Cheatography

# Inpsecting Your Sailboat Diesel Engine Cheat Sheet

by [deleted] via cheatography.com/2754/cs/16962/

## Introduction

How would you like to know how a professional surveyor inspects a small diesel engine? Henry Mustin, internationally recognized as one of the world's best, shares seven secrets of what he looks for before and during a sea trial.

Follow master surveyor Henry Mustin's advice to make sure your small diesel engine gives reliable, trouble-free service for many years to come. Follow master surveyor Henry Mustin's advice to make sure your small diesel engine gives reliable, trouble-free service for many years to come

Use this expert's guide whether you're in the market for a small cruising sailboat, or if you already own one.

Mustin claims that the look and feel of the engine and its components give him more signals during a survey than any other factors.

Use your eyes and believe what they tell you. Trust those "red flags" that pop up as you check and test the engine.

Small things can add up to big repair bills and long waits on repair parts to arrive.

Source: https://www.skippertips.com/public/1092.cfm

## 1. Look for These Signs of Trouble.

- Engine Beds (cracks, excess water or water mixed with lubricant).
- Engine motor mounts (cracks, distortion, out of alignment).
- Shaft to Engine coupling (alignment, bolt integrity).
- Hoses (soft, cracked, worn).
- Hose clamps (worn, rusted, too tight causes bulging at the hose).
- Electrical connections at the engine and battery(s).

## 2. Inspect Gaskets and Seals.

Check around the oil pan, block and manifold. Look for heat spots or leaks at the seal. Heat spots signal an overheating problem. Inspect hose-to-fitting seals. This includes fuel lines, lift pumps, and injectors. Shine a light to pick up glossy, but often invisible fuel leaks. Follow the fuel line back to the fuel filters and check those seals. Continue back to the fuel tank and check for leaks.

## 3. Depress Each Engine Belt.

Use your thumb and depress each engine belt with moderate pressure. With the thumb method, depression should be no more than 1/4".

## Marine Engine

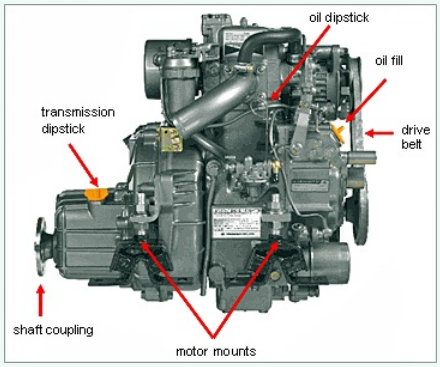


Photo courtesy of Yanmar Marine

## 4. Open up the Impeller Housing.

Inspect the condition of the impeller vanes. Distortion or wear indicate too long between changes. Chips warn of rubber bits floating around somewhere inside the engine.

## 5. Read the Two Dipsticks.

Sound the oil sump and transmission gearbox with the dipsticks. Rub your fingers over the liquid and shine a light on your fingers. Particles indicate trouble from excessive engine wear. Wipe each stick and sound again. This time, look at the reading and color. Bubbles or milkiness indicate water in the lubricant. Smell each lubricant - a burned odor indicates big trouble.

## 6. Find the "Hidden" Engine Zinc.

Does the owner change out the zincs on the engine? Those on the shaft are common and easy to see, but the "pencil zinc" that goes into the engine heat exchanger often gets overlooked. It needs to be changed once a year to prevent cooling problems caused by sea water corrosion buildup.

## 7. Become Sea-Trial Savvy.

Run the engine under heavy load. This tends to bring underlying problems to the surface fast. Things like water pump bearings or pin hole leaks might stay quiet and well hidden until you open her up full throttle. Check for:

- Fluctuation of RPMs.
- Oil pressure fluctuation.
- Water temperature rise.
- Shaft alignment and leaks at the stuffing box (packing gland).
- Re-inspect all hose-to-fitting seals.