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COMMAND & CONTROL

A visionary boat owner spends \$70,000 to create the ultimate helm. By CAPT. JOHN WOOLDRIDGE

Standing on the foredeck of *Aurora*, Mark Trachtenberg's Uniesse 55, I glanced at the wireless device in his hand. About the size of a hardback novel, it wasn't too cumbersome to hold, but it had an adjustable strap across its back that fit snugly over his hand so he could relax his grip. He pressed a button near the edge of the backlit screen, turned the device to face me and said, "Recognize this?"

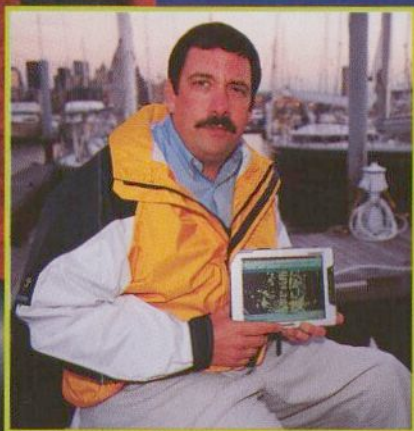
Just 15 minutes earlier, Trachtenberg and I had studied the screens of the Raymarine RL80C radar display and the Raymarine 631 chartplotter at *Aurora's* lower helm. These fully integrated electronics flanked and fed into a central Big Bay display screen, all carefully recessed in a beautifully made console of burlwood laminated over sturdy aircraft-grade aluminum backing.

This was the ultimate "glass helm" as conceived by craftsmen who cared greatly about the details.

Now, some 30 feet away from the lower helm, the image on the 10.4-inch screen in Trachtenberg's hand was an exact reproduction of the image I'd seen on the radar screen in the cabin. As I watched, a blip moved up the fairway

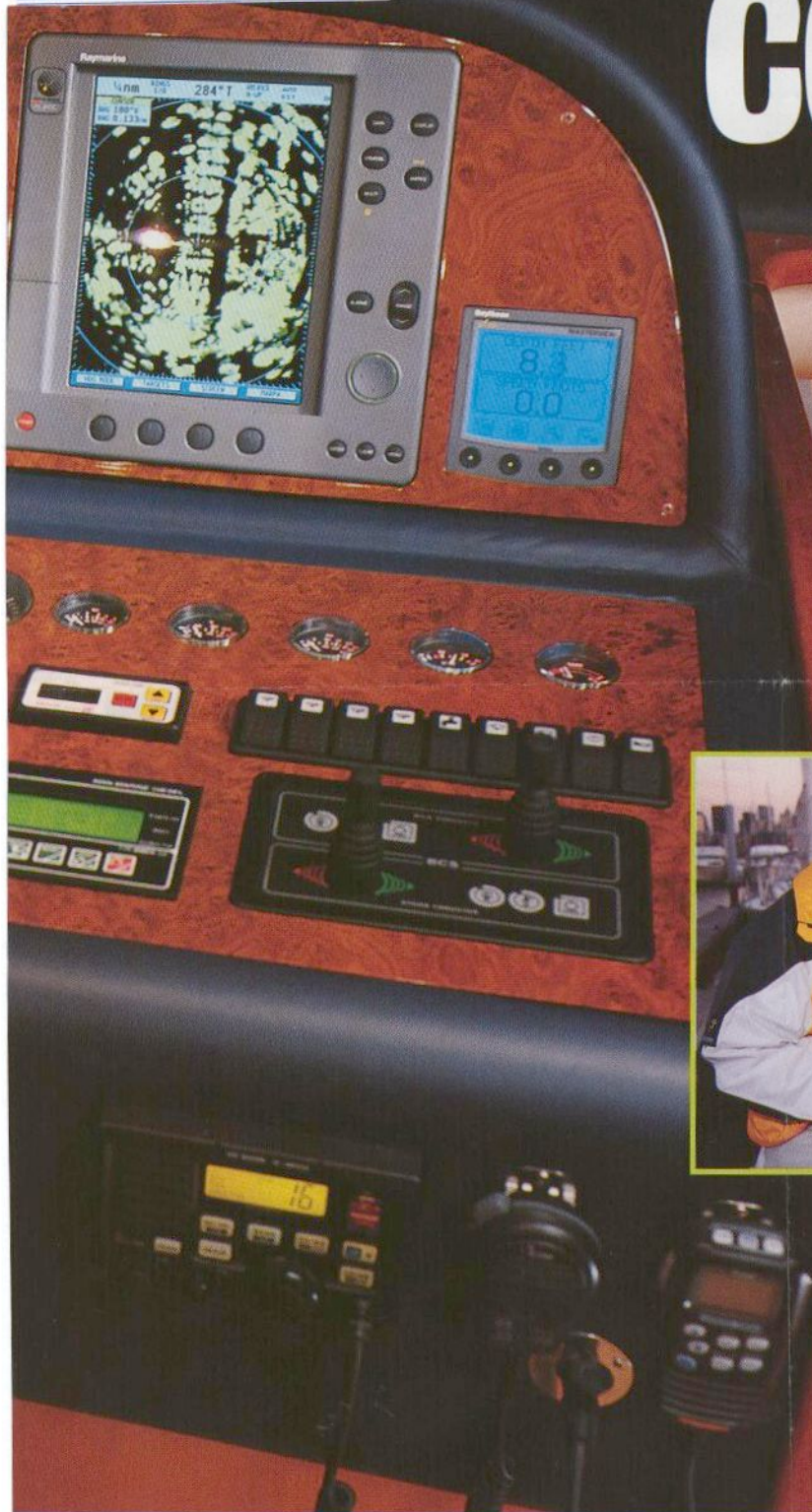
along the right side of the cut—a ferry I could monitor in real time on the screen or with my naked eye as it docked alongside a wharf off to starboard of the pier where *Aurora* was tied in Jersey City, N.J.

Before I could ask about other information he could show me, Trachtenberg sequentially changed screens to display raster charts as



IN CHARGE: Mark Trachtenberg.

PHOTOS BY MICHAEL BERMAN





well as vector charts of our location, a view of the bottom from the fishfinder, and a video view of the engine room—all in stunning color.

For Trachtenberg, simply watching the engine room or the navigation instrument screens using a portable tablet was irrelevant. What he really wanted was command and control—the ability, at a quick glance, to double-check navigation while someone else was on watch, then to change course or speed without having to go to the helm. He wanted to check the boat's systems without visiting the engine room and see what repairs or replacements were imminent. He wanted to log on to the Internet in a wireless-enabled marina or through a satellite uplink, and find information on his next destination, or check his e-mail. He also wanted the redundancy to allow safe boating, even if a primary system should fail. And most important, he wanted to be able to do all this whether he was sitting at the upper helm, the pilothouse helm or anywhere else on the boat.

"This a new way of thinking about systems integration, and it can be accomplished on boats in the upper 30-foot range and higher," Trachtenberg said. "Manufacturers can do this right now, using off-the-shelf equipment and software to create a wireless platform that improves on the boating experience."

Technical acumen

Trachtenberg is not your ordinary boat owner. This New York resident owns two technology companies that specialize in business solutions involving mobile computing, intelligent networking and software integration, so it was only natural that he would want to tap his companies' technical acumen to enhance and improve the boat owner's experience.

He bought his first boat, an Azimut 42, just two years ago. After a year, he realized he needed a bigger boat. "We decided to build an Uniesse 55 because it had more room, a reputation for seaworthiness and a high-quality interior. Also, the manufacturer allowed me to modify various technical systems on the boat."

Starting with the electronic navigation

systems, Trachtenberg opted for Raymarine's High Speed Bus 2 system because it not only allowed fast data sharing by design, it also allowed reconfiguration of various components to display most any kind of information from any sensor on any screen. Additionally, the company's Raytech 4.1 software provided, among other features, an easy-to-use interface on any screen.

Even though it was costly, he insisted on redundancy and installed nearly identical systems at both the upper and lower stations. Navigation is set up with three different GPS receivers, one of which is DGPS; the other two are WAAS enabled. All are separately wired and grounded. On the radar arch he mounted Raymarine's 4-kW radome and 10-kW open array radar antennae, plus VHF antennas for multiple radios.

To bridge the gap between the navigation systems and the ship's operating systems, Trachtenberg looked to mobile computing and selected a Panasonic Tough Book (CF-72) laptop as the central processor. Tough Books are specially built and sealed to compute despite the damp, motion-intensive conditions encountered on a boat. They have the power and memory necessary to handle the systems management software as well as the input from components like the Mathers electronic controls or the Mastervolt battery management system.

Back at the lower helm, I realized that *Aurora* is as much an R&D vessel as it is a pleasure boat. I watched, fascinated, as he switched from vector to raster, as you might when paper chart-like detail is needed, then overlaid the vector with the raster, and then overlaid the real-time radar image with both so that it all made sense on one screen. He pulled the C-Map chip out of the slot in the chart-plotter housing and the chart remained. The system is so integrated and intelligent, it searched for and selected a second set of charts stored on the laptop.

Cisco Aironet 802.11b components, including a repeater at the lower helm and a broadcast antenna on the radar arch, make it possible for Trachtenberg to roam freely on the boat and stay in control. This is the same technology that lets you wirelessly check your e-mail at the airport or surf the net at your local Starbucks.

For example, while working in the engine room on the Mastervolt electronic panel, Trachtenberg found he needed a manual stored elsewhere. With his wireless tablet, he went on the Internet, found the online manual and was able to select the switch settings he needed without leaving the engine room. If he picks up a mooring or drops anchor in a cove and wants to leave the boat unattended, Trachtenberg can set an anchor alarm based on depth or position. If the boat moves, a wireless signal broadcast by the system alerts his e-mail and sounds an alarm on the wireless Palm Pilot on his belt.

When he hangs infrared receiver/transmitter tags on his two sons, then pulls up a map of the boat on the tablet's screen, he always knows where they are on board—vital information when the boys need to be in the cabin rather than in the cockpit during stormy weather.

Intelligent choices

Trachtenberg also applied intelligent networking to his onboard multimedia entertainment system, which includes a KVH satellite TV system and single components that feed a network of screens and speakers. Controlled by a touch-panel display on a wireless handheld remote, he can go to any cabin, select a signal from the TV, VCR or DVD player, and have the programming running instantly on the monitor in that cabin.

According to Trachtenberg, there's no reason that his vision of intelligent networking can't migrate to smaller vessels. All it takes is a network-conscious builder and an owner who's willing to work with a larger electronics budget.

"Uniesse builds a very reliable platform for boating, with systems that are carefully designed and executed, and set up for networking," Trachtenberg said. "I spent about \$70,000 on the electronics for *Aurora*, but that's not much for a \$1.5 million boat. Smaller boats can do it for less by eliminating one of the helms and some of the redundant systems, obviously."

He's already planning the next boat. Its helm won't have gauges or switches or dials, just a fully integrated, multidisplay, touch-screen glass console that will increase his command and control of the boating experience. ☺