

theme, he added a larger air filter, but not one so oversized as to hang out of the bodywork in a boisterous fashion.

As the last enhancement, Bill omitted the standard pressure-based fuel system and reached deep into his bag of tuning tricks to pull out an innovative new concept for fuel delivery on the big 'Busa called PortFueler.

There's a number of ways to add the additional fuel needed on a thirsty turbocharged bike, and Bill painstakingly developed new billet PortFueler housings specifically for the Hayabusa. These artful bits replace the annoying stock rubber boots used to attach Hayabusa throttle bodies to the cylinder head. This is the essence of the PortFueler concept – to add the enrichment fuel directly adjacent to the stock injector, right at the cylinder head port. These billet housings mount the injectors and seal to the cylinder head and throttle bodies with O-rings for a leak-free installation. As a bonus, we like that the squishy, problematic stock Hayabusa rubber boots are completely eliminated.



Bill knows 450 hp moving 770 lbs is going to present some serious challenges."

Why add the fuel at the port, as opposed to further upstream in the plenum or piping? Bill has studied this in exhaustive detail for years, and explained, "by introducing enrichment fuel under the throttle plates with PortFueler, we achieve excellent atomization and carry-through into the cylinder, but with minimal puddling. This approach is markedly superior to injecting fuel further upstream in the plenum or piping. Plenum or piping fuel-injection creates some distinct disadvantages: for one, the throttle shafts are not sealed, so pressurized air-fuel mixture leaks are created when under boost. Two, pressurized fuel is forced into the throttle-position sensor and IAP sensor signal hoses, neither of which are intended to see raw fuel on a regular basis. Three, part-throttle boosted operation can suffer, as the enrichment fuel has to navigate past a partially closed throttle plate, leading to loss of atomization and chunky throttle response. Lastly, sudden throttle closings that capture the enrichment fuel above the throttle plates can allow a dangerous air-fuel mixture to discharge from the blow-off valve, in addition to over rich deceleration."

For those of us who live down here in the real world, it comes down to this: the PortFueler system offers the best drivability possible, while allowing accurate, detailed, engine-safe tuning at all boost levels.

There was one engine management aspect yet to cover – ignition timing. Stock ignition timing is a bit too aggressive for high boost operation. Bill opted for the industry standard here, the Dynojet Power Commander. Using the Ignition module, he dialed in a maximum of 6 degrees retard. The Power Commander has been used for years in conjunction with Hahn RaceCraft turbo systems, and is a universally



The Makeover: Time is Running Out

With the track runs just around the corner, Bill has turned the heat up on the fitness regimen. Having hit the wall at 207 pounds, his wife struck upon a solution: she put the entire family on a 1500 calorie a day diet, using prepared meals from a local supplier. At first, Bill was unsure whether this would be the answer, as 1500 calories a day is really low for a 200-plus pound dude.

"I agreed it was a good idea, but I didn't know if I could hang in there with so little food. Fortunately, the meals are well-balanced and nutritionally complete. While the Atkins diet worked superbly in the early stages, denying my body carbs and other foods had led to some powerful urges. This low-cal diet really helps suppress those urges, and I'm losing weight again."

Alternating daily now between weight training on his Bowflex and bicycle riding, Bill is happy to report he actually feels more energetic than he has in some time. All those years of poor eating and smoking are starting to seem like a distant memory as Bill steels his body and mind for what's to come.

