

Ferrari



F430

The F430 hails the arrival of a whole new generation of Ferrari V8-engined berlinettas. Every inch of the car was inspired by the engineering research carried out at Ferrari's Gestione Sportiva F1 racing division. The result is a highly innovative design characterised by cutting-edge technologies perfected for use on a road-going car. The most important of these are the electronic differential (E-Diff), initially developed by Ferrari for its F1 single-seaters and designed to make the most of the engine's torque to optimise traction, and the handily placed steering wheel-mounted commutator switch (better known to the Scuderia's drivers as manettino) which directly controls the integrated systems governing vehicle dynamics.

The F430's light, compact 4,308 cm³ engine is completely new. Needless to say, its performance is outstanding. The F430's aerodynamics are also highly innovative for a road car: its shape has been honed to generate special flows to increase downforce and improve cooling.

STYLING

The F430's Pininfarina-designed shape is inspired by the car's exceptional engineering. Each and every styling cue highlights the



aggression and performance of a thoroughbred Ferrari. The F430's nose is characterised by two distinctive air intakes that channel air into generously dimensioned radiators that cool the powerful engine.

CHASSIS

Just like its predecessor the 360 Modena, the F430 has an aluminium chassis. The choice of aluminium and the design methods used have allowed considerable structural stiffness and excellent driver and passenger protection to be combined with weight reduction.

ENGINE

The F430 is powered by a new 90° V8 featuring Ferrari's traditionally uncompromising design approach with a flat-plane crank (180° between throws.) This is an all-new unit that does not share any components with the 360 Modena's engine. Despite a 20% increase in engine displacement (from 3,586 to 4,308 cm³,) engine weight has grown minimally by just 4 kg, while performance is considerably improved across the board. Torque has increased by 25% (465 Nm at 5,250 rpm, 80% of which is already available at 3,500 rpm) and power by 23% (490 hp at 8,500 rpm.)

E-DIFF/E-DIFF ELECTRONIC DIFFERENTIAL

The E-Diff or electronic differential has been used for years in F1 single-seaters to guarantee maximum grip out of bends, eliminating wheel spin. On the road it is a formidable technological refinement that improves roadholding. The E-Diff consists of three main subsystems:

- a high-pressure hydraulic system, shared with the F1 gearbox (if present;)



- a control system consisting of valve, sensors and electronic control unit;
- a mechanical unit housed in the left side of the gearbox.

TRANSMISSION AND F1 GEARBOX

The F430 features a new cast aluminium transmission casing that houses the gearbox in unit with the electronic differential and bevel type final drive, as well as the engine oil tank.

The 6-speed gearbox incorporates multicone synchronizers, while both the 6th gear and the final drive have been lengthened to make the most of the greater power and torque of the new engine as well as to guarantee reliability.

MANETTINO AND VEHICLE DYNAMICS

Just like in Formula 1, the F430 driver can change various areas of the set-up of his car using a single selector set on the steering wheel. The manettino, as it is called by Scuderia Ferrari drivers, is a commutator switch that has been adopted directly from racing and allows the driver maximum efficiency and speed in controlling the car's various functions. This switch quickly and simply controls the electronics governing suspension setting and the CST stability and traction control, E-Diff and the change speed of the F1 transmission, as well as the integration between each of these individual functions. The settings available to the driver have been concentrated in five different strategies. These, in ascending order according the level of performance, are: ICE: performance is significantly restricted (maximum intervention by the stability and traction control) for maximum stability – indispensable for driving in very slippery conditions (snow or ice.)



LOW GRIP: this position ensures stability both on dry and wet surfaces. It is therefore recommended for surfaces with poor grip (rain), gritty roads or particularly broken or undulating blacktop. In this configuration, unlike ICE, the driver can still use the F1 paddle shift.

SPORT: is the standard setting that strikes the best balance between stability and performance. Ideal for the open road, this position provides an optimum compromise for maximum performance in safety. Compared to the previous settings, SPORT adopts a more sporting configuration for the adaptive suspension to maximise performance, handling and stability at high speeds.

RACE: this setting must be used only on the race track. Gear changing is even faster to minimise gear shift times. CST intervention is reduced to a minimum (the engine management only cuts the engine when absolutely necessary.)

CST: activates or deactivates the stability and traction control. With the manettino set to off, the driver has full control over the car's reactions. The only driver aids that remain active are those that cannot be overridden such as ABS and EBD (electronic brake distribution.)

AERODYNAMICS

Traditionally, Ferrari has clothed its mechanical package in forms that are dictated by the need for maximum aerodynamic efficiency. In the case of the F430, this principle has been developed to the extreme, employing exactly the same engineering approach to computer development models and wind tunnel testing as used by the F1 team. Perfecting the F430's aerodynamics has brought about a 50% increase in downforce compared to the 360 Modena, thus increasing high-speed stability and the car's active safety. At 200 km/h, that figure equates to 45 kg more downforce than the 360 Modena and



this becomes 85 kg at 300 km/h, amounting to a total of 280 kg. The nolder on the trailing edge of the engine cover works in conjunction with the new diffuser between the rear wheels. The latter features similar fences (deflectors) to those used on Ferrari's single-seaters, and increases the speed of air flow under the tail of the car creating an area of depression and ground effect that pulls the car down.

TECHNICAL SPECIFICATIONS

DIMENSIONS AND WEIGHTS

Overall length 177.6 in

Overall width 75.7 in

Height 47.8 in

Wheelbase 102.4 in

Front track 65.7 in

Rear track 63.6 in

Front overhang 43.3 in

Rear overhang 32.0 in

Dry weight 2975 lb*

Kerb weight 3196 lb*

Boot (trunk) capacity 9 cu ft

Fuel tank capacity 21 UK gal (25 US gal)

Weight distribution 43%/57% front/rear



ENGINE

Type 90° V8

Bore/stroke 3.62 x 3.19 in

Unit displacement 32.9 cu in

Total displacement 62.9 cu in

Compression ratio 1.3:1

Maximum power 60.3 kW (490 CV) at 8500 rpm

Maximum torque 65 Nm (343 lbft) at 5250 rpm

Specific power 14 CV/L

Dry weight/power 6.1 lb/CV

TRANSMISSION AND GEARBOX

Manual or F1

ELECTRONIC CONTROLS

Electronic differential (E-DIFF)

Control for Stability and Traction (CST)

TYRES

Front 225/35 ZR 19"

Rear 285/35 ZR 19"

PERFORMANCE



Maximum speed over 196 mph

0–100 km/h (0–62 mph) 4.00 s

Manual gearbox:

0–400 m 12.00 s

0–1000 m 21.65 s

F1 gearbox:

0–400 m 11.95 s

0–1000 m 21.60 s

FUEL CONSUMPTION

Combined 15,2 l/100 km

CO₂ EMISSION

Combined 345 g/km

*European market version