L.V.G. CII

Over recent years, much of the interest in WWI aviation has been focussed on the activities of the German fighter squadrons. Certain pilots have been glamorised and indifferent aircraft, such as the Fokker Triplane, given a rank of importance out of all proportion to their relative contribution to air operations.

Comparatively little is known or been written about the actual operations and scope fo the Schutzstaffeln (protection flights), later redesignated Schlachtstaffeln (battle flights) (Schlastas).

Both the Halberstadt CLII and the Hannover CLII were designed in 1917 to meet the class CL specification for a light two seater, intended to protect the 'C' class when carrying out the photo-reconnaissance operations.

After a period of evaluation in experimental low-flying ground support operations the role of Schlastas was changed to low-level support of the 1918 spring ground offensive operations.

The Schlastas were loosely grouped to respond flexibly to whatever activity was happening on the front. Each of the eventual thirty-eight Schlastas consisted of six aircraft, as this was considered to be the optimum to operate together in a single wave (four was considered the effective minimum).

At the outbreak of war, most of the established German aircraft manufacturers were producing their own, fundamentally similar, 'B' type two-seater biplanes powered by 100-120 HP engines. These were initially adequate for general observation purposes provided that they were not required to defend themselves.

When this became a necessity various attempts were made to mount guns on strengthened 'B' type airframes. The Luft-Verkehrs Gesellschaft mbH of Johannisthal (LVG) had an innovative Swiss designer - Franz Schneider - who had worked for Nieuport in France. He patented the first concepts of an interrupter gear to enable a fixed machine gun to fire forward through a rotating propeller. He also designed a rotating wooden gun ring for the observer, to be mounted behind the pilot. This ring was used on most 'C' type aircraft.

The early LVG CI was modernised to become the LVG CII. This was a relatively large aircraft with a fuselage wide enough to house internal cylindrical bomb canisters between the pilot and gunner and on either side of the engine.

Structurally, the airframe was conventional with a wire-braced wooden-framed box fuselage with ply covering back to the rear cockpit. Typically LVG, the top longerons sloped sharply downwards to improve forward visibility, but the 160 hp Mercedes engine was semi-exposed as a result with a partial metal cowling.

The wings were of conventional wooden construction with fabric covering. The ailerons had the characteristics of earlier LVG aircraft. The trailing edge was split and connected by a gusset, each section sloping down. Contemporary aircraft had ailerons twisted up. All the struts were of streamlined steel tube, replacing round

tubes and wooden fairings.

Eventually an external horizontal bomb rack was developed and the vertically hung bombs in the canisters disused. On some aircraft they were replaced by transparent panels to enable the gunner to look downwards.

Although the LVG CII was also built by Otto and Ago and used widely into 1916, it was soon replaced by the Albatros CIII and other more efficient designs and relegated to the eastern front.

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If this is your first kit produced by Skybirds '86, a few words of introduction may be in order. As with other cottage industry kit manufacturers, the parts are produced using rudimentary tools on uneconomic equipment with total sales of less than 1% of a typical major manufacturers kit.

This kit is intended for experienced adult model builders and is **not suitable for children. The white-metal castings may contain some lead.**

Introduced with this kit are lengths of "Strutz" streamlined section brass wire. This is produced exclusively by Skybirds '86. It is also available in a range of colour-coded sizes.

The wheels have rubber tyres which are produced exclusively by Skybirds '86 in an elastomer which has excellent resistance to ozone, daylight and being permanently stretched.

Unfortunately, despite the accuracy of the master models, it is the fit of the production parts which counts. You are recommended to follow the guidance notes as there are both new materials and methods in this kit as well as innovative ideas with which the experienced model builder may not be familiar.

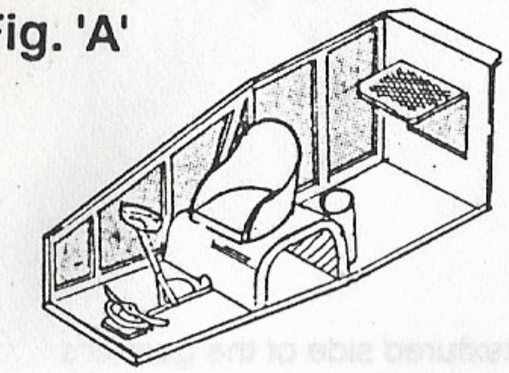
GUIDANCE NOTES ON HOW TO AND HOW NOT TO ASSEMBLE THIS KIT

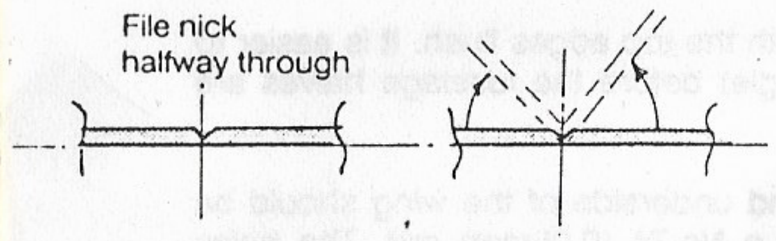
General Notes

Plastic parts should be assembled with liquid M.E.K. All other parts should use cyanoacrylate - preferably Locktite Superglue No 3.

Unless stated otherwise the etched-brass parts are folded towards the bend-line groove.

Fig. 'A'





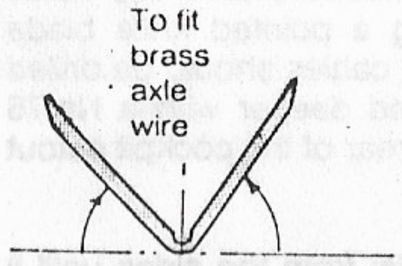


Fig. 'B'

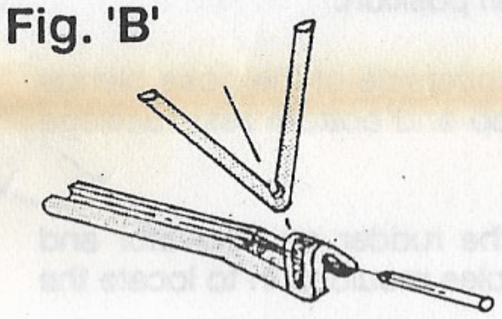
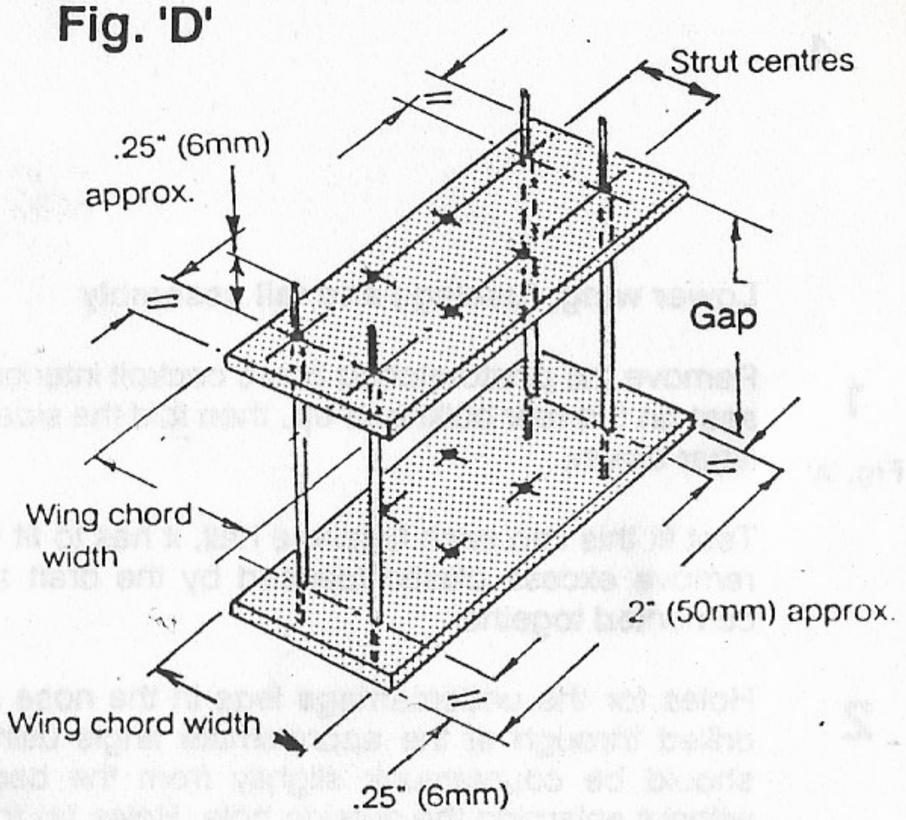


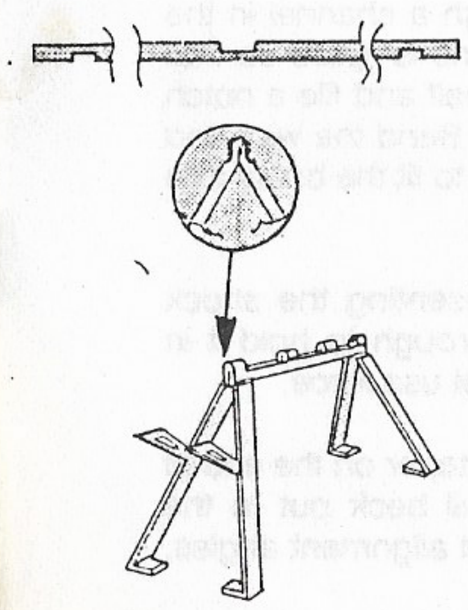
Fig. 'D'

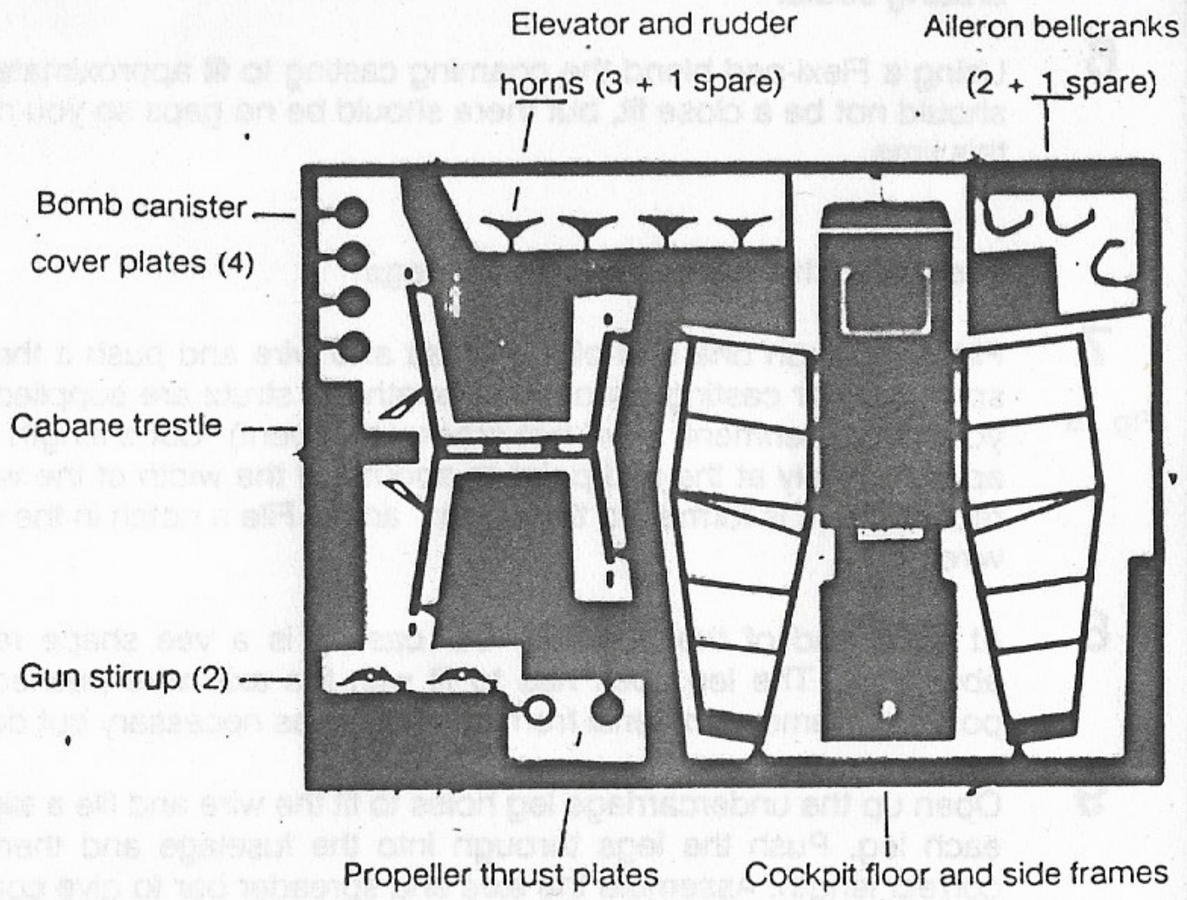


THE FOLLOWING CASTINGS ARE INCLUDED IN THIS KIT (17)

- Coaming
- Propeller
- Engine
- Exhaust
- Radiator
- Gravity tank
- Wheels (2)
- Spreader bar
- Tail skid
- Seat and tank
- Control column
- Rudder bar
- Gun ring
- Spandau gun
- Parabellum gun
- Gun stirrup mount

Fig. 'C'





Lower wing, fuselage and tail assembly

1 Remove the photo-etched brass cockpit interior, fold the textured side of the gunner's seat on the rear bulkhead **up**, then fold the sides and bulkhead **up** and a piece on the latter **down**.

Fig. 'A'

Test fit this into each fuselage half, it has to fit with the top edges flush. It is easier to remove excess plastic (caused by the draft angle) before the fuselage halves are cemented together.

2 Holes for the undercarriage legs in the nose and underside of the wing should be drilled through at the approximate angle using a No.74 (0.06mm) drill. The holes should be countersunk slightly from the back by rotating a pointed knife blade without enlarging the outside hole. Holes (4) for the elevator cables should be drilled through and holes (4) for the tailplane bracing struts drilled deeper with a No.76 (0.05mm) drill. The fuselage halves should be aligned at the rear of the cockpit cutout and the tail portion cemented together followed by the nose.

3 Test fit the etched cockpit interior, removing excess material from the sides until it slides into flush position easily. Test fit the lower wing and remove excess material on the top centre section to clear the cockpit floor. Cement in position.

4 Clean up all joints (a medium Flexi-pad is useful). The underside of the nose blends from a contour to a flat surface at the leading edge. Top and bottom rear fuselage surfaces should be flat with sharp corners.

5 Clear the slots for the etched brass control horns in the rudder and elevator and cement in position. The underside of the tailplane has holes moulded in to locate the bracing struts.

6 Using a Flexi-pad blend the coaming casting to fit approximately with the fuselage. It should not be a close fit, but there should be no gaps so you may wish to use filler at this time.

Pre-fitting the undercarriage vee legs

7 File a taper on one end of the brass axle wire and push it through a channel in the spreader bar casting. Two short lengths of strutz are supplied (one is spare so that you can experiment. It will not crack when bent). Cut a length in half and file a notch approximately at the mid-point to about half the width of the wire. Bend the wire and repeat until it is formed to the corre angle. File a notch in the vee to fit the brass axle wire.

Fig. 'B'

8 At each end of the spreader bar casting is a vee shape representing the shock absorbers. The leg apex has to fit with the axle wire pushed through to hold it in position. Remove material from the vee leg as necessary but do not use force.

9 Open up the undercarriage leg holes to fit the wire and file a slight taper on the end of each leg. Push the legs through into the fuselage and then pull back out to the correct length. Assemble the axle and spreader bar to give correct alignment angles.

Cut the axle wire to length.

10 Remove the casting gate from the back face of the wheels. If necessary open up the axle hole with a No.61, 1/32" or 0.85mm drill.

Remove the undercarriage parts and set aside for re-assembly later.

Cockpit and engine assembly

11 There is a small indentation on the engine front cylinder which locates the copper water pipe. Deepen this with a No.76 (0.50mm) drill. Bond the exhaust to the engine and mount this and the Spandau gun on the coaming.

12 Bond a projection on the rear bottom of the fuel tank into a slot in the cockpit floor and the rudder bar into its hole. There is a notch in the base of the latter to position
Fig. 'A' the joystick which slopes forward with the oval handle aft of the column. The cylinders aft of the tank are canisters in which bombs were suspended vertically (two additional canisters were located on either side of the engine forward of the axle. These were disused when horizontal external bomb racks were developed. Four photo-etched discs are included to represent the cover plates).

Cabane trestle assembly

13 File an aerofoil section on the four struts of the trestle. Fold **away** from the etched
Fig. 'C' centre-line groove and squeeze with a pair of pliers to give a sharp 180° bend. Spread the vee struts and super glue along the centre line. Tabs on the strut ends should be folded inwards. These locate in notches under the coaming casting. Test fit and file deeper slots to suit the vee angle and slope of the cabane struts. Do not enlarge the tab locating notches.

There is no information on cockpit instruments which were attached at various locations as there was no instrument panel. Bond the coaming to the fuselage.

If you intend to use traditional methods to assemble the interplane struts and top wing, the cabane trestle can be bonded in position. There are small locating holes on the wings for interplace strut location.

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14 To use strutz wire to full advantage, we recommend an alternative method of top
Fig. 'D' wing assembly. Extra wire is provided so that an experimental test "wing" can be made from two scrap pieces of plasticard about 2" (50mm) long and of similar width to the wing chord.

Strut hole positions are moulded into the wings. Drill through No.76 (0.50mm) dia. Hold the test wing against the wing and drill through about 0.25" (6mm) from the end to give the same chordwise spacing.

Cut the strutz wire about 0.50" (12mm) too long. File each end equally so that the

width of excess length is reduced to the thickness of the wire. Taper the extreme end of the wire, push it through a hole in the test wing, and pull it into position with a pair of pliers. You have pulled a square strut into a round hole. Repeat this will all holes. Remove each wire in turn and pull through the matching hole in the other test wing, then reassemble both wings.

You can now adjust the gap. Stagger and dihedral angle. Struts from the test wing can, in turn, be transferred to the model wing and the process repeated, or, as excess wire is provided, a new set of struts made. Provided that the square strut end is not a loose fit in its hole the wing can be taken apart for painting etc. and re-assembled with the friction fit making the use of superglue unnecessary.

It is important that the strut ends are matched to their individual holes. Retain them on a piece of masking tape with the location and which end identified.

This technique can be applied to all interplane struts, or just the outer ones. The inner struts can be cut to length and sprung into position.

With this method the wings are assembled and aligned by the interplane struts and the centre section added afterwards rather than the reverse method traditionally used. It may be easier to fit each vee of the cabane separately rather than as a complete assembly.

Projecting wires can be cut almost flush with a pair of electronics wire cutters (not the DIY store type) and filed smooth. In many aircraft the strut attachment fittings projected beyond the wing surface.

Final details

15 Twist the radiator support brackets into a vertical position.

16 Copper wire is provided for water pipes from the engine to the radiator. The top pipe runs to a hole previously drilled in the front of the engine. The lower pipe goes to the lower rear of the engine.

17 The gravity tank fits into holes on the top centre line of the wing. Shorten the mounting legs. It was sometimes mounted beneath either wing.

18 Aileron bell cranks and elevator and rudder control horns are photo-etched brass parts (there is a spare of each).

19 The propeller has etched brass front and rear mounting plates.

20 The tailskid is a casting and the tailplane bracing struts are made from silver strutz wire.

21 The gun ring can be mounted in any position, but the gun was usually stowed with the butt to the R.H. side of the ring. A small casting and two brass parts are supplied as alternatives for the gun mounting stirrup.

22 Four brass discs are for cover plates over the bomb canisters.

A tall, almost vertical windscreen was fitted on some aircraft. The compass is moulded into the underside of the top wing.

Rigging

If you have used the recommended assembly method with strutz wire the model can be disassembled and wire or monofilament threaded through the strut holes. After re-assembly, the bracing can be pulled taut and cut off flush. No glue should be necessary. This method depends on the relative fit of the strut end and hole and should be tried out experimentally on your test wing.

Colour Scheme

Photographs of the LVG CII indicate a translucent fabric covering and an overall uniform light colour. This was probably a pale white, slightly tinted with blue. Struts, metal fittings and possibly the cowling were light grey.

There is a walkway on both wing roots.

Reference Sources

This model is based on highly detailed drawings and a report published in *L'Aerophile* Nov. 1916. This was translated with simplified drawings in *Cross and Cockade* (UK) Vol.14 No.1 1983.

Some similar information was published in 1916-17 issues of *Flight*, *Aeroplane* and *Janes*.

German Aircraft of the First World War. P.L. Gray. (Putnam)

M.F. EACOCK
October 1993

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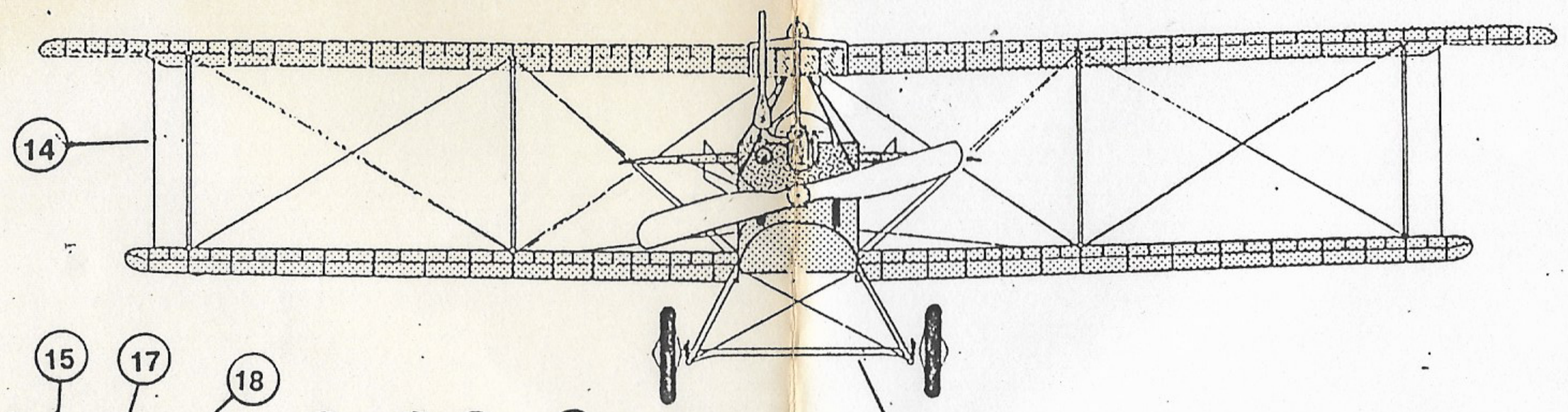
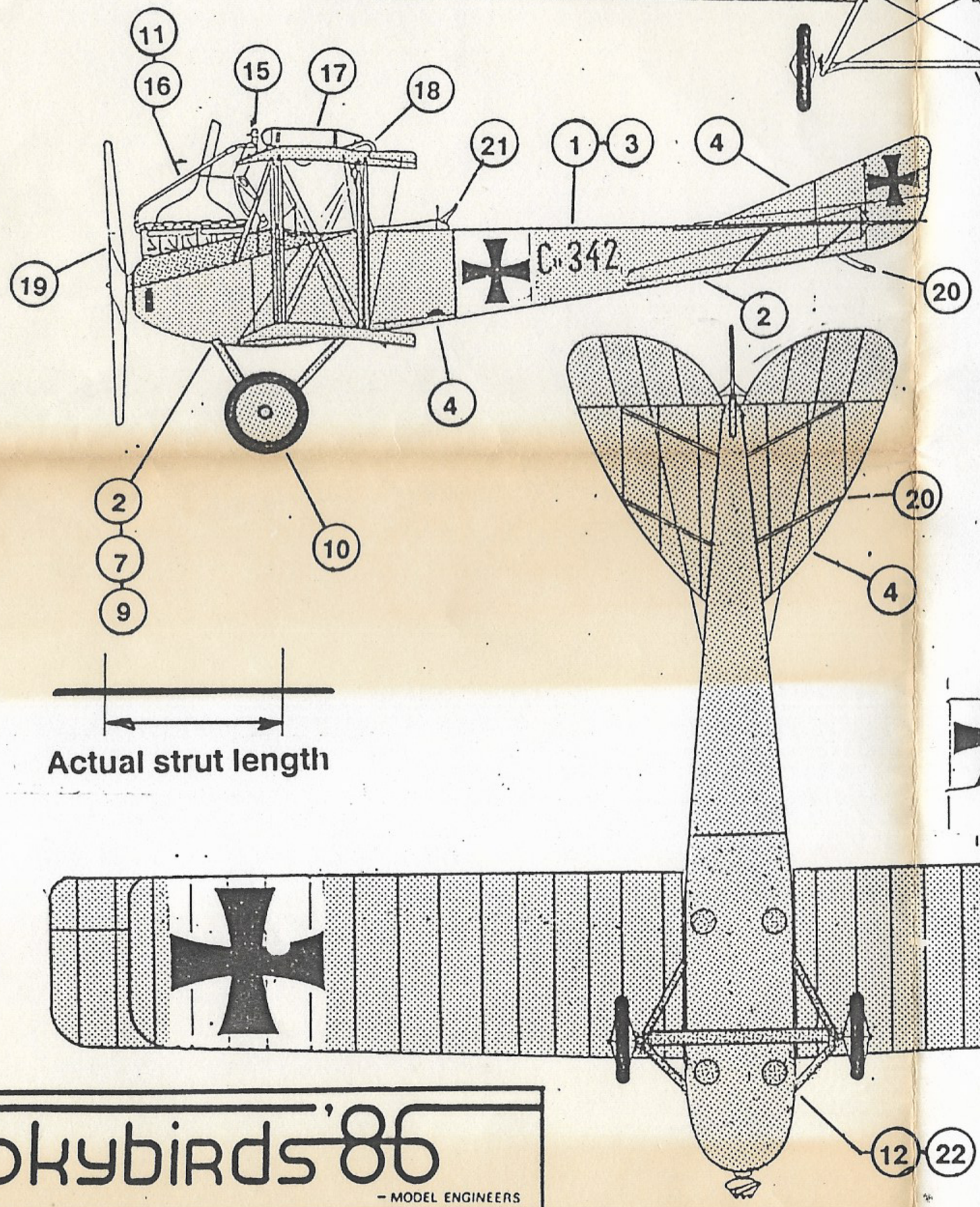
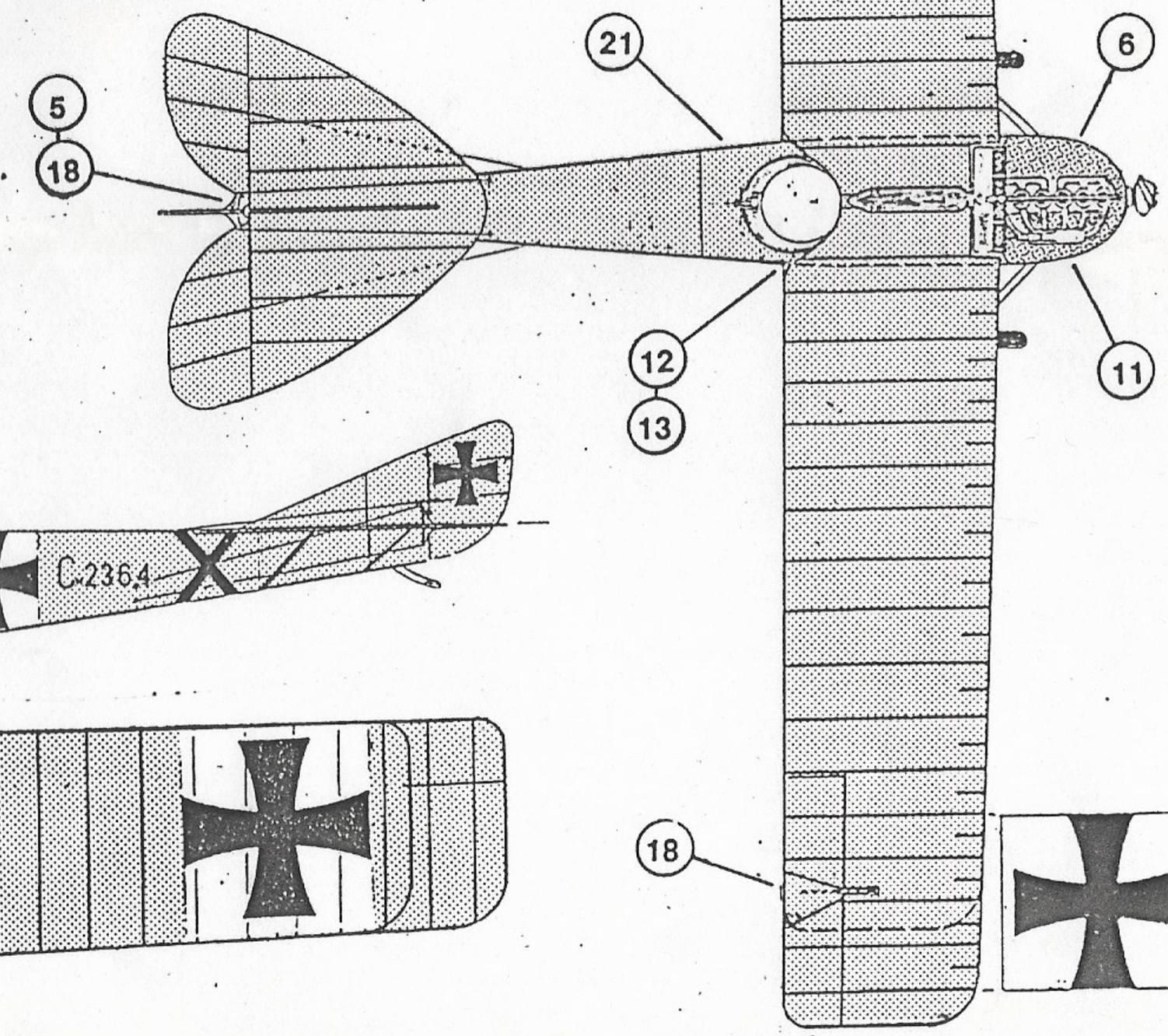
L.V.G. C11





Actual strut length



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L.V.G. C11