

TRUE NORTH MARINE



Engine & Genset Offshore Prep, Spares & Underway Repairs

Harvest Moon Regatta 2021



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Engine & Genset Preventive Maintenance

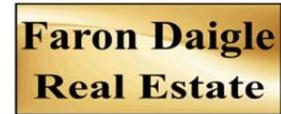
While this is a Sailboat race... Your engine and generator should be viewed as critical pieces of offshore safety equipment! They may be needed for things like battery charging while sailing, in emergency situations to dodge obstacles, or get crew members safely & quickly back to shore. In all cases, your engine and generator's reliable operation is critical to a successful trip to Port A (and back)!



Engine & Genset Preventive Maintenance

Keep in mind this year the marina is full, so most boats will be rafting and will likely not have access to shore power. Your genset may be the only source of AC power for air conditioning or battery charging, especially if you're staying aboard!

Proper maintenance ahead of the race is key. Spend time in advance with your operator's manual, your equipment, and/or your favorite contractor to insure you are ready to go!



Engine & Genset Preventive Maintenance

The Goal of this presentation is to help you **NOT** be the topic of stories & conversation at the awards ceremony in Port Aransas!!



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Engine & Genset Preventive Maintenance

Inside your Operator's Manual you will find important instructions and information on recommended frequencies for some the following items:



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Engine & Genset Preventive Maintenance

- Engine oil & filter change
- Transmission oil (& possibly filter) change
- Antifreeze/Coolant replacement
- Fuel filter replacement
- Sea water pump impeller replacement
- Anode replacements
- Heat exchanger & other cooler services
- Injector/injector pump/turbo services
- Mixing elbow replacement
- Other specific maintenance and inspection points



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Engine & Genset Preventive Maintenance

Good preventive maintenance - combined with periodic inspections — equals reliability over time. Now is the time to understand your maintenance schedule and ensure PM work is up to date.



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Common Underway Repairs

Fuel Filters & Sea Water Pump Impellers

While other break-downs offshore are possible, these two items account for the vast majority of engine issues you may typically face.



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Common Underway Repairs

Diesel fuel filters are prone to clogging. For most vessels, this Regatta may be the first time offshore in an extended period of time. Organic growth and debris in the fuel tank is agitated by offshore conditions and can be sucked up into the fuel system. This can quickly cause filters to clog.



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Common Underway Repairs

Sea water pump impellers are rubber products that have to remain flexible to work. They can deteriorate over time (especially during extended period on non-use) and fail, causing a loss or lowering of sea water flow, resulting in engine overheats.



★ Diesel Fuel Filter Assemblies



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★ Diesel Fuel Filters Examples



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Diesel Fuel Filter Tips

- Always carry plenty of spares – Mostly primary, but secondary also.
- We recommend using a 2 micron primary fuel filters. While not the most efficient fuel filtering method, it creates a single point of maintenance for emergency filter changes.



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★ Diesel Fuel Filter Tips (Continued)

- Ensure you have the correct tools and equipment on board to perform filter changes. This can make a dramatic difference in time required and will reduce stress and frustration in high pressure situations.
- Be educated on how to replace the filters **AND** bleed the fuel system, if necessary. Carrying extra diesel in a small, easy-to-seal container can reduce or eliminate the need to bleed the system.



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★ Diesel Fuel Filter Tips (Continued)

- Leave the dock with fresh filters!!
- Consider upgrading to dual primary filters, vacuum monitoring gauges, and fuel polishing systems.
- Make sure your primary fuel filter is in an accessible location. If it is difficult to get to (buried under a bunk or behind other equipment, this can complicate underway replacements.



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Diesel Fuel Filter Tips (Continued)

➤ Consider the dangerous situation a clogged fuel filter/stalled engine can create (especially in busy intracoastal waterway or ship channel situations) when evaluating the cost of upgrades!

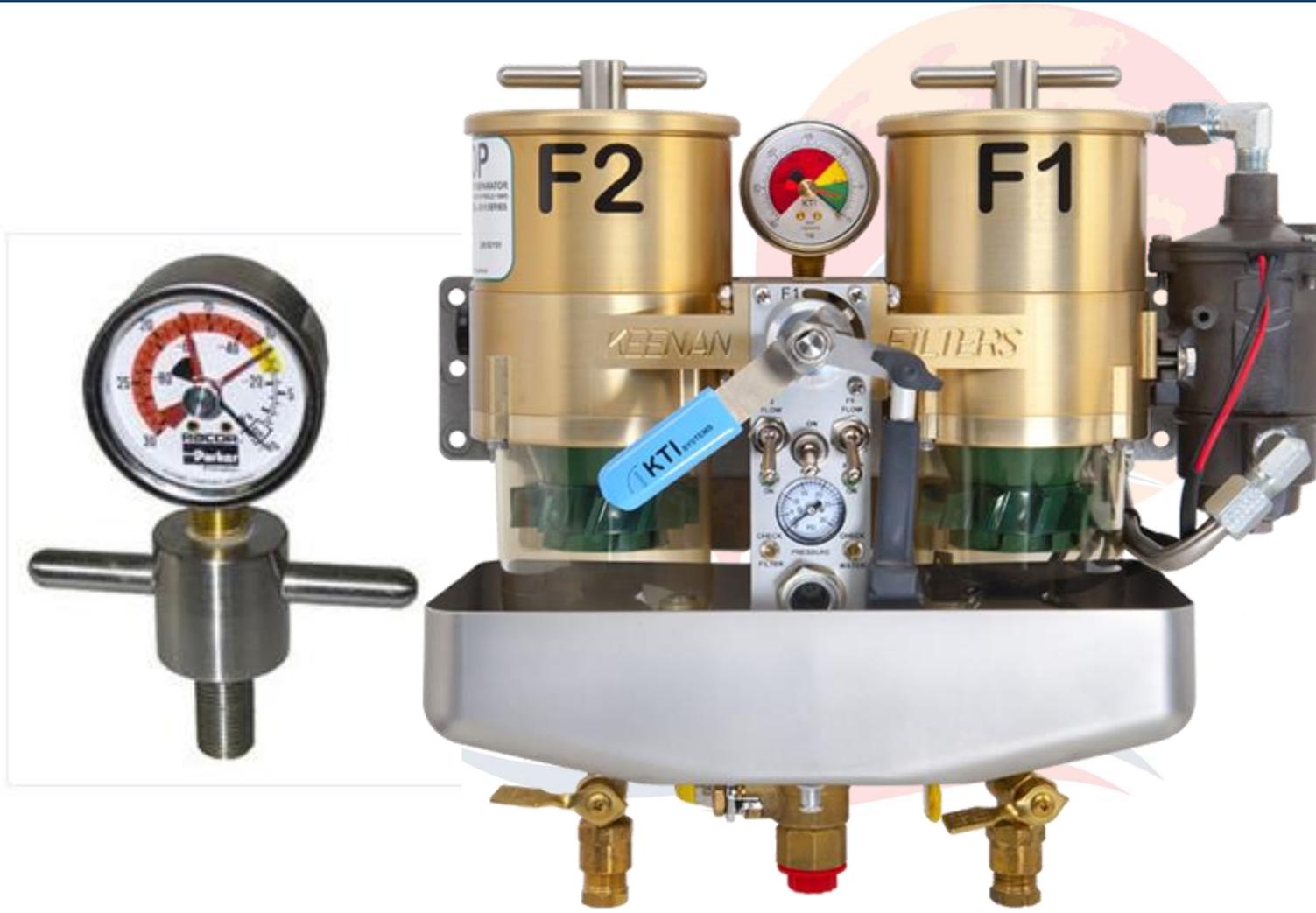


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Fuel Filter Upgrades



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★ Sea Water Pump Impeller Tips

➤ Change these at least annually – Most manufacturer's recommend a maximum of 2 year or 250 hour service interval. However, Clear Lake water conditions can be rather silty. This can accelerate wear on an impeller.

➤ Carry Spares! And be sure they are correct. Many times there are several pumps a particular engine can be fitted with.

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★ Sea Water Pump Impeller Tips (Cont.)

- Again, leave the dock with a fresh impeller - for peace of mind, as well as to ensure your spares are correct.
- Know how to access and replace the impeller. Sometimes this is easier said than done. Again, the proper tools make the job quicker, easier, and less stressful. Sometimes specific impeller pullers are nice to have - sometimes they are required!

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★ Sea Water Pump Impeller Tips (Cont.)

- It is extremely important that any and all missing fins broken off an old impeller be retrieved when replacing the impeller. Pieces from old impellers can block downstream sea water passages and cause cooling problems (emergency situations are an exception).
- Don't forget there are other wear items in the pump that affect pump efficiency and volume – cams, wear plates, cover plates, etc.

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★ Sea Water Pump Impeller Tips (Cont.)

➤ Check the shaft and cover plate seals closely for leaks – sea water leaks at these points tend to go unnoticed and can cause significant damage (rust/corrosion) over time, if left uncorrected.



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★ Sea Water Pump Impeller Examples



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Emergency Spares to Carry



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- A good inventory of critical spares is required. Here is a generic list for near-coastal cruising:**
- Fuel filters (both primary and secondary, as applicable)
 - Sea water pump impellers
 - Accessory drive belts
 - Engine coolant (preferably pre-mixed)



Emergency Spares to Carry (continued)

- Engine oil and filters
- Distilled water (for batteries)
- Misc. hose clamps, wire ties, hardware
- Tools to perform regular replacements/maintenance

Up-to-date TowBoatUS or SeaTow policy!!!



★ STORAGE OF SPARES:

Spares should be stored in well identified locations. They have limited or no value if you have to tear apart the boat in an emergency to locate them (if you can)! Labels on insides of cabinet doors can be very helpful.

Make sure fluid containers are rugged enough and stored properly to avoid chafe that could lead to leakage.

Many times an oil leak has been traced to a leaking jug of oil...



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STORAGE OF SPARES: (Continued)

Any hard parts should be sealed from water/humidity intrusion. Regularly spare alternators and starters have been presented for installation, only to find them horribly corroded inside their packaging, past the point of use.



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PRE-RACE QUICK HAUL

This is a great opportunity to have your prop, prop shaft, cutlass bearing, strut, thru-hulls, rudder, keel joint, etc. inspected for any issues that could arise at the most inopportune moment during heavy weather offshore!

Also, a clean bottom means a faster boat!

Hard bottom paints can be pressure washed – soft (ablative) paints are better brushed by hand.

\$5/ft for Quick Haul

\$3/ft for Pressure Wash or Brush Scrub by Hand

Other services available upon request

VISIT OUR TABLE TO SCHEDULE!



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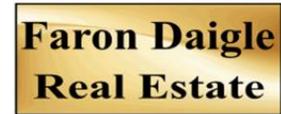


PRE-RACE MECHANICAL CONSULTATION

This is a visual inspection of your engine and drive train by industry professionals intended to help you identify needed maintenance & repairs prior to heading offshore. Also, a review of your engine manufacturer's preventive maintenance schedule can be discussed, as well as how to perform basic underway repairs, or any other questions you may have. Up to one hour aboard.

ONLY \$125.00

VISIT OUR TABLE TO SCHEDULE!



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★ Have your boat checked for Stray AC Current

If you are lucky enough to have access to shore power while at the City Marina in Port Aransas, be aware that their shore power pedestals are equipped with current-electrical-code ELCI's (equipment leakage circuit interrupters). Basically, GFCI's for you boat.

If there are any electrical faults on board, the shore power circuit breaker will trip immediately when your boat is plugged in and the system is energized. Most marinas around Clear Lake do not have ELCI's, so you may have an issue and not know it.



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Have your boat checked for Stray AC Current

The Good News is this can be tested very quickly and accurately by clamping an AC amp meter (with the proper sensitivity range) around your shore power cable when systems are running. It should read zero, meaning all AC current flowing onto your boat is returning safely to shore (net zero). Any detectable reading indicates AC current leaking into the surrounding waters. Under the right conditions, this can present a very serious safety hazard to any swimmers around your boat. Any current readings over 30 milliamps will cause an ELCI to trip.



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Have your boat checked for Stray AC Current

We are offering a complimentary AC Stray Current Check. Visit our table to schedule!

Remember: AC Stray Current checks are a snapshot in time – there may be equipment not running or other variables not in play when the inspection and measurement is done!



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SAFETY TIP

Make Sure Your MMSI is Programmed, and Electronics are Fully Networked!

MMSI (Marine Mobile Service Identity) is a unique number tied to you and your vessel. This should be obtained and programmed in all onboard VHF & SSB radios, as well as AIS transceivers. This number is tied to important information about you and your boat that the Coast Guard can use in case of emergency.



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SAFETY TIP (continued)

All VHF radios are equipped with Distress Calling. This means with the quick push of a button, in case of emergency, your VHF will broadcast an emergency distress call. This automated call will include your MMSI number which will identify you and your boat.

If your VHF is networked to a GPS source, the Distress Call will broadcast your GPS coordinates. This makes locating you and your vessel much quicker when minutes can matter. Otherwise, your position has to be triangulated off your VHF signal.





SAFETY TIP (continued)

If your VHF has two-way communication with an MFD (thru NMEA2000 or two-way NMEA0183), you can also receive distress calls and have them automatically plotted on your MFD/Chart Plotter. This makes it infinitely easier to render aid in case of a nearby emergency.



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SAFETY TIP (continued)

Old/out of date MMSI numbers left over from previous owners can cause serious problems during emergency situations.

Please see our table to schedule an electronics evaluation/MMSI setup!



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