PARTING SHOT

Bring on the Diesel Outboard

by Steve D'Antonio

I have been fascinated by diesel engines since 1986 when I was first exposed to a hardworking version aboard the 120′ (36.6m) research schooner *Westward*, built in 1961. She was fitted with a well-maintained 6-cylinder, 340-hp, air-start MaK diesel. To me, it was a beautiful machine.

Another lesson I learned from *Westward* was the simplicity, inherent safety, and logic of the all-diesel boat. Instead of a common liquid-propane-gas (LPG) or electric range, the galley was equipped with a large diesel model. Diesel stoves of that era were known for their poor temperature regulation, and this one was no exception. One managed to obtain an average desired heat by moving crocks and pans in and out of the cooking chamber. Still, there was a sort of elegance to the need for just one type of fuel aboard (excluding that for the tender)—diesel. Unlike LPG, diesel is inherently safe and readily available around the world; and unlike an electric range, a diesel stove requires no generator. That lesson of the utility of a common fuel type stayed with me through the years, and has often made me wonder why a viable diesel outboard engine remains an elusive dream. Virtually every modern cruising vessel has a tender equipped with a gasoline outboard; many recreational boats rely on ever-larger outboards for primary propulsion; and tens of thousands of workboats also rely on gasoline outboards. Why couldn't they be diesels?

As anyone who has operated small gas outboards knows, they can be less than reliable, often as a result of infrequent use. If you've ever forgotten to empty an outboard tank during winter storage or worked on a vessel that was on the market for some time, you know the unmistakable sour odor of gasoline that has turned to varnish. It prompts me to begin tallying the hours required to clean and rebuild carburetors, fuel tanks, etc. The modern application of hygroscopic ethanol as a common gasoline additive (10% in E10 and 15% in E15) has only shortened gasoline's already limited lifespan. Then there's the safety issue: gasoline is volatile, readily producing explosive fumes, and must be handled and stored with great care.

While it has its own issues, diesel fuel has none of these liabilities. It stays fresh for a comparatively long time, and while flammable, it's not explosive. Plus, it has greater Btu content, making it more efficient than gasoline.

The notion of a diesel outboard has been around since the late 1950s and early '60s. During that era three U.S. manufacturers built and marketed them. American MARC claims to be the first, with a line of diesels from 10 hp to 22 hp. (7.5 kW to 16.5 kW). The design was a single horizontal cylinder with opposing "boxer" pistons, not unlike the Fairbanks Morse diesels used in World War II "fleet boat" submarines.

In addition, chainsaw-maker McCulloch, marketed the Scott OX diesel 150OD. Its two-cycle, 4400 rpm engine produced 15 hp (11.3 kW) and weighed a hefty 207 lbs (94 kg). The manufacturer's somewhat dated literature notes that diesel fuel is far more economical because it's "1/3 to 1/2 the price of gasoline." If only that were true today!

Murray & Tregurtha (M&T), the only early diesel outboard manufacturer that remains in business today, offered a 165-hp (124-kW) model that was used by the U.S. Army and Navy. Vintage military manuals are available online for this model. Today M&T continues to make marine propulsion systems, albeit very large, and for barges and other commercial craft, but no outboards.

Yanmar entered the diesel outboard market in the early '90s with two models: a 27 hp and a 36 hp (20.3 kW and 27 kW), weighing 207 and 256 lbs (94 kg and 116 kg), respectively. Diesel outboards *were* noticeably heavier than gasoline models. I saw one of these in action in Panama a few years ago. It started easily and ran well. The operator boasted about its impressive torque. In 1992 a vessel equipped with two of these outboards ran from San Francisco to Hawaii, over 2,000 miles (3,218 km), consuming just 385 gal (1,457 l) of fuel.

While these engines were attractive in many ways, Yanmar ceased production a few years later, purportedly because of its inability to meet U.S. emissions regulations.

Today, a line of diesel outboards that claim to be CE and EPA compliant are made in China under a few different brand names including Runsun, Hangyu, and Klaxon. However, there are no dealers that I am aware of in the U.S. I suspect there's a market for a modern line of well-made, dealer-supported diesel outboards for recreational and commercial use. I also believe that with the advances in diesel engine design of the past decade they would be reliable and efficient, and they could be made significantly lighter, quieter, less shaky, and cleaner than their predecessors. Thinking of tenders, imagine how convenient it would be to fill up with diesel from the mother ship's tanks. I know I'd sleep better not worrying about storing gasoline aboard, and owners would never have to deal with gummed up carburetor bowls or fouled spark plugs. PBB

About the Author: *For many years a full-service yard manager, Steve now works with boat builders and owners and others in the industry as "Steve D'Antonio Marine Consulting." He is the technical editor of* Professional BoatBuilder*, and is writing a book on marine systems, to be published by McGraw-Hill/International Marine.*