

Tech Talk: Holley Fuel Bowl Leak Repair

By Ed Szeliga

My Holley 4150 (2818-1) was showing its age in appearance and performance so I decided that it was time for a restoration. This was my first carburetor rebuild and I can honestly say that it went much easier than expected and the results were satisfactory, in both appearance and performance. This how-to article is not about the entire carburetor rebuild process but, if you have never done one before and are considering it, I encourage you to try. Reach-out to experienced MAC members for assistance – I did and it paid-off.

Upon reinstalling my rebuilt / restored carburetor on the engine I was not completely surprised to have several small gas leaks, two of which were easily corrected by just re-torquing the related fasteners. The third leak was more problematic – fuel was seeping from the press-fit aluminum plug in the secondary fuel bowl. The plug is at the end of the fuel transfer tube that delivers fuel to the secondary bowl from the primary bowl. This plug is present on all Holley 4150 and 4160 carburetors and it fills the cavity where a second fuel inlet fitting would be installed if the carburetor had been a “double pumper” (Figure 1).



Figure 1: Fuel Bowl Plug

The plug is pressed into the opening during manufacture and cannot be removed easily or without permanently damaging the fuel bowl assembly. I understand, there is a gasket behind the plug which fails due to exposure to ethanol gas, prolonged exposure to carburetor cleaner or age. If you have had a leaking secondary bowl plug you know that: a) the gas seeps out slowly and, b) there is no acceptable “school solution” remedy for it. Neither the gasket nor a replacement plug is available from Holley. I searched the internet extensively (including the NCRS Technical Discussion Forum) and found just one recommended do-it-yourself fix. That is, to apply a thin bead of J-B Weld to the outside (visible) circumference of the plug. There are a number of Corvette enthusiasts that claim that they have tried this and that it works because when cured, J-B Weld is impervious to gasoline. The bad news is that it is probably not pretty when finished – there is no way to conceal or minimize the presence of a dark grey, J-B Weld bead in an area that should be clean pristine metal. And, for anyone that is contemplating having their car judged, I am sure that the J-B Weld would justifiably result in the deduction of a few points.

So, what are the options? Not many I am afraid. Secondary fuel bowls that are identical to the originals are no longer available from Holley. If you are really lucky, you may find a NOS unit. Buying a used bowl is not a great option because it too may have a leaking plug and there is no way of knowing that without testing it on the car.

My approach to a repair was to find a way to apply or inject J-B Weld to the inside surface of the plug where it would not be visible when assembled. That approach should work since J-B Weld is impervious to gas. The challenge was how to apply it. The back side of the plug is not visible from any angle, as you can see from the pictures in Figures 2 and 3. The only access to the back side of the plug is through a 3/16 inch



Figure 2: Secondary Fuel Bowl Balance Tube Orifice



Figure 3: Secondary Fuel Bowl Interior View

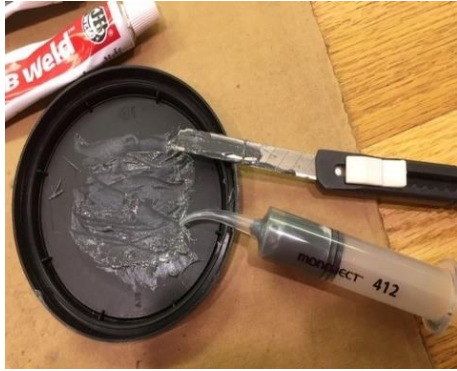
diameter hole, visible in Figure 2, which accommodates the transfer tube. Then, you need to negotiate a 90 degree right turn to get to the back side of the plug. When properly assembled, fuel is delivered to the secondary bowl through the transfer tube and turns to the left towards the float valve and bowl reservoir. It is important to not inject too much J-B Weld through the hole and block the required fuel flow path to the bowl reservoir.

The solution to injecting J-B Weld onto the back side of the plug was to use a curved-tip plastic syringe, Figure 4. They are available on Amazon and in department stores under the name of MONOJECT 412. You can get a package of five syringes for less than \$10.00. The curved tip is the perfect shape and length for getting J-B Weld to the back side of the plug.



Figure 4: MONOJECT 412 syringe

I mixed some J-B Weld and got it into the syringe tube with a thin blade box cutter, Figure 5. I had to cut the tip of the syringe back about an eighth of an inch to increase the size of the exit hole. When the J-B Weld is in the syringe it is like you have a miniature caulking gun. Important: be sure to get the original J-B Weld, which has a 3



**Figure 5: MONOJECT 412
with J-B Weld**

to 4 hour working time and takes 24 hours to cure. This slow setting J-B Weld will "flow" or run so after you inject some into the fuel bowl you should stand the bowl up on its end, plug down, to allow the J-B Weld to settle evenly on the plug.

After the J-B Weld cured and was as hard as a rock I inspected the bowl visually as best I could and tested the fuel flow path with compressed air and a soft wire to ensure that it was not obstructed. The real test came after reinstalling the carburetor on the engine, connecting everything and test running the engine. I

did that, up to operating temperature three times – the J-B Weld fix worked, the plug no longer seeps gas.

I hope you find this approach useful – I recommend that anytime you have a 4150 or 4160 off your car and apart take the time to seal the back side of the plug before it begins to leak. If you have any questions feel free to contact me at edszeliga@comcast.net. One more thing, these plastic curved-tip syringes are great and probably have other useful applications for car enthusiasts, I would get a pack of them for applying whatever into those hard to reach places.