

Radius Turning Tool for the 7x Minilathe.

Overview:

Really, it works better than I expected. Solid feel, easy to setup and it's not prone to chatter ... which was a concern because I wanted to be able to use a long arbor without tailstock support (pictures below).

I had previously made a "yoke style" tool (link), which worked well, but it always felt a little awkward. It mounts faster and has almost the same capacity but, for me, the new one is easier to use.

[http://groups.yahoo.com/group/7x10minilathe/files/Treadmill Motor Conversion/7x10-Tooling-2.jpg](http://groups.yahoo.com/group/7x10minilathe/files/Treadmill%20Motor%20Conversion/7x10-Tooling-2.jpg)

Anyway, they were both fun projects. Now, if I can just remember why I needed a radius turning tool ...

The Assembly:



Major Components (dimensions approximate)



Base: Aluminum, $\frac{1}{2}$ " x 2- $\frac{1}{2}$ " x 4". SHCS in the end locks the Pivot mounting/adjustment screw.

Tool Holder Carrier: (Didn't know what else to call it)

Aluminum, $\frac{1}{2}$ " x 1- $\frac{3}{4}$ " x 4", pivot hole diameter and taper to match pivot. Outside, long edges dovetailed @ 12 degrees.

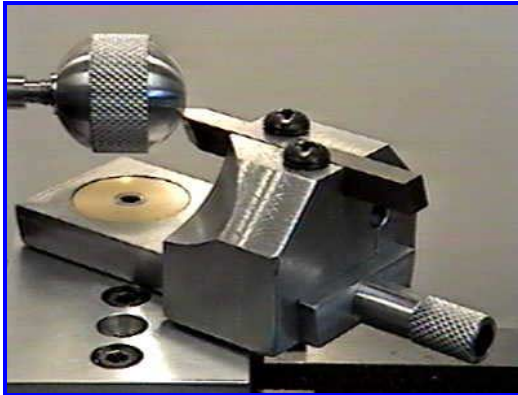
Handle: Aluminum, 1/2" x 1-3/8" with 1/4-20 shcs thru bolt.
Pivot: 1-1/4" dia. brass with 30 degree tapered sides, 1/4-20 shcs mounting/adjustment bolt countersunk and silver soldered.
Bearing Plate: (Didn't know what else to call this either)
SS shim stock, 1-1/2" o.d., just thick enough to provide a little clearance between the Base and Tool Holder Carrier.
Tool Holder: Aluminum, 1-3/8" (L) x 4" (W) x 1-5/8" (H). Screws 1/4-20.
Dovetails onto carrier and locks via two clamping screws.
Assembly: All moving parts coated with wheel bearing grease.

Mounted on the 7x10 cross slide.



(Note the extra set of mounting holes – don't need'em)
(Had intended to surface the Tool Holder Carrier just for appearance but got lazy. May do it yet.)

Demo ball – easy side (1-1/4" o.d. aluminum).

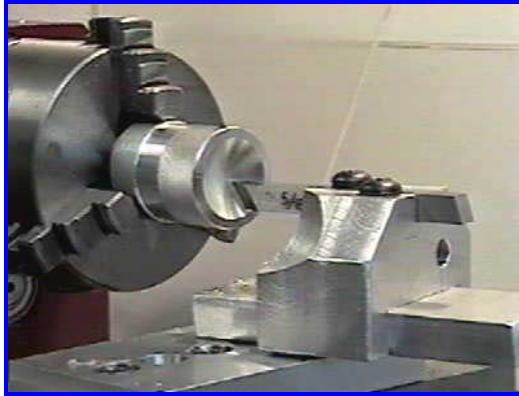


Demo ball – crowded side.



(Note the size and angle of the relief notch on the tool holder. I cogitated on this way too long and finally accepted the idea that the diameter and angle would be “right on” for one, and only one, setup. This ain't it. But, it worked out just fine in all the variations I tried.

Demo cup – 1-1/4” aluminum

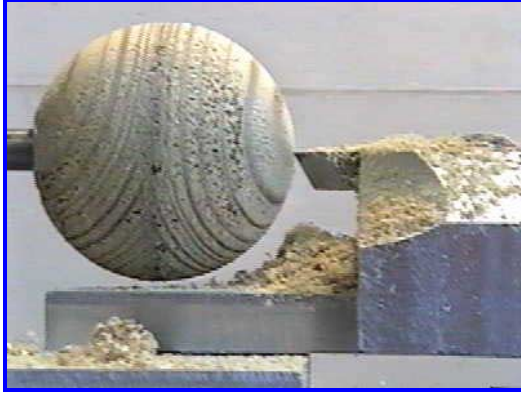


Ball to the max – this is as big as it gets ... 2.3” o.d.



(From treated lumber. Didn't want to waste a metal chunk this size.)

(Figured out that wood trimmings and oily surfaces have a powerful affinity.)



(It ain't pretty but whadaya expect from treated lumber)