MTU TEAMS WITH JARRETT BAY FOR PROPULSION "PROOF"

Though you may never hear an engineer admit it, calculations alone cannot predict the transition of power that must take place to effectively propel 90,000 pounds of wood and fiberglass through a 6-foot sea at high rates of speed. That's why MTU has partnered with Jarrett Bay Boatworks in the development of the 70-foot sportfish boat "Q.E.D.," named after a mathematical term that signifies "the solution has indeed been proven."

A "solution" is exactly what MTU has delivered with its new 16V 2000 Common Rail Marine Engine. At 2400 hp, this new engine is the crown jewel in the MTU Common Rail collection and is creating quite a stir in the boating world, thanks to its light weight, compact size, fuel efficiency and high power output. But MTU wanted to do more than slap a new pair of engines into just any boat. They wanted to work together to optimize the propulsion system and performance of a high-tech vessel, and that's exactly what they've done with the "Q.E.D."

While the project itself was envisioned, initiated, and funded by MTU Detroit Diesel, it was immediately recognized that the additional speed attainable with the MTU 16V2000 M93 Common Rail engines required a hydrodynamically efficient, structurally robust, and superior sea keeping hull. That was the primary reason for selecting Jarrett Bay Boatworks as the ideal choice for a teaming partner. MTU Detroit Diesel assembled a dream team of hydrodynamic and diesel engine application experts to ensure that the reduction gear ratio and propeller design were the optimum complement to the Jarrett Bay 70 hull and 16V2000 M93 Common Rail engine combination.

To kick off the design work, the team used lasers to obtain critical measurements and details of the hull. This information was taken to the Maritime Research Institute Netherlands (MARIN), near Amsterdam, and used to create a scale model test hull. "Rather than optimize the hull itself, we aimed to design a propulsion package that would complement the traditional hull form," said Ryan Kamphuis, MTU Detroit Diesel's resident Naval Architect and on-site project engineer. "While this is a traditional approach to hydrodynamic performance optimization in some applications, it is a relatively rare approach to model testing in the sport-fishing and pleasure craft markets."

MTU's ultimate goal was to demonstrate how significantly improved vessel performance could be achieved through comprehensive analysis associated with proper matching of the engine, reduction gear, propeller and hull form. An extensive series of tank tests was conducted and applied to the Jarrett Bay for a system team engineers describe as "truly optimized." This system includes custom propellers designed by Dr. Brant Savander, Adjunct Professor at the University of Michigan school of Naval Architecture and Marine Engineering, and built by Michigan Wheel Corporation. To date MTU Detroit Diesel has more than $1 million invested in the project …and they are not finished yet, as more good news to share in the coming months is anticipated.

The results of the effort and cost speak for themselves. The "Q.E.D." attained a top speed of 47 knots at 2450 engine rpm during her preliminary sea trials off the coast of Beaufort, North Carolina, surpassing the expectations of all aboard. At her cruise speed of 40 knots at 2000 engine rpm, each engine burned an economical 82 gph.

A second, and even more important result of the testing, is that the team at MTU Detroit Diesel has demonstrated that they are poised to work with their key customers to create recreational vessels that outperform anything on the water in terms of speed, fuel efficiency and control. No other marine engine manufacturer is currently employing this approach. And the word is already getting out, as major marine suppliers are lining up to work with MTU to take full advantage of its integrated approach to marine propulsion system solutions.

In the highly competitive pleasure craft market, that's a proven formula for success.