SIMPLE CAM CHANGE IS A BIG STEP TOWARDS ALL-OUT PERFORMANCE...

HONDA 500 HOP-UP

BY TONY MURPHY

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In our August '72 issue we undertook a comparison test of the three four-cylinder Honda road machines. The 350 was all new, the 500 had been around for awhile, and the mighty 750 has already become a legend. As a result of that test, Art Director Paul Halesworth traded his 350 twin for one of the 500 Fours and, being an enthusiastic motorcyclist, set about to make some personal modifications. Little did we know at the time that his quest for an individualized touring machine would get us involved in one of the most interesting projects to come along in quite awhile.

Initially, Paul's new 500 got the double-disc brake treatment. Checkered Flag Customs had been marketing the bolt-on assembly for some time for 750's, and when the 500 came along it was only natural to provide added braking power for those that felt they needed it. This introduction to Checkered Flag Customs renewed an old acquaintance with Dale Alexander, a partner in the enterprise and a hot dog racer of a decade ago. Dale had just joined forces with "Pops" Yoshimura, famous for Honda hop-up parts, and together they planned to market items to make Hondas run faster as well as stop better. Their facilities in Simi, California were most impressive, and since they planned a race effort in the U.S. to promote their products, we agreed to get involved.

It was a natural. We had a staffer with a 500cc street machine that would be ideal as a day-to-day test bed for any new ideas, and had a project road racer laying idle in the garage. We'd spent a good deal of time trying to develop a 350cc Bridgestone into an AMA road racer, with limited success, and since the AMA rules had upped the maximum displacement from 500cc to 750cc, further progress with such a small engine seemed a remote possibility. "There's never a good little motor that's better than a good big motor."

The plot thickened as we tried to decide what to do. Everybody knew how fast the 750cc Yoshimura engines were, ever since Gary Fisher held off the best the world had to offer at the 1970 Daytona 200-miler. Yoshimura confessed a liking for the 500 engine, predicting as much as 75 horsepower before very long. We liked it too, particularly since the 500 would just fit in our existing chassis and there was no way to squeeze the larger 750 in a space originally designed for a 350 two-stroke twin. The 500 got the nod. We went to work fitting the engine, while over in Japan "Pops" set out to find the 75 horsepower.

Meanwhile, Paul Halesworth had given in to the temptation of more horsepower from his road model 500 and decided to fit a Yoshimura designed camshaft. That suited us just fine, since

we only knew of Yoshimura by reputation and this would give us a chance to evaluate any performance improvement. We took the machine and a camera to the Simi shop and within two hours the installation had been completed and the machine was being ridden homeward.

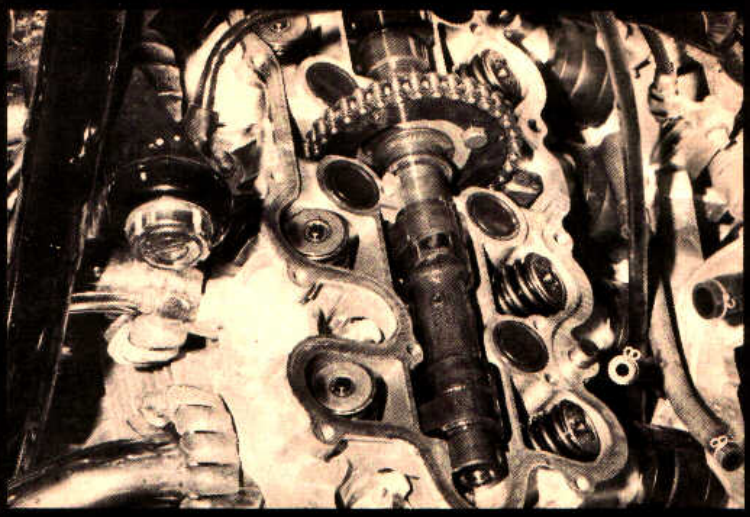
The two-hour time figure is actually longer than it would take if every operation had not been interrupted for photographs. An average mechanic should be able to complete the job in an hour, providing he has a basic set of metric tools and a Honda shop manual. The shop manual is a must to be sure of the proper torque figures, clearances, etc.

Dismiss all those thoughts of a four-cylinder engine being hard to work on. To replace the camshaft the cylinder head doesn't even have to come off the engine. The only things that get removed are the gas tank, cam cover and camshaft. Once that's done you're half way there. Everything else you'll do is putting the machine back together. The cam is chain driven from the center of the engine and rides half in the cylinder head and half in the cam cover. Once the two bolts securing the sprocket to the cam are removed, the cam slips right out. It's that simple.

How's the performance? Our plans call for an actual evaluation on the dynamometer before too long, but it doesn't take a dyno to tell you that this is no ordinary 500 Honda. While the low speed power feels about the same, there's quite a transition when the tachometer needle sweeps by 6000. By 8000, where the stocker is just about ready to run out of steam, the Yoshimura-equipped engine is really singing, and keeps on going until you're up around 12,000, a point at which the engine's other components like the carburetors and stock valve springs are a determining factor.

Because of the power increase in an rpm range not normally used, some carburetion changes may be necessary. Our test version was re-jetted with favorable results, but the amount of change will depend on the area and the type of use the machine is put to. In some cases a change of gearing might help too

Such remarkable results from simply changing a camshaft merely added to our enthusiasm for our joint project. The machine has already been run with a stock engine to analyze chassis behaviour with the heavier engine and all seems well. Ready to go, less fuel, we have a road racer weighing 307 pounds, nearly 100 pounds lighter than the 750 versions. If the 75 horsepower does materialize, the MOTORCYCLIST/ Yoshimura Honda will be a competitive machine at any race course in the country, if not in the world. In future issues we'll keep you up on our progress with the machine and "Pops'" progress with the engines. Look out Daytona! •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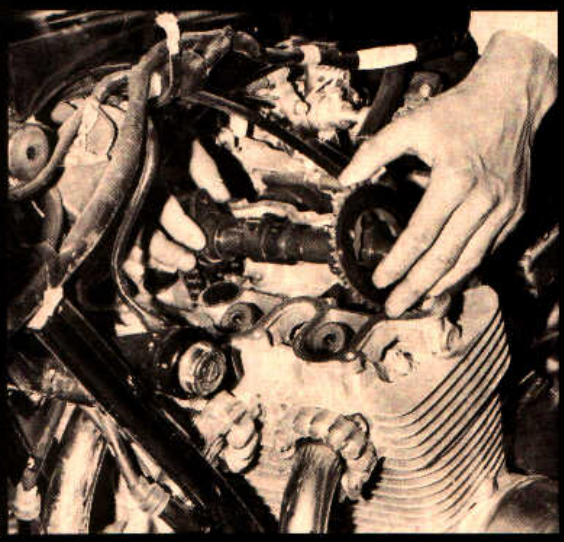
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1. Replacing the camshaft on a 500 Honda is a cinch. With the cam cover removed, everything is right in front of you. It's a lunch hour job.

2. With the cam sprocket unbolted from the shaft, the old cam slips out and the new one slips in.

3. Motorcyclist project racer, powered by Yoshimura modified Honda 500, will be race ready come 1973. Fujio Yoshimura and Dale Alexander provided engine.

4. Stock cam on right and Yoshimura's version may look the same, but performance is quite different.