



## **Carburetor Information**

**U.S. CB750 Models 1969-1978**

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### **WTF is a Plug Chop????**

Q: What is a plug chop and how is one done?

A: A plug chop is taking the bike out on the road, holding a certain speed and RPM for one to three minutes, and without changing throttle position reaching over to the ignition or kill switch and shutting off the engine, then pulling in the clutch as quickly as possible and coasting to a stop. Get out the trusty plug wrench and carefully pull at least one outside and one inside plug and look at the color. Sometimes you might have to pull all four if you suspect there are issues with the individual carbs.

Q: Why is a plug chop procedure necessary?

A: The reason it is done this way is while an engine burns the fuel, the amount of fuel and how well it is burning will color the the insulation (white stuff) at the tip of the electrode (little jobbie inside the middle of the plug). Killing the engine at the certain speed/RPM insures that the engine does not idle down and change the color. If the engine idles down it uses different circuits in the carb that are tuned separately. Even if only briefly this can taint the results of the plug chop and give you a false reading. Killing the engine before letting the throttle go and pulling in the clutch keeps the engine from burning any more fuel. Yes, there will be a moment where the engine pulls thorough and expels unburnt fuel due to no spark but this is minimal and will not change the color of the plugs. The trick is pulling in the clutch as pulling in the clutch as soon as possible after the engine is killed to the RPMs drop quickly and the engine comes to full stop quickly.

Q: How do I do a plug chop for the upper ranges. I can't go 100mph legally, right?

A: The best way is to find a stretch of 70mph interstate between exits that is not too busy that allows you several miles of uninterrupted riding. Keep the bike at a steady speed, and keep it in the upper RPM ranges, around 5000 to 6000 rpm. You might have to run it in 4th gear to do this. It helps if the bike is under a little load, so if you can pick a stretch of highway that is uphill, or if all else fails, let the brakes drag a little, but of course not so much you smoke them. Just enough to put a load on the engine for a minute or better two. Start at one on ramp and right before you get to the next off ramp do your chop as described above, coast up the ramp and pull over towards the top and check your plug then. Keep an eye on any traffic coming up the ramp, there are idiots out there.

Q: What color am I looking for on the tip of the insulation?

A: In most cases you are shooting for a light tan. Nevermind what the end of the threads looks like, this will almost always be darker. If you do a lot of winter riding as well, or live in a colder climate you probably want to see dark tan or light brown showing a richer mixture for colder air. Some additives leave a greyish color instead, so avoid additives if you can when doing chops, but if it has to be, light grey to dark grey is good. White or no coloring at all is too lean, very dark brown to black or sooty black is too rich.

Q: What do I need or preparations do I make do a plug chop?

A: Other things affect combustion, so you need to make sure these are right first.

Number one is timing. Have your points gapped properly and timing set according to the shop manual. Bad timing can affect plug chops. Good condensers. Clean points contacts. Spark on all four plugs. You know the drill.

Make sure you alternator is putting out the proper voltage, about 12.5 to 13 volts around idle, and about 14 or a little better at higher RPMs. Low voltage causes weak or failed spark and taints a plug chop's results.

Make sure youre valve lash is set properly. A valve that is not completely closing affects compression and combustion and will also taint plug chop results.

Vacuum sync the carbs. If one slider is much higher or lower than the others the fuel to air ratio will be different form one cylinder to the next and one plug may read differently than the next.

You will want a new set of plugs (or better, two), pre gapped, and installed just before you do your chops. It is silly to cheap out on a set of plugs that normally costs less than a six pack of beer, so new plugs should not be an issue. It's spitting into the wind doing chops on old worn out plugs. I normally use one set of new plugs for lows and mids, and another new set for top end.

Avoid over use of the choke and it's best to get the engine warmed up some before you put your new chop plugs in.

Um, don't forget to take the plug wrench with you, and a pair of work gloves (hot engine, hot plugs).

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