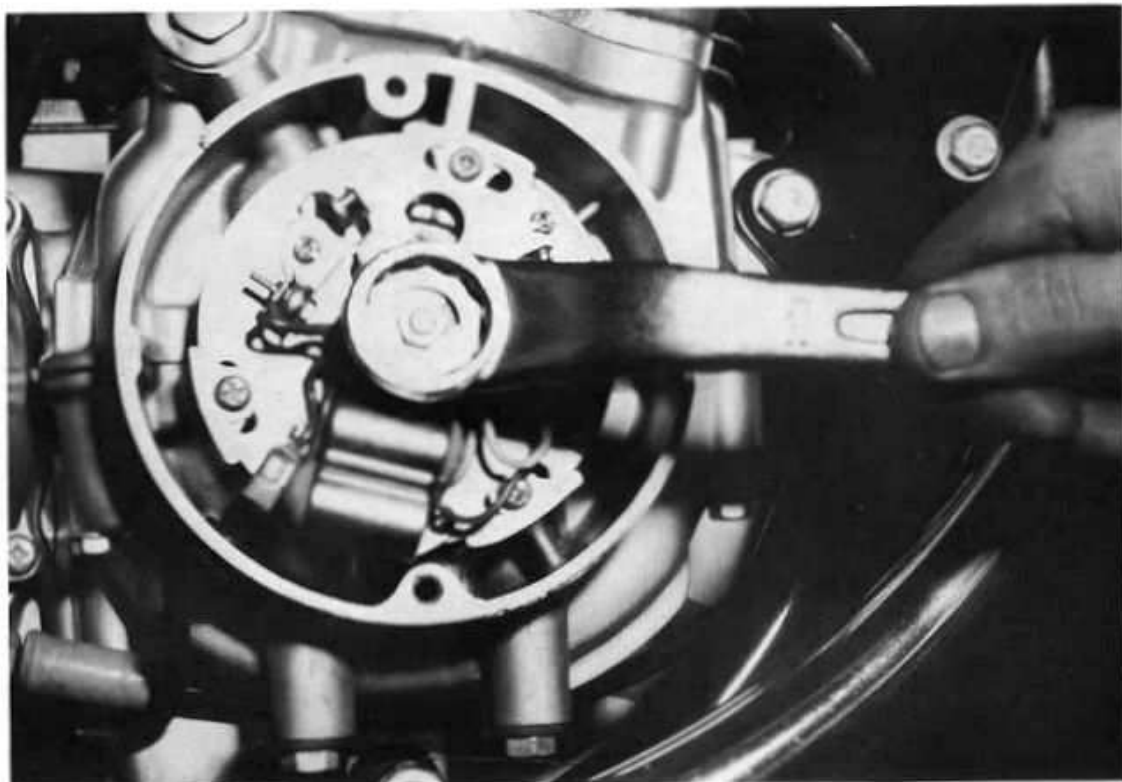


# TUNING THE HONDA 750



## The low-bucks route to more power

by RALPH BAURFFMAN

The Honda Four 750 is, without a doubt, the most sophisticated engine available to the public: overhead cam, four carbs, five-speed gearbox—fast, yet reliable. The big four is probably the epitome of engine design today.

Like any other engine, it will lose its sharp edge, and have to be tuned to regain original power and tractability. In spite of its complexity, the Four is easy to tune—providing some modern equipment is available. A stroboscopic timing light, a dwell meter and four vacuum meters are required to do the job right. All the necessary tools are in the Honda tool kit.

### ADJUSTING VALVES

Remove all eight rocker caps to expose the valve tappet adjuster screws. Remove the cover over the point assembly on the right side of the engine cases.

After pulling out the four spark plugs, place the thumb over the number one cylinder plug hole (the cylinder nearest the shift lever) and rotate the engine until pressure is felt in that cylinder. This indicates that number one is coming up on compression.

Use a wrench on the point assembly shaft to rotate the engine in a clockwise direction until the marks "T" and "F" for cylinders one and

four come into view. Set the "T" mark opposite the case mark and adjust the tappets for number one with the wrench, screwdriver and feeler gauges in the tool kit.

The gauges are marked "EX" for the exhaust and "IN" for the intake clearances. Gauges should slide between the adjuster and valve stem with just a trace of resistance.

Rotate the engine exactly 180 degrees to the "T" mark for cylinders two and three. Tappet clearance is adjusted for number two now, just as it was for number one.

Again, rotate 180 degrees, do number four; rotate 180 degrees, do number three. (Same as the firing order.)



With feeler gauge between adjuster screw and valve stem, loosen lock nut and set tappet clearance.



Loosen cam chain adjuster bolt, tighten and lock with locking nut. Set engine 20 degrees past "T."



Adjust point gap at 21 degrees with dwell meter. After gap is set, set timing with a stroboscopic timing light.

### TIMING

Replace the rocker caps and prepare for timing. To check the point gap, connect the dwell meter negative lead to ground and the positive lead to the points.

Start the engine and let it idle. When the gap is perfect, the meter will indicate 21 degrees on the eight-cylinder scale.

Connect the timing light to number four plug lead and check the ignition timing. Make sure the "F" mark lines up with the line on the case inside the breaker assembly. If it doesn't, loosen the three Phillips screws and rotate the entire point plate until it does. Moving the plate may change the point gap so double check that again with the dwell meter.

When everything is perfect, the dwell meter will show 21 degrees for both points, and the "F" mark will line up with the case mark for num-

ber three and for number four cylinders.

### CAM CHAIN ADJUSTMENT

The cam chain must be properly adjusted or it will be whipped as it passes through the galley and will wear out prematurely.

Adjusting this is a simple operation. Rotate the engine 20 degrees past either "T" mark, or about 5/16-inch past the "T" mark. Beneath the carburetors is the chain adjuster mechanism, which works very simply: loosen the locking nut, loosen the adjuster bolt, then tighten the adjuster bolt and tighten the locking nut. That's all there is to it.

### CARBURETOR SYNCHRONIZATION

The carbs are simple to adjust—as long as the job is done with vacuum meters. They are available from Honda for something like 75 bucks, but regular automotive-type gauges

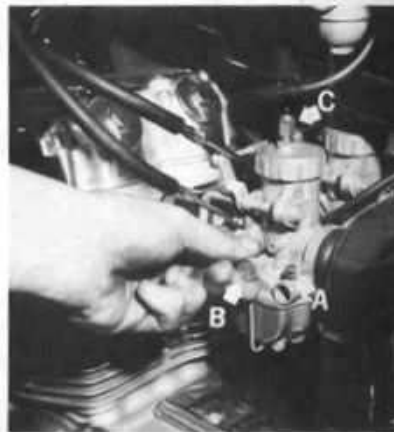
will work if they are calibrated exactly to each other. Even though the gauges may be the same brand and model number, they won't read exactly the same. There are small variances in each which must be adjusted so they all read the same. This is done by connecting them all up to a vacuum chamber at the same time and turning the adjusting screws on each until they read the same. This rig will cost about \$20, plus the cost of calibrating.

It may seem like a lot of bread, but consider that most shops charge about \$25 for a tune. Even the more expensive Honda set-up would be paid for after three tune-ups. It will be necessary to buy the vacuum stems for the carburetors from Honda to connect the gauges.

Warm up the engine fully and allow it to idle. Gently turn in the small air screw until it bottoms. Then back it out one turn. Adjust the large idle knob until all four meters read the same.

Lock the throttle so the engine runs about 2000 rpms, and adjust the individual cable ferrules in the top of each carb until the meters all read the same. Since changing the cable settings will affect the idle, it will be necessary to double-check the vacuum readings at idle again.

With this done and a new set of NGK D-8ES spark plugs, the tune-up is finished. Regular maintenance—such as drive-chain adjustment, clutch adjustment and routine lubrication—should be performed at the same time, as long as you're greasy.



With meters hooked up and air screw (A) one turn out, adjust idle with screws (B). Set high-speed vacuum by adjusting cable ferrules (C).