

# Diesel 101

What do you do when your diesel needs attention? Don't call a mechanic. Learn how to care for it yourself.

By Jeffrey Moser

A friend of mine who I considered to be a knowledgeable, experienced boater recently made a remark in passing that startled me: "The most important tool in my toolbox is my checkbook." He was serious. Every time he noticed a drop of lube oil or antifreeze in his bilge or that his engines didn't sound the way they should, he'd call his mechanic. He said it wasn't worth his time to investigate problems himself. "That's fine," I said, "but you often cruise for several weeks, right? So what will you do when you're 30 miles offshore in six-foot seas and you lose an engine?"



*The author (left) and another student get a torque-wrench tutorial from instructor Larry Berlin (right).*

At one time or another most of us find ourselves in such a position, and while we might not have the skills or experience of a seasoned diesel mechanic, we can still learn a lot about those diesels grumbling beneath our feet—maybe enough to get us home in a pinch. But even if there isn't a crisis, no one wants to have to call a mechanic for every little problem—some of those fellas are making a hundred bucks an hour, and the clock starts ticking when they leave the shop and stops when they get back. So what boater, besides my checkbook-wielding friend, would pass up an opportunity to learn how to perform basic maintenance and repairs on his or her diesel engine?

Not me, for sure. When I learned that the Mack Boring location not far from my home in New York offered one- and two-day diesel-maintenance seminars, I jumped at the chance to attend. The company recommends everyone start with the one-day course, "Welcome to a Day With Your Diesel," then follow up with the more in-depth two-day session, which usually starts the next day. Pricing for the one-day class is \$195 prepaid; the two-day class will set you back \$495 for the sessions held on weekdays, while the weekend two-day course costs \$695.

A course is only as good as its instructor, and Mack's most valuable asset is master diesel mechanic Larry Berlin, who has been the director of the school since its inception. It's hard to imagine Berlin within the confines of a cramped engine room: Well more than six feet tall, with a neatly trimmed white beard, tremendous hands, and wide shoulders, he looks more like a retired NFL lineman. I imagined that when he needed to move a 275-hp 4LH-STE to a work station, he'd just wrap his arms around it and pick it up, instead of using a chain fall. But I guess he didn't want to soil his shirt and tie. Despite his bear-like looks, he's an amiable man with 40 years' experience with diesels, and he knows how to handle the half-dozen students who usually show up.



*The author (left) takes one last look at his notes under the watchful eye of Berlin before getting greasy.*

"The 50-hour service checkup for a Yanmar diesel is around 600 bucks," Berlin reminds us as a few latecomers putter in, clutching owner's manuals from a variety of Yanmar-powered boats. (Mack Boring is the nation's oldest Yanmar distributor, and not surprising, those are the powerplants we'd be turning wrenches on.) A scheduled tune-up at around 50 hours is standard for diesels, he says, but regular service calls are not, "and we love to come out to your boats." As he speaks I notice a few of my classmates shifting uncomfortably in their seats. That got the class' attention. "Most engine

During the one-day class, we spend most of the time in the classroom. Berlin takes us through the basic parts of a diesel engine, explains the theory of operation, and reviews common errors that many boaters make when maintaining their diesels. He tells us of owners who try to save a few bucks by using belts until they disintegrate, change oil without changing filters, don't check or change gaskets, and use impellers until the blades are worn away. "When an impeller shears away, those rubber pieces are going to end up in your engine, in your heat exchanger, and other places that are going to be difficult to find, and you're gonna need to find them all. You won't be able to, and you'll call us," Berlin tells the class. He explains that by trying to save money, these boaters actually end up spending more than if they'd simply taken the simple, inexpensive precautions. To drive his point home, Berlin has littered the classroom with a bunch of heavily damaged engine parts that are the result of poor maintenance.



*Loosening the cylinder-head bolts requires a long wrench and some good ol' muscle.*

The two-day course also includes classroom instruction, but we spend about 60 percent of the time actually working on engines. This turns out to be my favorite part, a feeling that is shared by everyone. On the second day of this class, we find identical Yanmar powerplants at our respective stations, ready to be tinkered with. Berlin walks each of us through the lubrication and fuel-injection systems, and provides us with schematics for each engine. We disassemble seawater pumps, remove impellers, and reassemble everything. Berlin offers advice but also allows us to linger as long as we like on each maintenance project.



Reading a torque wrench (left), disassembling heat exchangers (middle), and changing fuel filters (right) are some of the classroom topics.

By the end of the second day, the more confident students, including me, have disassembled heat exchangers, bled air from fuel systems, and followed torque specs as we remounted cylinder heads.

On the last day of our instruction, Berlin reminds us that a diesel that's regularly maintained and properly operated should enjoy tens of thousands of trouble-free hours. After my three days with him, I'm now confident that I can do just that—plus handle the occasional crisis if one comes up when I'm miles from my homeport.

The name Mack Boring comes from the company's founder, Ed McGovern, Sr.'s surname and his favorite tool back when he founded the company in 1922: a boring bar for cylinder blocks. Once located in Newark, New Jersey, the company's present location, a five-acre, state-of-the-art facility in Union, New Jersey, Mack Boring is a family business, with three generations of McGoverns having worked under its roof. The company other has branches in New England, the Midwest, and the South, and each of these locations hosts its own diesel classes several times a year, all of which are taught by Larry Berlin, who also conducts seminars for women and owners of specific boats all over



Instructor  
Larry Berlin