Slow Your ROLL

by Jeff Moser

Fifteen years ago when big-game fisherman talked about stabilizers, the chatter was all about fuel additives used during a winter layup or when picking up diesel in some backwater port with questionable products. The term "gyrostabilizer" hadn't entered the boating lexicon yet: no one was building units that were applicable in recreational yachts and so most of us knew next to nothing about them. However, yachting industry veteran Skip McKenney saw an opportunity and in 2002 founded Seakeeper to develop gyrostabilizer units for the recreational market. After a five-year period of research and development, the company launched sales in 2008.

Since that time, Seakeeper's gyrostabilizers have grown in popularity in the sportfishing community. Mitsubishi is another big player in the market and had recently enjoyed the benefits of an exclusive contract with the Ferretti Group's line of luxury vessels. Seakeeper claims that its gyros provide a 70 to 90 percent roll reduction; that's a heck of a declaration and a shot across the collective bows for those of us who have lost lunches over the gunwales or missed out on a hot bite due to bad weather. In short, these units are total game changers.

"You don't ever want to have them turned off," said Capt. Eric

ABOUT SEAKEEPER

The primary reason that Seakeeper is the industry leader in active stabilization is that they keep improving and expanding its product line. They also offer superlative customer service: everyone I spoke to mentioned the company's excellent track record here. Recently, they launched the Seakeeper 5, the smallest unit they have manufactured, aimed squarely at those 30-foot-plus center consoles and other boats under 50 feet.

The units take from 30 to 50 minutes to spool up; once actively working, power draws are comparable to a chiller system.While many manufacturers now offer Seakeeper gryos as optional equipment and will determine the pricing, including handling and installation. For more information visit www.seakeeper.com

Soderholm, a veteran big-game tournament skipper. His current battlewagon, the Viking 76 *No Vacancy* is fitted with a Seakeeper that was installed at Viking's New Grenta facility in New Jersey. Soderholm said it's a no-brainer when considering adding one to a new build. "Any boat [around] $5 million, the price of the unit is nothing," he said, adding that "the units are going to be a marine standard."

Solderholm told me of a recent tourney with a Bimini start when rough seas had a lot of competitors backing off the throttles. *No Vacancy* was able to make mincemeat of the breakers and get on the bite faster thanks to the gyros. He also dismissed the notion that some dead-bait trollers have that the noise from the units would spook fish. "They're no louder than a watermaker," he said.

Capt. Joey Birbeck agreed. "It makes the life of a captain a whole lot easier," he said of the Seakeeper that was retrofitted on *You Never Know*, a 72-foot F&S. The boat's owner, Thomas Turner, was aboard another vessel equipped with gyros and after experiencing the much-improved conditions at sea, had them retrofitted aboard his boat.. Birbeck exclaimed, "[We] wouldn't consider building another boat without them."

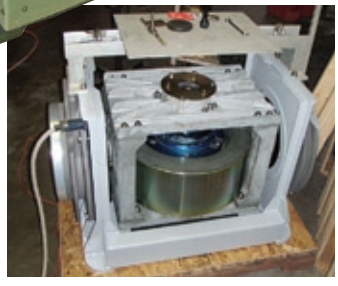
Turner's wife is a gourmet chef and is also a big fan. "We were 200 miles offshore and she's in the galley using the oven and the cooktop," said Birbeck, "You would not believe the difference they make."

"You're not as fatigued at the end of the day," Daniel Spencer of North Carolina's Spencer Yachts told me. To Spencer, the feeling of not having fought so hard against the sea conditions means more time fishing. "Gyros are the wave of the future," he said.

I spoke with Andrew Semprevino, VP of sales and marketing for Seakeeer, to help me understand the physics behind how these gyro units work. The Seakeeper units are control-moment gyroscopes with its angular momentum determined by three factors of the unit's flywheel: the factor weight of the flywheel, speed and the distribution of the weight or diameter of the flywheel, explained Semprevino. Basically, the units are like any spinning mass that wants to maintain its orientation, he added. So as the boat rolls in the waves, the gyro spinning in relation creates sufficient torque to change the vessel's orientation, thereby reducing roll.

If it sounds like something not from this Earth, consider that this is the same technology used in aerospace applications for satellites and NASA spacecraft. The Seakeeper units can spin up to 10,000 RPMs and generate tremendous amounts of torque as it works to reduce the hull's roll. Seakeeper's breakthrough in keeping these units from breaking down under this stress was vacuum encapsulation: in this setting, air resistance is eliminated. Modern-day lubricants that are resistant to vaporization keep the gyro going, along with water to cool the unit. The only thru-hull would be for the latter, generally routed on many vessels through a sea chest. And because the gyro's components are sealed in a vacuum, they're not exposed to the harsh marine environment.

"In terms of what [the units] cost to the overall cost of the boat and what you get out of them, they're a great value," said Peter Frederiksen, communications director at Viking Yachts. The builder of sportfishing yachts from 42 to 92 feet has been installing Seakeeper gyros on its vessels since 2009. Although Viking has assisted in retrofitting some boats with a gyro unit, Frederiksen feels that given the opportunity it's critical that the vessel be designed considering the gyro's size, weight and the torque the unit will produce.



GYRO OPTIONS

Mitsubishi Heavy Industries have been building its Anti-Rolling Gyro (ARG) for applications outside the yachting industry for almost two decades and its controlled movement gyros have been in the bowels of sportfishing yachts from Bertram since 2008.

Where Seakeeper is an active system spinning in a vacuum, the ARG spins at ambient air pressure and employs a passive type. The spinning flywheel is supported by a gimbal and when that gimbal is rolled, gyro torque is generated in the direction to counter the roll. Unlike the Seakeeper models, the ARG is air-cooled; Mitsubishi claims that its design is less complex and therefore less expensive to run than its competitors. While price for the ARG units were at available at press time, the gyros come with a two-year warranty, the same as the Seakeeper units. Currently, Mitsubishi produces four sizes of its ARG, suitable for vessels with displacements from 10 to 60 tons; multiple ARG units can be installed for maximum effectiveness. For more information visit www.antirollgyro.com

The first step Viking took was redesigning its fuel tanks to accommodate for the centerline and aft placement of the Seakeeper unit. For some of the first Vikings fitted with a gyro, engineers would install the units in the engine room forward of the powerplants; on its larger models, the Seakeepers are installed in the lazarette. In both locations, Viking places the units directly onto the stringers using the unit's incorporated mounts specifically designed for this purpose; the gyro's torque is absorbed in the hull's structure. Furthermore, stringers are reinforced here with a one-inch thick aluminum plate and nine layers of fiberglass.

A Seakeeper gyrostabilizer goes into a new 55-foot Viking at the builder's New Gretna, NJ facility.

Frederiksen mentioned that all vessels 55 feet and up are now prepped during production for a Seakeeper unit and that many owners have chosen them up-front rather than adding them later. "It adds to the value of the boat when you go to sell it," Frederiksen said, "and it certainly pays off for the customer."

Spencer also sung the Seakeeper's praises. "We currently have 10 yachts under construction, and eight of them will have Seakeeper gyros," Spencer told me, with some boats having multiple units. While retrofitting the units is not out of the question—they had recently put some units into an Spencer 87—they prefer to beef up the mounting footprint during the initial build. "It's easier to build than to retrofit [as you'll] spend a lot of money on deconstruction," Spencer said.

At press time, 25 percent of the units shipped by Seakeeper are retrofits, according to Semprevino. "[We] will send a naval architect [to a retrofit] and they'll review the yacht's structure and determine what location works best," he said.

The best way to determine if a gyrostabilizer if the right move for your vessel is to get aboard a boat that have them and experience the difference. Seakeeper has a few demo boats equipped for this purpose and with the gyros growing popularity in the industry, a walk along the docks at a tournament or a boat show will easily scare up a battlewagon with them. A system with this much positive hype and game-changing abilities should be experienced in person.