Caterham unveils new AeroSeven Concept at Singapore GP

Caterham Cars has today unveiled the AeroSeven Concept at the SingTel Singapore Grand Prix –an exciting new performance concept road car.

As the first model designed with significant input from all of the Caterham Group's specialist business arms, the AeroSeven Concept signals the brand's intentions in terms of product engineering processes, speed to market, as well as a hint to its styling direction for future models, including the all-new sportscar being developed in conjunction with Renault and due for release in early 2016.

The AeroSeven Concept, which draws heavily on methods used by the F1 team, will be the first ever Caterham model to be fitted with traction control. Thanks to a newly developed Caterham Engine Management System, drivers will be able to enjoy fully-adjustable traction and launch control functionality.

Based on an updated interpretation of the highly acclaimed Seven CSR platform, the carbon-fibre bodied concept vehicle, which will reach 100kph (62.5mph) in under 4 seconds, will initially draw its power from the normally-aspirated, EU6-approved, 240ps (237bhp) engine developed by Caterham Technology & Innovation for the recently launched Caterham Seven 485. Other engines are also being assessed for suitability.

The AeroSeven Concept is stacked with race car-inspired features, including aerodynamic styling, an exclusive steering wheel with driver-focussed functionality, and an intuitive fully active Graphical Display Unit (GDU).

Graham Macdonald, Managing Director of Caterham Cars, said: "Over the coming years, we will be expanding our range of sportscars as we look to meet the differing needs and desires of potential customers – from the lifestyle customer to the ultimate thrill-seeker. The AeroSeven Concept is the first model in that journey."

Delivery of the production version of the concept model will begin in autumn 2014.

Exterior

It is in the car's full bodywork styling that the most striking differences to past Caterham products lies.

The stunning design of the two-seater balances function and form to increase downforce while vastly improving the drag coefficient; the new body shape also imparts subtly different handling characteristics to complement the revised chassis.

Using inputs from Caterham F1 Team performance director, John Iley, and the CTI design team, the fundamental shape of the car was created. Ongoing optimisation continues to take place using Computational Fluid Dynamics expertise from the F1 aerodynamic group, in conjunction with circuit and wind tunnel testing.

The AeroSeven Concept incorporates a completely new rollover structure, to aid safety and improve aerodynamic performance and enhance aesthetics.

At each corner, the AeroSeven Concept will sit on Avon's acclaimed CR500 tyres, the motorsport-inspired performance rubber that is also the OE fit on a number of Caterham's high performance-orientated Sevens.

Powertrain

Achieving a delicate balance between inspiring performance and stringent EU6 emissions regulations, the 240ps (237bhp) Ford Duratec-based engine which will power the vehicle initially delivers its peak power at 8,500rpm, helping to propel the AeroSeven Concept to 100kph in under 4 seconds.

The engine – which also powers the European-homologated Caterham Seven 485 – is one of the world's highest revving EU6-compliant engines. The two-litre unit is mated to Caterham's six-speed manual gearbox driving the rear wheels.

Over the coming months, project engineers will be assessing a number of powerplant options for the final production version.

Dynamics

With expertise drawn from each corner of the Group to develop the bold AeroSeven Concept, the new car features a number of exclusive technologies and attributes not seen on any previous Caterham.

Based on the acclaimed Caterham Seven CSR chassis – featuring fully independent rear and F1-style inboard (pushrod) front suspension – new dampers, springs and anti-roll bars harmonise the car's aerodynamic characteristics to deliver Caterham's legendary agility and handling finesse.

Driver focussed chassis control systems debuting on the AeroSeven Concept include Caterham's fully variable traction and launch control functions. Caterham is also analysing the feasibility of using Bosch's race-derived anti-lock braking system.

The Caterham Engine Management System is completely adjustable via steering wheel mounted controls. The system, which can be completely disengaged, has been developed by Cateham Technology and Innovation to enhance the AeroSeven Concept's performance while giving complete control to the driver.

Interior

Inside, more innovations give a firm nod towards Caterham's future ambitions.

A brand new fully active graphical display unit (GDU) developed by Caterham Technology & Innovation integrates all display and instrumentation in a high-resolution, centrally mounted unit. It displays information such as engine speed, gear selection, vehicle speed, traction and brake settings, fuel and oil levels in a smart, intuitive 'next-generation', real-time 3D rendered display.

Additionally, the race-inspired steering wheel incorporates 'Road' mode, 'Flash-to-Pass' and 'Pit Lane Speed Limiter' functions.

The car's default setting is 'Race' mode, the reverse of even the most track orientated vehicles. When the steering wheel-mounted button is depressed, 'Road' mode is engaged, altering the engine's character by reducing peak power through a reduced rev limit.

The manufacture and tooling of components for the AeroSeven Concept will be split between Caterham Technology & Innovation in Hingham, Norfolk and Leafield, Oxon, Caterham F1 Team's base. Production models will be constructed at the Caterham Cars factory in Dartford, UK.

Caterham AeroSeven Concept Specification

Body

Caterham Design styling incorporating Caterham F1 aerodynamic features
Caterham manufactured full “dry pre-preg” carbon fibre body panels

Engine

Description:	CTI-developed 2.0-litre 4 cylinder normally-aspirated Ford Duratec
Maximum Power:	240ps (237bhp, 176kW) @ 8500rpm
Specific Power Output:	120ps per litre
Maximum Torque:	206Nm (152 lbft) @ 6,300rpm
Engine Control:	Caterham Engine Management System featuring fully driver-adjustable traction and launch control functions
Transmission:	Caterham 6-speed manual gearbox driven through the rear wheels
0-100kph:	< 4.0 seconds
Power-to-weight:	approx. 400 ps/tonne

Suspension

Front:	F1-Style inboard pushrod double wishbone suspension
Maximum Power:	Full independent double wishbone suspension

Brakes

Front:	4 piston calipers with ventilated discs
Rear:	Sliding single piston calipers with solid discs
ABS:	Bosch “race-derived” Anti-lock Braking System with full driver adjustment

Wheels and Tyres

Front:	195/45R15 Avon CR500 tyres on 6.5Jx15 alloy wheels
Rear:	245/40R15 Avon CR500 tyres on 9Jx15 alloy wheels