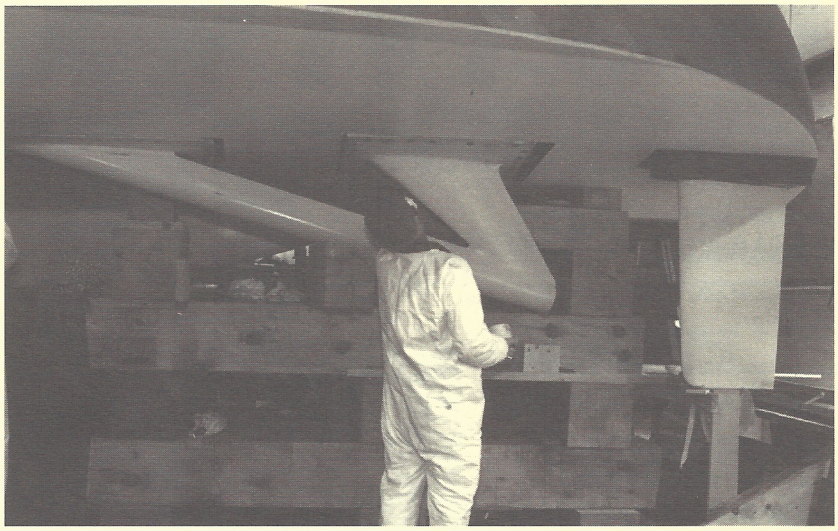


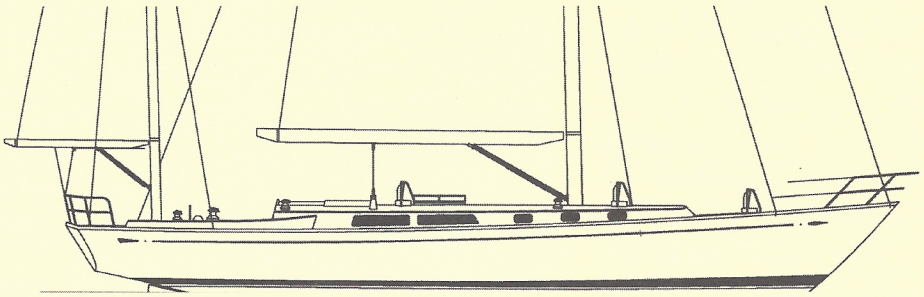
Photo: Robert Mitchell

Carbon strut installed on King Commuter

HIGH SPEED COMMUTER

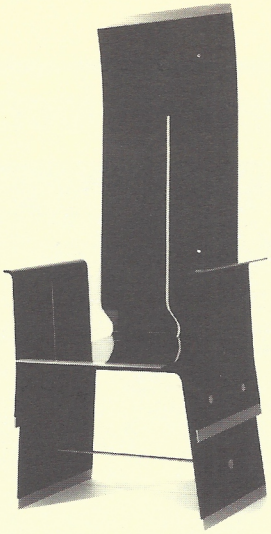
Goetz Marine recently built two carbon fiber propeller shaft struts for an 80 foot Bruce King designed commuter style power boat under construction at Hodgdon Yachts in East Boothbay, ME. The struts are unique in that they are accompanied by foil shaped faring tubes which enclose and streamline seven feet of the propeller shafts. The weight for each assembly was 110 pounds. Their weights in metal? Nearly 500 pounds apiece.

We also supplied two carbon rudders for the boat which is designed to see top speeds of 35 knots. Powered by twin Man 1100 hp diesel engines this seems a reasonable expectation. Launching is expected for May, 1995, stay tuned.



GOETZ IMS RACERS ROCKET TO VICTORY

IMS racers recently built by Eric Goetz Custom Sailboats and equipped with GMT carbon rudders have logged successful records in 1994. After second place finishes in the SORC and Block Island Race Week and winning the NYYC Spring Series, FALCON, (Tripp 50), went to England to lead the victorious American team in the Commodore's Cup. IDLER, (Nelson /Marek 45), won the Royal Bermuda Yacht Club's centennial regatta and placed second in the NYYC Sesquicentennial Regatta. HIGHNOON, (Tripp ILC 40) was 2nd in class for the NYYC Queen's Cup Race.



CARBON FURNITURE

GMT delivered a set of custom designed furniture for an East cost architect late last year. The pieces, which numbered 18, were constructed from pre-impregnated carbon fiber skins around balsa core. Edges were finished with brushed aluminum and the entire surface coated with polyurethane clear coat. Pictured is a chair for use at the head of the nine foot dining table.

CHANTY *Continued from Pg 1*

tain the right balance for the given wind and sea conditions. The GMT carbon masts are nearly 500 pounds lighter than aluminum spars. This weight savings has been put to good use, enabling Chanty to accelerate quickly in light airs and encounter little pitching in choppy seas. Her 5 hydraulic furling systems allow her owner to reef with the push of a button, making shortening sail a pleasure. GMT president, David Schwartz said,"This job typifies what Goetz Marine is all about; thorough engineering and design combined with meticulous manufacturing resulting in a finished spar meetinq the most exacting standards."

CARBON MASTS *Continued from Pg 1*

Likewise since there is no corrosion potential between carbon and stainless fittings, there is no blistering. Corrosion is also a major problem when stainless mast steps are used with aluminum spars. Even when aluminum mast steps are used, the carbon mast has the advantage over aluminum. By cladding the base of the mast with fiberglass, you can effectively isolate the carbon from the step. The composite structure is also impervious to water (especially salt water) where the aluminum mast base is less so.

Repair or modification has been another area of concern to those interested in carbon masts. Adding fittings or applying additional layers of laminate in the form of patches in order to install a new winch base or add spinnaker track has proved to be a simple procedure.

More important than the aesthetic and maintenance benefits carbon offers over time is the equivalent or superior strength over aluminum carbon spars have demonstrated. Carbon spars have shown that they can remain standing long enough to effect a repair after a shroud fails or withstand the shock of a sudden stop from 13 knots. Composite construction can take it. The pivotal factor in GMT's success in producing these reliable spars continues to be its careful design. By combining stringent engineering with consistent construction methods we are able to produce a mast which exceeds its specific requirements.

As time passes, we will continue to learn more about how these spars age. While some may feel the definitive word on carbon's reliability has yet to be delivered, the data we at Goetz Marine have gathered is clear. Carbon masts are safe, strong, and ideally suited to endure the severe conditions that can be encountered at sea.

GMT Response Card

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