

care and feeding
of the mature cbx

In the past, most tuners thought, "the more fuel you put through an engine, the more power it would make." An old friend of mine, who used to own a motorcycle shop, but is now retired, told me "put as much fuel through as you can, a little bit of carbon on the plugs won't hurt". Well, this simply isn't true. Wasn't true then and isn't the right way to tune a motorcycle now. Black plugs or overly black exhaust pipes usually indicate CO readings of 5% to 8%. This equates to a mixture of 12.63:1 to 11.53:1 respectively. Needless to say our bikes will run poorly at 5% CO, and probably won't run at 8%. Most of you probably remember the optimum air/fuel ratio is 15:1, but our bikes won't run very well at that setting either, because it is too lean. Modern equipment will though, and some bikes can be set at 1.5% to 2.0% CO (13.93:1 to 13.76:1). The best setting for our CBX's is 3.0% to 3.5% CO (13.37:1 to 13.19:1).

What I'm going to talk about in this article is how to tune your carburetors to achieve the best performance from your X. First, the carburetors must be clean and functioning properly. If you have any doubt, take them off and clean them until you're sure all the passageways are clean. For example, the orifices in the slow jets in our carbs when new are between 0.0135 inches and 0.0145 inches in diameter.

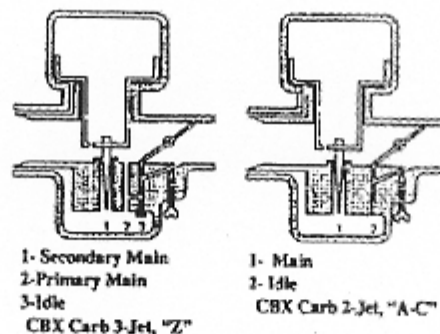
So small grit or fuzz can very easily plug them. Mike Nixon has written some excellent how to tech articles on cleaning our carbs: The Kitty Box and the Spring Thaw. They are available from ICOA in the "Tech Tips" Carburetor publication. I recommend you follow these procedures until you're sure that your carbs are completely clean and working correctly.

Now lets talk a little about carb tuning philosophy. One of the benefits of having 6 carbs on our bikes (no, I'm not crazy, there are benefits) is the ability to tune each cylinder separately. Some of my friends disagree with this premise and believe the engine would be unbalanced if the carbs are adjusted differently, but think about it. No two cylinders are the same and no two carbs are the same. If the carbs are adjusted the same, one cylinder could be a little rich while another a little lean. You want to adjust your carbs so that each cylinder is happy. Your engine won't be unbalanced unless you have problems with compression, cam timing or ignition timing. As long as compression, cam timing, ignition

timing (and some other things) are within factory specs, your engine will run fine.

Following the direction of my last article (CBXPress, Spring 1999, vol 18, number 2) make sure your ignition timing is within specification, valve lash is correct, and cam chain tensioners are adjusted properly. A fresh set of plugs would be a good idea also, but depending on the method of adjustment you use, you might need several sets.

There are a few more things we need to be sure of before we begin tuning. The air and fuel jets must be absolutely clean.



Late model carbs do not have secondary main air jets as shown. Squirt carb cleaner through the passageways in both directions and follow with compressed air. Do not stick wire or anything else in these jets. They are so small that a single scratch can cause you trouble. Check the accelerator pump and make sure it discharges properly. Do not increase the pump stroke thinking you'll get more power, you won't.

Make absolutely sure the float settings are correct and most importantly, all the same.

Now, lets get down to business.

First, synchronize your carbs following the directions in the service manual. This is very important, if their not in sync, you'll never get things right. The book specifies a maximum difference in vacuum readings of 40 mm Hg or less. You must get closer than this. Mine are adjusted within 10 mm Hg. The first time I

synchronized my carbs, I couldn't get them closer than 40 mm Hg. The only things that can cause this is bent, blocked or stuck throttle linkage. So the carbs had to come off. I found the fast idle cam (on the number four cylinder) was deliberately bent to an extreme to hold the throttle plate open further and get more revs while the choke was on.

This prevented syncing number four with the other five cylinders. I bent it back within factory specs and got the carbs within 10 mm Hg.

Next adjust the pilot screws. There's no doubt the CBX low speed circuits are lean below 2,000 rpms. This was necessary to comply with new EPA laws. So as a result most articles and Dynojet instructions tell you to open up the pilot screw two to three turns. Doing so will add more fuel at idle and add more fuel throughout the entire rpm range. That's right, the pilot screw doesn't quit adding fuel when the vacuum piston raises the needle. Another interesting fact, when you're cruising at low speeds with the revs below 3,000 rpms the vacuum piston is likely closed and you're running on the pilot screws. What does this mean? If you open up the pilot screws without checking your mixture you can screw up performance throughout the entire range. I have a Dynojet stage 1 kit in my '82. I opened up the pilot screws per the instructions. My bike wouldn't run right at all. I called the Dynojet people. They told me regardless of what the instructions specify, the idle mixture must be right for the bike. What does this mean? You must set the pilot screws properly using either the factory recommended method described in the service manual (I've never seen a tachometer accurate to 50 rpm), using an exhaust gas analyzer (EGA, this is the preferred method) or by reading the spark plugs (older method, but still works).

Okay, now that everything else is right, let's adjust the pilot/idle mixtures. The easiest way