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Reflecting Renault's desire to design cars as part of a sustainable development policy,

Kangoo reinvents the electric car

Available in petrol, diesel and LPG fuelled versions, the Kangoo family now comes in two new variants: Electri'cité, which went on sale in early 2002, and Elect'road, on sale in France in the beginning of March 2003, and in several European countries in the first half of the year. These latest arrivals make the Kangoo family a multi-energy range. Kangoo Electri'cité, the "all electric" version, is intended mainly for urban use. It achieves a range of 60 to 100km depending on operating conditions. Elect'road does away with the hassles of pure electric power thanks to an on-board electric generator which extends its range to as much as 150 km in the urban cycle. With the introduction of Elect'road, Renault's electric vehicle range combines three advantages: low emissions, economy, and sufficient range for urban and suburban use

Historic leaders in the purpose-built small van and light commercial segment, Kangoo et Kangoo Express have continually evolved and extended the choice they offer in engines, transmissions, equipment and body variations to retain their leadership in a highly competitive market. Today, thanks to the widest range of passenger car and commercial versions in their class, they are suitable for all needs while remaining faithful to the spirit of the original concept: attractive, simple, and functional.

In 2002, Kangoo and Kangoo Express thus retained their first place in new registrations both in France and in Europe.

With 27,860 units sold in France in 2002, Kangoo increased by more than 7% and took 38.46% of the segment ahead of the Citroën Berlingo (19,908 units and 27.48% of the segment) and the Peugeot Partner (9,297 units et 12.83% of the segment). In

the same way, Kangoo Express dominated its segment in France with 42,865 registrations and 40.5% of the segment ahead of the Citroën Berlingo (21,113 units and 20% of the segment) and the Peugeot Partner (20,417 and 19.3% of the segment).

In Europe, Kangoo maintained its leading position with 69,229 units and 23.9% of the segment ahead of the Citroën Berlingo (60,150 units and 20.77% of the segment) and the Fiat Doblo (25,704 units and 8.88% of the segment). The Kangoo Express dominated its opposition with 118,392 units and 26.4% of the segment ahead of the Citroën Berlingo (82,289 units and 18.3% of the segment) and the Peugeot Partner (61,552 units and 13.70% of the segment).

Elect'road: a hassle-free electric car

Renault introduced Electri'cité, an electric version of Kangoo available in both LCV and passenger car form early in 2002 to combine urban mobility with environmental protection. The Electri'cité, a companion version identical in all respects save for the provision of a range extender, was introduced to the French market at the beginning of this year.

Advances in battery performance (with the change from lead-acid to NiCd) have already allowed the main drawback of the electric vehicle, its limited range, to be significantly overcome. The technology of the range-extender equipped Kangoo, Elect'road, is of the "series hybrid" type. The drivetrain consists of a high-efficiency synchronous electric motor, NiCd batteries and an on-board electric generator which allows the batteries to be recharged on the move.

The generator unit comprises a small (500cc) internal combustion engine with multipoint fuel injection developing a power output of 16kW and a catalytic converter for optimized emissions (Euro 2000 in the MVEG cycle, with the range extender in operation). This engine has a single overhead camshaft and electronic multipoint fuel injection. It is equipped with an air filter and a special coolant circuit connected to the heater unit, thus allowing extra heating.

It drives, via a belt, two high voltage/high output/low volume alternators each of which supplies 5.5kW at 132V at 5,000rpm. They are regulated and controlled by the vehicle computer. The operating speed of the internal combustion engine (and therefore the output delivered by the generators) varies according to the speed of the vehicle and the energy needs of the electric traction system, while at the same time complying with limits on noise levels and optimising fuel consumption and exhaust emissions. The fuel tank, with a capacity of 10 litres, is housed within the right rear wheel arch.

The range extender is started by the driver operating a switch on the dashboard. The on-board computer provides him with information concerning range in pure electric mode and with the range extender in operation.

While Electri'cité can run between 60 and 100km in town, Elect'road provides a range of 150km, allowing the customer to operate in urban and suburban situations. The

performance of these Kangoo versions is matched to legislation applying to urban and suburban traffic, with the maximum speed set at 110kph, and 0-50kph acceleration in 8.5sec. Kangoo Elect'road also offers a "boost" mode which provides better acceleration, by increasing the maximum power from 22 to 29kW, together with a "snow" mode which is better adapted to driving on low-grip surfaces.

The electricity stored in the batteries may be drawn from a number of sources: from a 16A domestic supply point or a public recharging point, from regeneration of kinetic energy during braking, and/or from the on-board electric generator driven by its internal combustion engine.

According to estimates, in over 5% of all cases there is no need to use the range extender. It is above all an anti-stress feature which overcomes the fear of immobilization due to battery exhaustion. The range extender therefore does not alter the character of Elect'road as a clean vehicle. Improved range means the electric vehicle will appeal to a wider body of customers and encourage growth in the market, notably for fleet users.

French market prices as at 15/01/2003

	Pre-tax customer price (EUR)	Tax-paid customer price (EUR)
<i>Passenger car:</i>		
Electri'cité -Expression-	21,200.00	25,355.20
WITHOUT BATTERY	14,143.00	16,915
Elect'road- Expression-	24,500.00	29,302.00
WITHOUT BATTERY	17,443.00	20,861.83
<i>Commercial vehicle:</i>		
Electri'cité -Confort-	19,500.00	23,322.00
WITHOUT BATTERY	12,443.00	14,881.83
Elect'road- Expression-	22,800.00	27,268.80
WITHOUT BATTERY	15,743.00	18,828.63

NB: a green number is available to French customers for all inquiries: 0800 220 240.

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