

Collected wisdom from the Internet compiled and contributed by Thomas Schubert from a conversation he had with Godfrey DiGiorgi about his CB400F race efforts in the 70's.

Godfrey DiGiorgi, 1/5/98

It's been many years since I mucked about with Honda SOHC fours. The 400F was a delightful bike, no wonder that they are so much sought after nowadays still. I was always more a european bike guy, my usual ride is a Moto Guzzi or a Ducati, but my involvement in the industry was when I worked for a Honda dealer as a parts department manager and helped build those 400F racers. It was fun, another friend of mine was a dedicated Honda mechanic and built many very interesting bikes. Like a 750 Automatic fitted 812cc kit and installed into a Rickman chassis for racing.

It's fairly amazing that the sludge trap filled up to such an extent but then early LeMans bikes with no airfilters collected a lot of grit into the oil through the carbs and engine breather, I guess it shouldn't be such a surprise. I have always run air filters, even on the race motors. Many times it was quite a struggle to fit velocity stacks and filters that would work appropriately.

Kazuo Yoshima was the owner of Ontario Moto Tech. He created a name for himself building up CB400Fs for racing in the mid 1970s. His best street kit was a 458cc overbore, a mild but rasty cam, some head work and a very very beautiful 4-1 pipe that was light and very snug around the engine for maximum ground clearance. Cycle magazine did an article on him way back when, calling the OMT CB400F his "Business Card". I never dealt with Yoshimura's 400F kits, they were rarely sold much here in the US as Yoshimura was much more involved with the big block Kawis and Suzukis than Hondas. Kaz' work on the 400F had achieved 78bhp at the rear wheel, according to the Cycle article, and that same article had mentioned the fragility of the crankshaft and rods at high rpm and power levels several times.

I and my racer buddy got to find out just HOW fragile they were ... but hey, the bikes and motors were going for a song by '78, wrecked bikes with perfect motors were only a hundred bucks complete. He bought 10 of them over the course of two months, and three clean, perfect ones, so we had plenty of spare engines to work with. I never saw 78bhp on the dyno I had access to, as I said the 495cc engines we did were mostly in the 65-70 hp range at 12,900-13,300 rpm point. One engine shone extra bright, must have been sprinkled with fairy dust the day I put it together. It also lasted longer than most of the others, but I never saw those numbers on the dyno again.

I don't know whether OMT is still in business. It's been a long time...

I seem to recall changing the ignition points to a Dyna ignition pickup unit. There were no serious ignition problems that I recall, we had high output coils on it, of course, but that and the pointless ignition worked just fine.

I knew that Dave Degens was a bit of a maniac ... ;)

Actually, I think that James (my buddy) had ordered two frames (from Degens) for the 400F but only took delivery on one. A couple of years ago, one of the british mags had a project CB400F going and were looking for a Dresda swingarm, Degens had a whole frame that they got instead. I suspect that this

might have been the second frame that James ordered but never paid for.

James' money was going thin by the end of the 1978 season and I think he quit racing somewhere in '79. I was off to the other end of the continent by that time and out of the picture. I don't know how many Dresda frames Degens made for the 400F but it couldn't have been that many.

This was back in 1976-1978. The best of them were Yoshima 495cc kits, with Kaz' cam and pipes, his head work, bored carburetors and all that. I did the assembly and jetting, tuning. These were NOT streetable ... they wouldn't idle at all hardly and didn't make useful power until about 7000 rpm. The best reading I ever got on a dyno was 76-77 bhp at the rear wheel. We got 65-70 pretty consistently, between crankshaft explosions.

The big number motor had Carillo rods, carefully race-prepped crankshaft, the elaborate oil coolers and would survive to the 13,500 rpm required to make the big numbers. Anything with stock rods and rod bolts would blow up before you got to 13,000 rpm at this displacement. As it was, you needed a new set of rings every three races and I found that crankshafts were critical.

I did this with a guy who had a lot of money. These were *expensive* motors.

TS: I have just (about a year ago, actually!) rebuilt my 400F, and fitted it with a 440cc Yoshimura kit. (New Old Stock - cheap.) I haven't fitted the Yoshi cam yet, since it's to stay a street bike, and I've been told the cam is too much for the street.

DG: Kaz Yoshima's cam was a pure racing piece. Useless on the street.

TS: What did you do about leaking head-gaskets? Were they a problem? The Yoshi one that came with the kit leaks, maybe because it lay on the shelf for so long - to be replaced with a steel gasket soon.

DG: They all leaked eventually. We had the engines apart so much it never seemed much of a problem. I seem to recall I eventually cut my own head gasket from copper sheet, gooped it up good with sealant. It was reusable and didn't seem to leak too much.

TS: What did you do about transmission snatch/backlash? I replaced the 8 little damper rubbers in the primary drive/clutch basket, which helped some, but the gearchange is not nearly as good as that of my Seeley Honda, for instance.

DG: The selector mechanism and gear dogs are crude. New primary chain and some gear undercutting work (done by a good friend of mine for free) cleaned up some of the backlash. (Primary chain at these power levels and rpm wasn't very long lasting.) He also bored and bushed all the shift forks with bronze bushings for a dramatically better shift ... the OEM steel on steel, loose fit selectors evidently would stick easily.

TS: Did you ever experience any problems with crank bearings?

DG: Constantly. There were 3 successful motors. 6 others seized or broke the crankshaft or rods. It is a cheap, built to a price, bottom end; such breakages were forgivable at 125% of original displacement and

nearly 2.7x original power levels.

TS: What compression ratio were you using? mine is now 11 : 1, with some headwork done.

DG: I seem to recall that the big number engine was 11.2:1 when cc'ed. I seem to recall that there were 11.5, 11.0 and 10.7 engines as well. It's been a long time.

TS: What front suspension/brakes did you use? I'm thinking mainly of the single disc brake up front.

DG: There were two complete bikes, one based on a stock frame the other on a Dresda frame. I think the front end on the stock frame was first a '75 CB750F set of legs in bored out triple clamps, with a smaller wheel laced up and the stock Honda brakes. Later, a single Lockheed caliper was used with a lighter rotor setup. Finally, that brake with a set of Ceriani 35mm racing forks was used in conjunction with a braced and stiffened swingarm.

The Cerianis were transferred to the Dresda frame and the CB750F forks restored to the stock frame at the end. Taper roller steering head bearings were fitted, and bronze swingarm bushings. It was fun stuff. I was broke most of the time and the guy paying for the work was no great shakes as a rider, but it was a gas to see the little bugger entered in the same class as a Kawasaki Z1 and SMOKE it off the line. He usually managed to do a respectable few laps and then would drop back in the pack as either he tired or the engine soured. We had a LOT of engine problems, of course ... purely amateurs out of our depth, particularly when it came to cash ... but I learned a hell of a lot while doing it. The Dresda bike was fantastic: 70 bhp at the rear wheel and about 300 lbs ready to race. Evil little critter. Oh for days when that was all I did ... :)