

C IS FOR CVH TURBO

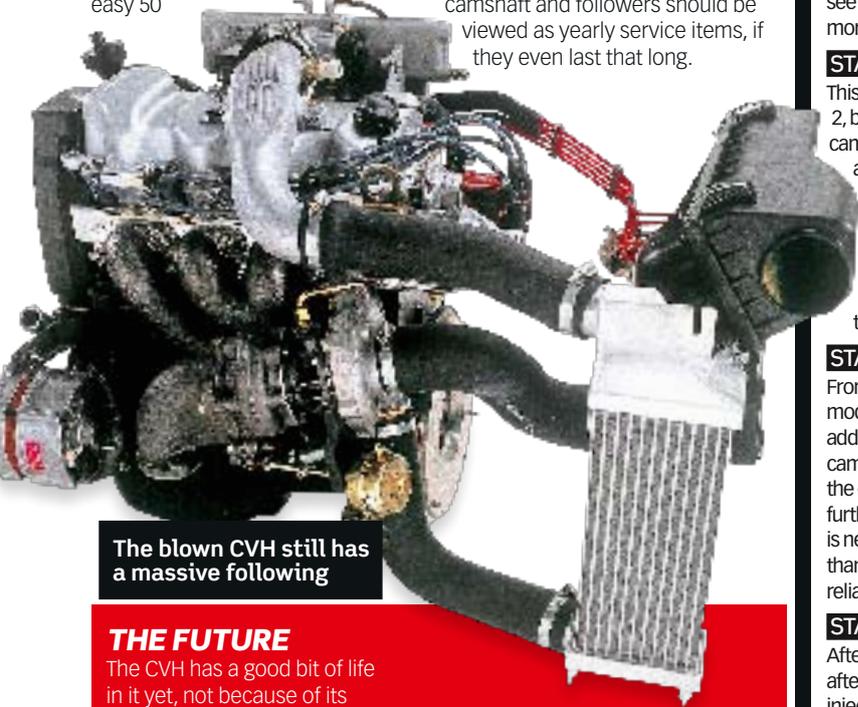
The king of '80s fwd Fords, it can still hold its head high.

Words: Stewart Sanderson

When produced: 1985-1991
Found in: S1 and 2 Escort RS Turbos, Fiesta RS Turbo
Capacity: 1596cc
Layout: four-cylinder, single camshaft, eight valves with hydraulic actuation, turbocharged.
Power output: 130-132 bhp depending on model
Good points: the CVH has a very good design of cylinder head for its era and can be coaxied into making very good power indeed. The basic engine layout is very good and a dream for the DIY-er to work on. The head, crank and rods will allow an easy 50

per cent more power and torque and, unlike the YB, its head gaskets normally have an exceptional seal and life expectancy even at extreme power levels.

Bad points: the standard pistons are easily damaged with poor tuning as they are mechanically quite weak and have no resistance to detonation at all. The con-rod bolts and indeed the rods themselves aren't the greatest and a missed gear can often result in a totally wrecked engine with a hole in its side. The lubrication of the cams is very poor indeed and as a result, the camshaft and followers should be viewed as yearly service items, if they even last that long.



The blown CVH still has a massive following

THE FUTURE

The CVH has a good bit of life in it yet, not because of its technological standing in the engine world, but because of its cult following. The CVH Turbo engine is as popular today as it ever was and indeed has some tuners still wishing to push it further and further in the name of catching the attention of those customers willing to foot the

bill for the latest and greatest engine development. Big power and speed being attainable with the CVH was proven again very recently by Christian at APT doing 169.8 mph with its 351 bhp, 1.6 CVH-equipped S2 Escort RS Turbo!

TUNING

BOSCH KE-EQUIPPED ENGINES (ALL ESCORTS)

STAGE 1

A new chip in the fuel ECU to alter the spark timing and move the boost limiter, Garrett -31 wastegate actuator bolted to the turbocharger and a good manual set-up of the fuel system by a pro to release the extra fuel will allow you to raise the boost to 15 psi held and make around 180 bhp at the flywheel. **Cost: £450**

STAGE 2

As above but with larger intercooler to cool the increased boost due to the inadequate standard item will see boost nearer to 18 psi held and more bhp and torque. **Cost: £400**

STAGE 3

This level uses the same kit as Stage 2, but with the addition of a camshaft and a fifth injector kit. This allows you to supply further fuel into the engine and the cam will help it breathe more easily as we rev it. 200+ bhp can be found at this level but a bigger turbo would make it easier on the engine. **Cost: £350**

STAGE 4

From here on upwards we are into modifying engine internals. The addition of a ported head, matching cam and larger turbocharger will see the engine into the mid-200s and further. A new management system is needed to progress any further than this with any degree of reliability. **Cost: £1700**

STAGE 5 AND ABOVE

After Stage 4, you should fit aftermarket management and injectors etc to bring the system up to a more modern and mappable standard. We will lower the compression ratio slightly and add an even bigger turbocharger. Depending on power output we'd insist you fit a steel crankshaft, steel rods and decent forged pistons. Over 300 bhp is attainable if you can afford to go that far. **Cost: £2500-7000**

FORD EEC MANAGEMENT EQUIPPED ENGINES (FIESTA TURBOS)

STAGE 1

A new EEC IV chip to remap the fuel, timing and boost curves takes you up to 13 psi of boost pressure held on your T25 turbo and gives you around 165 crankshaft horses. An uprated fuel pump is highly recommended at this level. **Cost: £250**

STAGE 2

As above but with the addition of a stronger wastegate actuator. This will allow you to hold the boost higher up the rev range and give you a useful 10 extra bhp over the Stage 1 and max out your standard equipment injectors reliably. **Cost: £70**

STAGE 3

As Stage 2 but with a set of Bosch 701 injectors and a different program on the chip to suit the new injectors. A bigger intercooler and 17 psi held will now see you developing around 195 bhp at the crankshaft. **Cost: £700**

STAGE 4:

From here onwards we are into modifying engine internals again. A ported head, matching cam and larger turbocharger will see the engine reach the early-mid 200s and beyond. Beware though, the Bosch 701s will max at around 220 reliably and then you are into Stage 5 territory... **Cost: £1850**

STAGE 5

As above but with bigger injectors than the 701s and a full live-map to bring it all together. Contrary to popular belief, the EEC IV management system on these cars is easily mappable by any tuner with the right emulation system. 350 bhp has been seen on this system reliably with no problem at all. **Cost: £600**