

The Preventive Maintenance Series

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Modifying Rochester Carburetor Bowl Vents

Autocrossers have had a problem with Rochester carburetors flooding on hard turns from day one. Many of you have had the same issue just enjoying your nimble little car on the streets. The problem arose after 1960 when bowl vents were moved from an external cover location (plus 2 tiny internal vents) to internal locations. Depending on float level and how hard you turn the car, fuel from the bowl can come out of the vents and promptly drop into the venturi. There was an early bowl gasket design that was open over the bowl making it worse (some cars died on a hard stop) but that was modified to the current closed design. First came the duckbill vent then the duckbill plus two side vents and finally just the two side vents with different sizes. After the vent was deleted from the duckbill, the casting remained on all Rochesters and can be removed for better flow (as long as you have the two inside vents).

I ran across the flooding issue locally in 1965 when I had a new Corsa 140 which bogged down on every corner. I got no help from the dealer. Unhooking the secondaries corrected the problem so there was some head scratching until we determined the fuel was still coming out the vents but with the primary throttle valves open and the rpm's up the excess fuel was thinned enough to keep the engine running using only the primaries. The secondaries were not open yet and the excess fuel pooled on top of the tightly fitting secondary throttle plate. Running with them hooked up and then snapping them open dumped the fuel accumulation causing flooding. During an autocross we went into a hardware store plumbing department and found some small copper tubing which, with a little sanding, could be tapped into the vents. Of course air cleaners were left off anyway, so we hustled around the course with toilet parts sticking out of our carburetors, happily beating new Mustangs.

Over the years there have been several different approaches to the cornering problem. They include (but are not limited to): rotating carburetors 90 degrees with adapter plates and new linkage, installing tubes both above and below the top of the float bowl, installing tubes just in the carburetor top (as in this article), using Weber carburetors, and re-locating main metering jets to eliminate starving. I have not experienced that issue; I may not go fast enough!

The following suggested correction is written based on your carburetors being in perfect calibration, needing only the flooding issue resolved.

- Remove the carburetor tops being addressed, and remove float, needle & seat, accelerator pump, and filter from each. Next, straight edge the underside of the top across the hole for the long mounting stud. It may be pulled down from over tightening the nut, making a tight gasket seal impossible. Use a straight file to carefully bring the area into alignment.

- Cut the appropriate number of tubes from a length of 1/4" steel brake/gas line. Each length should be 2 1/2" long.
- Use two screws to carefully attach each carburetor top in turn to a scrap piece of 2" thick lumber to act as a holding fixture for a drill press. This is important to maintain stability of the top when drilling out the vent; the hole has to be a press fit.
- If you have a caliper or micrometer check all your 1/4" drill bits and use the smallest. Put tape on the bit exactly 1" from the tip. Holding the top tightly, steadily but **quickly** drill the vent hole until the tape mark is at the top of the carburetor. Only make one pass and do not drill all the way through, this leaves a ledge. Follow this carefully and you will have a press fit hole for your tubes. If your holes are slightly loose, add a small amount of fuel proof epoxy and as noted below, weld the ends of the tubes together at the conclusion of the work.
- Press in the tubes with a shop press or drill press or carefully use a hammer. The hole you drilled has a small ledge at the bottom to stop the tube, so don't over do the pressing.
- After all tubes are in, use a #24 drill bit to drill through both ends of all tubes to clear them out. This will leave the small ledge in place.
- Bend the tubes towards the middle with a spring tubing bender and a pair of vice grip pliers until they barely cross each other. Wood blocks in a vice can give you a hand, as this takes a little effort. If the tubes have stayed tight during your installation you could skip welding but I like to do it anyway. I use B-5 on my Lincoln, just a quick spot where the tips cross. If you gas weld, use a heat sink (wet towel) around the tubes to avoid melting any epoxy you used and use a #1 tip.
- **Clean everything carefully** and re-assemble making sure the seat is tight, the float setting and drop are correct and the floats are in alignment.
- If your bowls have an additional small vent rising above the bowl that fits through a small hole in the gasket, I would suggest plugging the tube since it exits on top of the throttle valve (64-69). I have tried both plugging and not plugging and was pretty sure there was some minor flooding in really hard cornering with the tube open. I currently have a pair of carburetors in service with the tubes plugged and I can tell no difference in hot idle or restart.
- To allow your air cleaners to have a tight seal, you will need to cut two small notches across from each other in line with the tubes. Lay the air cleaner on the tubes, mark, and cut just enough to clear. You will still have a perfect seal with the gasket.



Completed Tube Installation



Air Cleaner Clearance & Tools