



## Aircraft history

The Fokker S.IIa ambulance plane was a modification of the S.II trainer. The S.II, accommodating instructor and student side-by-side, had been designed in 1922 as successor of the Spyker V.2 trainer and 15 aircraft were bought by the LVA. They served until 1930 and one of them was modified in an ambulance plane, mainly because the limited available budget. The S.II was quite suitable for this purpose due to its wide fuselage.

The modifications were the replacement of the 110 hp Oberursel motor by an Armstrong Siddeley Lynx of 220 hp, and the construction of a cabin by means of perspex panels in wooden frames between the fuselage top side and the underside of the upper wing. The cabin sloped downwards towards the aft fuselage and the rear part could be removed, such that a stretcher could be inserted towards the front. The pilot was seated at the left side, while next to him the nurse was sitting with his back in the flight direction. The access door was at the starboard side of the cabin. The comma rudder was replaced by a bit larger, more rectangular one.



The first flight took place in February 1932. The longitudinal stability and controllability appeared to be insufficient, hence small fin was placed. Later the rudder and fin were again replaced by a larger, better shaped vertical tail plane. Also the original wheels were replaced by wheels with balloon tires and a new, shorter exhaust was fitted.

Only one copy of the Fokker S.IIa has been built and it continued to carry the registration of the original trainer, S.II L.94, where the L stood for Lynx. The aircraft has been used frequently, especially to transport patients to and from the isolated Dutch islands, when speed was essential or the weather prevented transport by ship. In 1939 and 1940 the S.IIa has flown with orange triangles. The aircraft fell in the hands of the German occupation powers in May 1940 and its final fate is unknown.

## Aircraft characteristics

Span:	11.22 m
Length:	7.20 m
Height:	2.80 m
Empty weight:	818 kg
Take-off weight:	1202 kg
Engine:	Armstrong Siddeley Lynx, 220 hp
Accommodation:	Pilot, nurse and patient

## References

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- T. Wesselink & T. Postma, *De Nederlandse Vliegtuigen, Alle vliegtuigen ooit in Nederland ontworpen en gebouwd*, Unieboek B.V., Bussum, 1982

# Building instructions 1/72 scale Fokker S.IIa ambulance plane



NVM drawing 50.10.008

Website <http://alternathistory.com/sanitarnyj-samolet-fokker-s-ii-a-niderlandy/> (Russisch)

Additional material and information has been received from Edwin Hoogschagen, Hans Berfelo and the Aviodrome Museum.

## Kit contents

- 1 clear resin part.
- 52 resin parts.
- 35 mm of 0.75 mm brass rod for wing attachment.
- 50 mm of 0.7 mm styrene rod for the tail plane support struts and to complete the fuselage frames.
- 90 mm of 1.0 mm styrene rod for the undercarriage and wing struts.
- 40 mm of 0.5 mm styrene rod for the aileron push-pull rod and to complete the wing N- and V-struts.
- 10 mm of 0.75 x 1.5 mm styrene strip to fit the door.
- A piece of transparent plastic to construct the cabin windows.
- A piece of 0.4 mm styrene for control horn production.
- Paint masks for cabin windows.
- Template to cut cabin windows from the clear plastic sheet.
- Decal sheets with registration numbers, orange triangles, red-white-blue-orange roundels and two versions of red crosses.
- Three-view drawing.

## S.II a versions

The kit allows building five different versions of the Fokker S.IIa:

- Version A: Small rudder, normal S.II trainer wheels, long exhaust, LVA roundels and red crosses.
- Version B: Small rudder and fin, normal S.II trainer wheels, long exhaust, LVA roundels and red crosses.
- Version C: Large rudder and fin, normal S.II trainer wheels, short exhaust, LVA roundels and red crosses
- Version D: Large rudder and fin, wheels with balloon tires, short exhaust, LVA roundels and red crosses
- Version E: Large rudder and fin, wheels with balloon tires, short exhaust, orange triangles and red crosses in a white circle.

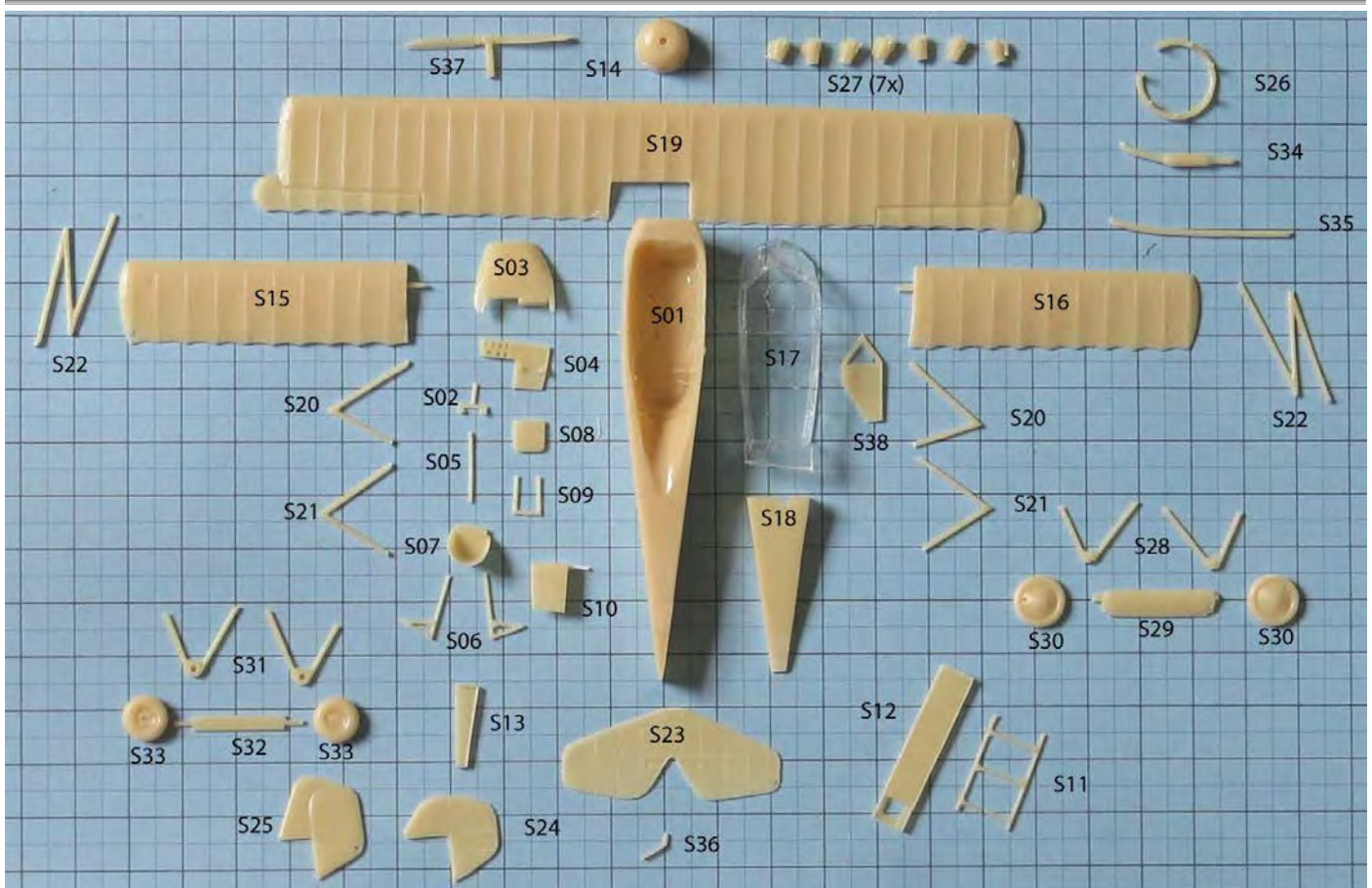


## Building instructions

*Painting of parts and (sub) assemblies should be done at convenient points in the building process.*

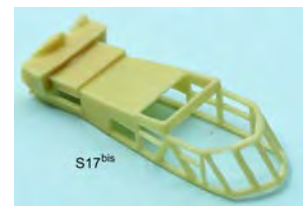
*Note that most pictures illustrating the instructions below have been made during the assembly of the prototype for the kit, so small differences in assembly order and configuration may be present. Also, the model has been painted with a brush; if an airbrush is used, the painting and assembly order will probably be slightly different. And of course these guidelines reflect my building routine.*

*The parts of this first kit show more air bubbles than later production kits; the moulds have been corrected to avoid them.*



You have the choice to build the cabin upper part from the clear resin part (S17), which has to be handled with extreme care, or from the part (S17<sup>bis</sup>, shown at the right), where you have to cut the windows yourself from the sheet of clear plastic included in the kit and to mount them in the window frames.

A copy of these building instructions can be downloaded from [www.hollandaircraft.nl/resin\\_kits.html](http://www.hollandaircraft.nl/resin_kits.html)

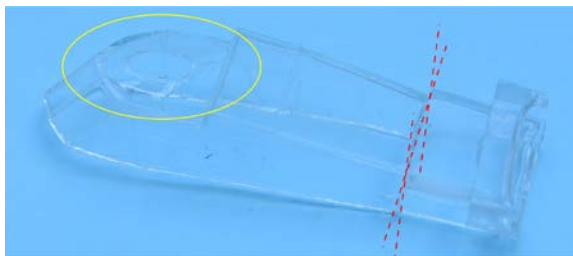




**WARNING**

Handle the clear resin part (S17) with care. Use plastic gloves to prevent finger prints. Do not use organic solvents to clean the part; use only water with a bit of detergent. Use paints and putty on water basis.

To separate the glass part from the sprue, pass a sharp knife a number of times over the reparation line(s) drawn in red in the figure on the top and side surfaces of the part and the sprue, alternating with sawing along those lines with a razor saw. When the cut of the top surface becomes visible at the inside, you can use a pair of nippers to separate carefully the sides. The top surface should then separate easily. The edges may be sanded carefully. Remove the flash in the top opening, indicated with the yellow ellipse, with a small fine pointed knife.



The kit allows building the model with an open door and includes a door (S38) for that purpose. However this requires removal of the triangular window at the starboard side of the transparent cabin top. This is a difficult operation, which risks damaging the clear part, both deforming it and getting soiled by saw dust. Only very experienced builders should attempt to build the model with an open door.

1. Remove the resin parts from sprues; this can best be done with a razor saw. Cut the parts (S22) as long as possible, otherwise they risk being too short. Clean the flash. Clean all parts with water and detergent to remove traces of casting agents. Make your choice for the version you want to build and select the corresponding components. Put the components not needed aside. Remove the ceiling from the forward part of the cabin top (S17) with a sharp knife, if it is still present. Remove 0.5 mm from the width of the seat of the nurse (S08) to avoid interference of the deployed seat with the pilot's seat.

2. If you decide to mount the control surfaces in a deflected position, remove the rudder from fin, the elevator halves from the horizontal tail plane and the ailerons from the upper wing. Mark their original location on the parts. Use the small rudder for version A, the small rudder and fin for version B and the larger rudder and fin for version C, D and E.



3. Decide if you want the cabin door mounted in open or closed position. If you choose the open position, remove the door from the fuselage (S01) and cut the triangular window from the cabin top (S17). If you choose to leave the door closed, continue with step 5.



**Note that this option risks damaging the clear resin part beyond recovery.**

4. Construct a new door from part (S38). Probably you will have to adjust the size to the opening in the fuselage with a piece of 0.7 x 1.5 mm strip. Cut the triangular window trial and error from the piece of transparent plastic. Check the fit with the cabin top part and the door opening in the fuselage.



5. Complete the fuselage tube framework with bits of 0.7 mm styrene rod, glued horizontally between the casted profiles in fuselage (S01).



6. Glue the pilot seat (S07) to the two supports (S06), keeping the distance between the supports equal to 3 mm. Adjust the length of the tubes protruding over the back equal to the top of the back of the seat.

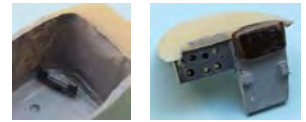


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*Paint the cabin interior (S01 and S03) and the parts (S02) and (S04) through (S10)*

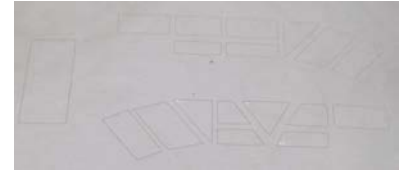
7. Adjust the stub of the rudder bar (S02) to the required length and glue it in the fuselage (S01) on the most forward superficial hole in the cabin floor.
8. Glue the instrument panel (S04) under the upper deck (S03).
9. Position the fuselage forward upper deck (S03) carefully and glue it in place. Glue the nose (S14) to the fuselage. Align it well with one of the cylinder mounting holes vertical at the top side. When dry, sand the nose and fuselage well to obtain a smooth transition between nose and fuselage. Take care the final result is symmetrical.
10. Glue the horizontal tail plane (S23) to the fuselage. Make sure it is well aligned with the fuselage.
11. Apply seat belts to the seat, if desired. Glue the supports of the pilot seat in the two aft superficial holes in the cabin floor.
12. Cut the thin end of the control stick (S05) to required length and glue it in the middle superficial hole in the cabin floor.
13. Decide whether you want to build the model with the seat of the nurse (S08) in folded or in lowered position. Glue it in position.
14. Adjust the legs of the nurse's seat (S09) to the correct length. Glue them in place.
15. Glue a piece of 0.25 mm to the back of the medical cabinet (S10) and cut off the excess. Paint the cabinet. Dry fit the medical cabinet against the stubs on the fuselage inner wall and floor. Glue the cabinet in place. Cut a piece of 0.65 mm rod to the right size and glue it between the aft top side of the cabinet and the frame casted at the port side of the fuselage.
16. Cut two identical sloped stretcher support frame from part (S.11). The support should be 3 mm high at the forward end, decreasing to zero at the other end. Dry fit the stretcher in the fuselage under the aft top (removable) part of the cabin (S18) pointing to the left; move it as far as possible to the rear. Mark the position of the fuselage tubes on the stretcher. Glue the two supports under the stretcher (S12) with the stubs at the marked locations.
17. Dry fit the assembly again under the forward (S17) and rear (S18) cabin part, front end equal to the rear door post. Attach the rear cabin part provisionally with tape. Check whether the door (opening) in the fuselage and the triangular window line up. Check whether the stretcher does not touch the ceiling. Adjust if necessary. Remove the rear cabin part. Glue the stretcher supports to the fuselage frame tubes.
18. Glue the luggage shelf (S13) on the tubes at the port side of the fuselage. The short end should be equal to the aft end of the forward cabin part.
19. Glue the vertical tail plane (S24) or (S25) pending your selection of the version to be built on the horizontal tail plane.
20. Remove the stubs from the lower wings (S15) and (S16). Drill 0.75 mm holes at their location, as well as in the superficial holes marked at the lower edge of the fuselage. Glue 0.75 brass pins in the wings and glue the wings to the fuselage; do this over the three-dimensional drawing, protected by some sellotape over the gluing area. Alterna-





tively you may leave the stubs on the wing, measure the diameter of the stubs and drill the hole in the fuselage slightly larger.

21. You have to decide whether you want to use the clear resin cabin top (S17) or the alternative part (S17<sup>bis</sup>). In case you use (S17<sup>bis</sup>) paint the inner surfaces and mount it to the fuselage part (S01). Paint the outside afterwards together with part (S01) and part (S18).
22. If you use the clear resin part (S17), paint parts (S17) and (S18). Paint masks are provided for the glass part (S17). Apply the masks in the order as shown on the paint mask sheet; align them well. As the paint is difficult to remove from the part (S17), apply first a coat of gloss varnish, then two coats of light grey, a coat of mahogany brown and finish with a coat of clear satin varnish. Apply a layer of light grey paint to the aft top part and finish it and the two side parts with aluminium.
23. Apply the two decals (8) with three ventilation holes and the red cross decal (10) or (12) to part (S17). Seal them with a layer of satin varnish. Now it is still easy to do so; after assembly of the upper wing it is rather difficult. If you are
24. Decide whether you want to keep the aft fuselage top (S18) detachable. Pending your choice glue (S18) to the fuselage or attach it temporarily with tape, keeping the rear end against the forward side of the horizontal tail plane. Dry fit in any case the aft fuselage top and the cabin top (S17), and check also the joint between the glass part and the aft part. Correct if necessary. If you are building version E of the model, apply also the part of the white circle to (S17), but do this carefully aligning it with the remainder of the decal to be applied on the fuselage (S01) and (S18).
25. If you have used the clear resin cabin top (S17), attach it to the fuselage with a glue compatible with the transparent resin (white wood glue or equivalent). If you have used the cabin top (S17<sup>bis</sup>), cut the windows slightly oversized according to the template from the clear plastic sheet and fit them trial and error in the window frames and fix them with Microscale Kristal Klear or equivalent.



*Now is a good moment to paint the fuselage-wing-tail assembly and the upper wing. Paint the part of the upper wing that serves as ceiling of the cabin and the part of the fuselage behind the windscreen light grey. Paint also the wing and undercarriage struts, the exhaust ring and the exhaust selected and the engine cylinders. To paint the cylinders it is helpful to glue them to a piece of styrene strip or rod. These can be removed after painting.*



26. Glue the upper wing (S19) to the cabin top with white glue or equivalent. Make sure it is horizontal and align it well with the lower wing. Adjust the height of each wing tip above a flat surface. The white glue may accommodate a couple of tenths of a millimetre.
27. Dry fit the canopy V-styles (S20) and (S21) between the upper wing and the superficial holes in the fuselage. Start with the aft V-strut (S21) on the starboard side, which is the one with about equally long legs. Dry fit it and cut it trial-and error to the right length. Glue it place.
28. Repeat the procedure with the forward V-strut (S21). The long leg should point towards the nose. Don't cut the long leg too short. Next glue both (S20) and (S21) at the port side.
29. Make a piece of 0.5 mm styrene rod to fit between the top of the two V-struts close to the lower surface of the upper wing and glue it in place on both sides.



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30. Cut 25 mm of 1.0 mm styrene rod and make it fit between the top of the forward V-strut and the superficial hole at the bottom of the fuselage. Glue it in place and repeat at the other side.
31. Dry fit a wing N-style (S22) between upper wing and lower wing. Cut it to the right length and glue it in place. Repeat the procedure at the other side.
32. Make a piece of 0.5 mm styrene rod to fit halfway between the middle and forward member of the N strut and glue it in place.
33. Dry fit the exhaust ring (S26) and the seven engine cylinders (S27), the valve rockers pointing forward, in their holes in the nose. Glue the top cylinder in its hole. Gluing is best done first with a bit of Microscale Kristal Klear or equivalent which allows still to move the cylinder until it is well positioned. Shorten the stubs on the exhaust ring until 2.3 mm from the forward side of the ring. Move the exhaust ring with the opening around the cylinder and leave it hanging loose on the nose.
34. Glue the remaining six cylinders (S27) in their respective holes in the nose, again with Kristal Klear or equivalent. Dry fit the stubs of the exhaust ring to the cylinders each time you have placed a cylinder. Align the cylinders well in a plane and on the same height. When correctly positioned, fix the cylinders with a small drop of cyanoacrylate glue. Leave the exhaust ring loose on the nose.
35. Glue the exhaust ring (S26) to the cylinders. Seen from the front the ring runs from the top cylinder to the left and ends at first cylinder right from the top.
36. If you are building version D or E, jump to step 43.
37. If you are building version A, B or C drill a 0.3 mm hole for the rigging wire in the bottom of the fuselage next to the attachment point of the middle undercarriage leg and in the middle between the two forward undercarriage legs. Drill two 0.3 mm holes at the bottom of the short leg of each of the undercarriage V-struts (S28).
38. Glue the undercarriage V-struts (S28) in the superficial holes in the fuselage underside and to the streamlined axle assembly (S29). Align them well and check that the wing tips are on equal distance from the ground plane.
39. Cut the aft undercarriage strut to the correct length from 0.75 mm styrene rod and glue it in place.
40. Open up the 0.3 mm holes and apply the rigging wires to the undercarriage struts.
41. Glue the wheels (S30) to the axle stubs. Check again the distance of the wing tips to the ground plane. If necessary, sand a bit from the tires to correct a difference.
42. Glue the exhaust (S35) for versions A and B to the exhaust ring and the underside of the fuselage. Use a piece of strip to support the exhaust under the fuselage. If you are building version C, see step 46 for mounting the short exhaust. Jump to step 47.
43. If you are building version D or E make the holes for the axle in the undercarriage V struts (S31) slanted with a 1.2 mm drill bit, such that the V-struts can be fitted easily under the required angle. Pass the axle (S32) through the holes in the V-struts. Glue the V-struts in the aft two pairs of superficial holes with slow setting cyanoacrylate glue. Check whether the wing tips are on equal height when the model is resting on the undercarriage.





44. Cut the aft undercarriage strut to the correct length from 1 mm styrene rod and glue it in place.

45. Drill a 0.3 mm hole for the rigging wires in the fuselage bottom next to the top of each middle leg of the V-strut (S31) and a 0.3 mm hole next to the aft reinforcement bar of the axle on each side. Drill one 0.3 mm hole on the fuselage centreline in the fuselage bottom in the middle between the forward undercarriage struts. See for the location of the holes also step 36.



46. Apply the rigging wires to the undercarriage struts. Feed the wires first through the holes in the axle assembly.



47. Glue the exhaust (S34) for versions C, D and E to the exhaust ring and the underside of the fuselage.

48. Glue the wheels (S33) to the axle. Check again the distance of the wing tips to the ground plane. If necessary, sand a bit from the tires to correct a difference.



49. Glue the tail skid (S36) in the hole in the underside of the fuselage.

50. Apply the decals (for detailed instructions see below). If you build the model with deflected control surfaces, cut the roundels in a part that will be located on the wing and a part located on the aileron before applying them.



51. If you build the model with an open door, glue the door (S38) in place.

52. Cut the two support struts for the horizontal tail from 0.7 mm styrene rod and glue them in place.



53. Cut control horns (two for each aileron and each elevator half, four for the rudder) from the piece of 0.4 mm styrene sheet. Glue them in the superficial holes in the control surfaces and paint them. For versions A through D the control horns should only be applied after application and sealing of the roundels on the upper wing.



54. If you build the model with deflected control surfaces, glue these in the desired position.



55. Open up the slanted holes for the control cables in the upper wing and the aft fuselage. Apply the control cables, starting from the slanted holes.



56. Glue the propeller (S37) in the hole in the nose.

### **Rigging scheme and control cables**

*Note: Apply the elevator and rudder control cables after final painting of the tail surfaces and the fuselage and the aileron control cables after final painting and wing decals.*

- The only rigging wires to be applied are the crossing lines between the forward and middle undercarriage legs.
- The elevator and double rudder control cables are run from the slanted holes in the sides of the aft fuselage to the control horns.
- The aileron control cables run from the slanted holes behind the rear wing spar in the upper and lower side of the upper wing to the control horns on the ailerons.

### **Painting instructions and decal placement**

*With the painting instructions the following abbreviations are used: HE = Humbrol enamel, RA = Revell Aqua, RE = Revell enamel, VMA = Vallejo Model Air, VMC = Vallejo Model Colour, White Ensign Models=*



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WEM. The paints indicated are the ones I have used or matched; of course equivalent colours of other brands may be selected.

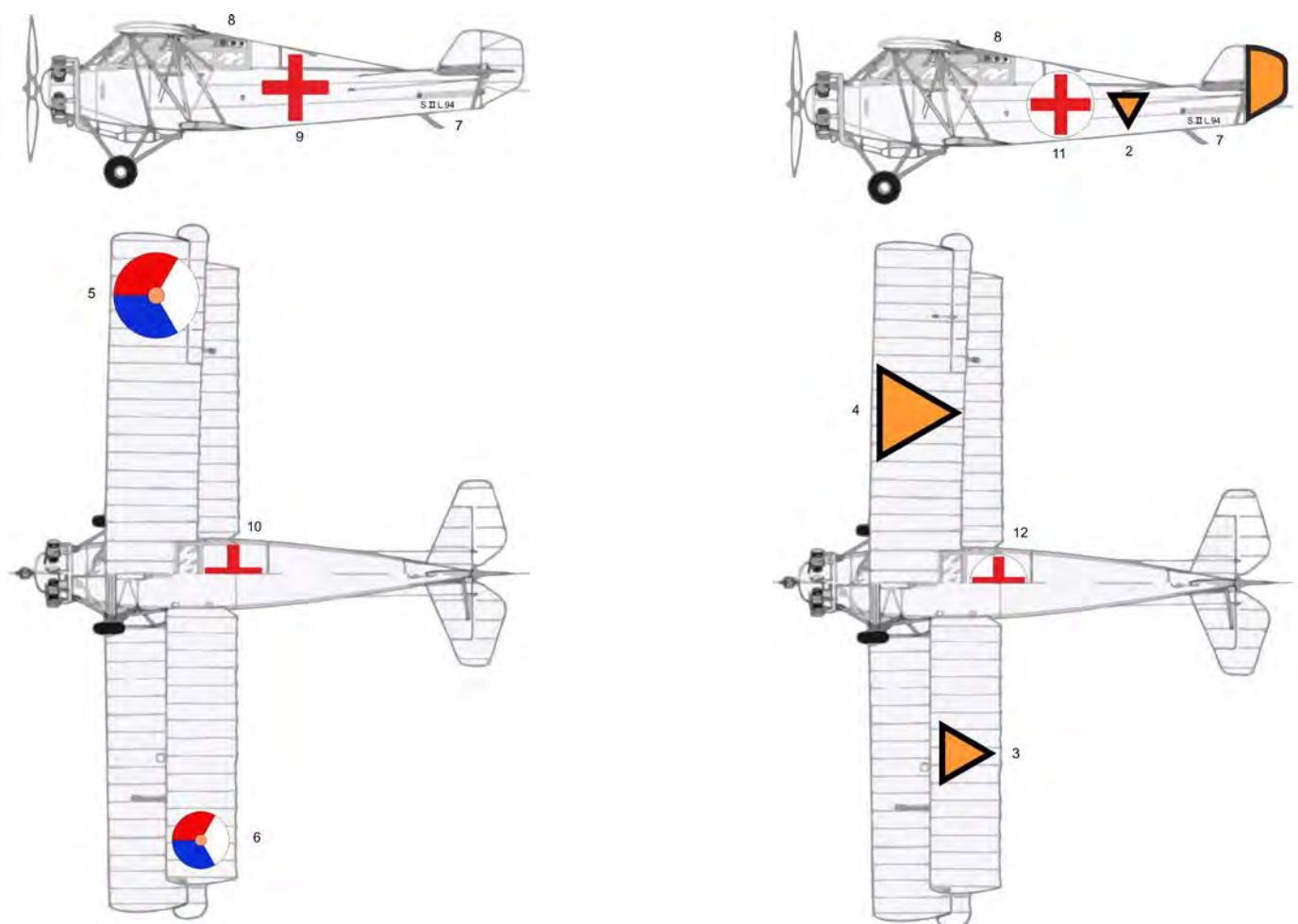
### Cockpit interior

Walls and floor: light grey (HE127). Cabin glass part: light grey (VMC 70.870). Control elements, seat back, frames: dark grey (HE 125). Seat cushions: brown leather (HE 62). Stretcher: natural wood (HE 110).

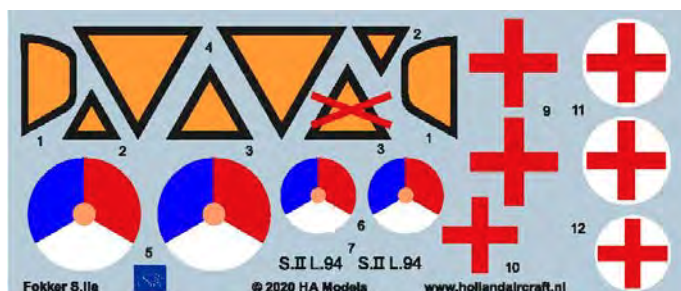
### Outer finish

Although some drawings are circulating showing the S.IIa painted LVA blue overall or grey, the pictures suggest that the aircraft was finished in aluminium dope (VMA 71.062). Engine cylinders: black (HE 22), dry brushed with gun metal (HE 53). Exhaust: black (HE 21). Wheel tires: tank grey (RE 36178). Window frames: grey undercoat (VMC 70.870), mahogany finish (VMC 70.846). The detachable part (S18) has a thin white edge (HE 22). Rudder: black (HE 21), version E only; red (HE 19), white (HE 22) and blue (HE 14), other versions.

### Decal placement



See the separate sheet with instructions how to handle the ALPS (8, 11,12), inkjet (7) and UV-laser ( the remainder) printed decals.



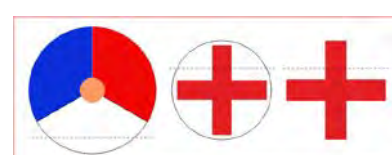
The registration (7) on the main decal sheet is a bit too large, so it is advised to use the smaller inkjet-printed decal, which is already provided with a protective layer.

The right hand decal (3) has not been printed correctly. Use the separately supplied mid-sized orange triangle instead.

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If you are building the model with deflected ailerons, it is advised to cut the roundels beforehand on the separation between wing main structure and aileron and to apply the pieces



separately. The same applies to the red crosses, if the aft fuselage top is kept detachable. A transparent plastic template has been provided indicating the cutting lines. If you build version E with the orange triangles, cut off the lower end of the black band of decal (1) at the rudder hinge line.

Note that the LVA roundels have to be applied partly over the ailerons and that the control horns and cables pass through the decals. The aileron control lines and the control horns should be applied only after the decals have been sealed. The red crosses are placed over the fuselage lower side, the detachable part and for version over the corner of the forward upper part of the cabin.

Enjoy your model.

Rob Hamann

HA Models

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*Model conception, masters and decal drawings by Rob Hamann, with the technical, commercial (and moral) support of Erwin Stam. Documentation from various books and from information provided by Hans Berfelo and Edwin Hoogschagen. The resin kit has been cast by Tilly Models, the decals have been printed by Arctic Decals and the paint masks have been produced by Jan de Wit. A building report of the masters and the prototype kit of the Fokker S.IIa model can be found at <http://www.hollandaircraft.nl/F90%20Fokker%20S.IIa.pdf>.*

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Photographs of model variants

