Powder Coating ZS Carburettors

by Nelson Riedel
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The carbs for my '76 TR6 were overhauled last winter. Before the carbs were installed I got interested in powder coating and put together a power coating setup. (There are notes on this website describing both the carb overhaul and the powder coating equipment.) I decided to powder coat the carbs after observing how great the powder coated clutch master cylinder looked in comparison to the stained appearance of the carbs. Before jumping in and screwing up my good set of carbs it was decided to do a test run on an old carb. It went pretty well. The major problem was a few bubbles probably caused by out gassing from the castings when they were heated. This showed up most on the bypass valve castings. This was avoided on the real carbs by baking the castings before doing the cleanup.

The carbs must be bead blasted to clean them before powder coating. There are a number of small passages in the carbs that can be plugged by the beads. There are also some precision parts whose dimensions that can be altered by the blasting thus destroying them. The way to cure this is to remove or cover the critical parts during the blasting operation.

Because complete disassembly is required it was decided to do one carb at a time so the other carb could serve as a model as to where everything goes. The first challenge was to deal with the float chamber vent valve provided on '73 and later carbs described in Part II of the carb overhaul notes. It is impossible to seal the passages well enough to keep the small beads out of the valve and the valve won't operate properly if there are any beads in it. (I know this from experience because I blasted the trial carb without removing the valve and plugged everything up). I hadn't seen any documentation on how the valve operated or how to disassemble it. My guess was that the brass sleeve was pressed into the carb body so the first step was to press the sleeve out. Unfortunately there is no access to the back side of the sleeve to press it out. The technique used to remove the sleeve was to enlarge the sleeve ID with a 17/64 inch drill to a depth of about 1/4 inch and then thread the sleeve 5/16-TPI deep enough so that a bolt can be screwed in about 3 turns. The taps are tapered so a little torque is required to get the last couple turns on the bolt. The bolt was then removed and a nut, washer and spacer placed on the end of the bolt and the bolt was then screwed back in. The nut was then tightened to draw out the sleeve. See photos below.



The next photo shows the sleeve and valve components.

Next, the carb was disassembled as follows:

Top Cover: The top cover was removed and the air valve with needle, spring, damper and screws were set aside.

Throttle Plate & Spindle: The throttle plate screws were removed and the plate, spindle and spring were all set aside. The throttle bush seals were also removed and set aside.

Float Chamber: The float chamber sealing plug, floats, screws and float valve were all removed and set aside.

Vent valve Lever ('73 & later): The vent valve lever clip was removed and the plastic sleeve inside the lever was removed and set aside.

Cold Start valve (choke): The cold start valve was removed and disassembled with all the parts except the outer aluminum casting set aside.

Temperature Compensator: The temperature compensator was completely disassembled and everything except the casting set aside.

Idle Trim Screw: The idle trim screw was removed and set aside.

Bypass Valve: The bypass valve was taken apart and all parts except the two castings were set aside.

Breathing Port: The plastic sleeve was removed from the emission breathing ports (not provided on all carbs).

Choke Cable Bracket: The choke bracket was removed and set aside.

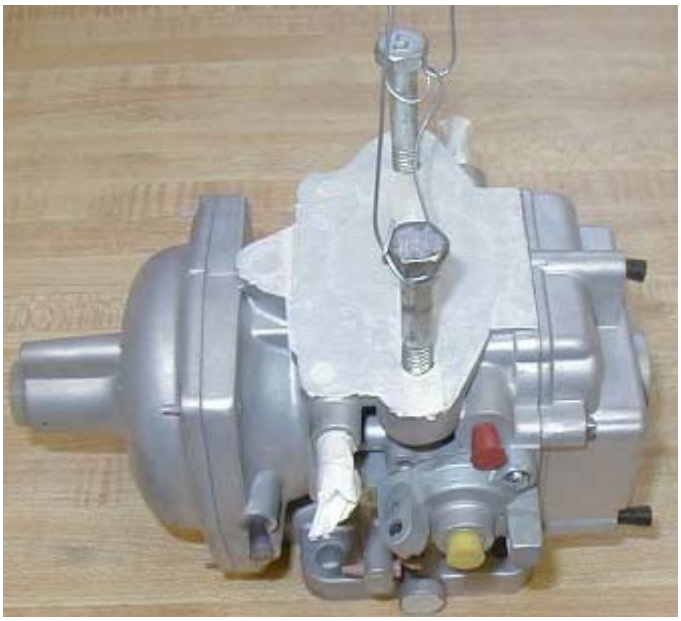
Next, all the aluminum castings were heated in the oven at 450º for about 30 minutes to drive out any gasses trapped in the aluminum. The parts were then washed thoroughly in hot water and dish detergent.

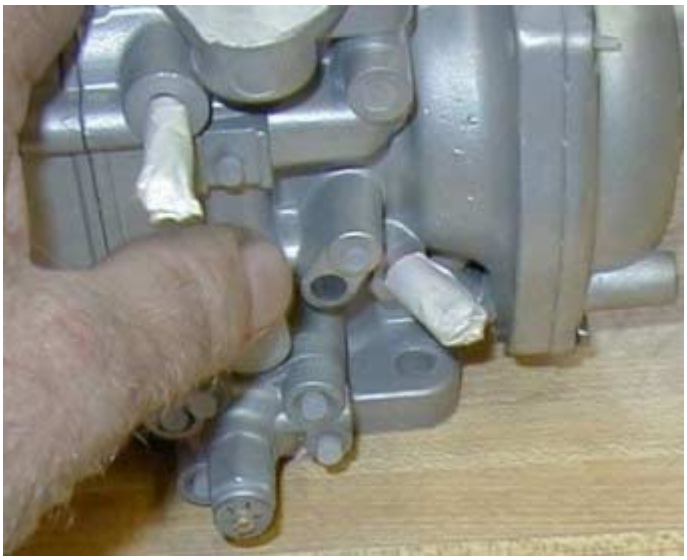
The following bare castings were then reattached to main casting (no gaskets):

- top cover
- float chamber cover
- bypass valve castings
- cold start (choke) outer casting.

These parts were attached using one round head screw per part. The regular screws were not used. The attachment of these parts served to cover and protect the mating surfaces from the blasting and painting. Next, the very small vacuum ports adjacent to the manifold were plugged and covered with duct tape to keep the glass beads out of the small chambers. Plugs were inserted in the throttle bushes and a rag was stuffed into the main carb passage. The unit was then bead blasted until shiny bright over the entire exterior surfaces. The inside and plug portion of the temperature casting was covered with tape and also blasted. The vent lever was also blasted separately.

After the blasting, the castings were separated and washed in metal prep and then rinsed in clear water and blown dry. The small castings were then reattached to the main body using the one screw per part. The surfaces that mate with the manifold and air filter were then masked as were all brass tubes and the vent lever shaft ('73 & later). All ports and screw holes were then plugged with silicone plugs. The photos below shows the masked carb. The 5/16 inch bolts with wire between were used to suspend the carb while powder coating and curing.








The last photo on the right above shows the carb after powder coating and before curing. The temperature compensator (everything masked except visible exterior) and vent lever castings were also powder coated and cured at the same time as the main castings.

After the carb was cured, it was disassembled and the parts washed thoroughly to remove and beads than may have got into the internal passages. A tap was then ran into/through all threaded holes to remove any beads. If this is not done, a screw may hang-up. A small wire was run through the small holes that lead to the vacuum ports to the distributor, EGR valve etc. to make sure they were clear. The castings were washed again after this.

The steel parts were then blasted and powder coated. The cold start, choke cable, throttle lever and spring were coated with "translucent gold". The screw heads have not been coated yet. If I decide to PC them I'll probably use the stamped steel color.

The first thing assembled was the float chamber vent valve; the valve with the little springs was slipped into position and the brass sleeve pressed home. The rest of the carb was then reassembled, reinstalled and tuned as described in the carb overhaul notes.

The photos below show the finished carbs installed on my '76 TR6.

TR250-TR6 Carbs:

Part I - Disassembly & Theory
Part II – The Overhaul
Part III – Reinstall, Tune and Troubleshooting
Powder Coating ZS Carbs
Replacing Fixed Needles with Adjustable Needles
Air/Fuel Monitor
Using Air/Fuel Monitor

***Buckeye TRIUMPHS* Technical Page**