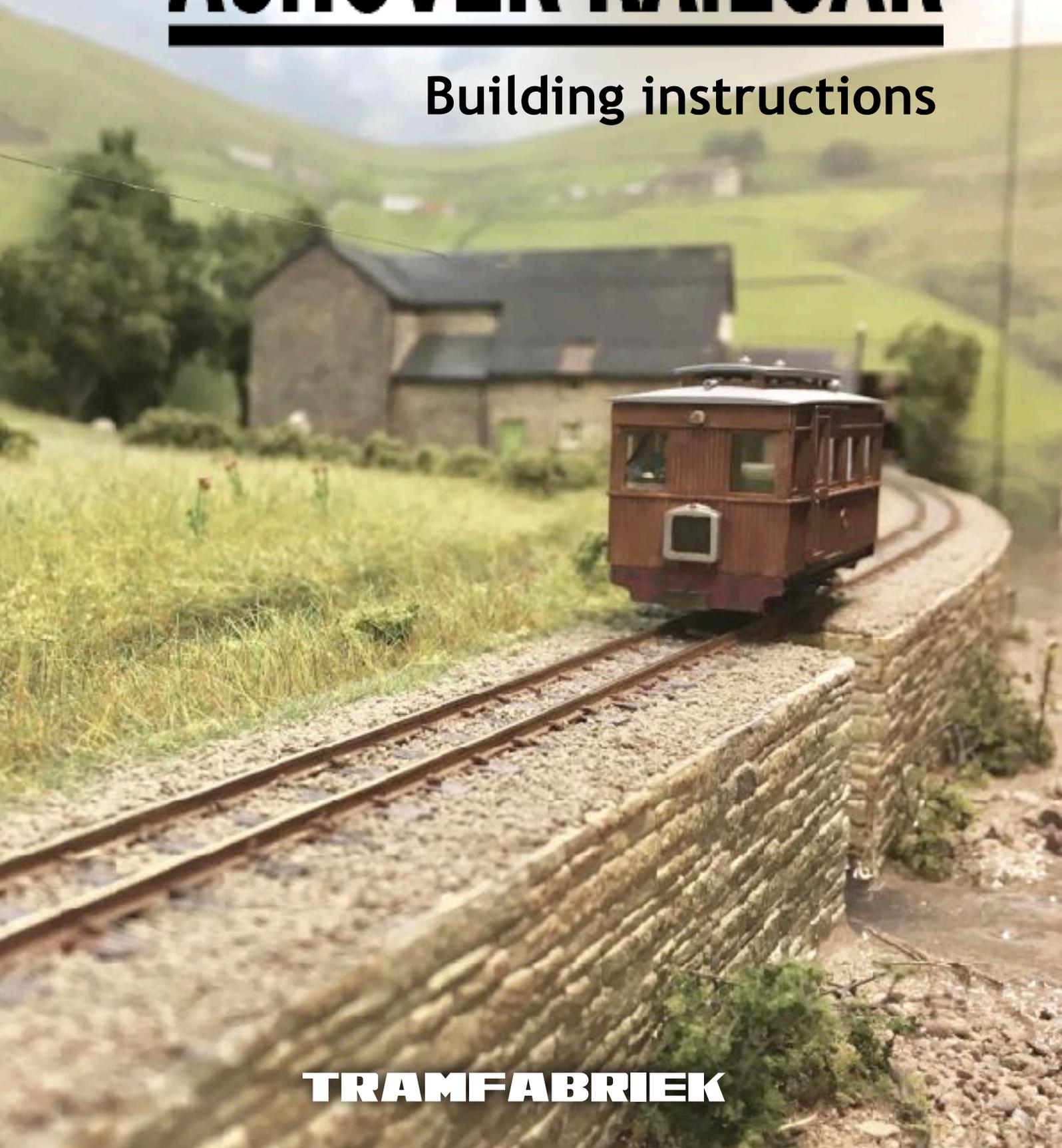


*Bob Telford's*

# **ASHOVER RAILCAR**

**Building instructions**

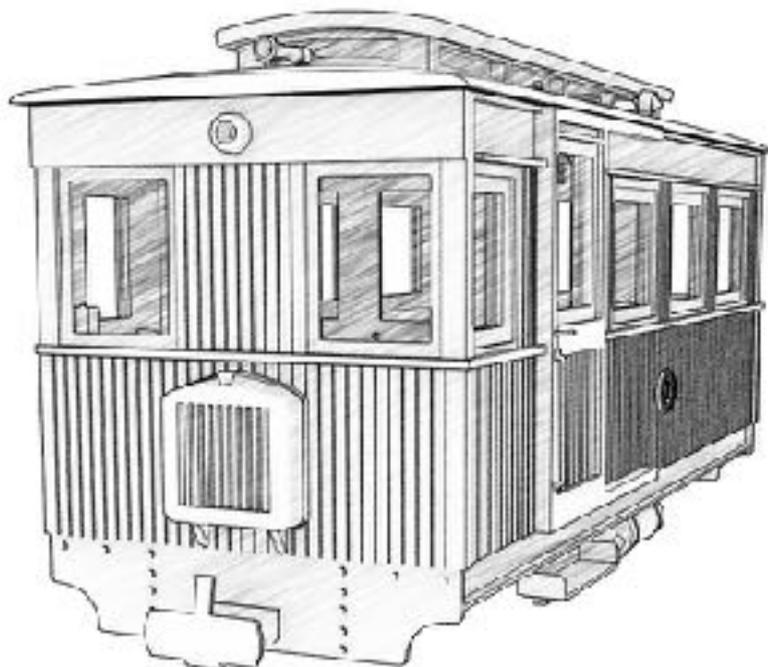


**TRAMFABRIEK**



# Bob Telford's Ashover Railcar

Early in 2018, the editor of the 009 NEWS, the monthly magazine for the narrow gauge 009 Society, for a challenge: to build a railcar from the styrene side panels of an Ashover carriage kit, made by model kit manufacturer Dundas Models. The result were published in the April issue of "The News" and among the contestants was a contribution of Bob Telford. He didn't win the competition, but it stood out. The Tramfabriek was immediately charmed by the model. Bob was contacted and he was very happy to have his model made as kit. The result you see now in front of you.



The model is inspired by existing railcar, and similar railcars could be found in different countries. But essentially it is a fantasy model. The Tramfabriek is sure it can find a suitable place on many layouts and will be an enjoyable sight for all.

This manual has been made so it hopefully will answer all your questions on how to build the model, step by step. If you still have any question, please don't hesitate to reach out by email to [info@tramfabriek.nl](mailto:info@tramfabriek.nl)

## General information

The numbers mentioned next the parts refer to the numbers on the part lists A (etches) and B (other parts).

You can glue or solder this model. However, the Tramfabriek advises to solder the brass etched parts with solder paste, or solid solder for parts that need more strength. Resin parts and the brass horn can best be glued with superglue. You most likely need to remove remains of the print supports of the resin parts and if a resin part is curved, just hold it a few seconds in boiled water to soften it, take it out and you can straighten it.

This manual is also available as a digital download from [www.tramfabriek.nl](http://www.tramfabriek.nl) .

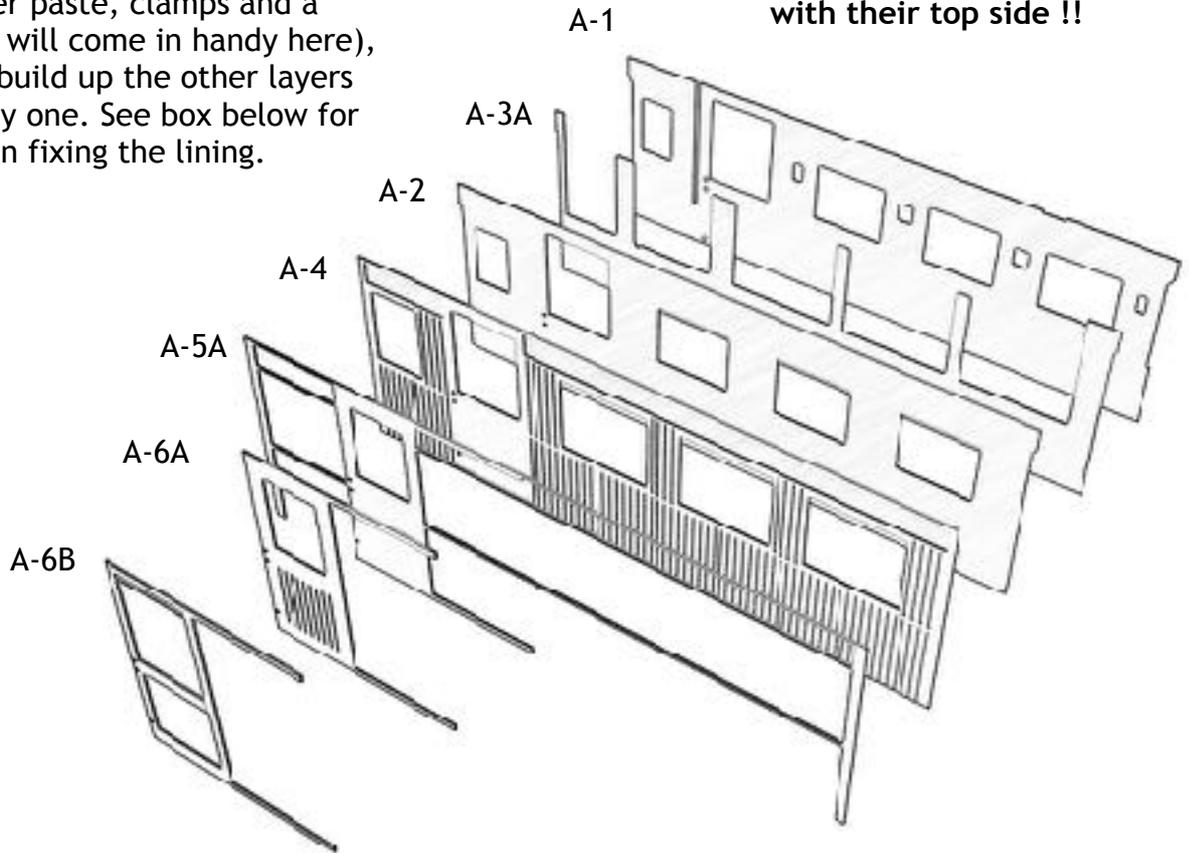
# Chapter 1

1

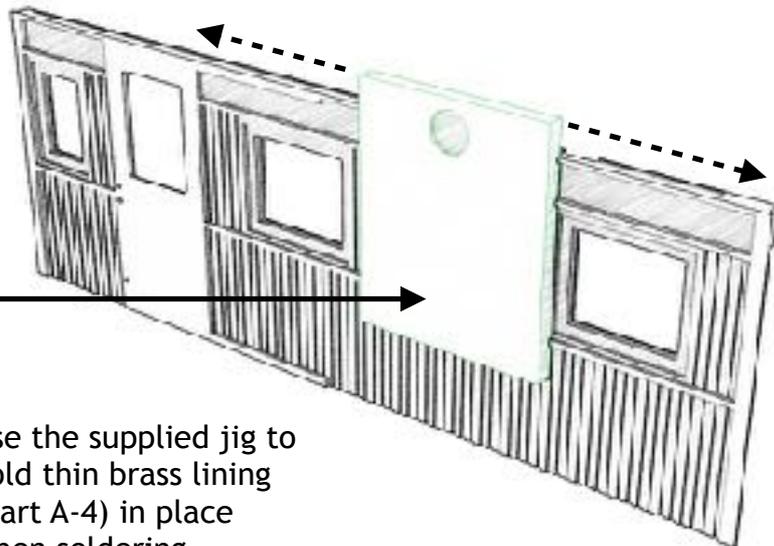
Solder layers. Align first layers A-1, A-3A and A-2 to the top (solder paste, clamps and a torch will come in handy here), then build up the other layers one by one. See box below for tips on fixing the lining.



**!! Align all these parts with their top side !!**



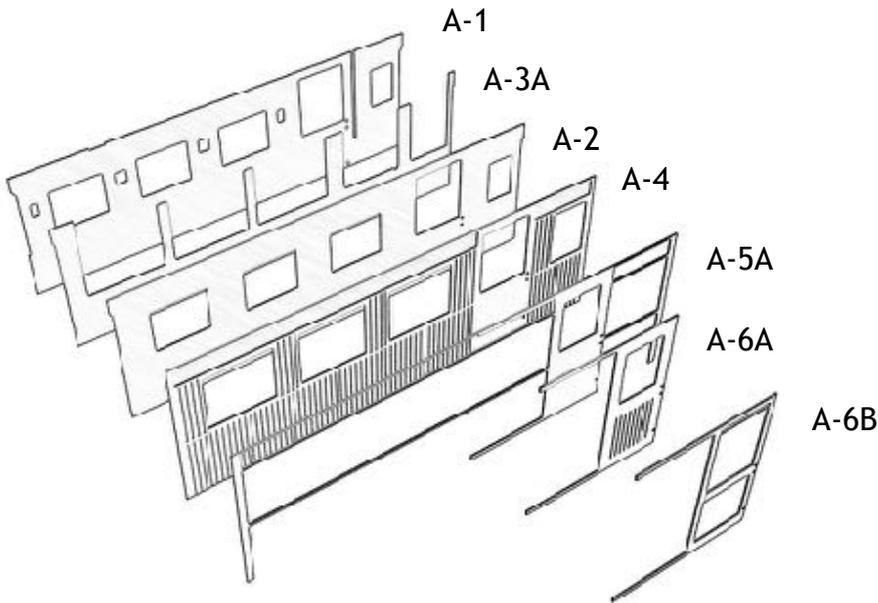
B-11



Use the supplied jig to hold thin brass lining (part A-4) in place when soldering.

2

Repeat part 1 with the panels for the other side.



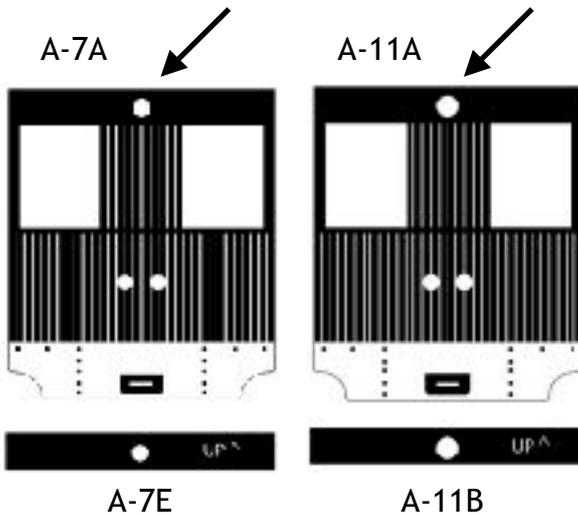
3

Use a 0.5mm drill to drill out the three holes on the side of the train to make room for the door handles and bars (to be fitted later). Do this on both sides.



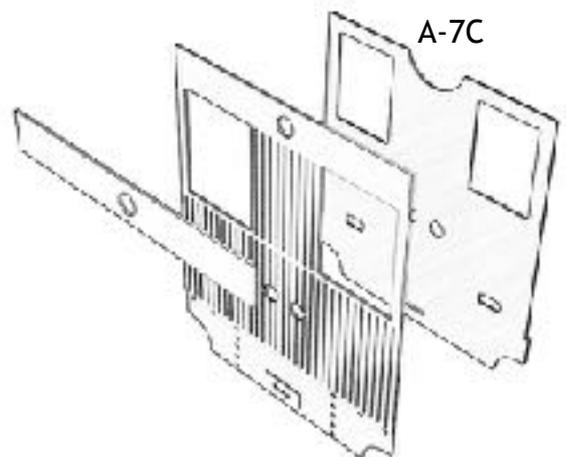
4

Choose panels for the front side. The difference is in the size of the top light.



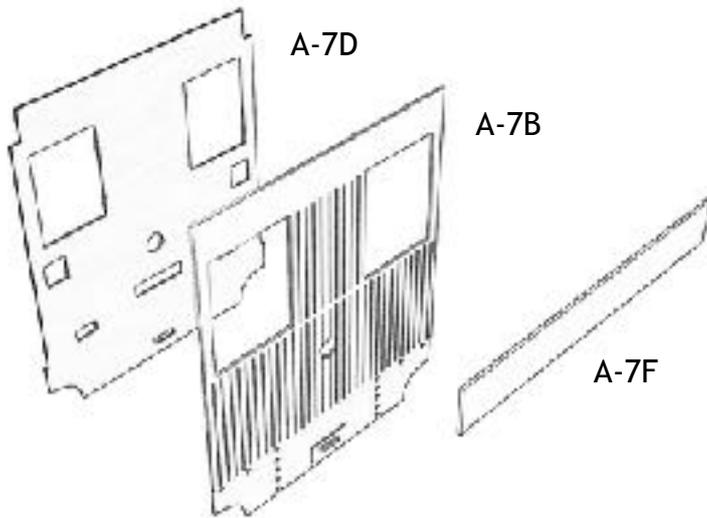
5

Solder layers of the front side.

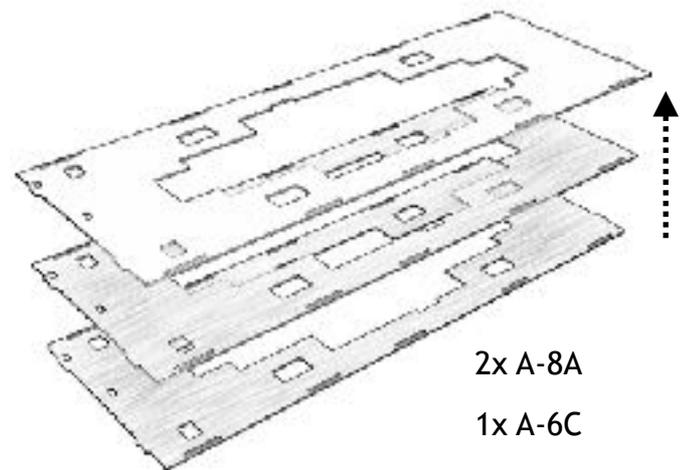


**6**

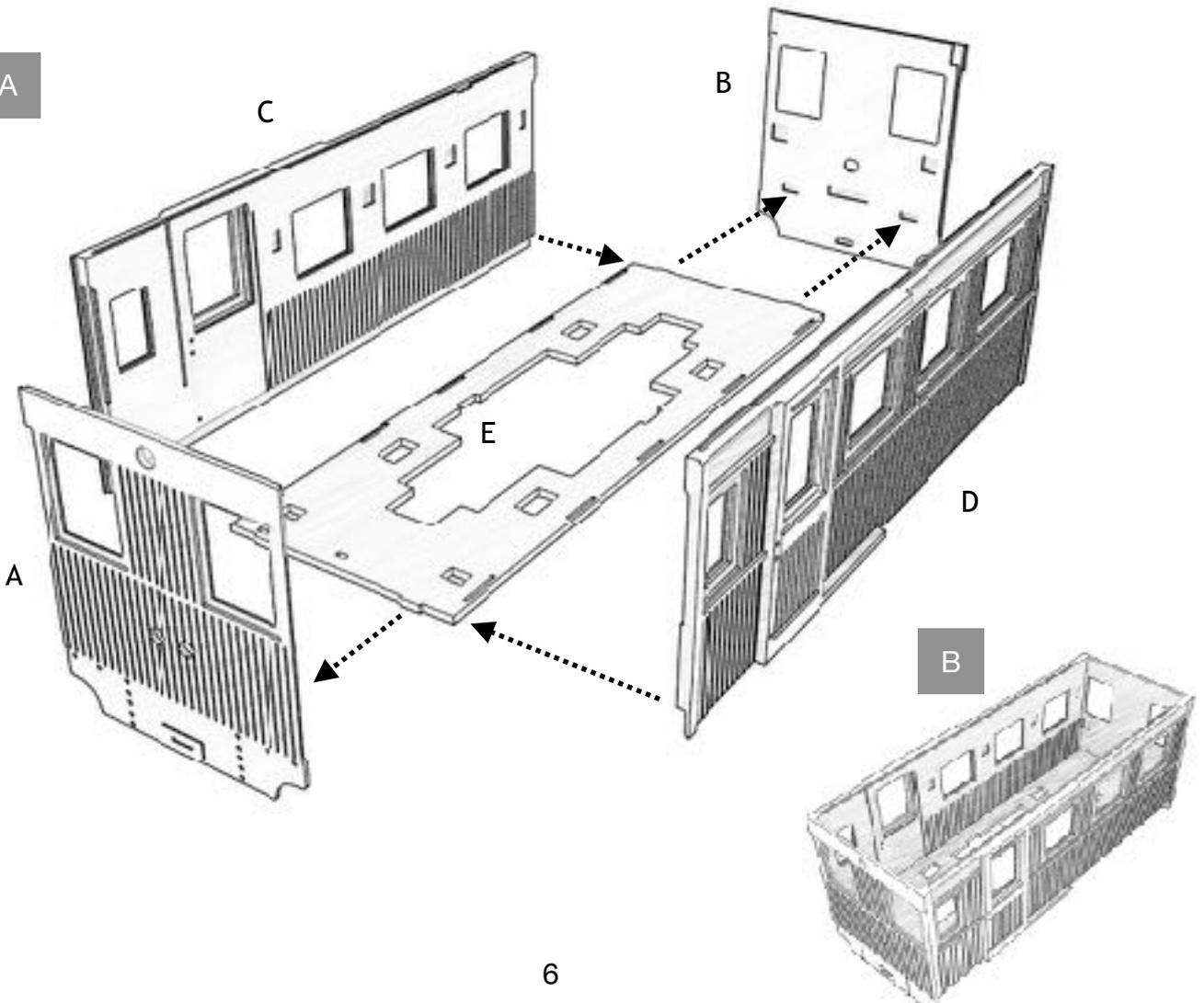
Solder layers of the back side.

**7**

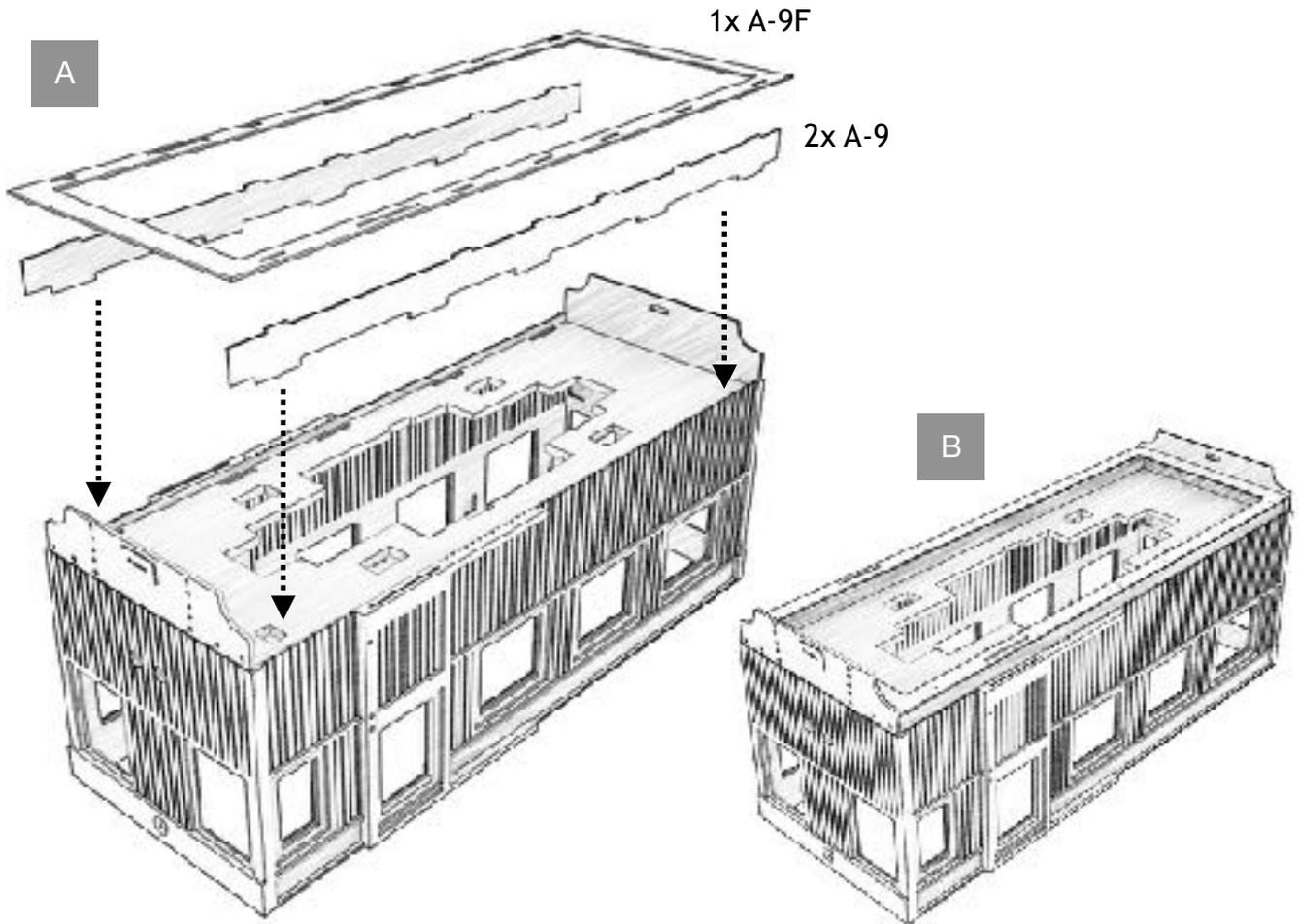
Solder three (equal) bottom layers. The large text facing downwards.

**8**

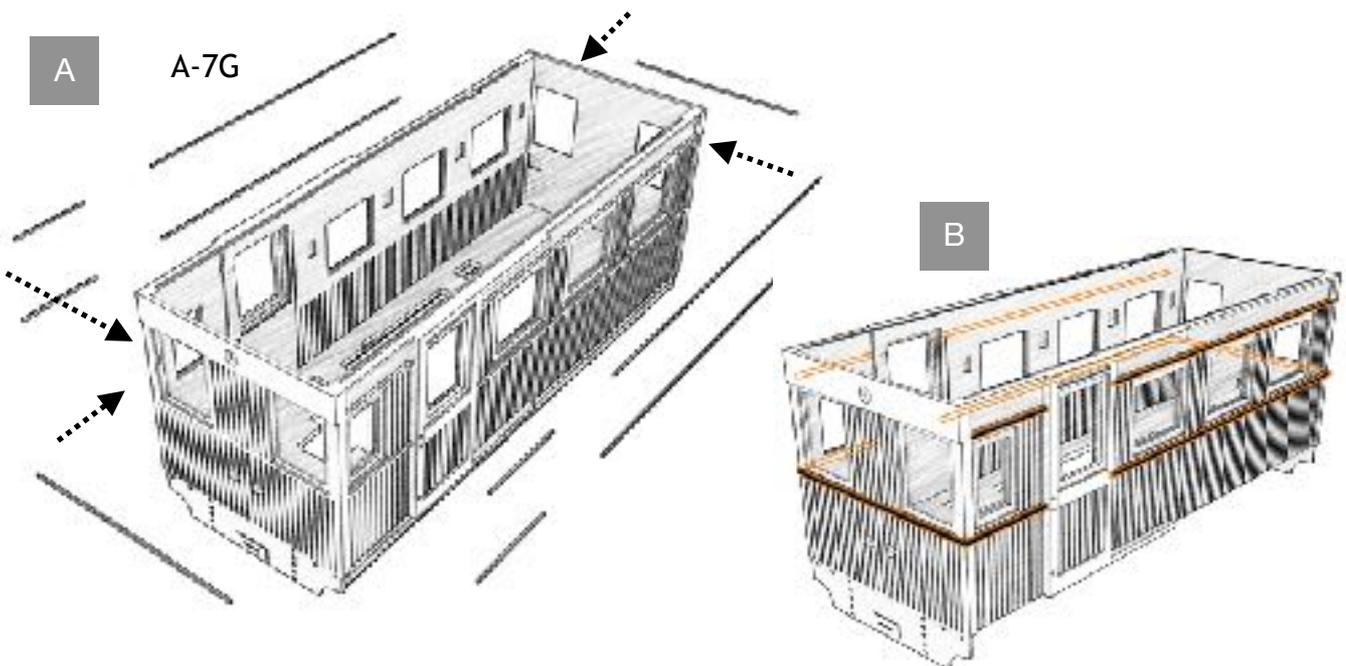
Solder all parts together. Use solid solder, not solder paste, to create a strong connection. An extra blob of solder in each top corner to secure all panels, so you don't press it apart when pushing the roof on the model. On the front (A) and rear (B) panels are two slots for easy alignment. The side panels (C+D) are resting on the bottom panels assembly (E).

**A**

- 9** Fit bottom parts in tabs. Use part A-9F to secure the two other parts (A-9) straight in place. If those parts are not parallel, part A-9F wouldn't fall in the tabs.



- 10** Fit thin strips (A-7G) on the outside. Start with the sides, then cut off at the end. Then do the fronts and overlap the sides. Then cut ends that stick out off.

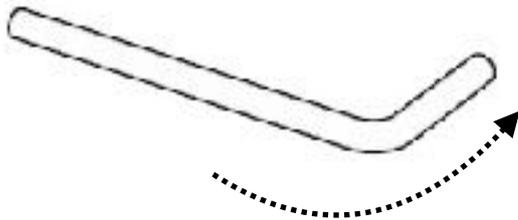




Step 11 and 12 can be skipped if you prefer not to paint (or later clean) the brass door handle and handle bars. They can be glued on when the model is painted.

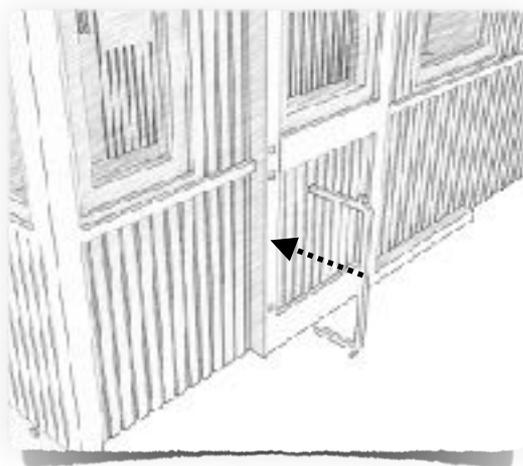
11

Fold the supplied 0.3 brass wire in a 90 degrees angle with pliers to make a door handle and solder this in place. Easiest is to wait with other side after you've done step 12, so you can lay the model on its side.



12

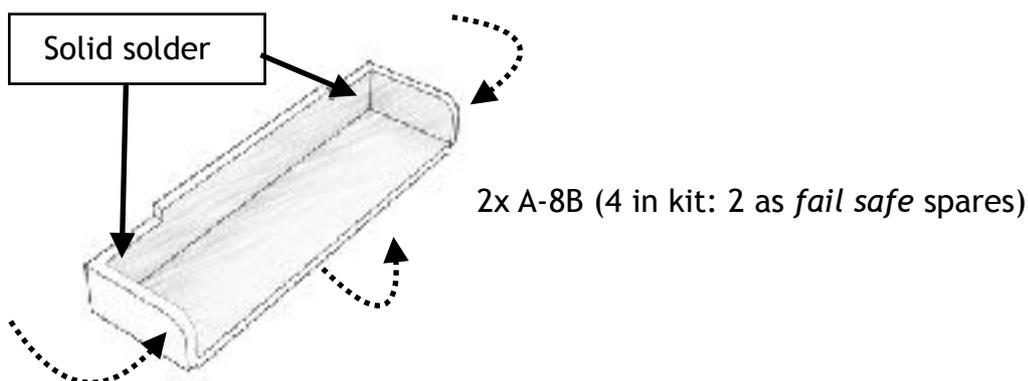
Fit handle bar (A-3C). Make sure it fits straight by cutting the bottom pin short. The end of the hole is ending against the bottom plate of the model.



When this is done, fit the handle and bar on the other side.

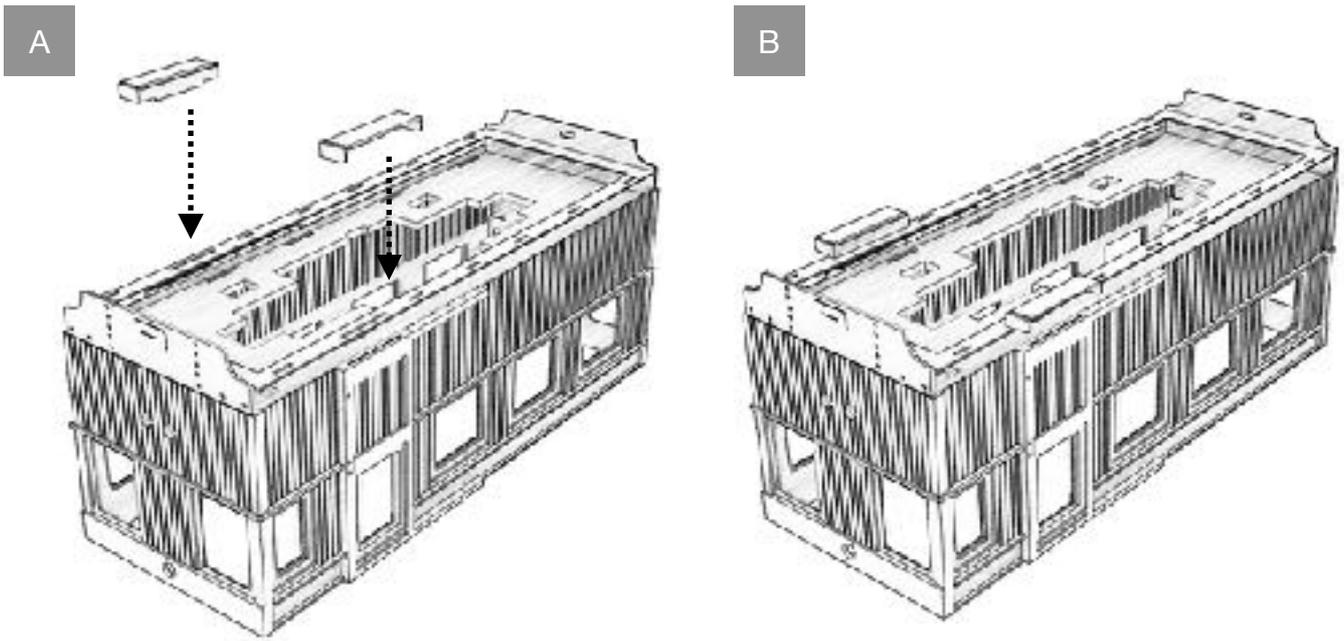
13

Fold steps (A-8B) and fit in place. Use solid solder for secure attachment. Extra tip: A bit of solid solder in the inside corners of the step secures the sides better in place.



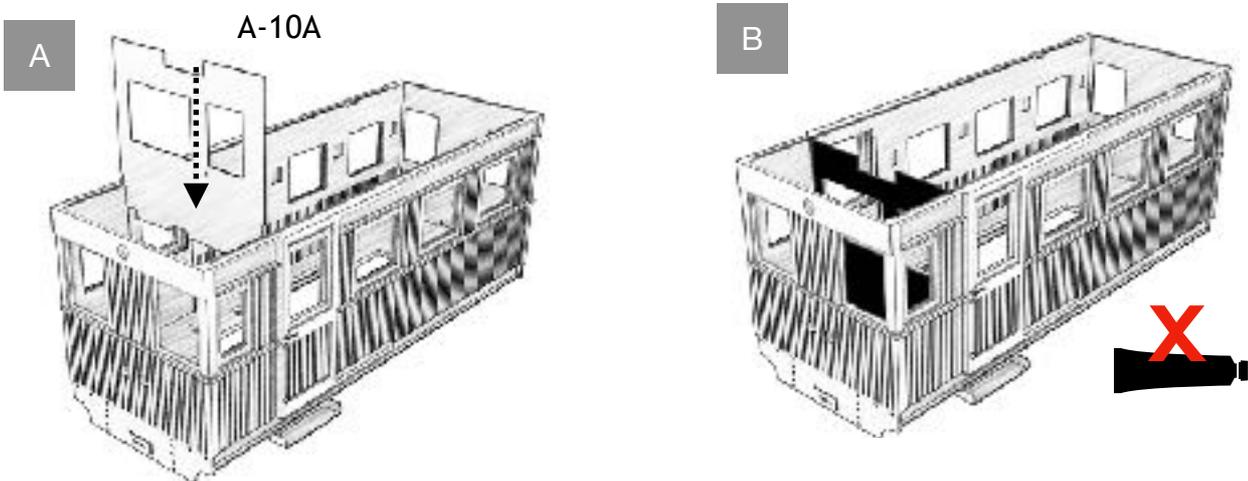
14

Solder steps on the bottom, in the slot. There is some space to move it left/right, so make sure you align it with the door.



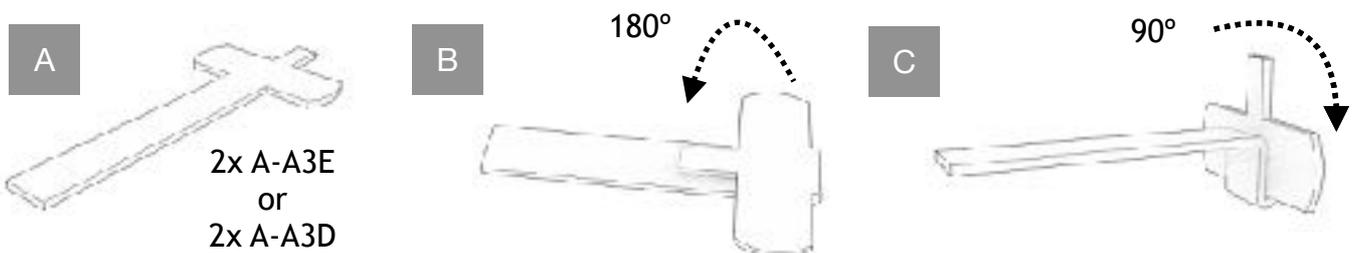
15

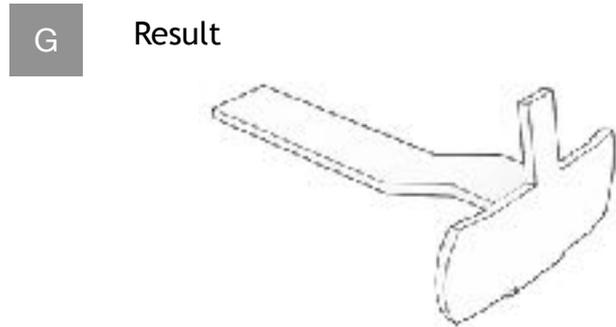
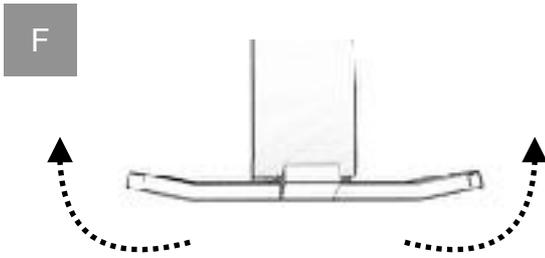
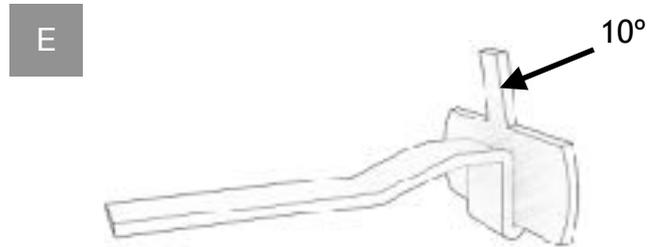
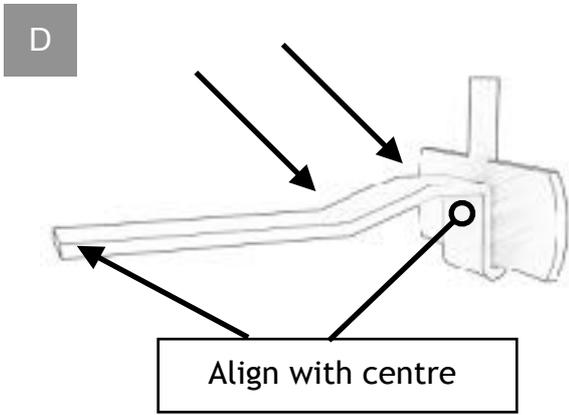
Slide cabine wall (A-10A) into the slot. Move it several times in and out, to clean the slot. This item is not glued nor soldered.



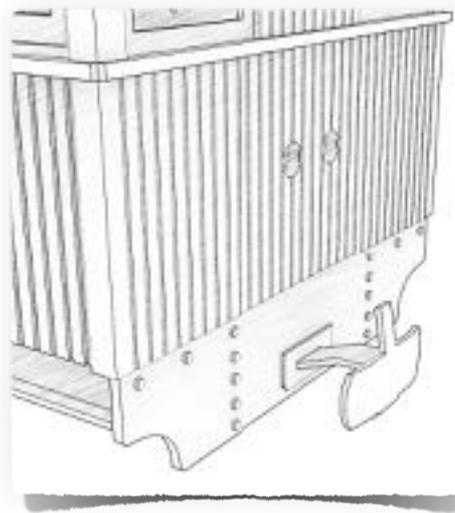
16

Choose buffers (A-3E) or couplings (A-3D). Bend them, following the below procedure. The long part has to be at the height of the centre of the buffer/ coupling.





- 17** Slide the couplings in the slot. Using solid solder, solder buffers/couplings to each side of the model.

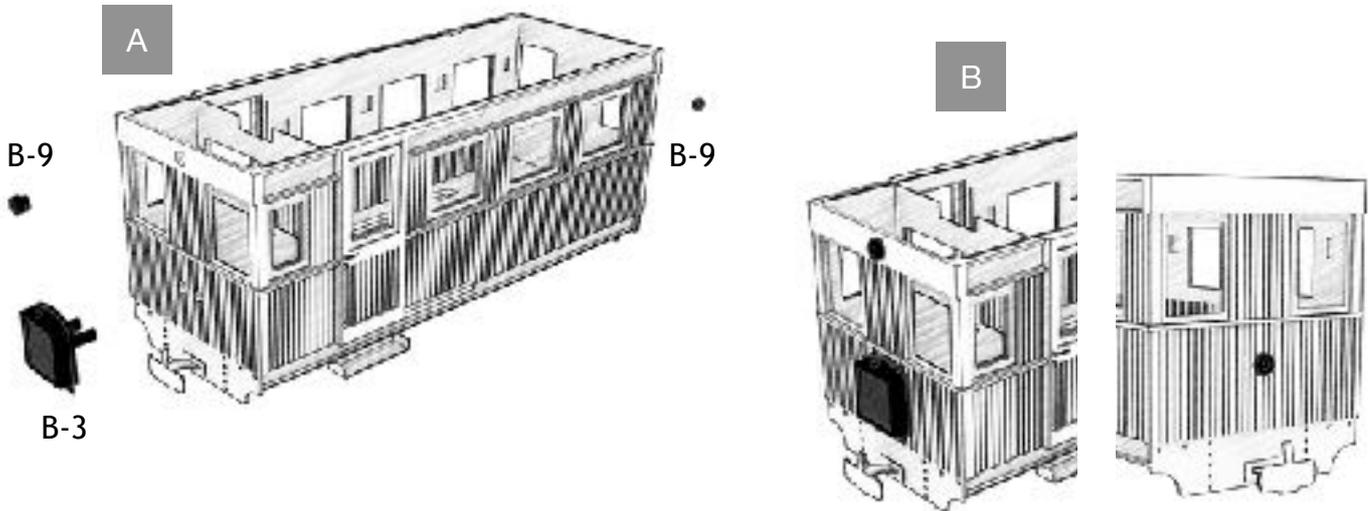


- 18** Remove the cabine wall (A-10A) again and make the model clean of flux. When using a fiber glass pen, do not do this in water (as some advise), as the small particles will end up in the eco-system. When using a fiber glass pen, it's preferred to do this outside, with gloves and safety glasses. You can use an old container from take-away food to catch the fiber glass particles, to later throw in the bin. If available, use a sand blasting machine.

# Chapter 2 - Fitting the small parts

1

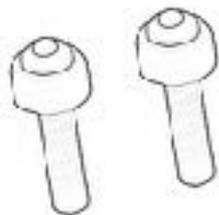
After cleaning the model, glue the grill (B-3) and the lamp fittings (2xB-9) in place. If you prefer, you can fit the lamp fittings also after painting the model, so it is easier to paint them in a different colour than the train body.



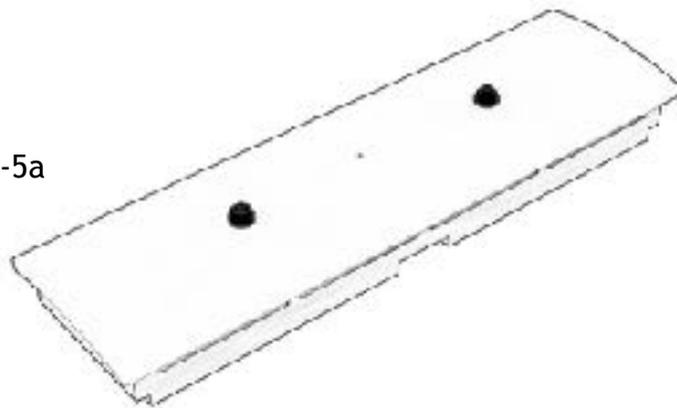
2

Drill the two holes with a hand drill to 0.6 mm in the holes provided in the smaller roof part (B-5a). Glue the oil lamps (2x B-7) with super glue.

2x B-7



B-5a



3

Drill the two holes with a hand drill to 0.6 mm. Please note that the holes are not vertical, but angled like the roof. Glue the horn (B-10) in place. The air vents (2x B-7)

B-10

2x B-7

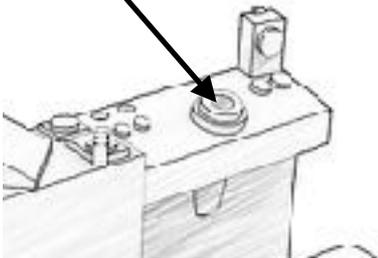


4

Driver's cabine (B-4) - drill hole for speed wheel (A-12A). This is easiest done with a drill bit used for milling. A normal drill bit will do as well, but it probably needs more effort. Don't drill completely through, but just enough to keep the shaft of the steering wheel at the desired height (see last image on this page).

Drill hole by hand 0.5 mm

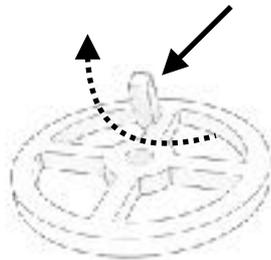
A



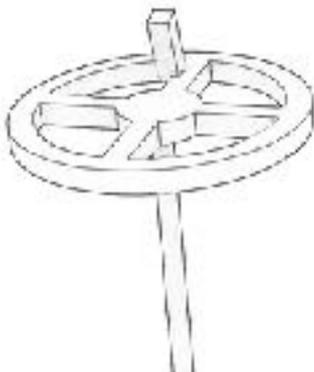
Note: a 0.4 mm drill bit can be used, but there is a big risk of breaking the drill bit.

B

Cut out one wheel from the fret and carefully turn the handle on it 90 degrees with a pair of fine tweezers.



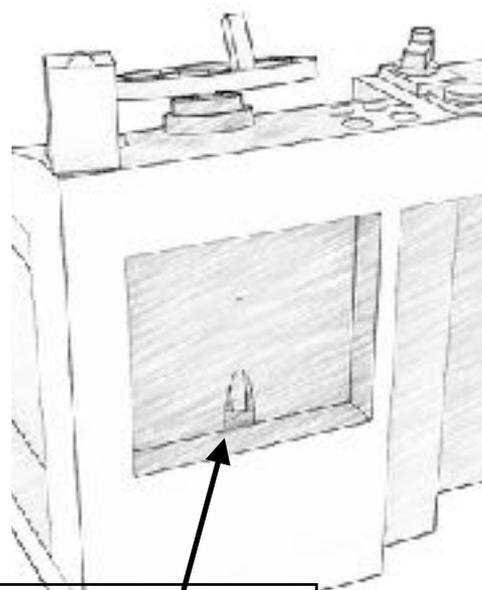
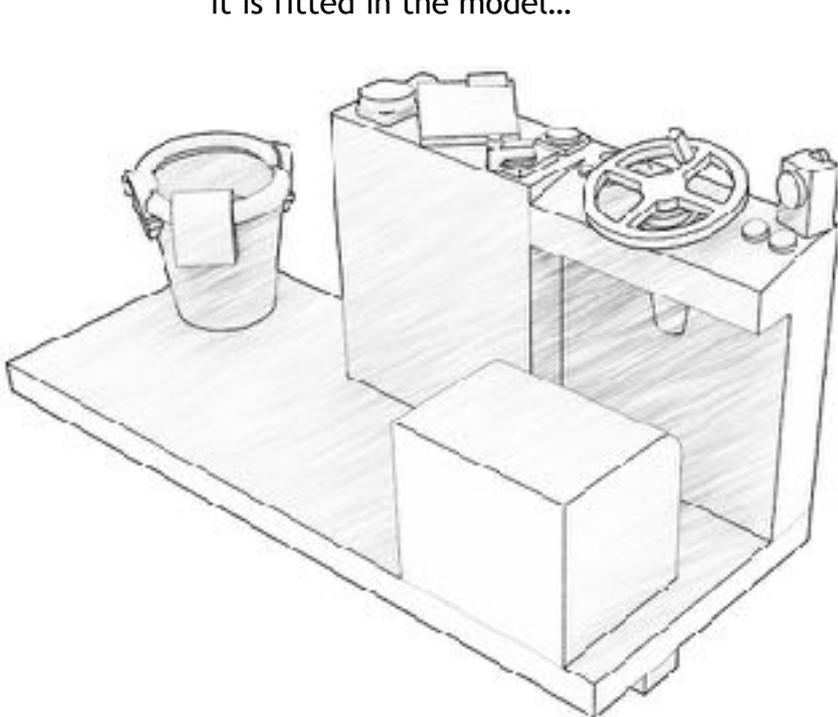
C



Solder the wheel on a piece of the supplied 0.3 brass wire. It easiest to pre-solder the top of the wire and put flux in the hole. Stick the brass wire in foam to keep it straight up.

D

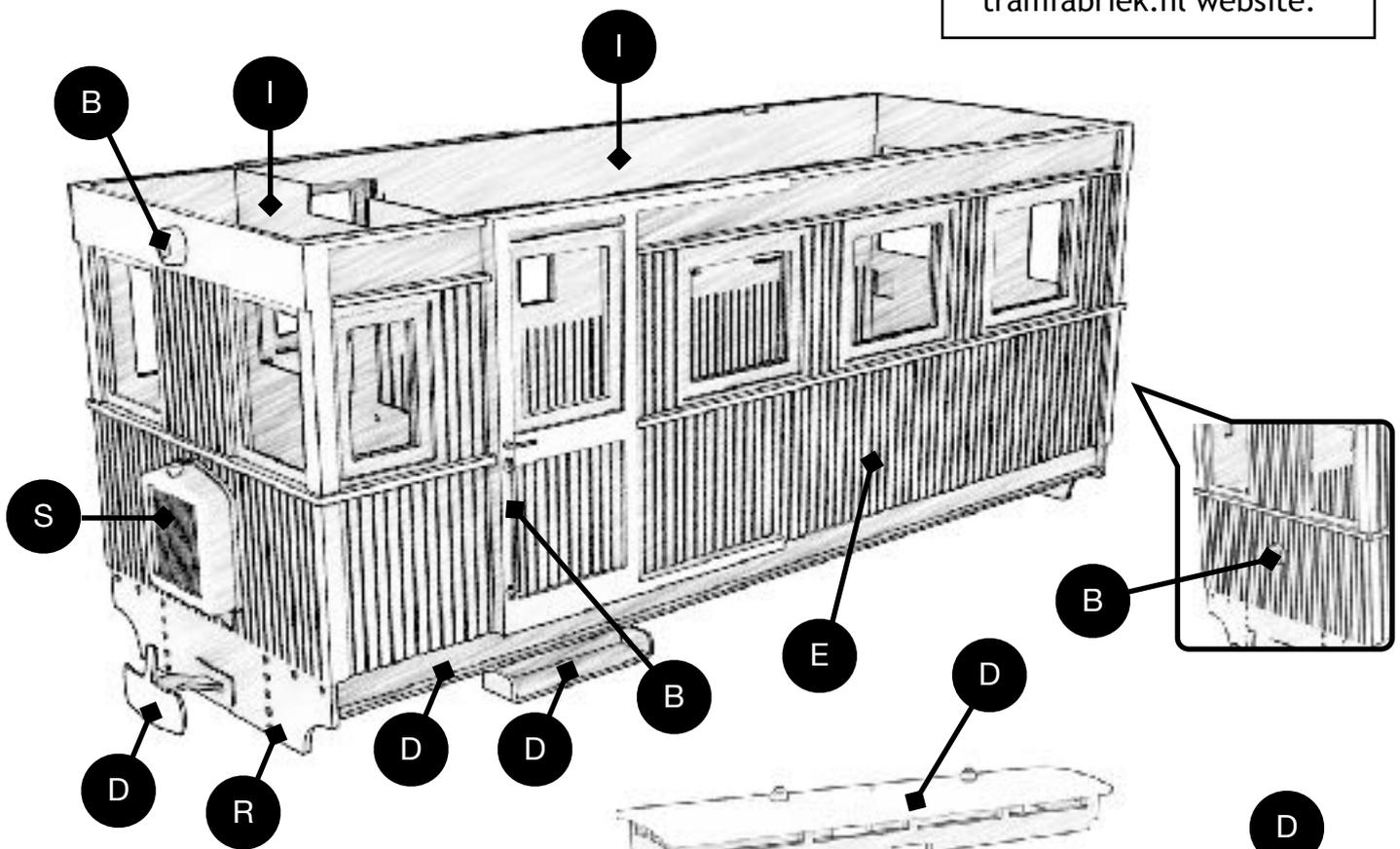
Test fit the wheel. It doesn't have to be glued, so you can spin it. Not that you will ever spin it, once it is fitted in the model...



End of brass wire is resting on the resin.

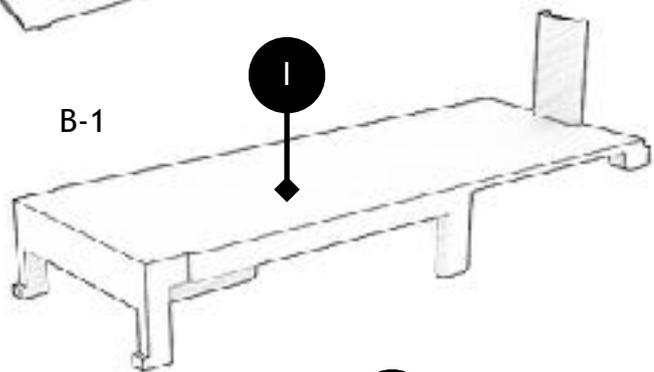
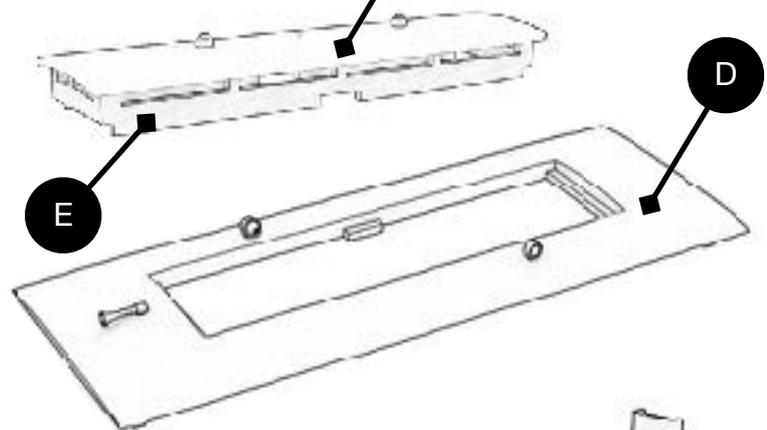
# Chapter 3 - Painting

Colour example pictures can be found on the tramfabriek.nl website.



Colours with Vallejo paint number

- B: Brass 77.725
- D: Black Grey 70.862
- E: Wood effect (see Chapter 4)
- G: Dark Bluegrey 70.867
- I: Iraqui Sand 70.819
- O: Olive Green 70.967
- R: Flat Red 70.957
- S: Steel/Aluminium
- W: White



A-9B

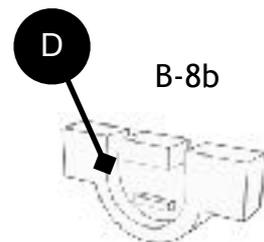


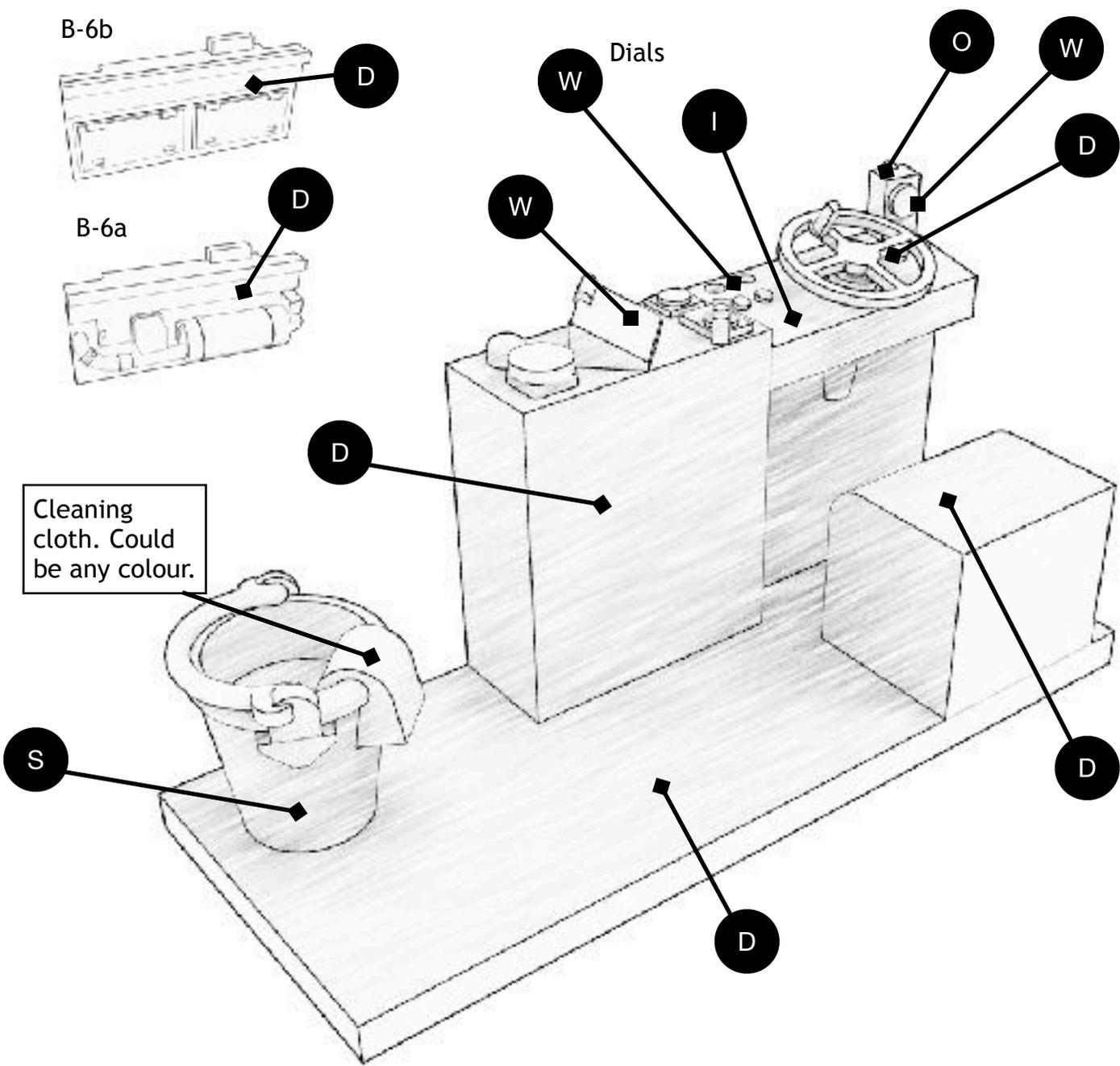
When paint is dry, use sandpaper with a fine grid to clean number.

B-8a



B-8b





# Chapter 4 - Creating wood effect

Materials needed:

- Light beige acrylic or enamel paint
- Artist's oil paint Burned Sienna
- Artist's oil paint VanDyck brown
- Turpentine or MIG Enamel Odourless thinner (A.MIG-2019)
- Short, flat brush

1 Paint or brush base layer of light beige.



2 Mix roughly 70% burned Sienna with 30% VanDyck brown, without thinner.



3 Put a few dabs of the mixture on the model.

4 Dip your brush in the turpentine/ thinner, dab it once on a paper towel, then start spreading the oil paint until it becomes more transparent. Brush in the direction of the wood grain, but it's even better when it's uneven. Adjust until you have achieved a satisfying result.



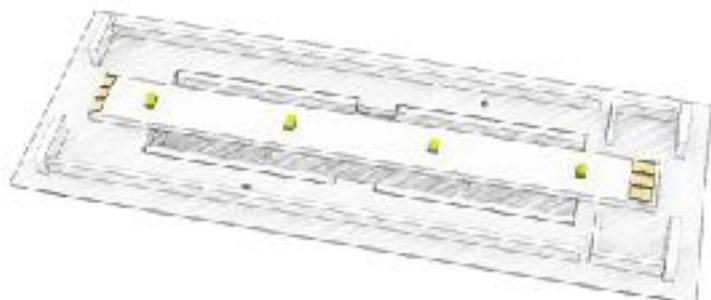
5 Drying might take a week. Finish then with satin varnish (spray can/ airbrush). The result should be just like the real thing.



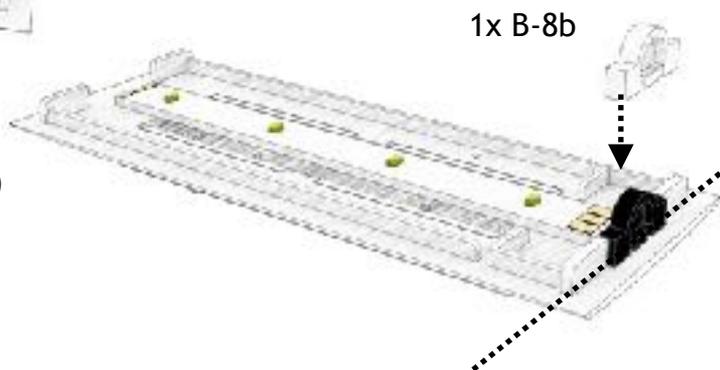
# Chapter 5 - Installing light

Do these steps after you've painted the model.

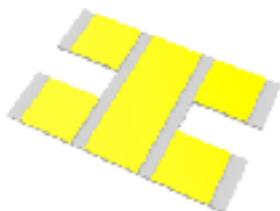
This chapter will only explain you how to install the lights for analogue use, though hints for digital installation are given.



**1** Take the Train-O-Matic LED light strip (B-16) and cut it to size, as shown on the picture. Tape it with double sided tape to the roof, the part where it is cut to the rear of the train.



**2** Glue the light cover (painted black) in place. Align with front edge.



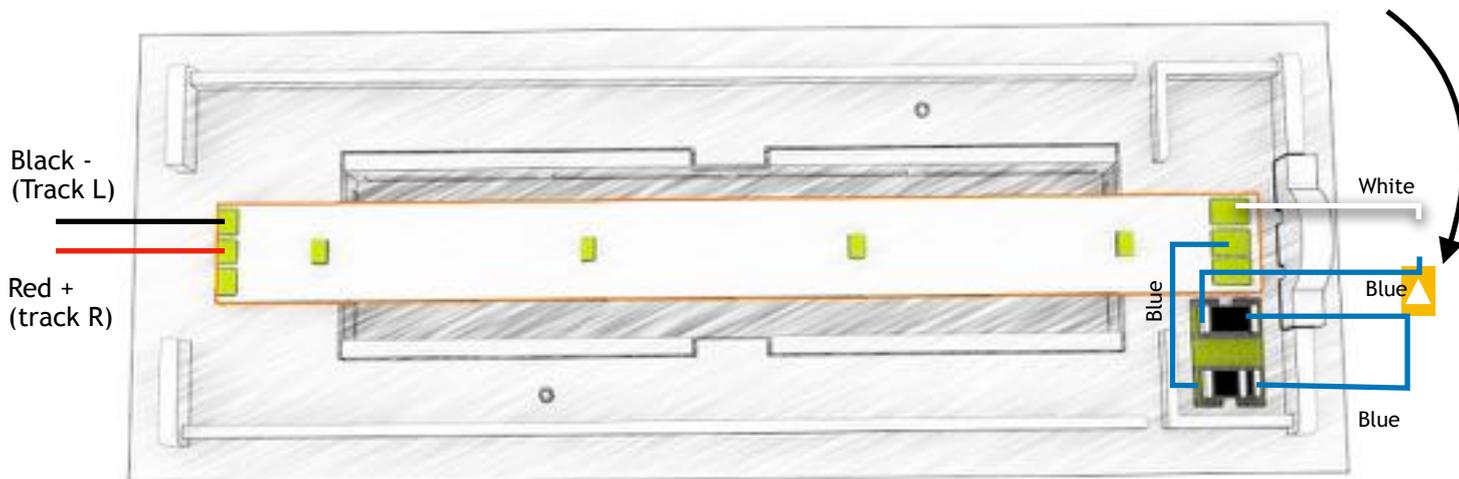
**3** Take the thin-as-paper PCB board and cut it as an 'H'. Make this 2 times (for front and rear light).

**4** Solder the SMD diodes and 1.5K resistors on each PCB. Glue this on the inside of the roof, see picture below.



**5** Connect the wires (not supplied). The Tramfabriek has ultra thin wires available, see website.

LED white B-13



## Optional: Anti-flickering capacitor

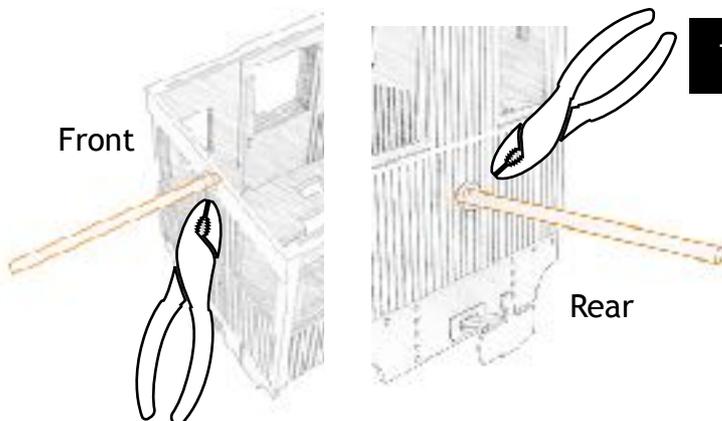
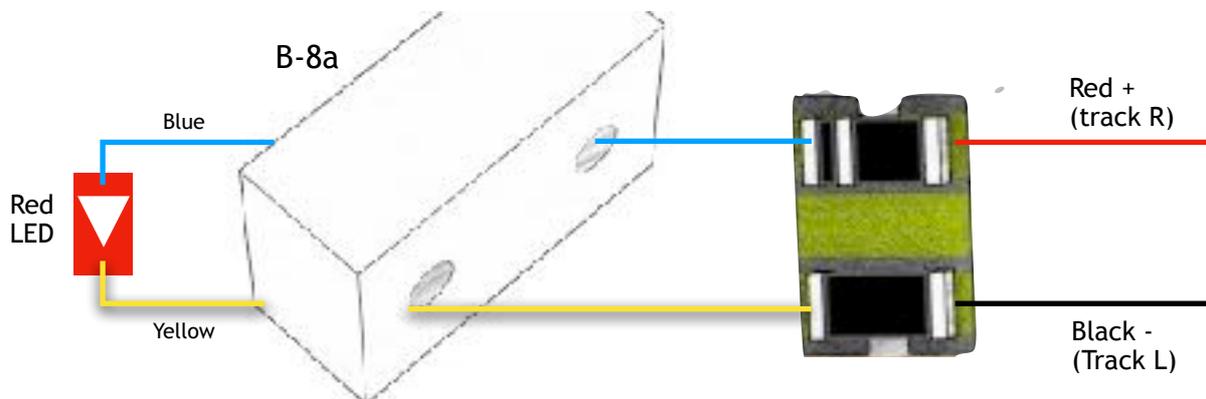
For constant light with short power interruptions on the track, the anti-flicker capacitor (B-16) can be installed. Please solder the supplied capacitor in the proper position. The capacitor is a polarised electronic item. Please respect the polarity as indicated. **Soldering the capacitor with wrong polarity can damage the module, or/and the capacitor!**

The positive terminal of the capacitor has to be connected to any of the connections marked with + while the negative terminal to the connection points marked with - . The module can be left hanging inside the passenger space, directly connected to the light strip, or connected with wires going out of view under the cover plate, to the floor of the railcar



6

The rear light cover (B-8a) should be painted black to prevent light leaks. Solder two wires to the LED, lead them through the hole and connect them as indicated to the thin PCB. Find a place for this PCB on the floor of the railcar, but make sure it is isolated from any metal, to avoid shorts.

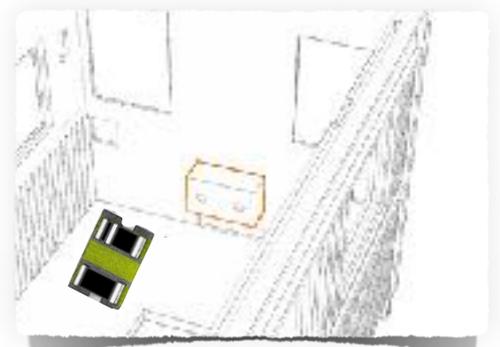


7

Before you fix the red LED in place, push a piece of the 1.5 mm fiber wire in both front and rear lamp hole. Use sharp, flat cutter (fx Xuron rail cutter) to cut it flush.

8

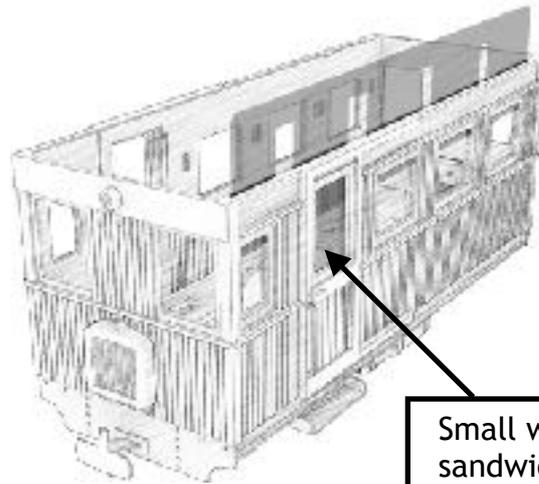
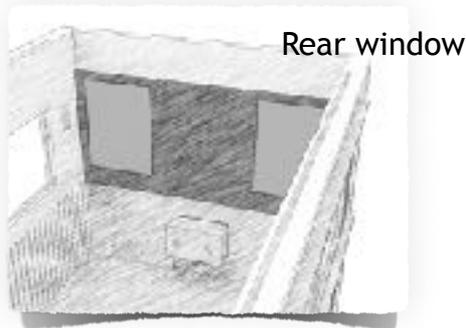
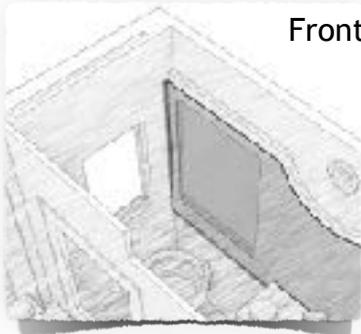
Push the red LED inside the light cover, pull the wires through and glue the light cover in place, in front of the circular hole in the back.



# Chapter 6 - Assembling the model

1

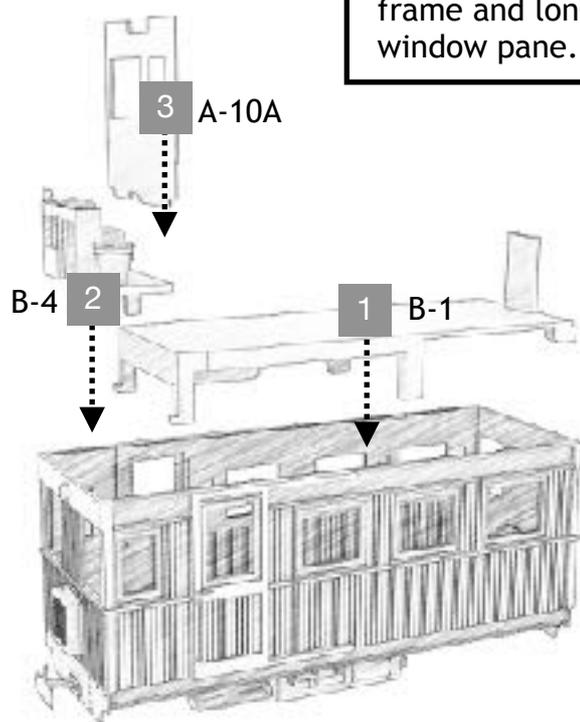
The windows (B-15) will fit without the use of glue. The side window panes slide between the wall panels. The front and rear window have slots on the side, in which they are fitted.



Small window pane, sandwiched between door frame and long window pane.

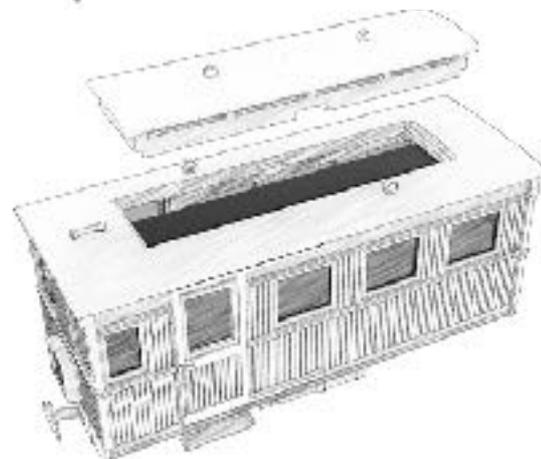
2

If you have installed the light, make sure the wires are connected to the motor. Now installed the three parts one after the other. Note that the notches at the back of the interior cover plate (B-1) fall in the slots in the rear wall panel. The front notches will be held in place by the cabine panel (A-10A).



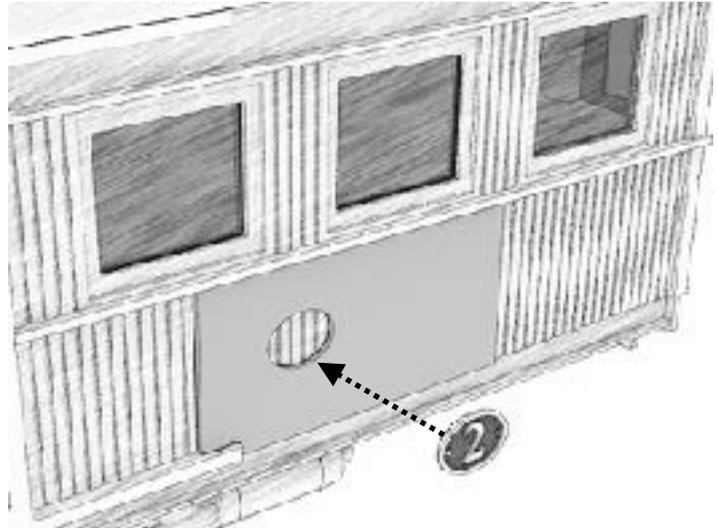
3

Fit the outer part of the roof, sort the wires out and tape the wires that are in all over the place on the top of the LED light strip. Then press the top part of the roof to close the model. It's a friction fit, no glue is necessary.

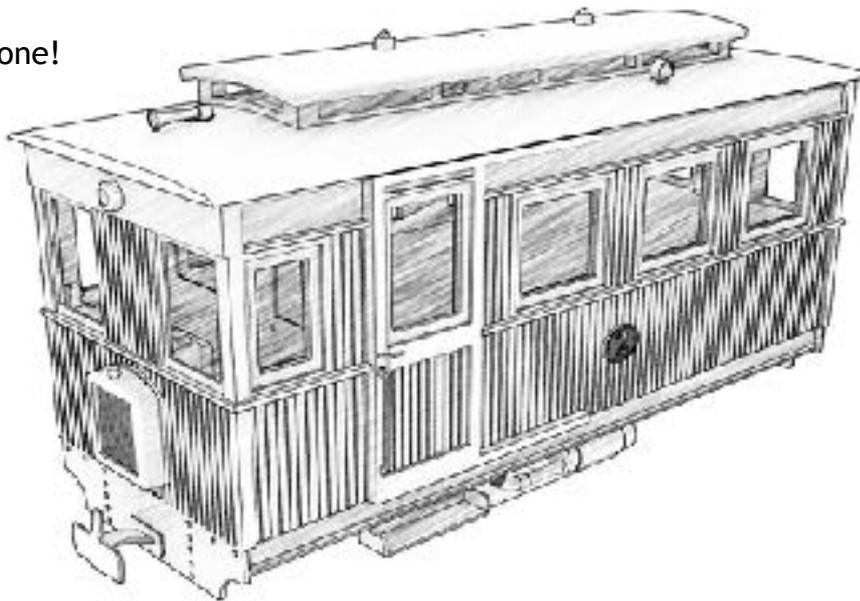


4

A jig has been supplied to fit the number plates easy. Use Kristal Klear, Glue 'n' Glaze or PVA. Turn jig around on other side of railcar.

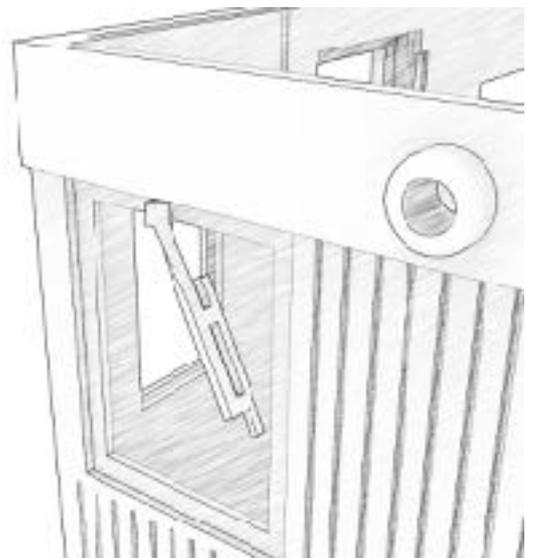
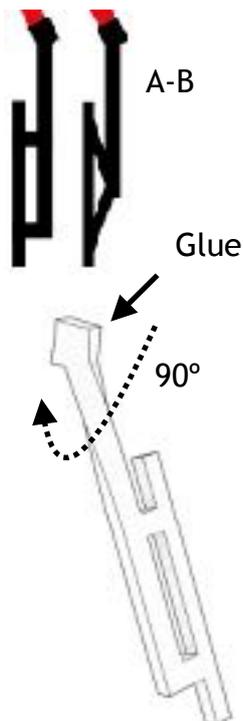


All done!



No, wait, no, there is one more thing! Supplied with this kit are 10 window wipers. You only need one, so the rest are for you to use on other projects that didn't come with one (those are many!).

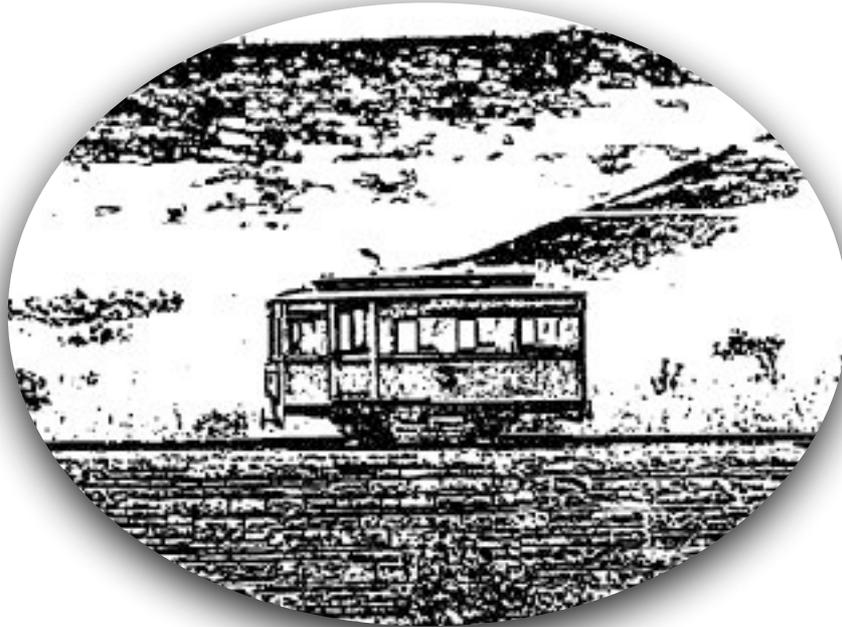
1. Pick one of the two designs
2. Paint it black and wait to dry
3. Twist the top part 90 degrees
4. Hold with tweezers and glue with a tiny dot superglue on the top of the front window.



Now you're really done!



Remember to recycle your waste for the sake of everyone's future!



Tramfabriek © 2019/2020

Many thanks go to Bob Telford for designing this model and  
Andrew Glover for making and sharing the photos of it.

[www.tramfabriek.nl](http://www.tramfabriek.nl)  
[info@tramfabriek.nl](mailto:info@tramfabriek.nl)