Q: What are the steps in changing a rear oil seal?

A: While it's not difficult to replace a rear oil seal, poor access on a particular boat can make the job much more difficult. The tools mentioned in the text, can be found in the specialty tool section of our online catalog at moyermarine.com, and will make the job considerably easier.

Here are the steps that you would go through to change your rear oil seal:

1) Separate the prop shaft coupling from the engine output coupling. No special tools required. A 9/16" box end wrench for the three coupling bolts, and a pipe wrench may be necessary to hold the prop shaft.

2) Install the Output Coupling Retaining Handle into the engine output coupling using the three short 3/8" bolts in the baggy. If this tool is not available, an 18" pipe wrench can be used to hold the output coupling while the 1 1/8" nut is removed.

3) Flatten the ear on the flat locking washer under the 1 1/8" nut behind the output coupling and remove the nut with a 1 1/8" socket and breaker bar. After removing the washer, reinstall the nut over the end of the output shaft to protect the threads during the next step.

4) Install the Output Coupling Puller using the three longer 3/8" bolts in the baggy that came with the puller. The flat tool used to remove the nut can be installed over the three bolts of the coupling puller (between the coupling and the round part of the tool) to keep the puller from turning. The coupling is pulled off by tightening the 3/4" bolt in the center of the round puller. If the output coupling does not yield by tightening the 3/4" bolt on the puller, you can sequentially tighten the 3/8" bolts which will apply more pressure than the center bolt.

NOTE: If the coupling puller is not available, procure 2" fine threaded bolts and install them into the output coupling until the ends of the bolts contact the cast housing behind the coupling to push it off of the shaft.

5) After the coupling is removed, remove all 6 of the 1/2" hex-headed bolts around the outside of the rear cast iron flanges. The outer flange is all that you have to remove. The oil seal is in the center of this flange. Take it to a bench where you can tap out the old seal and tap in the new seal. The new seal should be installed so that the metal part ends up being flush with the rear face of the cast iron flange.

6) Before reinstalling the flange, check the surface of the output coupling where the seal rides. If it is grooved or otherwise uneven, install a repair sleeve, or replace the output coupling. You will need a rubber mallet to drive this sleeve onto the output coupling. I sometimes put a little sealer (Permatex Aviation Brand) on the coupling before installing the sleeve.

7) The Output Coupling Installing tool is in its own baggy (4 parts including the 2 long bolts). The two long bolts should already be through the part of the pusher which contains the long bolt similar to the coupling removing tool. I like to string the rear flange (with the new oil seal installed) over the two bolts of the installer, then the new gasket, and then thread the two long bolts into two opposing holes in the rear of the engine. Put a little sealer on both sides of the gasket. If the installing tool is not available, you'll have to tap the output coupling over the shaft until the large nut can be started to push the coupling the rest of the way.

If the pushing bolt of the installing tool is retarded back toward the cross bar, there is enough room to start the output coupling over the shaft of the reversing gear and hold the round part of the tool over the coupling and between the end of the pushing bolt. The bolt can then be tightened to push the coupling onto the shaft.

NOTE: The point of using this tool is to avoid having to pound the coupling onto the shaft. The long bolts of the tool are also handy in keeping the holes of the flange and the holes in the gasket lined up with the bolt holes in the engine.

8) After the coupling is on the shaft far enough to start the big nut, you can start the rest of the flange bolts to hold the flange in place, remove the long bolts of the installing tool, and continue to push the coupling the rest of the way over the shaft by tightening the big nut. It is best to leave the flat locking washer off until you are sure that you have enough threads to safely lean on the nut. When doing the final tightening you will need to reinstall the Output Retaining Handle to hold the output coupling while you tighten this nut.

9) When the output coupling is all the way against the stop ring on the shaft (it simply won't go any further), tap one of the remaining ears of the locking washer out over the nut. As a practical matter, I don't think these locking washers really hold much, so I wouldn't worry too much if the ears break off.