Rumney Models
14T Anchor Mount Tank Wagon Chassis Instructions

Notes

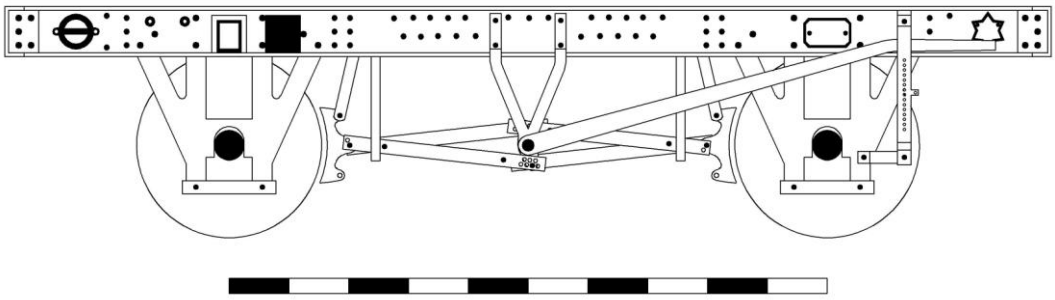
This set of instructions covers the 14T anchor mounted tank wagon underframe kit B.71. It is designed to provide an accurate 14T underframe with BR axleguards for the Bachmann anchor mounted tank wagon.

Anchor mounted tanks were introduced in the 1940s and continued to be built into the early 1960s. Indeed I believe that the last unfitted wagon built for use on the British Railways network was an anchor mounted tank wagon built for Berry Wiggins. They were built for various capacities and types of load with different tank diameters. Most common were 14T class A, 14T class B and 20T class B.

The Bachmann model actually lies somewhere between the correct diameters for a 14T class B (6'7") and 14T class A/20T class B (7'3"), these later two types having the same diameters. The tank and anchor moulding is very nice though and can provide a good basis for a finescale model of one of these vehicles.

Aside from the tank diameters there were a few other obvious differences between the various versions. The 14T underframes had standard (12-16T) wagon axleguards and axleboxes along with 6 leaf springs, whereas the underframes on the 20T wagons had heavier pattern axleguards, either RCH heavy duty or BR Plate, along with heavier springs (7 leaf) and axleboxes. Also despite the 20T class B tank being the same diameter as a 14T class A example it was longer and extended beyond the headstocks. If you are willing to extend the tank and overlook the greater diameter then the Bachmann model could be used to represent a 20T wagon.

The eagle eyed will note that early 14T tank wagons had RCH type axleguards and, as has just been mentioned, the 20T wagons had either RCH heavy or BR plate axleguards. I have done artwork for these three types and I'm happy to release them if and when there is sufficient demand to cover the cost of doing so. If you are interested in these types then please email me.



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. Note that not all the photos are of these particular chassis but suitably illustrate the item in question.

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

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

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.

Technical

The suspension is individual springs made from 0.008" steel guitar wire soldered to the etched spring/bearing carriers. For this you will need a suitable flux. I use Carr's Black label. If the finished vehicle is weighted to 50g with the weight evenly distributed then this will produce a spring deflection of 0.5mm. Don't be tempted to up the gauge of spring wire. Even moving up to 0.009" springs will have a significant effect on the spring deflection. Also don't over weight the wagon or the springs will not have enough upwards movement before they hit the axleguards. Think of the 50g total as an ideal weight but also a maximum. There are notes on weighting the wagon at the end of the instructions.

The chassis is designed to produce a buffer centre height, when the kit is completed and weighted to 50g of 13.8mm when using Exactoscale wheels. The Exactoscale wheels are 13.4mm (3'1½") in diameter. Different makes of wheel may slightly affect the ride height depending on their diameter.

Materials list

Several sizes of wire are needed to build the chassis. Eileen's Emporium are good source for these and they do a mixed sizes pack if you don't want to buy large quantities.

0.31mm - Most of the brakegear, tie bars, brake lever guards, safety loops
0.4mm - Valve wheel
0.8mm - Brake cross shafts
1.0mm - Alignment pins for the brakegear frets

You will also require items such as buffers, axleboxes and springs as well as couplings to complete.

For buffers I would recommend those produced by Lanarkshire Model Supplies. They are by far the best around and a lot of types of buffers are available pre drilled for fitting sprung buffer heads. This service is particularly useful for some of the heavy duty buffers with their large 2.5mm shanks. The quality is excellent. Anchor mount tank wagons generally had 1' 6" spindle buffers with 4 rib (Lanarkshire Models code B031) and fabricated (B011) being most common.

Metal buffer heads are available from MJT or Wizard Models.

The 14T wagons were fitted with 6 leaf springs and cast two part oil axleboxes with the BR type being by far the most numerous though early examples had the RCH type. Rumney Models produces suitable 6 leaf spring castings with BR (FA.06) and RCH (FG.06) 2 part axleboxes. See the Rumney Models website for further details, including illustrations. They are listed under Wagon Castings in the 4mm scale section.

Rumney models produces coupling hooks suitable for these (B.94) and also BR Instanter links (B.95A). These can be found in the 4mm section of the Rumney models website under Wagon Detailing. Exactoscale supply links and these are available through C&L. If you need screw couplings Masokits supply them and something is in preparation from Rumney Models.

Contact details for the above suppliers can be found at the end of these instructions.

Component List

1 - Bottom plate
2 - Longitudinal spacers
3 - Transverse spacers
4 - Angled end spacers
5 - Top plate

7 - Solebars
8 - Solebar detailing

9 - Solebar/headstock corner plates
10 - Solebar/headstock bracing
11 - Coupling pockets

12 - Additional vees

13 - Main brakegear
14 - Brake shoe infill
15 - Push rod cranks
16 - Push rod infill
17 - Push rod safety loops

18 - Spring Carriers
19 - Bearing washers
20 - Axle keeps
21 - Tiebars

22 - Brake lever guards/brackets
23 - Brake lever guard stays
24 - Brake levers

25 - Buffer retainers

26 - Ladders (Type A)
27 - Ladder solebar brackets (Type A)
28 - Ladders (Type B)
29 - Ladder solebar brackets (Type B)
30 - Ladder assembly jig
31 - Ladder drilling jig
32 - Valve wheels

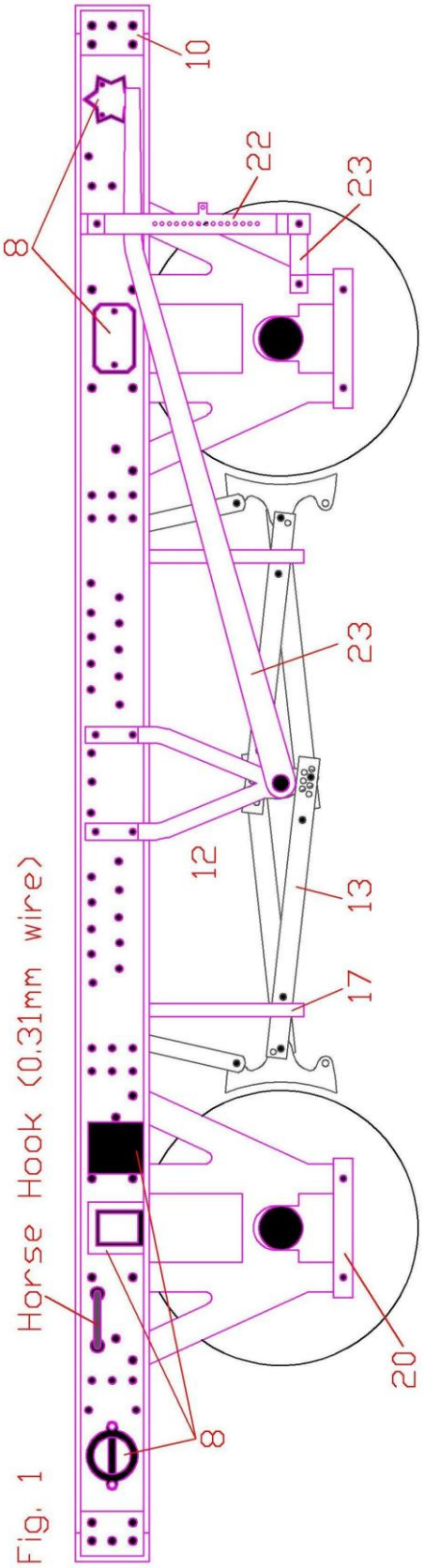
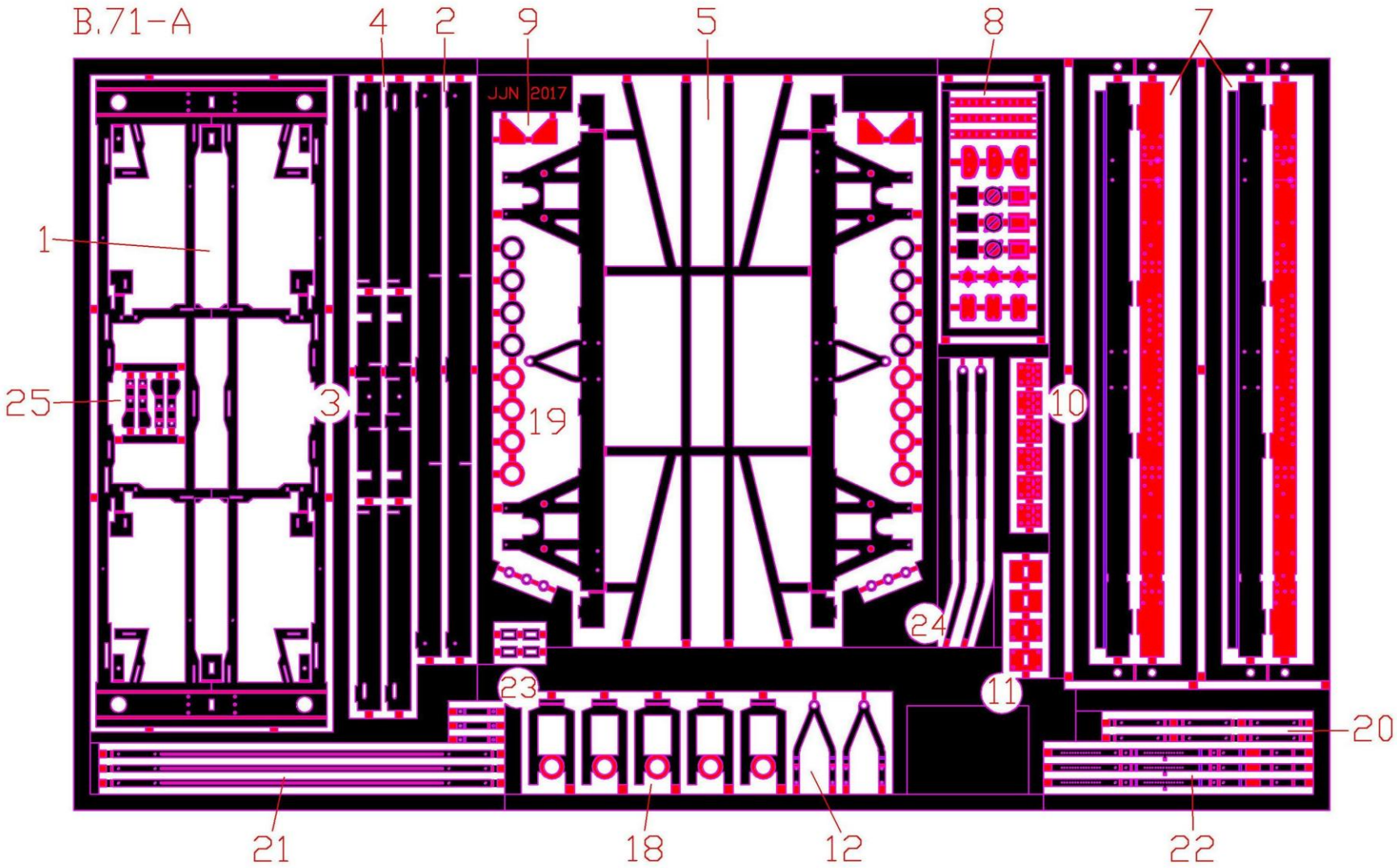


Fig. 1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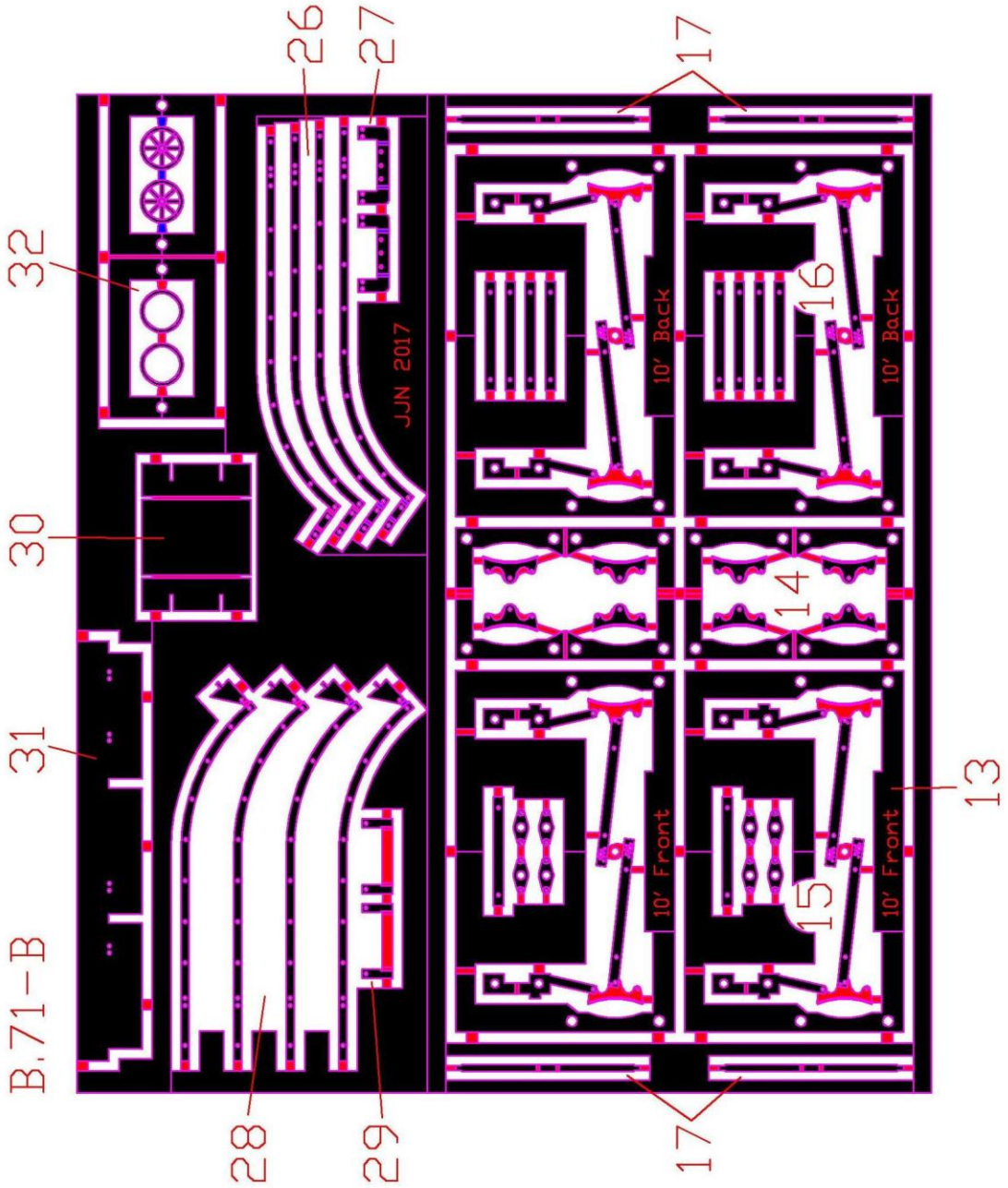


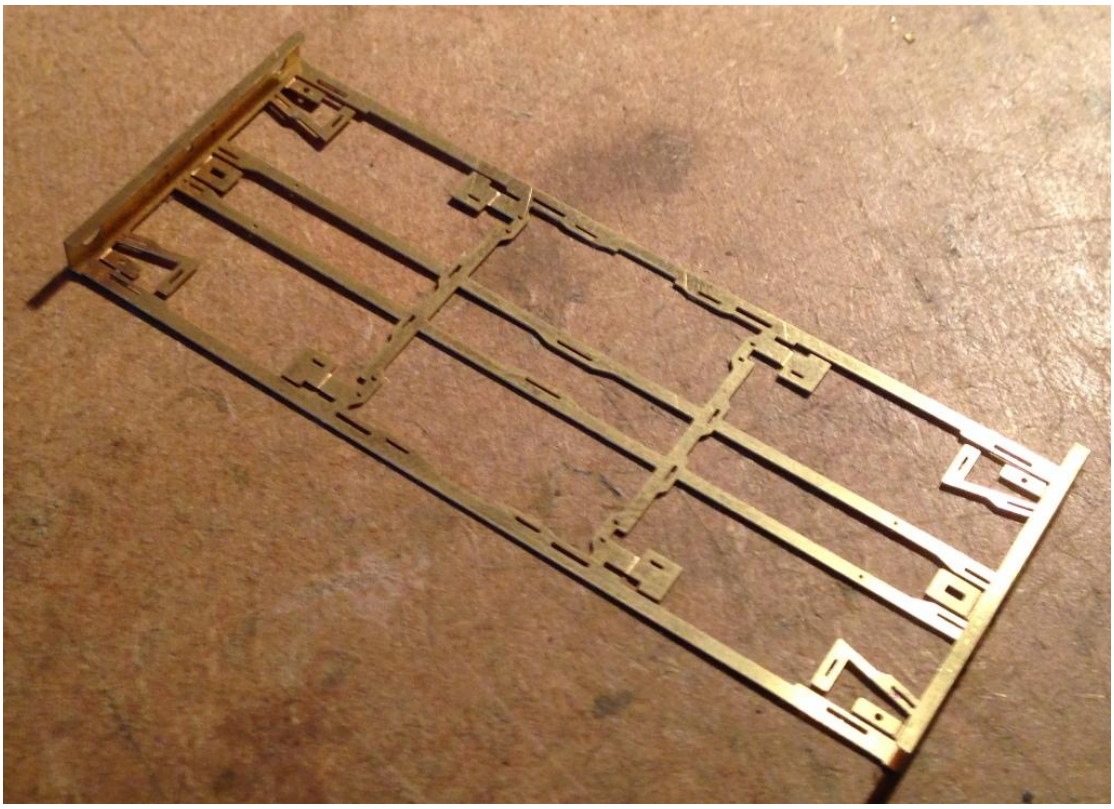
Construction

Main Chassis

Firstly check the fit of your buffers in their holes in the headstocks. It may sound a bit odd starting with something that usually goes on at the end but it will be much easier to open out the holes now rather than later.

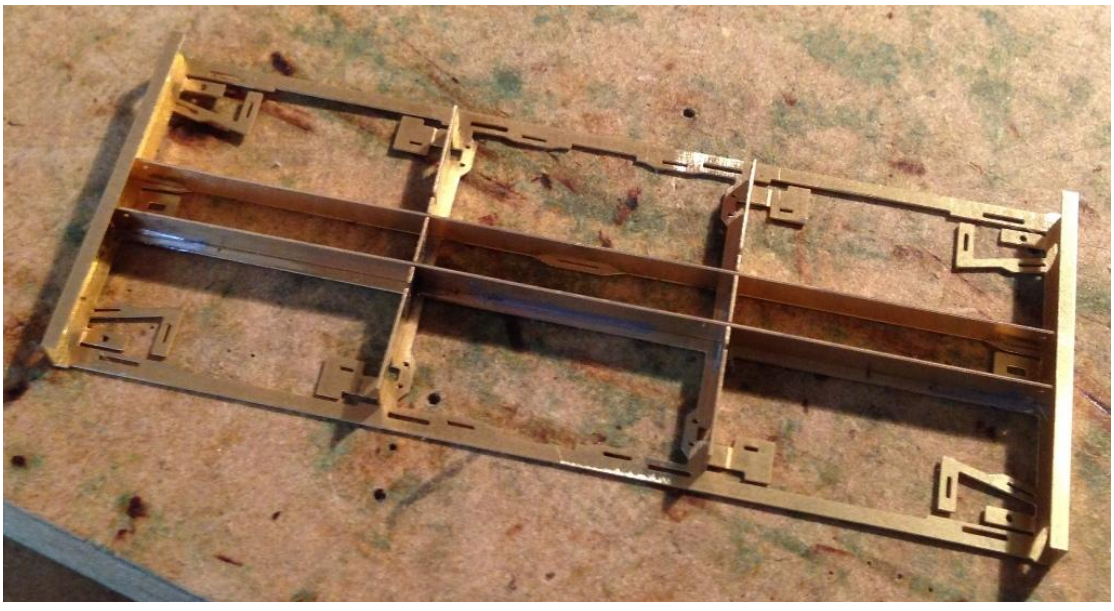
Start with the chassis bottom plate (1). Push out the half etched rivets on the headstocks. I find the easiest way to do this is to use a drop head rivet press with the fret placed over one of those ubiquitous green cutting mats. Remove from the fret. Remove the buffer retainers from the middle of the axleguard assembly and put to one side. Clean up connecting tags.

The headstocks need to be folded up. This is best done with the chassis bottom plate clamped to something or held in a vice to avoid distortion. There are two sets of fold lines as the headstocks need to be folded into a channel. Starting with the outermost parts of the chassis, fold the bottom plate fold through 90°. Next fold the headstocks through 90° to form a channel. Do not reinforce with solder yet.

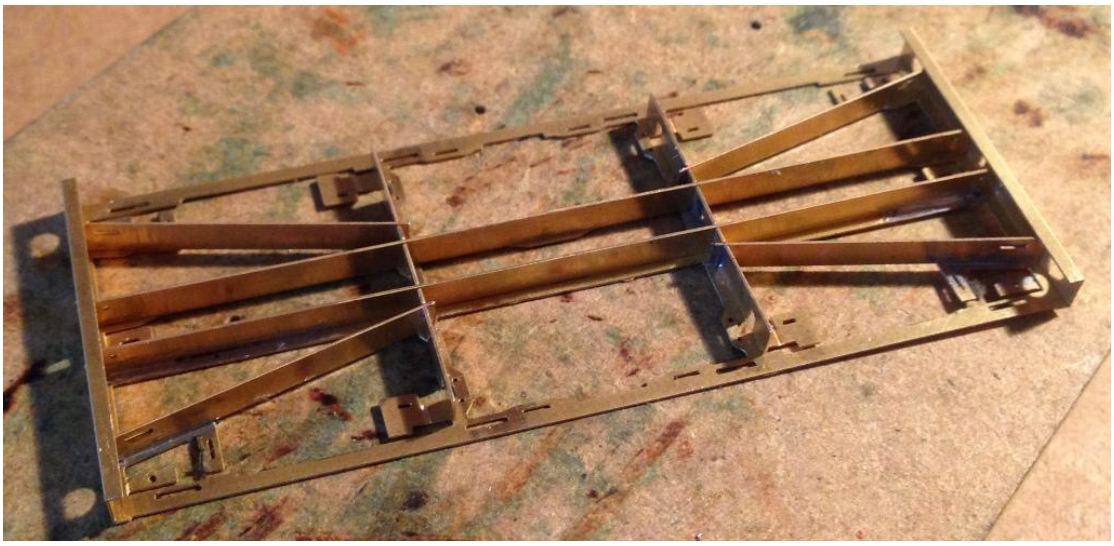


Remove the longitudinal spacers (2) and the transverse spacers (3) from the fret and clean up any tags. Fit the longitudinal spacers first using the tabs and slots to aid alignment. You may have to feed them in at an angle due to the headstocks. Solder to the bottom plate.

Add the transverse spacers. These fit into the slots in the longitudinal spacers and on the bottom plate. Solder in place.



Remove the angled end spacers (4) and clean up any tags. Fit to the underframe using the slots in the transverse spacers and the bottom plate. Solder in place.

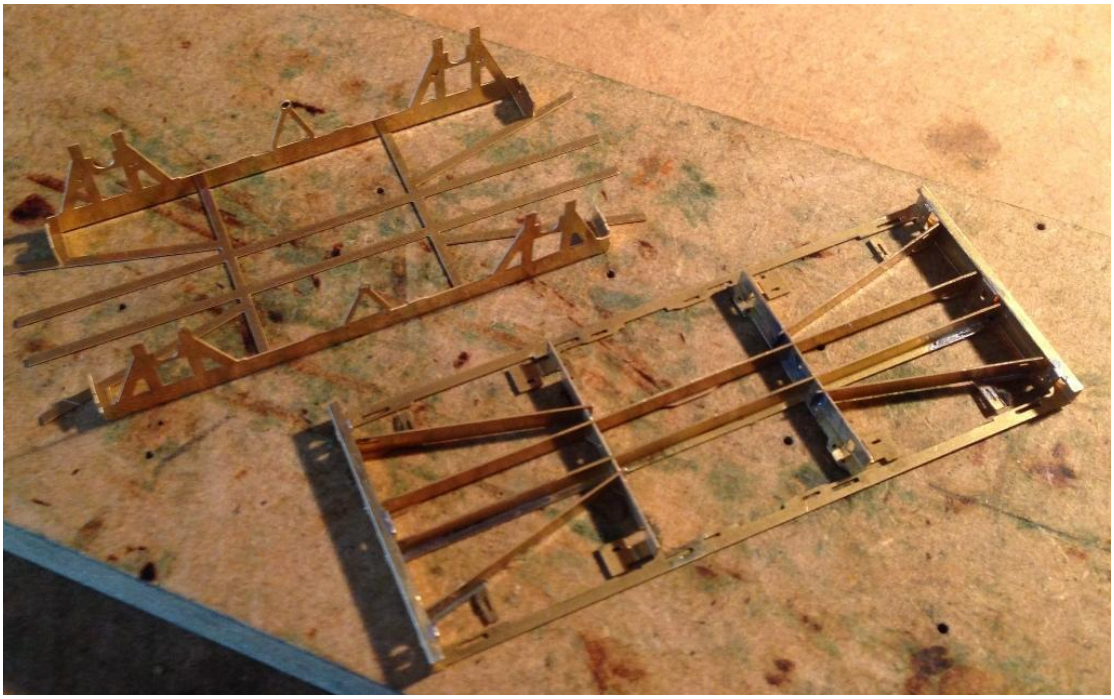


Fold up the buffer and coupling hook guides at the ends of the bottom plate and solder in place.

Check that the large holes in the vees on the top plate (5) will accept 0.8mm wire and the small holes for the secondary vee pins and horse hooks can accept 0.31mm wire. Drill out the holes on the backs of the axleguards as per your particular prototype (they did vary and some didn't have any) using a 0.85mm drill then remove from the fret.

Carefully fold up the sides and the four spring supports. Make sure that the sides are at 90° and adjust if necessary.

The chassis top and bottom plates need to be fitted together and then soldered in place and the axleguard assembly then need to be soldered together. There are tabs on the top plate and slots on the bottom plate to align everything. Make sure all of the tabs are properly home when fitting.



Solder together where the tabs are fitted to the slots and along the main framing on the top plate.

There are four tabs with small slots on into which the brakes will be fitted. Fold these down through 90°s. You should have something that is looking like an open chassis now.

There are two parts to the solebars (7), a backing piece which is folded into an L and a detail overlay. These are designed to be soldered together whilst still attached to the fret that surrounds them.

Remove the solebars from the main fret making sure that the frame that is around them is still attached. I found it useful to construct a jig to hold the two parts whilst soldering together. Use one of the solebars to drill two 1mm holes near the edge of a piece of scrap wood or mdf. Short lengths of 1mm wire can then be used to pin the solebars to the wood and leave your hands free for soldering. Tin the back of the detailing part fold the two halves of the frame over so that the fold is through 180° with the fold line on the outside. Sweat the two parts of the solebar together.

Now is probably the easiest time to attach the solebar detailing to the solebars so I shall cover this now before returning to the business of assembling the chassis.

Solebar detailing

The solebar detailing (8) comes contained in its own little fret. See Fig. 2 below. On it you will find fabricated axle spring stops, two types of number plates, label clips, a rectangle that is actually a block of wood on the real thing, fast traffic stars and owners plates. I have no idea what the purpose of the rectangular block of wood was but they were quite common. The positions of all this stuff varied so check your prototype. The details can be soldered on in the appropriate places.

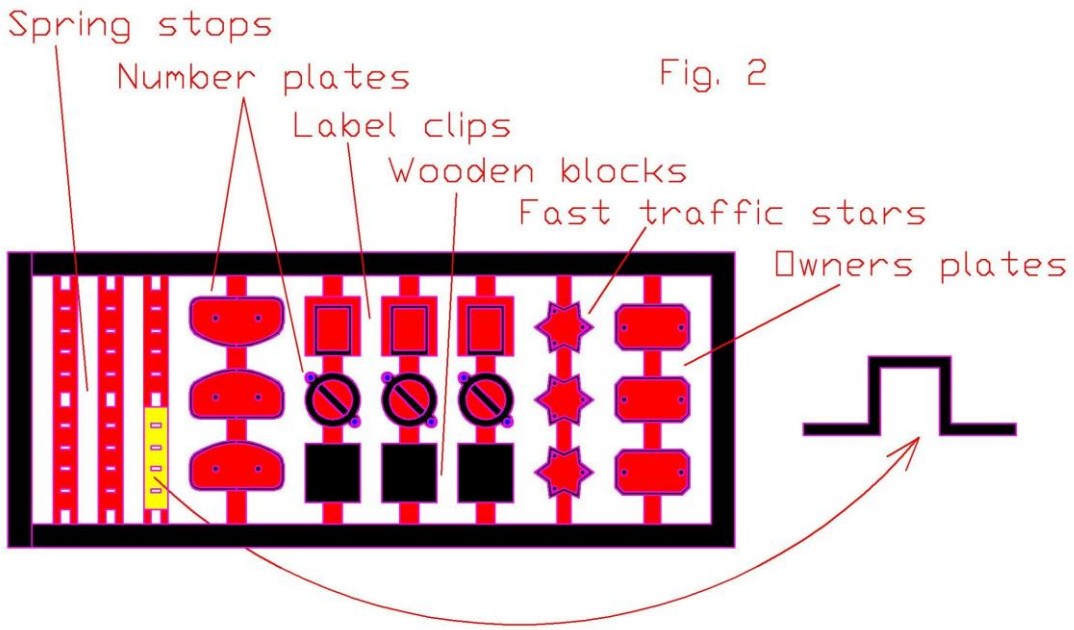


Fig. 2

Remove the solebars from their frame and fold the small edge through 90°s so it forms an L shape.

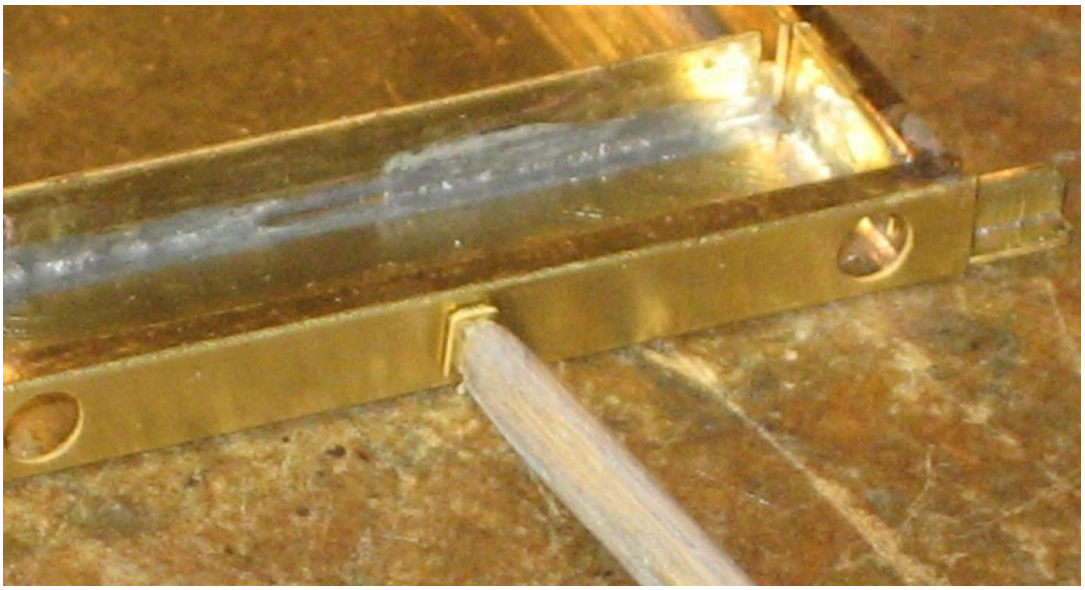
Main Chassis Continued…

The solebars can now be fitted to the chassis. There are slots and tabs on the bottom plate to aid location and the ends go into the channel that is the headstock. Fit the solebars at an angle and then straighten, locating the slots and tabs at the same time. Once in place then the solebar can be soldered in place.

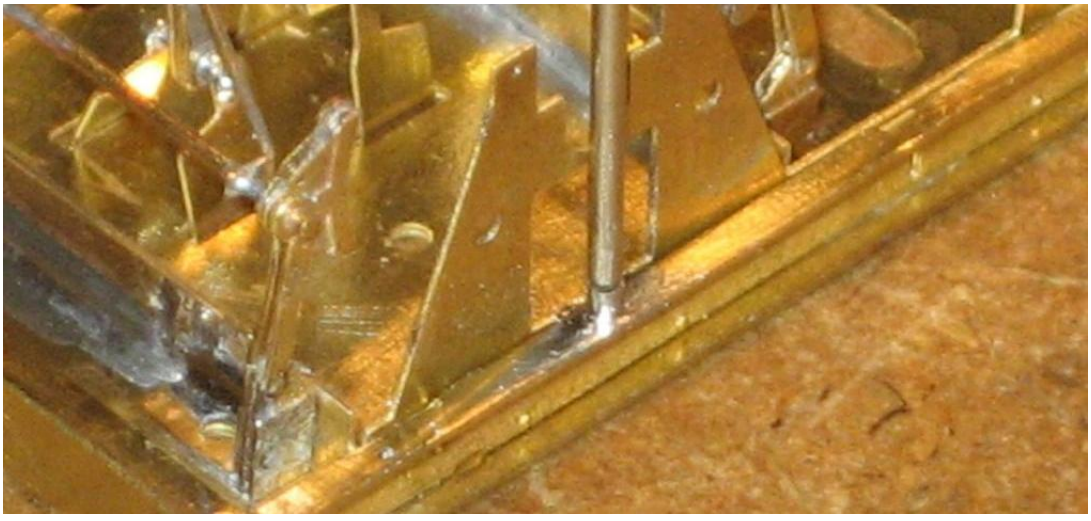
Add the Solebar/Headstock corner plates (9). These should be arranged so that the two straight sides go along the outer edge of the headstock and the inside of the Solebar. Note that they go on the underside of the chassis.

You can also now add the solebar/headstock bracing (10). These fold into an L and fit into the solebar/headstock channels. There are small half etched slots to aid you locating the bend point.

Now is as good a time as any to fit the coupling pocket detail (10). Solder in place using the hole for the coupling as a guide. I find the easiest way of doing this is to shape the end of a cocktail stick to fit in the slot. This can be used to align the detail on the headstock and hold it in place while you solder them together.



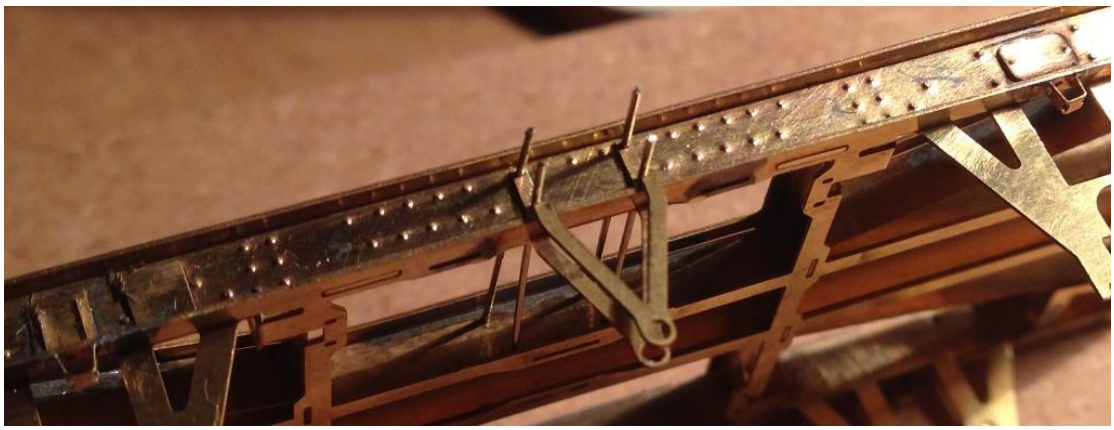
Spring Stops



There were two different pattern of spring stops fitted depending on when they were built. There are 6 fabricated spring stops for early builds on the solebar detailing (5) fret (see Fig. 2) which can be folded up and then soldered in place. I find a small pair of self closing tweezers good for this. Later wagons had round pattern spring stops. I use 1mm wire for these. I cut almost all the way through the wire with a piercing saw and then solder in place. The cut can then be completed without the joint breaking.

Secondary Brake Vees

Make sure that the large holes in the additional vees (12) can accept 0.8mm wire and the small ones 0.31mm wire, remove from the fret and clean up any connecting tags. There are two sets of fold lines on the additional vees, fold both sets through 90°s. Make sure that the four holes in the centre of the solebars can still accept 0.31mm wire and then use four short lengths of 0.31mm wire to pin the additional vees to the underframe. See picture below. Solder in place.

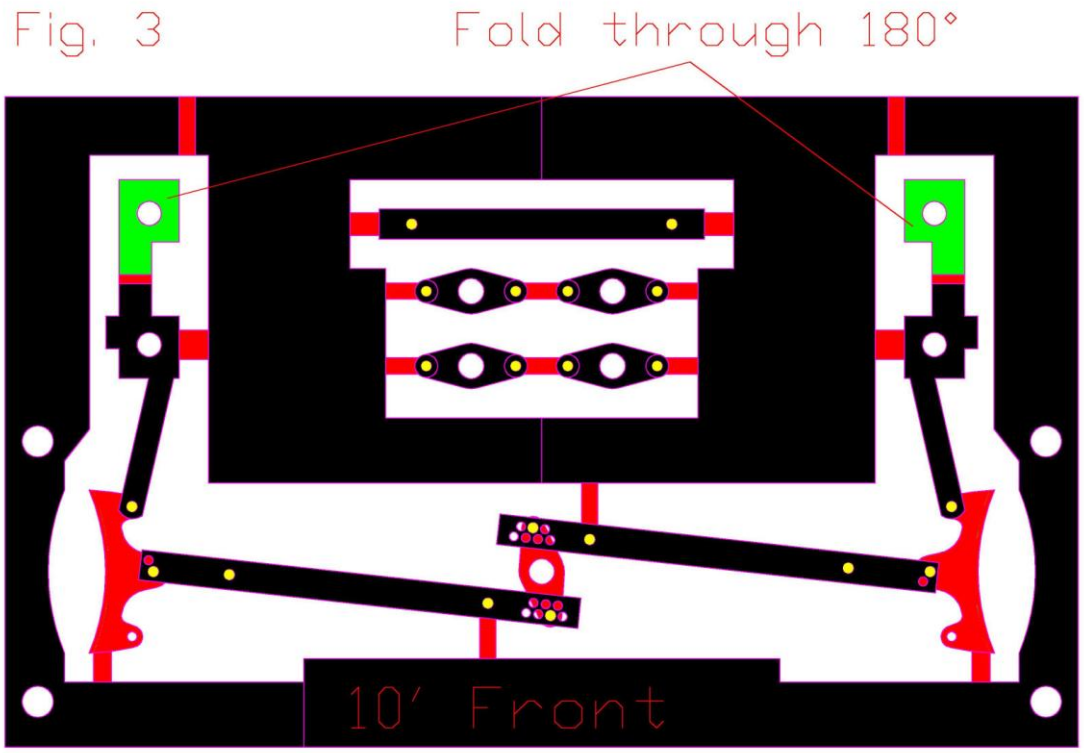


Brakegear

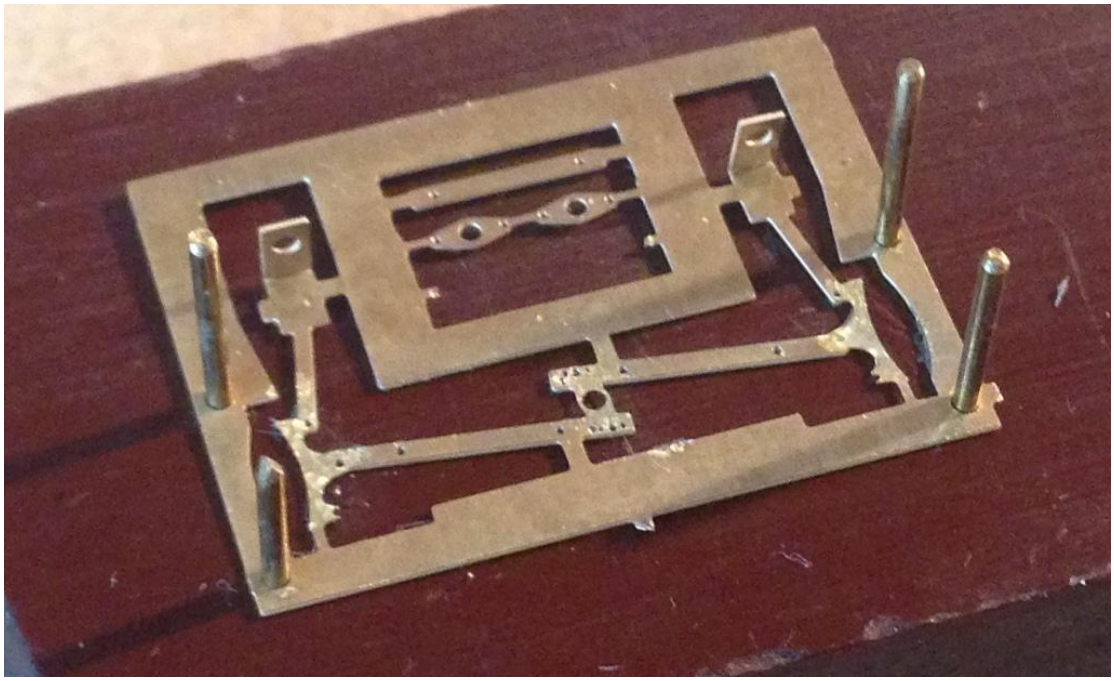
The brakegear is designed to be assembled with everything still attached to its surrounding frame. Once everything is soldered together it can be removed form the frets, tidied up and fitted in place.

The first step is to create a jig to aid assembling everything. Use a suitable piece of wood or mdf. Use one of the etches as a guide. Drill through the main brakegear (13) parts labelled front with the writing facing towards the wood. The larger holes are 1mm diameter and the smaller ones 0.3mm.If you are unsure which holes you should be drilling through see Fig. 3 below.

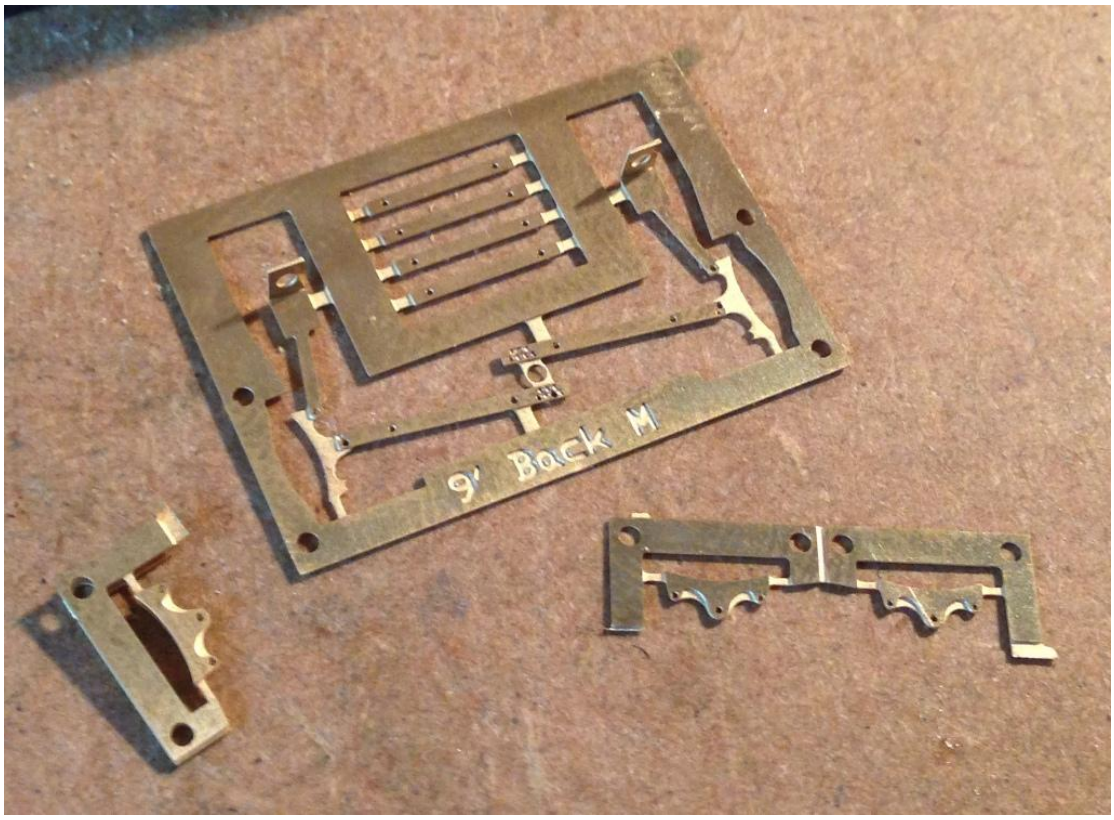
Once the jig is created you can check that the small holes in the rest of the main brakegear (13), brake shoe infill (14), push rod cranks (15) and push rod infills (16) can accept 0.31mm wire. These are marked in yellow on Fig. 3 below. I find it easier to locate the hole from the side with no writing on the main brakegear.



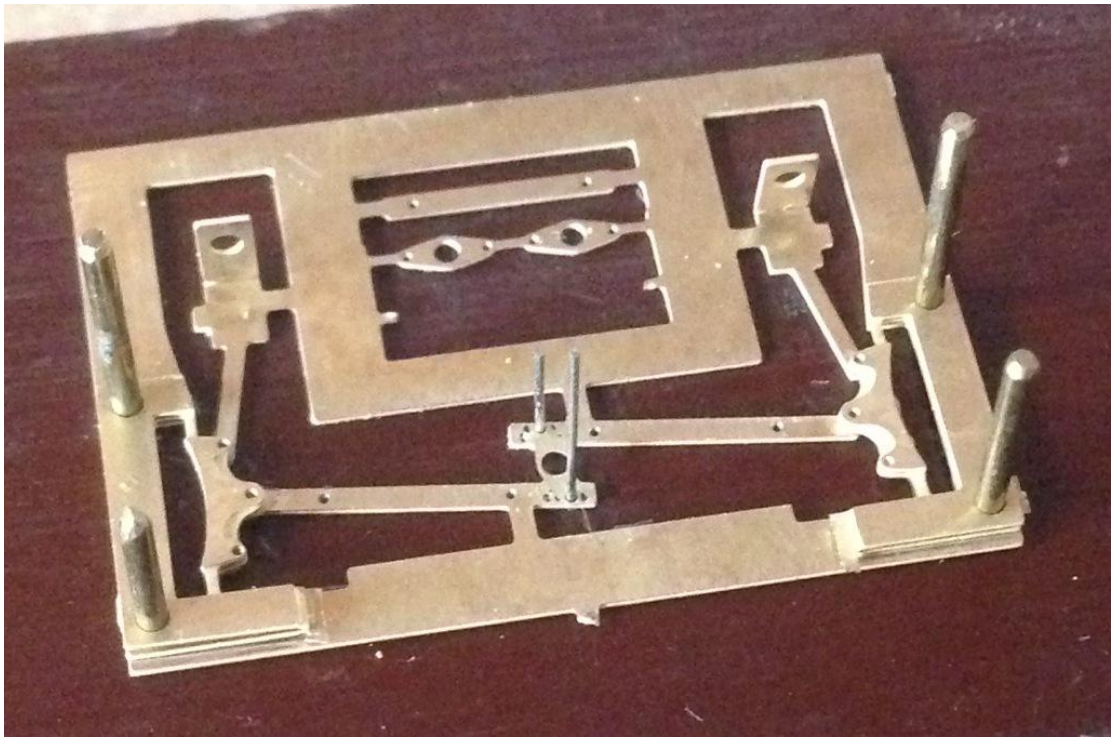
Remove the push rod cranks (15) and push rod infill (16) (if required). Carefully fold the parts marked in green on Fig. 3 through 180°s with the fold line on the outside and then pin to the jig using short lengths of 1mm wire, writing side facing down.



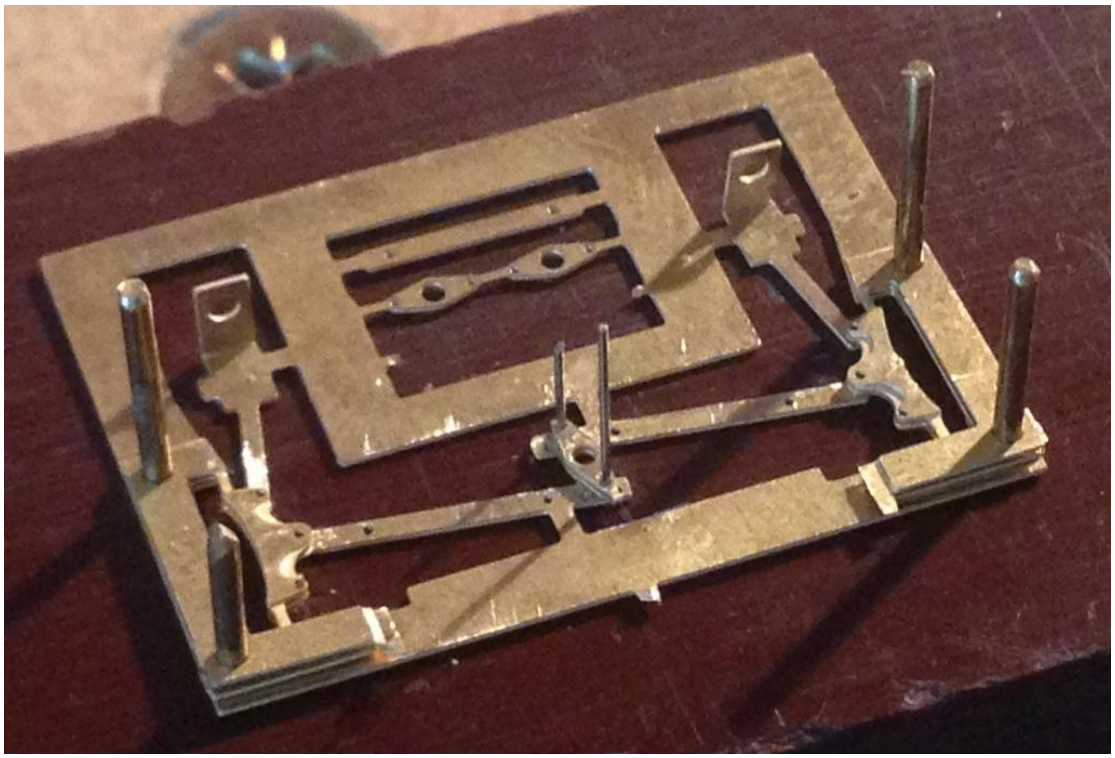
Take the brake shoe infills (14) and fold double with the fold line on the outside.



Place the brake shoe infill over the front using the 1mm wire rods to align everything. Insert two short lengths of 0.31mm wire onto the holes where the push rods join the brake shaft cranks.

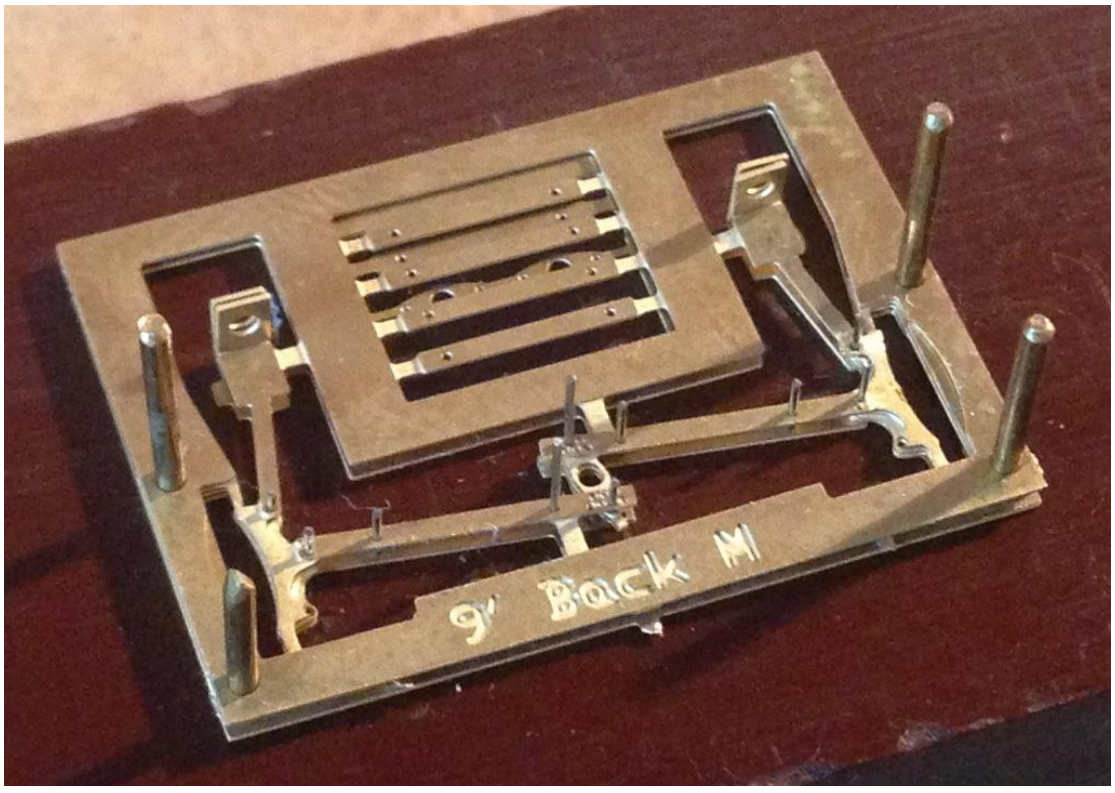


Fold up one set of push rod cranks and place onto the two lengths of 0.31mm wire.



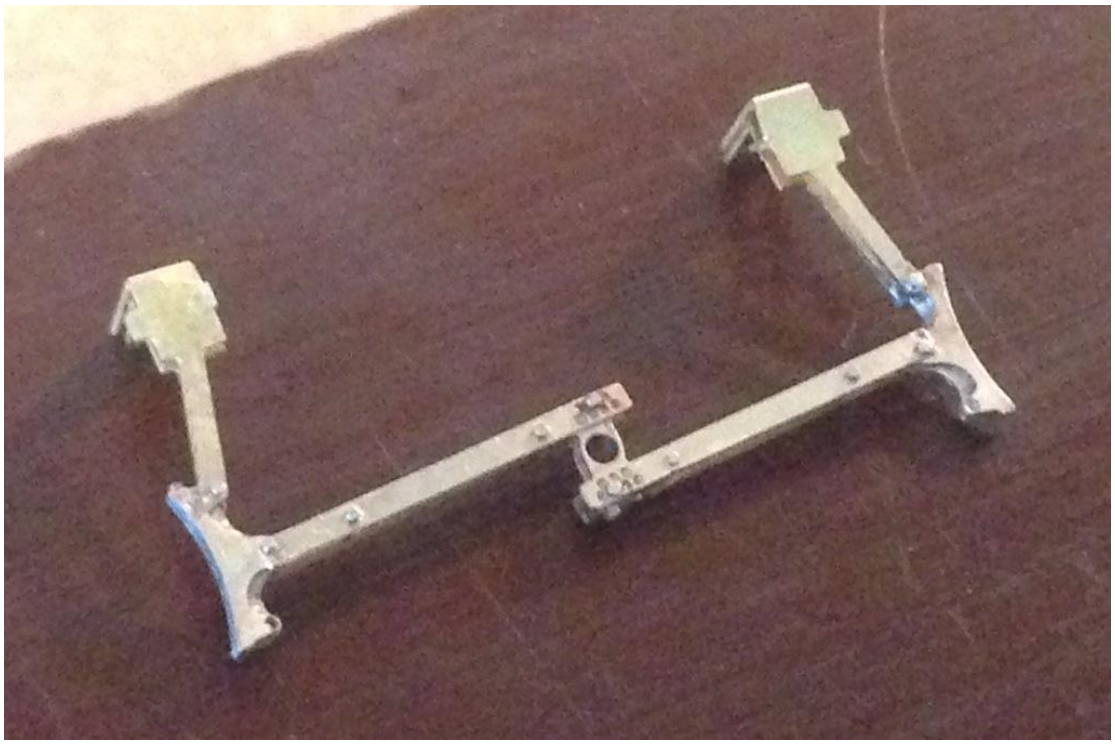
If you wish to use the push rod infill pieces provided then repeat the process for the cranks with theses parts.

Carefully fold up the parts shaded green in Fig. 3 on the back part of the brakegear and pin onto the assembled layers with the writing visible and facing away from everything else. Make sure all the bits of wire go where they should. Fill the remaining holes with 0.31mm wire making sure it goes all the way through.



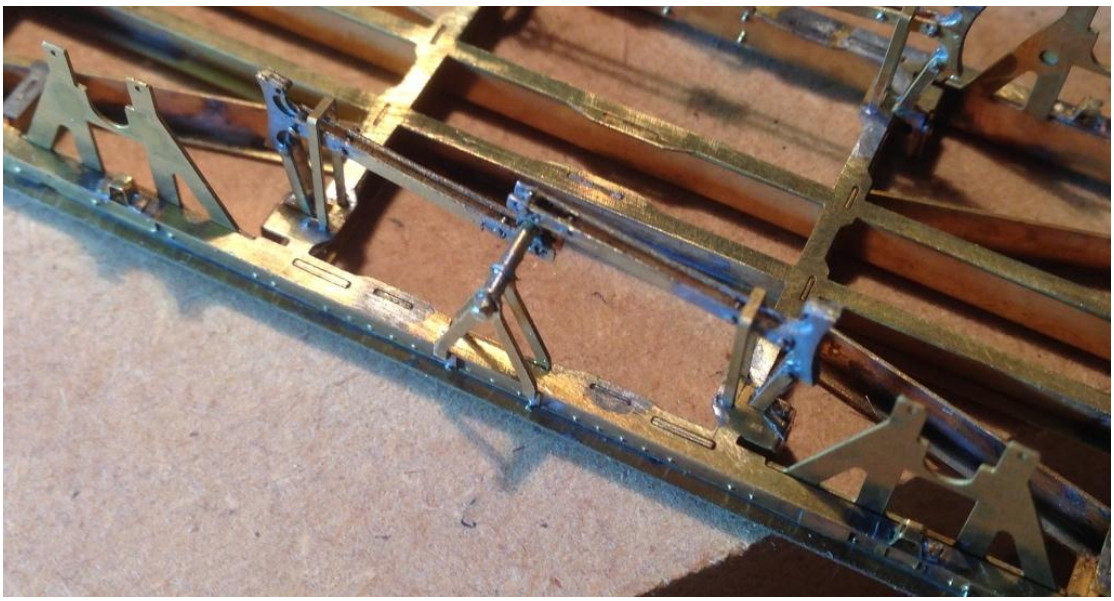
Solder the layers together paying particular attention to the brake shoes (I found it best to apply solder to the long curved edge) and the joints where the wire meet the etch.

Carefully remove the brakegear from the fret; I used a piercing saw. Clean up any tags that are left and also the wire to represent bolt heads.



The brakegear can be fitted to the wagon using the tabs and slots as before. Gently bend the shoes to get the tabs into the slots. Use something suitable to pin the brakegear to the chassis through the holes in the feet while you solder them in place.

Finally the push rod safety loops (13) can be fitted. These fold up and are soldered in place using very small slots in the bottom plate to align things.



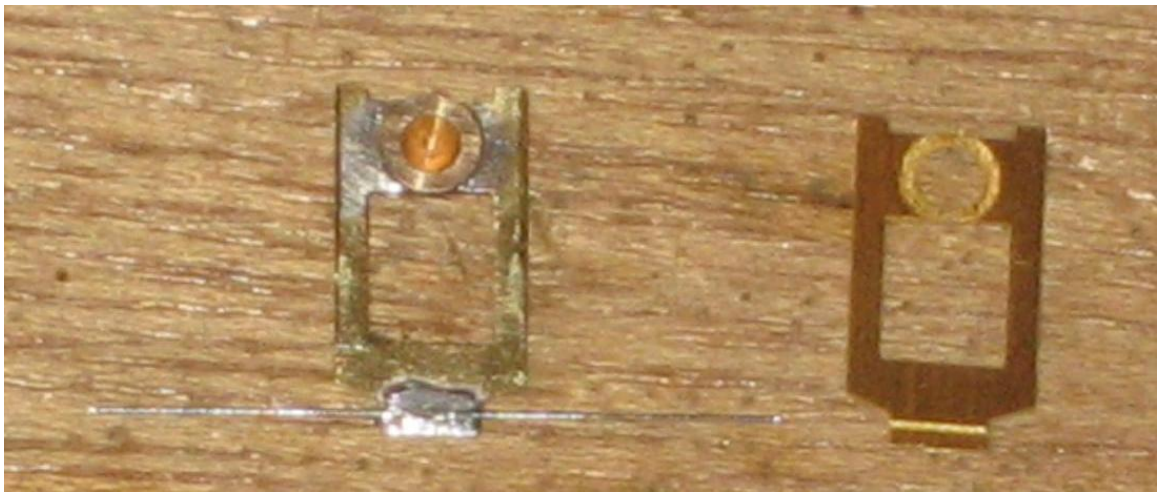
Spring Carriers

The spring carriers (18) can now be assembled. They are designed so that the springing wire is soldered to the carrier using the half etched slot as a guide.

The distance between the backs of the axleguards is a bit larger when compared with other systems and works out at 24.5mm. The advantage of this measurement is that if using pin point axles you don't have to hunt around for bearings that are deep enough but you may find that the carriers need packing out a little to take up any slop. Bearing washers (19) are included for this purpose. There should be a good fit between the axles and the bearings with ideally no sideways movement at all. If using pinpoint axles use a waisted type of bearing to avoid having to remove any more material form the cast axleboxes than is necessary. I have used Exactoscale waisted pin point bearings which are just about perfect for the job with only occasional ones that require packing out.

Due to the removable nature of the axle guards you can easily use Exactoscale parallel axles and bearings. If doing so then you will need to pack the bearings out on the back of the spring carriers before soldering them in place due to the length of the axle. Use the bearing washers provided. I have built chassis with Exactoscale parallel axles and used one half etched washer and one full width washer to pack the bearing out. This leaves the outer edge of the bearing 0.25mm beyond the axleguard and provides 1mm of bearing surface for the axle.

I find the easiest way to assemble the spring carriers is to make a small jig consisting of an off cut of wood with a 2mm hole drilled into it. The spring carrier can then be placed so that the bearing locates through the hole in the carrier and into the wood. The bearing can then can be soldered in place. The spring wire can be located in its half etched guide slot and soldered in place using a suitable flux. I use Carr's black label. The spring wire needs to extend at least 7mm either side of the point where it is attached to the carrier.



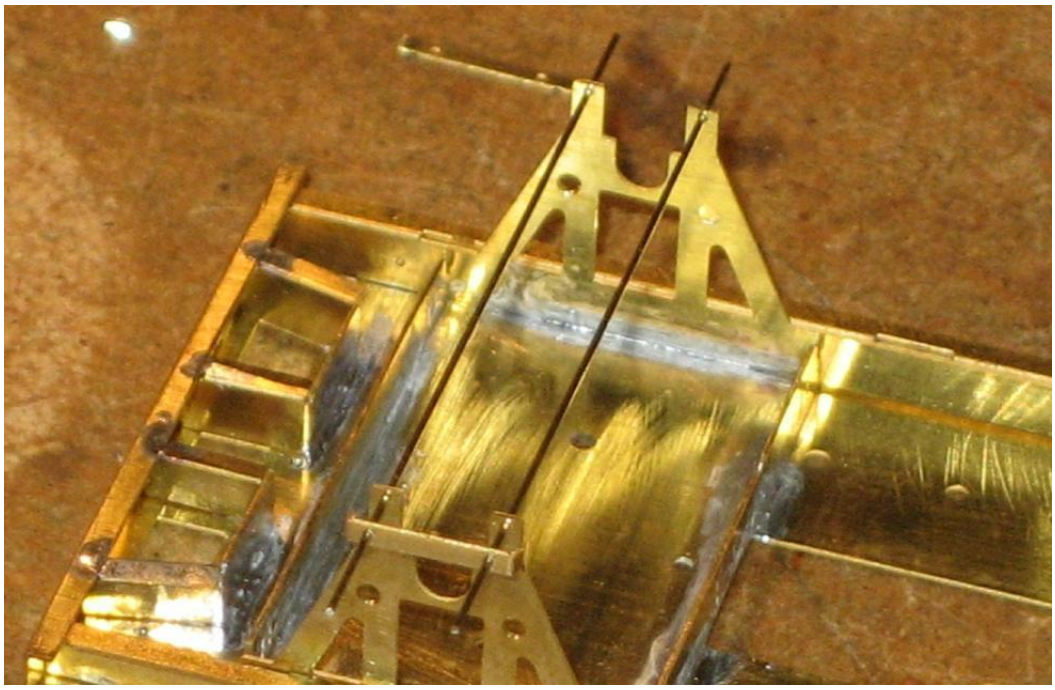
Axle keeps and tiebars

There are both individual axle keeps (20) and tie bars (21) included. The tiebars aren't suitable for the 14T underframe as they had individual keeps and are a hangover from designing the fret to make it easy to do all the versions. In other words I should have left them off! The following covers both types and I'll leave it all in as a means of future proofing against further possible types.

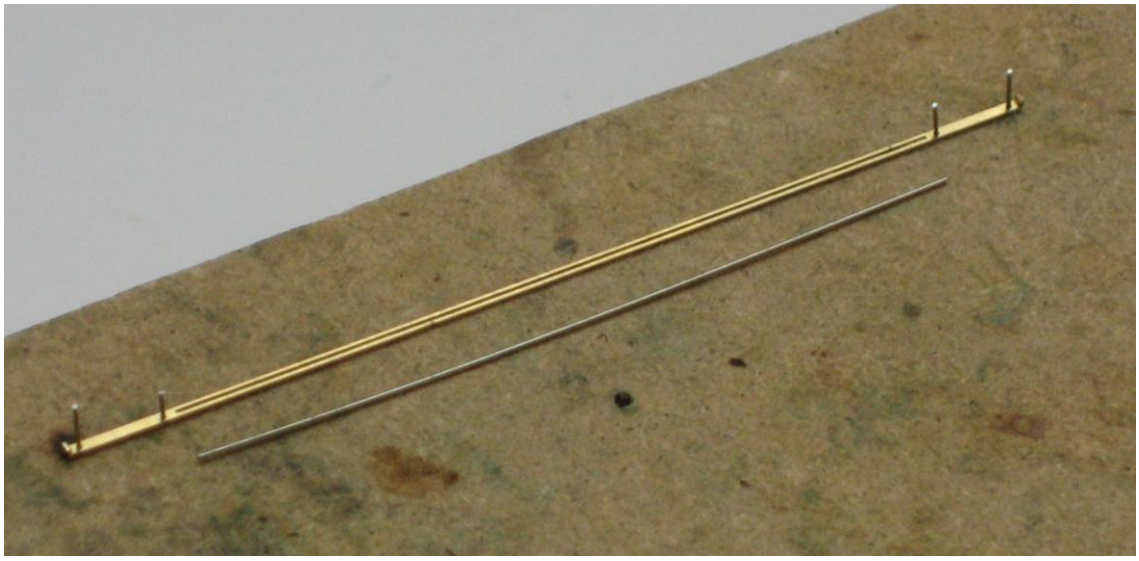
The keeps and tiebars are both assembled in the same way and are designed to be removable if you wish in order to allow the wheel sets to be easily dropped out. They can of course be soldered permanently in place but either way you will need to make sure the holes will accept 0.31mm wire before removing them from the fret.

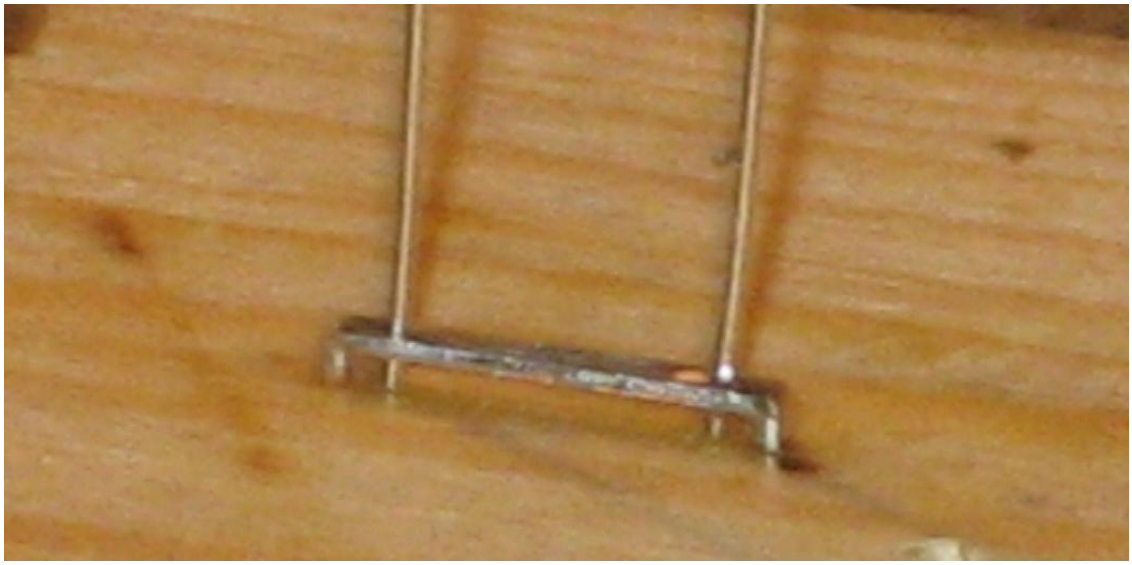
Tie bars are fairly vulnerable so in order to strengthen them I have included a slot on the back into which you can solder a length of 0.31mm wire. This will make them a lot more robust.

If you are not planning on making them removable then they can be pinned and soldered to the axleguards. Remove from the fret and fold the ends up. Thread lengths of 0.31mm wire through an axle keep/tiebar and holes in a axleguard and then the corresponding holes on the opposite axleguard. Solder in place. Fit the other axle keep/tiebar and solder in place. Trim the wire so that it represents bolt heads on the tie bars but extends approximately 0.5mm from the back of the axleguard. These pins will prevent the springs from becoming disengaged from their slots.



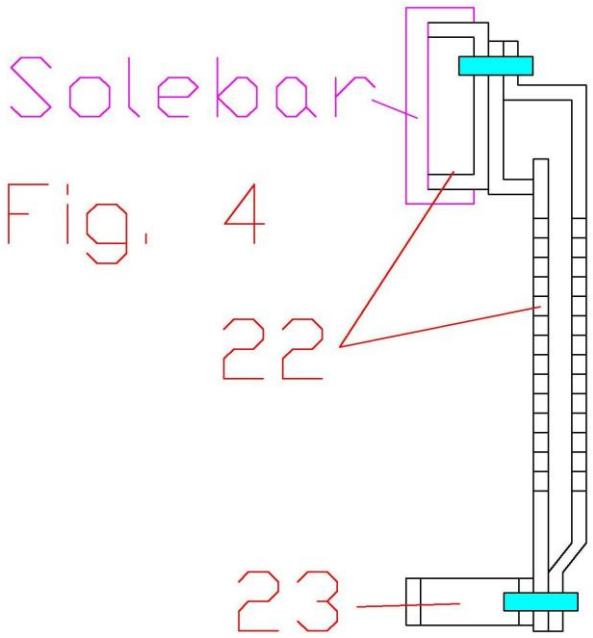
If you want to make them removable to allow the axles to be dropped out then you will need to solder 0.31mm pins through the holes in the axle keeps/tiebars. I find the easiest way of doing this is to use one pair of holes as a jig and drill a pair of 0.3mm holes into a piece of scrap wood. Short lengths of 0.31mm wire can then be threaded through the axle guards locating into the holes in the wood. These can then be soldered in place and filled back to represent bolt heads before folding up the ends. Fold the ends of the axle keeps/tiebars and locate two short lengths of 0.31mm wire through the holes and into the holes drilled into the wood. Solder the wire in place and whilst still pinned to the wood file the wire back to represent bolt heads. Remove and trim the other end of the wire. You will need to make sure there is at least 0.75mm of wire projecting from the back of the axleguards otherwise the spring carriers will be able to fall out of place when everything is assembled. It is also a good idea to leave at least one of the pins in the axle guard as long as possible to give you somewhere to hold them when painting. Once the axle keeps/tiebars and the chassis are painted they can be tack glued together on final assembly. The glued joint can be broken and the tie bars removed if you find it necessary to remove the wheels at any point.

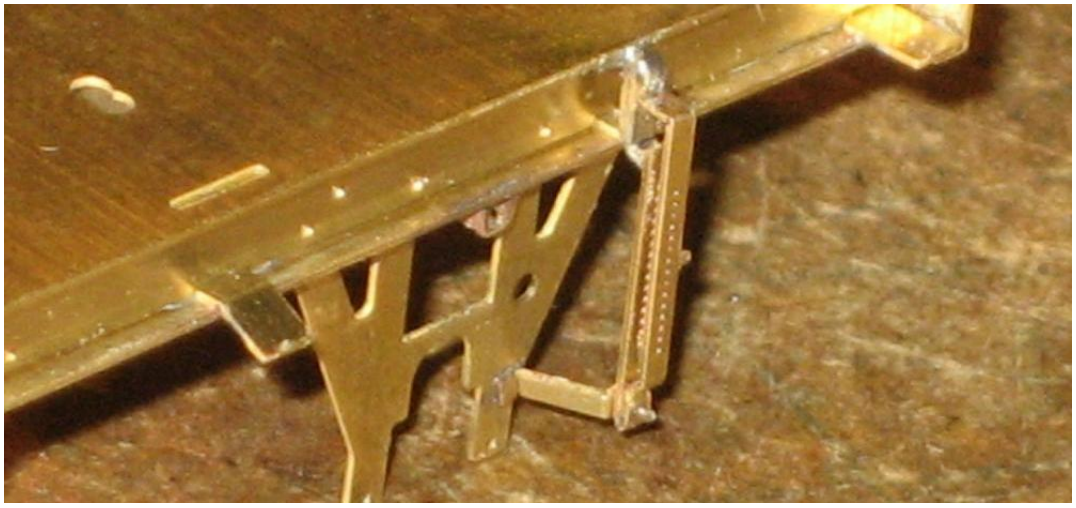




Brake Lever Guards

Make sure that the holes in your chosen brake lever guards and brackets (22) and lever guard stays (23) can accept 0.31mm wire and remove from the fret. Separate the lever guard from the lever guard bracket. Fold the lever guard along with the lever guard bracket referring to Fig. 4. Solder the lever guard and bracket together using 0.31mm wire to align them. Trim the wire on both the front and back to represent a bolt. The whole assembly can then be located in the solebar and soldered in place. There are slots in the solebar to receive the lever guard brackets. Press out the half etched rivet on the brake lever guard stays and fold both ends through about 30°. The stay can then be pinned to the bottom of the lever guard using 0.31mm wire and then soldered to both the lever guard and the axleguard and any excess wire trimmed off.





Axleboxes and springs

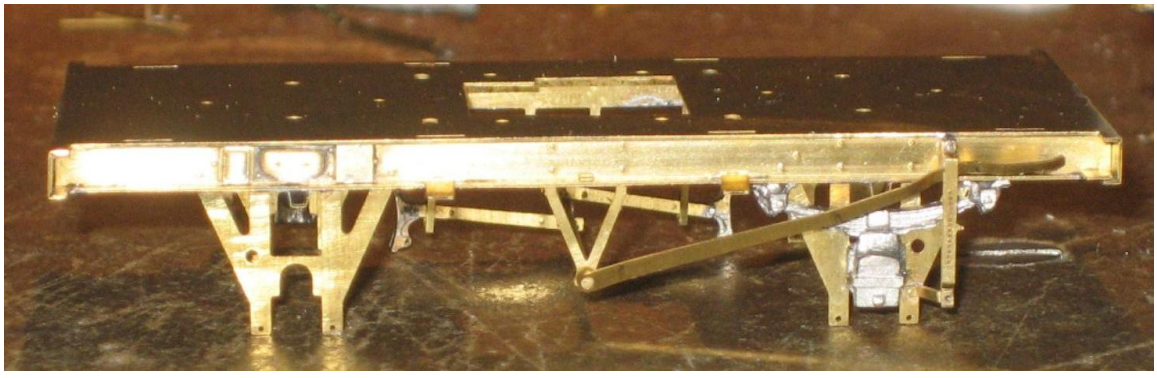
Now is a good time to fit the cast axle boxes and springs (Rumney Models FA.05 or FG.05). It will make life easier when bending up the brake levers as they should be bent, like the prototype, to clear the axleboxes and springs.

Brake shaft

Cut two lengths of 0.8mm wire to form the brake shafts and fit in place. Each shaft should pass through the two vees and the set of brakegear next to the vees. The shaft should extend a little more than 0.5mm out from the vee (making sure that the outer vee is straight) and the same on the inside of the brakegear. Solder in place and trim the ends if necessary.

Brake Levers

Make sure the holes in the brake levers (24) and the cams can accept 0.8mm wire and remove from the fret. The brake levers then need to be bent up as per the prototype clearing the axleboxes and then cranked for the handle. Check on the model and adjust until you are happy with the shape. Once you are happy with the shape the brake levers can be soldered in place.



Buffer retainers

My preferred method of springing buffers is to use guitar wire leaf springs behind the headstock rather than coil springs in the buffer housing. To this end I have introduced buffer springing jigs that are suitable for most of my underframes (Rumney Models kits B.93A and B.93B). Due to the nature of the tank wagon underframes it is not possible to fit this system retrospectively so the chassis includes this set up as part of it. Buffer retainers (25) are fitted to the buffer shanks and then a 25mm length of guitar wire spring is fed through the holes and slots next to the headstock. The wire bears on the buffer retainers. See Fig. 5 below

To fit the buffer retainers, remove from the fret and check the fit of the buffer head shanks in the holes; adjust if necessary. Fold the buffer retainer into a C shape. leaving the top unfolded for the moment. Place the buffer head shank through the buffer casting on the wagon and then slide the retainer onto the shank though the holes. Hold the retainer bottom with a pair of self closing tweezers and solder in place so that the head of the buffer should be 6mm form the face of the headstock. Use very little flux or you may encounter problems with the shank rusting. Obviously you will need to arrange things so that the buffer head is the correct distance from the headstock (see below). Once the retainer is firmly soldered in place you can fold the top over. Note that there is a correct side to fit the buffers. The retainer bottom comes with a wedge on one side which should face towards the solebars. This will prevent the buffer retainer from rotating sufficiently for the wire to become disengaged.

The gauge of the spring wire necessary may vary depending on your train lengths but 0.011” is a good place to start. It maybe that you personally want a harder or softer wire in which case simply replace with a heavier or lighter gauge of guitar wire. Be aware though that the spring rate will change rapidly with the change in gauge. If you fit something like 0.008” wire then there maybe virtually no springing effect, conversely if you fitted 0.015” you may find that you might as well have made the buffers rigid. Guitar wire of suitable gauges can be had in single strings from good music shops.

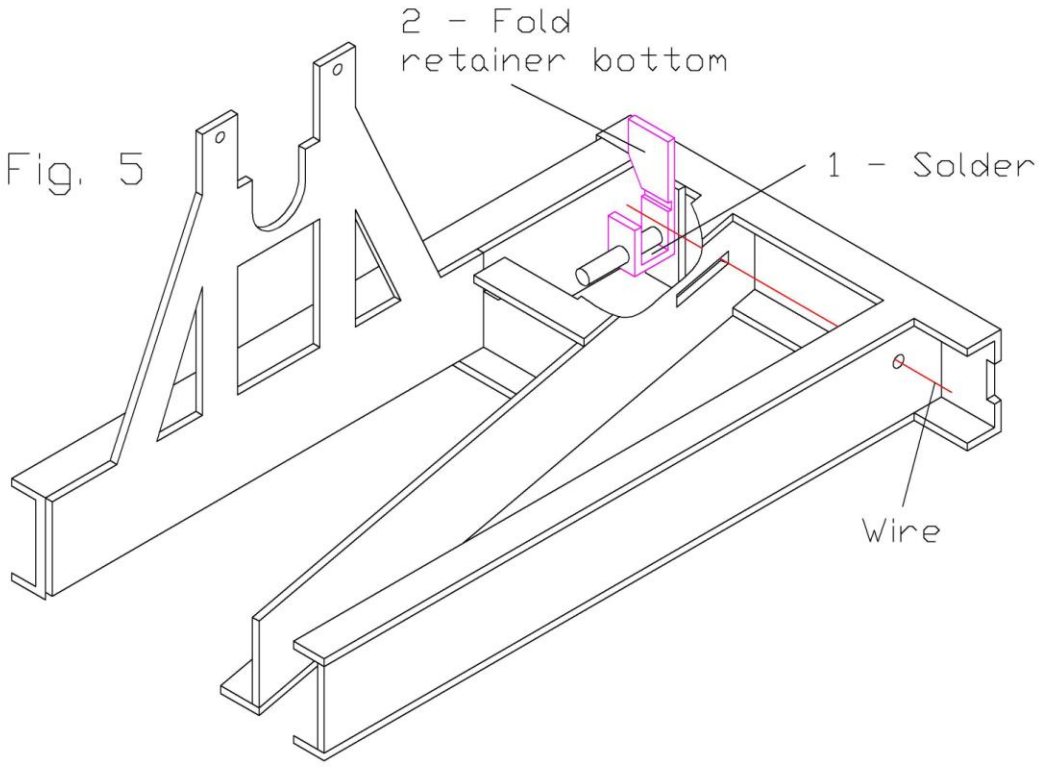


Fig. 5

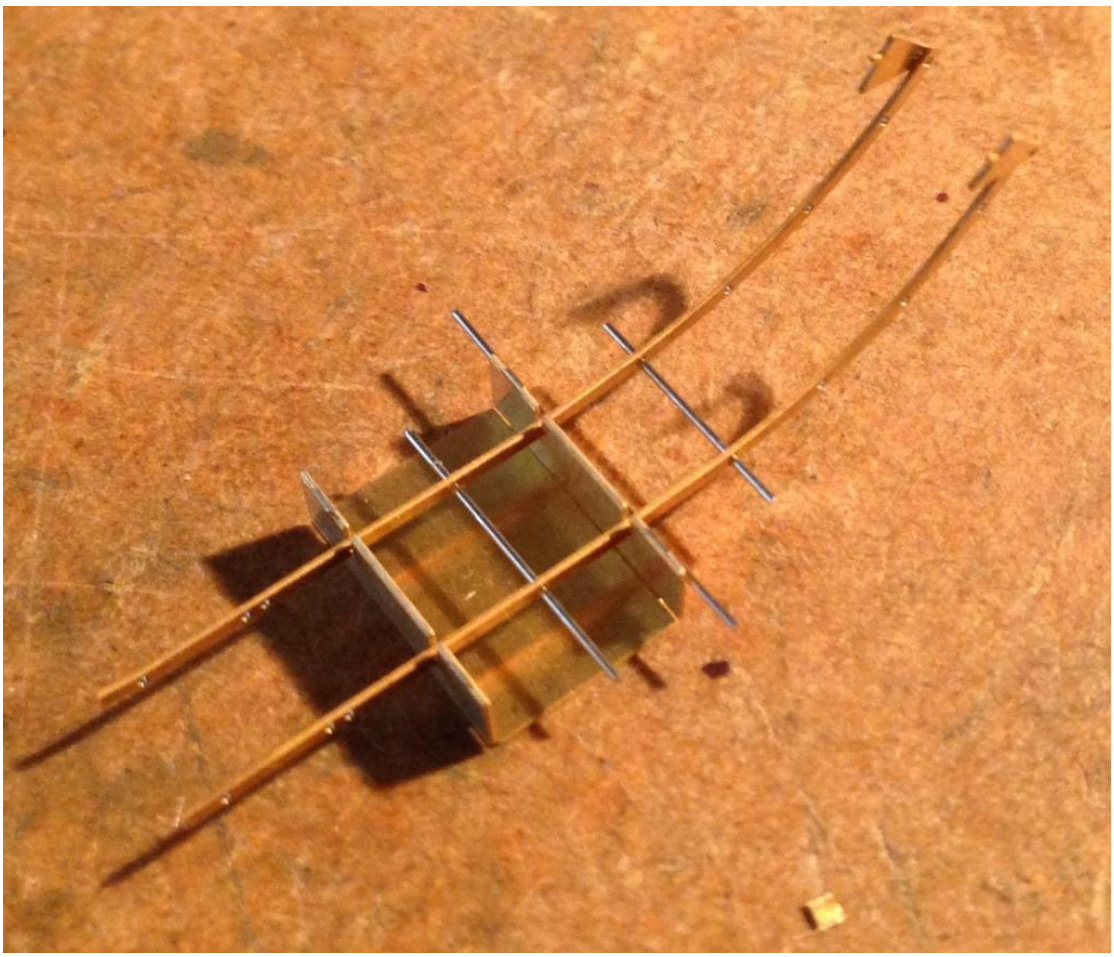
Body Modifications

If you haven't already, remove the tank from the chassis. There are two screws that hold it in place. If you're modelling a class B tank then remove the discharge pipe form the Bachmann underframe and retain for fitting to the new underframe. Remove the ladders from both sides and fill the resulting holes in.

Ladders

Nothing makes a tank wagon look better than a nice set of etched ladders done properly with wire rungs and provision has been made for two slightly different types. These have been labelled type A and type B. The differences are down to how the ladders are attached to the wagon. The type A bracket (27) fits underneath the solebar and you can press out half etched rivets if required. The type B bracket (29) locates on top of solebar. If you are following a prototype then examine the diagram to see which is more appropriate. See Fig. 6 below.

In both cases make sure that the ladders (26 or 28) and associated brackets (27 or 29) can accept 0.31mm wire and then remove form the fret along with the ladder assembly jig (30). Fold up the ladder assembly jig. Fold up the brackets and the tops of the ladders then assemble using the jig and 0.31mm wire for the rungs and bracket bolts. The sides of the ladders are inserted into the slots in the jig which will keep the sides parallel. 0.31mm wire can then be inserted for the rungs and fixing bolts. You can use the end of the jig to set the first rung which should keep all the rungs square; simply clamp the first rung to the jig end using an aluminium soldering clip or similar and solder away. See photograph below. Once soldered together clean up the wire rungs/bolts.



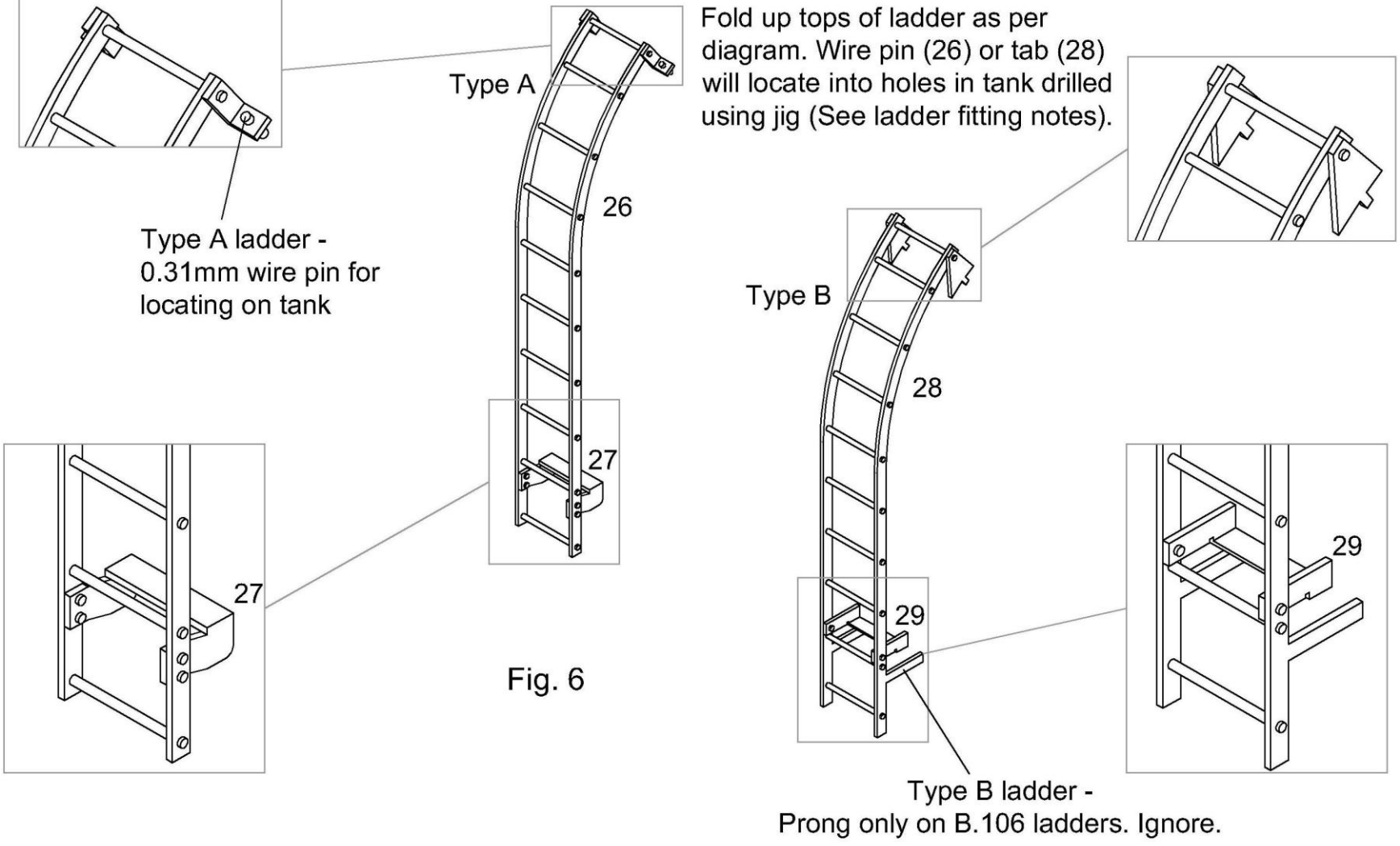

Type A
26
27
Type A ladder -
0.31mm wire pin for
locating on tank
Fold up tops of ladder as per
diagram. Wire pin (26) or tab (28)
will locate into holes in tank drilled
using jig (See ladder fitting notes).
Type B
28
29
Type B ladder -
Prong only on B.106 ladders. Ignore.

Fig. 6

Fitting Ladders

Once the plastic ladders have been removed from the Bachmann body the holes that are left can be filled in. The new ladders are fitted in position using the wire or etched pins attached to the ladders. These are located on the tanks via holes drilled using the ladder drilling jig (31). Note that there are two sets of holes on the drilling jig. One will provide for a central location for the ladder and one for an off centre location, the prototype varied.

Remove the ladder drilling jig (31) from the fret and then insert into one of the walkways on the top of the tank so that the holes align for the position of your choice. Hold the jig down so that the part of the jig with the holes in is against the tank and drill two holes as follows:

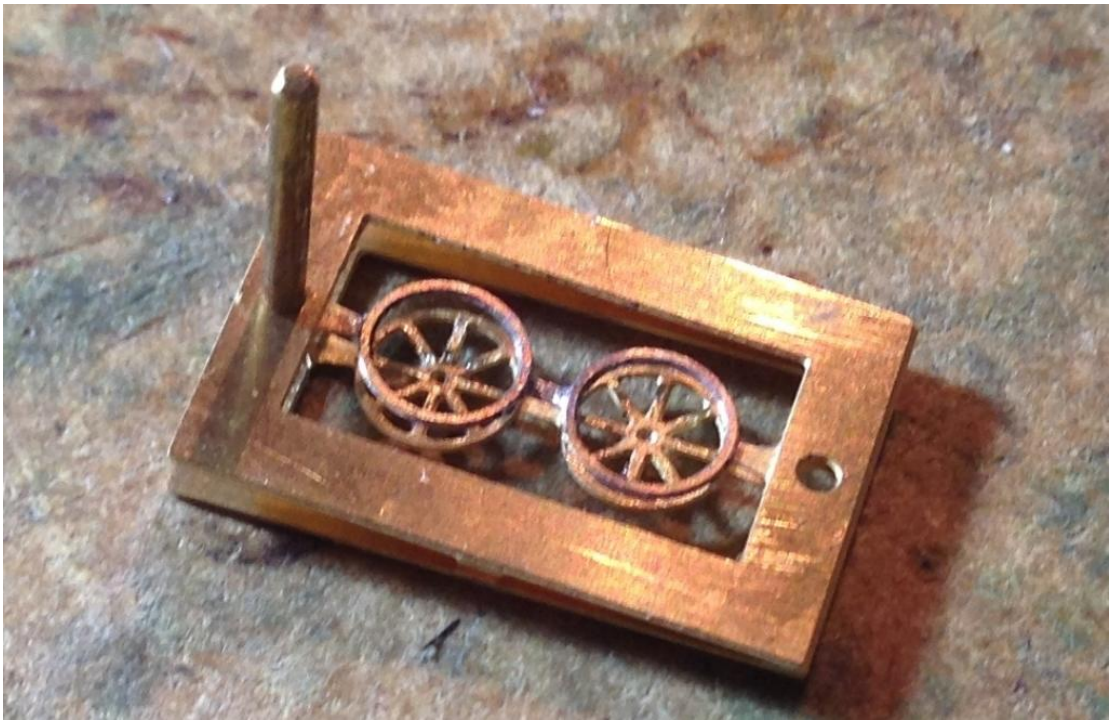
- Use a 0.3mm drill bit for Type A ladders through the outer pair of holes on the ladder drilling jig.
- Use a 0.4mm drill bit for Type B ladders through the inner pair of holes on the ladder drilling jig.

Repeat for the other side. Note that the off centre ladders were always towards the same end and in line with the tank filler hatch.

The ladders can be located in place using the holes and glued to the solebar via the bracket. To make life easier this can be done once the ladders have been painted.

Valve Wheel

Replacement valve wheels (32) have been provided. There are two parts to these a rim and a spoked wheel. There are designed to be folded double whilst attached to the fret and then soldered together. If you are worried about alignment then 1mm wire pins can be used though the holes in the fret to locate the two halves together. Solder a length of 0.4mm wire though the hole in the centre of the valve wheel so that the wheel can be pinned in place. Once everything is soldered together remove form the fret and tidy up.



Remove the solid Bachmann valve wheel on top of the tank. To do this make a cut though the shaft immediately below the valve wheel. Carefully drill a 0.4mm hole into the shaft to locate the replacement valve wheel.

Painting

One of the advantages of having the chassis as a complete unit with solebars and headstocks is that you can paint it separately from the body and then glue the two together afterwards. If using an airbrush or aerosol this means you can prime it and then paint it all black with no masking at all which makes life a little easier.

I now use Halfords grey primer in a tin through an airbrush with cellulose thinners to prime just about everything, including plastic bodies. The primer is synthetic and has no adverse effects on the types of plastics used on RTR railway models and kits. The cellulose thinners used evaporate so quickly that they don't have time to attack the plastic. You can then put your choice of paint over the top including cellulose. Don't use the red oxide in a tin on plastic though as it won't adhere and the paint will just come off.

Notes on weighting

The suspension on the underframe is designed to work optimally under a 50g load. As there is no space on the underframe due to all that brakegear the best place for it is in the tank body. This may be easier said than done as I couldn't get the three parts of the tank apart. One solution may be to drill a hole in the bottom of the tank and fill it with liquid lead or perhaps even something like track ballast. Once enough is inside the hole can be sealed with filler.

Finally

Last but certainly not least if you haven't come across the wonderful resource for BR wagon photos that is Paul Bartlett's website then I would thoroughly recommend a visit to:

http://paulbartlett.zenfolio.com/

Justin Newitt - April 2017

Suppliers List

Rumney Models (vacuum cylinders, axlebox and spring castings)
www.rumneymodels.co.uk

Eileen's Emporium (brass wire)
Unit 19.12 Highnam Business Centre
Newent Road
Gloucester
GL2 8DN
UK
www.eileensemporium.com

Lanarkshire Models and Supplies (buffers and vacuum pipes)
9 Nairn Avenue
Blantyre
G72 9NF
www.lanarkshiremodels.com

C&L Finescale (Exactoscale wheels, bearings and couplings)
Aran Lodge
Severn Road
Hallen
Bristol
BS10 7RZ
http://www.finescale.org.uk

Masokits (Screw couplings)
Michael Clark
c/o 27 Crotch Crescent
New Marston
Oxford
OX3 0JL
www.scalefour.org/masokits

MJT (buffer heads)
Dart Castings
17 Hurst Close
Staplehurst
Tonbridge
Kent
TN12 0BX
www.dartcastings.co.uk

Wizard Models (buffer heads)
PO Box 70
Barton upon Humber
DN18 5XY
www.wizardmodels.co.uk