Chapter 17 France

The Avia 40P, superbly restored, at St Auban s. Garonne.

After the successes of French sailplanes and pilots in the early twenties, a centre for the sport was set up at Combegrasse, but as in Britain, after a flurry of interest there was little activity for several years. A few pioneers such as Georges Abrial continued to build gliders and visited Germany to observe developments. Competitive soaring was revived at Vauville in 1928. Wolf Hirth, in his Württemberg, demonstrated how far things had advanced. French interest revived in 1930 and the firm Avia was founded to build motorless aircraft. The first products were training gliders of various types, including a useful two seat primary glider, the Avia 10a.

Avia 41P

It was significant that in 1931 the French still held contests at the Vauville coastal site. Kronfeld arrived there with the Wien. The Avia design team, led by Raymond Jarlaud, were much impressed and decided to produce a high performance sailplane along similar lines. Eric Nessler, one of the founders of the company and already a well known pilot with experience of building aircraft, designed the fuselage, Jarlaud himself took responsibility for the rest.

Although strongly influenced by the Wien, the French sailplane differed in many ways. It was slightly smaller, though no lighter. The wing, braced with V struts made from streamlined section duralumin tubing, divided in the centre rather than in three sections. The Wien had inherited its three piece wing from the Professor. Jarlaud thought this not the best arrangement. With struts, the maximum bending loads occur where the struts join the wing. The wing joint of the Wien, just outboard of the strut attachments, required quite substantial steel fittings to carry the load through the spar. With a two piece strutted wing the root carries no bending at all so the main spar can be very light here to join the fuselage with very simple and light fittings. In the most highly stressed area at the strut ends, the spar is continuous and suitably reinforced.

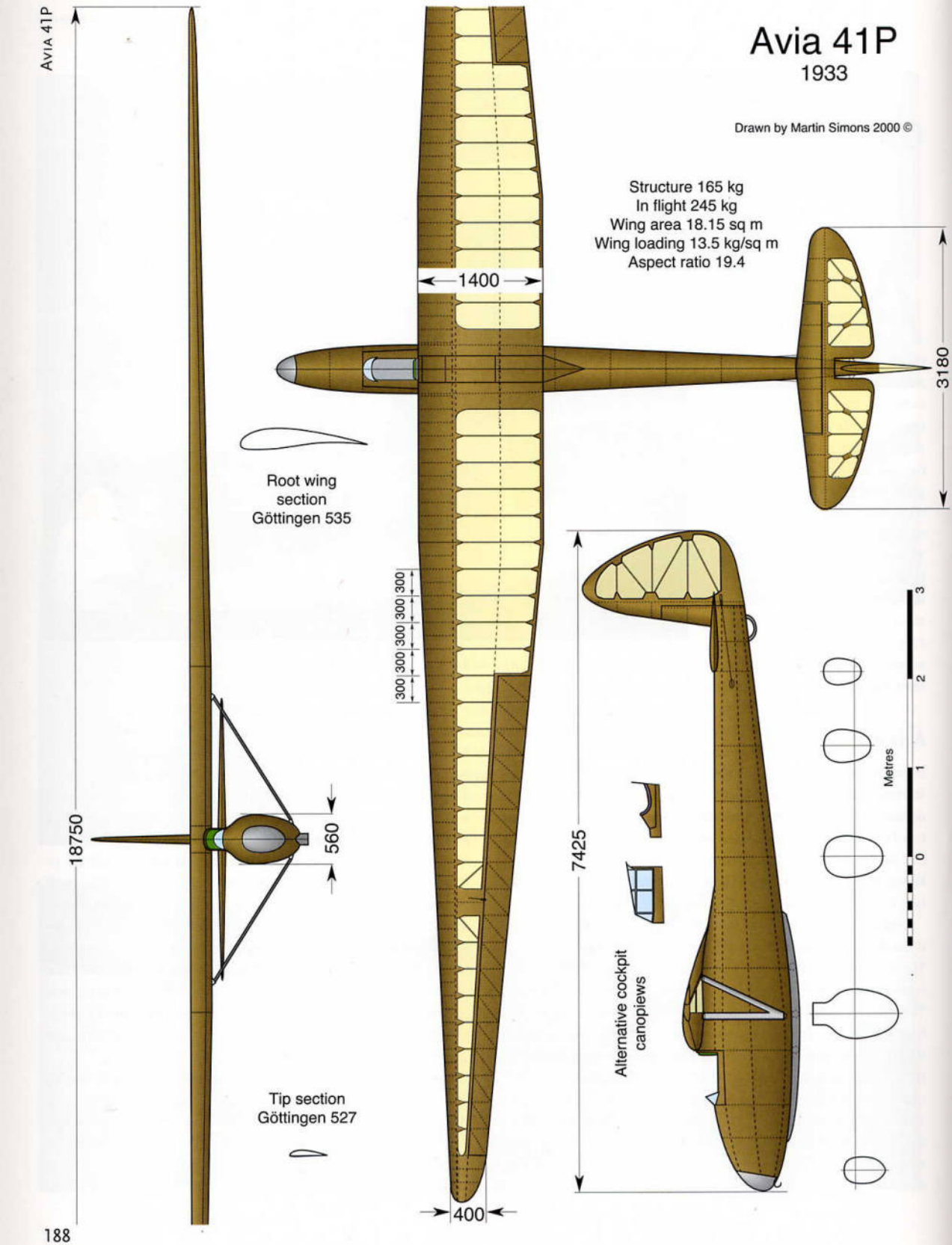
The profiles too were different, Göttingen 535 for the centre section, tapering at the tips to Gö 527, a section of similar thickness but with little undercamber, making the construction of the outer wing much easier. The ailerons, fabric covered but with numerous diagonal bracing ribs, were divided into two sections to reduce distortion under load. They had particularly large and elaborate operating horns, probably to ensure that they did move accurately in response to the pilot's commands. The cockpit was very narrow, restricting sideways hand movements. Instead of a simple stick, Nessler devised a control column like that in some powered aircraft. At the top was a rocking yoke with hand grips for the ailerons, the whole moving fore and aft to control the elevator.

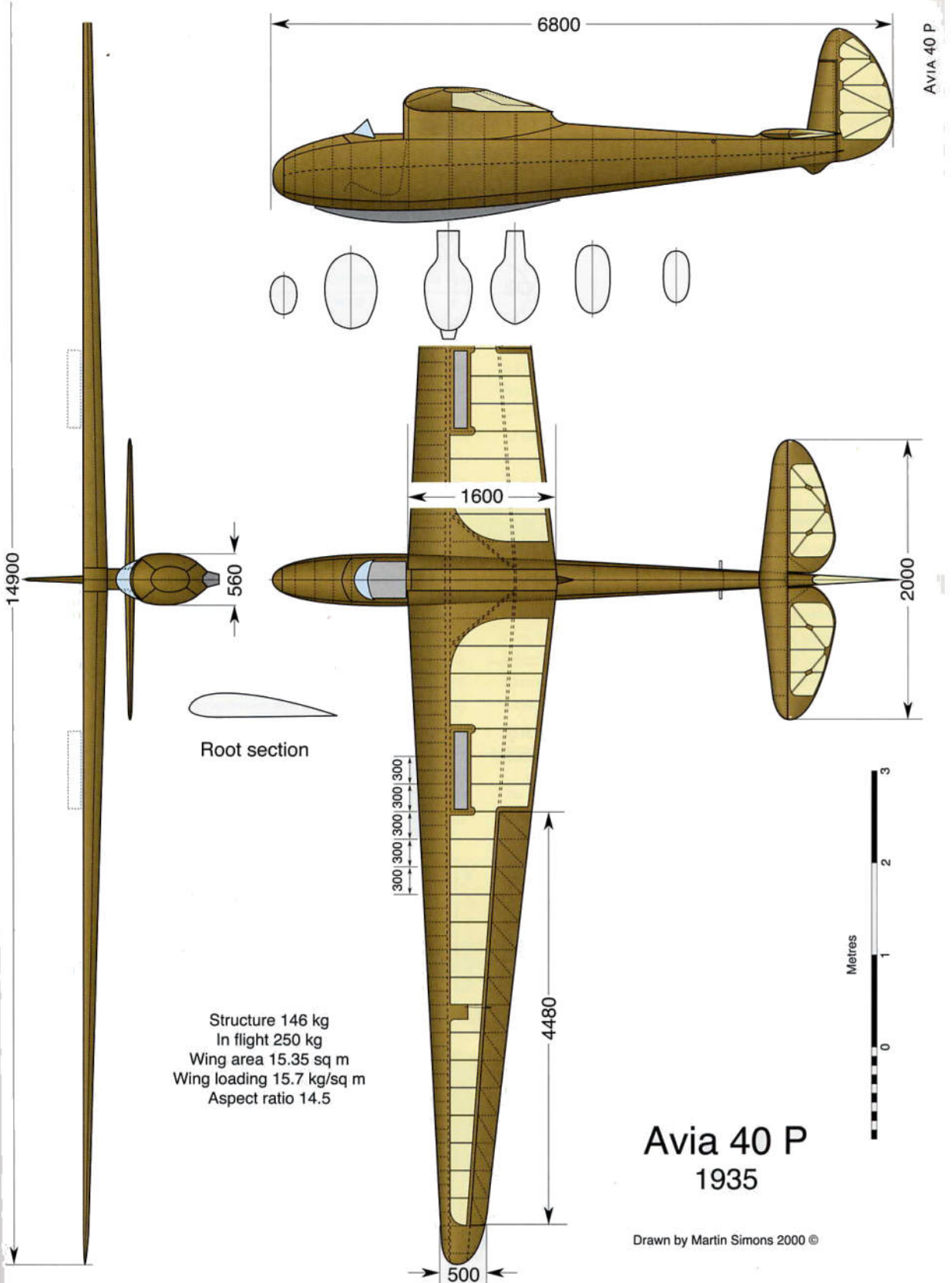
The central pylon wing mounting was lower and the pilot's seat much closer to the wing than on the Wien. The rear fuselage was less slender. There was a small fixed tailplane with hinged elevator and generous aerodynamic balances ahead of the hinge line. The cockpit was open and without a windscreen.

The prototype made its first flight late in 1932 and after further tests in the new year, was taken on tour, making demonstration flights throughout France. It was flown at first only by Georges Bouvier. Eric Nessler took over after a while and made numerous duration and distance flights, becoming the first French pilot to achieve the 'Silver C' badge.

Avia 41P
1933

Structure 165 kg
In flight 245 kg
Wing area 18.15 sq m
Wing loading 13.5 kg/sq m
Aspect ratio 19.4




6800
AVIA 40 P
14900
560
1600
2000
Root section
300
300
300
300
300
4480
500
Metres
0
1
2
3
Structure 146 kg
In flight 250 kg
Wing area 15.35 sq m
Wing loading 15.7 kg/sq m
Aspect ratio 14.5
Avia 40 P
1935
Drawn by Martin Simons 2000 ©

A second example of the Avia 41P was completed in 1935. The ailerons were now skinned with plywood and only one central operating horn of ordinary size was necessary. There were other minor changes, especially to the cockpit canopy which after several modifications was at last fully enclosed. Nessler became the chief pilot at the Banne d'Ordanche gliding school. He made this sailplane virtually his own and it became known as L'Aigle de la Banne (The Eagle of la Banne). In it Nessler set most of the French National records, achieving 382.4 km distance in 1938. He represented France at the Salzburg International meeting in 1937 and at Berne in 1938.

Although considered too complex and expensive for large scale production, several more of the Avia 41P were built during the years 1935 to 1939, mostly for the Army gliding section. The precise number is not sure but the most likely figure is five, making a total of seven. Minor modifications were incorporated. Some had a small amount of dihedral, including the third built which was rescued from store in 1950, restored and preserved as a museum exhibit. Nessler's 'Eagle' was taken to Germany by the occupying forces in 1942 and, presumably, destroyed. (A photograph of the Avia 41P apperas on page 132 with the Mü 10)

Avia 40P

The Avia 40P, despite its number, first flew several years later than the 41P, in 1935. It was recognised that the larger sailplane was too advanced and costly for the ordinary gliding clubs in France, so the 40P was produced, smaller, less expensive and more within the capacity of inexperienced pilots. It was an orthodox, simple design which proved successful and became the most popular sailplane in France for a decade. The type was used for cross country flying and height gains. National records not taken by the larger Avia 41P usually fell to the 40P, including the feminine distance record of 139.24 km by Marcelle Choisnet in June 1944 and the duration record of 16 hours 44 mins by Suzanne Melk in October 1946. The total built is not certain but exceeded forty. Production continued in France during the Second World War and at least ten were also built and flown in Algeria. Fourteen were taken to Germany during the occupation. One survives in airworthy, restored condition, at St Auban sur Garonne.

SO - P 1

In 1941, despite German occupation of most of France, a group of engineers at the SNCASO aircraft works, without other work, decided to design and build a high performance sailplane using light alloys. The SO - P1 made its first flights in June 1941. Full advantage was taken of the material to produce a strong but light 'gull' wing of only 10% thickness. It had a built up metal box spar with torsion resisting, metal sheet covered leading edge and light ribs behind. The ailerons, carried on a light auxiliary spar, were slotted and mass balanced. Air brakes were fitted. The fuselage was intended to conform to the airflow around the wings, so had a cambered shape in side elevation. The tailplane was mounted low on the rear fuselage but had slight dihedral to avoid touching the ground when the sailplane was at rest with one wing down.

When the whole of France was taken over by the German occupation forces, the sailplane was hidden, to re-emerge after the war when it was re-covered and flown again. When the US National Championships were held in Texas in 1947, it was taken there and among other good flights, set a new French National record distance of 354 km. It was returned to France and stored, apparently never to be flown again.

The French SOP 1, one of the first successful all metal sailplanes, visited USA in 1947 to fly in the National Championships.