STAGE TUNING THE HONDA 750: PART THREE

Testing The "Instant Power" Exhausts

Nobody gave us good headers

By PAUL DEXLER

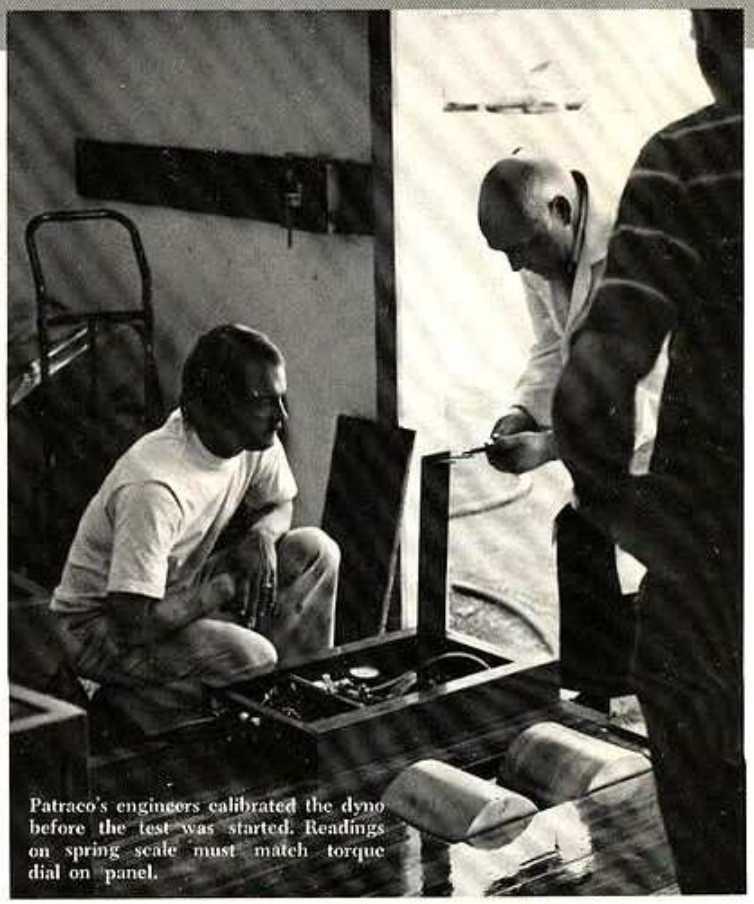
When a rider decides to modify his bike for added performance, there's one place that 99.9 percent of them start first.

That's the pipes. Even if there's no gain in actual performance, a set of mean looking pipes that produces a meaner sound adds about 75 psychological horses to any engine.

The four individual pipes on the 750 Honda Four were a logical place to start. Those four pipes are heavy, and it seemed to us that they were unduly restrictive.

It also seemed logical that a system that used a collector arrangement, with the four pipes feeding into one or two outlets and mufflers, would be more efficient. With that type of system, succeeding exhaust pulses add to each other, producing an extractor effect that increases the efficiency.

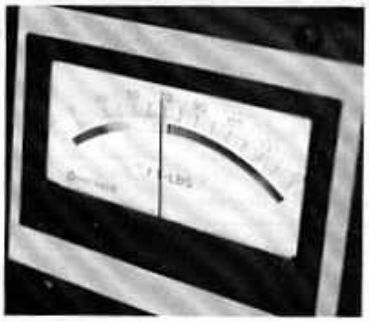
We called several manufacturers who make header-collector systems for the street. All but one supplied four-into-one systems, when we



Patraco's engineers calibrated the dyno before the test was started. Readings on spring scale must match torque dial on panel.

As a control, stock pipes were run first. Readings on the calibrated dyno were different from previous runs. Weather and temperature could also have had an effect.

Patraco dyno reads horsepower directly. Engine rpm and load are held until reading stabilizes.



Torque is read in foot-pounds directly from another indicator.

asked for the system that produced the most horses.

In the order that they were received, the systems were: Action Fours, who supplied a four-into-one, claiming it made more power, R.C. Engineering, Jardine, Hooker and S&S Headers.

By the time all the systems had arrived, it was almost impossible to get into the editorial offices without tripping over some kind of weirdly bent, chrome plated plumbing.

With three of the systems came a page of instructions for mounting and set-up. All claimed easy installation with nothing but a few wrenches, most of which should be in the tool kit on the stock bike.

So, on the appointed afternoon, we showed up at Patraco's test room with one Honda 750 Four in good tune, and five sets of exhaust systems.

Before doing anything else, the gentlemen at Patraco suggested that the dyno be calibrated. The last time we had used it, American Honda had been running special dirt bikes off and onto it for the preceding 36 hours continuously, and Patraco felt that it might have gone a little out of adjustment.

BIG BIKE editors rapidly became proficient at changing Honda pipes. Often, all available hands had to be pressed into service to help.

R. C. Engineering system ends in a big-bore muffler that passed plenty of gas and noise.

A test in progress. Tracy Holmes, of Patraco, runs bike and dyno while the editor takes down the numbers.

Although we feel that dynamometer readings are for comparative purposes rather than absolute horsepower readings, it would help a lot to have the dyno working as accurately as possible.

Calibration is accomplished with the aid of an accurate spring scale

and an arm attached to the torque converter of the dyno. If everything is right, the spring scale reading and the output of the torque meter should be the same.

Meanwhile, the bike itself had been unloaded from the pickup and was churning its oil up to a good operating temperature. With everything set, the bike was pushed onto the dyno and chained down.

Several preliminary runs were made in fourth gear, to keep the stock street tire from turning too fast.

On the dyno, with no air resistance and with no load, the Honda's gearing permits 120 mph to come up in fifth gear at 8,000 rpm. Stock rubber doesn't last too long at that speed.

The graph shows the result of the actual runs. Horsepower started at 16 at 3,000 rpm, and continued to increase in an almost linear fashion to just over 45 at 8,000 rpm. Not a bad showing, and proof that the dyno had indeed been out of adjustment when we made our previous runs a month earlier. Now we knew what to shoot against.

R.C. ENGINEERING

The nearest box was the one with R.C.'s pipe in it, so that was the one we started with. Removing the stock pipes proved to be a little more difficult than anticipated, because the footpegs are held on by 19mm bolts, and there was no 19mm open end around. The 19mm socket we had wouldn't fit into the minimal clearance around the bolt head, so the nut had to be unscrewed from the inside. This meant using 22 inches of extension on the ratchet, and a Universal at the socket to get the wrench on the nut. It worked, however, and the pipes soon came off. This immediately gave us another problem. The centerstand stop is on the lower left pipe. With the pipe gone, the centerstand comes up far enough to wedge into the chain. Not exactly conducive to smooth running.

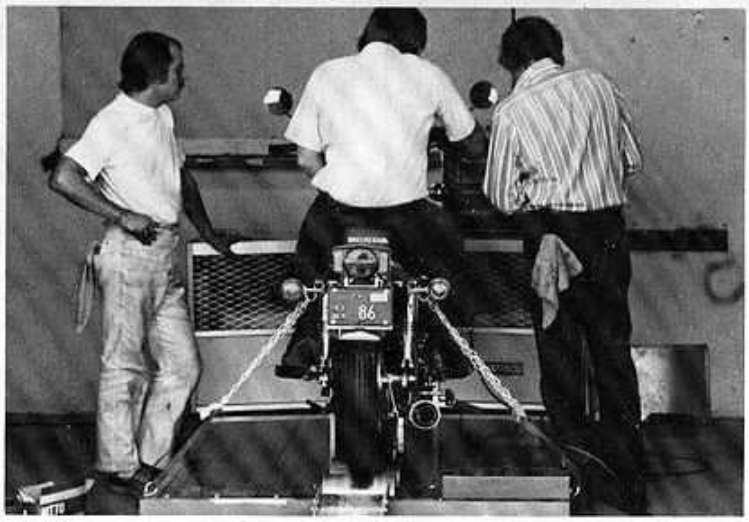
Three minutes of editorial conference, and we decided that any bike that needed a derrick to be lifted onto its centerstand didn't need one anyway, so the centerstand was offed.

R.C.'s header and collector are welded into one piece, looking like some kind of exotic modern sculpture. In theory, the header clamps to the exhaust ports, the muffler bolts to the footpeg bracket, and that's all there is to the installation.

Unfortunately, there's a gap somewhere between theory and what actually happened. Three of the header pipes slipped right over the ports. The fourth would not close up, no matter how much it was encouraged with the rubber mallet that was now added to our tool kit.

Adding a third body to help grunt didn't help either, so the header was

Cont'd. on page 73



The dyno room becomes a loud place indeed as the tests continue. A random sampling produced a reading of 114 dbs. at this distance, and 30 degrees off axis from the bike.

R.C. Enterprises' headers and collectors are welded into one piece. They look mean, but were not all that easy to bolt into place.

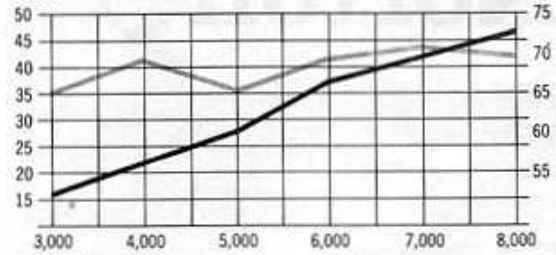
Jardine's system required some work with ballpeen hammer and file before the pipes would go into the collector.

With everything finally in place, Jardine's system looks sanitary.

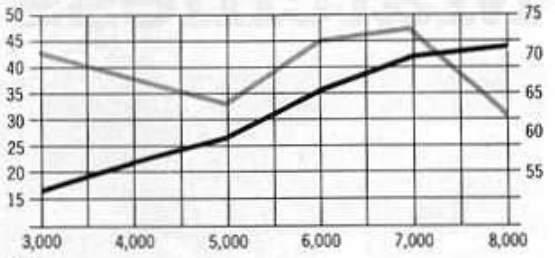
After one 5-minute run, Jardine's sanitary look was marred by bubbles in the chrome on the collector and headers.

HORSEPOWER AT REAR WHEEL ——— TORQUE IN FT./LBS. ———

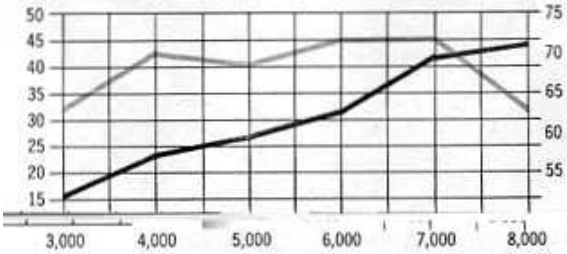
STOCK



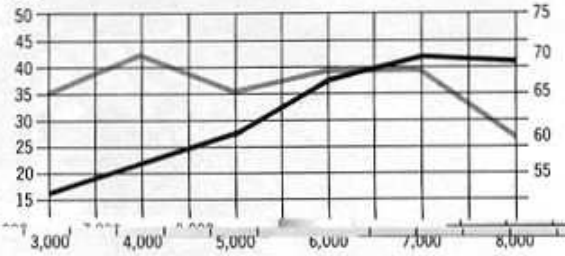
HOOKER



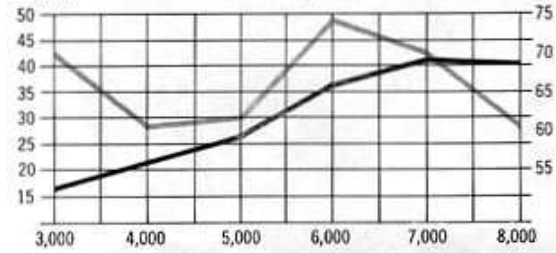
R.C. ENGINEERING



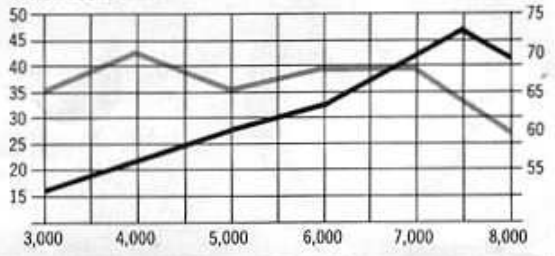
S&S



JARDINE



ACTION FOURS (4 INTO 2)



Hooker's system was relatively easy to mount, once the layout of the pipes was figured out.

The S&S system featured a flat configuration in the collector, supposedly for greater ground clearance.

The whole test almost came to a screeching halt with this much of Action Fours' system installed. Six hands and some blood, sweat, toil and tears finally got the job done.

The Action Fours system is a four-into-two. It produced some fairly good readings, even without rejetting.