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PRESS RELEASE | **FOR IMMEDIATE PUBLICATION** | november 4th, 2002

In order further to extend its range of LPG versions

Renault introduces the Laguna and Laguna Sport Tourer 1.6 16V LPG equipped with a new type of LPG tank

Renault has been a major participant in the LPG market ever since the fuel was freed from tax in 1995. The company has always occupied the leading position in the segment, notably with an almost 53% share of the French market in 2001. To round out its range, Renault now introduces the Laguna 1.6 16V LPG, on the Hatchback and Sport Tourer. In addition to an LPG injection system used only by Renault and developed in accordance with its own specifications, this new version of Laguna also introduces a new type of under-floor tank. Its useable capacity is increased to 61 litres, thus increasing capacity by around 50% compared with existing LPG tanks, while allowing the volume of the luggage compartment to remain intact.

More than ever, Renault affirms its determination to participate in the LPG market, and thus to confirm its pro-active stance in environmental matters. Through 2001 and 2002, Renault has developed a new range of LPG vehicles in response to the introduction of the Euro 3/Euro 2000 exhaust emission regulations. This range consists of the Twingo 1.2, Twingo 1.2 Van, Clio 1.2, Clio 1.2 Van, Kangoo and Kangoo Express 1.2, Mégane Estate 1.6 16V and Scénic 1.6 16V.

Two new versions: Laguna and Laguna Sport Tourer 1.6 16V LPG

As from September 2002, Renault rounds out its range with the introduction of two new versions, the Laguna 1.6 16V LPG and Laguna Sport Tourer 1.6 16V LPG.

Like the other engines in Renault's LPG range, the Laguna 1.6 16V LPG is equipped with a new gaseous LPG injection system specially developed by Renault in collaboration with Sagem. This new system is installed in exactly the same way as its equivalent in existing petrol engines. It takes the form of a multipoint (one injector per cylinder) gaseous injection system with sequential operation. The LPG injection rail, in aluminium, is mounted on the inlet manifold. Each LPG injector is installed upstream of the inlet valve, alongside the petrol injector, and is equipped with a filter to prevent any blockage.

The LPG computer is connected to the petrol computer by means of a multiplexed CAN link. The company has devoted particular care to the operation and the exchange of information between the two computers. The LPG computer is notably responsible for control of the gas injectors once the flow requirement and timing have been calculated, the measurement of gas temperature and the calculation of its pressure, the operation of the gauge and warning lights, and control of the main solenoid valve. This LPG computer is in addition entirely «diagnosable» within the Renault service network with the help of the tools normally employed. For its part, the petrol computer calculates the gas flow and the timing. It controls the fuel selector relay and is responsible for inter-computer communication. A major innovation of this system is that switching over to petrol is automatic should the LPG tank become empty.

Together, these technical developments have resulted in significant improvements in driving pleasure, efficiency and emissions, so that a level of quality and a specification identical to that of «traditional» vehicles can be achieved.

These new vehicles comply with the Euro 3 (Euro 2000) emission regulations in both the petrol and LPG modes, and naturally have the potential to achieve the Euro 4 (Euro 2005) requirements. This new system is also equipped with E-OBD operative in the petrol mode, and is already equipped for E-OBD in the LPG mode when this is required by the regulations, from 2003 for new vehicles and from 2004 for all vehicles.

A new type of LPG tank for improved range

The Laguna 1.6 16V LPG is the first to use a new flat LPG tank installed beneath the rear floor. This innovation is the result of Renault's R&D programme and provides the record useable capacity of 61 liters to achieve an LPG-fuelled range of around 600km. This new installation thus allows the capacity to be increased by almost 50% compared with the technology of the doughnut-shaped tank housed in the spare wheel well, while the capacity of the luggage compartment is unaffected. For now, LPG-fuelled range remains in the eyes of customers a point of criticism. Since this new installation does not reduce the size of the petrol tank (70 liters), the entire system confers a considerable range increase.

Renault has concentrated especially on the overall performance of the Laguna 1.6 16V LPG tank through the use of stainless steel and the choice, with its industrial partner Portinox, of the hydroforming manufacturing process.

An intrinsic property of LPG fuel, the CO_2 emissions of the Laguna 1.6 16V LPG are 13% lower than those of the equivalent petrol version.

	Laguna 1.6 16V LPG	**Laguna Sport Tourer 1.6 16V LPG**
Power	Petrol: 79kW (110bhp) at 5,750rpm LPG: 76kW (105bhp) at 5,750rpm	Petrol: 79kW (110bhp) at 5,750rpm LPG: 76kW (105bhp) at 5,750rpm
Torque	Petrol: 148Nm at 3,750rpm LPG: 143Nm at 3,750rpm	Petrol: 148 Nm at 3,750rpm LPG: 143 Nm at 3,750rpm
Consumption	Petrol/LPG (litres/100 km) Urban: 10.1/12.8 Extra-urban: 5.8/7.6 Mixed: 7.3/9.5 CO2 per km: 176 g/153 g	Petrol/LPG (litres/100 km) Urban: 10.2/13.2 Extra-urban: 6.1/7.9 Mixed: 7.6/9.9 CO2 per km: 181 g/158 g

By comparison with the petrol versions, the extra cost associated with the LPG version remains limited at E1,600. The Laguna LPG is built on-line at the Sandouville factory. Like all other vehicles in the Renault range, the Laguna 1.6 16V LPG benefits from a 2-year warranty.

Tax-paid Prices in France:

Laguna Authentique 1.6 16V LPG	E20,450
Laguna Expression 1.6 16V LPG	E22,500
Laguna Estate Authentique 1.6 16V LPG	E21,650
Laguna Estate Expression 1.6 16V LPG	E23,700

Renault a major player in the LPG market

Renault is a major player in the LPG market. During 1996, a few months after the announcement at the end of 1995 of the partial removal of tax from LPG fuel, Renault began selling a limited range of LPG models assembled by its Somac subsidiary. Positioning itself as leader in this market, in 1997 Renault invested in the production of LPG vehicles on-line in its factories. Renault was the first manufacturer to take this step. The Mégane LPG, Scénic LPG and Laguna LPG are thus manufactured in the Douai and Sandouville factories in the same way as any petrol or diesel version in the range. This approach has allowed the price of LPG vehicles to be reduced, while at the same time their quality benefits from on-line manufacture, which also reduces delivery times.

It was also on the introduction of this new range that Renault, taking the lead in terms of safety, equipped its vehicles with a safety valve, some three years before the coming into force (in January 2000) of regulations, which made it mandatory.

Still a difficult market environment

Today, almost 200,000 LPG vehicles are on French roads. It must be borne in mind that this market has the peculiarity of being supplied not only by new vehicles built on-line or retrofit by the manufacturers, but also by second-hand vehicles using systems installed by independent installers.

While the market for newly manufactured LPG vehicles increased markedly in 1997 and 1998, it suffered a reverse through 1999 and 2000 after an accident at Vénissieux, which created a counter-productive image of the safety of this fuel. Changes to the regulations and a mix of product with and without safety valves added to this difficulty in 2000. In 2001 **7,165** new LPG vehicles were registered in France, with Renault taking a 53% share of this market.

Many advantages for LPG fuel

It should be remembered that LPG fuel, a mixture of propane and butane, enjoys several advantages in terms of emissions: compared with petrol, 12% fewer emissions of CO2 and between 30% and 50% fewer emissions of CO and HC. The Twingo and Scénic LPG thus respectively emit only 126 and 155g of CO2 per kilometer compared with 143 and 173g for the equivalent petrol versions. At the same time LPG contains no lead, no benzene and no sulphur. In terms of safety its use has posed no problem since January 2000 when it became mandatory to fit fuel tanks with safety valves - a measure taken by Renault in its models since 1997. All the vehicles involved in explosion accidents have not been fitted with such valves.

Finally, LPG fuel has since 1995 benefited from the partial removal of tax, notably with a low rate of motor fuel duty, which means it enjoys an attractive pump price. Where fiscal incentives are concerned, a tax credit of 1,525 Euros has applied to passenger cars since January 1, 2001 for the purchase of any new LPG vehicle. This provision, applicable up to December 30, 2002 and forming part of the Finance Bill of December 31, 2000, forms part of the support measures undertaken by the French public authorities for alternative fuels and clean vehicles. This support extends also to collective transport vehicles, offering taxis assistance of E3,050 for the purchase of a new LPG vehicle carrying a manufacturer's warranty.

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