

Citroen's Ninety-year History of Innovation

The year 2009 is the 90th anniversary of Citroen. This book will lead readers to look back through the glorious history of the French brand which is popular among car enthusiasts and to know more about its great aspiration in the new century.

Citroen is always known for scientific innovations. It has led revolutions in industry and in the field of automobile for several times in history. Numerous legendary cars, such as Citroen Type A-the first car being mass-produced, "Rosalie", "Traction Avant", DS, CX, 2CV are launched by Citroen. Croisière Noire, Croisière Jaune, the come-into-being of the PSA Peugeot Citroën Group, and the well-known Levallois factory etc. have all left their marks in the history of Citroen...

On the occasion for celebrating the anniversary, Citroen reinvents itself and launches brand-new series of products, putting forward a new slogan of "Human Technology• Enjoyable Life", by which opens a new chapter of history. By reading this book, you will appreciate the charms of the new C5 of Citroen and the DS series beginning from concept cars DS Inside.

The book contains rich pictures provided by Citroen Depot and massive amounts of thematic data such as Citroen in movies, Citroen in Advertisements and Scientific Innovations, etc., which will recapture the ninety-year history of Citroen the legendary brand with readers together.

VGD, an ambitious plan

The "Traction Avant" was born in 1934; however, it became outdated after the end of the WWII. Although Citroen design team didn't stop working even in the German occupation period, the model update plan of "Traction Avant" had still not officially launched until 1949. The specific plan of VGD project had been changing continually until the final determination in 1951. After long period of preparation, another classic work of Citroen in the last century was finally born.

Again, Pierre-Jules Boulanger became the first person to put the Citroen design of future high-end model into practice, who was the company leader in 1938 succeeded Pierre Michelin that died in a young age. When "Traction Avant" which launched not long ago was still hot, the forward-looking person in charge already started planning model updates. Boulanger was in the hope that new model could be a hot selling item as the "Traction Avant"; therefore, he named it "VGD" (the abbreviation of voiture de grande diffusion in French, i.e. good selling car). Taking the performance of model 11CV as a reference, he designed two updated version-VGD 125 with a top speed of 125 km/h and VGD 135 with a top speed of 135 km/h. The two car models were more convenient and comfortable than "Traction Avant".

Boulanger gathered a group of design elite around him, representing by Andre Lefebvre the general designer, Flaminio Bertoni the automobile model designer and Pierre Franchiset the designer of the car body. It was them who designed the successful "Traction Avant". The TPV project was being pushing forward at the same time.

He was the spiritual father of the two successful car models of Citroen 2CV and DS in the post-war period.

As the revision of "Traction Avant", the new vehicle would have an engine the same as the 15-Six putting horizontally, and the line would be more streamlined based on the shape of "Traction

Avant". If not the breakout of WWII, the car was supposed to start selling in 1940.

VGD Go Beyond 15-Six

During the German occupation period, the research work was still in process confidentially, which indirectly stimulated mature of VGD project. After the war, technology and economic conditions changed correspondingly. Therefore, it was finally decided to equip with a more powerful engine than the six cylinder engine of 15-Six. Walter Becchia made in-depth study of the straight-6 engine of 3.5 liters, even 4.5 liters.

However, a car accident in November of 1950 took the life of Pierre-Jules Boulanger, and also changed the destiny of VGD project. André Lefèbvre took charge of the project, and the new leader of the company Robert Puiseux and his successor Pierre Bercot gave VGD project special concerns. Lefèbvre made significant changes in the VGD project: focused the weight at the front, lowered the center of gravity, made the model to fit the principle of aerodynamics more, set the front wheel track wider and the rear wheel track narrower comparatively,

Year 1938

January

Year 1950

November

Year 1954

March

Year 1955

October

Pierre-Jules Boulanger set the general direction of VGD project.

André Lefèbvre had taken in charge of VGD project after the death of Boulanger.

Test hydro-pneumatic rear suspension on 15-Six H.

VGD was officially named DS and launched in Paris Motor Show.

and adopted high-tech suspension and light-weighted alloy body. Soon, the suspension system was settled. At first, Lefèbvre intended to adopt aluminum as the materials of all structures above the floor board. However, the ambitious plan didn't come true for the reasons of high cost and complicated technologies. Eventually, only the engine cover and car roof used aluminum.

Meanwhile, to make the vehicle lighter, the new car boldly chose plastic which were not broadly applied as the materials for automotive trim parts.

The Hippo Became Queen

The figure of the sample car was also being carefully considered: the streamline more elegant, the engine cover closer to the bumper, the fairing panel with ventilation holes which removed the radiator grille. To see in profile, the first sample car in the road test had the engine cover and the wing, together formed an integrated figure as the head of a hippo. That's the origin of the name "hippo". It also contained three panes of glass at the sideways, connecting the rear of the roof with the luggage compartment.

Only the power always had a problem, which delayed the development process. The straight water-cooling six-cylinder engine and the air-cooling engine couldn't meet the demands. In a pinch, straight-4 engine body of "Traction Avant" 11CV was decided to be used, equipped with the hemispherical combustor made with aluminum alloy and the valve in V-shape arranged at both sides of the spark plug. However, a problem came out: How to put the over-high engine at

the original place for the flat engine cover intended to be horizontally opposed? The only solution was to put both the engine and the gearbox between the two front wheels horizontally. The design was finalized in 1953, basically meaning the eventual mature of the “goddess”.

It's a work of Flaminio Bertoni designed in 1954, being a VGD four-seat sedan without the B-pillar.

Besides, the employment of the front disk brake was also a significant innovation. Citroen and UK Triumph were the first manufacturers of brand cars in Europe who put the disk brake in production cars. It was not applied at the front where but connect to the gear box. Therefore, the handling performance could be raised because of the weight reduction at wheels. Without the brake devices, the scrub radius of the front wheels was almost zero, made it easier to swerve. Even wider tires or extremely bumpy roads would not cause impact when swerving. However, all these innovative arrangements had to be developed well before the expected launching time in 1955.

All-round Innovations

The innovation of VGD project mainly focused on the hydro-pneumatic suspension. Engineers found out that although the individual suspension of “Traction Avant” was new at that time, it was hard to improve. The developing work previously employing mass resources had little effect. They had to try other new ways to absorb vibration of and bump to the car without reducing the capacity of road holding and riding comfort. They made researches in the direction of compressible flow, fluids, and gas. The research and development of hydraulic equipment was quite time-consuming, for it was an unprecedented new technology.

Kingpin offset is the horizontal distance between the point where the steering axis intersects the ground and the center of tire contact. The shorter the distance, the lesser the resistance would be.

A VGD project model manufactured by Flaminio Bertoni in 1950 when future DS was already finalized.

A Tough Start

In the 1955 Paris Motor Show, DS caused a sensational chaos. In a range within 100 meters of the exhibition stand of Citroen, crowds gathered. In contrast, other stands were surrounded by no one. On the rotary table hold by white rails, the unexpected unique figure of DS 19 impressed everyone. Several years later, the first cars on the road attracted people's attention again. Every time, when a new DS arrived at a dealer store of other provinces, the same event happened. Enthusiasm of first customers was best advertisement. But disadvantages also emerged at no time. The DS on the market didn't have a stable quality that the repair rate was quite high. A few months later, the quality of the car became stable.

Multiple DS

Since 1957, DS series started to be diversified. First, the lite edition of DS: ID 19 was launched, aiming average customers. ID evolved with DS with a simple configuration. In 1959, the emergence of ID Station Wagon increased the attraction of Citroen high-end cars. The new version had three different arrangements: family car, Station Wagon, and commercial vehicle. If it was said that the style of the face of DS remained, then the end of the new car was full of Baroque fantasy of Flaminio Bertoni, building a tail with rich meaning. ID Station Wagon

became the love of a vast of businessmen rapidly. And it was popular for 20 years. In June of 1960, Citroen rolled out an elegant DS convertible under the numerous suggestions of the body manufacturer, Henry Chapron, which then evolved to be the ID D series convertible.

ID 19

DS Lite edition. ID 19 employed lower spec devices, easier interior trim standards and a simple instrument board.

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DS, King of Racecourse

Early before International Rally Challenges such as London-Sydney and Wembley-Mexico, the 2nd generation of DS car had already dominated Bandama rally and Moroco rally. It was the king of African racecourse.

Only For its Eyes

At the beginning of 1960s, 戴比赫 Advertisement finished the filming work of DS car model which could be called as a masterpiece.

Motor Show

In a much-anticipating atmosphere,

DS launched at the Paris Motor Show in 1955, becoming a blockbuster as people expected.

DS in 1955

A masterpiece in 20th century

DS originated from the VGD project. It was launched at the Paris Motor Show in 1955 in an extraordinary refined and overwhelming figure as a sci-fi spaceship. However, it encountered a difficult just as "Traction Avant" 20 years ago. At the primary period of launching, DS exposed its unstable quality for adopting advanced technology. Once the problem was conquered, the market future of DS became wonderful. The car advanced its competitors at every evolution times of its life circle, becoming a legendary car of Citroen before it withdrew from the market.

Continuous improvement

While keeping their characteristics, ID and DS series adopted new technology and new trim kits along with the development automobile industry and innovation of fashion. In 1962, the modern instrument board of early style was replaced by more practical design, but the style was still eye-catching. In 1963, Citroen improved the front face of DS high-end series, adopting the bumper with built-in buffering function. In 1965, Citroen rolled out a more luxurious brand-new high configuration car model Pallas. Next year, DS 21 took the place of DS 19 with an improvement of engine capacity from 1911 ml to 2175 ml. Therefore, DS 21 had a top speed of 175 km/h. Until then, during the 11 years on the market, DS series still had dominated advantages in the market segment. It's also time to inject fresh blood into it.

DS 21

At the end of 1960s, Citroen decided to remodel it while DS was still popular. The DS 21 injected new vitality to the DS series.

The vision of Queen

Although it had a dominant performance advancing its competitors, the model of DS gradually became outdated compared to other sedans with lines of tension. After careful consideration, the design department decided to modify the front face of the model only. It was a stroke of genius in the design history of Citroen. Could we find anything more eye-catching than sunk, rotatable eyes? These built-in headlights (Pallas and Prestige could turn round in all directions.) transformed the entire appearance of the car, bringing new life to DS. In 1969, the production of DS reached millions. Next year, it applied Engine Management System of Bosch. In 1971, it started to use the five-speed gearbox. However, it's not the peak of DS series until the launch of DS 23 in 1973. The DS 23 had an engine capacity of 2347 ml and EFI's top speed of 188 km/h, reaching the glorious top of DS. Unfortunately, it was the last song. In 1975, the classic car was replaced by CX. But the splendid CX could never own DS' manner of Queen.

DS Station Wagon

Station Wagon was evolved from sedan. It's the final version of the Station Wagon DS 23 in the picture. The car had a large load capacity and could bring extraordinary comfort experience. It's a great success.

The Fairy Tale of DS 19

Since the launch of 1955, DS 19 was always popular. Praising words such as "From the headlamp to the rear lamp, the charm of DS was unparalleled." were everywhere.

DS changed its face

In 1968, DS changed its appearance, hiding the turn-able headlamp in the wing, rejuvenating its image.

Best-selling products

In the winter of 1956, dozens of sedan DS 19 crowded at the lobby of Citroen's factory in Jarville, ready to be transported to the franchised dealers.

Glory and Setback