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Fitting a Ecotek CB-26P Device

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Difficulty Rating: 1/5 - 5 minute job.



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Revision 3

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Before...



...and after.



I can't help taking things apart and see how they work :)



The Ecotek CB-26P in all it's glory.

This is a step-by-step guide on fitting a Ecotek CB-26P device to ANY Vauxhall Nova (this device will **not** work on diesel powered cars). However, this guide can be used to fit the device to any model of Vauxhall so long as the engine has a vacuum servo pipe exposed. It can also be fitted to any carburettor, turbo or injection controlled engines. But if your engine is bigger than 2.6 litres, then two Ecotek devices are required. For more information and prices of the Ecotek CB-26P device, visit their web site at <http://www.ecotekplc.com>.

So what does this device do?

As the instruction say "It is a mechanical device that when fitted to petrol engines, improves fuel consumption, enhances overall performance and reduces harmful emissions. CB stands for Clean Burn, 26 confirms the limit one device can handle (2.6 ltr) and P stands for Petrol."

Will it affect my insurance?

Ecotek web site states "We have been advised that the fitting of an Ecotek CB-26P is not a noticeable event for insurance purposes as it does not change the specification of the car - it just makes it more efficient. Much the same as performance spark plugs or air spoilers but, of course, very much more effective! If you are in any doubt however you should consult your insurance company".

How does it work?

"The device injects very small amounts of agitated air into the inlet manifold at certain pressures. This causes turbulence in the induction gasses which creates a better suspension of fuel molecules and thus better combustion, producing a more efficient and cleaner burn."

The Ecotek CB-26P device was fitted to my Vauxhall Nova GTE, non-cat fuel injection engine and a before and after emissions test was carried out to see if it did improve on harmful emissions. The results show for themselves that it does actually work.

Before		After	
CO%	2.78	CO%	0.71
CO ² %	13.82	CO ² %	7.64
HC ppm	210	HC ppm	278
O ² %	0.42	O ² %	9.71

The test was conducted with a warm engine and the Ecotek device set up as per instructions that come with it. After 200 miles of driving, the device was re-tuned as it needs bedding in, and again the emission test was ran with a warm engine.



The Ecotek CB-26P come in several colours and air filters.

It shows that the Carbon Monoxide (CO) has reduced by 74%, Carbon Dioxide (CO²) has reduced by 44%, Hydrocarbons (HC) has increased by 24% and finally Oxygen (O²) has increased by 95% !

But are these good figures, how do you tell?

Before that is answered, the results obtained above show the air/fuel ratio (AFR) need tweaking, but the car still runs, but not at it's optimum.

Carbon Monoxide (CO) is formed by the partial burning of the fuel due to a lack of oxygen. A low proportion of CO indicates how well the air/fuel ration (AFR) is maintained. A high proportion of CO in the exhaust indicates a rich fuel mixture, choked air filter, choked PCV valve (Positive Crankcase Ventilation) or low idle speed. Low CO would indicate a lean fuel mixture or a vacuum leak or even an exhaust leak.

Carbon Dioxide (CO²) is the product of an efficient engine. With low CO and HC levels, the percentage of CO² in the exhaust is likely to be 13 to 15%. Less than 8% CO² indicates an incorrect AFR (air/fuel ratio), or a misfire or a leaky exhaust. CO² is directly proportional to the AFR, but inversely proportional to CO. The less fuel, the higher the CO². At speeds over 2000 rpm, the level will be 1-2% higher than at idle due to an increase in engine efficiency.

Hydrocarbons (HC) is a generic term and refers to unburnt fuel and partially burnt fuel, it is measured in PPM (Parts Per Million). High levels of HC in the exhaust signifies ignition problems such as defective plugs or HT leads, incorrect timing, vacuum leaks, incorrect air/fuel ration or engine mechanical faults. In fact anything that causes inefficient engine operation will increase the level of unburnt HC in the exhaust.

Oxygen (O²) is a harmless gas that is present in about 21% of air and is necessary for proper combustion. A small proportion of oxygen (1 - 2%) will be left after proper combustion. Too much or too little would indicate an incorrect air/fuel ratio (AFR), ignition or mechanical problems or an exhaust leak.

PARTS/TOOLS

Ecotek CB-26P device	Stanley knife	Flat blade screw driver	Pair of jubilee clips (small)
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COST

Ecotek CB-26P device	£48	<ul style="list-style-type: none"> The Ecotek CB-26P device can be purchased on-line at http://www.Ecotekplc.com or any performance car accessory store.
Jubilee clips (small)	20p ea	<ul style="list-style-type: none"> Jubilee clips can be purchased from any local car accessory shop like Halfords.

Final Notes:

Just before you start, make sure you note the following:

- If you don't have one, buy a Haynes manual for your car and have this is front of you. You'll may need this on locating the brake vacuum servo hose for your engine.
- Fit the Ecotek device as close as possible, but no more than 6 inches away from the inlet

manifold (for injection) or the carburettor housing (non-injection).

- If the brake servo hose is hard to push on (because it is tight), then use a small amount of washing up liquid as lubricant.
- If the brake servo hose internal diameter is too small (i.e. narrow gauge) then sleeve it with 9.5mm fuel/emission hose and four jubilee clips.
- The join to the T piece of the Ecotek device must be air tight, hence the use of jubilee clips.

OK, got all the above? Then follow the steps below (remember to click on the pics for a bigger view):

Step 1



Remove the packaging and check the contents. Read the instructions thoroughly so you know what your doing.

Step 2



Open up your bonnet and locate the vacuum servo pipe, which is usually connected to the brake servo disc.

Step 3



The brave bit, use your Stanley knife and cut the vacuum pipe. Position the cut for the Ecotek device NO MORE than 6 inches away from the inlet manifold. The closer the better.

Step 4



With the cut made, push in the Ecotek device. The diameter of the pipes should allow easy fitment. Use a small amount of washing up liquid if difficult to slide on.

Step 5



Now the device is in position, tighten up the two jubilee clips. Do not crush the pipes, just nip them up. Allow no air to escape from the joins.

Step 6



Switch on the engine and allow 10 min to warm up. Screw the locking ring and filter housing cap down (turn clockwise). The device is locked off (i.e. not doing anything).

Step 7



Gently unscrew the filter housing (turn anti-clockwise) until the device makes a loud and harsh rasping noise and close it to just the point the noise stops.

Step 8



Precisely at this point, turn the filter housing cap down (clockwise) through 90° (1/4 turn). Then lock it with the locking ring (turn anti-clockwise to nip up against the cap).

Step 9



Push the throttle cable linkage to rev the engine, the Ecotek device will make a different sound when revs drop (more high pitch sound). Repeat steps 7 to 9 if necessary until you are happy with the set-up.

General Notes:

Not finished just yet.....

Once the Ecotek device has been set up, drive the car around for approx. 200 miles to let the unit bed in. Then repeat steps 7 to 9 again to allow for readjustments. After that, the installation is complete.

What type of sound does it make, and is it obtrusive?



When setting the Ecotek device up, it is surprisingly how noisy it can be. But this is only because you've got your head under the bonnet and your right beside the device. When tuning it, the sound it makes when revving the engine is similar to that if you have a blade of grass in-between your hands and you blow into it. A sort of rasping sound. But once I was in the car and driving around I couldn't hear it as it was drowned out by the noise of the car. Ecotek Plc do supply a small Piper Cross air filter that can be purchased that can fit on top of the screw cap (filter). This basically drowns out the noise so you can't hear it. It's priced around the

£20 mark.

Do I have to do anything to the Ecotek device when I get the car tuned or serviced?

Ideally the Ecotek device should be disabled. This is very easy to do, unlock the locking ring and fully screw both the locking ring and screw cap down as far as it will go (clockwise). Basically what step 6 shows. When the engine/mixture has been tuned to optimum performance, re-tune the Ecotek CB-26P device again. Bedding in will not be necessary this time around.

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