Modifying a Hammond Glider

By Bob Vaughan

The objective with this Hammond glider modification was to modify it to accept the 8-1/2 inch size blade so popular on miter saws plus install a single phase motor and get the saw up to 4500 rpm by installing new pulleys.

This saw was designed to cut lead and trim sheets of lead type, so its arbor, unique to that purpose, had to be changed. A new arbor was made using the Unisaw thread and nut, but only enough thread to accommodate a single blade. This way, any blade or abrasive cut-off wheel can be used without worrying about each being specially bored for the unique arbor.

While working on this project, I experiment with making a special faceplate to take a standard blade. This was by far easier than making a new arbor, but it did limit the blade height because of the larger diameter.

A photo of the finished product is at the end of this photo essay

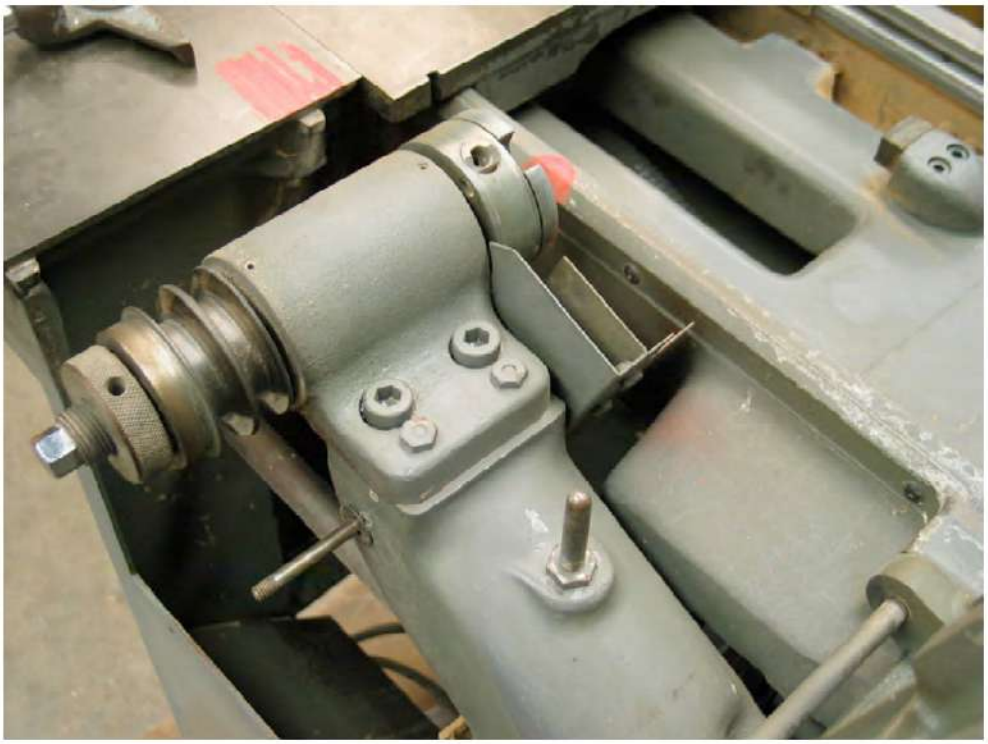

Figure 1 back side of the arbor assembly in original form

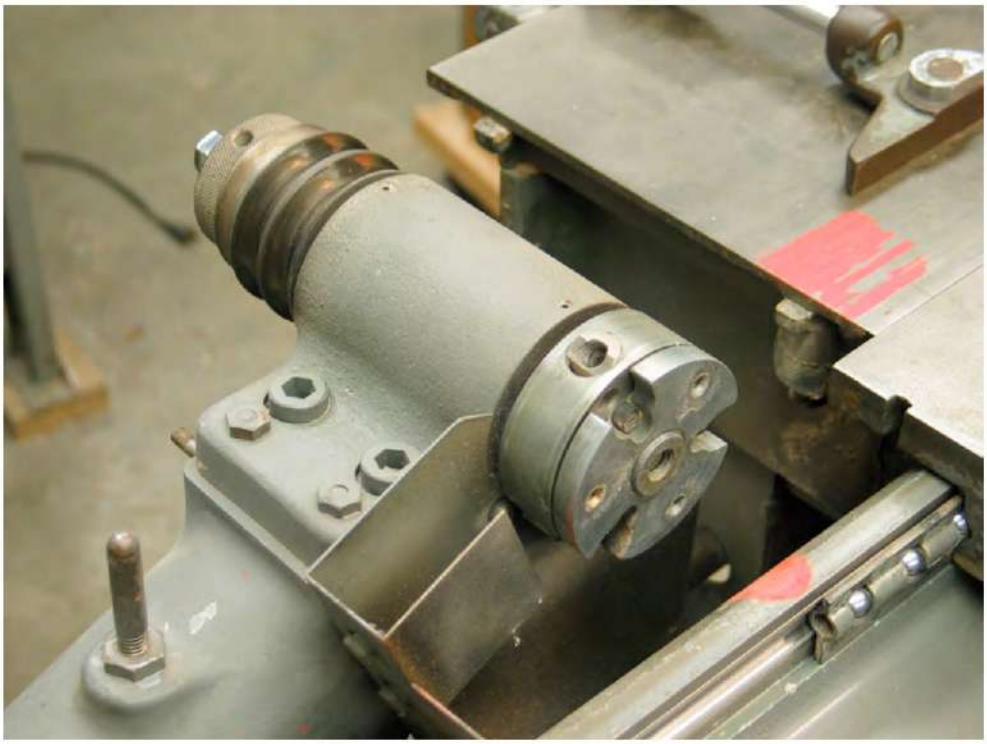

Figure 2 blade side of original arbor. Note sheet metal dust deflector. This will be

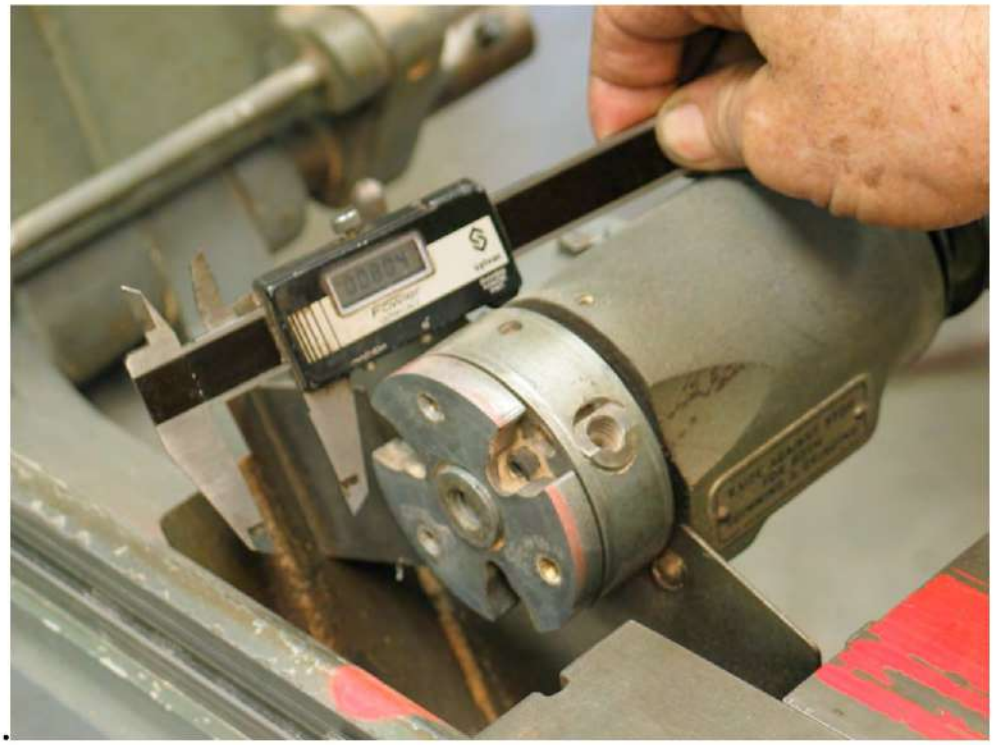

Figure 3 The stub arbor measured .804 on this specimen and would have to be turned down to take a blade with a 5/8 inch bore

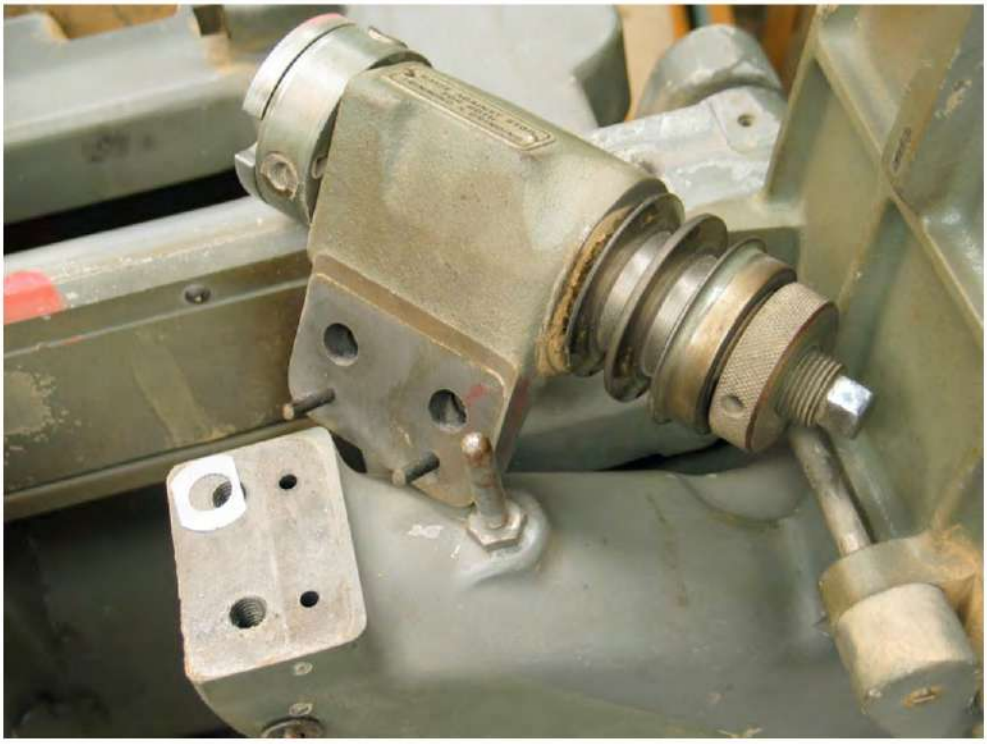

Figure 4 The two holding bolts were removed and the nuts holding the locator pins were screwed in (Tightened) to draw the pins back out. Note the shim. Mark its location for accurate re-assembly.

Figure 5 A detail of the threaded top locating pins with nuts.

Figure 6 Drawbolt has been removed along with the face piece.

Figure 7 Auxiliary threaded ring removed to expose spanner nut that holds the pulley against the bearing. The auxiliary threaded ring will be discarded.

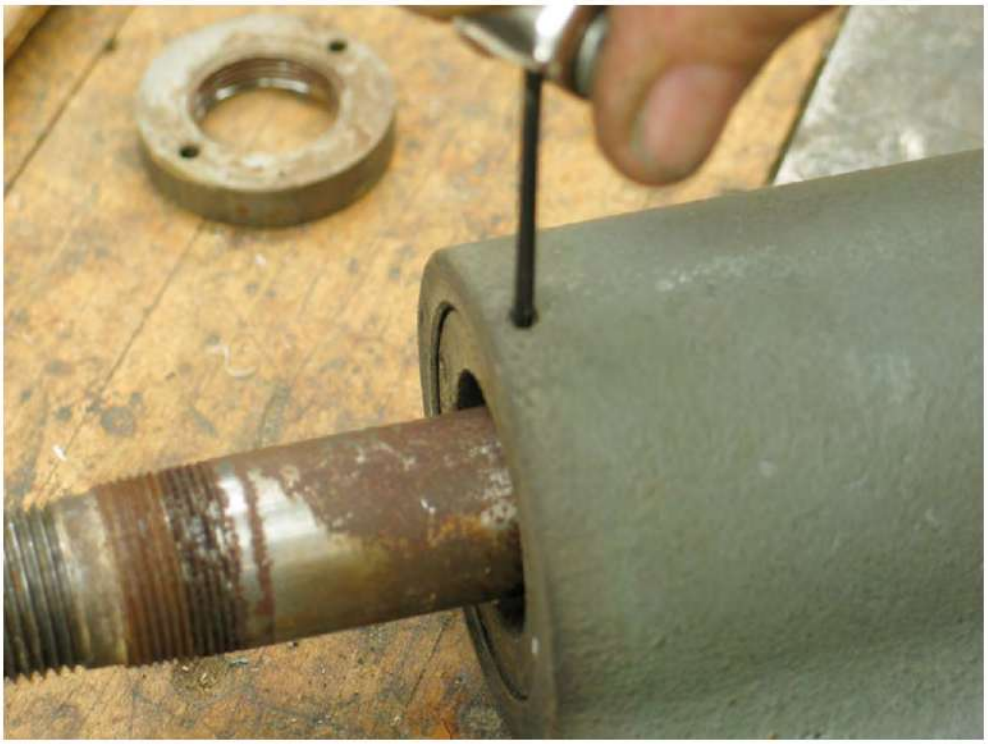

Figure 8 remove the two setscrews that hold the bearing retaining rings. Be careful to keep the brass compression stud under the setscrews.

Figure 9 Detail of setscrew and compression stud

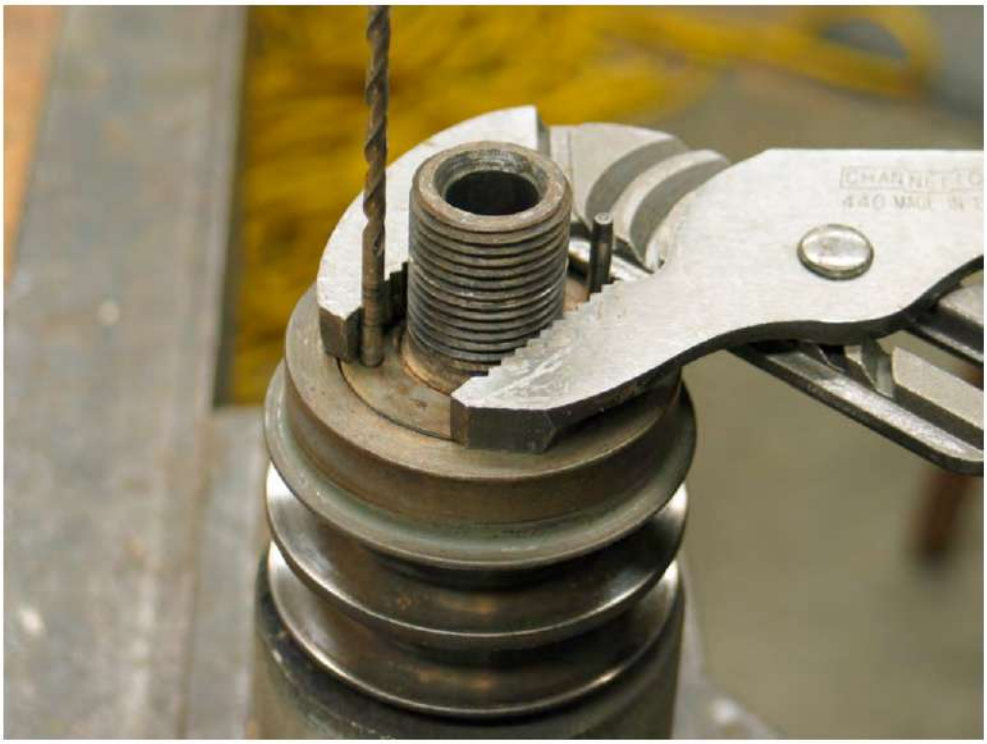

Figure 10 To break the friction, install a couple of 1/8 inch pins as studs and twist if you don't have the right size spanner wrench.

Figure 11 Once the spanner nut is loose, remove with hands.

Figure 12 Pry off pulley with a couple of screwdrivers. Remember, there is a woodruff key under the pulley.

Figure 13 Under the pulley is another spanner ring holding the position of the outer race of the bearing. There is one of these rings on each side of the arbor housing. The arbor will have to be pressed out, putting pressure on the pulley end (shown here)

Figure 14 Only light pressure should be required to get the outer race spanner nuts turning as they put very little force against the bearings.

Figure 15 The entire assembly is shown here. When re-assembling, the two brass spanner nuts will screw in and out to adjust the position of the blade flange. There should be light hand pressure compression on these two nuts. That's all the preload needed.

Figure 16 Now that the top is out, the table needs to be removed by removing three socket-head cap screws

Figure 17 Like the first cap screw, access to the second is through a hole in the casting

Figure 18 The third capscrew is the easiest.

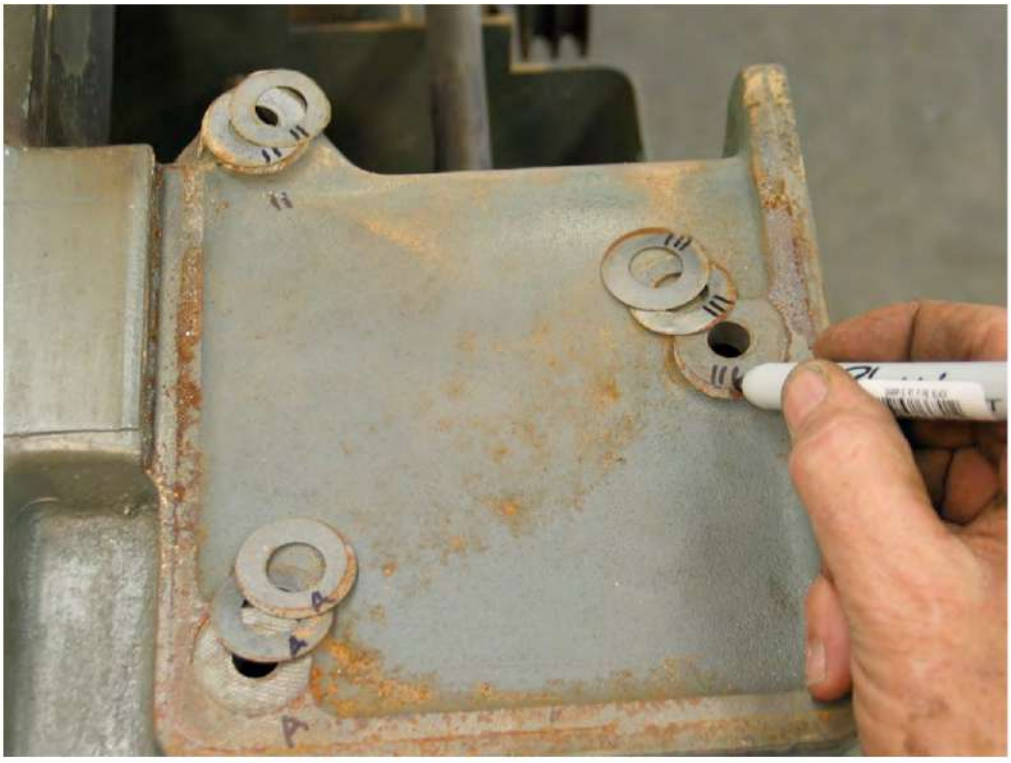

Figure 19 Mark well where the factory shims go.

Figure 20 Table is removed after the cut area is marked

Figure 21 A hacksaw makes quick work of this detail.

Figure 22 Clean up the hacksaw marks with a file.

Figure 23 Clean the threads with a 1/4-20 tap so the spanner nuts will install easily.

Figure 24 Here's two approaches to a solution. Both use a Unisaw LH nut. The top shaft is newly made with a smaller blade flange (2-1/4"). The lower flange uses a newly made face plate held in with the original drawbar.

Figure 25 This is the original faceplate with drawbar and original shaft. The faceplate method uses the original shaft so a new one doesn't have to be made. The new faceplate will fit into the recess and be held in by the drawbar and the three perimeter 10-32 socket head cap screws.

Figure 26 This is the new threaded faceplate showing the Unisaw nut and the Unisaw blade flange. Using the original arbor limits blade height above the table.

Figure 27 Front side of new faceplate. Note the countersunk holes for the capscrews. The machinist making this part will determine the dimensions.

Figure 28 The back side of the faceplate showing threaded hole for 3/8-16 drawbar. This is an inexpensive fix, but not as accurate as an entirely new shaft.

Figure 2921 For comparison, the top shaft is the new one and the bottom one is the faceplate style. Note the different dimensions around the flange.

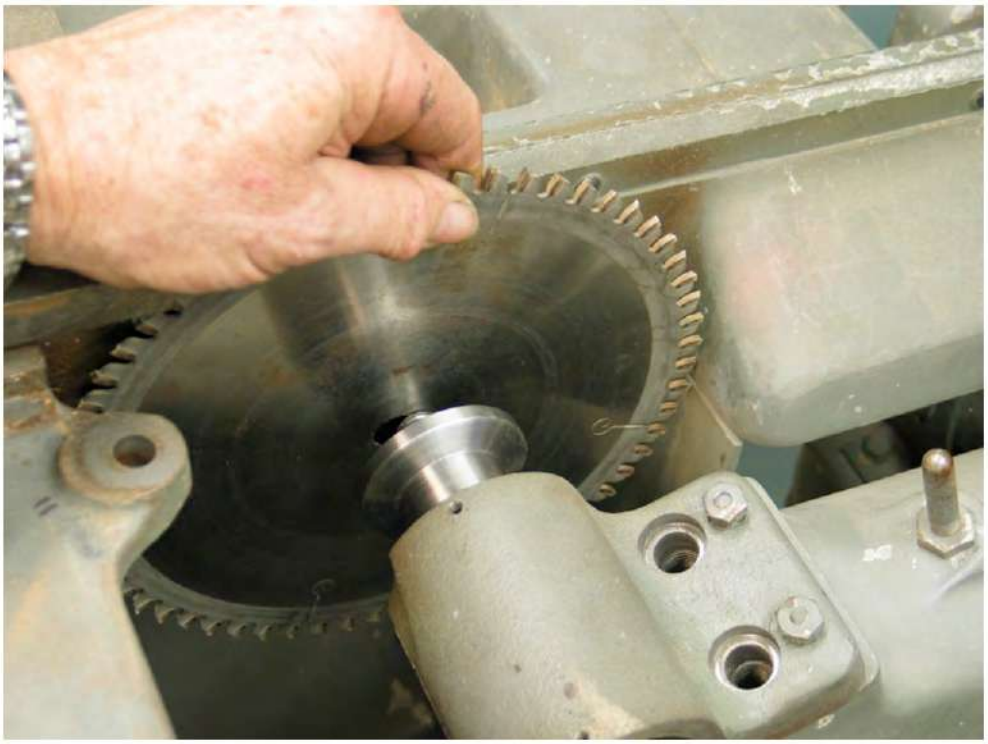

Figure 30 Temporally install the arbor to determine bearing placement and also where the castings will have to be cut. Note the 8-1/2 inch blade will not go on the arbor in the lower position.

Figure 31 For contrast, this photo shows the "Bench" glider model that doesn't require cutting for blade clearance.

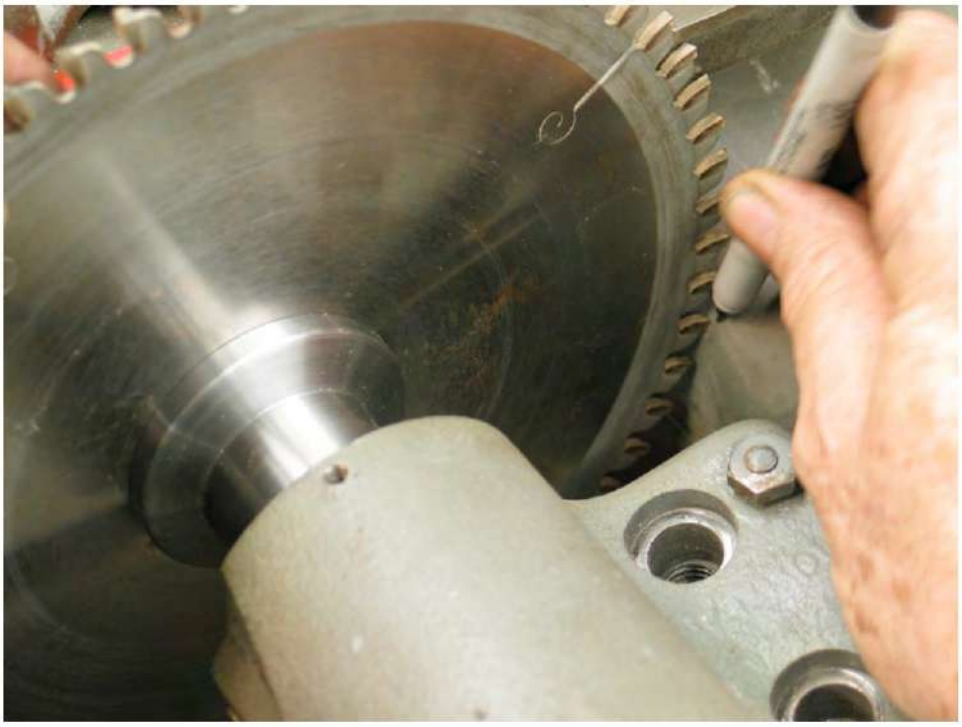

Figure 3222 With the 8-1/5" blade in the upper position, observe where the cuts need to be made and mark plenty of clearance with a marker. Keep in mind that the blade has to move laterally to come off the shaft.

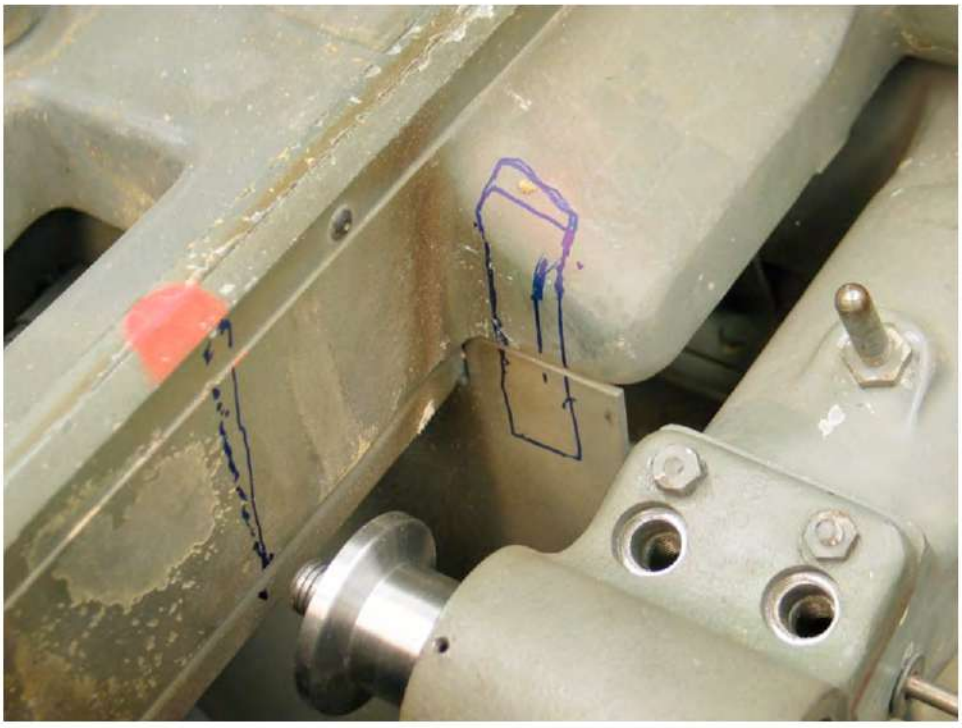

Figure 33 Area to be cut is clearly marked.

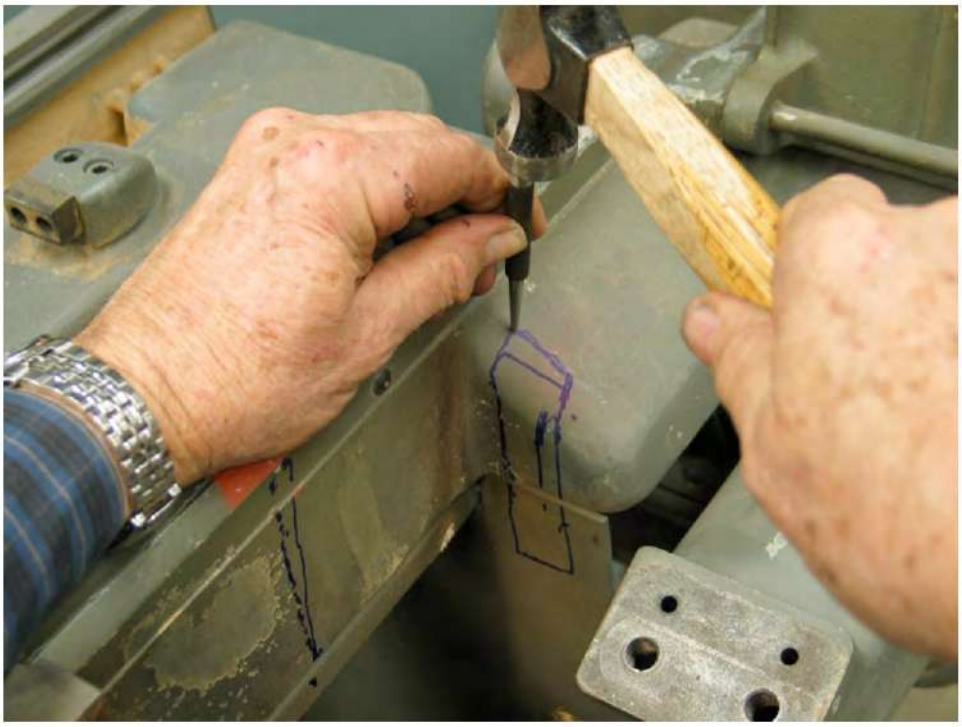

Figure 234 Punch centers for drilling a sequence of 1/4 inch holes for the top cut.

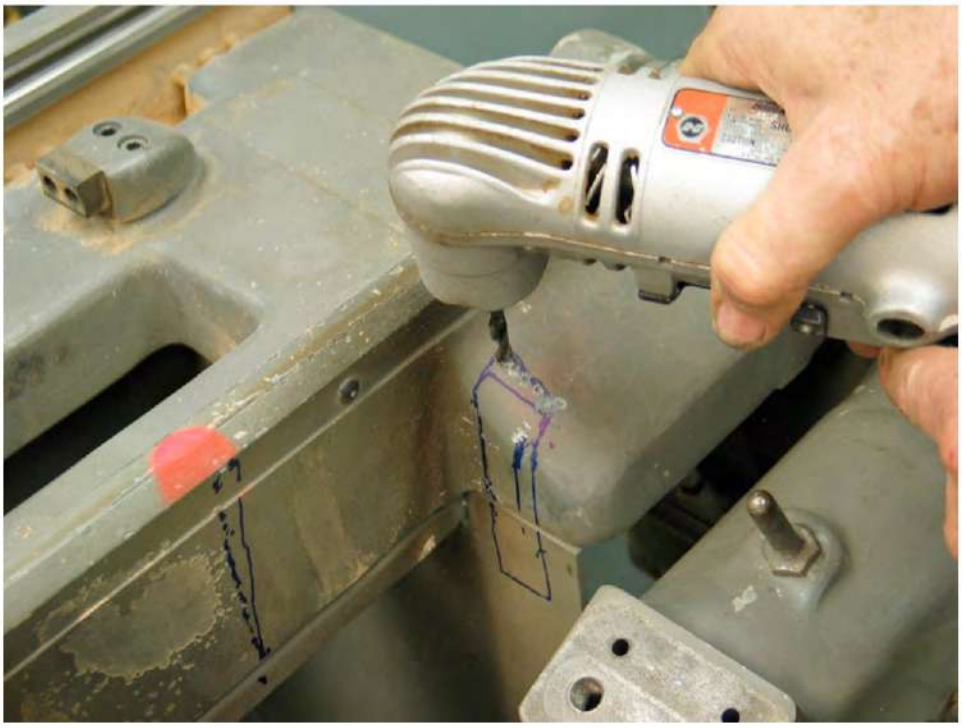

Figure 245 Drill a line of holes that are very close together.

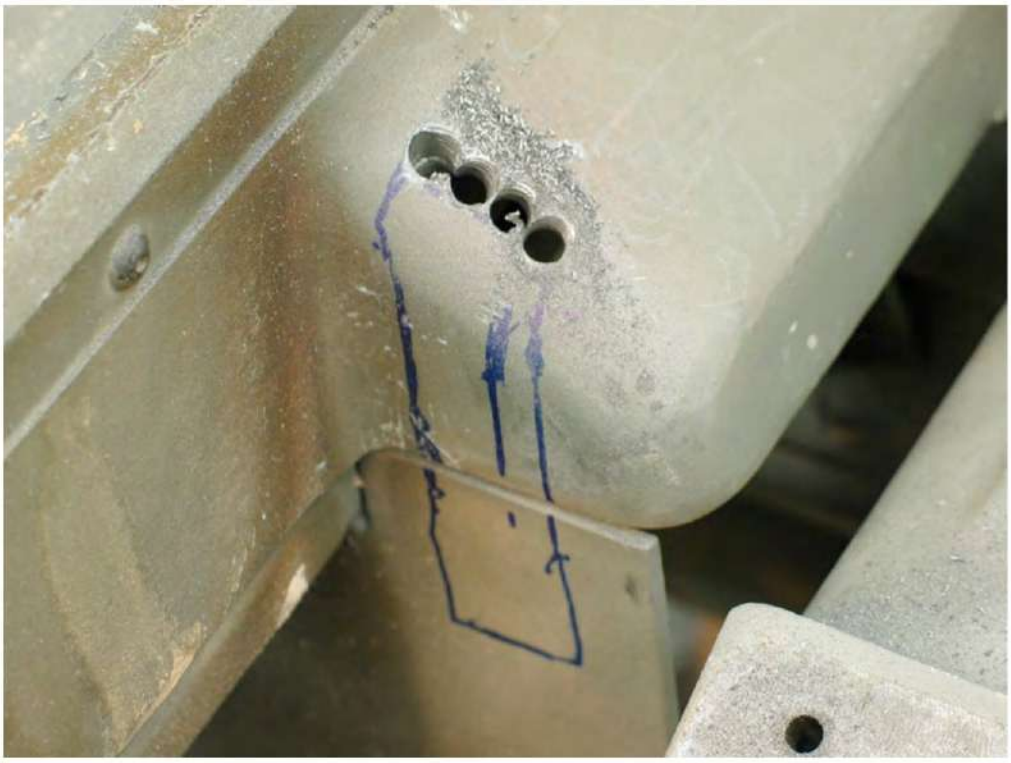

Figure 256 Holes neatly done. The sheet metal under the cast area will be cut away and not U-slotted as drawn.

Figure 267 A 4-1/2" angle grinder does quick of cutting a slot up to the holes.

Figure 278 Slot s are not cut and the opening is ready for removal.

Figure 39 A light tap of a light hammer gets the job done.

Figure 280 Net the angle grinder cleans up the top area.

Figure 291 Opening complete and now the bottom area will be ground out.

Figure 302 Once the two cuts have been made, pliers will worry out the waste.

Figure 313 A little work with the file cleans up the edge.

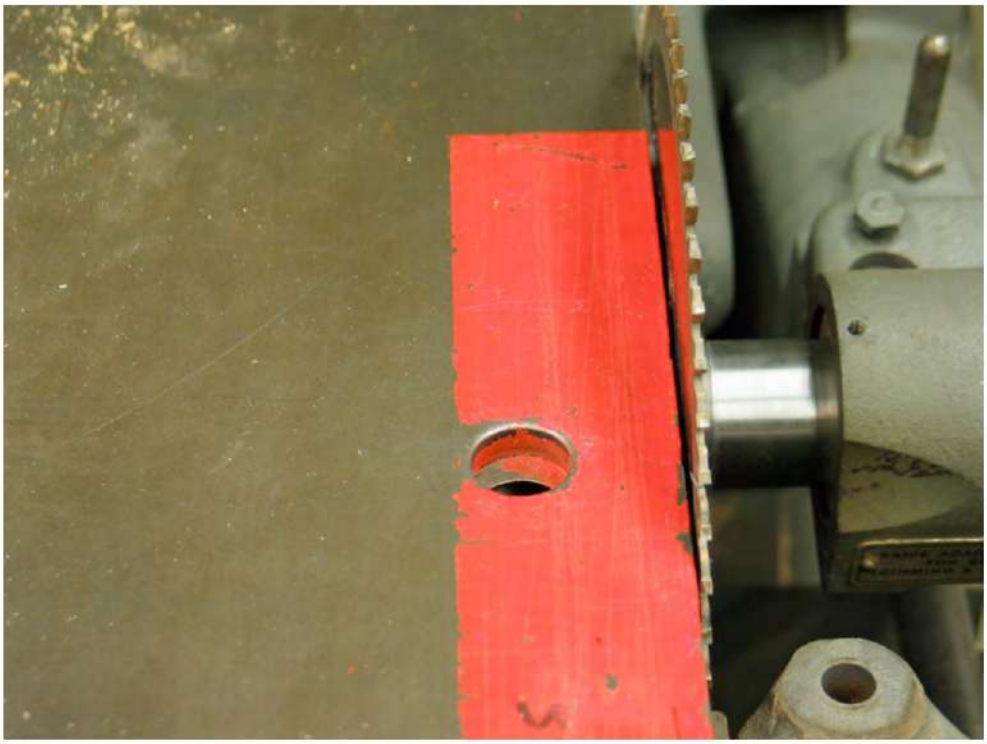

Figure 324 A 1/16" clearance will do nicely.

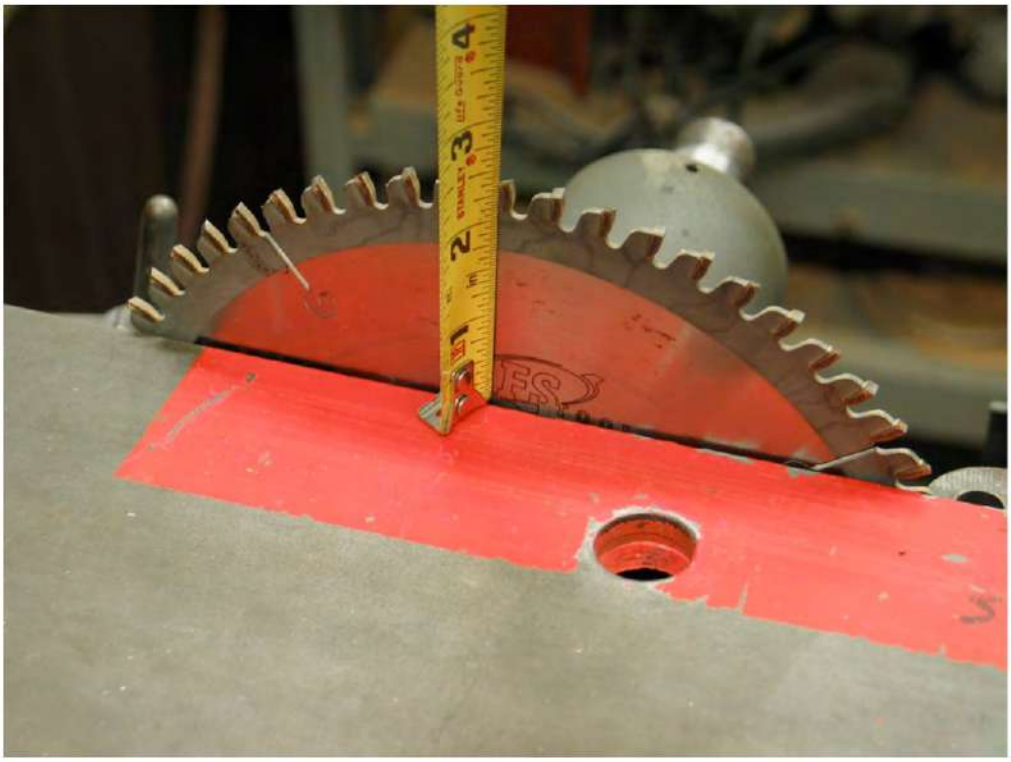

Figure 335 Cutting height with the new arbor will be slightly shy of 2-1/2 inches, a very acceptable range for a saw this small.

Figure 346 The position of the back table can be adjusted by loosening the rod setscrew and turning the slotted end of the rod with a screwdriver.

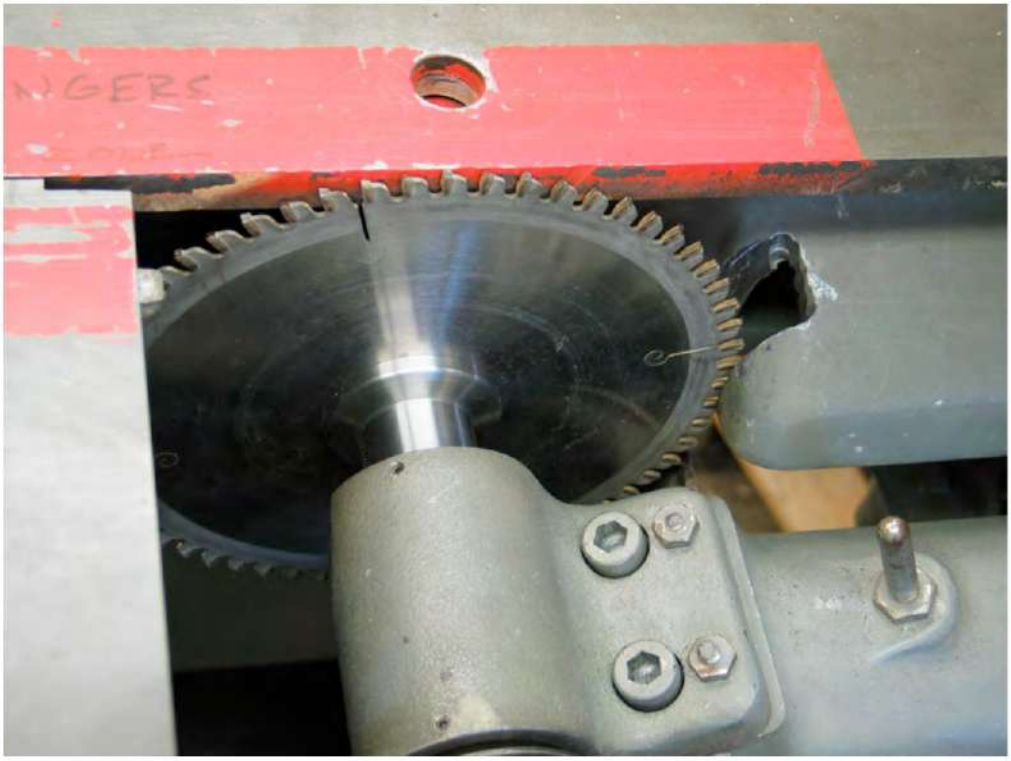

Figure 357 The installed blade ready to go.

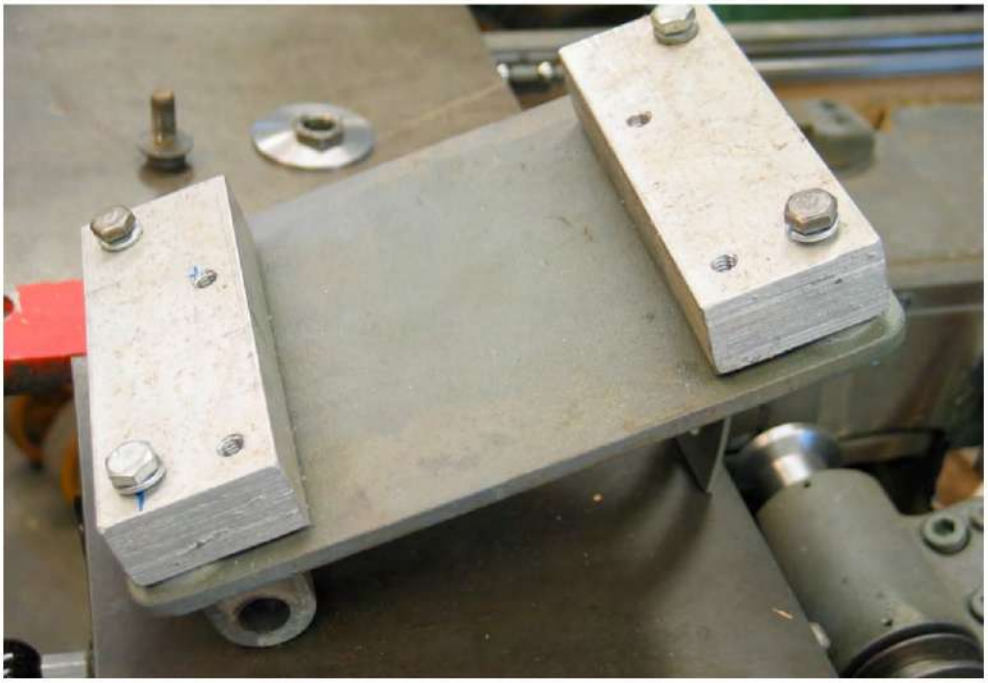

Figure 368 New aluminum spacer blocks 1" high were made to compensate for the difference between the old motor and the new 56 frame motor. New holes had to be tapped for the new base also.

Figure 49 The 56 frame, 3450 rpm motor installed

Figure 50 side view of the new motor installation.

Figure 37 The restored saw, ready for service.