No More Cork

Paul Gockel

Ninety year-old cork floats immersed in ethanol-laden gasoline don't spell a good future for carburetors and a sweet running dippy. Epoxy is all right but it adds weight. Time to switch float material. Although many of us are still running with cork, it won't be long now till it disintegrates and becomes the crap clogging your jets.

Nitrophyl is the new stinky synthetic to which most antique car people turn when float replacement time comes along. It has the buoyancy similar to a Ping-Pong ball in mercury, machines way too easily, is non-absorbent, requires no shellac (which would probably dissolve it), but its durability still needs the test of time. In the meantime, it's the best we have and it's great. Here we go.

Turning outside taper.

I selected a bar of the stuff nearly the same diameter as a Kingston float. I probably could make four floats from this length of material. I chucked it in the lathe. Just a tiny bit of machining was necessary to get the large outside diameter the same as an old cork float.[1] As soon as you machine this stuff, that nice smooth moulded finish disappears and you're left with a rough un-smoothable surface. Don't worry about it.

Then I drilled a hole through the centre large enough to accept the boring bar in the hole. Repeated measuring with calipers got me to the correct smallest bore. In the boring process, the smallest bore is the starting point.

[1] *I sized a number of old successful floats and averaged their diameters to establish my own diameter.*

You may have noticed that the outside diameter and the inside diameter of your old Kingston floats are tapered.

Boring the ID

Photos: Paul Gockel

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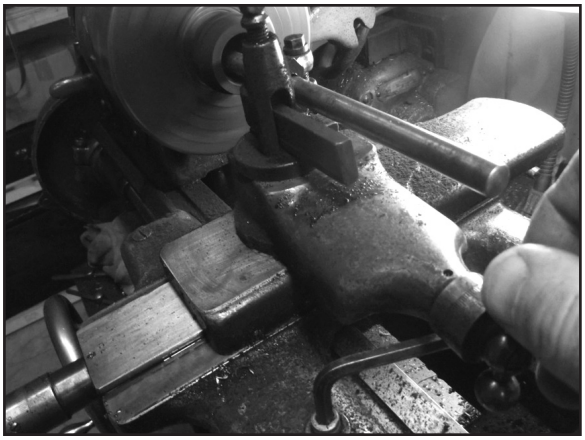
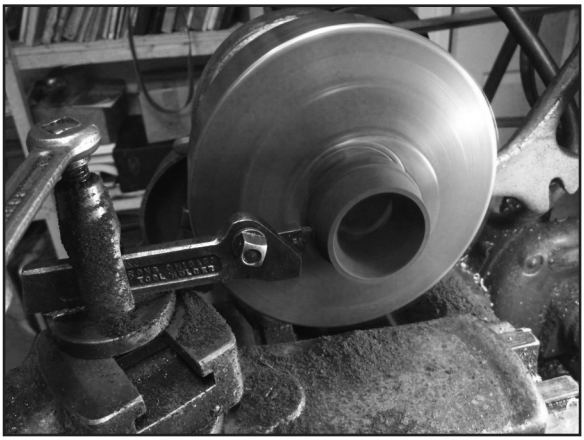


Boring inside taper with compound set at 84°

There are no straight or parallel sides. This is so it can float up and down in the bowl with minimal interference from the bowl or the post. I put an old float in the chuck and swung the lathe's compound to various angles to find the correct taper Kingston used. About 84° was as close as I could come. The corks are about 9/16" long so I tapered the outside at 84° for about ½". Then I swung the compound 168° around the other way to establish 84° for the boring operation. I put a pencil mark on the boring bar so I'd know when I was far enough in the hole. Using the cross slide, I dialled it away from centre. As soon as the tool touched the float I let go of the cross slide and backed out the boring bar using the compound, establishing the inside taper. Even though this stuff is easy to machine it's not strong; the boring process could have been done in one pass but I might have ended up with shrapnel instead of a new float. As a result, I took many passes.

I rounded off the bottom narrow end with a file and sandpaper and then parted the new float from the stock. Finished! It only awaits the customer's screw bushing so I can drill its 5/32 or #22 hole as necessary to accept the float arm to the float. A little recess might need to be hand carved in the float to allow for the bottom of the bushing the way they did for the corks.



Parting. Tool extended to avoid interference with chuck.

Since these new floats are so buoyant, float-level adjustment will be necessary. Although nitrophyl machines more easily than cheese, it has no strength. You could easily break it while bending the float arm attempting to establish a new float level. I suggest the laborious operation of installing, checking, removing, bending, re-assembling and checking again to get things correct without damaging anything. I know it sounds awful but it must be done. The long way 'round is the shortest way home.