

GMT Carbonics 26

GMT Composites

Advanced composite engineering and manufacturing
for marine and industrial applications

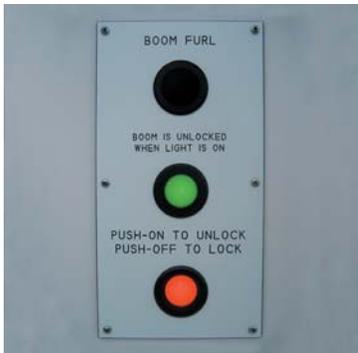
Product Bulletin #26
Summer 2008



GMT allows the lowest-profile sail track.



Fewer jams when boom isn't close-hauled.



The simplicity is obvious.



A Hinkley 59 with our new furling system.

New GMT in-boom furling system is light, sleek and incredibly neat

GMT's new in-boom roller-furling combines engineering refinement, weight reduction and aesthetics. Our carbon composite furling booms, now being custom built for 45 to 90 ft yachts (structural engineering completed for larger yachts), are about half the weight of comparable aluminum systems. They have a distinctively sleek profile drawn for us by John G. Alden Design.

Our composite furling booms have unique features superior to other furling booms. The boom's forward end is open so there's no place for the sail to snag. We've eliminated the shaft running through the mast, plus the requisite universal joint. There's no unsightly drum on the front of the mast, nor a hole in the mast that weakens it. For safety and convenience the main can be furled on any point of sail. The sail can be raised, whether head to wind or beam reaching.

GMT's furling motor is easily accessible inside the boom at its forward end. Many furling booms carry this heavy motor at the aft end, causing the boom to swing more violently in a seaway; aft-end placement also requires longer, heavier hydraulic lines. For ease of operation, our design minimizes the distance between the forward end of the boom and the mast, and GMT also uses a low-profile sail track, less than a third of the proud height of other systems' metal tracks. GMT's articulating sail-feeder accepts a mainsail with bolt-rope



The hydraulic winding motor for furling the sail is inside the forward end of the mandrel.



John G. Alden Design drew the very sleek and pleasing profile of our new furling boom.

luff so a racing mainsail can be used for both regattas and cruising. The angling capability of this feeder design reduces binding or jamming, important since reefing is often done off-wind when the boom is not close-hauled. Jams can be common in other systems.

Many experienced sailors favor in-boom reefing/furling, which allows full-length sail battens for sail shape and efficiency. Our furling system is near deck-level so

servicing doesn't require sending crew aloft; rig weight is reduced and CG lowered for greater stability. Aside from its lower weight, carbon fiber saves in long-term maintenance and is now only modestly higher in initial cost.

The pictures show a Hinkley 59 refitted with a new GMT in-boom furling system at Hinkley's Rhode Island yard. We're supplying a similar rig for a Hylas 70 (see page 3) and a custom 70.



Hurricane Ivan hatches Cape Horn rounding

In a 3-issue series, *Cruising World Magazine* carried a riveting story of the adventures of three friends aboard *Home Free*, a Morris 51 owned by Bob and Jane Trenary.



Aftermath of Ivan's fury at Grenada yard.

The account by Bob Rubadeau lays the "blame" for their subsequent assault on Cape Horn to a recovery delivery after Hurricane Ivan hit the island of Grenada.

Ivan was no ordinary hurricane. Its 160-knot winds devastated Grenada and the nearby islands. Those winds, plus a 20 ft storm surge, caused mayhem; perhaps 200 masts snapped off.

The shoreside assessment of *Home Free* listed a hole in her side

and the galley portion of her starboard interior relocated to port but, incredibly, her GMT carbon fiber spar and rod rigging held when so many masts had not.

Because the situation down-islands was so chaotic, temporary repairs were done (Tom Morris flew in workers from Maine) so that *Home Free* could be sailed north for full restoration. That voyage brought the two Bobs and Jim Stanek together for an 1800-

mile trip back to Morris Yachts. At the snowy December conclusion of that voyage, the three concocted the "whacky" idea of sailing *Home Free*, when repaired, around Cape Horn.

Proof of that success is shown above and the rest, as they say, is history. But we're pleased to know that our spar not only survived Hurricane Ivan but attained the Holy Grail of sailing: rounding Cape Horn.

GMT aids stereotactic scanning

Integra Radionics is a developer and manufacturer of innovative equipment for stereotaxy, a minimally invasive form of brain surgery that uses CT scanning and precisely focused X-rays. Integra needed to secure a head ring for patients lying in a CT scanner.

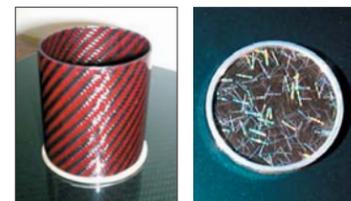
Integra has been coming to GMT for over a decade because our carbon fiber structures are radiolucent: x-ray beams are minimally attenuated or scattered so tumors are more accurately mapped, resulting in less destruction of healthy brain tissues. The head frame must be securely held in precisely repeatable positions in case additional treatment or movement is required.

GMT engineered and manufactures the pad to which the head frame is attached. It's made of a carbon fiber/epoxy-skinned sandwich; internal inserts of high-strength pre-cured linen and phenolic laminate provide secure mounting points that prevent fasteners pulling out.



Giant rudder

GMT recently shipped a large carbon composite rudder to a Dutch builder for a new 45-meter (145') Dubois-designed sloop. In 2004 GMT built a rudder for *Red Dragon* (see photo), a similar Dubois design. With a 35.2 meter (115') waterline and 120 tonnes displacement, this second yacht will generate huge underwater loads, an ideal situation for GMT's carbon composite rudder construction.



Colored carbon

People think "carbon composite" when they see the distinctive black and silver or black and gold color palette that most manufacturers use. But that's not the only color possibility, as these samples show.

Carbon fiber is black, but is combined with yarns which can, in some cases, be a range of colors. We haven't been contracted to produce a mast or boom in black and red. But we're ready!



Asymmetric sprits

In a prior Carbonics we showed a deck-mounted asymmetric sprit on two J/44s. This deployable system was built for two owners who wanted the option to use conventional spinnaker poles as well as sprits. We kept the asymmetric sprit system out of the space needed for a dip-pole gybe, plus kept clear of the forehatch, so the sprit could still be used for chute launching and takedown.

We have recently delivered a

fixed sprit for an IMX 45 (see photo). Because the owner needed just 2'-6" sprit projection, this solution was clean, lightweight, strong, and effective.

GMT builds custom sprits which aren't one-type-fits-all kits; our solutions are engineered for individual requirements. A new brochure (also on-line) shows fixed bowsprits, demountable systems, tube-launched sprits, and our on-deck deployables.

GMT rigs Hylas Jeanneau performance upgrade

Hylas Yachts, one of the standout brands in auxiliary cruisers, is building a new 70 with the most advanced rigging package available: a GMT carbon spar, GMT carbon furling boom, and PBO shrouds. Not the least costly rig, but our mast and boom are priced well below the competition.



Mike Chobotov's own words best describe the effect of his performance upgrade – a new GMT rig – on his Jeanneau 49 *Venture*:

"I have been thoroughly enjoying the new mast – it's definitely a completely different (and better) boat! We're still tweaking some rig details as a



photo: Lyons Imaging



Maggie B goes R-T-W

The schooner *Maggie B* docked May 10th in Lunenburg, Nova Scotia, after sailing 38,400 miles, circling the globe by way of the southern oceans. Frank Blair, *Maggie B*'s owner and captain, says: "We beat the gale in. It's supposed to blow 45 knots tonight. We brought Cape Horn weather with us, though they say this is typical 'spring' weather here. We were met by all the horns on all the ships in the har-

bor. There was also cannon fire, which was a little scary, but supposedly they were firing blanks!"

Maggie B had amazing adventures, many described on the web site SchoonerMaggieB.net. The *Maggie B* carried GMT's free-standing carbon fiber spars, so we liked Frank's message: "As a testament to your work, we survived a flying jibe of the foresail in the Chilean Channels, in a williwaw that hit more than 72 knots!"



Carbon = bling

Our customers may be astonished to learn that GMT carbon composites are used in fashion and jewelry. But carbon composites have a modern aesthetic, and the play of light and color in our laminates is visually intriguing.

We've produced carbon belt buckles for Ralph Lauren, and Tiffany's Paloma Picasso jewelry collection includes items using our carbon composites mounted in silver.



photo: Tim Wright

Pocket boom races Antigua

In our last issue we announced the largest pocket boom yet built by GMT. The boom was in transit, so we cropped our photo of *Zanzibar*, the Vaton-designed 108 ft sloop for which it was destined, below the level of her old boom! Here's *Zanzibar* with her new GMT pocket boom during the Nantucket Bucket Regatta.

Three more yachts get GMT refits

Jay Cushman has returned to GMT for his second spar package. His first was a 2002 custom 44 ft French & Webb spirit-of-tradition sloop designed by Chuck Paine. When Jay decided to downsize, he chose a Mason 33, again working with the Paine office to design a new rig as part of her refit package. Jay had been so pleased with his first GMT rig and the service we gave him, there was no doubt in his mind what to use this second time around.

On the opposite coast, Richard and Amber Kipp have owned their Cheoy Lee Offshore 50 for years and have sailed her not

only along the West Coast but south into Mexico. Last year, they turned to Legendary Yachts in Washougal, Washington for a major refit. Richard had contacted us in 2003 after seeing one of our ads that showed our Faux Bois spars – just what he wanted for his boat. To make the process even simpler, the old wood spars were shipped to us to measure and take hardware off for re-use.

Katrinka, a well traveled Tripp 48, has just gained a new owner who is providing the love and attention which includes a refit at Brooklin Boat Yard. This means a new interior, new decks, and a



new GMT carbon fiber spar package. Since this new rig just shipped to Maine, all we can show here is the "old" *Katrinka*.

Seen our new web site?

We're excited by our new web site: www.gmtcomposites.com. It was produced by Rick Hood (son of famous sailor and designer Ted Hood), at Flow Media Design. We invite your comments!



GMT named top supplier for quadrupod frames

The Harvard Smithsonian Astrophysical Observatory (SAO) is studying "cool dust" and gas clouds in the Milky Way and other galaxies using an array of radio telescopes, eight of which are located on Hawaii's Mauna Kea. The high altitude, clear air,

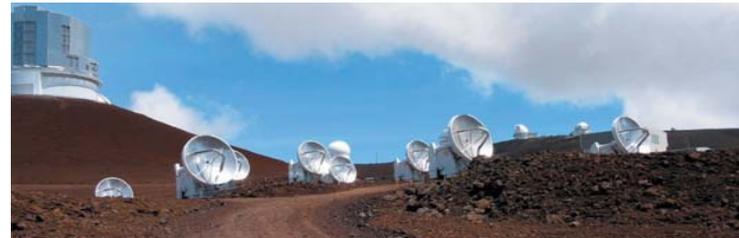
and Equatorial location are a requirement for this research.

GMT was asked to build the frames for the 6-meter dishes. These quadrupod structures stand 8 ft tall and hold the focusing-mirror sensors. This system is called a submillimeter array; the

name gives evidence of the precision required in fabrication.

Mauna Kea is subject to extreme environmental conditions. The antennas had to be exceptionally rigid and stable, even when buffeted by mountaintop winds, scoured by volcanic ash, and subjected to wide temperature fluctuations. The assemblies and their enclosures had to be repositionable in an hour, over steep unpaved roads.

For GMT's work the SAO named GMT its "Best Outside Contractor" on this project.



Lightweight high-strength masts, booms, poles, struts, and composite structures for marine and industrial applications.

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Another great Bermuda Race!

As this newsletter went to press, we were just getting the results from the 2008 Newport-Bermuda Race. With apologies for any GMT customers omitted here, we did notice our spars collected a first, two seconds, and a third.

John Watts' *Bandera* (photo above) and her 15-year-old GMT rig were first in Class 14; Chris Culver's *Cetacea* came third. Under ORR, Bob Forman's *Jacqueline IV* and Andre Laus' *First Light* took seconds in class.

Let's call them 'camera tubes'

Northrup-Grumman asked us for 'camera tubes' for imaging gear and electronics for troops in forward battlefield positions. We can't reveal more except to say we can work at mil-spec levels on lightweight, strong and rigid products for extreme exposures.

