

MAINTENANCE

That scenario happened to Ed Hamlin, president of Tune-Up Specialties and Marine back in 1997. He couldn't believe there was no way to repair the housing, so he set out to find a way, and the end result is the GHR Kit, shorthand for "gimbal housing repair."

He began thinking about how to fix the problem and experimenting with a few ideas. After toying with several potential solutions, he came up with a PVC ring with an internal taper. The .028" taper not only centers the ring, but it also provides tension to help hold it in place. But tension alone wasn't enough. He had to find something that would bond the ring to the aluminum. After several attempts, he found an agent that worked.

"The hardest thing was finding the epoxy to make it stick because it's polyvinyl chloride, an oil-based polymer," he said. "Nothing sticks to it."

To help the epoxy grip better, Hamlin machines a channel on the inside of the PVC ring, which aligns with the groove on the bellows flange. When the epoxy cures, it creates a "liquid snap ring" that helps hold the PVC ring in place and seals out water. The grip and seal of the epoxy is so effective that it works even when the gimbal bellows flange is corroded from the 3 to 9 o'clock positions.

"So as you take the epoxy that you mix up and you brush it in here, you're going to seal that all up," Hamlin said, adding that thoroughly cleaning all components is key to a successful repair. "There's no way water is going to get in, no matter what. And not only that, but it's also going to lock it in place."

Devised for professional use, the kit comes with instructions, epoxy and a thickening agent, a brush and extension so it can reach all the way down inside the bellows boot, clamps and the ring already installed inside the boot, which is done for good reasons.

"One of the common questions is 'What kind of bellows is it?'" Hamlin said. "Well, it's a standard bellows but we use a machine to stretch it over this ring. So it's six men and a boy to get this ring back in. And what'll happen is some guy will take the ring off and not be able to get the bellows back on."

The ring and bellows assembly taps onto the gimbal flange and down to the factory stops with a long drift pin or the cheater's version—a half-inch socket on an extension. Don't tap it on with a screwdriver because you can pierce the bellows boot. Once you get the boot and ring tapped into place, spread the remaining epoxy on the inside of the ring where it was corroded.

In temperatures above 60 degrees, the epoxy takes 24 hours to cure. Below 60 degrees, allow 32 hours of cure time. Either

way, the epoxy provides about 90 minutes of working time before it gets too hard to spread with the brush. Sure it takes a day to cure, but the repair still takes significantly less time than pulling two motors and drives. In fact, if you're working on Bravo One drives, you won't even have to lift the hatch.

Shortly after he brought the kits to market in 2000, Hamlin had a couple of issues with the gimbal rings chafing the bellows boots. Because the boot is stretched over the ring, the diameter is a bit larger than stock, so the bell housing could rub the bellows boot as the drive pivoted from side to side—particularly if there is some slop in the gimbal ring. The solution was to reshape the bell housing pivot-point bosses with a grinder.

"You're not taking a tremendous amount off," he said, adding that the kit comes with illustrated instructions and a plastic template. "You just reshape it a little bit. Even if the gimbal ring gets loose, it'll still clear."

You might be thinking, "What about the gimbal bearing? What about when I have to replace the bellows again?" Well, before you install the GHR Kit, change the gimbal bearing, but don't lubricate it until after the epoxy cures. The grease won't bother cured epoxy so maintenance from then on is the same.

When it comes time to replace the bellows—the factory interval is six years—pull the drive apart and remove the boot. Then, where the original corrosion occurred, give the PVC one good shot with a hammer and screwdriver, and that piece of it will snap. Once it does, just walk the hammer and a screwdriver around breaking pieces off. The epoxy seal will be stuck to the aluminum, but an approved, high-speed wire wheel on a die grinder will remove it. Then install a new kit. Even after installing two kits, you're still several thousand dollars ahead.

GHR Kits are available for virtually all MerCruiser Alpha and Bravo drives built since 1973. Bravo One kits retail for \$329.95.

"We sent one to Texas last summer for a guy with a 42-foot Sonic with staggered motors," Hamlin recalled. "He called me on Wednesday and said, 'I have to have the boat ready for the poker run by Saturday.' I said, 'No problem. I can overnight you a kit and if you have it by Thursday, it'll be done Friday. Bolt the drive on and go.' That guy was ecstatic. The only other thing he could have done was pull the interior, pull the motor, pull the drive and get a housing." 🛠️

CONTACT INFORMATION

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