

By Mike Crowley
Contributing Editor

How to avoid outboard motor problems

Fishermen expect top performance from their outboards, yet they lavish little attention on them. We wondered what typically goes wrong with an outboard used in a commercial fishing application and how you can enhance reliability. For answers, Contributing Editor Mike Crowley talked to longtime outboard technician Lincoln Davis (below) at his marine dealership in Waldoboro, Maine. Davis, who is a certified Mercury master mechanic, has owned the shop — Stetson & Pinkham Inc. — for 23 years.



because they have free ions in them that will actually make things worse.

NF: What about oils? Can any type be used?

LD: No. And I know that I'm directly in conflict with some articles saying you can use any kind of oil, but over the years what I've taken apart would disprove that sort of thinking. My feeling is that you buy the manufacturer's recommended oil. If it's not available, buy oil from another outboard manufacturer. If you can't get Mercury, buy Johnson and Evinrude oil. The additives in those oils are set up to work with outboards.

Today, the outboard manufacturers have a new one called TCW3, which is for commercial use. It's well worth the money because it cuts down on the carbon. But, again, I would go with the manufacturer's recommended oils.

I don't recommend oils like those sold in discount stores because the oil companies have absolutely no stake in how an outboard runs. And I strongly disagree with some of those articles saying there's no difference between the two types of oils.

There's one other thing to consider here: If you're using a recommended oil, you've a

much better basis to go back [and make a claim] on a regular warranty — even if the warranty has expired.

NF: What about problems with fuel? Is fuel quality a major concern, and, if so, how can it be dealt with?

LD: You're going to have water [in your fuel], regardless of what you do. Your fuel may be fuel when you buy it, but as the temperature drops, alcohol and water are separated out. The only way to combat that

is with a fuel-water separator. In an open boat, I highly recommend Racor. I've tried the others, and the draw across the top — the vacuum — is too much for an outboard to handle, and you get a fuel loss. In other words, it won't operate at high r.p.m. Racor is the only one that's got a drainable, see-through outboard filter. Outboard Marine Corp. [OMC] and Mercury make one that's a canister type. The drawback of these is that when they are full, they quit working. You're right in the middle of a haul or in rough water, and you have a filter that's not working. I'm not very fond of that system.

Another problem is related to low-octane fuel. As far as I'm concerned, low-octane is a given today. With low-octane fuel, you

could have piston meltdown if the engine timing is too far advanced or the carburetor is too lean. So you have to make sure your timing is correct when you buy the engine or have one installed.

NF: Is the answer to buy the most expensive fuel available, the one with the highest octane?

LD: Get the best fuel you can buy. I wouldn't say the highest octane because some outboard manufacturers have just come out with a recommendation for buying regular. They say additives in high test, like alcohol, are detrimental to running an outboard. But in Maine, alcohol is used in all fuels. So my recommendation is just to buy a fuel as free of water as possible. I don't want to say high-test — though it's what I tell my own customers — but high-test may not be the best fuel in other parts of the country.

NF: What about spark-plug fouling? Is there any way to avoid this?

With spark-plug fouling due to a low-octane fuel or one that has poor burning properties, a hotter plug may be the answer. But substituting hotter plugs should be done in very small stages and with the guidance of a dealer or spark-plug company representative.

This past summer, Champion came out with a set of recommendations much higher than Mercury's, and a lobsterman on Vinalhaven was running plugs eight times hotter than the recommended ones. By Champion's standards, the hot ones were right on. At the time, I was having some problems with some outboard models I had sold, and I told Mercury about the plugs. They said, "Well, we can't recommend those. They are outlandishly hot." I said that I understood Mercury's position, but they had to regionalize their recommendations. When I asked them for help, they could only say, "maybe this, maybe that." Eventually, I got the information I needed, but I had to go behind the scenes to get it.

NF: If a fisherman runs hotter plugs than usual, wouldn't his warranty be void?

LD: That's why Mercury wouldn't give me any help because they said if they agreed to the hotter plugs and the engine blew up, they'd be responsible. And they were thinking that if they recommended the plugs to me, they'd have to recommend them to everybody.

NF: How much horsepower should a fisherman buy?

LD: A fisherman should buy reliability, not speed. Every manufacturer usually makes more than one horsepower out of a particular model. For instance, Mercury makes a 50 and 60 h.p. engine in the same model. I would always take a 50 h.p. in a commercial application. It's a detuned engine, gives the same low-end torque, better fuel economy, and has much better durability, because you're not pulling that horsepower off the same crankshaft and block.

NF: Doesn't an outboard operate most efficiently when it's planing, and to get up on a plane, you need that extra horsepower?

LD: That's why I recommend a horsepower class when you are talking about a commercial boat, which is usually heavily laden. That 50 is going to get it up on a plane just as fast as the 60. The only thing you miss is the top end, maybe 2 or 3 m.p.h.

NF: So, in a commercial class, that 10 h.p. won't matter?

LD: It will be of absolutely no value. That 10 h.p. is for light, high-speed runabouts.

NF: Don't most fishermen go for speed first?

LD: They always like to beat their neighbor. Reliability versus speed: the two are in

Reliability versus speed: the two are in direct conflict with each other. Fishermen have to make up their own minds whether they're buying an outboard to make money or beat their neighbor.

NF: What are the most common problems with outboards operated by commercial fishermen?

LD: Two major problems are poor lubrication and frozen steering and tilts. Lack of proper lubrication is the big problem. The internal crankshaft splines have to be maintained. If this isn't done, the water pump usually goes, and then the lower unit can't be taken apart. That happens with engines, maybe 40 to 60 h.p., as well as some older, smaller outboards.

The second thing is frozen steering and frozen tilt controls. The grease fittings are there, but they are rarely used. When mechanical steering is used, it has to be lubricated. If not, the steering usually falls apart. It gets water in it and just freezes up with the first cold weather.

NF: Do most fishermen regularly lube their outboards?

LD: Nope. Maybe about 10%.

NF: Is the longtime fisherman more apt to maintain his outboard than someone who is just starting out?

LD: If they are making any money, they'll pay someone to do it, or trade frequently enough that they don't have to worry.

NF: Isn't it part of a warranty that these maintenance procedures have to be done?

LD: Yes. It's spelled out very carefully that they have to be done.

NF: But the maintenance still isn't done?

LD: I've been in this business so long that I've a fairly negative attitude in some cases. Lobster fishermen who make good money ignore it knowingly. And they pay the price of having the outboard freeze up.

NF: Is it because fishermen are just too tired after a day of hauling traps?

LD: I would guess so. It's just a lot of work. The lack of maintenance is across the whole spectrum, not just outboards. Outboards require more maintenance as far as steering goes. Greasing those fittings is key, and inboards don't require that.

NF: Lubricating the shaft requires bringing the outboard to a dealer or repair shop?

LD: Right. Once a year on the crankshaft line. The grease fittings should be done on a 30-day basis and the steering every 60 days.

NF: You're saying yearly for the crankshaft and its splines, but isn't there an hourly figure for this work?

LD: A typical figure might be around 1,700 hours a year. I arrived at that after sitting down with a bunch of lobstermen from Vinalhaven. I figured from the time they fired the outboards up until they were back at the mooring at three in the afternoon, and then I computed the number of days they fish. It's a low figure. I've some guys that went as high as 2,300 to 2,400 hours. Down south, if you add the extra four months of fishing, you'd probably get a lot higher hour figure.

But you have to be careful talking only in terms of hours. Maintenance is actually more a factor of time periods than hours. That's because time, especially with changing seasons, greatly affects the grease. That's why I'd say yearly instead of using an hour figure.

NF: Can automotive or industrial lubricants be used on an outboard?

LD: No. You want to use the special lubricants designed for those purposes. The steering has one lubricant. The swivel tube and tilt tube — which are the engine steering and tilting — have another lubricant, and the splines have a separate lubricant. I do not recommend substituting automotive greases — under any circumstances. That's

direct conflict with each other. Fishermen have to make up their own minds whether they're buying an outboard to make money or beat their neighbor.

NF: Is there any reason to choose one oil-injection system over another?

LD: As far as I'm concerned, I've got to hand it to Yamaha with its mechanical oil injection. The reliability factor is about 10 times that of any other system on the market. For instance, the last I heard, Johnson and Evinrude weren't recommending their diaphragm oil-injection system below freezing.

NF: Is a mechanical-injection system preferred because it operates better over a wide-range of conditions?

LD: A mechanical injection system always works. It displaces molasses as well as kerosene — and your oil's consistency will vary depending on the temperature. A vacuum-operated system doesn't necessarily have to work. The advantage of the mechanical injection is that it works in all types of weather. The disadvantage of diaphragm systems is that it doesn't necessarily operate at extreme temperatures.

NF: Does this mean that outboards for commercial use are designed more for temperate climates, as opposed to New England or maybe the Pacific Northwest?

LD: My understanding is that the outboard markets for commercial engines are Third World. Temperate-to-hot is where the major markets are. You are right, I don't think they are built for up here. Because of that, adjustments have to be made to the carburetor, so the outboard will operate in a colder climate. Outboards are capable of operating here, I just don't think they are necessarily designed for the conditions.

NF: To change the subject somewhat, what are the major problems with hydraulic hookups on outboards?

LD: The biggest thing to avoid is tight lines that go to the engine pump. That's the biggest killer of hydraulics that I've seen. Fishermen like to keep things neat. I don't blame them, they've got traps going out, so they pull the hydraulic lines tight. This preloads the pump in one direction, which prematurely wears out the hub.

NF: In terms of costs, a fisherman's greatest fear might be a complete engine overhaul. How many hours can be expected between engine jobs?

LD: When an outboard motor needs an engine job, it's time to trade. It's too expensive to rebuild. But to avoid premature engine jobs, you want to reduce carbon buildup, which is the biggest engine killer right now. Some older engines, some newer Yamaha and OMC's and a few V-6 Mercurys have terrible carbon. To reduce carbon, use TCW3 oil and use the direct-injection carbon sprays — Mercury has it, OMC has it and I'm almost positive Yamaha does. If they are used on a routine basis, a guy will double the life of an engine. Some of the new designs don't seem to have the carbon problems. These outboards are designed to run on a lower octane fuel.

NF: The lower octane contributes to the buildup?

LD: Yes. But as I understand the problem, in the old days higher-octane fuel used to be refined, and then they added lead to prevent knocking. Today, alcohol, a lead substitute, is used and then they put in other additives, which cook right off. They are gone, just like that. So you are dealing with a low-octane fuel in any case.

NF: Are you saying that a commercial fisherman shouldn't buy a used engine?

LD: That's a tough one. At least not from another commercial fisherman, unless the engine has been thoroughly rebuilt — bearings, rings, the whole nine yards. If I have a used engine, I strip it right down to the crankshaft. I inspect the journals, bearings, gears, everything because you expect a certain amount of failure in those areas.

A lack of routine lubrication is a major problem for most outboards that are used commercially. Master mechanic Lincoln Davis recommends that you pay particular attention to greasing internal splines as well as steering and tilt controls. Maintenance manual schematics identify lubrication points and type of grease.

Usually, when a fisherman buys an engine from a commercial guy, it's frozen solid. It doesn't steer. It's often locked tighter than a drum. If it's a small engine, invariably what's happened is the lower unit was held higher than the power head when the engine was taken off the boat. This causes the water to run down through the exhaust ports, and the engine could freeze solid.

NF: Is there much difference between a commercial grade and a non-commercial outboard?

LD: With exceptions, a commercial grade generally is a decal.

NF: What are some of the exceptions?

LD: The engine has to have a specific target market in the Third World, and it has to be manufactured to handle the fuel in that country. For instance, Mariner came out with a 150 h.p. V-6, which had heavier rods and pistons. The next year, it became the standard for the rest of their engines. In other words, if there's a problem that requires a major engineering change, the new design is sold as a commercial engine, which then becomes the standard for the rest of the outboards in that model.

In the old days — I'm talking about the late '80s — a prototype engine was taken to the test tank and run wide open until destruction. Four-hundred hours was considered excellent. Now we're talking 900 to 1,000 hours before the engineers will accept it. So you had some engine designs that were obviously very unsuitable for commercial use. If that design is still around today — and a lot of them are — then you've got some real problems.

That's why I say go to the bottom of the horsepower class of a particular model, instead of the top. As for commercial grade, it's just a label. For example, Mercury has a Pro-55, for the commercial market. But it's either 50 or 60 h.p. You're allowed a 10% slop factor in your calculations for horsepower, so they just put 55 on it for the commercial market. Make it rope start. There's nothing different on that engine.

NF: It's spring now, and fishermen are getting ready for another season. What part of a spring tune-up can they do, and what should be left to the dealer?

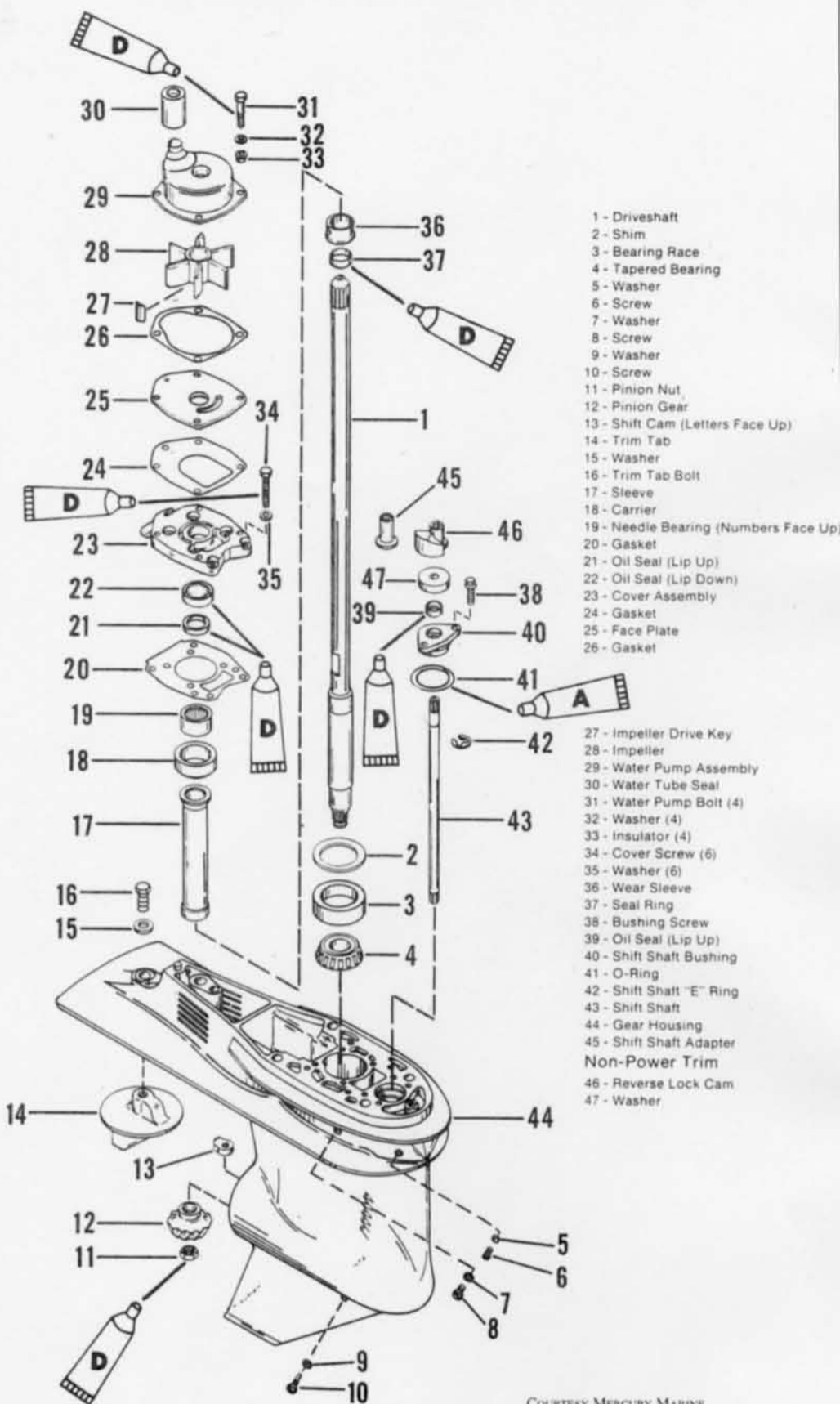
LD: Do it in the fall. Don't wait until the engine's frozen and doesn't work. And the dealer has more time to do a better job. If you're doing the work yourself, grease the splines, change the water pump, change the plugs and fuel-pump diaphragm. Another reason those diaphragm-operated, oil-mixing pumps have a problem is because alcohol in the fuel attacks the rubber. With the Mercury oil-blend, it was a real serious problem.

NF: What should fishermen keep in a repair kit aboard their boat?

LD: Spark plugs. The only other thing I can recommend is to know where the shorting wire goes so it can be disconnected in an emergency. Let me explain about the wire. I think all the major manufacturers have an internal or alternator-driven ignition system. How the system is shut down is with an external shorting wire. The wire usually runs through two harnesses to the front of the boat, to where the key switch is or to a stop switch outside of the engine. With a total engine shutdown, it's usually one of those wires that's shorted out by water.

I point out to my customers where the wires are. It's fairly easy to disconnect them. You can then operate the engine, but you have to disconnect the gas to turn it off. □

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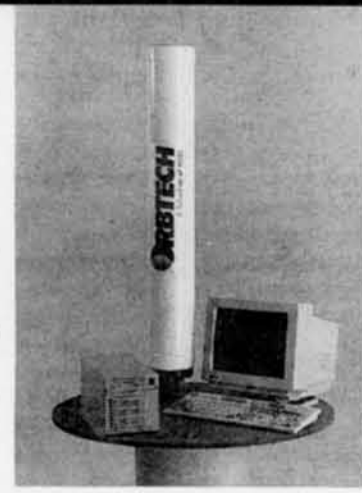
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