

# Press Kit

## Auto Shanghai 2017

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- Renault R.S. 2027 Vision concept car explores the future of Formula 1
- Renault crossover momentum continues in China - local premier of New Espace, Kadjar enhancements

- **Renault reveals its vision of Formula 1 in 2027:** more spectacular and more human where the driver, and entertainment, are front-and-centre. This forward-thinking concept demonstrates Renault's long-term commitment to Formula 1, playing a major role in the development of the competition, while putting the driver back at the heart of the sport. **Renault's R.S. 2027 Vision** concept also highlights the path where technology transfers from racing to road cars over the next ten years.
- **Renault presents the Espace in China.** In addition to serving as the brand's new flagship model in the country, the Espace joins Renault's existing crossover line-up that already features Captur, Kadjar and New Koleos. Also revealed at the show are a new engine and new equipment for Kadjar.

*"One role of Renault Sport Racing is to anticipate the future of Formula 1 so that it draws a maximum number of fans in an environment consistent with Groupe Renault's objectives. We look forward to generating inspired conversations with the racing community, fans and enthusiasts through this concept that highlights our ideas and desires."*

**Cyril Abiteboul** – Managing Director, Renault Sport Racing

*"Renault and China share a passion for motorsport. To emphasize how important the China market is for Renault we are excited to reveal the R.S. 2027 Vision at Auto Shanghai 2017. Following the launches of Kadjar and New Koleos in 2016, Renault is also announcing that Espace will go on sale in China to provide the market a robust SUV range as part of our ambitious plan for the world's biggest market."*

**François Provost** – Chairman of Asia-Pacific Region, Renault, and CEO of DRAC (Dongfeng Renault Automotive Company)

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# 01

## 2027: driver-centric and engaging racing

Renault's vision of Formula 1, ten years from now, places people at the centre—one of Renault's core values—as a vital cornerstone of F1 experience. Propelled by a high-powered engine, the driver can showcase qualities as a top athlete for the pleasure of fans. More attractive, Formula 1 also becomes safer, to better protect participants, and takes more active responsibility towards the environment.

The year is 2027. At every Grand Prix, the competition is fierce. With a weight / power ratio never before reached in the history of Formula 1 (**1 megawatt on the whole for a weight limited to 600 kilos**), human performance is at the heart of the sport.

To make Formula 1 more captivating, fans benefit from a **closer connection** to the driver, whether they are watching trackside or on television.

- **Thanks to its transparent cockpit**, the R.S. 2027 Vision concept provides the best-ever view of the driver at work. This resistant, lightweight shell is **3D-printed**, with forms tailored to the driver's body, mirroring how the design of Renault's road-going models is directly **inspired by the human body**.
- The helmet is also transparent, enabling fans to **see the driver's face** and expressions.
- **Active LED lighting** incorporated into the wheels displays a range of information, including the driver's position and the car's remaining energy reserves, making it easier for spectators and television viewers alike to understand how the race unfolds.
- The digital display in the centre of the steering wheel informs the driver of **his 'fan ranking' position**, which is determined by spectators' interaction on social media, rewarding the most deserving driver on the track with an additional boost of power in the last laps.
- Some of the driver's telemetry data is **accessible** to fans **via the Internet**, enhancing their overall understanding of the race and the strategy. This data also allows connected players to participate real-time in the race and compete against their heroes.

In terms of design, Formula 1 evolves to become equally appealing to racing enthusiasts while it attracts new fans.

- The cars are instantly recognisable as **F1 single-seaters**, with their long, slender nose, side pods and four open wheels. Their design is both finely-honed and more aggressive.
- In addition to the roles they play in optimising performance and energy efficiency, the combination of mobile aerodynamic features and active lighting systems make the **cars more 'communicative'** for spectators and television viewers.
- In the case of the R.S. 2027 Vision, bold features like the **C-shaped LED front lights** and the illuminated Renault diamond on the engine cover provide a visual tie between the racing car and Renault's road-going models.
- To make the show even more captivating for spectators, the colour emitted by these lights switches from a white to a blue hue when **the electric mode** is activated.

## R.S. 2027 Vision: 50 years of Renault Formula 1 drawing from the past, envisioning the future

As Renault prepares to celebrate 40 years of involvement in Formula 1 in 2017, the R.S. 2027 Vision concept envisions F1 at 50. Renault's design team created it in collaboration with Renault Sport Racing. In addition to all **the fundamentals expected from a Formula 1 car, it also features Renault and Renault Sport cues**, including the logos and emblems of both brands.

- The R.S. 2027 Vision concept carries over some of the classic attributes of Renault's very first Formula 1 car – the **RS01** from 1977 – such as its V6 turbocharged engine. Elements like its peripheral rear wing and livery provide similar flashbacks.
- Like the Espace F1 in the mid-1990s, the R.S. 2027 Vision comes in Renault Sport's traditional yellow-and-black Formula 1 colour scheme. In this case, the colours are embellished with a metallic finish that enhances the car's visual appeal. The yellow particularly stands out for its gold leaf effect embodying quality, technological prowess and high performance.

The R.S. 2027 Vision concept not only seeks to pay tribute to four decades of Renault dedication, innovation and success in Formula 1, but also underlines **a strong commitment** to the future.

- It shows how the passion that drives the brand also applies to its motorsport activities, resulting in the development of major **technological innovations**.
- This technology –and the specific design elements born of it– is clearly visible in the concept.
- Everything about the R.S. 2027 Vision has been conceived to **optimise performance and enhance the entertainment value of Formula 1**.

In Renault's 'Cycle of Life' design strategy, the R.S. 2027 Vision embodies the "play" petal.

*"The melding of creative energy and technical expertise from Renault's design teams and Renault Sport Racing has created a visionary yet completely credible and authentic R.S. 2027 Vision; a Formula 1 exercise that puts people at the heart of the sport, and communicates Renault's view of the F1 future."*

**Stéphane Janin** – Director, Concept Car Design

Safety, always one of **Groupe Renault's chief objectives**, naturally remains a priority in Formula 1 in 2027. Numerous decisions have been taken to **make the discipline even safer** for all involved, notably the drivers.

- The F1 cars incorporate **autonomous driving functions**. This delegation of driving duties is automatically activated in the situation of race incidents (safety car, virtual safety car, yellow flags, etc.). In this situation, the mandatory single-file running and accompanying restrictions (ban on overtaking, speed limits, etc.) are managed entirely by the car, minimising the risk of further accidents and ensuring the safety of competitors and track marshals alike.
- The car's **closed cockpit** protects the driver from flying debris and other dangerous objects that have the potential to strike with force. This aerodynamic canopy has been produced in polycarbonate, which is ultra-resistant to impact and flames.
- It is framed by two titanium 'pop-up' roll-over bars that emerge from their unobtrusive location in milliseconds should the car overturn, providing the driver –still strapped into the seat– with **an essential gap** between the cockpit and the ground from which to escape.
- These two features were both specifically designed to allow the driver to be able to extract himself from his car in the event of an accident in which their car overturns, and not to hamper the efforts of rescue teams if required.

Safety is similarly ensured by **the ultra-connected nature of these Formula 1 cars** –increasingly common features across Renault's passenger car range. These functions exchange information based on what is happening in the race, seamlessly.

- **Vehicle-to-vehicle (V2V) communication** with the other cars in the race, so that every driver knows exactly where each of their competitors is on the track or in the pit-lane. This feeds information to **the pit lane's predictive collision warning system**, preventing teams from releasing a driver while another car is passing by at speed.
- **Vehicle-to-Everything (V2X) communication** with peripheral systems on the steering wheel's digital screen, including the immediate display of instructions given by the race director, such as yellow or blue flags. A direct link is established **with the marshals** in the section of the track where each car is running.

In Renault's 2027 vision, Formula 1 also focuses **on sustainable technology and systems** to gradually reduce its 'carbon footprint.'

- Designing the individual parts of a Formula 1 car now requires less time and tooling thanks to increasing use of **3D-printing**. This benefits the R.S. 2027 Vision concept as it previously benefited TREZOR, the Renault concept car unveiled at the 2016 Paris Motor Show that formally launched the brand's new design cycle.
- The new materials used by 3D printers to produce parts are more recycling-friendly than many composite materials they replace.

These decisions serve to make the cars both safer and cleaner, **without detracting from the spirit of single-seater racing**.

## Renault: passion for life - customers backed by 40 years of success in Formula 1

### An commitment driven by innovation

Renault sees motorsport as a formidable opportunity for the **development of cutting-edge technologies** that go on to **benefit its road vehicles**, either directly or indirectly.

Since its Formula 1 debut in 1977, Renault has consistently played an important role in the sport, pioneering **ambitious, avant-garde technologies** fuelled by its passion.

- The **V6 turbo engine** that powered the Renault RS01 in 1977 sparked a revolution in its day and went on to feature twin-turbo technology from 1979.
- The introduction of **air valves** in 1986 enabled engine speeds to be increased with no detriment to reliability.
- In the 1990s, **gear-driven camshafts** led to higher-revving engines.
- **Direct fuel injection** appeared in 1995 (Renault RS7 engine) to optimise intake efficiency and fuel consumption.

The heritage of all these revolutionary innovations is still visible in today's Formula 1 with the **return of the V6 turbo –in hybrid form– in 2014**. By meeting the challenge of the new regulations, Renault has contributed its extensive expertise and skills as an F1 engine supplier **to boost technological innovation**, an invaluable asset when it comes to the brand's upcoming road models.

### A Formula 1 record that commands respect

Renault has been active in Formula 1 for almost 40 years. In addition to racing as a team, it has also been an engine supplier to the sport's leading teams over the years, harvesting no fewer than 12 Constructors' world titles and 11 Drivers' crowns in total (see complete list below).

Renault left an indelible mark on each era of its involvement as a team:

- 1977 to 1985 (V6 turbo), notably with Alain Prost.
- 2002 to 2010 (normally-aspirated V10 and V8), notably with Fernando Alonso.
- Return of Renault to Formula 1 in 2016 as Renault Sport Formula One Team for its third time as a manufacturer.

As **engine supplier**, Renault has equipped the sport's top teams during different eras over the years, contributing to numerous race wins and Drivers' titles:

- Lotus, with Ayrton Senna (V6 turbo).
- Williams, with Nigel Mansell, Alain Prost, Ayrton Senna, Damon Hill and Jacques Villeneuve (normally-aspirated V10).

Benetton, with Michael Schumacher (normally-aspirated V10).

- Red Bull Racing, with Sebastian Vettel (normally-aspirated V8).
- In addition to those raced by Renault Sport Formula One Team, Renault's current R.E. 17 engine powers the cars of customer teams Red Bull Racing and Scuderia Toro Rosso.

In total, Renault **is the most successful manufacturer since 1977**, including:

- 12 Constructors' titles,
- 11 Drivers' titles,
- 170 Grand Prix wins,
- 215 pole positions,
- 50 one-two finishes,
- 15 one-two-three finishes.

#### **The 12 Constructor's titles:**

1992: Williams FW14B and Renault RS4 engine  
1993: Williams FW15C and Renault RS5 engine  
1994: Williams FW16/FW16B and Renault RS6 engine  
1995: Benetton B195 and Renault RS7 engine  
1996: Williams FW18 and Renault RS8 engine  
1997: Williams FW19 and Renault RS9 engine  
2005: Renault R25 and Renault RS25 engine  
2006: Renault RS26 and Renault RS26 engine  
2010: Red Bull RB6 and RS27-2010 engine  
2011: Red Bull RB7 and RS27-2011 engine  
2012: Red Bull RB8 and RS27-2012 engine  
2013: Red Bull RB9 and RS27-2013 engine

#### **The 11 Drivers' titles:**

1992: Nigel Mansell  
1993: Alain Prost  
1995: Michael Schumacher  
1996: Damon Hill  
1997: Jacques Villeneuve  
2005: Fernando Alonso  
2006: Fernando Alonso  
2010: Sebastian Vettel  
2011: Sebastian Vettel  
2012: Sebastian Vettel  
2013: Sebastian Vettel

### **Alain Prost, a distinguished ambassador for Renault and Formula 1**

French racing legend **Alain Prost** has claimed four Drivers' world titles and 51 race wins, including 1 and 16 with Renault.

The motorsport star's association with Renault began in 1976 and continues today, since **Alain Prost is linked with Renault** in the following ways:

- Renault brand **ambassador**.
- **Special adviser** to Renault Sport Racing and member of Renault Sport Racing's Executive Committee.
- **Co-owner** of Renault e.dams Formula E team.

Alain Prost and Renault – **landmark dates:**

- 1976: French Formula Renault Champion.
- 1977: European Formula Renault Champion.
- 1981: Formula 1 with Renault-Elf (first podium finish: Argentina / first victory: France).
- 1982: Winner of the first two Grand Prix of the season / fourth in the Drivers' world championship.
- 1983: 2nd, Formula 1 Drivers' World Championship with Renault-Elf.
- 1993: Formula 1 Drivers' World Champion with Williams-Renault.
- 2009: Maiden participation in France's Trophée Andros ice racing championship driving a Dacia Duster.
- 2012: 1st, Trophée Andros (Dacia Lodgy Glace). Named Renault brand ambassador.
- 2014: Founded the Renault e.dams Formula E team
- 2017: Appointed special adviser and member of Renault Sport Racing's Executive Committee.

# 02

## 2027: higher-performance cars for more entertaining racing

To put the human factor back on centre stage, Renault's vision for Formula 1 in 2027 also covers the technical side. In addition to delivering higher performance, cars have taken advantage of the new electrification technologies to become even more efficient. Consequently, they contribute to making Formula 1 a continued test ground for passenger vehicles while helping the race industry follow a responsible approach to costs.

Maintaining its role as **a platform for Renault's advanced technology**, Formula 1 in 2027 drives innovation efforts towards higher engine and aerodynamic efficiency.

- The total amount of power is 1 megawatt and the weight limited to 600 kilos.
- The level of power generated by the Kinetic Energy Recovery System is now fixed at **500kW** (compared with 120kW in 2017) courtesy of two ERS-K units, one at the front and one at the rear.
- This **four-wheel drive configuration** delivers unprecedented traction for a single-seater racing car.
- **The car's very high-energy density batteries, two times the current F1 batteries** – a field of intensive research for Renault's electric vehicles – are connected to an ultra-high-performance dual-energy recovery system. Thanks to two 250kW electric motors (one at the front, one at the rear), the bulk of the energy otherwise wasted under braking can be recovered and stored for later use during the same lap.
- To minimise energy waste due to drag at high speeds without detracting from slow-speed stability, **the car's aerodynamics are now active**. Their efficiency is further enhanced by active suspension that optimises handling under the exclusive control of the driver.
- In addition to facilitating pit-lane manoeuvres, **four-wheel steering** makes the cars agile and responsive.

Many of these innovations enrich Renault's technology know-how, some of which are already available in its current range of passenger vehicles, for example, **Renault's MULTI-SENSE** system with active damping and the **high-energy density** batteries of Renault ZOE Z.E. 40.

Technology evolutions and performance objectives, while maintaining an energy efficiency goal, reach **the balance between power output from the engine and power output from electric motors**.

- F1 hybrid power plants based on a **V6 combustion engine incorporating** downsizing technologies such as turbocharging and multipoint fuel injection, a configuration that maximises power output while curbing fuel consumption and volume.
- The capacity of the fuel tank is **just 60kg** (compared with 105kg in F1 today), which is the quantity necessary for the shorter, more exciting race formats.
- Meanwhile, high energy-capacity batteries, two times the current F1 batteries energy density – a similar level to the Formula E batteries that will be used in Season 5 –, are used to power the two 250kW electric motors in a sustainable way. They also **allow the car to be driven in all-electric mode** to save fuel during certain moments of the race, such as the formation lap and entering and exiting the pits.



Renault's vision of Formula 1 in 2027 also advocates for a responsible approach to costs. By **capping expenditures**, the discipline can attract more manufacturers and teams for a long-term commitment.

- To achieve this, F1 benefits **from standard elements**, thereby reducing the economic pressure on the teams: all **non-performance-differentiating components** are provided by **a single supplier selected by the FIA**.
- **Restricting development work on the cars' aerodynamics** brings wind tunnel and parts production's budgets down, too. Only the front and rear wings, engine cover, floor and diffuser can be remodelled, and only three configurations are authorised during a single season.
- Finally, F1 takes note of more accessible technologies and recovers with a certain pragmatism. For example, **ultra-complex hydraulic suspensions give way to simpler active suspensions**, but which could recover the otherwise lost energy.

A financially level playing field injects an extra element of **excitement into the season**, granting all teams an equal opportunity to compete.

In response to television audience trends and shifts in broadcasting formats, Renault explores how **Formula 1 in 2027 could become a more compelling form of entertainment**. So, the format of Grand Prix weekends has been revised to make them more diverse, with exciting **new opportunities** to promote the drivers:

- Sunday's centrepiece-race **shortened** (250 kilometres instead of approximately 300 today) and divided into **two parts**: a long race and a second, shorter sprint known as the 'Final Sprint.'
- A **Rookie Night Race**, featuring the teams' reserve drivers and the drivers who are in their F1 rookie year, is organised on the Friday evening of race week, ahead of Saturday's official practice.

With this vision, Renault is sending **a powerful message to the sport's fans** about the continued excitement and innovation ahead in Formula 1 racing.

- Renault is more than ever **a key player in the world of Formula 1** and intends to remain so for at least ten more years.
- Over the course of these ten years, **motorsport-honed innovations** will continue to be carried over to the brand's passenger models both in the Renault Sport Cars range, as well as mainstream Renault vehicles.

## The Étoile Filante: a Renault record breaker

Also on show on Renault's stand at Auto Shanghai 2017 is the **Étoile Filante**, a car that embodies the brand's long ties with motorsport. Last year marked the **60<sup>th</sup> anniversary of its land speed record** -two of which still hold- established by this "fireball" at the Bonneville Salt Flats in Utah, USA, on September 5, 1956.

- 306,9 km/h on one kilometre<sup>1</sup>
- 307,7 km/h on one mile
- 308,85 km/h on five kilometres<sup>1</sup>
- 280,8 km/h on five miles

The Etoile Filante had previously been presented to the press on June 22nd, 1956 on the Autodrome of Monthéry. It was born thanks to **the meeting of five men**, united by the will to beat records:

- Joseph Szydlowski, CEO of Turboméca, a company specializing in turbine engines
- Pierre Lefauchaux, CEO of Renault
- Fernand Picard, The Director of Studies who oversaw the Dauphine's development
- Albert Lory, motor engineer who had notably worked at Delage in his previous career
- Jean Hébert, both engineer and pilot, who was behind the steering wheel for the records

Well before Renault's Formula 1 debut, the Étoile Filante provided hard evidence of the brand's ability to deliver exceptional, innovation-driven performance:

- Two years of wind-tunnel work,
- Polyester-bodied tubular chassis,
- Aerodynamic features carried over from the aeronautical industry,
- Gas turbine power (270hp at 28,000rpm).

Performed across the Atlantic, this performance benefited from a strong media impact. It helped to **establish Renault's reputation as a pioneer** around the world at the moment when was launched the Dauphine, allowing this small popular car to be sold in the United States as soon as 1957.

From a technical point of view, the Étoile Filante allowed Renault to progress by studying the ground behaviour and the braking of a vehicle of very great finesse moving at a very high speed. Only **two copies** of this extraordinary car, with a design ahead of its time, have been built.

In the same spirit as the Étoile Filante, Renault's avant-garde vision for the future of Formula 1 seeks to foster **innovations that also inspire the designers of its upcoming road cars**.

<sup>1</sup>In keeping with the land speed record rules which continue to be enforced in the class today

# Groupe Renault in China: an ambitious strategy

- **April 2017:** At 2017 Auto Shanghai, Renault presents its flagship model Espace, which will go on sale in China in the second half of the year. Following the launches of Captur, Kadjar and New Koleos in 2016, Renault's product offensive in China is gaining momentum with a comprehensive range of crossovers to meet the varying demands of China's customers. The crossover segment currently accounts for 38.6 percent of sales (9.54 million cars in 2016) and is the fast-growing segment in China (+39.3% in 2016). Meanwhile, Renault's sales network continues to grow across China.
- **Early 2017:** Just over one year after opening the Wuhan plant, Renault was voted 'Best Foreign Brand' and Dongfeng Renault Automotive Company (DRAC) was named 'Best Automobile Manufacturer in a Joint Venture' for new vehicle quality in a survey conducted by Autohome, the most popular website for car buyers in China (daily 22.7 M visitors). This accomplishment recognizes Renault's ambitious, quality-focused strategy.



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## Space strengthens Renault's model range, expanding network in China

- **Kadjar** went on sale in China in March 2016. This SUV boasts fluid, athletic styling and was the first vehicle to be produced at the Wuhan plant.
  - Kadjar is now available with a new engine and additional equipment : 1.2L gasoline turbo engine with 6 MT ; rear view camera and front heated seats available on more trims ; Apple CarPlay compatibility, tire pressure monitoring system (TPMS) and auto-foldable outside mirror function newly added.
  - Built to the highest quality standards, Kadjar won five stars in the C-NCAP crash tests in 2016 (the Chinese equivalent of Euro NCAP) and came in first in its category. Kadjar received the highest score in its class since C-NCAP testing was introduced in 2015.
  - Kadjar was an instant hit with Chinese customers, who value its trendy dynamic design and its delightful on-board experience. The model accounted for 61 percent of Renault's sales in China in 2016.
- **New Koleos** made its world premiere at the Beijing Auto Show in April 2016 and went on sale in China in November 2016. New Koleos, a robust, refined SUV, is also produced at the Wuhan plant.
  - New Koleos has also proved very popular in China. The car has picked up more than 10 awards for its quality and styling from influential media such as the Beijing Daily, Autocarweekly and Zhejiang TV.
- With Captur, Kadjar and now New Koleos, Renault today offers a **comprehensive range of crossovers** for the Chinese market.

## 150 sales outlets at end-2016 and sales up 50.8 percent

- The Renault range is sold across a **network that included 150 outlets** at the end of 2016 (estimated 200 by end-2017), located in every Chinese province.
  - Renault set up a Customer Relations Centre in 2009 to provide its customers with simple, guaranteed service, care and assistance.
  - Renault vehicles come with a three-year/100,000-kilometre warranty and a five-year/120,000-kilometre warranty for the engine and transmission. Renault provides a full range of services,

including service contracts, courtesy cars and free vehicle inspections, plus competitively priced maintenance.

- In 2016, Renault sold 35,278 vehicles in China, **an increase of 50.8 percent** in registrations in a market up by 14 percent. Renault is aiming for a market share of 3.5 percent in China. Total industry volume in China came to more than 24 million vehicles in 2016.

### **Best Foreign Brand' and 'Best Automobile Manufacturer in a Joint Venture' in recognition of Renault's ambitious, quality-focused strategy**

- **On December 16, 2013, Renault and Dongfeng signed an agreement to form the Dongfeng Renault Automotive Company (DRAC) joint venture**, one of the few equally-owned joint ventures in the Chinese car industry.

**On February 1, 2016, Renault and Dongfeng opened the Wuhan plant**, a greenfield facility built in just two years. It includes a vehicle assembly plant, a powertrain plant and an R&D centre. Initial production capacity is 150,000 vehicles a year and has the potential to be doubled. Quality is the plant's priority.

- The plant was awarded ISO 9001 certification in 2015 thanks to quality assurance processes in every department (waterproofing testing, 3D testing, bench testing, etc.).
- The Wuhan plant complies with the Alliance Vehicle Evaluation Standard (AVES), a quality assessment procedure based on 300 criteria that is carried out on vehicles prior to delivery to the network.
- In 2016, the plant started producing Kadjar and New Koleos. It is also preparing **to manufacture an electric vehicle** based on Fluence to be sold under a local brand to tap the potential of the fast-growing Chinese segment of the market (256,879 electric vehicles sold in 2016, up 121 percent).