

Marine Group Boat Works designed and built this Range Training Support Craft for the U.S. Navy. The vessel can operate on 100% biodiesel and features gyro stabilization systems from Seakeeper.



## Biodiesel Aweigh On U.S. Navy Vessel

Marine Group Boat Works builds U.S. Navy vessel for stabilization and biodiesel operation

Marine Group Boat Works has delivered the first of three new vessels for the U.S. Navy. The new Range Training Support Craft (RTSC-110) was developed with six internal Seakeeper M7000 gyro stabilization systems and is capable of running on 100% biodiesel.

The 34.75 m long vessel was designed as a multimission boat capable of launching and recovering objects, such as small high-speed craft, aerial targets and test weapons.

An all-aluminum hull houses twin Caterpillar 3512 Tier 3 diesel engines rated about 1491 kW at 1600 r/min in this configuration. The engines directly drive an Aquamet propeller shaft and Michigan Wheel propeller for propulsion. The engines are raw-water cooled via a heat exchanger supplier by Caterpillar.

Marine Group Boat Works had to work with Caterpillar to configure the engines for operation with B100 biodiesel.

"Cat adjusted some seal configurations in the engine to make it so it can tolerate the B100, and we put in a constant filtration system via the fuel tanks that constantly rotates the fuel and filters it using a Racor filter sys-

tem," said Todd Roberts, vice president at Marine Group Boat Works.

"It's not so much that we're trying to clean fuel via the filter, but we're constantly moving the fuel. If we're not constantly circulating the biodiesel, it tends to glump up a little bit," said Roberts.

The gearboxes and engine controls were supplied by ZF. Roberts said the controls are positioned in four locations — forward, aft and two wing stations. Functionality includes the full transmission, forward and stern, and speed. In addition, the controls are configured so that one throttle handle can control both engines. The vessel also features an auto-sync function, which automatically synchronizes the two engines when the r/mins get off from one another.



The vessel is powered by a pair of 3512 Caterpillar engines rated 1491 kW at 1600 r/min in this configuration.

For auxiliary power, the vessel runs two 99 kW Caterpillar generators, which include a PTO module on the front of the engine for hydraulic power to operate a bow thruster.

An additional feature of the vessel is its full shore power capabilities. "A lot of boats of this class, this size, are typically built where they can only run a percentage of their load on shore power," said Roberts. "In California, [U.S.A.] where air emissions are a major issue, we built the boat with the capability to run all of its systems on shore power, so the boat can completely cold iron and have complete functionality."

Between the shore power and B100 biodiesel, the U.S. Navy has taken strides in developing a vessel with reduced emissions. "The U.S. Navy is constantly looking for ways to build products and augment the fleet with the most environmentally sensitive method they can," Roberts said.

Replacing stabilization fins, the ship builder installed the six Seakeeper M7000 gyro stabilization systems, which offer about a 35% roll reduction, said Roberts. The gyro stabilization systems work by throwing their weight around to counteract the throwing and pitching of the vessel.

Marine Group Boat Works has been building vessels for the U.S. Navy for four to five years. The first RTSC-110 was delivered this summer, while the second and third are scheduled for delivery in April 2011 and April 2012. The company is primarily a repair yard for Navy, commercial and pleasure crafts, but has and is growing newbuild capabilities.

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