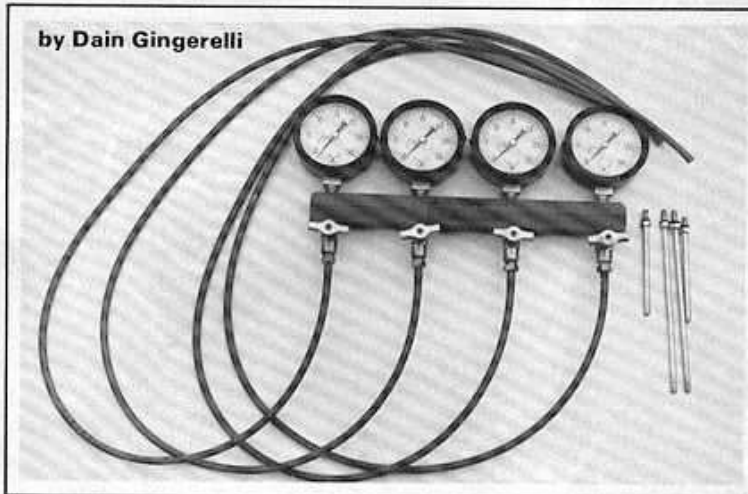


Vacuum Gauge - Carb Synchronization

Here's a way to gauge how efficient your Honda Four carbs are operating.

by Dain Gingerelli



The introduction of multi-cylinder super bikes presented a new hurdle to be made by mechanics (both home type and in the shop)! Carburetion has to be in synchronization in order for the motorcycle engine to perform properly. If you are a mechanical genius, and know how to do this operation without any helper tools, then you are one of a kind. Getting four carbs to do the same thing is almost like getting four women to decide upon the same color wall paper for the Ladies' Club banquet room. Impossible.

But the carbs can be made to listen to one thing, and that's a vacuum gauge. Since it is all mechanical procedure, all you have to do is dial the gauge in so that all the carburetors are doing the same thing for the engine.

Carburetor vacuum gauges work off intake vacuum of the engine. The advantages to using a vacuum gauge are many, but the most important is setting idle and cruising mixture of the carbs for optimum engine performance. Once these two are taken care of, the motor-

ABOVE—The Action Fours carb sync is easy to use. Kit comes with complete instructions.

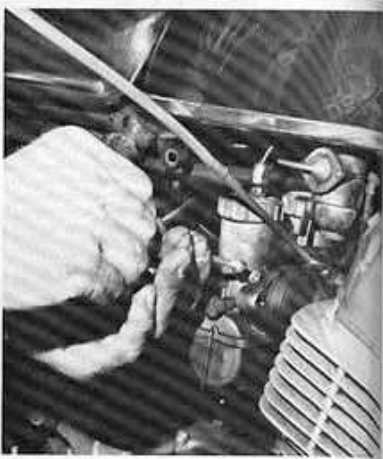
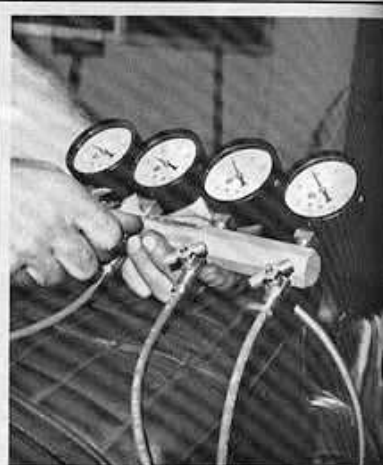
TOP—To make the gauges easy to read, use the dampers at end of each hose.

ABOVE RIGHT—Remove the vacuum plug on each carburetor. Use a screwdriver for this.

BELOW RIGHT—Screw in the vacuum lines, finger tight only, or you might strip them.

cycle's engine will operate smoothly, and efficiently. One thing to remember, though, about a carburetor vacuum gauge; it will not tell you what size jet to run in the engine. It is intended, rather, to tell you how your carburetor is operating in relation to how efficiently and evenly fuel/air is being put through all the carbs.

Operating a vacuum gauge is very easy. First thing to do is remove the vacuum plugs in the carburetors. For Honda 750's, these are located at the front of the carburetor, Honda 350 and 500 vacuum plugs are at the rear of the head, on the intake manifold tunnel. After removing the plug, screw in the



individual vacuum tubes to the exposed vacuum holes. Now you can get separate readings for all the carburetors through these plug holes.

Slip the vacuum hoses over the tubes from the vacuum hole. Now you are ready to tune the idle speed of each engine. Fire up the engine, then screw in the damper screws of each gauge, so the needles stop quivering. Otherwise, you will not be able to read the gauges. The idle should be set at 900-1200 RPM. Somewhere in that range, your engine should idle without any problems. To set the idle, screw in the idle mixture needles all the way, then back off one complete turn. It should be noted here



LEFT—Attach the vacuum hose to the insert for each line. The two long inserts go to the inside carbs, the shorts go outside.

ABOVE—Screw in the idle mixture needles all the way, then back off one complete turn. Idle should be on, play with it from here.

that you screw them in very gently, to prevent damage to them. The idle will be just about set. Read the gauges; they should all be between 6-7 inches vacuum for each one. If not, tinker with the idle mixture needles screw until they are within this range. The idle is set!

Now to set the carbs for cruising speed. To do this, you will have to run the engine up to about 5000 on the tach, but don't worry, this won't harm the engine so long as you don't do it all day!

Run the engine up to 5000, then read the gauge. It should be reading 11-12 inches of vacuum for all dials. If the gauges are below 11 inches, then lower the slides. To lower vacuum, raise the slides. Do this to all four carbs, to make sure they are within the same range. Now that this step is complete, your Honda Four will be running great, providing all other parts of the engine are in good tune.

The vacuum gauge we used was



ABOVE—For cruising adjustment, all the needles should read near 10 inches.



ABOVE—Late model Hondas have a single throttle adjustment on a common shaft.

from Action Fours, 2621 S. Main St., Santa Ana, California. Their gauge fits all Honda Fours, and the Kawasaki 900. One more tip about operating one of these tools. The engine should always be warm before using the gauge. This will insure that all cylinders are operating properly to produce the necessary vacuum which will register on all the gauges. Keeping the engine in tune, and having all the carbs in synchronization will help to eliminate burnt valves, and produce more power and efficiency from the engine. 