

Chapter 2 Maintenance

I probably do more extensive maintenance than most boat owners, and much more than recommended by the engine or equipment manufacturers. I've divided this section into:

- Daily checks – I do this **every time** before I start the engine. No exceptions...
- Monthly
- Yearly / Seasonal, or maybe every 100-300 engine hrs
- Bi-Annual or maybe every 300-600 hrs or so

Daily Checklist

It's always a good idea to use a daily check list. We've used '*The International Marine Logbook*' by Dale Nouse as a daily ship's log for many years, partially due to the excellent morning checklist he has included in this book. There is a list of items to check, space for comments, and a place to initial that you have done the check for that day.

I check everything on this list before starting out. - it has paid benefits several times now:

- On the Illinois River I found river water in the pan under the engine. The raw water pump was starting to fail.
- In Tampa I discovered that one of the air pre-heater solenoids had melted.

Our daily checklist contains the following items. It's based on the one in the logbook with a few customizations we've made for our boat.

Check	Comment	Initial
Engine Oil		
Coolant		
Engine Strainer		
Battery Condition #1		
Battery Condition #2		
Transmission		
Engine Hours		
Fuel Port/Stbd		
Water Tank		
Holding Tank		
Pumps / Bilge		
Thru-hulls		
Radio / Electronics		

- **Engine Oil** – Check the level with the dipstick.



Be sure to lock the dipstick back down after checking the oil (with a half turn) otherwise you can end up with a big mess in your engine room after running the engine for awhile.

Fortunately for us, this is the voice of someone else's experience...

- **Coolant** – Check the level in the coolant container on the forward engine compartment wall. I've drawn a line with a black magic marker of the level when the engine is cool so that I can quickly see if the level is OK. The level will increase by about one inch when the engine is hot.
- **Raw Water Strainer** – Look at the strainer and clean it as needed.
- **Fuel Filter** – Look at the fuel in the bowl of the Racor fuel filter – checking for dirt or water droplets. I recently installed a 'drag gauge' for the pressure, so now I check that daily to make sure that the filter has not become clogged and is in need of changing. See [Primary Racor Fuel Filters](#)
- **Battery Condition (House Bank/Engine Start Bank)** – If we have been on the hook or otherwise not on shore power overnight, I make a note of the ampere-hours and voltage of the batteries. If we've been on shore power overnight, I make a note that they were on charge overnight.
- **Transmission** – Periodically check the oil level. This is done with the engine running at idle, in neutral. See [Checking Transmission Oil Level](#)
- **Engine Hours** – Make a note of the engine hours as shown on the engine hour meter at the helm.
- **Fuel (Starboard and Port tanks)** – Make a note of the fuel level based on the Tank Systems monitor in the pilot house. These are unreliable, so I also periodically check the level in the tanks using the sight gauges.
- **Water** - Make a note of the water level based on the Tank Systems monitor in the pilot house. I also periodically check the level in the tank using the site gauge. We have found that the fresh water portion of the tank monitor is the most accurate.
- **Holding Tank** – This level is also monitored by the Tank Systems monitor in the pilot house, at least in theory. Ours, however, no longer gives an accurate reading. In fact, no one we know who has had or used their boat for any length of time has one that is working. We periodically take a visual look at the tank using a very bright flashlight (we use our spotlight for this). By shining the light across the top of the tank, you can just about see the level in the translucent tank.
- **Pumps** – We installed a counter that indicates if one of our bilge pumps has gone off (see the section on *Bilge Pump Alarms* in the *Safety* chapter). We check the counter daily and make a note if it has. So far it's at zero and holding...
- **Bilge** – Visual inspection of the bilge to make sure that it is dry.

- **Thru-hulls** – We make a note of which thru-hulls are open or closed. The only one we tend to leave open at all times is the engine raw water intake. The others we close off unless we need them open.



You should cycle (open and close) all of your thru-hulls at least once a month to ensure that they work and also to knock off any marine growth that may have accumulated in there.

- **Radio and Electronics** – We use this section to make a note of any issues we may be having with any of our electronics – radio, GPS, Radar, etc. We tend to put our VHF radio antennas down if we are in a thunderstorm or if it looks like it might storm. We make a note in this section if the antennas are down as a reminder to put them back up before heading out again.

Monthly

Clean the Shower Sump [Shower Sump](#)

Check the Engine Zincs [Engine Zincs](#)

Yearly / Seasonal (or 100-300 engine hrs)

Engine Oil and Filter change [Changing Engine Oil](#)

Change the Transmission Oil and clean the strainer [Changing Transmission Oil/Strainer](#)

Change the Generator Oil [Changing Generator Oil](#)

Pull Generator soundshield off to inspect everything

Change the Dinghy outboard oils (if applicable)

Change the Engine RACOR Filter [Engine Primary Fuel Filter](#)

Check the Raw Water Impellor [Raw Water Impellor](#)

Check the Bow Thruster oil level [Bow Thruster oil](#)

Check the Windlass oil levels [Windlass oil](#)

Clean the Engine Air Filter [Walker AirSep](#)

Take the Serpentine Belt Guard off and check belt and pulleys for wear [Engine Alternator](#)

Check all the electrical connections are tight, including the batteries [Batteries](#)

Check both ends of the Shore Power cords on

East Coast/Air conditioned boats [Shore Power Connections](#)

Check all the hose clamps are tight, and the bilge pumps all work [Bilge pumps](#)

Change the Drinking Water filter [Drinking water filter](#)

Clean the water pump strainer [Water Strainer](#)

Check all Flares and Fire Extinguishers [Fire suppression](#)

Check Bottom Paint and zincs [Underwater Maintenance](#)

Pull out all the Anchor Chain, inspect and wash it [Anchor Chain](#)

Other items as recommended by Engine and Generator manufacturers

Bi-Annual (or maybe every 300-600 hrs or so)

Remove, clean and re-grease the Aftercooler core [Servicing Aftercooler](#)

Clean the Heat Exchanger core

Change the Engine and generator Coolant [Coolant](#)

Change the 'O' rings on all deck filler caps [Deck Fills](#)

Change the Generator RACOR Filter [Generator Primary Fuel Filter](#)

Change the Engine Secondary Filter [Engine Secondary Fuel Filter](#)

Test the Galvanic Isolator(s) [Galvanic Isolators](#)

Replace the stainless steel Rudder Shoe bolts [Rudder Bearing bolts](#)

Other items as recommended by Engine and Generator manufacturers

Index marks

To make the morning engine checks go faster, I've put a series of 'index marks' with a waterproof marker on various items. That way I can just glance at things and see that they're OK.

- I have a mark at the normal cold level on both the engine and generator coolant overflow bottles to spot low coolant (and possible leaks).
- I've drawn a line from each engine mounting bolt to the adjustment nuts to see if the alignment has changed. This happened to me on my sailboat....
- I've put matching marks on the oil filter body and the screw-on filter so I can see if it has started to unscrew. I've also done the same thing on the engine fuel filter.

Labels

Tomco labeled almost every significant component and wire on my boat, and I've continued that practice. I write the date and engine-hours on the oil and fuel filters, and everything else, when I install them.

And I've always wanted to know: is anal-retentive hyphenated???