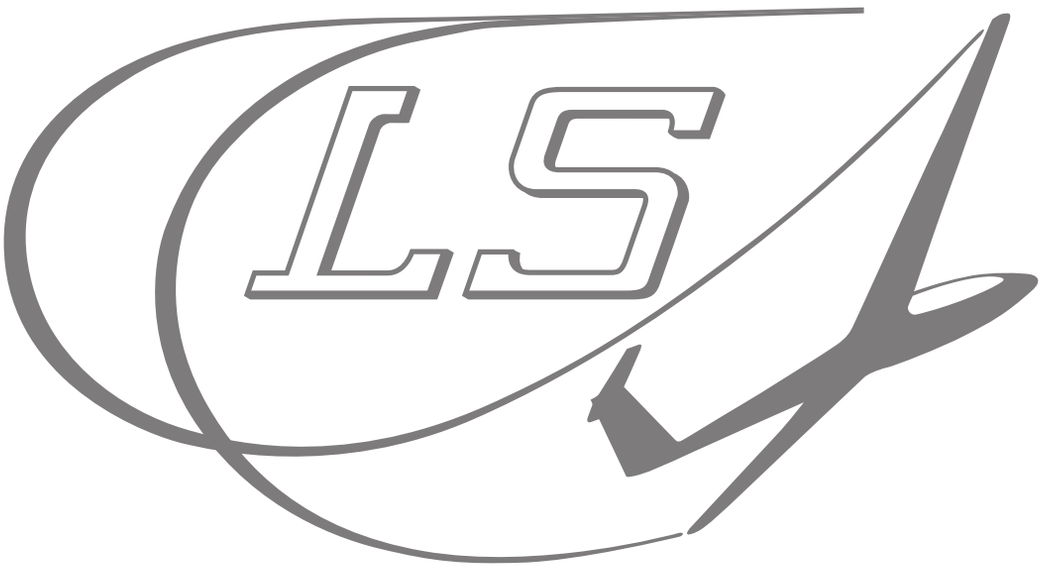
Wolfgang Binz



SAILPLANES

From LS1 to LS11

The History of Rolladen-Schneider and the LS-Sailplanes

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The History of Rolladen-Schneider and the LS-Sailplanes

English summary of the German book

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LS-Segelflugzeuge – Von der LS 1 zur LS11

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Chapter 1: How it all began

Rolladen-Schneider was founded in 1926 as a carpenter's shop by Walter Schneider's father Friedrich Wilhelm Schneider. Friedrich Wilhelm had three children: Walter was born Dec 24, 1929 and his older brother Willi on March 11, 1927. In 1940 the brothers got a sister named Dorothea.

Walter spent most of his spare time building and flying model aircraft, of course before R/C. In 1943 he became an apprentice in his father's company and finished his training successfully. He would have liked a further education as an engineer, but this was not possible in postwar Germany. He and his brother worked in the family's company.

Walter wanted to change from model aircraft to a real cockpit and joined the local gliding club. But before entering a cockpit a lot of working hours had to be spent in the workshop. Walter, as a carpenter had the perfect profession and therefore he was very much engaged in building several gliders for the club. His first gliding competition was in 1959 and he was quite successful. During the next years he flew in a number of competitions, including a national championship.

After Walter's father passed away in June 1963, the young brothers Walter and Willi got the responsibility for the entire company. At that time the company had nearly 40 employees and a continuously growing revenue of up to 2 Million DM with more than 10% profit. In 1964 Walter was 34 years old and a wealthy man.

Wolf Lemke was born on Aug 11, 1938. In his youth he was also very busy in constructing and flying aircraft models. When he was 18, his parents financed his glider training. He was so enthusiastic about gliders that he decided to join the university flying group, the Akaflieg Darmstadt, when he started his studies. At first he wanted to become an electrical engineer, but soon changed his studies to mechanical engineering.

At that time in his life Wolf flew glider competitions, including the national championship in 1962. He competed with the D-34 d with only 12.65 m wingspan in the open class because the glider had a retractable undercarriage and in the end, he achieved sixth place.

During Wolf's time at the university he was a member of the Akaflieg Darmstadt, one of the famous groups developing, building and testing new gliders. For Wolf, the development of the D-36 was a very important step in his studies, but also for his future career.

The D-36 "Circe" was besides the Phönix and the SB6, one of the most important sailplanes for the upcoming new generation of glass fibre constructions. From today's perspective the reasons for this big step forward were the engineers who developed and built the D-36, but in 1964 they were just students who were fascinated by the new possibilities of glass fibre construction.

The D-36 was developed jointly by Gerhard Waibel, being responsible for fuselage and tailplane, Heiko Frieß for the air brake system and Wolf Lemke developing the wing. Klaus Holighaus was two years younger than the others and later modified the horizontal tailplane to get rid of flutter problems. Later all these young engineers became very important for the glider industry in Germany. Heiko Frieß joined the Federal Authority for Aircraft Certification and laid the groundwork for all certification regulations for glass fibre sailplanes. Gerhard Waibel went to Alexander Schleicher and developed the ASW-series of gliders. Klaus Holighaus became chief engineer for Schempp-Hirth. Wolf Lemke became famous for the LS-sailplanes.

Two others were also important for the success of the D-36: Karl-Heinz Hinz was for decades the driver and genius in the workshop of the Akaflieg Darmstadt. Another student in 1964 was Günter Schapka who constructed the steel center section of the fuselage, a feature that is still used today in all Schempp-Hirth gliders.

The concept of the D-36 was already taking shape in 1962. At that time Gerhard Waibel and Wolf Lemke were sharing a room in Sheffield, taking a hands-on training course required for studying. Fascinated by the SB6 of Björn Stender they discussed their ideas of the ultimate sailplane. Initially the concept of the D-36 had a wingspan of only 15 m. However, in summer 1962 the team visited Björn Stender and looked at his BS-1 which was under construction and on the way home Gerhard and Wolf insisted on an increase in wingspan for the D-36. Karl-Heinz Hinz first hesitated, knowing that the workshop was too small for the assembly of an 18 m glider, but finally agreed.

All previous fibre glass gliders had either NACA or Eppler airfoils. During that time, Prof. Wortmann had a laminar wind tunnel in Stuttgart and was developing new airfoils. However, for the Darmstadt students it was not easy to convince Prof. Wortmann to help with the airfoil design for the D-36, but a recommendation from Björn Stender finally was the breakthrough. The students received airfoil data from Prof.Wortmann, Karl-Heinz Hinz built wind tunnel models and then the models were tested in the wind tunnel. Six different airfoils were tested until they ended up with the FX 62-K-131, which later was also used in the ASW 12, ASW 17 and even in the ASW 20. Parallel to the development by Prof. Wortmann, Wolf Lemke worked on his own ideas of an airfoil for the D-36 and he finally came to a design which was tested in the wind tunnel in Stuttgart. Prof. Wortmann was very impressed when he realized that Wolf's airfoil had performance and handling parameters being identical to his own development. The Akaflieg decided to use Prof. Wortmann's airfoil because of image reasons, Gerhard Waibel said much later.

The concept of the D-36 incorporated a lot of details which had been used in other fibre glass planes. However, the big step forward was the combination of all the good ideas in one sailplane. The D-36 became the milestone in sailplane development and laid the groundwork for the upcoming age of high quantity production of this new kind of aircraft.

The fuselage was built in 1962 and in 1963 a structural test was conducted on a test wing using a maximum load of 10 g. Thereafter a new wing was built and the glider was ready for the first