

## EG5 HONDA CIVIC ESI

D16Z6, to 250bhp and then 300bhp using a low-pressure turbo conversion. Ideas and figures continued upward until the brothers settled on the nice round figure of 500bhp as the target output. With that eventually decided upon, all they needed was to find a suitable engine as a starting point.

Again, they didn't need to look far. When an inmate from the nearby open prison totalled his Aerodeck VTi, the salvage was snapped up by Corten-Miller for its engine and the remainder sold on to help fund the project. This gave the guys a B18C4 bottom end to work from – good for 250–300bhp – but in need of work if it was going to handle the power figures Tom and Ben had in mind. To that end, and in what is an increasingly common trend within our scene, they turned their attentions west, to the US and its prolific Honda community for the solution.

Research led the boys to Dan Benson Racing, in Idaho. Eponymous owner Dan is recognised as the first person to successfully install aftermarket performance sleeves in a Honda block, so if you're going down the turbo route and plan to run high boost, there's really no finer man for the job. The entire B18 short block was shipped out to DBR to have Dan's specially designed sleeves (manufactured by

Darton) installed and the crank balanced and micro-polished to reduce friction.

While the block was enjoying its Stateside holiday, back at Corten-Miller the brothers were busy sourcing more components from the US. Hasport's top quality D-to-B engine conversion mounts are a given for this type of project, while the forged internals came from Pauter (I-beam rods) and CP Pistons (83mm pistons). A Full-Race turbo exhaust manifold was another purchase, an item of special interest because of the insane 900+bhp power rating it has!

The top end, by comparison to the short block, is a relatively tame affair. Ben and Tom always had the aim of building an engine with half a thousand horsepower, but didn't lose sight of the fact that this doesn't necessitate change for the sake of change. Opting to go with a B16A2 cylinder head was sensible for a couple of reasons – it flows better than the B18 head, unless you are using crazy high-lift cams, and the intake manifold orientation is better suited to cope with intercooler pipework – but it's still fitted with standard cams that are just as happy idling as they are soaring for the rev limit. Up-rated Supertech valve train components have been fitted for safety and reliability, but apart from that the cylinder head has only had a

quick refurb in Corten-Miller's on-site machine shop before being bolted up to the B18 block.

When it came to choosing a turbo, the age-old problem of size versus performance had to be overcome. "We wanted a genuine 500bhp at the flywheel, not 'pub' horsepower. But the Civic still had to be a track car, so it couldn't be really laggy," explained Tom. "This was the compromise." Working with Turbo Dynamics, the resulting choice of a GT3076R blower with 4" inlet is, in reality, anything but a compromise. An AEM plug-and-play engine management system and Blitz boost controller combine to allow the Civic to start and drive like a standard car while off boost, but then spool up and hit full boost by 4000rpm with a switch to the second set of cam lobes when VTEC comes in at 4.5k. Plus, once the hybrid B-series is on song and revving to the upper reaches of the powerband, gearchanges drop the engine right back into the sweet spot of mid-range power.

Corten-Miller's three decades of experience working on high-performance road and rally cars, particularly those of a turbocharged persuasion, can be seen in the company's perception and innovative resolution of areas that, left unchecked, could pose problems later on. One area is crankcase ventilation – the engine now has five vent hoses running to a custom fabricated Corten-Miller catch tank and breather system (if you like random information, the breather uses K&N's smallest available panel filter, originally intended for a wood cutter).

The other area is with regard to engine temperatures. As the turbo is tucked high behind the front panel, it effectively halves the available space for a coolant radiator, so to maximise cooling efficiency a half-size Mishimoto radiator dual-core item replaces the stock Honda rad. Nestling behind the front

