

Bingo! The hydrocarbon carbon dial swung up to 1,800 ppm and the CO dial dropped to one-tenth of one percent! Lean misfire.

I didn't know exactly where the problem lay, but had just cut my diagnostic time by half-whatever was up with that beast was happening somewhere on the right side of the engine. Removing plastic body panels and peeking in with a drop light I found that the vacuum hose that comes off the right manifold and routes up to the ignition black box had been knocked off on the assembly line. The engine was sucking air on the right bank and the ignition box had no vacuum signal to advance the timing. In and out, the job took 45 minutes as opposed to countless hours of frustrated guessing.

I recall one young lad who had hotrodded a Honda CBR900RR with, among other stuff, a rack of Keihin 39mm smoothbore racing carbs. The bike wouldn't go four blocks without fouling its spark plugs and chugging to a wheezing halt. I "sniffed" the bike's carbon fiber muffler with the EGA and whistled through my teeth as a staggering 7 percent CO came up-way' too rich, and that was with the low-speed mixture screws only  $\frac{1}{2}$  of a turn out! Conclusion? We went two sizes leaner on the pilot jets to put the screw adjustment into a more controllable three-turns-out range and gave it a CO reading of 3 percent. Next came a midrange adjustment by opening the throttle up to 3,000 rpm. Once again the E.G.A. recorded a spark plug-blackening 8 percent CO. Dropping the slide needles two clip positions in the lean direction brought that figure down to a healthy

3.5 percent CO-perfect for racing carburetors. We jetted the bike without ever leaving the shop.

One carburetor that takes unfair bad-mouthing is the Keihin constant velocity unit fitted to late-model Harley- Davidsons, which arrives woe-fully lean. It's an excellent, reliable mixer if it's set up right, and I'll give the recipe here. For a box-stock Evo engine with open staggered-dual exhausts, turn the low-speed-mixture screw out until you arrive at 2.5 percent Co. Then remove the diaphragm needle and slide three 3mm washers down its length so that they stack under the nail-head end. This will lift the needle 0.060 inch, allowing more fuel to flow for midrange running and banishing that off-idle flat spot. Finally, go one step richer on the main jet to get rid of white, blistered spark plugs. All of this will provide easier starting; a smooth, satisfying idle; punchy midrange and a top end that will rip to redline on the tach. You'll wonder why you ever considered an aftermarket carb after an hour of work and less than 10 bucks in parts. I put this little package together after having spent count less hours reading the exhaust gas of hundreds of Harleys.

By the way, the Dynojet Company doesn't put together a jet kit by sending test riders out and then considering their seat-of-the-pants feelings afterward. The test bike is probed with an EGA, and rear-wheel rollers are used to put a specific load on the engine to determine the final main jet size. Once again, the bike is dialed in without putting a tire on the road.

The EGA doesn't lie and can be considered a window into the combustion chamber of an engine. Whatever its dials read is what's actually going on, and you can't argue with it. However good some motorcycle mechanics may be, if they're not using an EGA they are working in the dark with one arm tied, and I'll beat them every time in efficiency, diagnosis and accuracy. And to be honest, I'm not a special mechanic-I just happen to have the right tool.

Email Rider Tech Q&A at: [editor@ridernmagazine.com](mailto:editor@ridernmagazine.com) or send a letter to Rider Tech Q&A, 2575 Vista Del Mar Drive, Ventura, California 93001. Due to the volume of mail we receive we cannot respond to every letter personally, but those with questions of interest to our readership will be answered in Tech Q&A