

October 1998

Extremely Lotus – The Lotus Elise 340R

The Lotus Elise 340R is a no compromise, visually and technically dramatic vehicle that takes the successful Elise concept to the extreme. The concept vehicle, weighing little more than 500kg and powered by a 170hp K series engine is a driver-oriented sports car with an outstanding power to weight ratio of 340 hp per ton. Stunning performance combined with exceptional Lotus ride and handling promise an unparalleled driving experience. This is a track based vehicle which can be used on the public road as transport to and from events.

Created in record breaking time by Lotus Engineering and Lotus Design, the 340R puts a new edge on the ground breaking Elise by combining the pure thinking behind the most innovative single seat racing cars with the purity of a motorcycle.

The philosophy behind the car is explained by Design Manager, Russell Carr:

“We decided to develop a road going racing car which would be even more essential than the Elise, solely directioned and focused for pure driving pleasure. We wanted a car that would embody the Lotus characteristics of innovation, lightweight, elegance and fun to drive – the 340R is all of these”.

The exceptionally stiff but light weight chassis, made from extruded and bonded aluminium, pioneered for the Elise, is the central feature of the concept and the load bearing structure of the car. Therefore the body panels, although strong and stiff, do not need to be over-engineered to provide structural integrity to the 340R.

Carbon fibre and other high-tech composites are used for the body architecture. These advanced materials lend themselves ideally to Lotus vehicles as they are

exceptionally strong, lightweight and can be precisely molded to design engineer or aerodynamicist requirements.

The design combines dynamic modern but sensuous top shell forms with the pure functional detailing of the chassis and technical hardware.

The doorless, lightweight advanced composite, single piece top shell body is designed to be completely removable giving easy access to major mechanical components. The chassis and powertrain are clad only where absolutely necessary for driver comfort and safety or aerodynamic efficiency. Two removable inspection covers in the recess of the front radiator and one at the rear of the vehicle provide access to check and regularly maintain vehicle fluid levels.

The distinctive front headlights are faired into the top shell, thus enhancing the aerodynamic efficiency of the body. This follows the true Lotus philosophy of combining elegance of style and design with basic scientific principles to give the 340R a dynamic feline stance on the road or track.

The 340R displayed at Birmingham mounts the standard 118hp Rover K Series 1.8 litre engine and standard gearbox.

An eventual production version is expected to be powered by a road legal version the VHPD (Very High Power Derivative) version, producing up to 170 bhp at 8000 rpm with a high torque of 142 Nm at 5000 rpm.

The engine will be linked to an Ultra Close Ratio Straight Cut Gear Box. The extremely close straight cut ratios give the driver an opportunity to exploit the full potential of a race engine, driving the 340R right on the peak of its power and torque. A Motad sports exhaust completes the powertrain package

The 340R possesses the legendary Lotus handling developed over a period of 50 years, endowing the vehicle with exciting but forgiving handling and the extraordinary ability to place the car with millimetre accuracy on the road or track.

Koni Racing 2 way adjustable dampers which are adjustable for both bump and rebound with higher spring rates, give a track feel to the suspension, together with a stiffer front anti roll bar.

The 340R is displayed at Birmingham with hand cut Yokohama slicks and ultra-light magnesium OZ F1 wheels. An eventual production version of the concept would be expected to mount a super sticky, soft compound high grip road legal tyre developed by Yokohama in close conjunction with Lotus ride and handling engineers.

Braking is provided by powerful 4-pot AP Racing calipers with 295 mm diameter drilled and ventilated disks at the front and AP Racing calipers on 282 mm drilled and ventilated disks at the rear.

The composite wheel fenders can be removed for track use. The exposed wheels and tyres give the driver an unspoiled view of the position and orientation of the wheels and tyres for precision placement of the vehicle.

As the Lotus Elise 340R has been designed for road and track use, a degree of adjustability to the set up has been designed into the car. The driver can adjust both the suspension setting and the rear wing to produce the most ideal set up for any particular environment. Further aerodynamic downforce is provided by the powerful underbody rear diffuser and the top exit radiator which duct air up through the front radiator, over the cut down windscreen, creating a net downforce at the front of the car.

The 340R has been designed with one, singular objective – to deliver an unparalleled driving experience. This becomes apparent as soon as the driver sits in the cockpit.

Lightweight composite racing seats with a 4-point racing harness, are minimally trimmed vinyl and alcantara. The adjustable driver's seat is located towards the

centre line of the car with the easily removable passenger seat fixed in the rearmost position.

The ergonomic positioning of the offset, quick release Momo steering wheel and the extruded aluminium pedals means that the vehicle almost becomes an extension of the driver.

The centre console has been designed with a high level of 'jewel like' technical detail. A push button starter accompanies the twin coveled Stack racing instruments with an integrated DAS (Data Acquisition System) for down loading data from the electronic instruments directly onto a PC.

Dedicated individual occupant rollover hoops are positioned over the seat backs, offering best possible rollover protection as well as adding stiffness to an already very rigid chassis structure.

The Lotus Elise 340R has not been fitted with an in-car heater, driver visibility being assured by an invisible electric heating element to de-mist the windscreen.

The Lotus Elise 340R is painted with a world first, DuPont developed, unique high technology paint. In titanium and black, this unique paint with glass bead lacquer, gives the concept a futuristic, dynamic light reflective finish.

Lotus would like to thank the following technology partners :

Hydro Aluminium Automotive Structures

Yokohama

Motad

Stack
Momo
Koni
AP Racing
Dupont
OZ Wheels

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Technical Specifications

Body: Composite body panels with detachable one piece top shell and integral fixed faired headlamps.

Chassis: Lotus-designed spaceframe structure of epoxy-bonded sections of aluminium extrusions (built by Hydro Aluminium) incorporating dedicated integral occupant roll over protection.

Suspension: Double wishbones with over 2 way adjustable single coil springs and monotube dampers all round. Lotus-patented uprights of extruded aluminium, made by Alusuisse.

Steering: Rack and pinion, non power assisted.

Wheels: Ultra-light magnesium wheels made for Lotus by OZ Racing.
Front: 16 x 7
Rear: 17 x 8

Tyres: Yokohama A038
Front: 195/45 16
Rear: 225/40 17

Brakes: Non-servo split hydraulic system
Front: 4-pot AP Racing calipers with 295 mm diameter drilled and ventilated disks
Rear: AP Racing calipers with 282 mm drilled and ventilated disks at the rear.

Instrumentation: Stack Analogue electronic unit with (Data Acquisition System) comprising speedometer and tachometer with multifunction LCD readout incorporating fuel and coolant gauges including.

Engine: 4 cylinders in line, mid mounted transversely
Capacity: 1796 cc
Construction: Aluminium engine block with aluminium cylinder head
Power: 170 bhp at 8000 rpm
Torque: 142 Nm at 5000 rpm
Bore/Stroke: 80 mm / 3.1"/89.3 mm / 3.5"
Valve actuation: Double overhead camshaft with mechanical tappets
Fueling: Fuel injected Alternator: 85 A

Transmission: Manual 5 speed transaxle driving rear wheels, hydraulic clutch.

Performance: Maximum speed 133 mph (with ultra close ratio gearbox).
0 – 60 mph 4.0 s
0 – 100 mph 10.0 s

Dimensions:	Wheel base	2300 mm
	Overall length	3500 mm
	Overall width	1720 mm
	Overall height	1050 mm
	Ground clearance	100 mm
	Fuel tank capacity	40 l / 8.8 gal
	Fuel grade	98 RON minimum

Unladen weight: 500 kg

Weight distribution: 39/61 (% front/rear)

ENDS