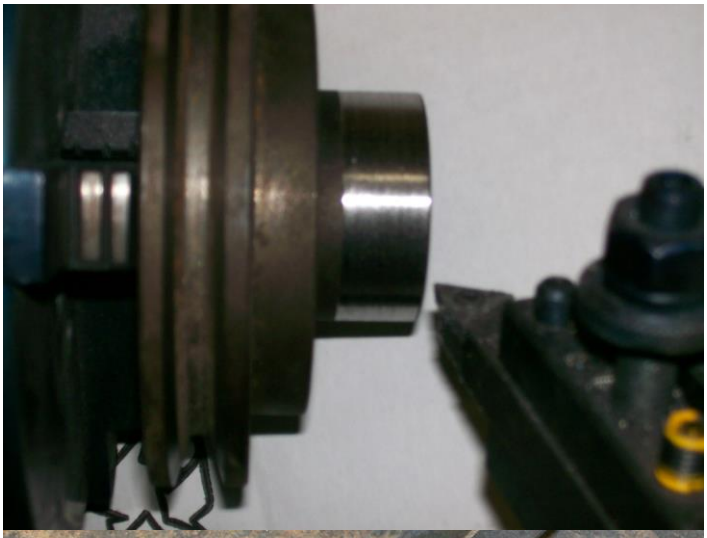
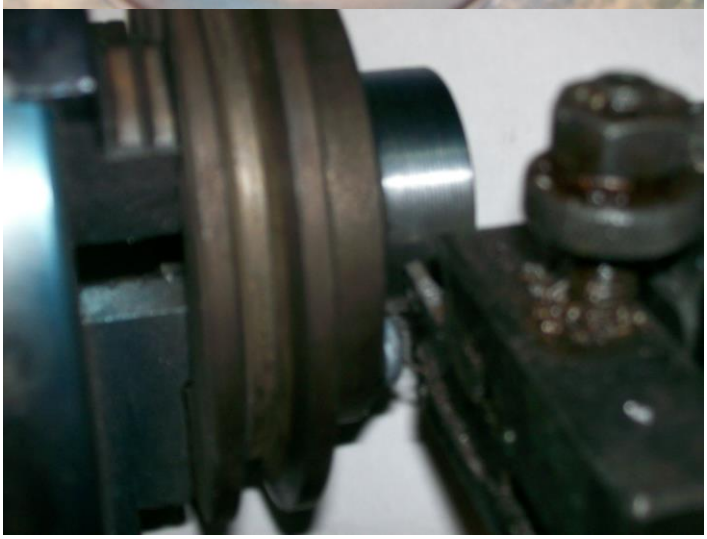
SPLINE SHAFT & PULLEY REPAIR

If your splines in the mill pulley and/or the splines on your mill spindle have become worn and now have play which causes a knocking sound and chatter in your cutter, follow these directions for a no cost repair. This was done on a Shopmaster Patriot , but the method can be used on any of our older machines or any machine using a splined spindle.

Remove the pulley from the machine and chuck it in your lathe and just give it a skim cut on the diameter and face to get a nice clean surface. Color it with machinist's blue and make 2 index marks on the diameter either side of where you will part the pulley into 2 pieces. Lay out 4 hole locations on the face of the pulley and punch mark each one.

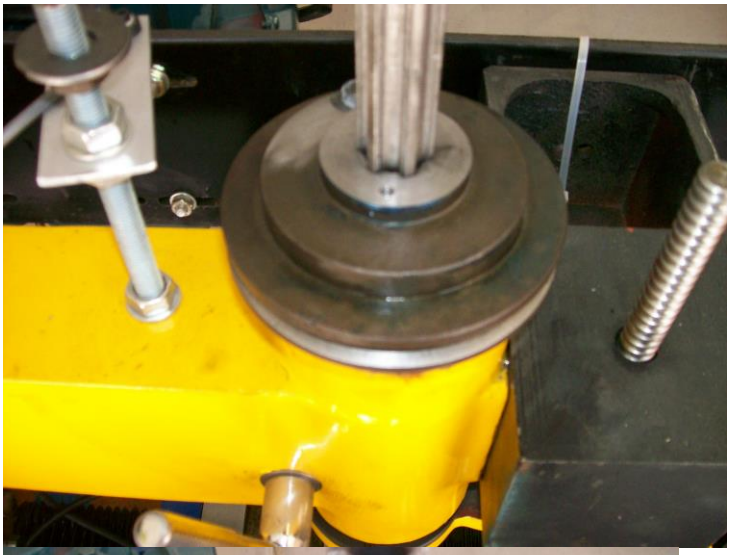


Now select 2 opposite holes and drill them all the way through with a 4.5 MM drill. Measure the depth of the splined portion of the pulley , chuck it in your lathe and set your parting tool blade so that it cuts the pulley as close to 50-50 as possible. Go slowly and use lubricant, as you will cut through the drilled holes as well as the splines.



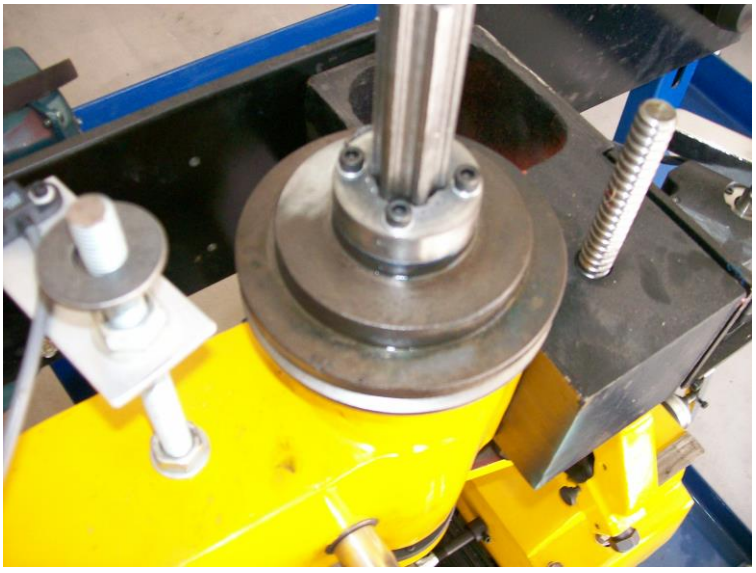
Once the pulley is parted in 2 pieces, use a file to clean up any burrs left around the splines. Now tap the 2 holes in the pulley portion with a 5 MM X 0.8 tap. On the cut off part of the pulley drill the 2 holes out to 6.5 MM.

Replace the pulley on the machine and then place the cutoff portion down on top being sure to align your index marks. Now put two 5 MM bolts into the holes and thread them in finger tight. You will now see that the upper half of the spline can rotate slightly because the holes are 1.5 MM oversize. Hold the lower pulley steady and rotate the upper half to take up any backlash between the shaft and the pulley. Carefully tighten the 2 bolts while running the spindle up and down until it moves freely through it's full travel and you have zero lash in the splines.



Because the holes in the upper half of the pulley are oversized, the pulley could eventually slip due to vibration and cutting loads. Therefore you need to secure the two halves together permanently. Remove the pulley from the machine and drill two 4.5 MM holes through the remaining 2 punch marks. Tap these 2 holes with a 5 MM X 0.8 tap and place 2 more 5 MM bolts into them. Because these holes are tapped together and not oversized, the 2 pulley halves cannot slip out of place.

Replace the pulley on the machine and double check the movement of the spindle through it's full travel.



PLEASE NOTE: Metric fasteners were used to match the machine, but you could use 10-32 inch size as well if you do not have the metric drills and taps.