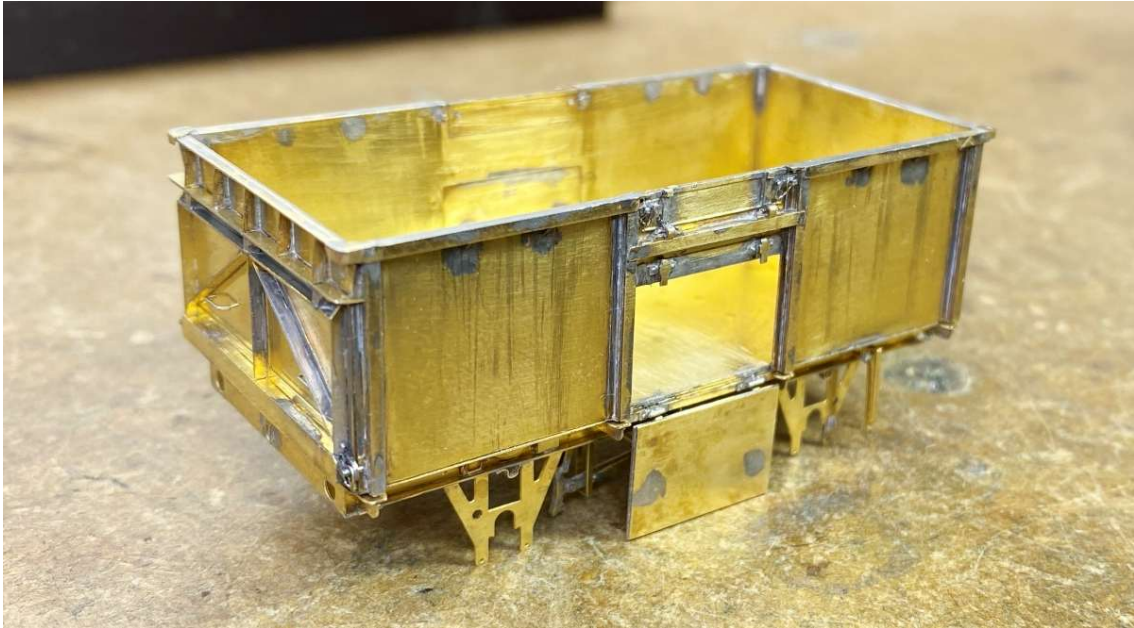


## S Scale Welded 16T Mineral Wagon Body

This set of instructions covers Rumney Models S Scale welded 16T mineral wagon body kits SC31 and SC.31A. They are the same aside from the provision of or absence of side top door (or London trader's doors). The kits will cover all welded 16T Minerals with welded side and end doors. There is the option for bottom doors and Monkey Tails are included.



Kit SC.31 includes the side top doors and is suitable for the following diagrams:

Bottom doors and Independent brakes (underframe kits SB.16)

LMS d.2314 (second lot only, the first lot had riveted side and end doors)  
MOT 1/104

No bottom doors and Independent brake (underframe kit SB.16)

BR 1/106  
BR 1/108  
BR 1/111

No bottom doors and Morton brakes (underframe kit SB.13)

BR 1/106  
BR 1/108  
BR 1/117

Kit SC.31 includes the side top doors and is suitable for the following diagrams:

Bottom doors and Independent brakes (underframe kits SB.16)

LMS d.2109  
MOT 1/102

There is a 16T Steel Mineral Wagon Fleet Survey document on the Resources page of the Rumney Models website that outlines the quantities that these types were built in and when. Wagons with no bottom doors and Independent brakes were not numerous, at least until bottom doors began to be removed from those that had them in the 60s.

There are detail options on the kit for early and late minerals. Early minerals didn't have wrap around corner caps, i.e. LMS d.2109, LMS.2134, MOT/BR 1/102 & 1/104, at least when built. The top bracing on the sides extended outwards to be flush with the top bracing on the non-door end and the corner caps were just triangular piece of flat metal that sat on the top of the corners.

## General Notes

Read through the instructions first and familiarise yourself with the components. Drawings and photographs taken during the construction of the test etches are included to attempt to make my waffle clearer. Parts are numbered on the fret, and I've tried to do this in build order.

## Etches

Check all holes before removing parts from the fret. The drawing process for etching, if you use a CAD program as I do, is extremely accurate but the actual etching process itself not an exact science. If the fret is slightly over etched, then there is no problem but if they are under etched the holes will need enlarging. I find that this is easiest to do before removing parts from the fret. The hole sizes will be noted at the appropriate points. Use an appropriate drill or a tapered reamer.

Remove one part at a time from the fret. The instructions will assume that tags connecting parts to the fret will be cleaned up on removal of a part unless it is specified specifically in the instructions not to.

### **Very important:**

**All fold lines are through 90° with the fold line on the inside unless stated otherwise.**

This means that when I say fold something up, the folds should be made through 90° with the fold line on the inside. If the fold is to be done in any other way I will say so.

Everyone has their own soldering methods. I now use an Antex 50W temperature controlled soldering iron with predominantly 145° solder and La-Co paste flux.

## Construction Overview

The stanchions are designed to be layered together on the sides (and end) using wire to align them. Once soldered together they can be cleaned up. The front part of the top bracing is designed to be aligned using the same pins. The two layers side bottom doors are also designed to be aligned using wire. This will mean there will be a bit of tidying/cleaning up to be done but they will mean everything is easily aligned and will end up in the right place. Similarly, the webs on the top of the sides and door end are designed to be aligned using slot and tabs which will need to be tidied up after assembly.

Construct the sides first along with the non-door end. Assemble these with the internal floor. Once you have three sides of the box, add the top of the door end flowed by the end door. Once the body is complete, add the floor. This should fit into the recess on the bottom. Note that the side stanchions will end up flush with the **bottom** of the floor.

Spares are included so if you find there are too many of a particular part, this is why.

## Materials List

You will need the following sizes of wire to build the kit.

0.3mm, 0.4mm, 0.5mm, 0.6mm and 1mm. 0.4mm is the most commonly used.

## Parts List

Parts are mostly numbered in suggest build order. The numbering is the same for both kits. Obviously, there are no side top doors in kit SC.31A.

### *Sides*

1 - Side

2 - Side Stanchions

- a - Non-door end
- b - Middle (LHS)
- c - Middle (RHS)
- d - Door end

3 - Side webs

4 - Top bracing (front)

- a - Early Minerals
- b - Late Minerals

5 - Top bracing (top)

- a - Early Minerals
- b - Late Minerals

6 - Top door hinge bracket (top)

7 - Top door hinge bracket (front)

8 - Top door

9 - Top door hinges

10 - Bottom Door

- a - Back
- b - Overlay

### *Non-Door End*

11 - Non-door end

12 - End stanchions

13 - Top bracing (front)

- a - Early Minerals
- b - Late Minerals

14 - Top bracing (top)

- a - Early Minerals
- b - Late Minerals

### *Internal Floor*

15 - Internal floor

### *Door End*

- 16 - Door end top
- 17 - Door end webs
- 18 - Door end top bracing
  - a - Early Minerals
  - b - Late Minerals
- 19 - Door end hinge plate
- 20 - End door
- 21 - End door 'angles'
  - a - Horizontals (3 off)
  - b - Vertical (middle)
  - c - Vertical (outer - 2 off). Note top marked on fret.
  - d - Angled
- 22 - End door locking bolt plates
- 23 - End door bracing
- 24 - End door hinges

### *Floor*

- 25 - Floor
- 26 - Floor packing pieces
- 27 - Side door hinge plate
- 28 - Spare side door hinge backing

### *Corner Caps*

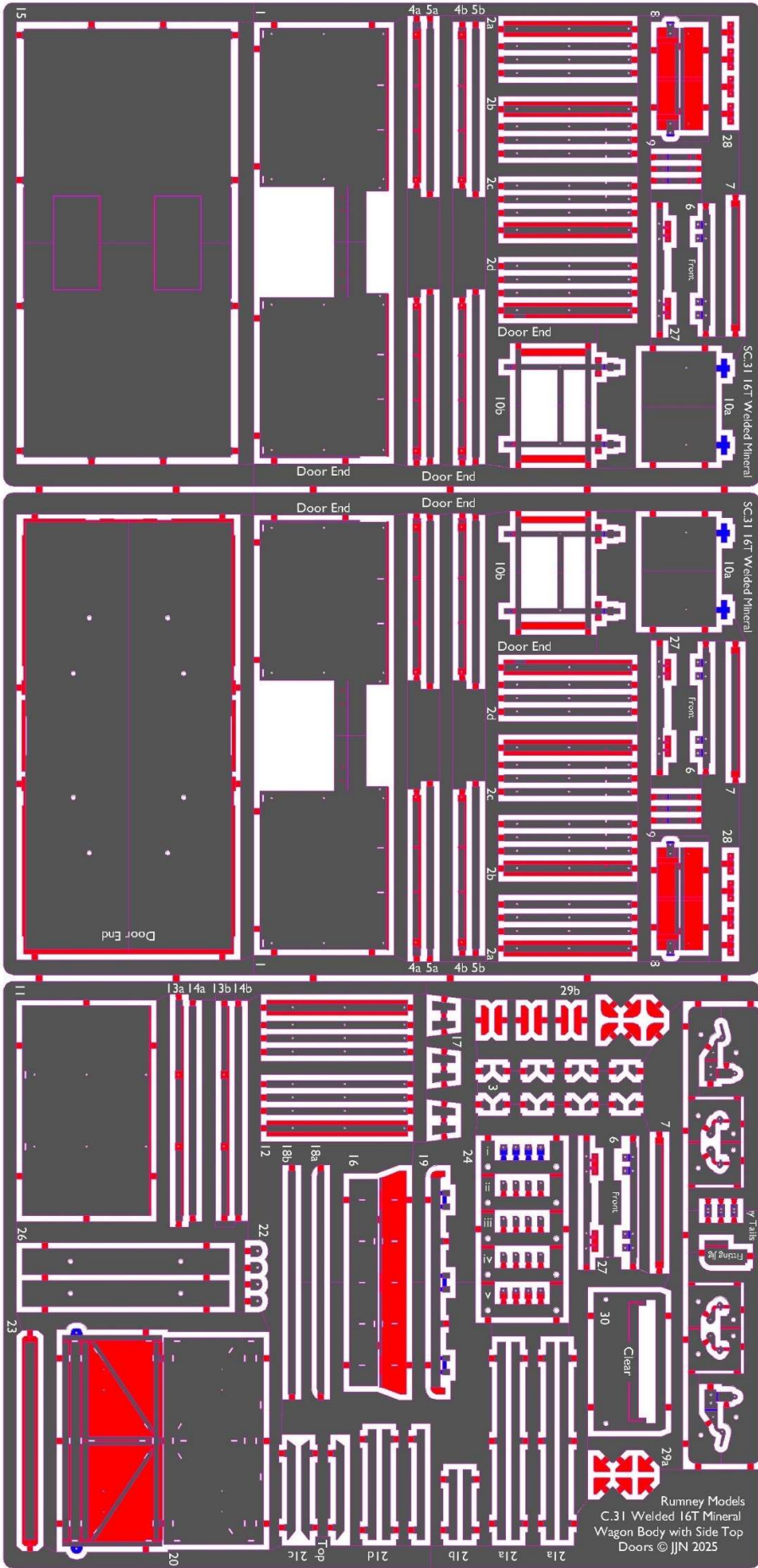
- 29 - Corner caps
  - a - Early
  - b - Late (come in two parts)

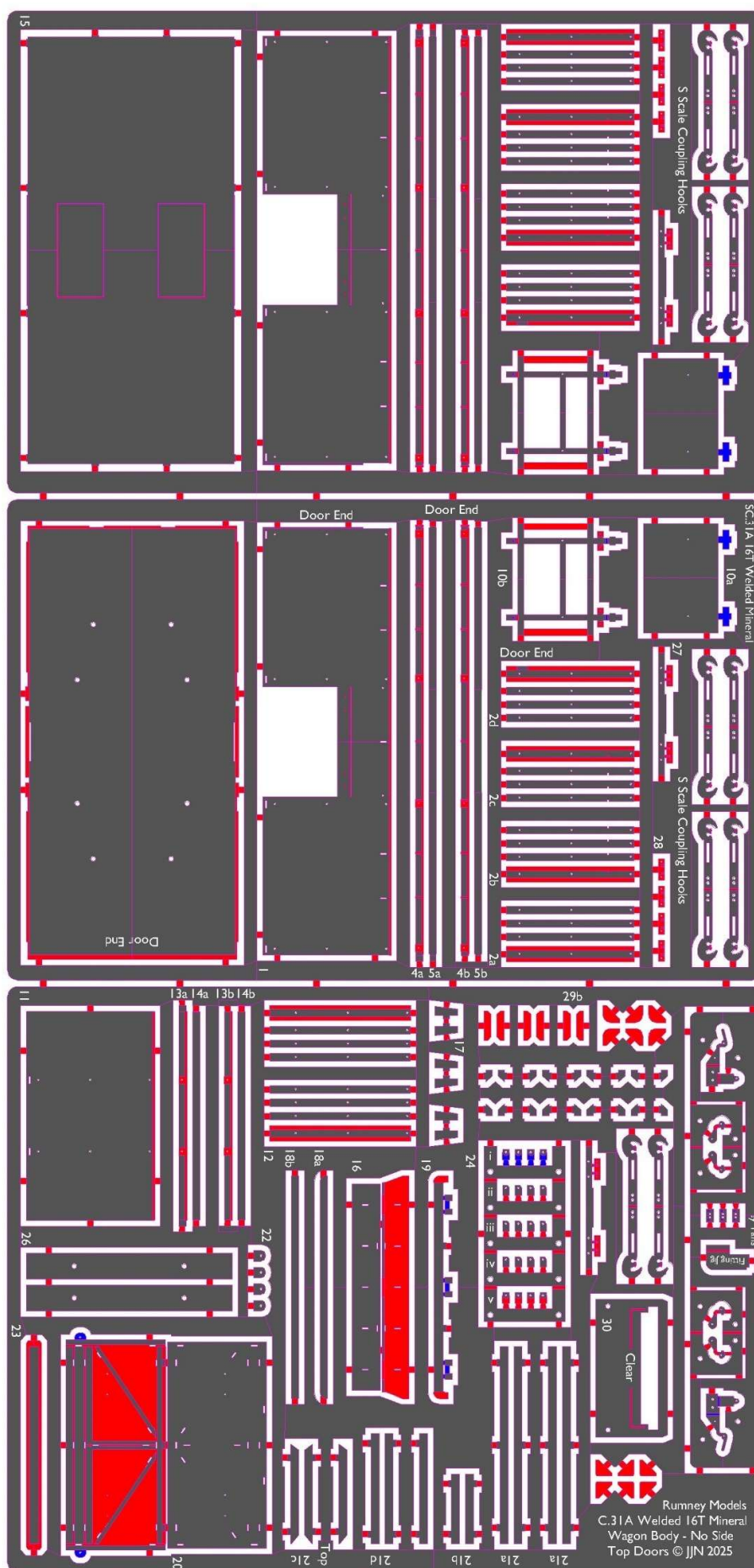
### *Other*

- 30 - Underframe top plate notching jig

### *Monkey Tails*

For minerals fitted with bottom doors. See B.115 instructions.





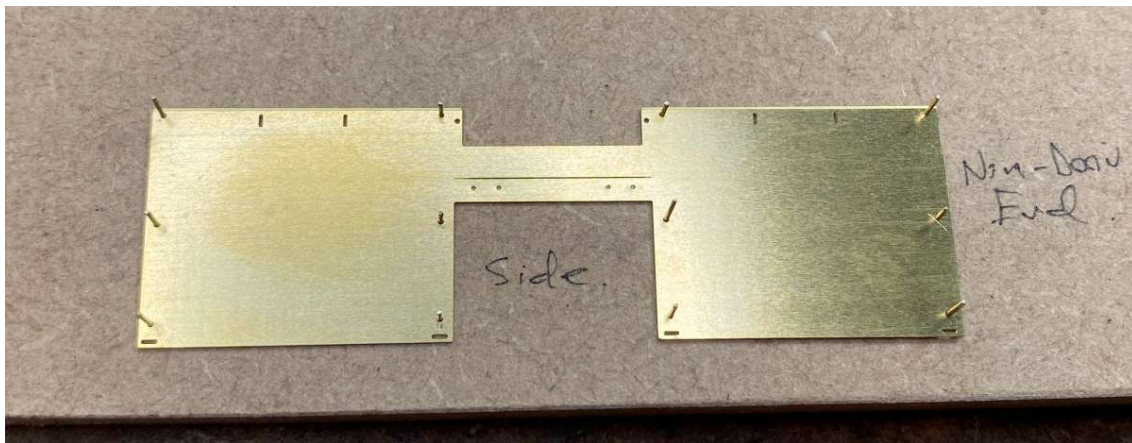
## Construction

### Sides

Note that the sides come in mirrored pairs that, except for part 3, are contained complete on their own frets with only part of the floor for company. They are arranged like this because the door end of the sides is different from the non-door end. Do one side at a time and don't mix the two frets up.

Start with the sides (1). Push out the four small half etched rivets for the bottom door catches. They are located above the large rectangular hole for the bottom door.

The side stanchions are located in place using 0.4mm wire so you will need a jig onto which you can assemble everything. I used a piece of mdf and used one of the sides to drill 12 holes into the mdf into which wire can be inserted. See image below. Make a note of the door or non-door end on the jig.

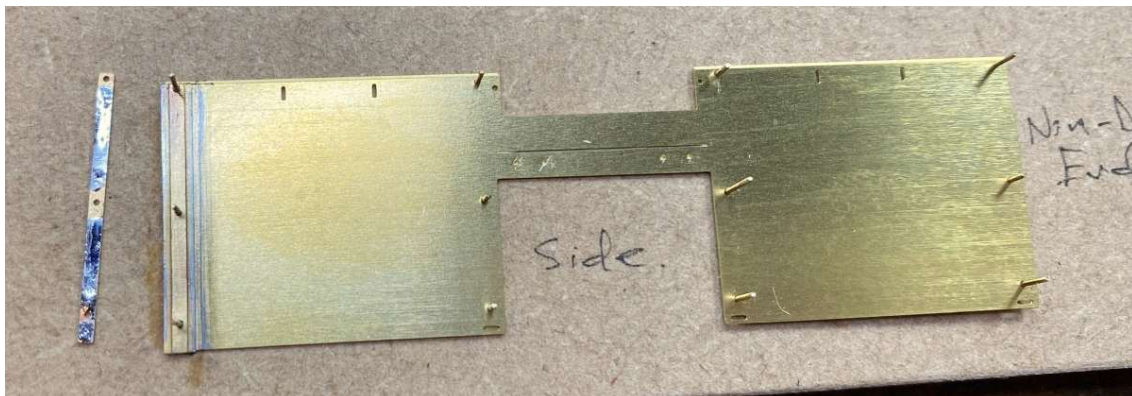


The side stanchions are arranged in the following groups:

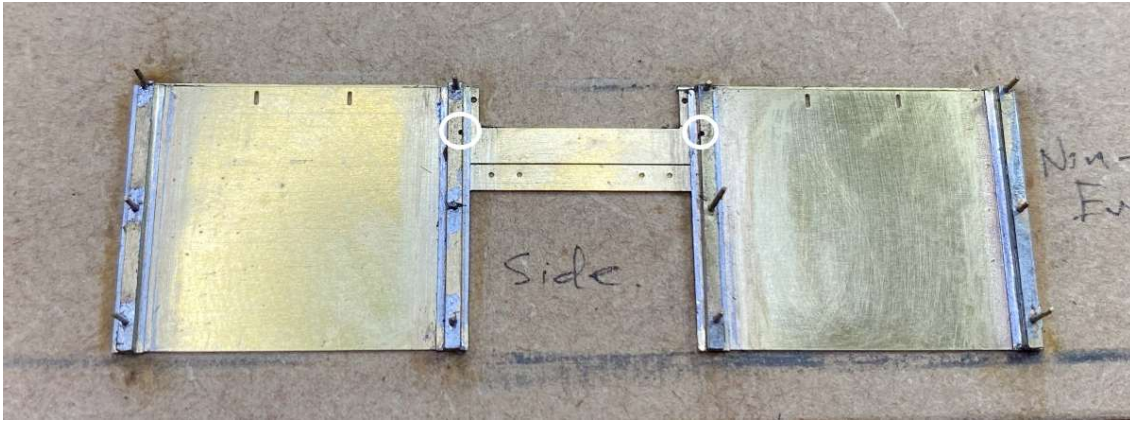
- 2a - Non-door end
- 2b - Middle (LHS)
- 2c - Middle (RHS)
- 2d - Door end

Make sure that all the holes can accept 0.4mm wire before removing from the fret.

Do one set at a time, making sure they are in the right place. For all four sets start with the layer with half etched areas on the sides which goes on first. Then work through the others



Continue until all are done on the one side. Note that the middle sets have notches on which should be arranged to face each other. See the circles in the image below.



Add the side webs (3) into the small slots at the top of the sides. There will be four on bodies with top doors and 5 on those without. The extra one being in the centre of the wagon.



Note that the top bracing is different depending on whether it is for the door or non-door end and the door end is noted on the fret. For wagons with no side top doors, the bracing runs the whole length of the side.

Next fit the top bracing (front) (4). These are aligned using the locating pins at the top of the side stanchions. There are two sets:

- 4a - Early Minerals
- 4b - Late Minerals

Early mineral had full length bracing and corner caps only on the top in the corners, not the wrap around type. They are suitable for the following diagrams, at least when built: LMS d.2109, LMS.2134, MOT/BR 1/102 & 1/104. Everything else had the late type.



Next add the Top bracing (top) (5). Again, there are two sets:

5a - Early Minerals

5b - Late Minerals

As with the top bracing (side), the door end is different so make sure that you keep track of this end. The parts fit into the gap at the top of the sides.



The next section covers the side top doors. If you are building one without these doors, skip to the bottom door section.

Fit the top door hinge bracket that goes across the middle of the wagon side between the bottom and top doors.

The top door hinge bracket (top) (6) goes in first. There are four small tabs on this which represent the brackets that the top doors were hinged from. Fold the tabs double and solder short lengths of 0.4mm wire into the holes to represent rivets. File the fold lines off. The part fits into the slots on the middle side stanchions. With the hinge brackets towards the front.

Top door hinge bracket (front) (7) then goes on top with part 6 fitting in the half etched recess. The two parts form an L facing downwards. Short lengths of 0.6mm wire can be added to represent the pivot for the hinges. There are half etched lines on the hinge brackets to locate these. Be warned, they are a fiddle.



The top door (8) folds double and is fitted to the sides using two short lengths of 0.4mm wire. These are the outer of the holes. 0.31mm wire can be inserted into the inner holes to represent rivets. Note that the front of the top door has more full thickness features.



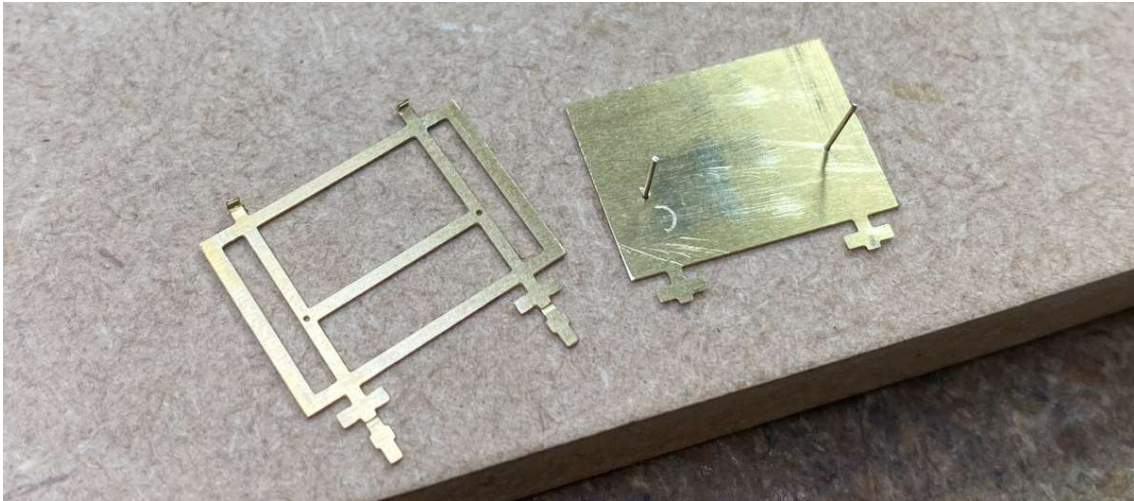
The top door hinges (9) need to go on next. They are a bit fiddle. When looking at the lettered side of the fret, the end of the hinges that is furthest from the number 9 needs to be folded double. There is then fold line on the other side that needs to be bent through 90 degrees and the fold line reinforced with solder. The other end then needs to be bent in the opposite direction to the 90 degree fold line. There is a half etched rectangle to mark where to do this. Once folded up the hinges can be added to the top door. The bottom of them can be tweaked after soldering in place to better fit the hinge brackets.



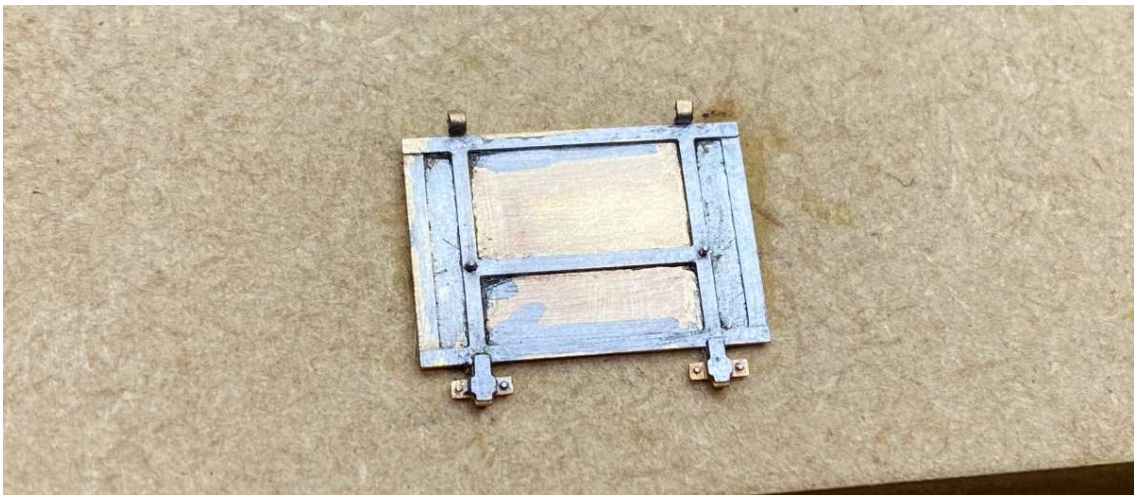
Next make up the Bottom Door (10). There are two parts to the bottom door which can be aligned using 0.31mm wire.:

- 10a - Back
- 10b - Overlay

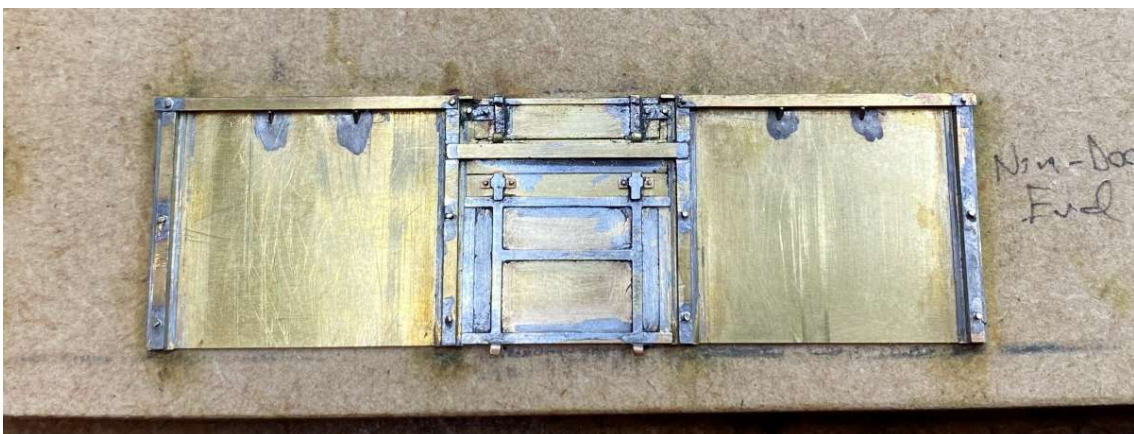
The overlay needs to be folded up at the top (door catches) and bottom (hinges). These two features are located on the strips that run through the overlay and contain the locating holes. The tops need to be folded double and soldered together. The bottom is similar to the hinges on the top door. There is a half etched fold line that needs to be folded through 90 degrees and reinforced with solder. The ends then need bending in the opposite direction at the small half etched rectangles.



Locate and solder the two parts together. The locating wire can then be filed flush on both sides.



The following image shows the bottom door in place. I left mine unfitted until I had soldered the sides, ends and floor together.



Repeat for the other side, noting that the door end will be at the opposite end of the sides.

## Non-Door End

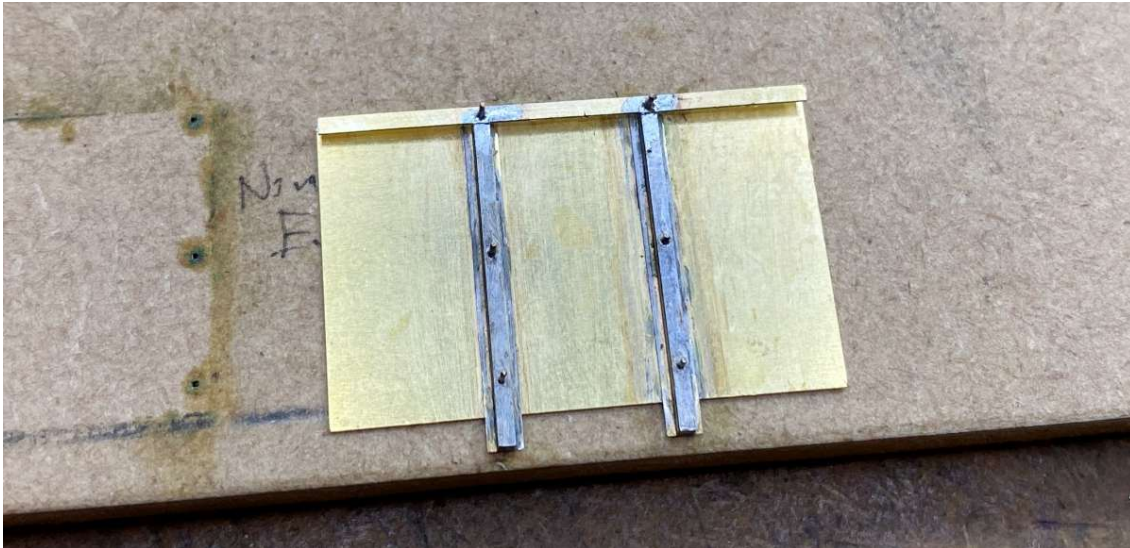
This follows a similar methodology to the sides. Create a jig using the non-door end (11) into which 0.4mm wire can be inserted to align the end stanchions (12). As with the side stanchions, the part with the half etched areas to the sides goes on first. Unlike the sides both stanchions are the same.

Next add the top bracing (front) (13). As with the side top bracing there are two types:

13a - Early Minerals

13b - Late Minerals

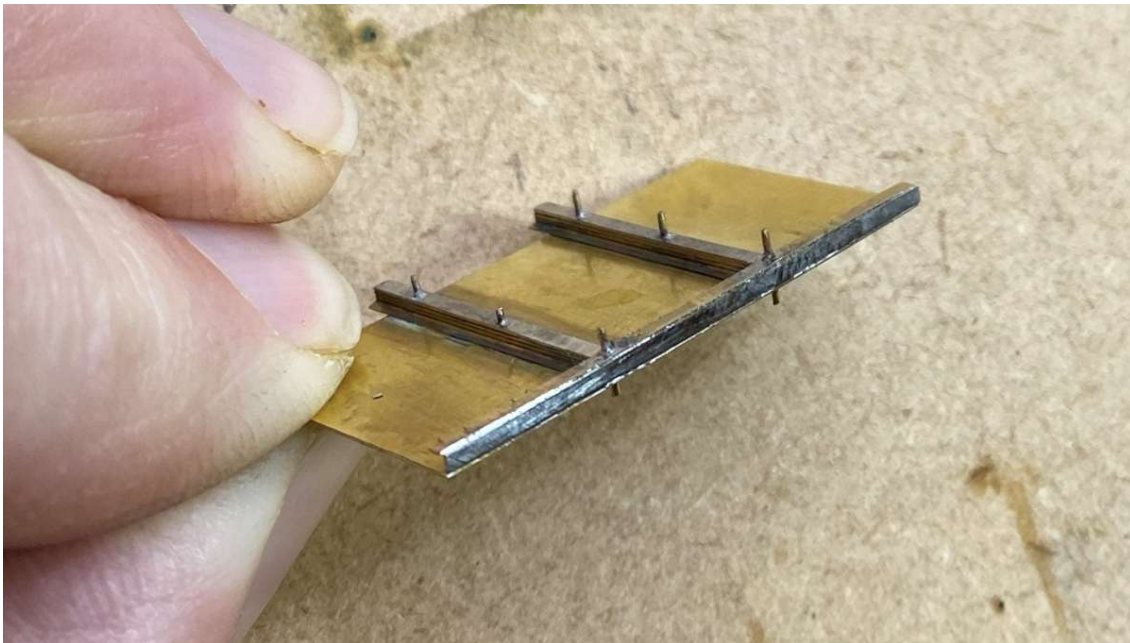
Solder in place using the topmost locating wire to align them.



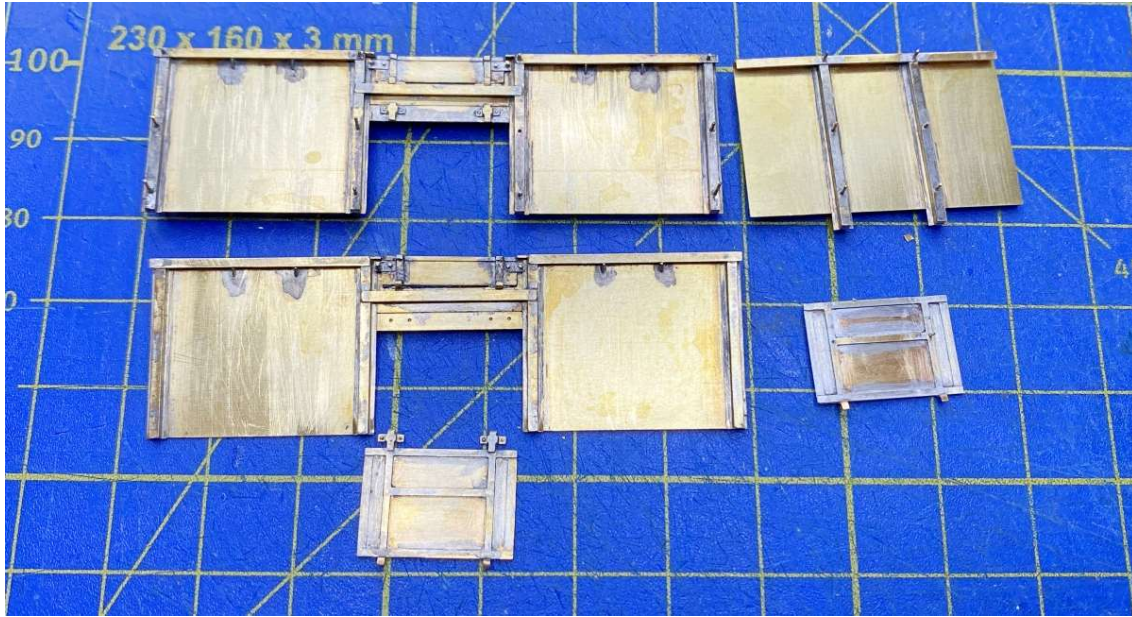
Add the Top bracing (top) (14). Again, there are two types:

14a - Early Minerals

14b - Late Minerals



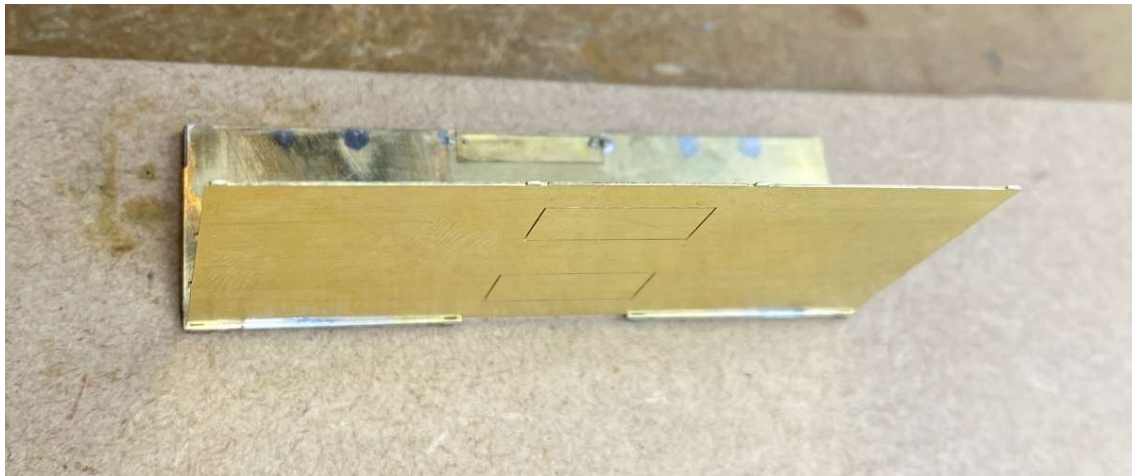
With the sides and non-door end complete, all the locating wires can be trimmed and the filed flush. Add a bit more solder if necessary to make them 'disappear'.



#### Body Assembly

At this point the basic body can be put together. The internal floor (15) locates the sides and ends together via slots and tabs. It is symmetrical so it doesn't matter which way around it is. There is an outline of bottom doors etched on one side. If you are modelling a mineral with bottom doors, make sure they are visible on the inside of the box. If you are modelling one of the many without bottom doors then turn it up the other way.

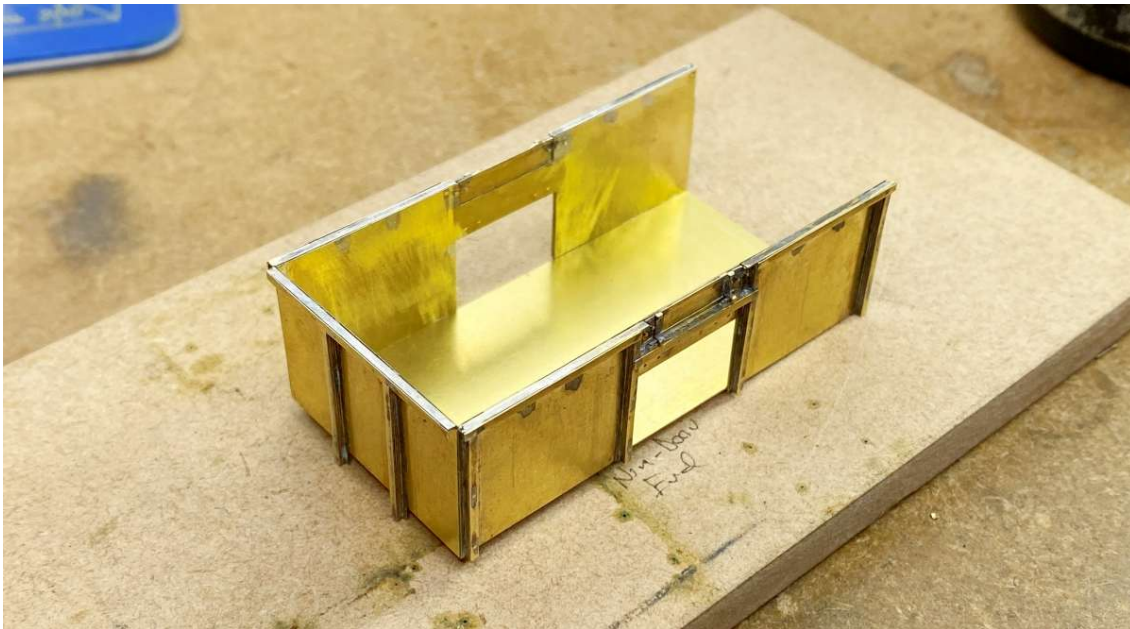
Tack solder the internal floor to one of the sides. Try to get the parts at 90 degrees to each other.



Next fit the non-door end. Tweak the side so that it is a good fit if necessary.



And then add the other side.



#### Door End

The door end can be made up next. I did mine by making up the fixed top first and then adding the door though I ended up having to remove the top and refit it as it didn't fit as well as I wanted. I will cover it as intended though bear in mind that you may want to remove the top as I did.

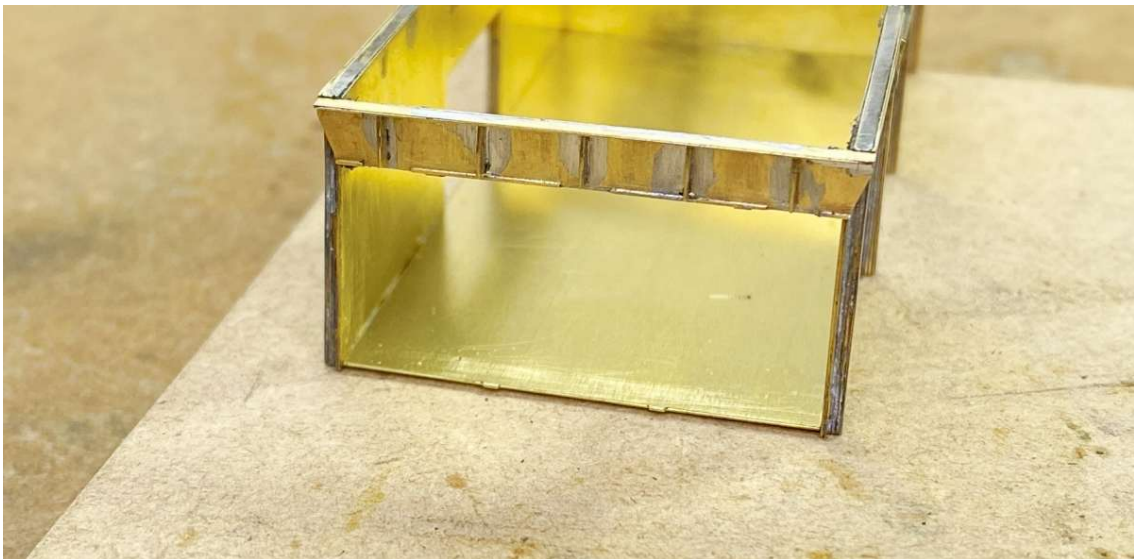
Remove the door end top (16) and add the door end webs (17). There are slots and tabs to locate the two parts. Make sure they are orientated as per the image below. Fit to the wagon body. There is a recess at the top to locate it (this is why the door end is different).



Next, add the door end top bracing (18) above the end door top. As with the top bracing for the sides and ends, there are two types:

18a - Early Minerals

18b - Late Minerals



Remove the door end hinge plate (19) from the fret and fold the three small detail tabs double. They represent the brackets for the hinges. Solder securely in place and file off the fold lines.



Fit under the door end top so that the hinge bracket detail is facing towards the bottom of the wagon.



Make sure it fits nicely against the bottom of the webs.

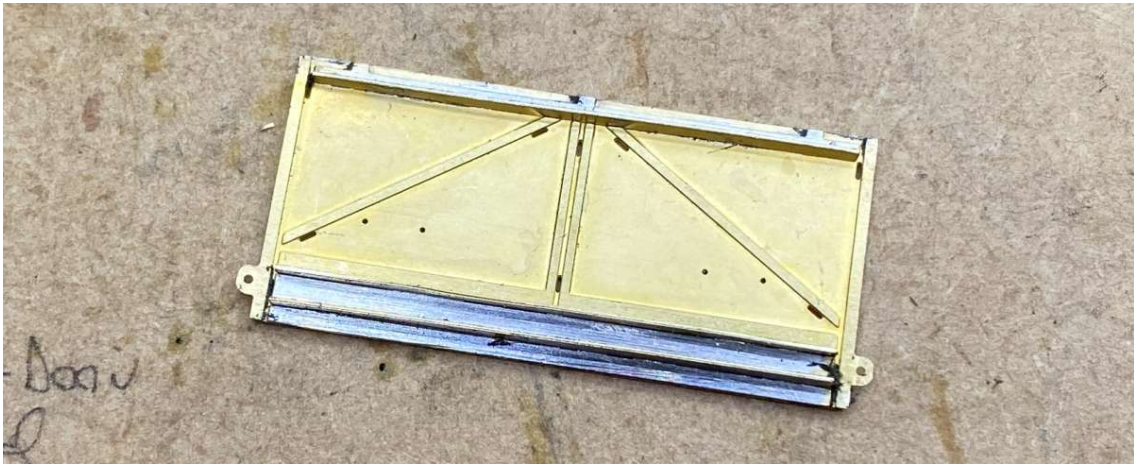


Next make up the end door. This consists of a double thickness plate with various 'angles' added to it to make up the L sections that the prototype was made up from.

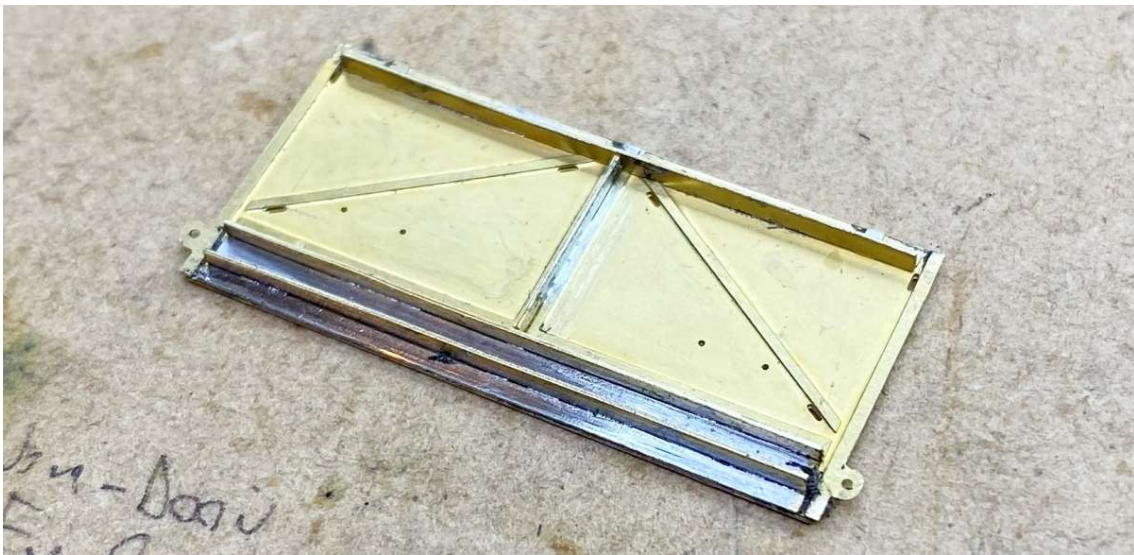
Remove the end door (20) and fold double. Solder the two sides together.

The door end 'angles' (21) can then be added using the slots and tabs provided. Note that the vertical (outer) ones (21c) have a correct way up and the top is noted on the fret.

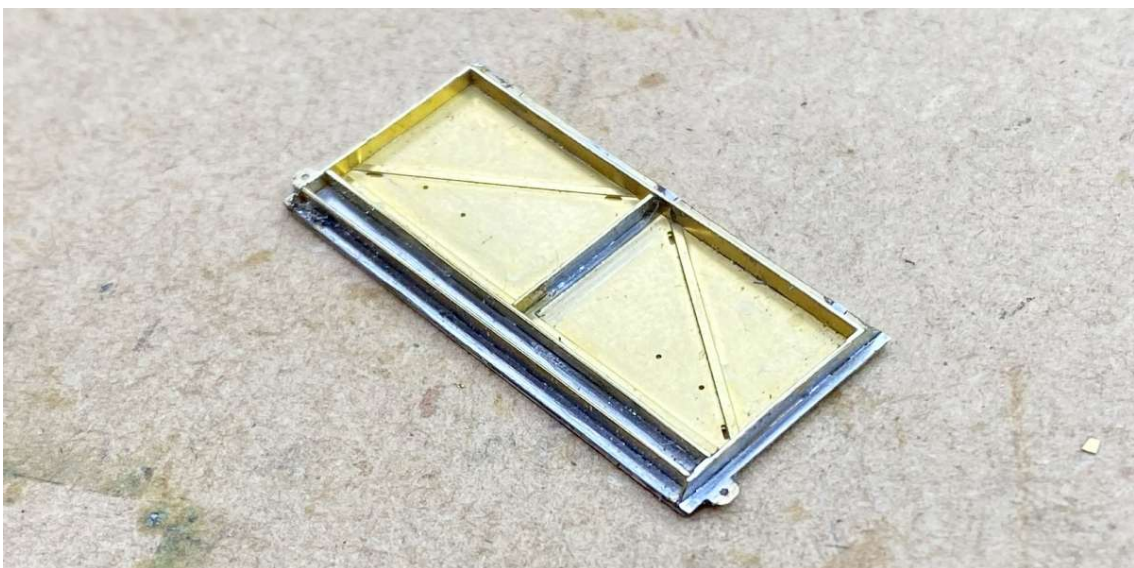
Start with the 3 horizontal 'angles' (21a). All three are the same.



Next add the vertical (middle) 'angle' (21b).



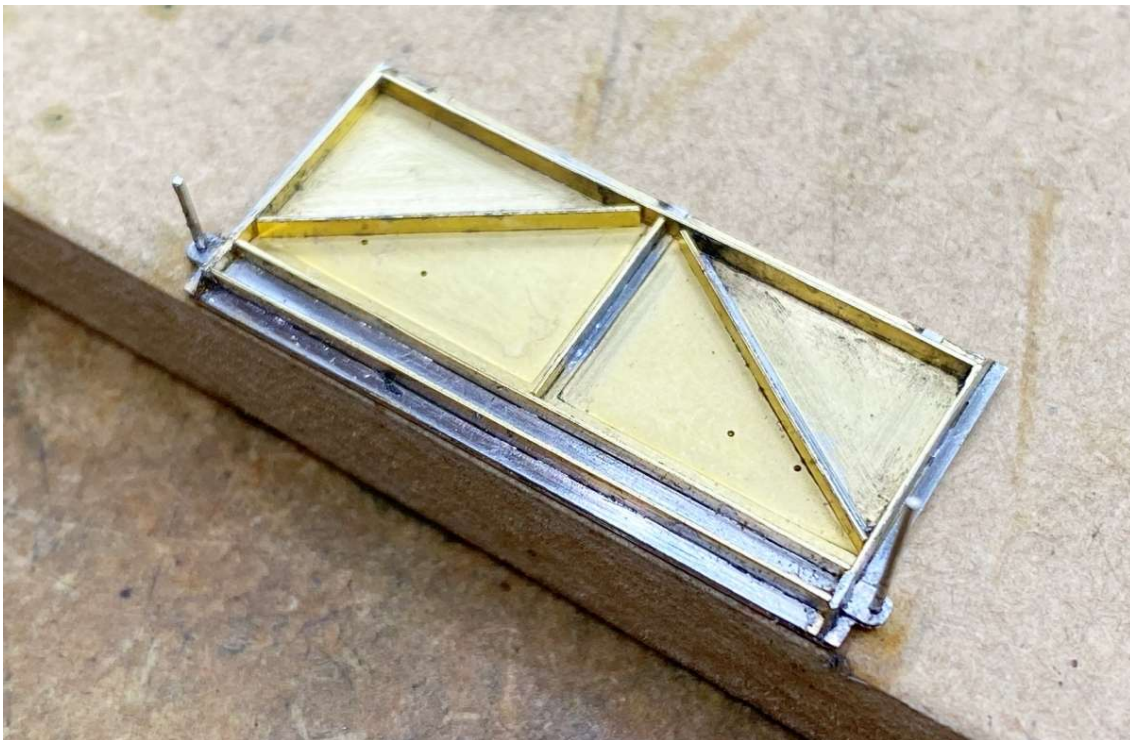
Next add the two vertical (outer) 'angles' (21c). Note the top is marked on fret. Chamfers are not the same top and bottom.



Add the angled 'angles' (21d).



Use the door to drill a pair of 0.5mm holes into your mdf jig. Insert two lengths of 0.5mm wire into the holes and then add the end door locking bolt plates (22) on top of the door. Solder the plates and the wire in place.



Next add the end door bracing (23) on top of the two bottom horizontals. The horizontal 'angles' should sit in the half etched recesses. See image below.

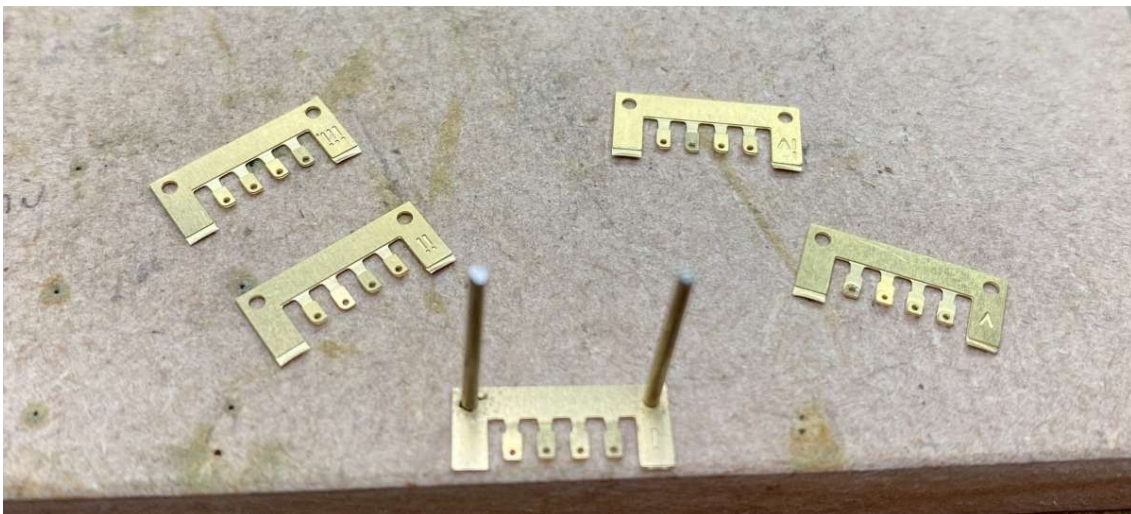
Clean up the locating tabs on the inside of the door. If necessary, add some solder to try and hide them as best you can.



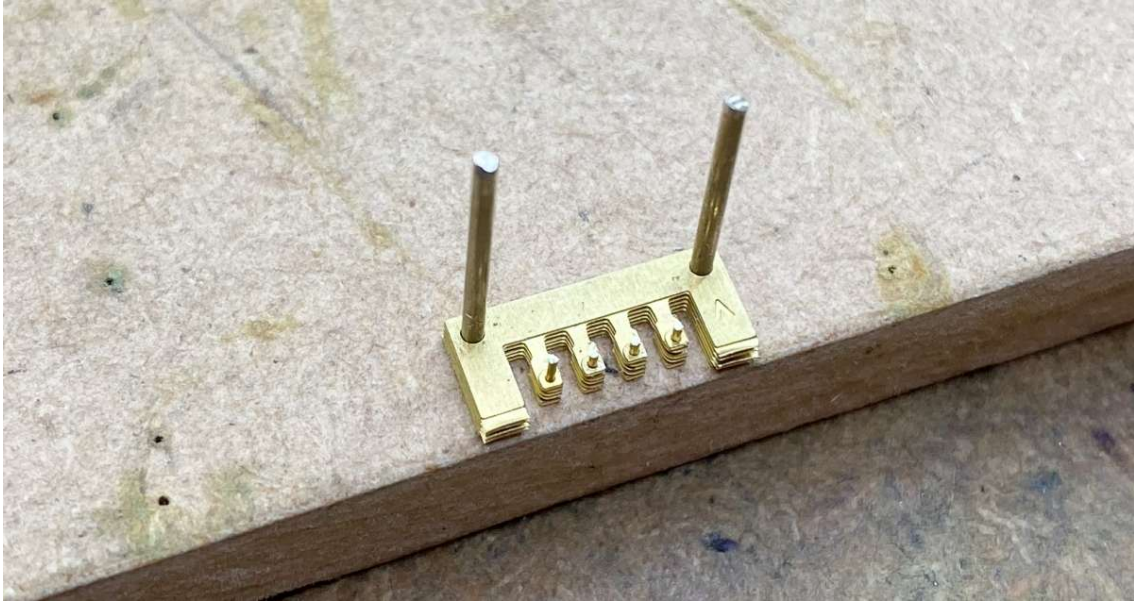
Check the fit of the end door and adjust the top if necessary. Solder the door in place. The inside edge is probably the best place to do this.

Make up the end door hinges (24). These are arranged on 5 small frets and should be assembled whilst still on these frets. The frets are to be overlaid in number order and solder together with 0.4mm wire for the pins before removing from the fret and fitting.

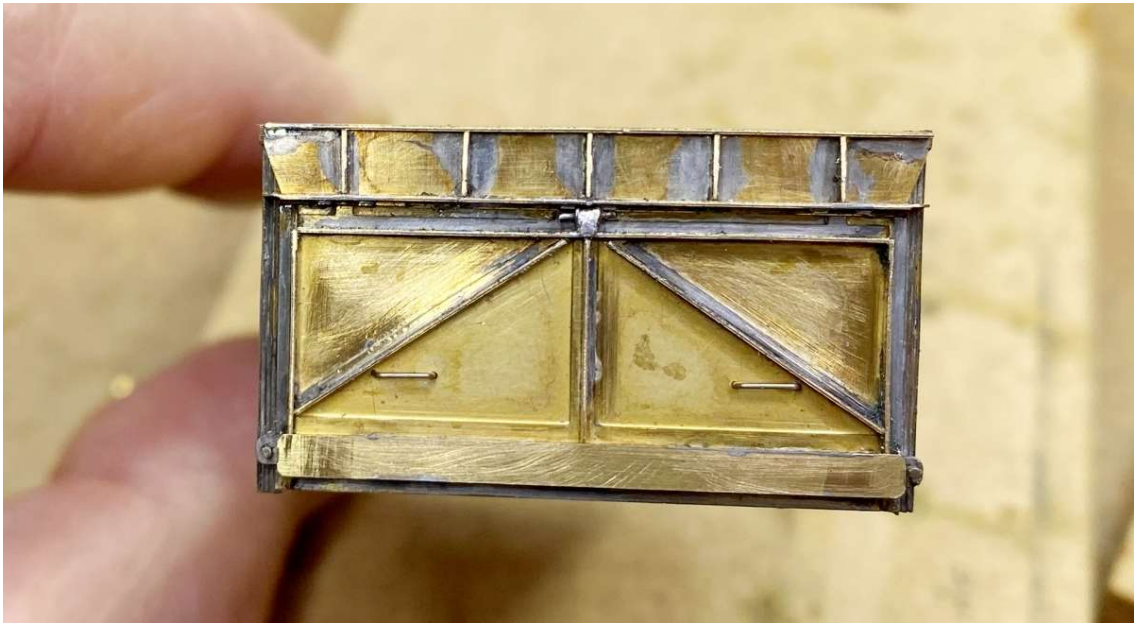
Use one of the frets to drill a pair of holes into your mdf jig. These holes escaped me when doing the S scale enlargements so you will need to use a 1.2mm drill/wire. If you haven't got wire that size, you could use a pair of drills. Alternatively, just drill 0.4mm holes through the hinges and use these which you will need to do anyway.



Layer the frets up in numeral order (i at the bottom to v at the top. All the numerals should face away from the jig) and insert lengths of 0.4mm wire for the hinge pins.



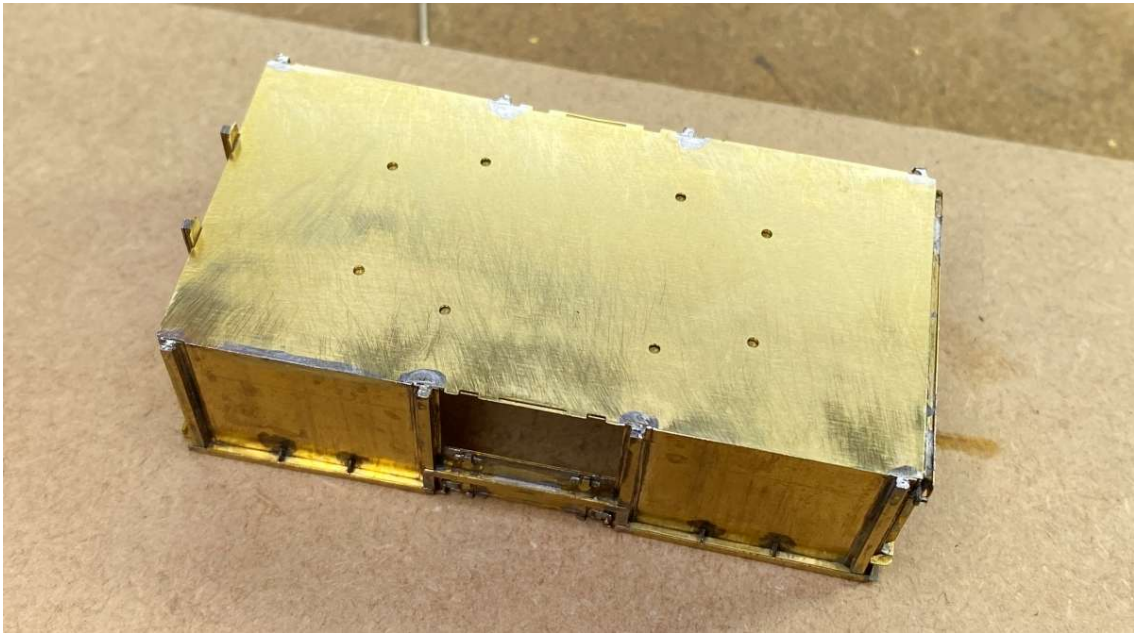
Solder everything together and then remove the hinges from the fret using a piercing saw. Three of the hinges can then be added using the brackets on the door end hinge plate to align them. This is a bit of a fiddle. There are four in total, so you have a spare just in case.



#### Floor

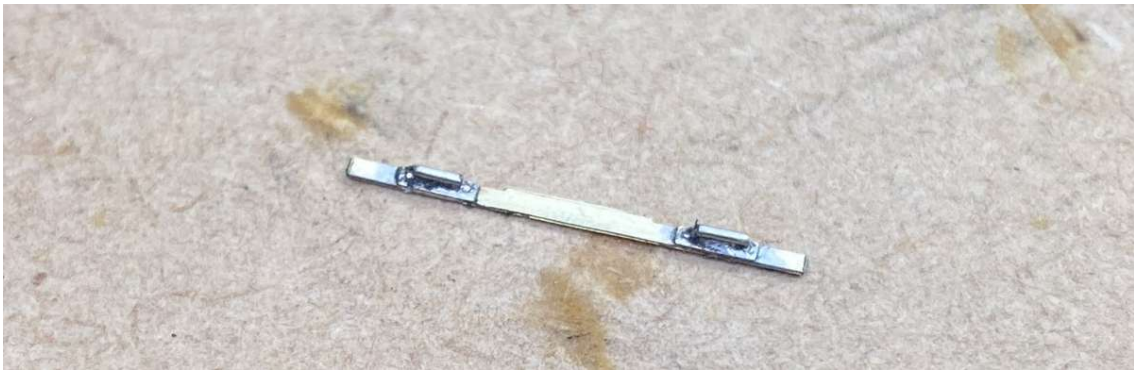
The floor (25) can be added now. Note there is a half etched area around the outside which goes up against the bottom of the sides/ends with the full thickness area going into the wagon. The stanchions should come to the bottom of the floor. Make sure it fits properly. There are floor packing pieces (26) to take out the gap between the floor and inner floor. Solder in place using 1mm wire through the outer holes to align. Don't solder the wire in place.

Fit on the wagon and solder the floor in place.

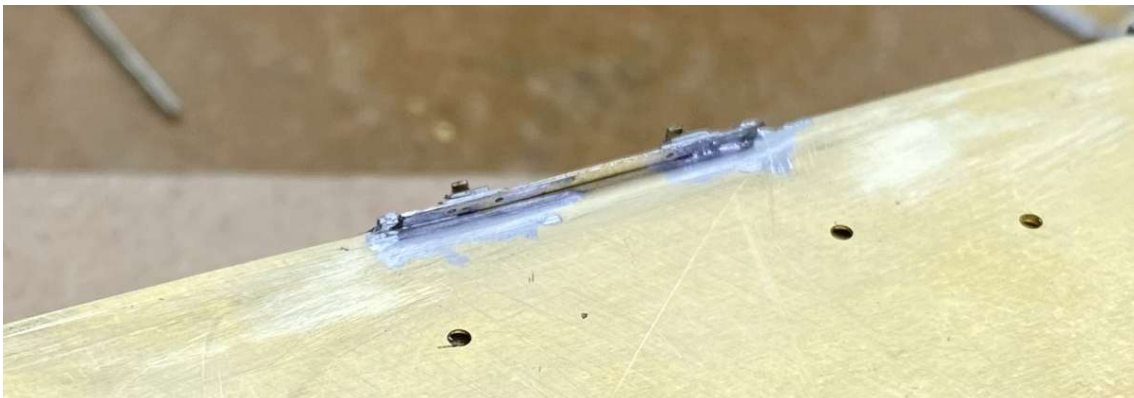


Next make up and fit the side door hinge plates. These go on the underside of the floor.

Remove the side hinge plates (27) from the fret and fold the two half etched tabs double. Solder in place and file off the fold lines. There are spare side door hinge backing (28) if necessary, that can be located using 0.4mm wire through the holes provided. Solder short lengths of 0.6mm wire in place into the half etched gaps to represent the hinge pivots.



The hinge plates can then be fitted to the underside of the wagon using the slots and tabs provided. Solder in place with the detail facing outwards.



Fit the side doors. I found it easiest to solder from the inside. Tweak the bottom of the door hinges to fit the brackets.



### Corner Caps

As mentioned earlier there were two types of corner caps (29):

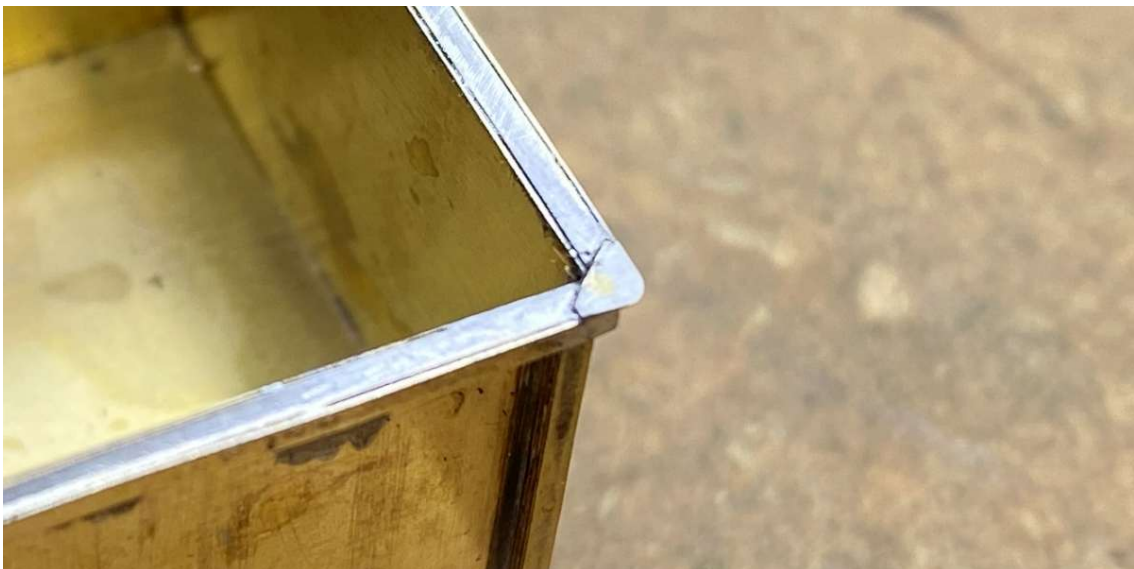
29a - Early

29b - Late

The early type is just a triangular plate that is solder on top of the corners. If using this solder in place with the angled part facing towards the middle of the wagon.

The late type come in two parts, a triangular plate to go on top and a fill to curve around the sides under the top plate. These are a fiddle but unfortunately more common.

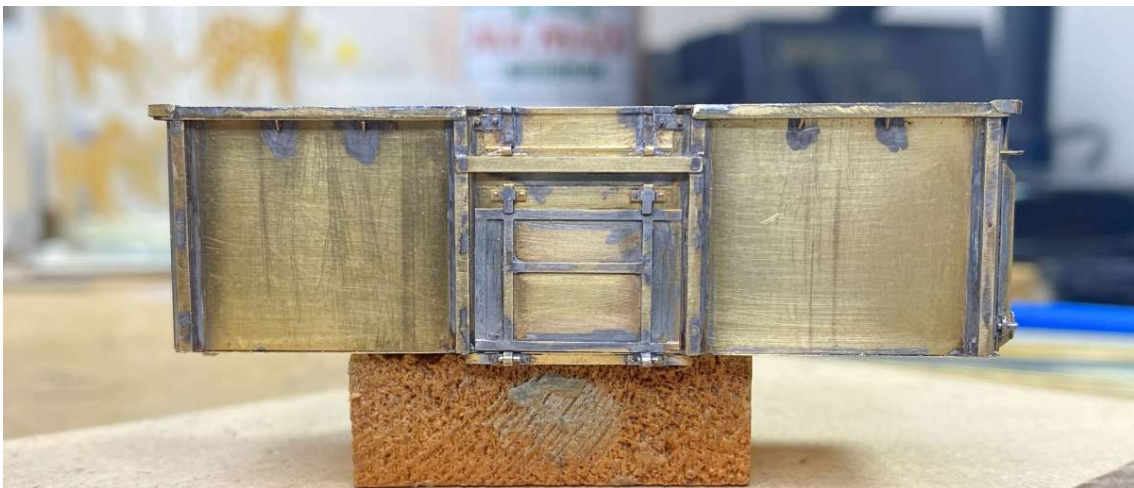
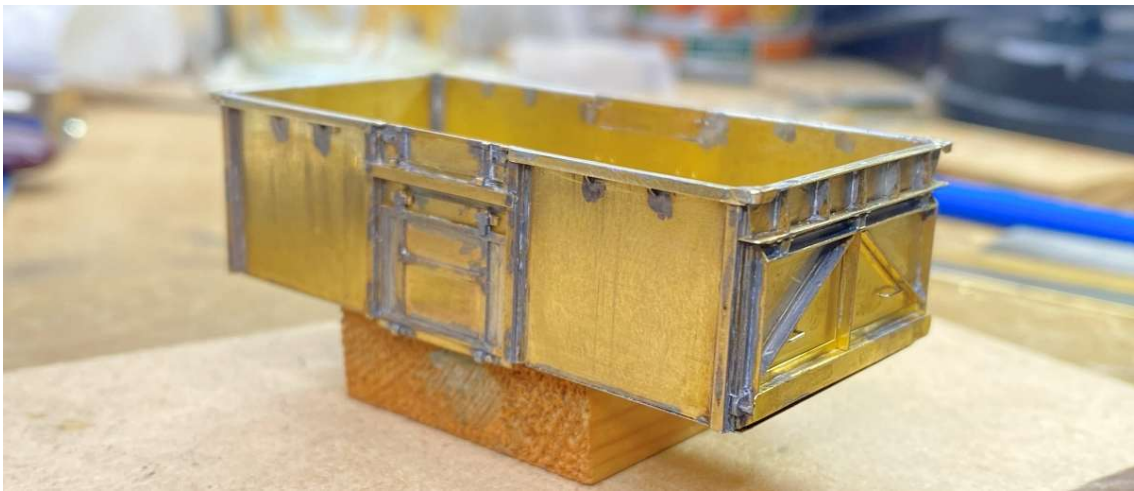
Firstly, solder the triangular plate to the top of the corners as per the image below. Try and get the edges in line with the outer edges of the top bracing.

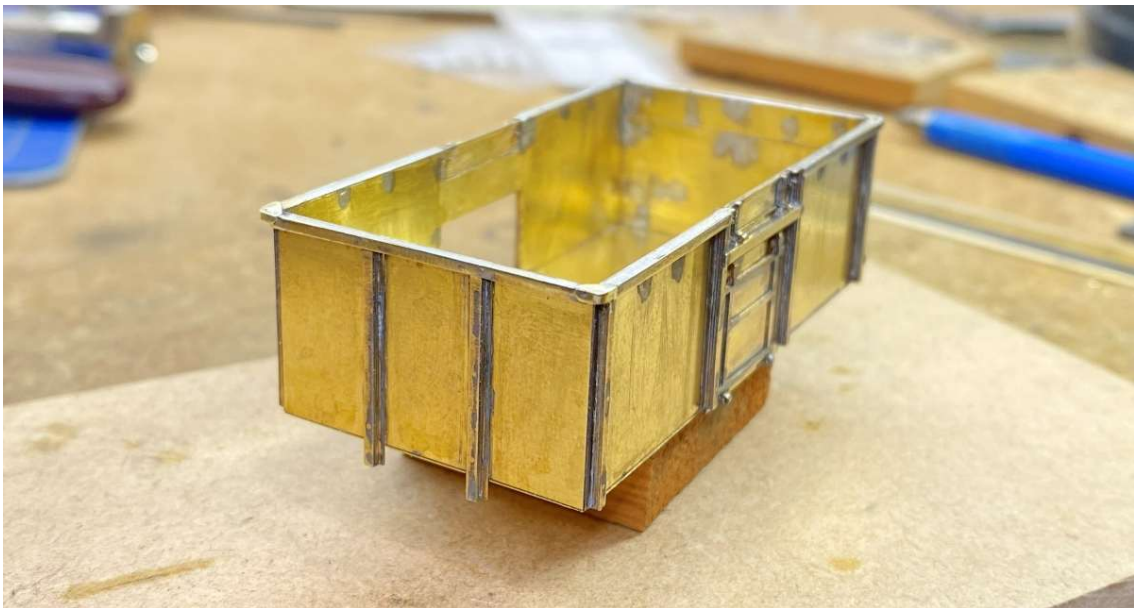
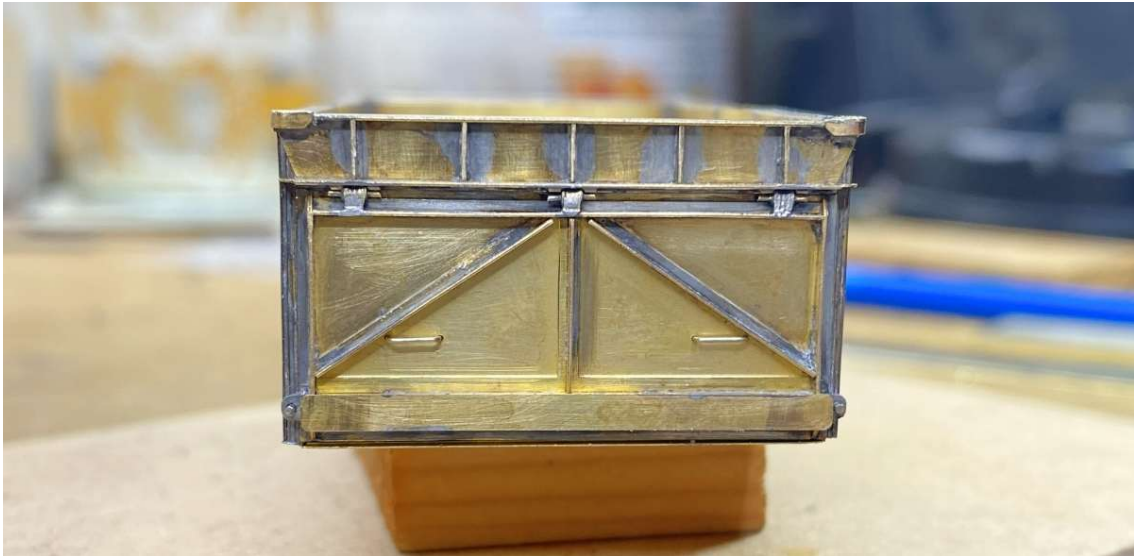


The bend the fill in the middle. The radius should be about 1.3mm. Turn the wagon body upside down so the plates are flat against a surface and hold the fill against the wagon whilst soldering in place. Not that the ends of the fill have a chamfer which should face towards the bottom of the wagon.



General Images





#### Other

The fret includes and underframe top plate notching jig (30). Slots will need filing/cutting in the top plate of the underframe for the side bottom door hinge plates to fit. Use the holes in the jig to align with holes in the underframe and file/cut slot where directed on the jig.

#### Monkey Tails

Monkey tails are included for minerals fitted with bottom doors. They are on their own fret and are the same as the 4mm version, just bigger. See B.115 instructions for how to assemble them. Use 1mm wire to assemble them.

Justin Newitt - February 2026