

## SOLEX 4 • BARREL

### PART TWO

In the last installment of **Carburetor Clinic**, we left you hanging by the float needle pull clip. Now that we've acquainted you with the pitfalls that await you in Solexland, it's time to offer some remedies. This carburetor is just too expensive to toss in the trash without a struggle.

As we mentioned last time, warpage can be a problem on these carburetors. Whether caused by heat or mistreatment, the end result is the same. If your straight edge inspection reveals warpage, you may be able to repair it.

Minor warpage of the gasket mating surfaces can occasionally be corrected with 400-grit wet or dry sandpaper over a smooth, flat surface. A piece of glass works well. Sand and remeasure frequently. More severe warpage may require more drastic measures. Overtightening the air filter wing nut can pull the air horn badly out of shape. The price of this part alone is about \$600.00. One of our sources suggested using a press to straighten it. Before you try this approach, it might be a good idea to discuss the risks and other options with your customer.

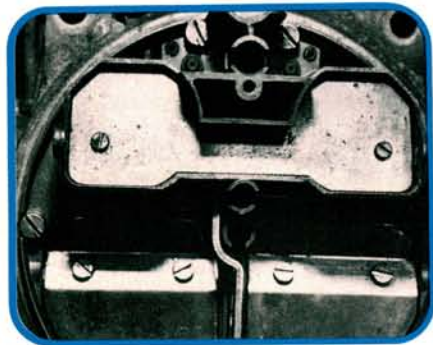
Maybe you'll get off light in the warpage department. There's still dirt to contend with. The many small passages in this carburetor are easily clogged. Don't be shy with the carb spray and compressed air during cleanup. Never use wire or drill bits to clean the jets.

If the carburetor is just too far gone to repair, there is an alternative to a new or used Solex. JAM Engineering offers a fifty-state legal Holley replacement carburetor for the twin cam six. The original air cleaner and all emission equipment are reused so the car retains a stock appearance. Only minor modification to the throttle linkage bracket and a power steering reservoir bracket are required to make the conversion.

The following photos will take you through cleaning, reassembly, and basic adjustments of the Solex. The float level, idle speed, and mixture adjustments should be done with the carburetor on the car, but were photographed on the bench for clarity.

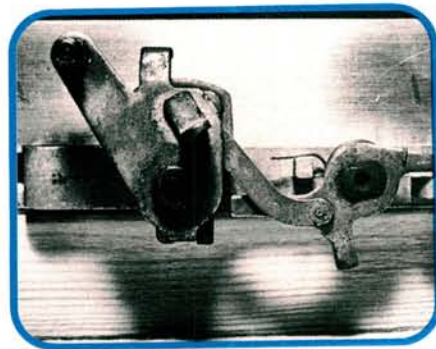
—By Karl Seyfert

JAM Engineering Corp.  
Circle No. 201



1

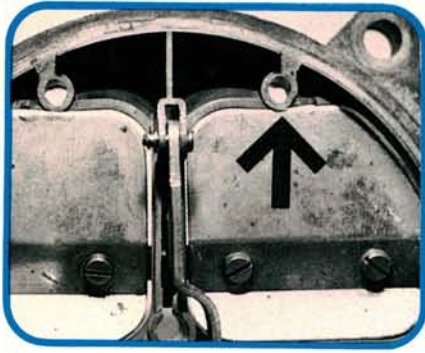
Dismantle the carburetor completely. Remove any diaphragms or other rubber parts that might be damaged by carburetor cleaning solvent. Soak the carburetor only long enough to remove the dirt. Oversoaking may cause damage to the rubber o-rings that seal the emulsion tubes to the carburetor bowl housing.



2

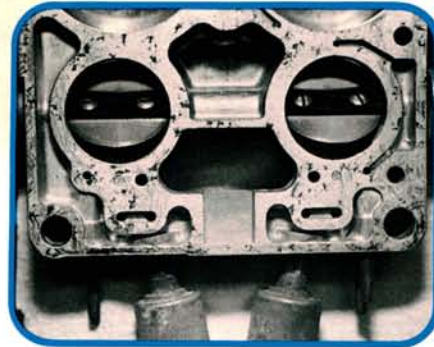
Inspect all gasket mating surfaces for warpage, preferably with a straight edge. Warpage may cause vacuum and/or fuel leaks between the three separate castings of the carburetor. This can lean out the fuel mixture and cause a lean misfire under load.





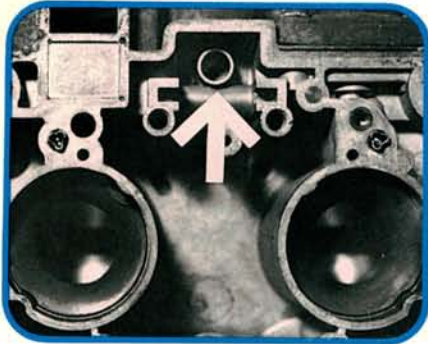
3

Check out the warpage on this air horn. If this had been bent any worse, it might have kept the secondary air valves from opening at all. Inspect the choke plate as well as both throttle plates for the same warpage. A binding secondary throttle shaft can hang open and prevent the engine from idling down.



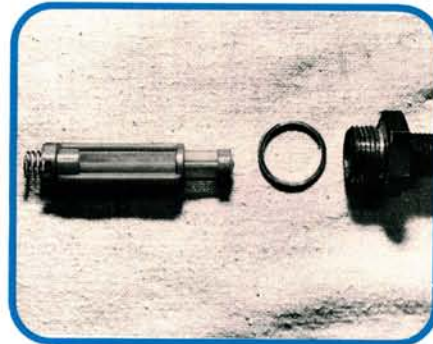
4

Soaking the carburetor may loosen dirt and deposits in the internal passages. Take a little extra time to make sure that they are all clean and clear. The two idle shutoff solenoids also control the flow of fuel to the primary main jets. Test both solenoids electrically for proper operation.



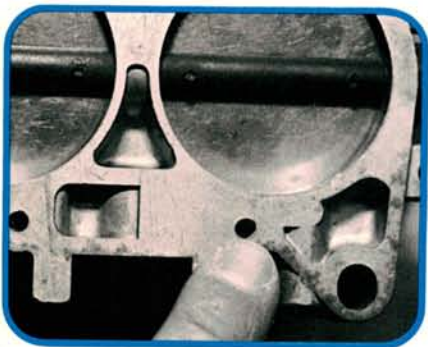
5

Make sure that the seat for the float needle fits tightly in the bowl housing. A loose seat may cause fuel starvation or plug fouling. This may show up as an intermittent problem. Oversized seats are available from Mercedes Benz. Stake the area around the seat when replacing it to hold it in place.



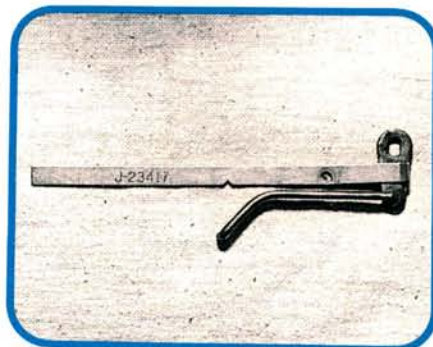
6

If all of the parts check out and are reusable, begin reassembly. The air horn can be purchased separately if it's just too warped to repair. A carburetor overhaul wouldn't be complete if you didn't replace the fuel inlet filter and sealing washer. Note the position of the backup spring.



7

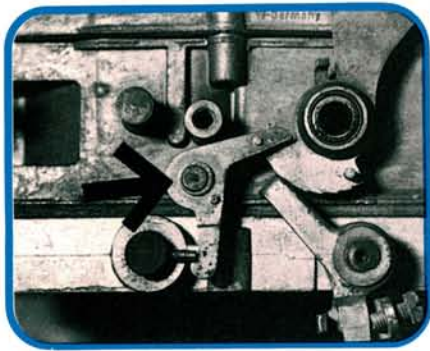
There were several versions of this carburetor over the years. Compare the new gaskets to the old and also note their position. Leave the two throttle base-to-bowl housing bolts loose until the air horn has been re-installed. This will make it easier to start the rear air horn screws.



8

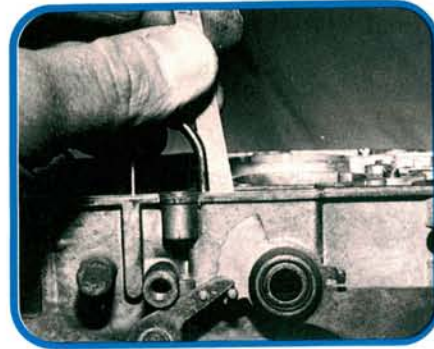
In the last installment, we made mention of the Solex' similarity to the Rochester Quadrajet. A Kent-Moore tool originally designed to install the choke lever on that carburetor will serve you well on the Solex also. If you're handier than I am, you might be able to make your own.





# 9

Inspect the fast idle cam and related parts for wear. If the notches are worn off the cam, the fast idle lever may slide down the cam too quickly during warm-up. The small lever (arrow) next to the secondary throttle shaft locks out the secondaries until the engine has dropped off fast idle.



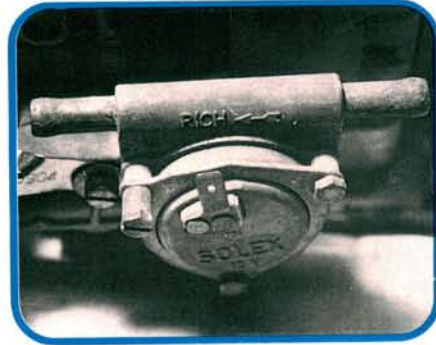
# 10

Lower the choke lever and rod into the bowl housing. It can be done without the tool but takes a little more fiddling. Bring the choke housing up to the side of the carburetor and engage its shaft with the lever. Reinstall the choke spring assembly. Index the mark on the spring to its mate on the choke housing.



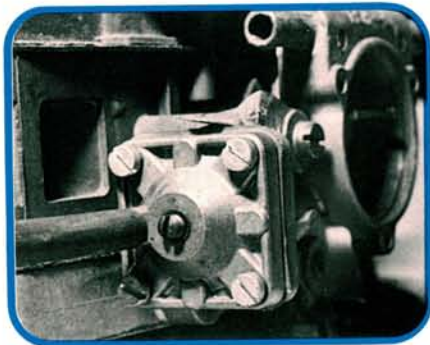
# 11

The two rear air horn screws extend through to the throttle base. Each screw should have a flat washer under its head. These should prevent damage to the air horn. Point the tabs on the washers toward the notches in the air horn. Install the six remaining air horn screws, then tighten the two base screws.



# 12

Open the throttle and place the fast idle screw on the high step of the cam. Two types of choke pull-offs were used on this carburetor. Bend the linkage rod on the first type to adjust choke plate opening. The second type uses an adjustment screw on the diaphragm housing.



# 13

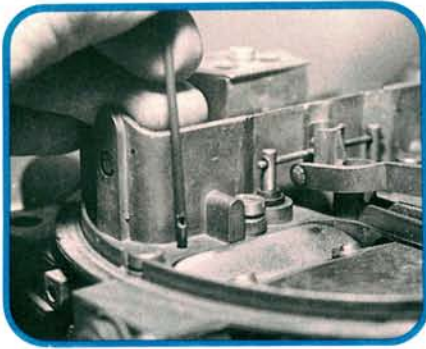
Here's a shot of the adjustment screw type pull-off. Use a vacuum pump to apply the diaphragm. Loosen the screw to increase the pull-off gap, tighten it to decrease the gap. On bendable linkage types, push the rod apart to decrease the gap, together to increase the gap.



# 14

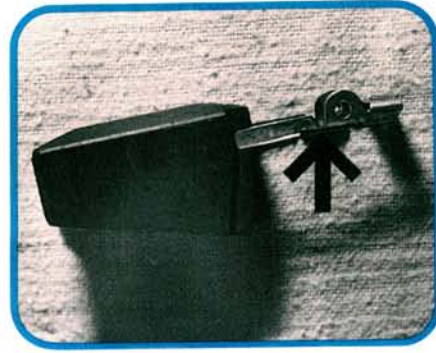
The diaphragm should stay applied with no bleed off. Remove the slack in the linkage by holding the choke plate closed at the top. Use a 1.25 mm (.049 in) wire gauge to measure the gap between the choke plate and the front edge of the air horn wall.





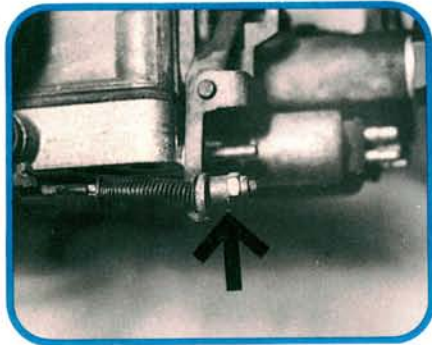
# 15

Reinstall the carburetor. Run the engine on high idle until the float level stabilizes. Level is measured through a hole in the air horn behind the choke. Make a notch in a rod 34-36 mm from one end, then mark it with chalk. Lower the marked end through the hole until it hits bottom. Level should be in the notched area.



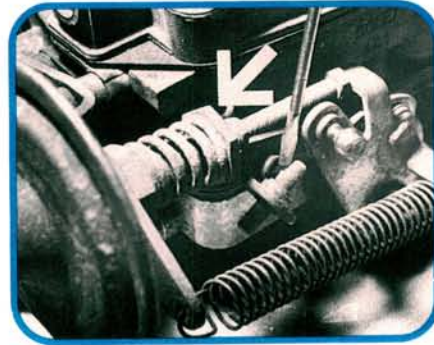
# 16

If the float level is wrong, you'll have to remove the air horn again to get to the float. Bend the float at the point indicated; down to lower, up to raise float level. Reinstall the air horn and run the engine to stabilize the level. Recheck your adjustment.



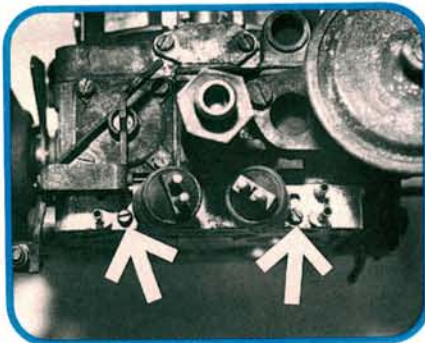
# 17

The accelerator pump linkage is adjusted at this nut. The nozzles should give a strong squirt as soon as the throttle is opened. The spray shouldn't hit the emulsion tubes or venturi walls. Loosening the nut will move the pump lever closer to the diaphragm and shorten the stroke.



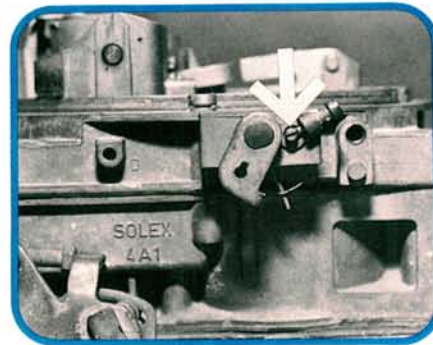
# 18

Set the idle speed to specs before doing a CO adjustment. Adjust at the screw indicated first. Now disconnect the vacuum hose from the vacuum governor (arrow) and adjust idle speed to 1200-1400 RPM in neutral. Hold the shaft stationary while making the adjustment to prevent damage to the vacuum diaphragm.



# 19

To adjust CO, turn both idle mixture screws in until they are both *lightly* seated. Now turn both screws out evenly until the correct CO reading is reached. If idle speed has changed, reset it and repeat the idle mixture adjustment. Always move both mixture screws in or out in equal amounts.



# 20

The secondary air valves control the opening of the secondary fuel metering rods. The return spring can lose its tension over time. The Allen headed set-screw may also work loose. If the adjustment is lost, drive the car and adjust the return spring tension until the best secondary operation is achieved.