

# Trim Your Carbs

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The following tips may help you adjust the ZS carbs that have adjustable needles and assumes that you already have the valves properly adjusted and the ignition timing has been set to suit your particular engine. It is also assumed that the temperature compensators are in sync or close to it and that you have adjusted the Throttle Bypass Valves with the appropriate spring tension. You will need the special mixture adjustment tool (available from your favorite parts supplier) and know how to manipulate it.

Before you start the engine, insert the mixture adjustment tool and turn the Allen wrench as far as you can, clockwise. This will raise the needle to fully rich. Next, keep in mind that you have only about 2½ turns available CCW, before the needle jumps off the threads of the adjustment screw, so go CCW about 1½ turns as your starting point.

Now you can start the engine and let it warm up.

Raise the air valve about 1/8" with a thin bladed screwdriver.

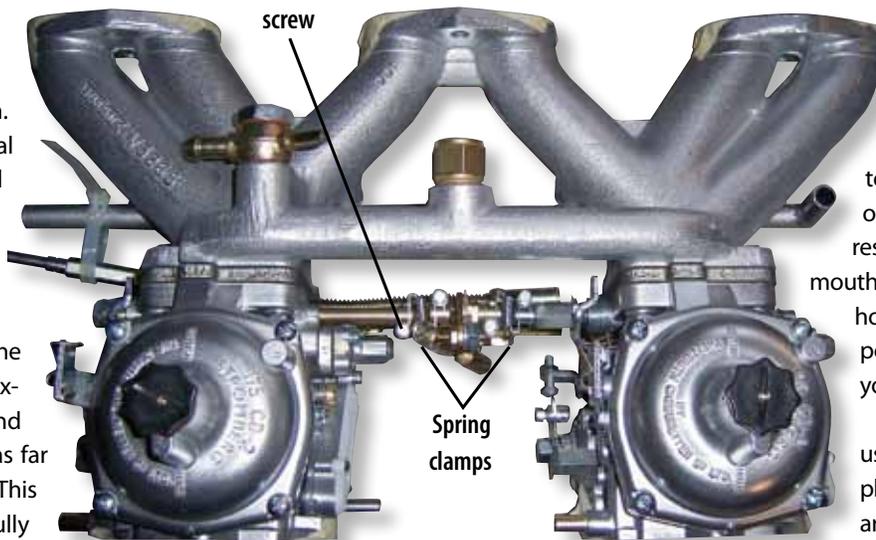
The engine's reaction will be immediate. If you lift much higher or hold it up too long, what you hear may not really indicate the current mixture setting. If the immediate reaction is a lower speed, it's too lean. If it picks up significantly (judgment here) it's too rich. A slight increase is OK, if it quickly settles back down again. You might even be able to get it adjusted where there is

no change, but I find it nearly impossible to achieve that and accept a slightly rich mixture for better acceleration.

Two more things about the mixture. If the engine is idling for a time while you do this, the carbs tend to 'load-up' with fuel

Loosen this

screw



Spring  
clamps

*Photo by David Tushingham*

and need to be cleared periodically. Just rev the engine to a steady 2200-2500 for 15-30 seconds and resume again, when they come back to idle. AND (this is important if it's your first time), don't be afraid to over adjust. I say that because by overdoing it you'll learn the difference between too lean and too rich when you lift the piston. You have got to know what both sound like to find out what it should sound like when it's right. Eventually you should be able to zero in on an acceptable fuel/air mixture. You must keep track of your CCW turns so you don't run the needle off the threads. If you do, you'll have to take a break and get the threads started again.

Next comes balancing the carbs or synchronizing them.

Loosen just one of the nuts on the spring clamps between the throttle shafts. Work the vertical link (the one with the ball joints) to make sure that the carbs are now independent of each other. I hope you are not using a Unisyn to balance? Get a heater hose or stethoscope or that "snail looking" instrument and compare the hiss or volume of air. Two things to watch for here. Hold the tube or hose in the EXACT same corresponding spot in the carb's mouth. You'll see a small threaded hole you can use for a reference point and hold the other end to your ear in the same spot.

That's why, for consistency, I use a stethoscope (with the amplifier removed). When the hisses are equal, tighten the nut, but be careful that you do not push down on the nut as you tighten and turn the throttle shaft even a tad, or you'll lose the synchronization by opening the throttle disc. Clear the carbs occasionally during this step. Just remember that until the throttle shafts are connected, one of the carbs will have to be revved by rotating the throttle shaft lever, while the vertical control arm link pushed down revs the other.

Once you're satisfied with these adjustments, don't check the plug color for confirmation until you've run at speed for 25-30 miles; the plugs need at least that many miles to develop the color. Kill the engine and coast to a stop when you plan to read the plugs; you don't want the idle to mess up the color that the speed developed. **RAGTOP**