

How to Remove an Engine from a Sailboat

Each boat is unique but they are also very similar. I have done this a few times and this is how I approach the project. Nothing replaces a good plan and experience but this might help you get your thoughts together as you study the project. Consider this short note as the basis of a plan to remove the gas or diesel from your sailboat. I take no responsibility for your project this is just how I look at it. The worst part of a conversion to electric from diesel or gas is the removal of the old system. Not rocket science but a bit of a manhandling. It takes a few hours and a couple of guys.

The order of many of these activities may be done at your discretion but certain actions must be done before others.

What you will need:

- Protect yourself and the boat by wearing protective clothing and glasses.
- Wet towels available along with a fire extinguisher and use as necessary.
- Hand tools – socket set, screw drivers, wire clippers, grinder with cutting blade, patience, etc
- Hose clamps and wood plugs
- Use cardboard, wood, and carpet to protect the surfaces.
- Bilge pads and lots of rags
- A come-along is better than using the boat's block and tackle (protect your running gear)
- Straps to connect the come-along to the boom
- Protection for the boom where the straps for the come-along will be connected to the boom
- Furniture dolly (\$20 at Home Depot) will make your life better and well worth it
- Heavy plastic bag to put the engine in while suspended above the dolly
- Straps to strap the engine onto the dolly
- Fuel pump and oil pump to remove fluids plus contains for the fuel and oil.

Disconnecting the motor:

- Safely decommission the through hulls
 - Close the through hulls.
 - If possible cut the hose high enough so as to be above the water line.
 - Plug the hose with a plug and hose clamp and keep the hose out of your way.
- Remove fuel and oil as much as possible
- Disconnect the fuel line and control any spills (drain the tank before you try to remove it)
- Disconnect the exhaust (keep it high in the boat)
 - If you cannot unbolt the exhaust from the heat exchanger, use the grinder
 - Cut the exhaust hose, plug, and position it out of the way and above the waterline
 - Remove the exhaust hose from the boat now or later
- Remove the coupler.
 - The coupler will likely have 3 or 4 bolts connecting the two halves
 - Unbolt it for now and remove the shaft half after the engine is removed
 - Put a hose clamp on the shaft where it enters the packing gland/PSS to make the spot and to keep the shaft from sliding aft.



- Removing the shaft half of the coupler may require cutting the coupler with a grinding wheel as the set keys may break. Two cuts will do it. Lots of sparks have wet towel and fire extinguisher ready
- Disconnect the control cables from the transmission and the throttle.
- Remove the mounting nuts from the mounts or engine block.
 - Sometimes the bolts are rusted on and they can be cut off with the grinder. Take precautions protecting your eyes and the boat.

Removing the motor:

- Place a come-along to the boom (protect the boom with a towel under the straps and do not place straps over the sails if you can avoid it). Prefer a come-along to using the boats block and tackle as I use them for sailing.
- Use multiple halyards to support the boom
 - From aft forward
 - Topping lift or a halyard at the aft end of the boom
 - A halyard about 25% of the way and in a place where it will be able to enable the repositioning of the come-along
 - A Halyard at the middle of the boom



- Place the come-along between the forward halyards in closer to the most forward halyard as it will provide both upward and forward movement while lifting the motor.
 - Crank the come-along to lift the motor from its position and manhandle it up and forward so it will clear the engine compartment opening.
- Use some blocks of wood or other blocking material to protect the boat and support the motor as you raise it.
- With the motor out of the engine compartment, block it and secure it to allow you to move the come-along aft on the boom to where the second halyard if connected.
- After the come-along has been repositioned on the boom more aft, you can again crank it to lift the motor and manhandle it towards stern of the boat and out of the companionway.



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- Block the motor in the cockpit and prepare the motor to be lifted high enough to clear the boat.



- If you have not done so, tie the boat to the dock well on the side from which you will not be removing the motor. The boat will heel

over as the motor is swung out from centerline if you do not address this. A big guy providing counter weight will also help.

- Swing the motor on the boom so that the motor is now over the dock.
- Lower the engine onto the furniture dolly placing it into a heavy plastic bag to control all fluids which may be leaking out of the motor. Strap to dolly and wait for high tide to move off the dock.

