THE PREVENTIVE MAINTENANCE SERIES Mike Dawson

Using four primary carburetors on a 140

Over the years I have heard lots of discussion about the pro's and cons of using four primary carburetors on the 140 engine instead of two primary and two secondary style. Some of the Corvair specific books state that better overall performance occurs with the primary/secondary split and also that having twice the venturi area at idle cuts the cfm through each carburetor by half. This reduction in vacuum theoretically would cause the fuel flow in the idle circuits to drop off and idle problems would ensue. I actually found that using four primary carburetors works quite well with definite advantages.

The benefit to using all primary carburetors would include eliminating the pesky stuck throttle valve (from inactivity) since it would never be completely closed, and since fuel was constantly being drawn through the secondary carburetors there would never be old gas sitting in the bowls. Most of the secondary carburetors I recondition have really nasty stuff that has built up over the years.

My test project was a 140 which had been put together with the matching crankshaft and cam out of a '66 140 Powerglide. That combination gave improved low end performance as I was using the 140 with a Powerglide in a Lakewood Wagon. My choice for linkage was the first design '65 style which only opens the secondary carburetors with the last 1/3 of the accelerator pedal.

As long as I was preparing all four carburetors I made some changes to help the overall breathing:

- For the two actual primary carburetors I used a small air saw to remove the "duckbills" that housed vents in early models but were never removed throughout production even when the vents were relocated. If you have early model tops with the vent in the duckbill you would need to switch to late model tops. To keep the choke valve functioning properly I cut a small piece of a donor choke valve and welded it over the opening that was no longer needed for the duckbill (see nearby picture). The venturi clusters were matched at 24/74 for the idle circuit and I installed 0.053 main jets. Slightly less choke pull off and slightly more fast idle would compensate for not having chokes in the secondary carburetors at idle. The other carburetor adjustments were left at stock settings.

- The second set of primary carburetors received the same venturi clusters, same jets, and the duckbills along with the choke valves and rods were removed. I used the stock accelerator pump springs and I also used pump cups, unlike some of the stock secondary carburetors that came from the factory. The hot idle valves were used with their original adjustment.

The end result was very satisfying; gone is the stuck secondary throttle valve after storage, cold starting has not changed, the idle seems smoother than with the original stock setup and after a little practice on how to get the best acceleration response with the progressive linkage in a Powerglide I am constantly impressed with performance while driving. There is no hesitation at all when the secondary carburetors are snapped open, and I have not experienced any hot restart issues.

Pictured nearby are the carburetors on one side with the duckbills removed and the choke valve modified for full closure on the actual primary.

As always, making improvements or correcting for some issue in one area depends on the remainder of the systems operating at their optimum. Using the correct distributor curve, having good compression, and proper valve adjustment, along with the usual tuning items will all affect what I discussed above. I realize many others have done this before me so if you have experience with additional set ups that worked well please share.