

## There's Nothing Boring About This Schoolwork

Story and Photos by Capt. Gary P. Joyce

"We hope you don't do what I tell you or what the manual says. I'd rather you pay us to come and fix your mess."

The previous sentiment would be spoken on more than several occasions over the three days spent at Mack Boring and Parts' seminars on diesel maintenance. Eventually, we'd all come to the conclusion it signified that something of importance had just been said, and those who hadn't gotten it immediately raised their hands and asked if the instructor, Larry Berlin, would please repeat what they'd missed.

Berlin, the director of training services at Mack, is big, bespectacled man with gray hair and beard who has been working at the company for over 35 years. Aside from an encyclopedic knowledge of what makes diesels tick — or not,

as the case may be — Berlin's an FAA-certified airplane engineer among his other talents, and he also happens to be the kind of teacher who makes it easy to learn. And that's a major asset when you're talking about your own boat.

### It's Not McBoring, it's Mack Boring

Mack Boring and Parts is located in Union, New Jersey. The company was founded by and named after Ed McGovern, Sr.; i.e., Mack. It started as an engine boring service in 1922 with an office that was a local diner (the only phone in the area was located there). If you needed an engine bored out, you called the diner and Mack would show up and go to work.

Jump ahead about 50 years and Ed, Jr. (a WWII Navy pilot) along with Ed (Ned) McGovern III, who joined the company after a stint with the Marines during the Viet Nam War, stumbled upon an as-of-then undiscovered Japanese diesel manufacturer and thus started what has become Yanmar's largest distributorship (they also carry Isuzu diesels and several generator brands). Those first imported Yanmar engines were eight horsepower, one lungers and

now Yanmar makes diesels of virtually every configuration, and Mack has 257 authorized dealers and four regional distribution centers spread over the East Coast from Maine to Florida, out west to the Great Lakes. Brother Steve, a Coast Guard 100-ton captain, joined the company and became instrumental in establishing Yanmar with the recreational boating crowd and setting up the educational program.



*An engine system display provides a clear example of how a boat's systems interact.*

### The Classes

Aside from regular on-going factory clinics for Yanmar techs, the company also holds one- and two-day classes for diesel owners.

The one-day class is basic diesel maintenance, while the two-day course covers hands-on diesel maintenance. If you own a boat with a diesel (any diesel), are thinking about buying one, or having your boat re-

powered by one, this is a must course. If you're inclined to do repairs on your boat, like to tinker, or just want to know your way around a diesel should the off-to-the-atolls bug bite, the two-day course that usually follows the one-day course is what you want.

Our first class, the one-dayer — mostly all classroom work with occasional forays to the adjacent "lab" where half-dozen-plus silver-gray Yanmar diesels sit — has an eclectic crew. That they have come from as far away as Maine and Virginia is a tribute to the school's reputation. One is a captain, another a liveaboard owner, another a long-distance sailor; the rest avid sailors or serious offshore fishermen. The class is all male, though Berlin says he occasionally gets female students as well.

Most of those attending own Yanmars, but one owns a Volvo, another a Cummins, another a Perkins, another an Isuzu, another a Cat. Their boats are even more varied. Two partners own a Blackfin, another a Nonsuch, one a Mainship, several owners have Beneteaus and there's an Endeavor owner who boats Lake Ontario.

The two-day class has the same demographics, but the size of the class is usually kept to 10 students in order that everyone gets to work on the engines. Wear your work clothes, because you will smell like a diesel mechanic at the end of the two days. The subjects covered in the two-day class mimic those of the one-day, but you are actually taking engines apart when discussing the various operating systems. Engine components, the lubrication, fuel, electrical and cooling systems, are all explained and after each hands-on session it's back to the classroom for more.

Questions concerning problems of individual motors get answered with amazing alacrity, and Berlin's answers usually draw a, "Hmmm, I haven't tried that" response from the questioner.



*One of the more high tech tools ( a 1 liter soda bottle) for changing oil filters without pouring oil into the bilge.*

Berlin identifies engine models by often vague descriptions — "the starter is on the right side" "Then that's a ..." answers Berlin. Regardless of description Berlin is rarely stumped, and his answer nearly always satisfies the owner, or gives him a new and less "guesstimated" direction in which to head to solve his problem.

Berlin is careful to note — no matter what engine he is speaking about — that rarely does the information he's imparting cover all engines, and he stresses the necessity of following owner's manuals for specific-to-your engine requirements.

The Yanmar engines you get to work on run the gamut from simple normally aspirated one lungers, to turbocharged and intercooled sixes. This allows the students to work on engines similar to the one the size of what they may have in their boat; while all the classroom engines are Yanmars, the commonality between turbocharged sixes regardless of manufacturer are always made apparent by Berlin.

During a break we get a look at the Mack Boring operation outside the classroom. Color coded tools meant specifically for certain engines are all neatly stacked in trays in mechanic's bays, and there are racks upon racks of new, still-crated engines in one section of the warehouse. Another area is in limbo as the company waits to find out whether it will receive a new military contract for their generators; if they do, the section will become an assembly line area.

New generators and engines — we spot two of the new six-cylinder BMW-Yanmars, which are visually pleasing as well as brand new — are everywhere, and all around the various buildings engines are being overhauled, reconditioned, repaired, dyno tested and otherwise worked on.

Each day of the class speeds by and before you know it, the day is over. On the last day e-mail addresses are exchanged, some friendships have been formed and everyone feels just a little bit chests out that they know more than the other guy. Berlin reminds to put what you have learned in action as soon as possible, "If you don't, you're gonna' forget this stuff," he says.

For some reason I don't think I'm going to forget this stuff anytime soon, but if I do ... well, I'm sure there's another non-boring class I can sit through at Mack Boring.

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*Students starting valve adjustments on two of the six-cylinder Yanmars.*

# Diesel School

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### SIDEBAR

And This Is What We Learned Today, Mom

• Know whether the marks on your dipstick mean "full" or "add" or ...? Check your manual! To make the dipstick easy to read in cramped engine compartments, clean it, dry it and paint it with a white epoxy.



And when you don't take care of them ... (left) this piston detonated, sent the rod through the block and the generator located next to the engine. (Right) the small piece of metal on the top of the piston is all that remains visible of a swallowed valve; it punched completely through the piston.



Instructor Larry Berlin demonstrates everything before the students get their wrenches on an engine.

- Seas are six foot, and you're about to get into Fire Island Inlet when your diesel sucks air. Use the dipstick trick and paint all valves that need to be bled a specific color ... and the wrenches that fit them the same color.
- Constantly having to bleed the fuel system? Check connections between the lift and primary pumps. Loosen and retighten; replace filters.
- Sailboaters: Trying to make fuel tank last the entire season? Get rid of the fuel (environmentally correctly) since it's probably been there two years already; switch to a six-gallon outboard tank. Old fuel has water and while

diesels can run on a lot of things, water ain't one of them.

• Want to keep your battery terminals clean and in contact? After cleaning them and mounting the wires, paint the entire post and connector assembly with polyurethane varnish. Do not do it before everything is hooked together.

- Changing sidemount filters? Cut a liter soda bottle so one end is longer and can slide under the filter assembly.
- Want to know if a fuel injector has gone bad? Let the engine run, and crack open the valve leading to the injector (note that fuel will spray out!). If the engine pitch or idle sound doesn't change, you've got a bad injector.



Matt Virginia, a Long Island native, applies what he's been learning to a 3GM series engine.

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