

# Power play



**Eric Fowler** fits a fuel-saving/power boosting device to his car

## WHAT IS AN ECOTEK?

The Ecotek CB-26P (CB for Clean Burn, 26 P for 2.6 litre petrol – the maximum size of engine on which it will operate successfully) is designed, pure and simple, to make a car's engine run more efficiently.

It consists of a housing containing a non-return valve and venturi tube, which is fitted either directly into the inlet manifold, or more simply, let into the vacuum tube which runs between the inlet manifold and the brake servo, as close as possible to the manifold on the car engine and between there and any non-return valve in the system.

In action, it injects minute quantities of agitated air into the manifold at certain prescribed pressures. Although this does effectively create a leaner mixture, (about 5 per cent), it has no adverse effect on tick-over. At the same time, it does create a certain amount of turbulence and this in turn greatly improves the combustion efficiency of the fuel/air mixture.

The device is made in England to the highest standards, and from the best quality materials and in the unlikely event of mechanical breakdown, carries £5 million of product liability insurance.

Ecotek operates in four stages, according to engine revs at the time.

1. At low revs, the sprung valve is designed so that if the engine is running and is no longer on choke, only a limited amount of air is drawn in. In other words it bleeds only very small amounts of air during tick over. This will reduce quite considerably the CO emissions, without impairing the smooth running of the engine.

2. At between 1500 and 3000 rpm, or after lifting-off after hard acceleration, there is much higher rate of air flow along the tee section of the device, which in turn causes a greater suction in the venturi section of the downpipe. The partial vacuum causes the valve to open against the spring pressure and air to enter in order to equalise the pressure in the tube. As pressure equalises, the valve will then return to its seating – after which the whole cycle is then repeated.

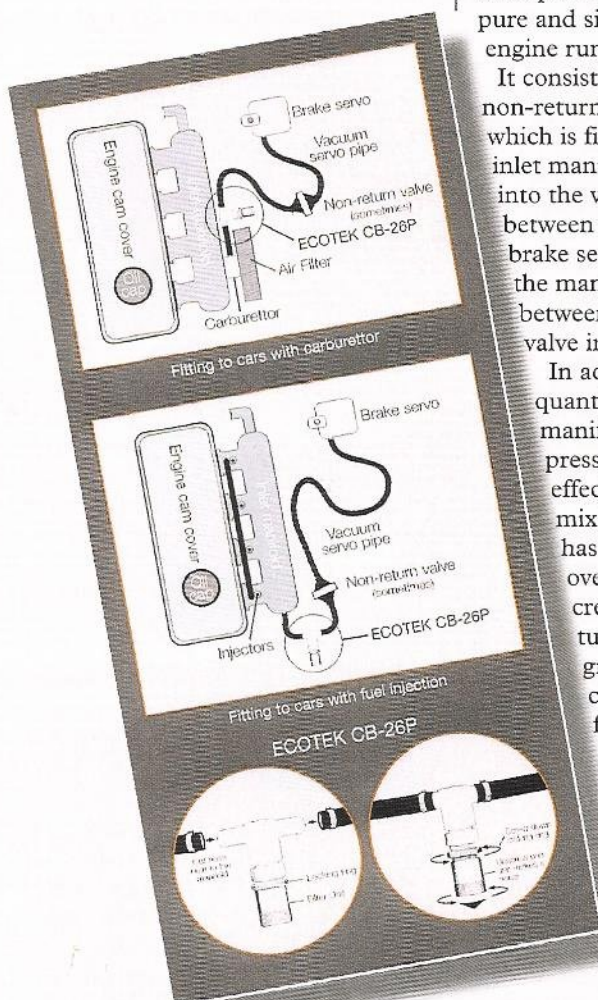
3. At very high revs, the same sequence of events continues to a greater extent, so that the valve remains open. This improves air intake to the inlet manifold, with the additional effect that air passing through the valve is caused to swirl. This creates an even greater improvement in combustion.

4. Under all circumstances, throttle response is improved all round, since the device causes the inlet vacuum to partially collapse. In the case of fuel injection vehicles with electronic engine management, the draught across the injectors is subject to slight hesitation as the accelerator is applied, together with pronounced increase in engine response.

## FITTING THE ECOTEK

Unless it becomes necessary to fit directly into the manifold, installing the device is child's play (or at least, it was on my Senator). Having located the vacuum tube from the inlet manifold to the brake servo (which in the case of my car ran conveniently across the engine at the rear end), it was a matter of cutting the tube, removing a short length and fitting the ends onto the 'tee' sections on the Ecotek.

Because the Senator has a three-litre engine, two units were necessary. The manufacturer recommends using jubilee clips, to avoid any chance of an





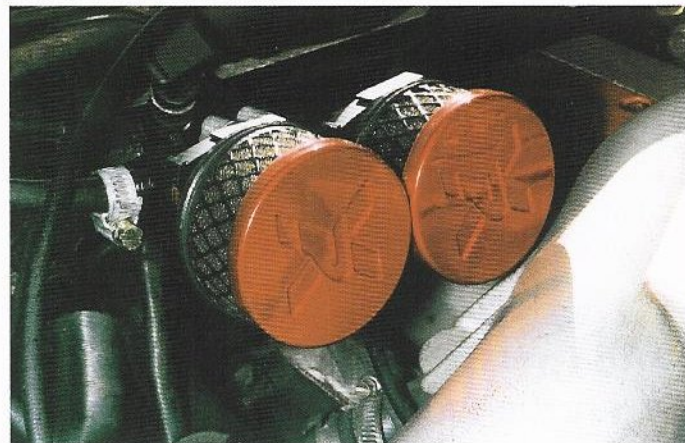
This is the main unit, which is extremely simple to fit on most cars. Doesn't seem big enough to make such a difference!



On this Vauxhall Senator, proper fitting involved cutting this tube and reconnecting it carefully afterwards



As this Senator has a 3.0-litre engine, two separate Ecotek units are required. For cars up to 2.6 litres in capacity, one is enough



The finished job, with the Pipercross filter/silencer units added. Now for the driving test...

air leak. Four were therefore required in this case, with a very short length of tubing bridging the two units, which needed to be almost touching one another to remain effective.

We had a little difficulty getting the ends of the Ecotek to slip into the open ends of the tubing, as the fit was very tight. The tube was in an unknown grade of plastic and a small application of heat in the vicinity of the ends quickly solved the problem, enabling the tube to be pushed on far enough for it to be secured by the clips.

### TUNING

Once installed, the device has to be tuned, but this, too, is a very simple operation. First, run the lock nut back on its thread until you are able to screw the unit itself into its closed position – but not too tight. Next, run the engine until it is at normal operating temperature and leave it on tickover. Now slowly unscrew the unit until there a distinct suction noise can be heard coming from it.

Now screw it slowly back until the noise stops. At this point, turn it a further ninety degrees shut. Secure it firmly in this position with the lock nut. When two units are required,

begin by shutting both units and then first tuning the one furthest from the inlet manifold. Then proceed to the second unit. When finished, the units will still tend to make some noise, but there are tiny silencers available that push over the ends of the units and are secured by plastic hose clips. Be careful when clamping these that you do not allow the complete unit to rotate and thus upset the tuning.

### THE TEST: FIRST IMPRESSIONS

On the road, there was an immediate feeling of smoother take-off and much better acceleration, particularly at the bottom end – which is precisely where it is required when pulling a caravan. I had a gut feeling the consumption would be better too, although I have not yet had time to evaluate it fully.

However, you become familiar with your local terrain and get to know how the engine performs on any given incline. Even at this stage, my car felt more responsive and the overall feeling was of increased power.

The brochure accompanying the units gives reports from a number of reliable motoring sources, but I found the results of tests carried out by the Department of Trade and Industry at

their Warren Spring laboratory particularly enlightening.

A Government department has no axe to grind and we can expect this report in particular to be unbiased. I quote it verbatim, as follows:

*'Reductions in emissions and petrol consumption for the Ecotek CB-26P.*

*Hydrocarbon emissions were down by 4.8 per cent. Nitrous Oxide was down by 17.1 per cent and Carbon Dioxide down by 21 per cent, Carbon Monoxide was down by 27.9 per cent, Oxides of Nitrogen were down by 21.1 per cent and petrol consumption was down by 21.8 per cent.'*

### WHAT IT COSTS

The recommended retail price for the Ecotek CB-26P is £59.50 inclusive of fitting, plus VAT. For mail order and DIY fitting, the price per unit is £48.99. The Pipercross silencer unit costs £19.92 including VAT

### DISTRIBUTION

Ecotek has its own network of dealers throughout the country, plus a dedicated customer helpline (tel: 01844 212939). They'll be able to inform you of your nearest outlet. Alternatively, they also have a website: [www.cleanburn.co.uk](http://www.cleanburn.co.uk)