

Jim cut out the new block for the lower bearing on his band saw, at left, and epoxied studs into it to receive the bearing, above. The bronze bearing and shaft-seal assembly, at right, is a readily available stock item.

Fabricating new parts

I selected white oak for my new bearing block, not only because it resists rot but also because I happened to have a piece thick enough to do the job. I cut the rough shape on my band saw, sanded it to its finished shape, and machined a hole in the block to accept the bronze bearing.

Instead of using lag screws to secure the bronze bearing, as in the original installation, I chose to epoxy stainless-steel bolts into the block. I then coated the entire block with several layers of epoxy. To help the epoxy penetrate the oak, I heated the block before I applied the first coat. As it cooled, it drew the epoxy into pores and crevices.

The upper bearing appeared to be getting sloppy as well, so I decided to replace it too. The old upper bearing was nothing more than a block of wood with a plastic bushing. I fabricated a new one from aluminum with an acetal (Delrin) insert.

Reassembly

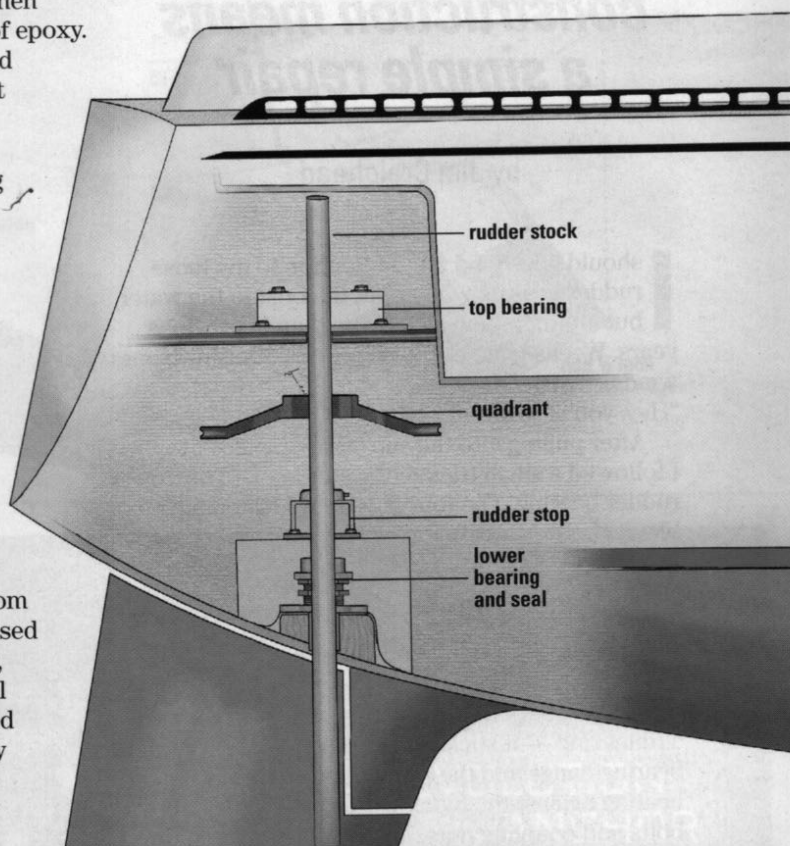
To help align everything during reassembly, I used a length of pipe the same diameter as my rudder stock. I bolted the upper bearing in place and fitted the bronze bearing into the oak block. After applying Johnson Paste Wax to the temporary stock to prevent it from becoming permanently glued in place, I passed it through the upper bearing, lower bearing, and hull, and glued the oak block to the hull with a thin paste of epoxy mixed with milled glass. I checked the position of the block by making sure the pipe ran parallel with the skeg below the hull.

After setting the epoxy with the help of a hair dryer, I laid up several layers of 10-ounce fiberglass roving, adding extra layers in the corners to create fillets.

When the fiberglass had set up hard, I applied a liberal coating of 3M 5200 and

bolted the bronze bearing in place. Once again, I used the temporary stock to assure that everything lined up.

To finish the job, I had to lift the rudder and fit the stock into the hull, through the bearings, quadrant, and rudder stop. The top of the stock had a slot for an emergency tiller. I drilled a hole through the stock at a right angle to the slot and pressed a short piece of rod into the hole. This created a means of attaching a rope to the stock. I then dropped a length of rope through



This artist's impression shows the general arrangement of the rudder and the steering components Jim was working with when he replaced the lower bearing assembly.

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