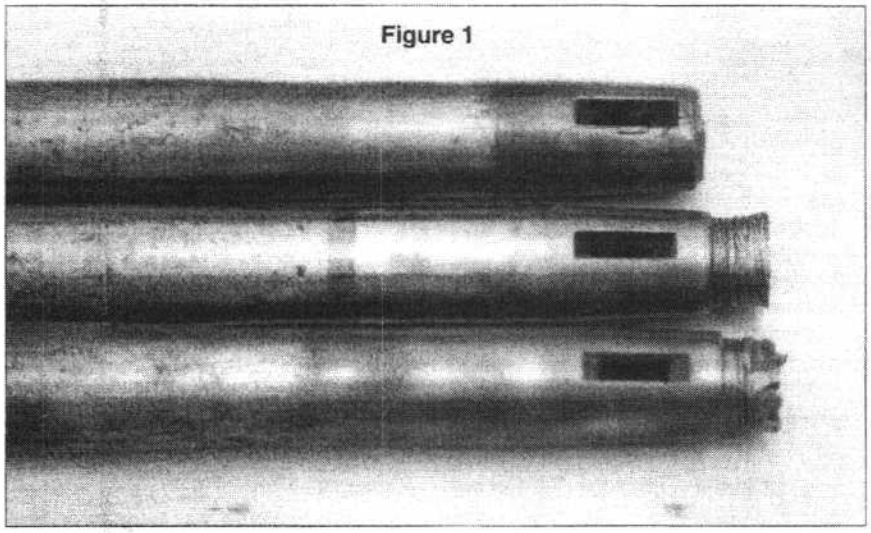
# Steering Shaft Thread Repair

*By Wiley Higgins, Cumming, Georgia*

It is not uncommon to find the threads on the Model A steering gear shaft badly damaged. *Figure 1* shows three shafts with damaged threads. The top one has threads twisted off, the middle one shows threads battered when someone hammered on them to remove the steering wheel, and I don't know *what* someone did to damage the threads on the bottom shaft!

**Figure 1**



This article describes how to replace damaged or missing threads on the Gemmer 2-tooth steering gear shaft. It *can* be done by almost anyone, but is best done by a competent machinist using machine tools.

The first thing to be done is to saw off the damaged threads and square off the steering wheel end of the shaft. Next, use a 33/64" (.515") tap drill and tap for 9/16"-18 threads. *Figure 2* shows the taping operation being done in the lathe.

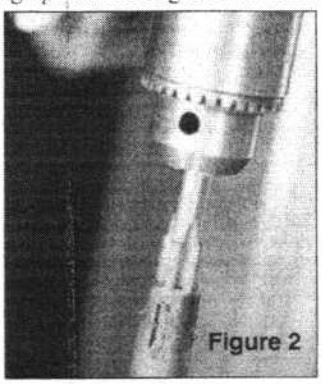


**Figure 2**

*Figure 3* shows it being done in a drill press. The use of a hand-held drill is not recommended, as it is very difficult to hold the shaft in a vise and drill a hole and tap threads exactly straight through the center of the shaft.

The next operation is to fabricate a threaded plug to replace the old threads. Turn down a piece of round stock to 9/16" and 5/8". The 9/16" step should be 1" long; the 5/8" step should be long enough to obtain about one-half inch of threads. *Figure 4* shows this plug being threaded in a lathe. (I used a worn out Model A Clutch release shaft for stock.) A 25/64" (.390") hole must also be drilled through the plug for the light switch rod. Most light switch rods are 3/8" (.375") in diameter so this gives about .015 clearance so the light switch rod will not turn with the steering wheel.

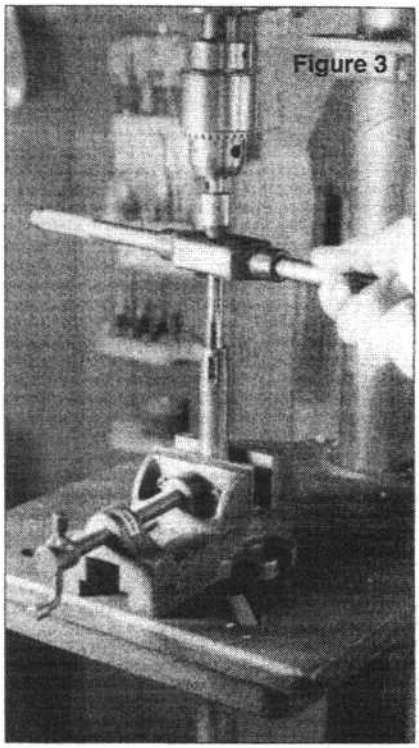


**Figure 3**

After the threading is done, cut the threaded plug off the round stock and face off the 5/8" end, being careful to not damage the threads. Slightly countersink the light switch rod hole.

If you cannot fabricate your own threaded plug, ready-made ones are available from Mike's A-Ford-Able Parts, 1930 Patrick Rd., Dacula, GA 30019. Phone 1-888-879-6453 or email:

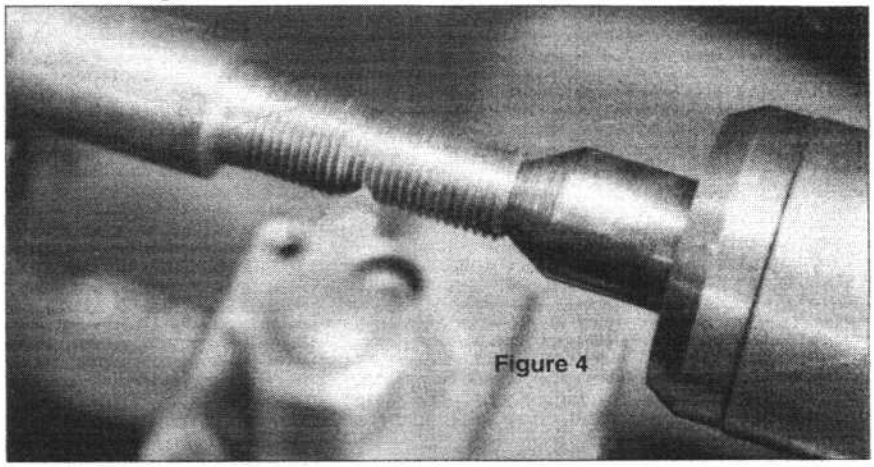


**Figure 4**

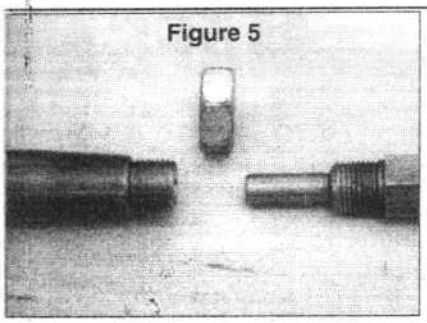


Figure 5

mike@mikes-afordable.com. As an alternative, you could also use a short 9/16"-18 Grade 5 or Grade 8 bolt and flat washer. However, since this grade bolt is very hard, it is difficult to drill a 25/64" hole through it for the light switch rod.

The next step is to screw the 9/16"-18 portion of the threaded plug into the steering shaft all the way up to the 5/8"-18 portion. Smear some Loctite Threadlocker on the 9/16" threads to help hold the plug in place. *Figure 5* shows the threaded plug screwed in with a special tool I made from 11/16" hex stock. This handy tool has two uses; (1) screwing in the threaded plug without damaging the threads, and (2) removing a steering wheel from the shaft. More on removing the steering wheel later.

To use the tool to screw in the threaded plug, put a steering wheel nut on the 5/8" threads about halfway, screw in the tool until it is tight against the threads (using the steering wheel nut as a jam nut) and use an 11/16" wrench to screw the plug tight into the shaft.

You now have steering wheel shaft threads nearly as good as new. I say nearly because, while this repair is quite adequate, it is not quite as strong as the original threads, so use caution when tightening the steering wheel nut. Don't over-torque it and twist off the threads again. You can tighten the nut snug and use some Loctite to keep it from backing off.

Once you have the threaded plug screwed in all the way you will notice that the internal threads project into the steering shaft keyway. *See Figure 6.* It is necessary next to use a 3/16" keyway cutter and cut into these threads to reform the keyway and make space for the key. *Figure 7* shows this being done.

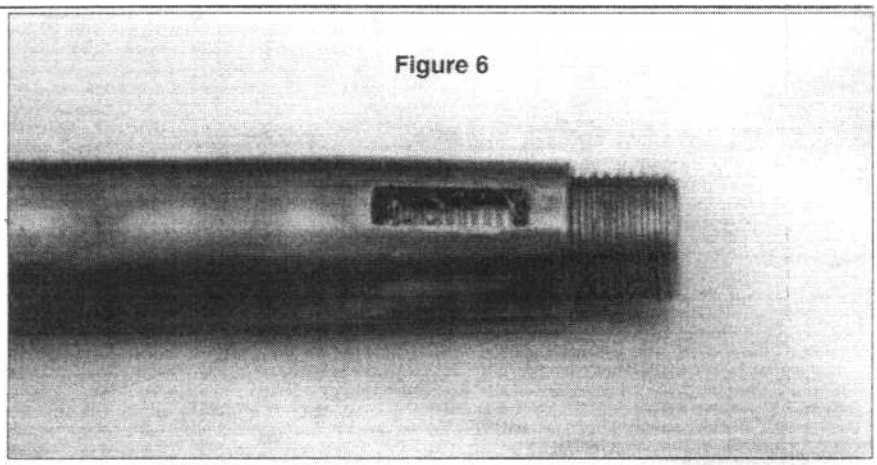


Figure 6

When you install the steering wheel, I recommend the use of a new steering wheel nut or use a 5/8"-18 tap to clean up the threads on an old nut so you start with fresh threads.

To use the tool in Figure 5 to remove a steering wheel, back off the steering wheel nut halfway. Screw in the tool until it is tight against the steering shaft threads. Hold the steering wheel against your chest with the lower end of the steering gear a few inches off the floor. Give the tool a good whack with a big ball peen hammer. In most cases, one or two good licks will jar the steering wheel loose. If you must hit it more than once or twice, make sure the tool stays screwed in tight against the shaft threads.

Sometimes even this method damages the threads a little, especially if the steering wheel is rusted on very tight. In most cases, however, you can run a 5/8"-18 die over the threads and clean them up. (If you damage the threads beyond use, you now have a method to replace them.)

As an alternative, you can use a short 5/8"-18 Grade 5 or 8 bolt in place of the tool. It should be machined with a "pilot dowel" to keep it straight with the shaft.

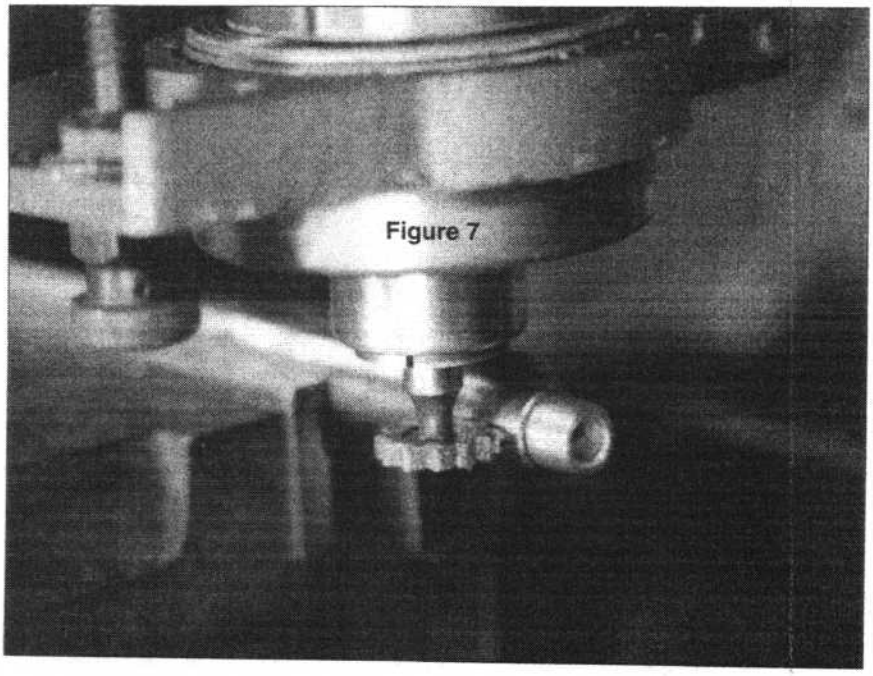


Figure 7