

HAYABUSA GETS MUCH HAYA

H1V8 - John Hartley's Hayabusa-based V8 engines.

Engineer John Hartley likes the clever design that allows a 1300cc four-cylinder engine to be shrunk small enough to be jammed into a motorcycle. He also likes V8s. So instead of saying why doesn't somebody add another bank of four cylinders to the 'Busa and turn it into a stonking but weightless V8, he decided to be the somebody, and just got on with it. The Hayabusa was chosen because of its displacement and power, and because assorted nutters are buying lots of performance upgrades for their bike engines such as spiky cams and big-valve heads. All those aftermarket goodies work just as well on a Hartleybusa V8 as on a Hayabusa bike engine, but with a critical difference. On a bike, extra power mostly means you have to use even less throttle to avoid being spat off and squished. In a kit car, though, you can give it the full welly even in first gear, and if you're Yokoe'd up you're going to go forwards rather than just off the back of the bike.

The design was to have as narrow a Vee-angle as practical, to keep the engine compact. In the end it came to a choice between 72 degrees and 75 degrees. 72 meant that the area at the armpit of the vee was getting a bit crowded and an oil gallery problem was beginning to rear its head, and also the straight-line inlet tracts were going to have to be compromised, so 75 degrees was the final choice. With high-revving bike engines, the tuning details are critical - you can entirely change the characteristics of the Hayabusa engine by choosing different length intake trumpets, and of course the same applies to the V8 version. The crank is flat plane, with the rods on the left bank offset forwards. The crank

journals are deliberately fat with large-diameter bearings, to make the crankshaft strong and very stiff. The crankcase was originally a casting, but that was changed for machined billet ally later on, which worked better. JE made the pistons, and there's not much JE don't know about pistons. Rods are by Carrillo, and again if you tell me you're using Carrillo rods, that's all I need to know.

Once the engine had been constructed and fired up, the next step was to put it in a kit car which seemed the obvious place for it, and a Caterham Seven was chosen. John Hartley was surprised by the big torque that came with the engine - he would have been expecting big bhp at high revs, which is the *raison d'être* of Jap bike engines, but any 2.6 litre engine in a Caterham is going to give it some grunt as well as howl. The dyno figure of 400bhp does rather

overshadow the torque figure of 245 lbs.ft, but 245 pounds of torque in a lightweight car with an ultralight 200lb engine is going to be top fun in itself, even without the scary 400bhp available further up the tachometer at 10,000 rpm.

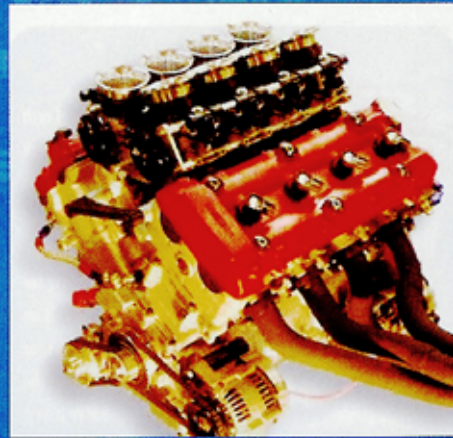
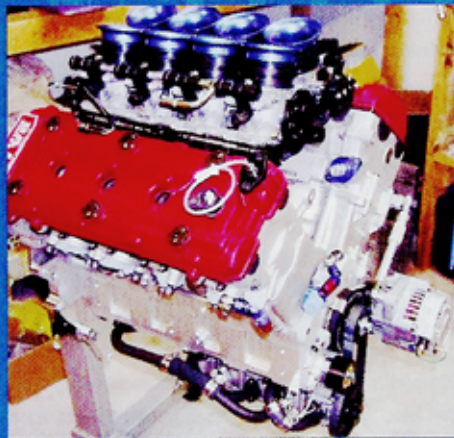
The engine is deliberately designed with a backplate that will suit all sorts of applications - RWD, transverse FWD, transverse RWD, whatever - so it will fit your car. One of the kickers is how much does it cost? Currently the price is around \$30,000 complete and ready to run, which is fifteen grand in quids. Expensive, but look at the spec and tell me how else you're going to achieve that power for that weight. Let's hope John sells thousands of the little monsters, then the price will come right down and we can all have one. I could probably fit two in a Cobra... More details on www.H1V8.com

TECH SPEC

- 75 degree odd-fire V8
- 2.6 litre, 170 cu. in. displacement
- 84mm bore x 63mm stroke
- 4 cams, 32 valves via internal silent chain
- 530mm wide x 485mm long x 530mm high
- 400bhp @ 10,000 rpm with standard street cams
- 245lbs.ft torque @ 7500rpm
- 200lbs engine weight
- Billet nitrided steel 180-degree crank
- 4340 Carrillo H-beam rods
- Billet 6061-T6 aluminium crankcase
- Dry sump oil system with 4-stage pump
- 7.25" or 5.5" twin disc clutch
- DTA S80 full sequential ECU
- Unique patented cylinder offset and cam drive



Hartley's 'Busa-based V8 is pretty, as well as a bit frisky.



John likes the look of the red cam covers, so they'll become a trademark.