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Subject: 143 Sailplane Resolution to a Potential Vibration Problem

Comet Sailplane Project

When my friend Jerry Burk saw the picture below of the knurled brass knob soldered to the unsupported stem of the needle valve, he e-mailed me back the following comment:

The needle valve looks very good, but the large weight at the end of the NV might cause a harmonic vibration at some RPM.



Once again, this feed back pointed out a problem I hadn't even considered. With the McCoy's high RPM, there is high probability of this occurring. The approach I used to resolve this issue was to support the needle valve stem out at the cowl surface. To do this, I selected a medium size piece of black neoprene fuel tubing. Since the neoprene tubing was a little large to go through the aluminum tube in the cowl, I cut one end off on the bias, put a dab of after run oil on the tubing, and forcefully pulled it through the aluminum tube in cowl with a pair of hemostats as shown below.



I left about an 1/8" sticking out inside the cowl as shown below.



This compressed the neoprene tubing down to the point that the stem of the needle valve would not slide through the hole in the center of the neoprene tube. So I used increasing drill bit sizes to ream the hole out until I could push the needle valve stem through the hole in the tubing as shown below. The stem fits snugly inside the neoprene tubing, which should dampen out and prevent any harmonic vibration from occurring in the needle valve.



This is a view of the needle valve protruding inside the cowl.....Tandy

