

# SPEEDING BULLET

Gene Willen of Howard Custom Boats explains the genesis of the company's new 25-foot Bullet, an astonishing new midrange rocket capable of triple-digit performance.

by Brett Bayne

PHOTOGRAPHY BY FOTOGRAHER.COM

**T**o understand the creation of Howard Custom Boats' new 25 Bullet, it helps to be familiar with how its big brother, the 28 Bullet, was fashioned—from a Howard 22-foot Offshore.

Gene Willen, owner of Howard Custom Boats, recalls returning from a vacation a few years ago to find his son Michael Willen, Howard's general manager, working on a mysterious 28-foot boat at the shop. "What's this?" he asked.

"It's our new 28," Michael grinned.

"Who needs it?" shrugged Gene. "We're selling 22s!"

Unbeknownst to Gene, Michael had taken a 22 Offshore, flipped it upside down, found its balance point and the center of gravity and then elongated it to make the 28-foot Bullet. That boat took about a year to develop—a process that required a great deal of trial and error as Michael flipped the boat over in the shop, worked on it, took it to the lake, ran it, came back, removed the engine, flipped it over again and worked on it some more. The hard work paid off: In its January 2002 Performance Evaluations, *HOT BOAT* called the 28-footer "spectacular...one of the most impressive performances in ▶





the 13-year history of our performance tests."

Gene credits his son for possessing the foresight to know that "what you're selling today, you're not going to sell tomorrow. We have learned that you have to evolve and give the customers what they want."

Today, as the performance marine market begins to see more 28s, 30s, 32s and beyond, Gene says Howard Boats was faced with a critical decision about what its next move should be. "Everybody's going to bigger boats; that's the trend," Gene says. "As all of the manufacturers—myself included—graduate to the bigger boats, they're leaving behind the people who made it possible for us to get to the bigger-boat category, and

we're giving them fewer options. We have to be careful not to forget what brought us to that point. We can't suddenly eliminate all of the steps in the ladder that got us to where we are." That's why Howard continues to offer the smaller boats, including the 19-foot Superjet, 20.5 bowrider and closed-deck and 21-foot Custom Cruiser. (Built from the old Spectra mold, the 21-footer is the quintessential California daycruiser, featuring a shallow vee and rounded bow with nonskid on the deck. Howard still builds a few of them every year and credits it for having made the rest of the line possible.) Howard also offers the 22 Offshore series in bowrider, offshore and offshore XL configurations, all featuring the ►





same bottom; there's also a 23 Offshore and a 250 Offshore, which features a conventional straight vee, and the 26 Cat, as well as the 28-foot Bullet. "We think that in today's market, as more and more manufacturers go larger, they're neglecting probably the most popular size: the midrange," Willen says.

Thus, using the 28-foot Bullet as a guide, Michael performed his earlier feat in reverse—creating a 25-foot boat by slicing the 28-footer into sections and shortening it. To achieve this goal, Michael first set out to discover how the boat should look, proportionally. Cutting into a 28-foot deck, one chore was to decide how much space would be necessary to remove from the cockpit, cabin and bow section. Once that was determined by where the deck sat, he began slicing the boat into pieces. To ensure that the 25-footer had the exact same scale as the 28, he took a plethora of measurements, being careful that if one cut was made in front of the step, an equal portion was cut aft of the step. Ultimately, when everything came back together, nothing had changed proportionally. Three cuts were made, two 1.5-foot sections were removed, and the boat was reassembled. "You can't assemble a boat on the outside," Gene says, "so we placed it back in the mold with



the step sitting right where it belonged and the back end sitting in place, so that the pieces butted together perfectly in the center of the mold."

The Willens, aware that the 28 Bullet already provided a perfect ride, knew that the secret of the 25 would be the location of the step—and the actual design from the step aft.

After glassing the plug of the 25 back together, Gene powered it with a Whipple-charged HP500EFI (675 hp) to see how it would perform—a bare shell, glassed together on the inside, with only a six-gallon fuel tank. The boat ran 94 mph on GPS. "We knew the potential for speed was there, and we were curious to know what it was,"

Gene says. "We want to push our product to the limit rather than have a customer push it. We want to be able to tell them, 'You can put 1,200 hp, and this is what you can expect.'"

During the testing phase, the Willens were actually far more concerned with the handling characteristics than top speed. Fortunately, the handling was virtually identical to the 28. "It shrank proportionally, so nothing should have changed," Gene says. Even so, the 25-footer is 400 pounds lighter than the 28-footer, resulting in a lighter feel because it is lighter. Although it responds to the throttle more quickly, because less mass is moving through the water, the actual feel in rough water is identical, he says. Even though the 25 is a scaled-down version of the 28, it turns with the same precision and gets on plane a little faster because it's smaller. Rough-water capabilities are said to be identical.

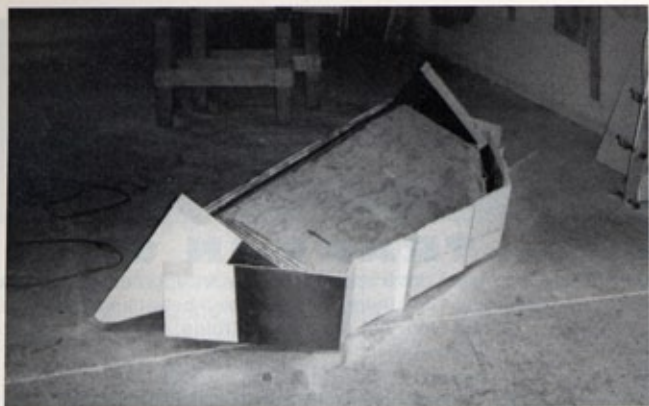
In the end, the 25-footer was relatively easier to create than the 28-footer, according to Gene. "The whole process from start to finish probably took about four months, including making the mold. Michael was in the back literally for four months, grinding and sanding."

In its final execution, the 25 measures 25 feet two inches with a 98-inch beam. It's a boat you can take to the ocean or to

CONTINUED ON PAGE 104







## SPEEDING BULLET

CONTINUED FROM PAGE 64

the lake; you can go fast or ski behind it. Additionally, the boat performs well with a single engine. "It's a good compromise size-wise," Gene says. "It does a little of everything." The base motor will be a 6.2-liter (320 hp), a "good workhorse motor," he says. "It's not underpowered with 320 hp; it will still run 60 mph. In a HOT BOAT situation, that may not be earth-shattering, but compared to a family boat, it is." Owners will have the option to upgrade to an HP500EFI or any other power plant that strikes their fancy.

Designed for the performance enthusiast as a family sport boat, the 25 Bullet is a savvy blend of style and performance. Utilizing the latest ventilated stepped-hull technology available, the 25 will be equally at home on large lakes and unprotected bodies of water. The hull is constructed using 100% vinylester resin and Knytex knitted bi/tri-directional glass fabrics. The entire hull is cored with half-inch end grain Baltek balsa and Baltek foam; the boat also features fiberglass floors, sun-

**Top left:** This foot-and-a-half-long section was removed from the 28' and discarded.

**Top right:** In creating the 25' Bullet, a 28' was cut into several pieces. Here, the bow section is retained and hoisted.



deck and seat bases. The mold cure time is two weeks, to ensure proper curing and strength.

Willen is quick to point out that the two versions of the 25-footer, closed- and open-bow, are built from separate deck molds. "The bowrider is *not* a giant hole cut out with upholstery dropped in," he says.

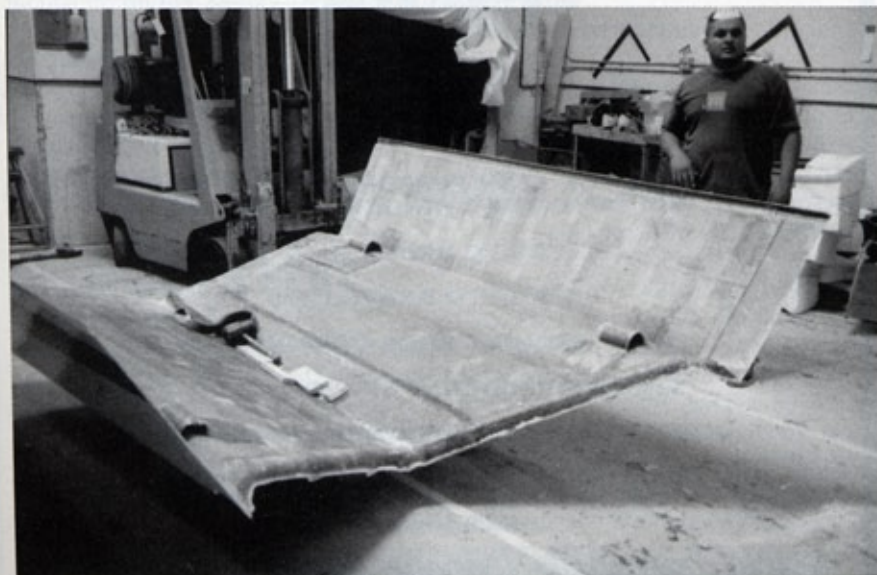
"It's an innerliner boat. When you take all the upholstery out, you'll see that the deck is all one piece, all molded fiberglass that the upholstery fits in—that's for strength and rigidity." The closed-deck version, powered by the same motor, should be about four mph faster, because the open-bow is heavier and slightly less efficient, aerodynamically.

The first formal 25-foot Bullet out of the mold went to engine wizard Gary Taylor, who powered it with a 540 Quad Rotor EFI. (Taylor, owner of Newbury Park, California-based Taylor Performance, specializes in marine-performance engines, rigging and fabrication, with more than 14 years of experience.) Taylor worked with Willen in testing this incredible machine, snaring a 111-mph top speed on GPS at 5,800 rpm at HOT BOAT's recent Bowrider Blowout in Lake Havasu. What was equally incredible was the stability of the ride and how quick it got there. The mighty engine, which packs 988 hp on the dyno, delivers ten pounds of boost on 91 octane. It features components by the following manufacturers:

- Dart (Big M Block, CNC Pro 1 heads);
- Crane (hydraulic roller cam, lifters, roller rockers, timing chain, valve springs);
- Childs and Albert/Ross (custom piston, rings, bearings);
- Cat Power (4340 steel crank, H beam rods);
- ARP (all studs and fasteners);
- Aeromotive (performance marine fuel pump system);
- Whipple (Quad rotor EFI kit).

In its current configuration, Taylor describes the engine as "very conservative and a joy to drive at any rpm. It's so nice to pull up to the gas dock and fill it up without additives. It idles at around 700 rpm. This truly is an engine that will provide the performance-minded boater the best of both worlds." Meanwhile, HOT BOAT tested the first open-bow version, powered by an HP500EFI, for its upcoming Bowrider Blowout; its top speed was 78 and change.

We sat down with Gene Willen to learn



**This is the center section of the 28' Bullet that was retained as Howard made a mock-up of the new 25'.**



more about the new boat and Howard's plans for the future.

**HOT BOAT:** *How do you think Howard Custom Boats is viewed in today's marketplace?*

**Gene Willen:** We're a niche market. We can't be everything to everybody, and we don't intend to. We take what we build on a very limited basis, and we make improvements on it based on what customers ask for.

**HOT BOAT:** *In building the 28-footer and then the 25-footer, how did you discover the center, or balance point, of the boat, and what did that accomplish?*

**Gene Willen:** When Michael created the 28-footer, we literally had a round beam on the floor and placed the boat on it, just like a teeter totter, to find where the center of it was. That's where the step went. Some manufacturers simply put an insert into the mold and say, "Hey, we've created a step bottom." But a lot of thought went into the 25 on where the balance point was. And it worked.

**HOT BOAT:** *Do the Bullets have a conventional vee-bottom? How was the bottom created?*

**Gene Willen:** Both boats have a conventional vee from the step forward, which is probably one of the deepest angles of attack of any vee on the market, 60 degrees. You look at it, and it's like a knife coming at you. From the step aft, we incorporated a bottom that we call a "triangular-ventilated step." The lifting strakes are not continuous. They're offset for a reason. With some step-bottoms, boatbuilders simply put an insert in the mold, which creates a step. That gives the boat lift, and if a boat's designed properly, it has enough lift. Put too many steps in the bottom, it tends to search and doesn't know what it wants to do. So, in designing the 25 and running the plug, we'd move the steps back and forth, constantly asking, "Does it work here? Does it work there?" It was like that cell-phone commercial: "Can you hear me now?" It was strictly trial and error.

What Michael did with the bottom was extraordinary. From the middle of the boat up, it fans out. The boat gets its lateral stability by the points of the triangle where the chine meets the transom and the center of the keel. From that point back, or from that point to the front of the step, the bottom changes every one inch going fore and aft, degree-wise. That's why we call it a "variable-degree triangular-ventilated ►





# SPEEDING BULLET

step." The step sucks air in, the air meets the keel, and it exits out the back of the boat. The turbulence of the bubbles reduces friction and gives the tail-end lift. The step stops the front of the boat from being forced forward. Because as you lift the tail up, where's the bow going to go? Traditionally, it's going to go the opposite way, which is down. But this

boat rides perfectly level on the bottom carrying the nose just above the water from the step forward. When you look at it, you'll notice that the transition from a side view, when the boat's on a trailer, from the step aft angles upward from the back of the step to the transom. The look of it is very deceptive, with respect to the actual depth of the boat versus the appearance, because the deck angles downward. In essence, we've put built-in

rocker into the boat. When you say "rocker," everybody thinks of the bottom of a rocking chair. The old jetboats have rocker to lift the front up, and they add a hook to put the front down. The proportion of the bottom, aft of the step, is perfectly straight. But by angling it, when you put it in the water, the boat is going to sit deeper because the angle going up is the opposite in the water. It angles up in the hull, which means the boat sits deeper on the tail in the water. As the boat gets moving, it actually has built-in lift into the back. Every one inch from the step back, the degree changes. You'll actually see the bottom is changing, getting flatter, even though the it's still a 22½-degree angle.

**HOT BOAT:** *What was the benefit of having a notched transom?*

**Gene Willen:** The notched transom enables us to do two things: it gives you higher drive height, which in turn reduces drag. That's the enemy of speed, because drag slows the boat down. It also acts as a hydraulic arm, the water coming off the keel exits in an upward manner. Thus, you get rooster tails. What we're doing is harnessing the energy coming off the keel, which is one foot forward of the notched transom. So the water comes off the keel and hits the bottom of the notch. The faster you go, the more energy is exerted, and, like a hydraulic arm, it's lifting the boat up. We're able to free the boat up using the pressure of the water and the step, which enables us to make the boat run level by not having to trim the boat as much to make it go fast. The boat uses very minimal trim; the trim that is required in this boat is one half of what is required in the 22 vee-bottom. On the Gaffrig trim gauges, which goes from zero to ten, we normally find this boat is most efficient at four, which is very minimal trim. The boat rides as flat and fast as it does due to the fact that we're able to achieve a near-perfect perpendicular angle of the propeller in relation to the bottom of the boat, much the same as a surface drive would do.

**HOT BOAT:** *What's the next version of the Bullet from Howard?*

**Gene Willen:** That will be our 34-footer, which will be an extended version of the 28. This will be for owners of the 28 Bullet who want to step up. We feel we can build a 34-foot boat that is still trailerable and still be able to do the things we want it to do, be a multipurpose boat. It will be a multi-step boat, because of the extra length. There's obvi-



Voila! After the pieces of the 28' were reassembled, Howard had a mock-up of a 25' hull.



ously a market for larger boats; otherwise people wouldn't be buying them. It's nice to sell a boat that's bigger for a lot of money, but we're trying to take care of the people who are looking for something in between. We took a look at what our competitors were doing, and the 25-27 range still seems to be the most popular.

**HOT BOAT:** *What else is on the horizon for Howard?*

**Gene Willen:** We are redesigning our entire line of boats all to reflect the appearance of the Bullet. That will include a new cat coming out, which will be a bigger version of what we have now, and that will have a Bullet appearance to it. We don't want them all to look the same, but there will be more continuity in the line. The Bullet, as far as I'm concerned, the lines are very clean and flow well. They aren't outrageous. And that's what people want today—contemporary, modern, offshore.

**HOT BOAT:** *Will the 25 compete in APBA Offshore racing?*

**Gene Willen:** Yes. Howards will be a force in Offshore racing: We know we will be more than competitive in Factory racing, because the fastest radar test we've seen published with the HP500 has been 79 mph, and that's in full family form, i.e., stereos, ice chest, coolers, amplifiers, hot-water systems, etc. The rough-water capabilities are second to none.

**HOT BOAT:** *What will be the most popular engine to power the 25?*

**Gene Willen:** Probably the 496. The boat is very efficient, and the 496 HO puts out 425 hp, taking the boat to the mid-70s, which is a perfectly acceptable speed range. It's fast enough to give the owner of the boat his thrill when the wife isn't there, and it's tame enough that he's not going to have to worry about fuel, it runs on 87 octane and it's a very skiable and recreational-oriented motor. It goes fast, it goes slow, it does a little of everything. The HP500 is your next step up, and that's an increase of \$15,000 once you add external steering. We offer whatever the customer wants, you cannot overpower the boat, because it's built to handle the horsepower. Even so, with all of our boats—regardless of power—I take every customer out. I sit with them until they understand how to drive the boat. Our primary concern is safety. Our customers are our salespeople. I want them to be as familiar with our product

when it goes out as we are. We build performance boats, but we build them for families. My children were raised in fast boats, but they learned how to respect the power. ■

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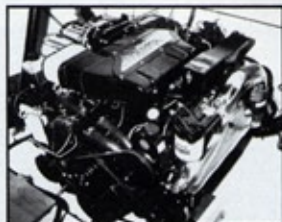
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