

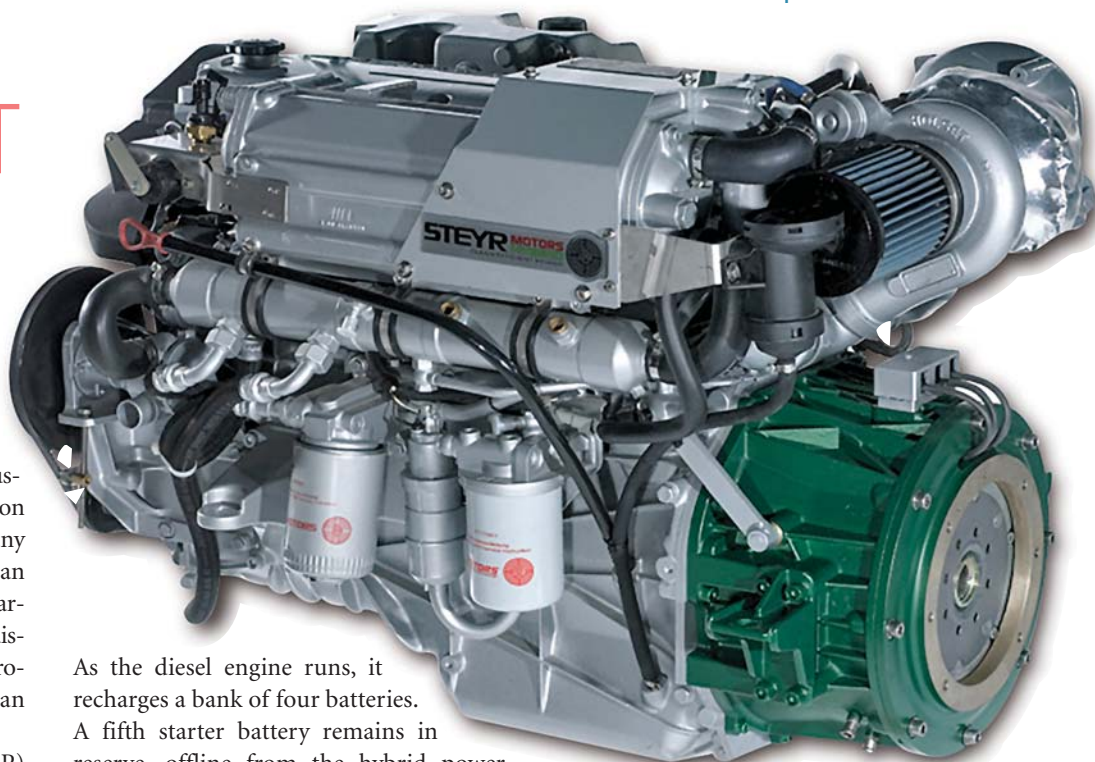
THE FIRST HYBRID

BY RON BARGER
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Steyr has achieved a milestone in marine propulsion, with the industry's first true hybrid propulsion system. The Austrian company responded to customer requests for an engine that would allow them a quiet departure from the marina at sunrise without disturbing others. The system was first introduced in the United States at the San Francisco Boat Show last May.

The Serial Hybrid Propulsion (SHP) System combines electric and diesel power in one compact package. This is not an add-on electrical system but an integrated electrical powerplant housed on the flywheel of the diesel engine. In zero-emission mode, the electric drive unit silently powers the boat up to 5 knots. With the hybrid running fully electrical, extreme low speeds (down to 25 rpm) can be achieved for docking, wake-free zones and inland waterways. It's noiseless as well, with "only the swish of the prop through the water," according to Rich Alley of Steyr Motors North America.

When normal speed and power are required, a turn of the key starts the diesel powerplant, and the SHP combines with the fossil fuel burner to get the boat on plane quickly, with lower fuel consumption during acceleration.



As the diesel engine runs, it recharges a bank of four batteries. A fifth starter battery remains in reserve, offline from the hybrid power supply system—charged and dedicated only to starting the engine.

The SHP System eliminates the need for a separate generator to power other onboard accessories. The bank of four 12-volt batteries create a 48-volt, 150-amp system with optional dual invertors to split operating systems between AC cabin and auxiliary power. For ease of maintenance and reliability, the electrical components feature a brushless, permanent magnet generator.

At the helm, captains can monitor and control all operating modes.

For Great Lakes applications, we can envision running a couple of miles out, turning off the diesel, dropping our lines and trolling for salmon without burning a drop of fuel. Alley stated that at low speeds

we would get three to four hours of silent trolling in before we depleted our battery bank. Start the Steyr up, run for an hour, and the batteries would be fully charged again. With the technological advancements in battery systems, we expect this recharge time—already impressively quick—to drop even further.

Built first on a standard Steyr 256-hp straight-six diesel, this unique configuration will allow boat manufacturers to seamlessly equip all types of leisure boats with hybrids. The approximately \$15,000 option can be added to a wide variety of Steyr diesels. SHP is now available for inboard and stern-drive-powered boats up to 50 feet in single installations and up to 72 feet for twins. steyr-motors.com



Perfect Pitch

Why have one propeller do the work when two can share the load? That's the idea behind Wisconsin-based Konrad's 560 Twin Prop sterndrive package. Counter-rotating props reduce roll, making it easier to maneuver at low speeds—which comes in handy while docking and going in reverse. The two stainless steel propeller shafts are one piece and fitted with line protection seals. Varying in pitch to a 16-inch maximum diameter, the 560 works on single-engine vessels weighing 11,000 pounds or less. konradmarine.com