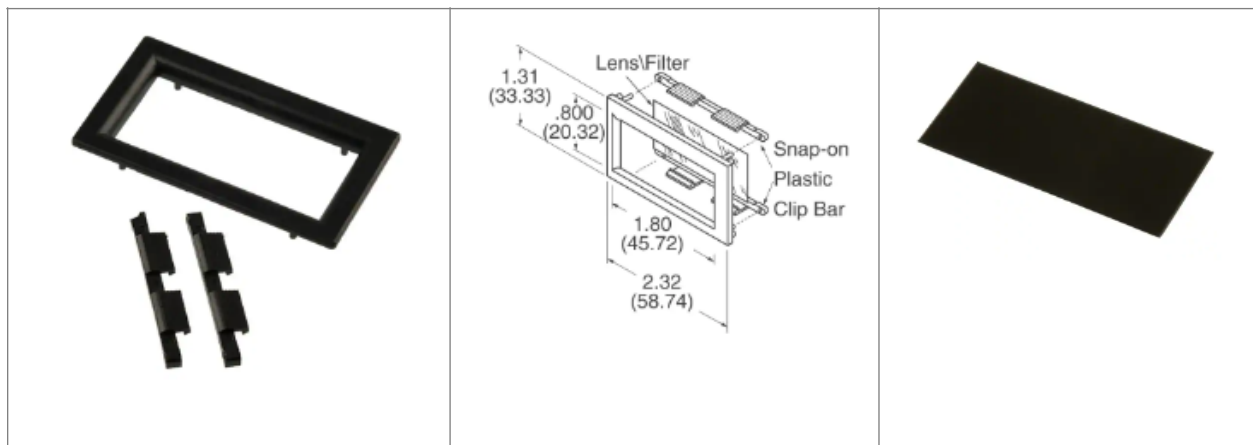


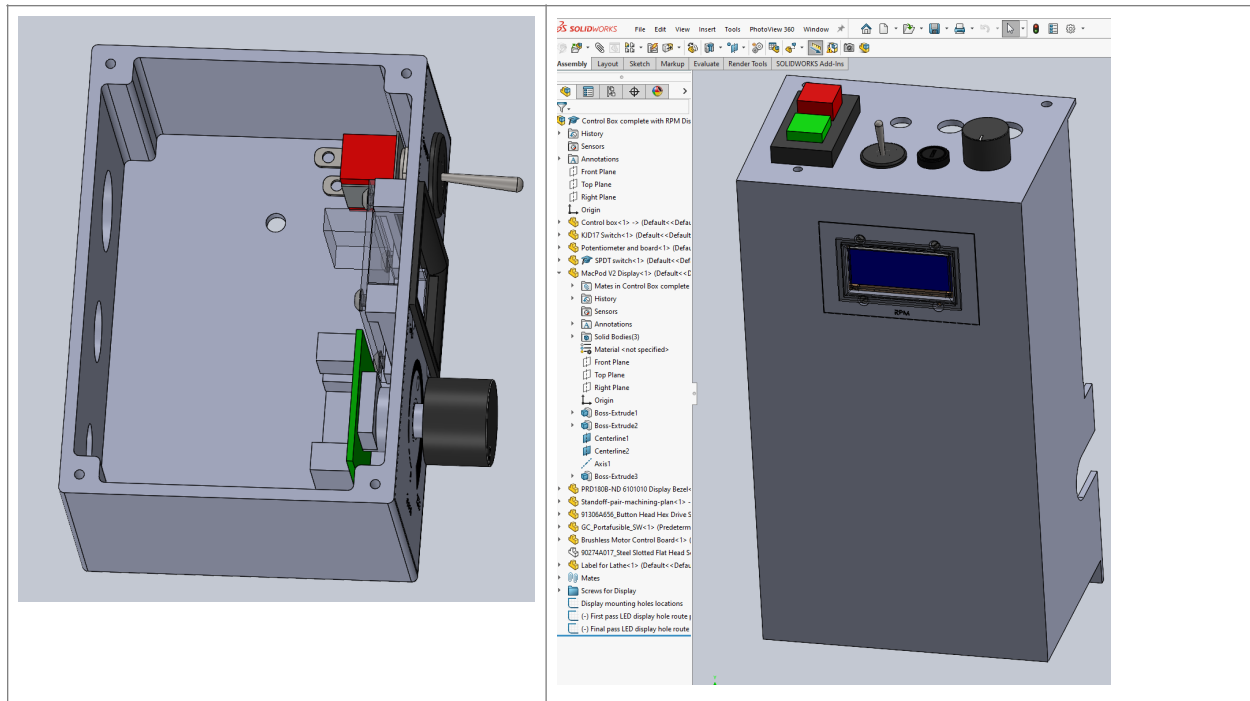
## Mini Mill and Mini Lathe MacPod Tachometer Upgrades.

*Phil Edwards 1/5/2023*

I purchased two SX2/CN2 Tachometer kits, one for my mill and one for my lathe. I wanted them to be removable and built into the machines using the same method. After reading through the MacPod Enclosures page and seeing the many excellent methods, I chose to copy the concept of using an aluminum standoff, but my worry was either the bezel or lens might get significantly scratched during use from flying hot metal swarf. Using clip together bezel parts allows for simple replacement with new ones. I ended up deciding on using PRD180B-ND plastic bezels and smoke lenses PRD180B-ND from Digikey.com (\$4.21 per set). See Digikey website for part details. The inner opening is 45.7mm across, slightly too little to allow the full 4-digit display to be seen, so I machined this inner opening 1mm wider per side, creating a 47.5mm wide opening. The lens then just fits without letting LED light escape.



The clips that hold the bezel in place need to clear any mounting hardware for the Tacho, so I machined two sets of aluminum standoffs. Solidworks models were designed for use as machining plans for the parts as well as for the control box cutouts and mounting holes, including designing the labels.



The views below show:

- 1) The standoffs for one tacho from two views
- 2) The front of the Mini-Mill control box and how the tacho plus standoffs are attached; using M2 countersunk screws. The cavities for the bezel's clips are clearly visible.
- 3) The last view shows the assembly from the Tacho's side of the plastic control box.

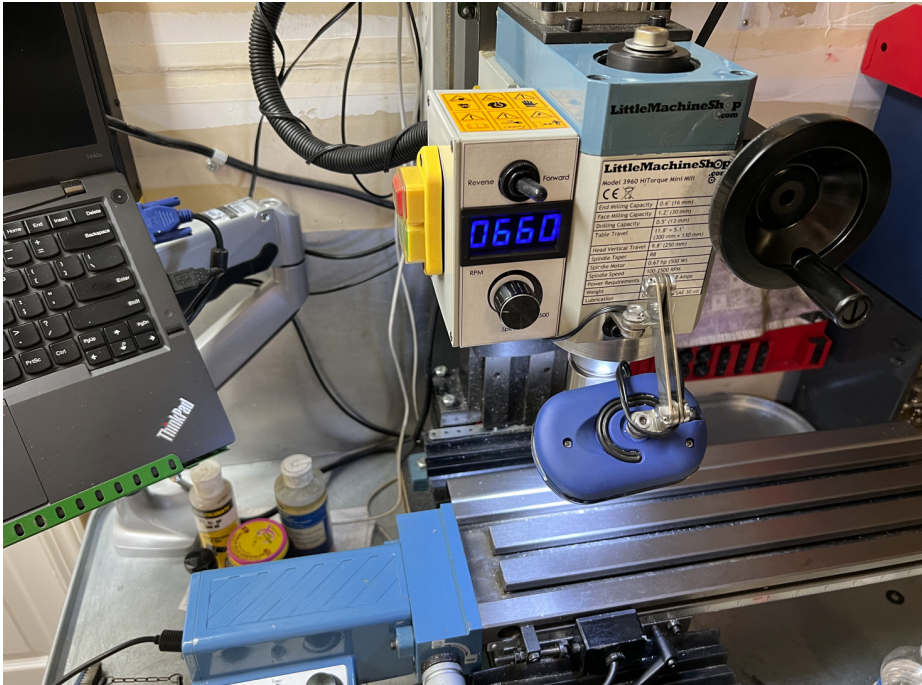


The labels were printed onto laser printable Avery shipping labels and 3M-Scotch self-seal transparent laminating sheets were used to protect the label and to allow some level of cleaning.

## 1) Mini Mill.

This is an LMS 3960 Mini-Mill with a few additions; solid column riser extension, power fed table, 3-axis

homemade DRO.



## 2) Mini Lathe

This lathe started life as a Harbor Freight 7x10. It was lengthened using an LMS 7x14 extensions kit. More recently I managed to work out how to convert the 110V motor based headstock to having a 500W BLDC motor; in effect changing to having an LMS HiTorque headstock. It also has DROs, including for saddle position readout and multiple other upgrades.

The Tacho was added to the front surface of the headstock to keep it well away from flying swarf!

