

Helping Hand Technique



Believe it or not, your bare hands are two of the best carburetor tools you've got. You can use your bare hands to diagnose and fix certain problems. How so? Read on, friend!

ROUGH 'N READY

Suppose you have an engine that's idling rough. If you're using your infrared emission analyzer, you'll probably notice that the CO reading is very low—possibly zero—and the HC reading is spiking up to about 2000 PPM. In some cases, the HC meter is buried off-scale!

This rough idle could be caused by any number of problems or combinations of problems. So let's do a quick-check to see if the engine's lean. To do this, carefully choke the carburetor inlet with your hand. If the engine speeds up dramatically and the idle smooths out, you know the engine's lean.

Remember that the degree of leanness determines just how much the engine speed and idle quality will change when you choke the carb. If it's only slightly lean, expect a relatively small change. If it's not lean, expect the engine to stall out when you choke it. Experience really is the best teacher here.

So the engine speeds up and the idle quality does improve when you choke the carb? Now you know you're dealing with one or more of the following problems:

- air leak/vacuum leak
- dirt inside the carburetor
- misadjusted carburetor.

To locate an air leak, always begin with a patient visual inspection of the vacuum hoses and vacuum devices on the vehicle.

Next, try spraying some carb cleaner or super-light oil near the hoses, the intake gasket(s), and the carb base. When you hit a leak, the engine speed will change and the HC/CO readings on the infrared will respond. A word of caution here: use carburetor sprays discretely. Some carb sprays are so volatile that they will seem to create vacuum leaks that aren't really there. And bear in mind that carburetor throttle shafts are a constant and unavoidable vacuum leak. Too many times, I've watched people chase problems that didn't exist simply because they were over-zealous with the carburetor spray cleaner!

THE HUMAN CHOKE

No air leaks found? Let's see if we can dislodge some dirt without tearing down the carb yet. Rev the engine to about 2500-3000 RPM. Quickly choke the mouth of the carb again and hold your hand there until the engine begins to falter. Remove your hand before the engine stalls. Rev the engine slightly until it overcomes the rich condition you just caused. Then let it idle.

Sometimes, you have to repeat this procedure several times in order to dislodge dirt. Sometimes, the dirt just won't budge from that idle circuit. Some of the restrictors—the idle "jets"—in these idle circuits are so tiny that they tend to trap dirt like you won't believe!

But if the ol' hand trick improves the idle, at least you can sell that carb overhaul with a *little* more confidence.

WHAT IT DOESN'T HELP

Choking the carb will not improve or correct rough idle due to EGR leakage, ignition misfire, or mechanical maladies such as a burned valve.

You say you've been using the helping-hand trick as long as you can remember? I have too! However, I still meet technicians who've never heard of it, so that's why we mention it in this column. We know there're still lots of carbs out there. And there's certainly no shortage of dirty ones.