



eco_cee'd

Press Information

Frankfurt International Motor Show

September 2007

Kia showcases eco-friendly performance concept

- **Fuel consumption improved to just 3.9 litres/100 km**
- **CO₂ emissions reduced to a super-low 104 g/km**

Kia Motors Corporation is staging the World Premiere of a new 'green-performance' concept car at this week's Frankfurt International Motor Show. Called the 'eco_cee'd', the new concept is a development of the highly-acclaimed Kia cee'd hatchback and aims to achieve better fuel consumption, with fewer emissions – while still delivering a lively, spirited drive.

Based on the three-door pro-cee'd hatchback fitted with the lively yet frugal 1.6-litre CRDi diesel engine, the new eco_cee'd concept car has been designed to enhance the 'green-performance' potential of the standard model. A combination of small but significant modifications to the base vehicle result in much improved fuel consumption (just 3.9 litres/100km) and reduced CO₂ emissions (just 104 g/km).

Maximum power remains 115 ps and the fully independent suspension and all-disc braking system are unchanged, so the eco_cee'd is just as much fun to drive as the regular production model.

Aerodynamic enhancements cut drag to Cd 0.29

The impressive performance, fuel economy and emissions figures of the eco_cee'd are largely the result of improved aerodynamics which bring the drag coefficient down from Cd 0.33 (for both the standard five-door cee'd and three-door pro-cee'd), to just Cd 0.29, representing a significant improvement of 11 per cent.

Following extensive computer modelling and wind-tunnel testing, Kia engineers were able to identify specific areas for aerodynamic improvement.

With the standard cee'd bodyshell already competitively 'slippery' in terms of drag, Cd enhancements were made through lowering the suspension by 15 mm, fitting under-floor coverings to the front, middle and rear of the vehicle, adopting plastic wheel arch linings with 'spoiler' lips to smooth airflow around the wheels, plus a low-drag front grille to improve air flow over the vehicle.

Finally, eco_cee'd is equipped with ultra-low rolling resistance Michelin Energy 205/50 R17 tyres, mounted on special alloy wheels that generate minimum disturbance to the airflow along the sides of the car.

Enhanced electronics and reduced engine friction

The eco_cee'd is equipped with a new second-generation 1.6 U diesel engine and already meets the future Euro 5 emissions standards scheduled for introduction in January 2011.

Changes to maximise fuel efficiency and reduce emissions include: reduced boost pressure, enhanced injection timing, modified residual gas rates and reductions in internal engine friction. All these measures have improved engine efficiency and thus helped reduce fuel consumption and emissions. To maximise the value of the aerodynamic and powertrain improvements, eco_cee'd is fitted with Kia's new ISG (Idle Stop&Go) system, including Smart battery Power Management developed jointly with Bosch. This system automatically recharges the battery during deceleration and switches the engine off when the car is stopped and the engine is at idle. In typical city driving conditions, with constant stop-start motoring, the ISG system dramatically cuts fuel consumptions and emissions.

A 'smart' starter motor linked to the ECU monitors the car's status at all times. When the car comes to a stop, such as at traffic lights, the ECU uses information from various other control systems around the vehicle to decide if switching the engine off is appropriate. If for any reason there is insufficient energy available in the car's battery for the next start-up, the system will abort its Stop&Go programme.

While the car is stationary, this system prevents unnecessary fuel consumption and emissions. When first gear is selected, the engine is instantly re-started.

More gears, lower revs, lower consumption

Fitted with a new six-speed manual gearbox instead of the five-speed used on the standard car, the eco_cee'd concept benefits from redesigned gear ratios. Higher ratios for fourth, fifth and sixth gears reduce engine speed when *cruising*, to improve fuel consumption and reduce NVH at motorway speeds. First, second and third gears, however, retain the same ratios as the original model to ensure that the dynamic performance of the standard car accelerating from standstill is carried over.

To further guarantee that the eco_cee'd engine and transmission are always operating at high efficiency, an ECU-controlled 'Shift Indicator' is fitted in the instrument cluster. This displays the optimum gear choice for the speed at which the car is travelling, and indicates the ideal moment (based on road speed and engine speed) at which to change gear.

Weight Reductions

The eco_cee'd is equipped with a tyre repair kit instead of the regular 'temporary' spare wheel to reduce weight compared with the standard pro-cee'd model.

Towards a greener future

Compared with the current standard cee'd, the fuel consumption for eco_cee'd has been cut by approximately 0.8 litres/100km (17 percent), as well as cutting CO₂ emissions by 20 g/km.

As a 'green-performance' concept car the eco_cee'd demonstrates a part of Kia's vision for the way ahead with future engine developments for next-generation environmentally friendly and fuel efficient production models – without losing sight of customer expectations for car with a sporty design and fun-to-drive performance.

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