



## Poor Man's Shaft Lock

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Some years ago, as we were preparing for our recent Pacific crossing, I became interested in the issue of whether to install a shaft lock on our CSY 44. Earlier I had solved the wear problems on our cutlass bearing with a shaft tube flush arrangement. But then I worried about wear on the transmission while trailing the shaft on long passages. We had a Borg Warner 71C hydraulic transmission so we could not lock the shaft by placing it in gear.

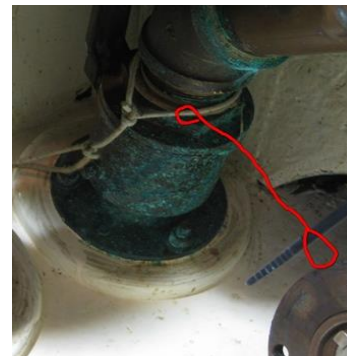
The transmission manual says you can safely trail the prop and shaft while sailing for up to 4 hours. Then you need to start the engine and run it in gear for about ten minutes before shutting down and trailing the prop again. I wondered what smart engineer had thought that one up and really expected that owners would do that! It seemed a bit much for even a ten-day passage. Six times a day for ten days means starting and stopping the engine 60 times during a ten-day passage, twice that on a 20-day Pacific passage. That was way too much work for us retired cruisers, especially on a passage. And it adds significant wear on the engine internals. I was quickly convinced that we must lock the shaft. So I did what I usually do with problems of this sort, I slept on it.

After researching the question in my boating library and on the internet forums, I discovered that there were really only two options. Option 1 was to spend over \$400 to buy a commercially made shaft lock. Option 2 was to make one myself. Option 1 violated the first rule for adding equipment to the boat. It was not an efficient use of boat dollars. In fact, it was downright expensive for what you got. And now some are almost double that. Option 2 did not look like a quick or easy project. Certain that there must be a cheaper easier way to do this, I again slept on it.

After several nights of considering my options I discussed it with my engineer wife, Sherry. Immediately, she came up with the best option. How do wives do that? It seems her father had solved this problem 30 years before. And being engineer oriented even as a teen ager, she remembered what he had done. There are, of course, other options, like building a wooden clamp and using vice grips or a pipe wrench. But none of these fit my sense of simplicity and safety.

Sherry's solution is very simple, involving just two pieces of small line. Tie the larger/stronger piece around something solid near to and opposite port or starboard of the transmission to shaft flanged coupling. Tie the other smaller/weaker piece to the first line and make a small loop, using a knot, in the bitter end. Arrange the lines such that you can drop the loop of the smaller line over a bolt head or nut on the flange. Bolts that run perpendicular to the shaft are best. The two different line sizes facilitate you only having to reinstall the short smaller line if you break it. Smart cruisers don't waste good line.

*Seacock above with red small line to shaft coupling bolt head below.*





*Drop loop from small line over either of these bolts, nut end best.*

To set the shaft lock on our CSY 44 monohull, we had to have the boat speed below about 3 knots with the engine out of gear or off. Even with full sails on, this was easy to do just by heading up into almost irons (Sherry got quite good at this). As soon as the shaft stopped freewheeling I dropped the loop over a bolt head and eased the shaft around by hand so that the line was taut. Then we headed back on course and the shaft was locked from rotating. When ready to use the engine again or in an emergency all that was required was to put the engine in reverse for a few seconds. By magic the loop was thrown off the bolt head and away we went. Should you forget that the line lock was on and put the engine in forward, the small line just breaks. Then you get to use the spare small lines you made up previously just in case this happened.

There are several important catches to this system. Consider how big your prop is and how much force it will generate on your lines. As an example, for our big 24-inch fixed prop I used 3/16" diameter nylon for the large line and 1/8" nylon for the smaller. You DEFINITELY want the small line to break if you put the engine in gear with the shaft lock on, but not break while sailing underway. If it breaks underway try a bit stronger small line. Remember that a bowline is a 60% strength knot. Don't use non-stretch high tech lines like Spectra or Amsteel! Don't tie your lines to something weak that can be ripped out of the boat and cause a flood! A properly installed thru hull and flanged seacock work well. Do consider which way your shaft turns, as when underway sailing, you want the line to fetch up over the top of the flange, not beneath it.

Total cost is about 15 cents, maybe a little more if you use high quality 'designer' line. Construction and installation time is about 5 minutes unless you must look up how to tie the bowline. This piece of equipment meets most of my requirements for a great piece of boat equipment: it does its job well, you can make and fix it yourself, no maintenance is required, it is light weight and requires little space, you can carry multiple spares, and it is reasonably priced (some may even think it cheap).

The only problem might be if you can't easily reach your shaft coupling. In that case, you might have to spend much more money on the commercial product or just 'dream' up a different option. You might also consider asking your wife what to do.

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