



CHRIS BURKARD, PRESIDENT, BURKARD YACHT SALES

PARADISE LIVING ARTICLE / JUN 2017

895 10<sup>th</sup> Street South. Suite 302  
Naples, Florida 34102

[Sales@BurkardYachts.com](mailto:Sales@BurkardYachts.com)

[www.BurkardYachts.com](http://www.BurkardYachts.com)

239.262.1030

## HOW TO GET THE MOST OUT OF MY DIESEL ENGINES

Over the years, I have written a few articles on boat maintenance. As a yacht broker that specializes in diesel-powered yachts, I see quite a few vessels that have not been maintained to the level that they should, sometimes referred to as deferred maintenance. The reason for this is usually not due to an owner's lack of funds, but rather an owner's lack of knowledge of what is required to keep diesel engines and drive train properly maintained. The other side of this coin is that many diesel engine technicians just do what the owners ask for and tend not to communicate with the owners as to what is really needed at specific service intervals. A busy technician wants to go in the engine room, complete the list given to him and get onto the next job.

Many owners do the bare minimum of service. The minimum usually consists of an oil change, engine zincs (sacrificial anodes) and fuel filters. Most owners that only use their boats 100 to 200 hours per season feel this is all that is necessary and, for the first year's service, they may be correct. I would, however, add raw water pump impellers to that list for a vessel that sees that much time tied to the dock. Most diesel engine manufacturers suggest that the P.M. Service (Preventative Maintenance) be performed at 250 hours or once per season, whichever occurs first. I personally would shorten that interval to 150 hours or once per season. I would also suggest performing that service just before the longest stretch of little or non-use. Old oil contains acids, moisture and other caustic compounds. If the vessel is going to be inactive for a long stretch, it is best to have fresh oil inside.

So, what is required to keep diesel engines and drive train operating at 100% efficiency and reliability? (Note: some engines have very specific service points and intervals, so the engine manual should always be consulted when setting a maintenance schedule):

Year One: The first thing I suggest is to make sure your vessel has spray shields/guards over the shaft logs/seals. Shaft logs, dripless or not, will and do leak from time to time. Here in Southwest Florida, our vessels operate in saltwater. Saltwater sprayed around a bilge compartment can and will do tremendous damage. The next thing I suggest immediately is to coat everything metal in the engine room and bilge spaces with a corrosion inhibitor. I would then re-coat on a quarterly basis. This will go a long way to keeping the engine room free of corrosion. All fluids should be checked before the vessel leaves the dock each time. Oil absorb pads should be placed under each engine. If a leak or drip of fluids does occur, this will make clean-up much easier. The pads should be replaced as needed. Diesel engines use anodes (zincs) to keep electrolysis from damaging engines, transmissions and just about anything metal attached to the engines. These should be checked often and replaced when they approach 50% of their original

size. I would begin by checking them every 30 days so you can get an idea of the wear rate. You may eventually extend this service interval outward to up to 90 days once you have established a pattern. At 150 hours, or at the end of the first season (whichever occurs first), it is time to have a P.M. Service performed which includes: changing the engine oil and filters, changing the fuel filters, checking and replacing zincs as necessary, replacing the raw water pump impellers, checking belts, hoses and hose clamps.

Year Two: Everything in year one applies here and I would add changing the transmission fluid at 500 hours or the end of the second season and then repeated at 500 hour intervals or every two years, whichever occurs first. If your vessel is an inboard diesel (non Pod and non I/O), at the end of season two, I would consider having the engines aligned and I would also suggest having the propellers sent out for scanning, tuning and balancing. On inboard vessels, cutlass bearings should be checked at this time and replaced if the wear indicates it. Think of this like getting an alignment and rotating the tires on your car. When everything is aligned and balanced, it runs smoother and components last longer. This should be repeated every two years or 500 hours.

Year Three: Continue year one and year two's maintenance schedule and add: cooling system flush, replace belts, replace engine hoses and replace hose clamps (clamps should not be re-used – note: the proper size and strength clamps are mandatory for a diesel). At this point, I would also inspect the raw water pumps for any sign of bearing wear and seal leakage. If any is detected, the pumps should be replaced. A raw water pump failure can ruin a day on the water in the best case scenario and destroy an engine and put you in a dangerous situation in a worst case scenario. I would also have the fuel injectors inspected and cleaned.

At year Six or 1000 hours, whichever occurs first, I would perform the 1000-hour service. The 1000-hour service is likely to include a P.M. service, valve adjustment, turbo inspection, fuel pump inspection, complete cooling system disassembly, inspection and cleaning (after-coolers, inter-coolers, heat exchangers, transmission coolers and fuel coolers), as well as belts, hoses, clamps, raw water pump inspection and there may even be some engine sensors that are replaced at this interval point (consult your engine manual).

So, a bit more than an oil change is required every year. Considering that diesel engines cost tens of thousands of dollars to replace, keeping them maintained properly should give you thousands of hours of trouble-free boating.

If you want to talk boats or engines or both, I'd love to hear from you!