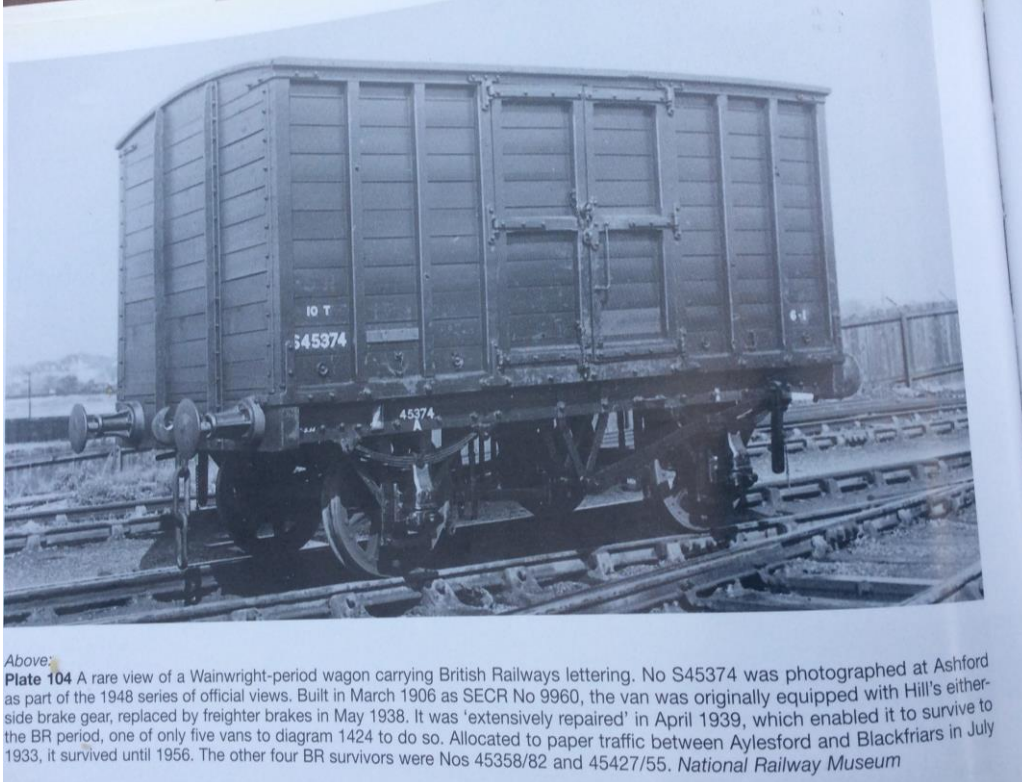


PLANNING A SCRATCH BUILT WAGON

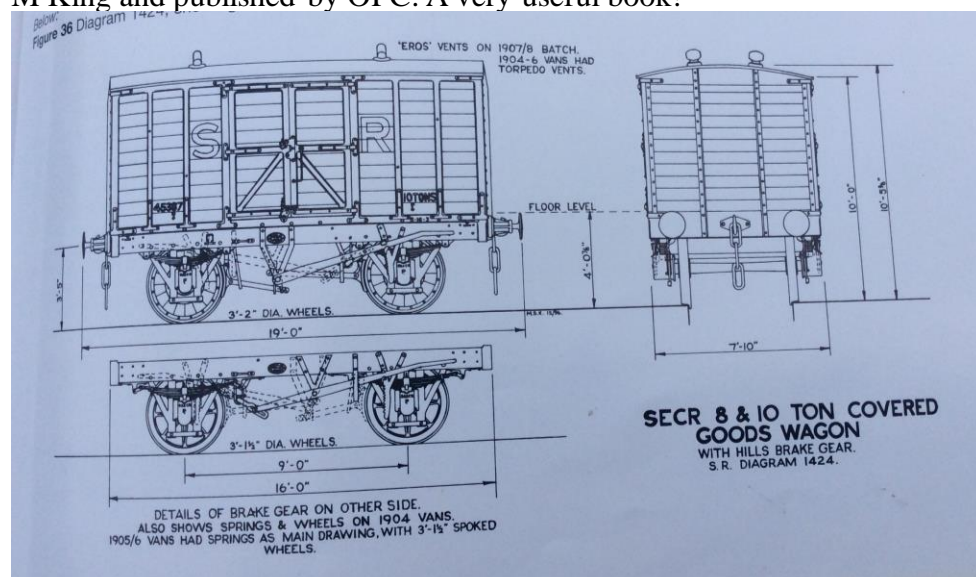
ANDY HOPPER

When I want to build a wagon from scratch I don't make a scale drawing as I don't see the need to draw everything out accurately on paper, only to have to do it again when making the wagon. I make rough sketches from drawings and photos prior to starting the model, rather than preparing a scale drawing. I wanted to build an SECR box van, so copies of my sketches for this vehicle together with comments on them follow.

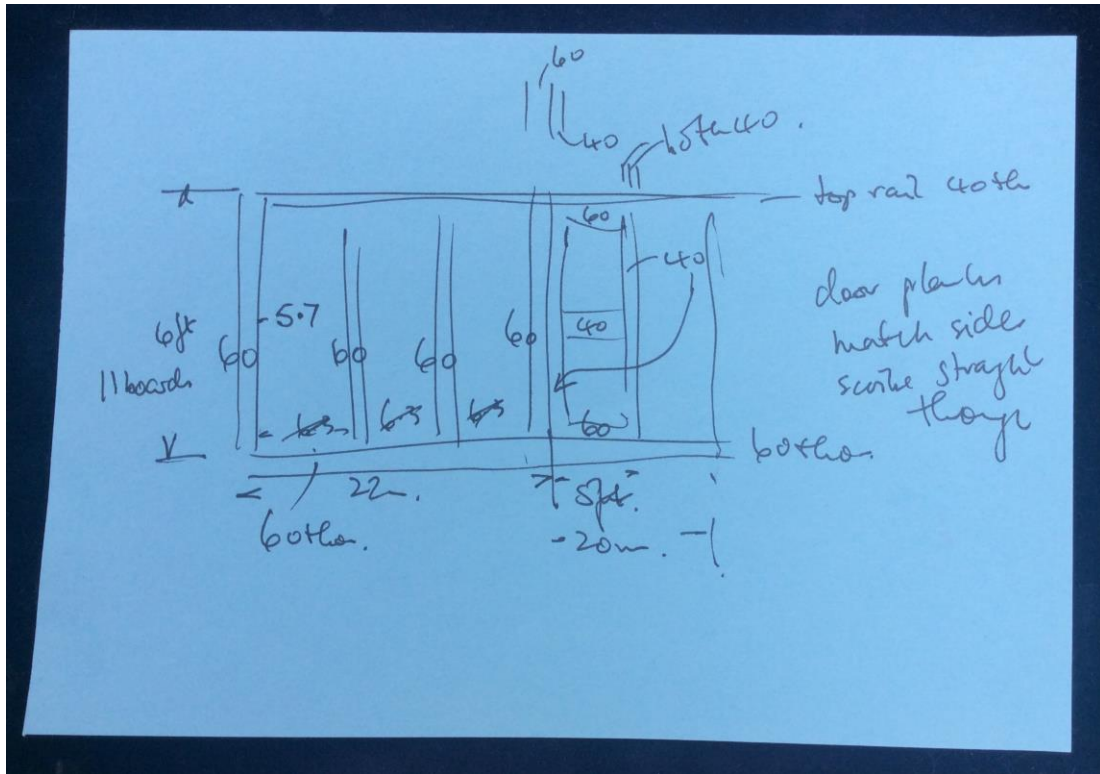


Above: Plate 104 A rare view of a Wainwright-period wagon carrying British Railways lettering. No S45374 was photographed at Ashford as part of the 1948 series of official views. Built in March 1906 as SECR No 9960, the van was originally equipped with Hill's either-side brake gear, replaced by freighter brakes in May 1938. It was 'extensively repaired' in April 1939, which enabled it to survive to the BR period, one of only five vans to diagram 1424 to do so. Allocated to paper traffic between Aylesford and Blackfriars in July 1933, it survived until 1956. The other four BR survivors were Nos 45358/82 and 45427/55. National Railway Museum

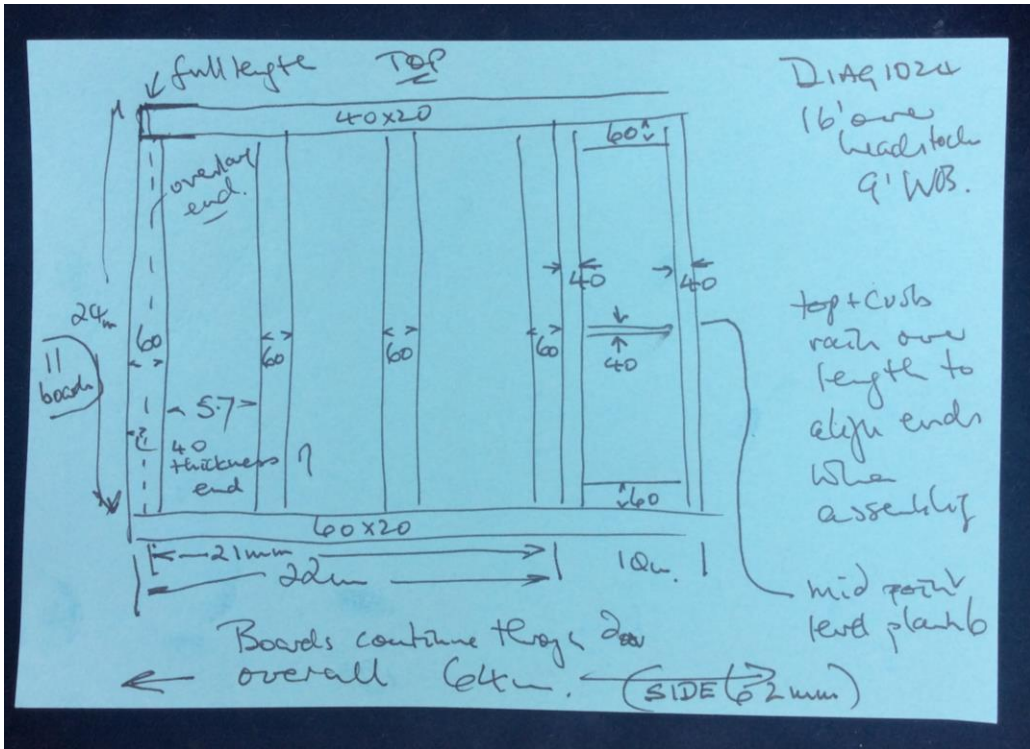
The photo which started it all – an outside framed van which survived into the 1950's so I could run it on Manston Airport, and in SR brown livery too. It is in An Illustrated History of Southern Wagons, Vol 3, by G Bixley, A Blackburn, R Chorley, M King and published by OPC. A very useful book!



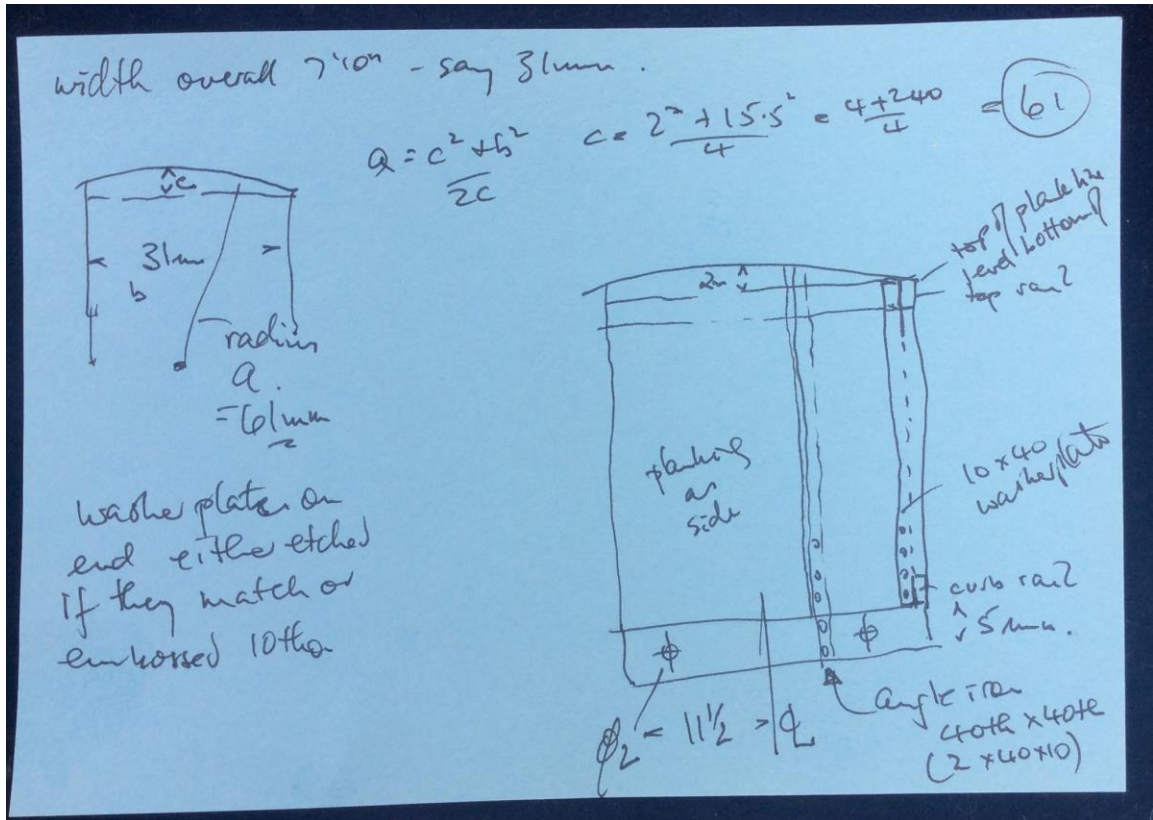
The drawing from the book (above). It's clear, has plenty of dimensions, and is almost to scale, but not quite (blame the printing process for that, not the author) and so dimensions should not be scaled directly from it, but calculated from the figures which have been given. Never trust printed drawings, there are too many unknowns in the printing process for them to be reliably accurate.



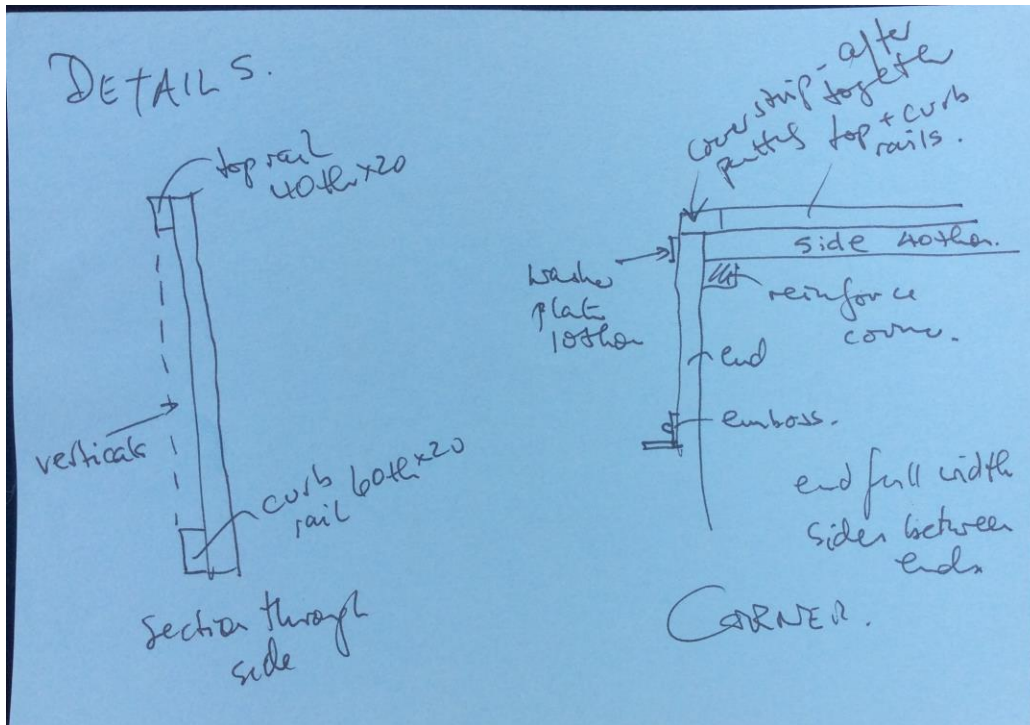
The initial sketch of a side. Before doing even this rough draft I had spent time thinking about what materials I would use, the way I would put them together, whether I could find any ready made bits to speed things along. In this case the obvious material was plastic sheet with the outside framing added from pre-cut Evergreen strip. The Cambrian Models Gloucester 9ft wheelbase RCH underframe kit looked a close match, the axleboxes are the nearest I know to the SECR ones and the wheelbase is right. The side is symmetrical about the centre so I only had to do half, it's pretty rough as it will develop as my ideas of how to assemble the van take shape. You will see there are crossings out, you won't get it all right first time. The dimensions are a mess too with a mix of prototype feet, millimetres for the model, and where I planned to use Evergreen polystyrene strip I've used the strip size in thou (thousandths of an inch as the strip is from the USA and they're not metric yet). As it's only for me the mess doesn't matter, I know what I mean, but you might want to be tidier.



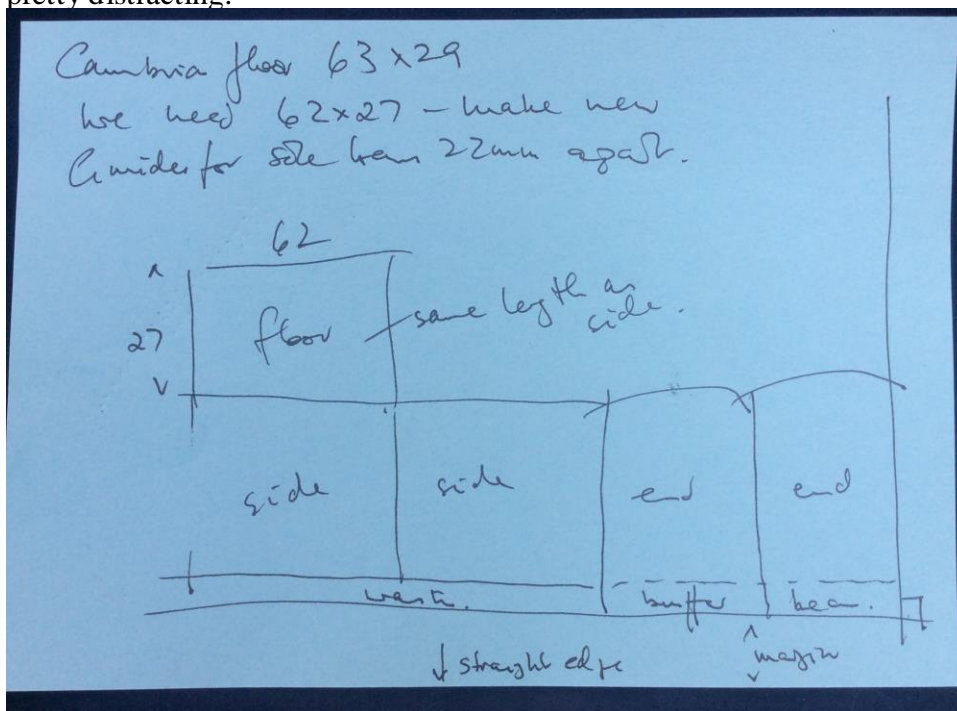
The neater second and final version which is the one I worked from. It's bigger so it's easier to see while I'm working, the notes are a bit more orderly, and there are more details. This was the sketch I referred to when I set out the side of the van on the plastic sheet. You will see that a lot of smaller detail isn't here, that will be added straight onto the model from the drawing or photos, no great thought is needed for them.



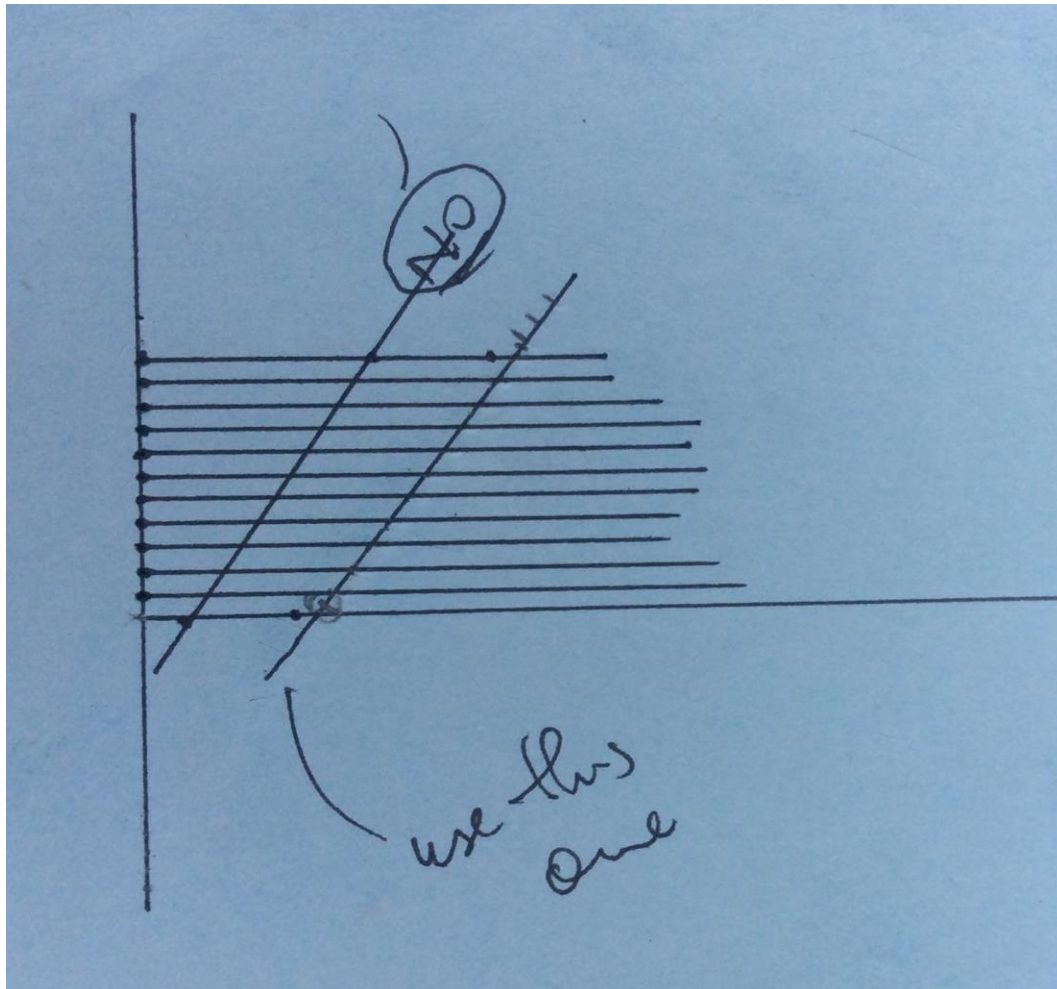
The sketch of the end (above). The bigger of the two shows how the end will be built, the smaller one along with the bit of algebra was used to determine the radius of the roof. Unfortunately the etched washer plates I mention didn't match the width of the planks so I had to emboss the bolt detail onto Evergreen strip.



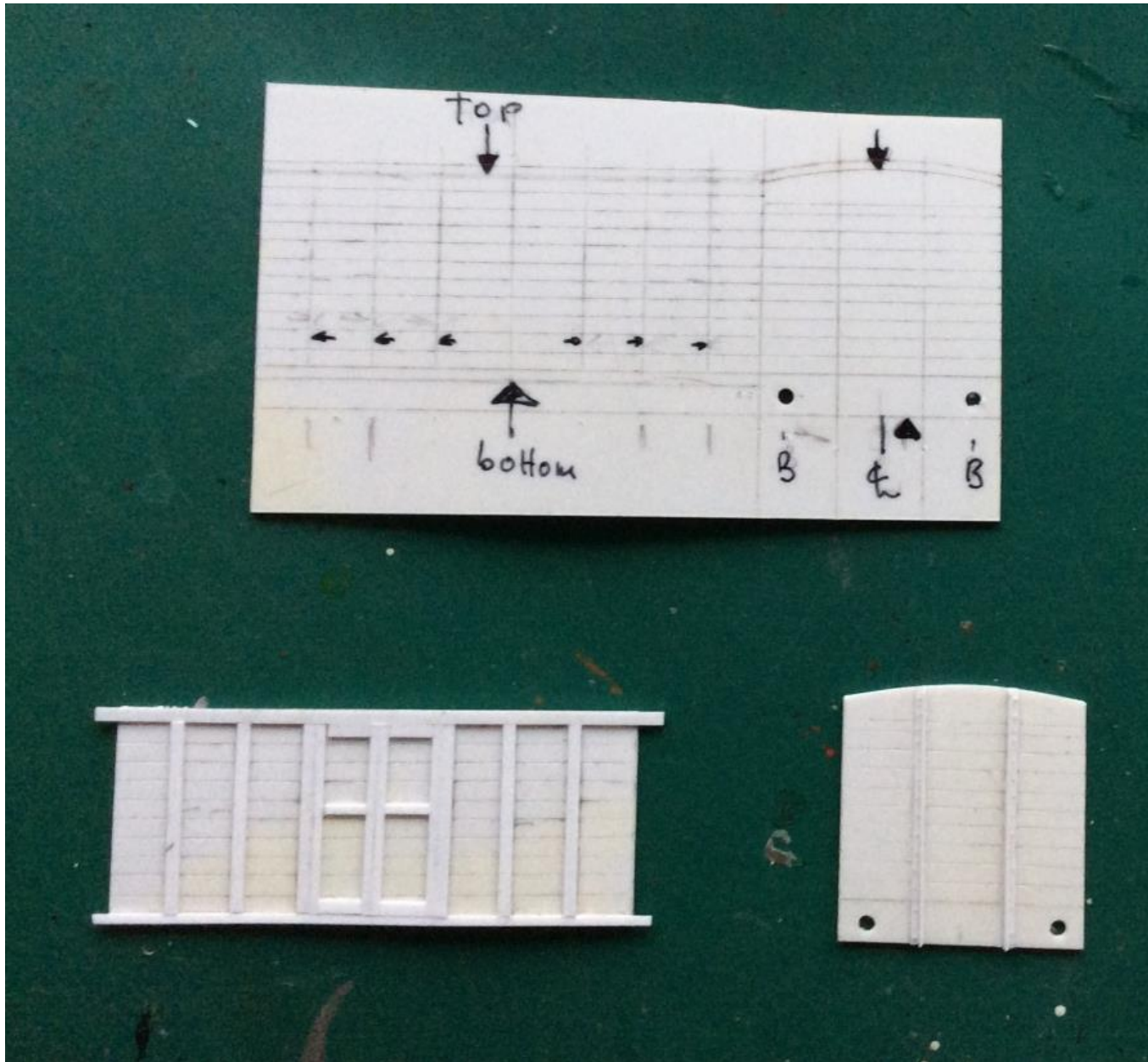
Another sketch to remind me how to put the bits and pieces together, not really needed perhaps but prepared on the basis of better safe than sorry, especially as I was going to build the van as a demonstration for other members of the club which can be pretty distracting.



The sketch above just shows how I planned to set out the various pieces on the sheet of plastic. I find it helpful to do this so I don't end up scribing the side detail on the floor or vice versa. I find it particularly useful in cases like this where the buffer beam is cut as part of the end and the side planking of sides and ends carries all the way around the vehicle. This way I ensure it all matches up. Note that as the floor is to be the same length as the sides I have placed it directly above one of the sides.



This is my way of getting the size of the planks right, and is the only one drawn with care and drawing instruments. This van has 11 equal size planks in a 6ft high side which is about 6.5 inches per plank. I'm not capable of converting that accurately to scale, so I use this method. On a vertical line measure out 11 or more equally sized intervals which are smaller than the finished plank size – I use a set of dividers for this – these measures are then used to draw accurately parallel lines perpendicular to the first which gives the horizontal grid you see on the sketch. Using your dividers again, this time set to the required body height, start from a mark anywhere on the bottom line, and carefully mark where they touch the 12th line (which represents the top of the 11th plank). Draw a line through the two points and this will give an accurate scale width for your planks. Scale the width off using your dividers and mark with these onto the plastic sheet. You will see I did it wrong first time (I counted 12 planks rather than 11!). We all make mistakes so just double check absolutely everything.



This shows the process of building up the parts. At the top is half of the plastic sheet scribed with the details needed for construction. I find the best tool for scribing in plank lines is an Olfa Cutter which most art shops will sell. It removes a small sliver of plastic from the line being scribed giving a very good impression of the join between planks. Scribing with a knife blade tends to leave a slight ridge either side of the cut which looks wrong. I have rubbed a little charcoal into the scribed lines so they're visible. You can see the outline of the side and end, the plank lines, the verticals where the outside framing will go, and various annotations just to remind me to put things in the right place when I could easily put them in the wrong one. You will see I made an error at the top of the pieces by putting in one too many planks, and have noted which is the proper place to cut. If I had put in one too few this would not have been easily corrected and I would have thrown the piece away and started again.

If you make a fundamental error don't bash on in the hope you can somehow fudge the issue, it never works.

Below that you can see a cut out side and end with the major detail added. This is really now just an exercise in taking care to cut things the right size, and to fix them in the right place, just like adding the detail to any model. The curb and cant rails are extended beyond the sides to act as guides when sticking all together. At this stage you have just made your very own kit!

The sides and ends can be assembled around the floor and the underframe assembled to it in accordance with the instructions that come with it. Once all is put together and working properly weight can be added inside before finally adding the roof. I like to make van roofs out of card from cereal packets as I think the texture replicated the canvas of the prototype. I wet a piece of card and fix it with elastic bands around a baked bean tin or similar and let it dry when it will have set into a curve. Cut to size and glue in place.