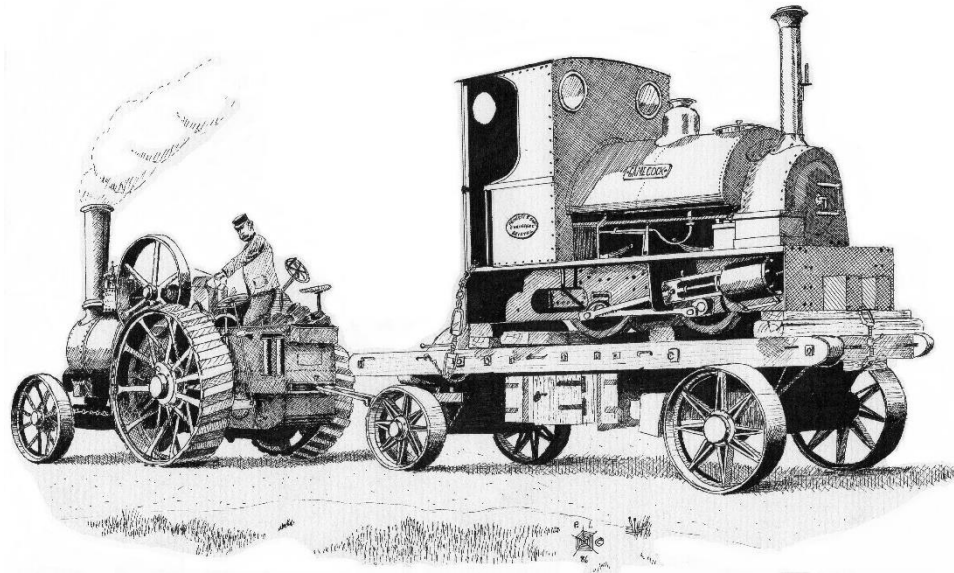


# *Small Run Batch*



## **Peckett & Sons Cranmore Class 0-4-0ST "GAMECOCK" (SRB-002)**

### **Introduction/Brief History**

In 1904 an agreement was made by the Mendip Granite & Asphalte Co Ltd and the Moons Hill Quarry Company (John Wainwright & Co) as to the joint use of a 2ft tramway extension from the Waterlip Quarry to avoid the haulage of stone from the two quarries by road, which were damaged by such traffic. This arrangement enabled stone to be transported from the Moons Hill Quarry by arrangement and neighbouring Sunnyhill Quarry of the Mendip Granite & Asphalte to the Cranmore stone works, which had its own sidings at Cranmore station where it was shipped out using the GWR line. An order was placed by the Mendip Granite & Asphalte Co for an 0-4-0 saddle tank version of the special 7x10" cylinder design from Peckett & Sons of Bristol, Works No.1030 of 1904 "Gamecock" which would be later referred to as a "Cranmore Class". It is thought that "Gamecock" worked alongside the existing 0-4-0 IST "Terrier" (W.G. Bagnall of Stafford works No.300 of 1880) for a short time until "Terrier" was sold on in 1907. It is not clear as to how long "Gamecock" lasted but the Locomotive was later scrapped.

### **About the Kit**

This kit has been designed using Computer Aided Design (CAD) for the photo etched parts and the creation of most of the patterns for the cast parts using 3D printing technology, to ensure that parts fit correctly as they should do with the very minimum of fettling. However, there is still human element involved and a couple of tiny errors have crept in (my bad) and slight alteration to the part(s) will be required. A dry run of assembly is recommended and the cusp of the etched parts may need relieving in places, the locating tabs and slots in particular.

### **Tools Required**

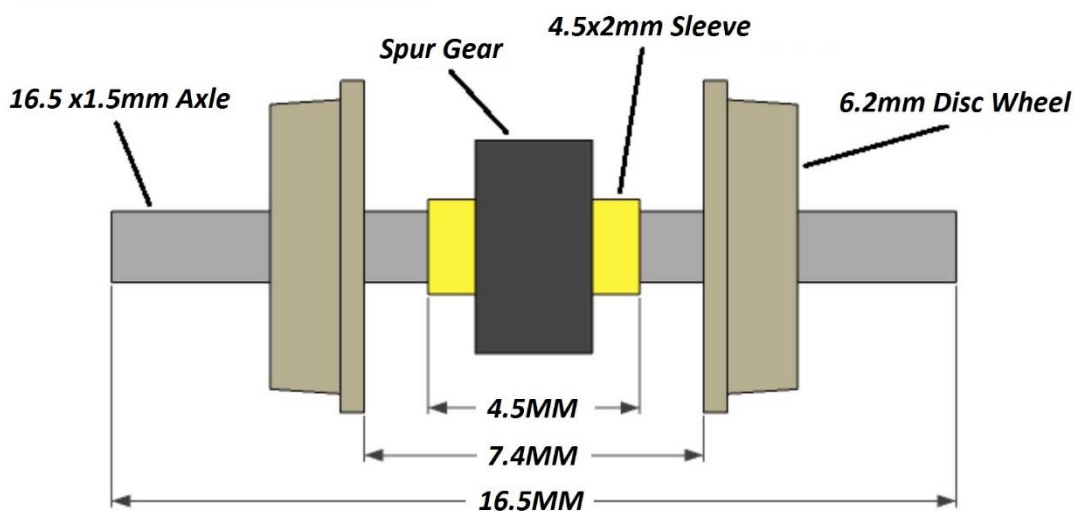
- Basic tool kit, including; Pliers, side cutters, needle files, fibre glass scratch stick pen, small screwdrivers etc.
- Tapered Cutting broaches
- Loctite 601/603 retaining compound or similar
- Two-part epoxy resin/Superglue
- 16BA Tap
- Soldering equipment; Soldering iron (25watt/variable temperature), 145 & low melt solder (for white metal) and fluxes of choice.
- And most important of all, is to have some patience.

## Guidance Notes For Construction

- Thorough reading of the instructions is highly recommended, so as to become familiar with the sequence of assembly and the components used.
- All half etch folds are bent towards the inside of the etched line.
- As is common practice with the assembly of most etched kits, soldered construction is highly recommended, and we would advise not to use adhesives (unless advised otherwise) as this will more than likely lead to a disastrous outcome.
- After removing parts from the fret, file back any half etch tags from the parts using a file, noting that it may be necessary to relieve the 'cusp' of the etched parts so that they fit correctly.
- Though not supplied, Greenwich couplings are recommended to be used with this kit, and it has been designed with these in mind.
- During construction of the chassis, it is imperative that there be no binding or tight spots within the drivetrain during each stage of the build, and should any errors occur, these must be rectified before proceeding to the next stage.
- It is noted that some of the fixings (screws) are supplied over length and where prompted must be reduced in length.

## Chassis Construction

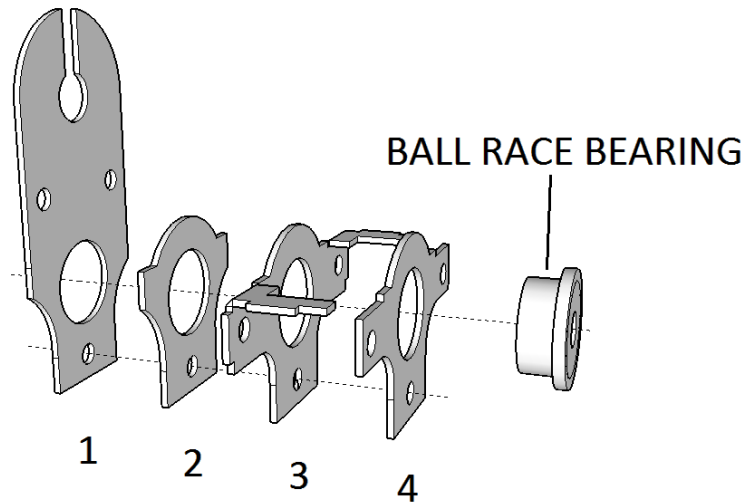
### Wheel Set Diagram - Make x2



- 1) Taking the wheel sets, gently remove the wheels from the pinpoint axles, by using a pulling and twisting motion (you may require a pair of pliers to hold the axle whilst you do so). Referring to the wheel set diagram, take the steel 16.5x1.5mm axles and dress the 'pip' flush with the end of the axle, and slide the 4.5x2mm brass sleeve onto the axles, applying a drop of retaining compound to the centre of the axle as you do so, and then slide the sleeves on so as they're exactly central – there is a Jig in the chassis etch to facilitate this. Once the retaining compound has cured fully, pop the black plastic spur gear onto the axle and mount it centrally on the sleeve \*this should be an interference fit but it won't hurt to apply a drop of retaining compound as you mount the gear\*. Carefully mount the wheels onto the axles, once again using a twisting motion (take your time we don't want wobbly wheels), setting the back to backs to 7.2mm to 7.4mm as per jig.
- 2) To assemble the lay shaft, first it must be checked that the 1.5mm steel shaft passes through the ball race bearings. If this is not the case it is easily remedied by holding the shaft in a rotary drill and sanding the ends with wet & dry sanding paper until the shaft is a nice sliding fit. Take the brass worm gears, and lightly ream them out so as they are a sliding fit onto the 27x1.5mm steel shaft. A jig for ensuring correct spacing of the worms on the shaft is provided on the chassis etch. Apply a drop of retaining compound to the worms on the

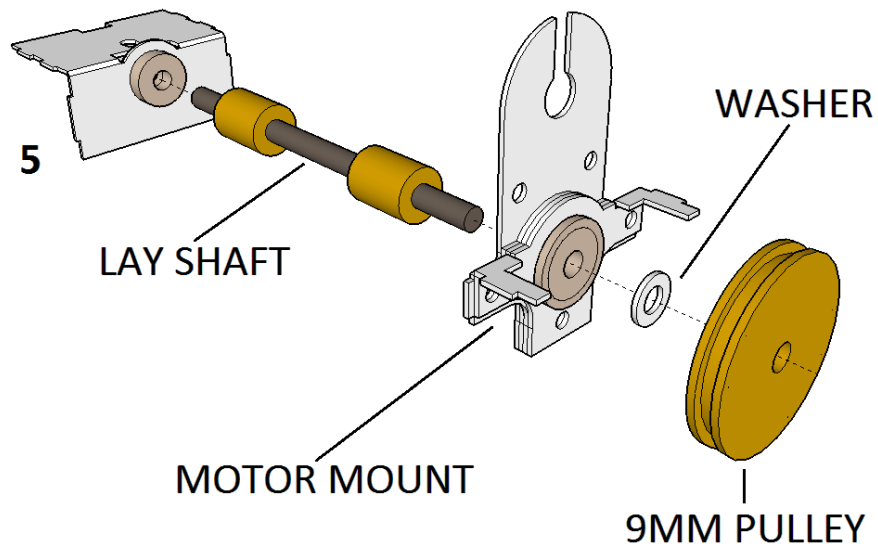
shaft, lightly spinning the worms so as to promote capillary action of the compound. Allow the compound to fully cure.

## 1



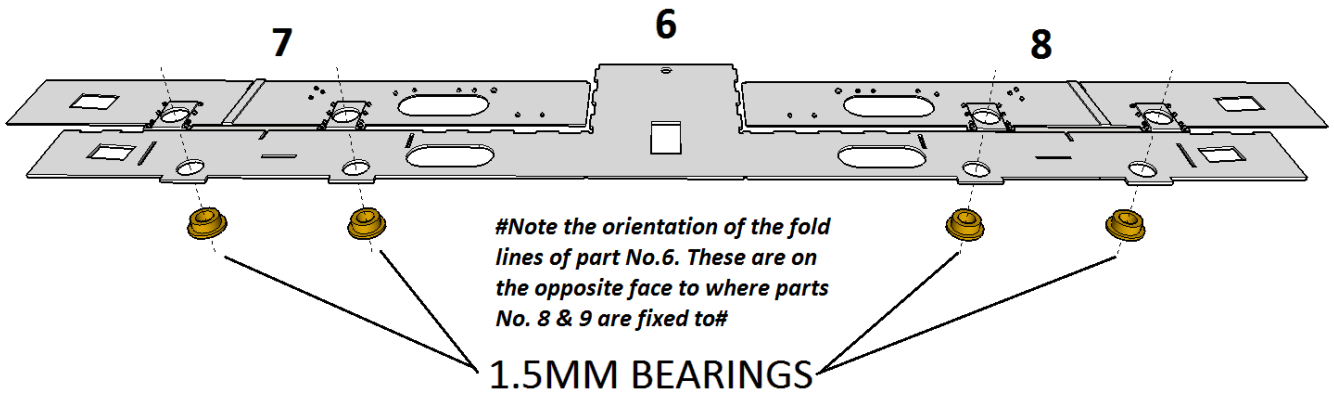
- 3) (*img1*) Assemble the motor bracket by stacking parts (1, 2, 3 & 4) together as per diagram – it may be required to lightly ream the cusp for the ball race bearings so that it's a good fit. Use cocktail sticks in the alignment holes and temporarily installing a ball race bearing in place to keep the assembly in perfect alignment whilst it is soldered together in one unit. Once the joint has cooled, fix the ball race bearing in place noting its orientation using retaining compound or adhesive.

## 2



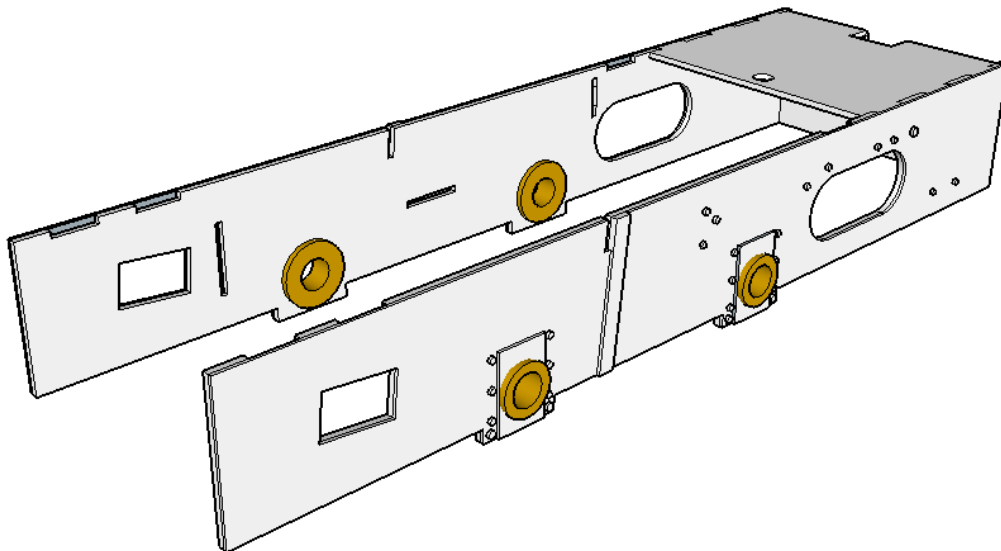
- 4) (*img2*) Insert the lay shaft into the ball race bearing of the motor bracket, add a full thickness etched washer the other side of the bearing before fixing the 9mm brass root pulley flush with the end of the shaft - check the clearance between the pulley and the bracket, if it comes into contact add a half thickness washer. The pulley itself will be an interference fit and will need a light ream with a tapered broach and a teeny drop of retaining compound to fix in place and must run square and true to the shaft. It must be stressed that no errant compound must leak into the bearing itself otherwise it will seize solid. Take the front cross member (5) and fix a ball race bearing in place noting its orientation using retaining compound or adhesive. Once the joint has cured, fold the part 90 degrees on the half etch line.

### 3



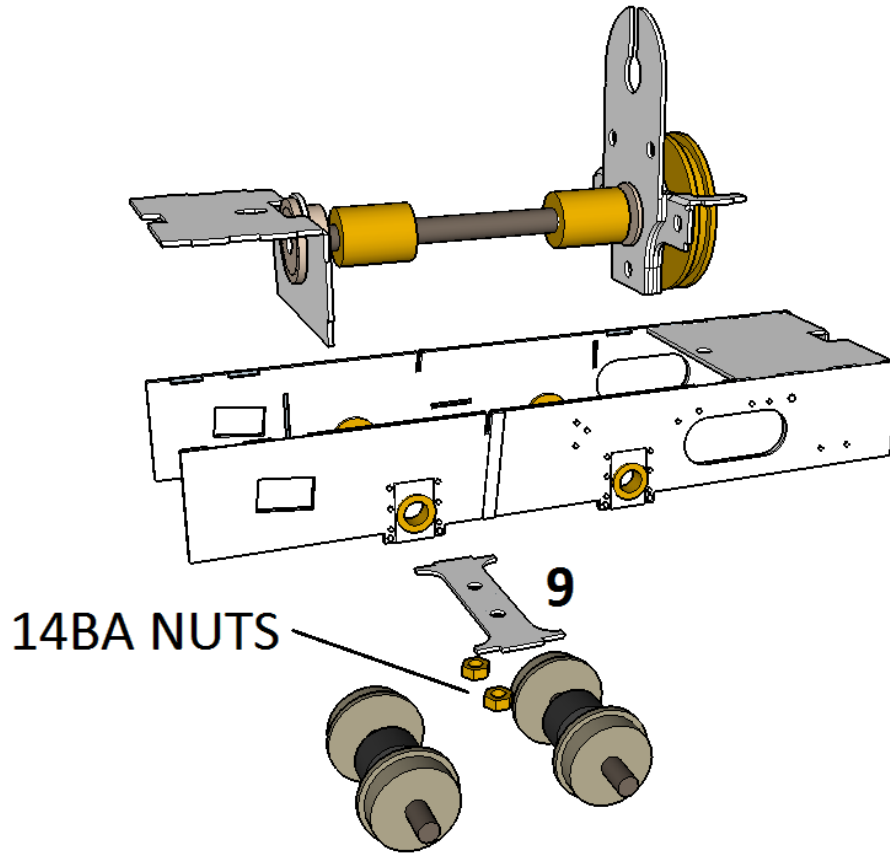
- 5) *(img3)* The Mainframes (6) will require the axle holes to be gently reamed with a tapered broach to accept the 1.5mm brass bearings, so they are a good snug fit. Working one side frame at a time, place the bearings in the axle holes with the flanges facing towards the inside of the frames and correctly seated against them. Place the relevant side frame detail overlay (7 & 8) on the outside of the frame(s), noting the orientation of the fold lines of (6) so that the overlays are fixed to the correct sides. You must ensure that the detail overlays are perfectly aligned against the side frames before fixing in place. Avoid using copious amounts of solder at this stage, just enough to hold the overlays and the bearings in place as you want to avoid flooding the locating slots with excess solder. File back the tail end of the bearing flush with the axle box detail.

### 4

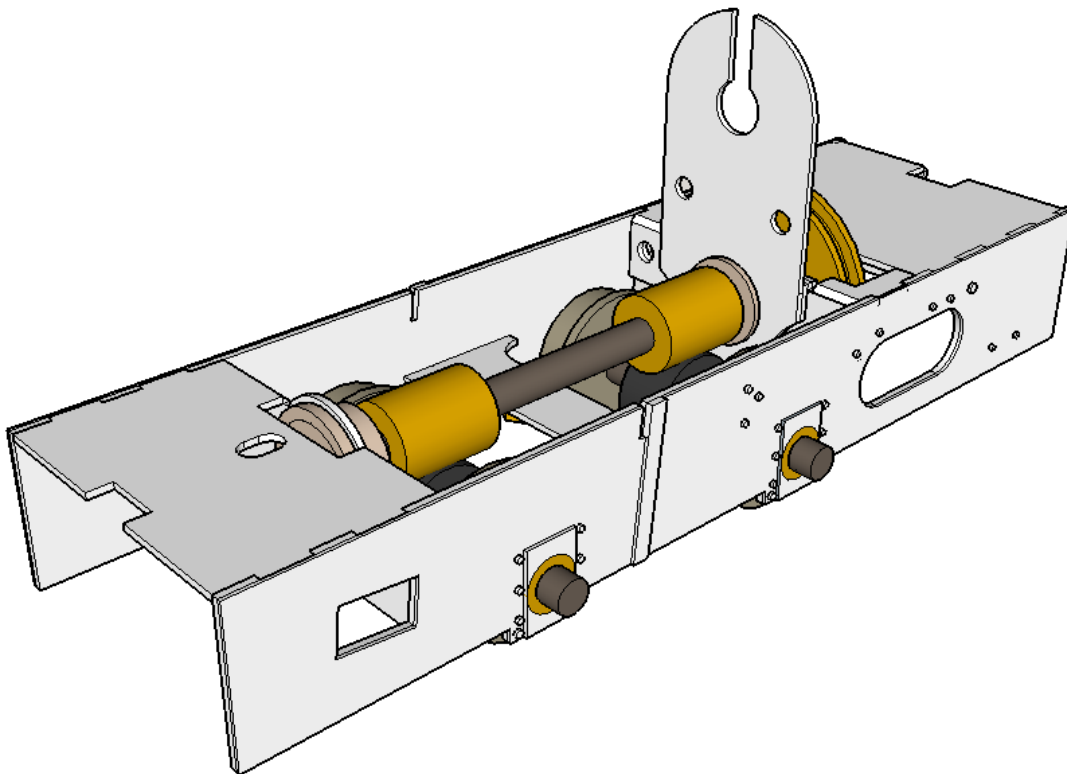


- 6) *(img4)* Fold the mainframes rear cross member to shape, ensuring the locating tabs fit nicely together. Spring the frames apart and fit the wheel sets to the axle bearings, ensuring that the wheel sets rotate freely without any tight spots or binding.

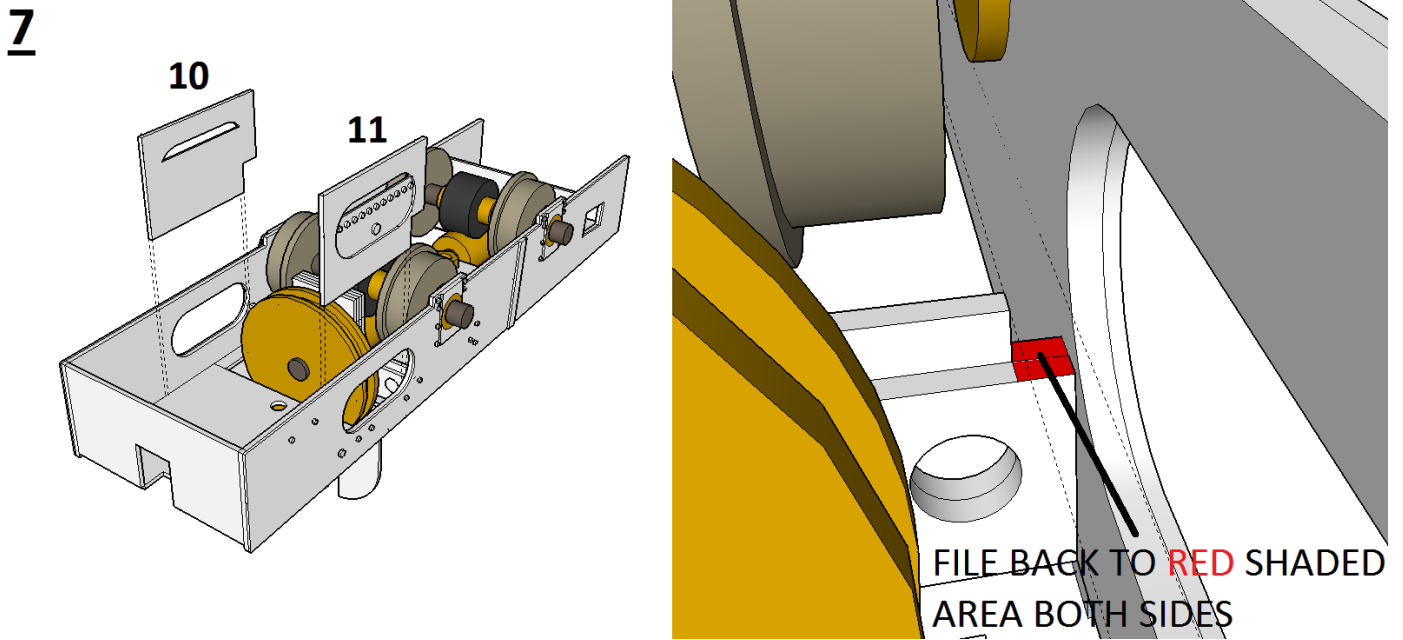
**5**



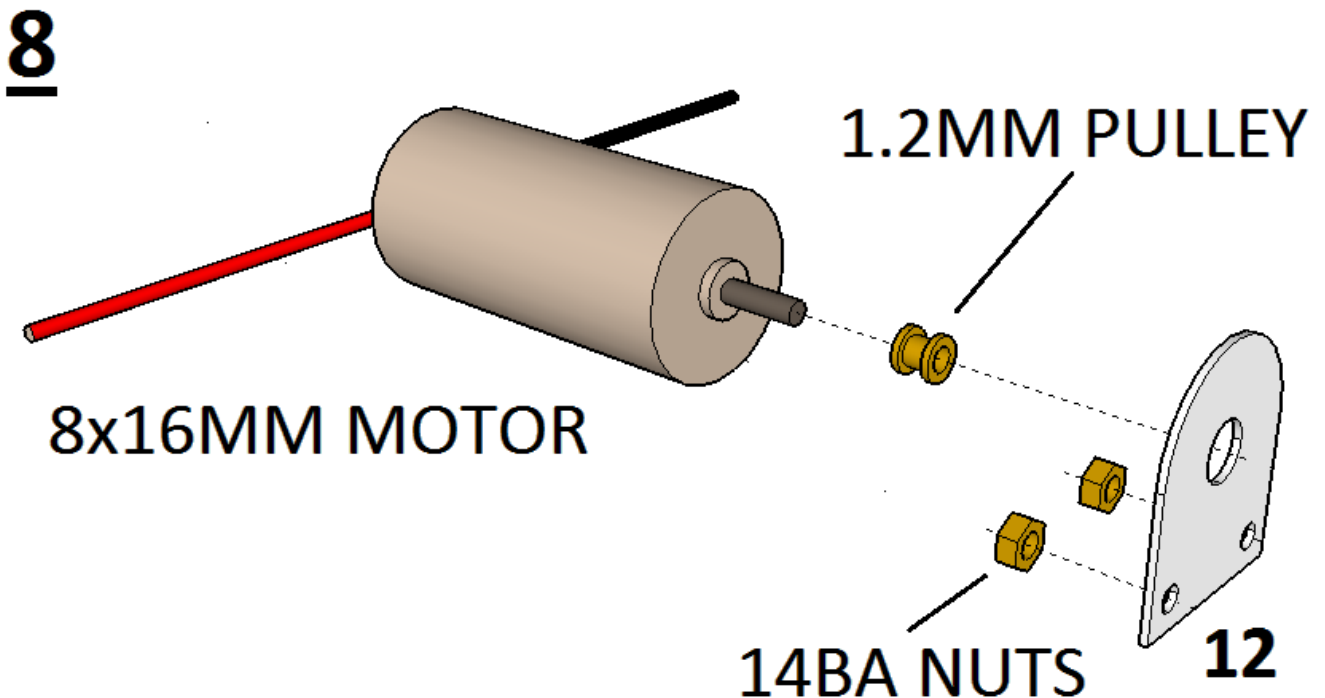
**6**



- 7) (*img5&6*) Slide the front cross member onto the lay shaft/motor mount assembly and clip into place in mainframes using the locating tabs & slots, only tack soldering in place for the moment. Take the pick-up cross member (9) and solder 2 no. 14BA nuts central to the holes. Clip the cross member into place with the nuts facing downwards. The motor bracket **must** be plum vertical or 90 degrees to the horizontal of the frames. Check that the lay shaft revolves freely without any binding or tight spots.

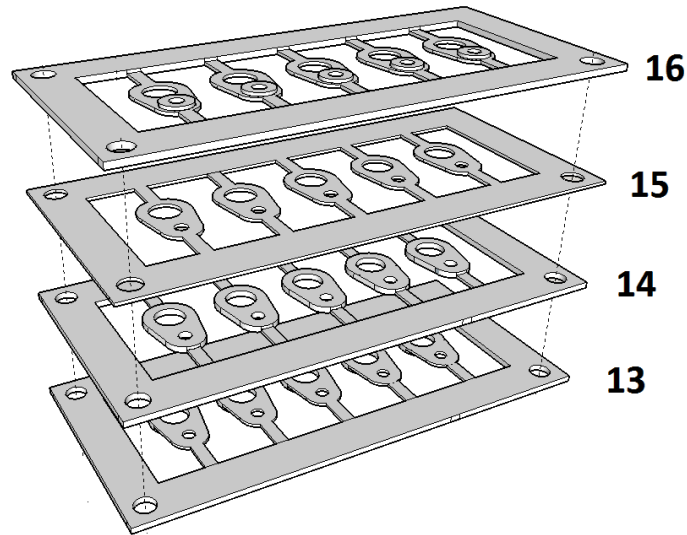


- 8) (*img7*) The chassis must be absolutely true and square - to check this, place the chassis onto a flat sheet of glass and check for any rocking. If there is any rocking present, gently twist the frames to counteract. Tack solder the firebox veneers (10 & 11) to the frames, ensuring that they line up perfectly with the apertures. Now seam solder all the joints that had previously been tacked.



- 9) (*img8*) The motor fixing bracket (12) will require 2 no. 14BA nuts soldered centrally to the holes, before bonding the 8x16mm coreless motor to the bracket (noting the orientation of the electrical wires) using a good strong 2-part adhesive, for this element I would suggest JB weld as the adhesive has to be heat resistant. Set aside and leave to cure for at least 24 hrs. Note there are two motor brackets in the etch, one is spare and should be kept should you have to replace the motor at any stage.

**9**



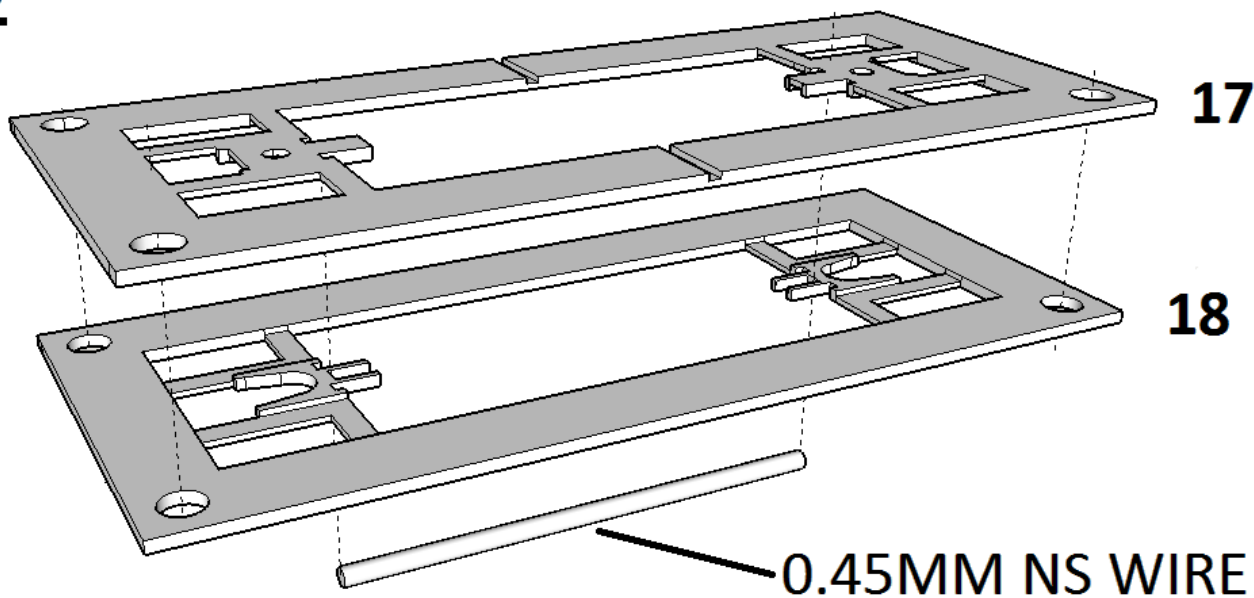
**10) (*img9*)** Next up is the assembly of the fly cranks which is one of the trickier elements of this kit, due to their diminutive size. Take the four fly crank frets (13, 14, 15 & 16) and layer them one on top of the other in the correct order (see diagram). Using cocktail sticks as locating dowels to precisely align the sheets, solder around the outside edge of the frets to secure them together. Apply solder to the outside of the fly cranks, using plenty of flux and a hot iron to ensure the solder will flow nicely, yet try not to over apply the solder or you may risk flooding the holes full. Next, tap out the crank pin holes to 16BA, and countersink from the rear, so as to accept the 16BA screws. Wind in the screws so that they are fully home, ensuring they do not protrude past the boss of the crank, and solder in place - a dab of flux and heating the part will draw any excess solder into the joint. Carefully ream out the axle holes in the cranks with a cutting broach just enough so as a 1.5mm axle will pass through them, yet are not a sloppy fit. Now remove the cranks from the fret and dress the tags with a file. A spare fly crank is included in the fret, just in case you lose one to the carpet monster.

**11) Fly crank installation: -**

- The fly cranks are attached to axle ends using retaining compound, however, a great deal of care and swift action must be exercised at this stage of the build due to the nature of the compound, and the close proximity to bearing surfaces such as the axle bearings. Before installing the fly cranks, saturate each bearing surface with your chosen light oil/WD40 etc., as this will act as a barrier against any wayward compound. Then, so as not to compromise the bonding, clean off any excess oil from the axle ends with a solvent such as IPA/thinners.
- Place a crank half-way onto the end of your first axle, so as it is pointing downwards precisely to six o'clock. Using a piece of wire or a cocktail stick, apply a miniscule amount of retaining compound onto the end of the axle, enough to pool the cavity, then push the crank further along the axle so that the face of the crank is flush with the axle end. As you push the axle flush you'll get an overspill of compound, and you want be ready to mop this up immediately with tissue or a cotton bud.
- Give the crank a wiggle to promote the flow of the compound, making sure you return the crank precisely to the six o'clock position, and leave it to cure for at least an hour
- Now repeat the process to the second axle, on the same side as that previously fitted. To check the cranks are in unison with one another, temporarily fit one of the coupling rods, yet be swift as the compound will begin to cure within a few minutes, if not less. Again, allow to cure fully before proceeding any further.
- Repeat the process of fitting the fly cranks to the other side of the chassis, off-setting the cranks by 90 degrees to those on the opposite side (i.e nine o'clock). This does not have to be absolutely spot-on, but it is critical that the cranks rotate in unison, or binding may occur. Once again, allow the compound to cure fully before proceeding to the next stage.

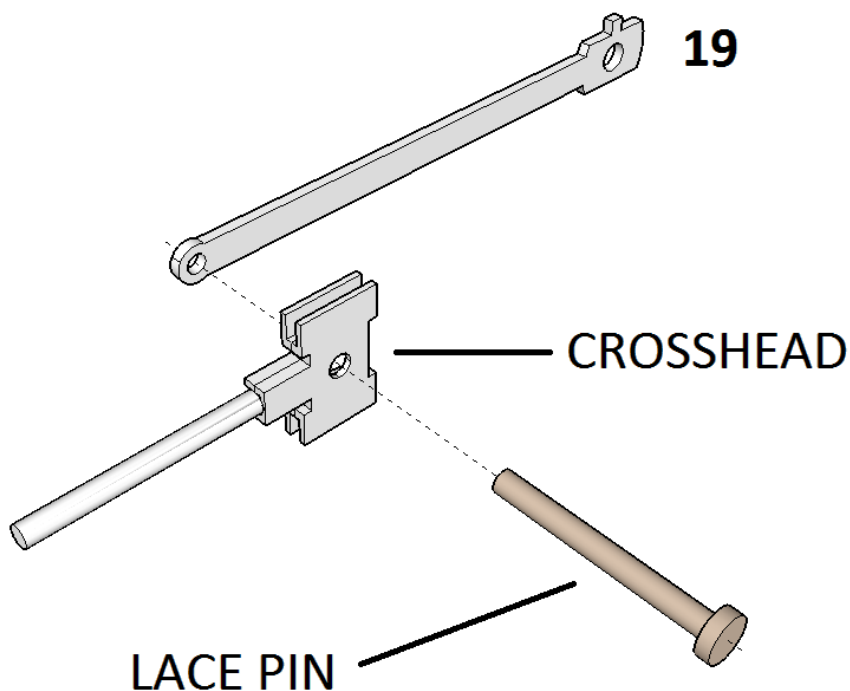
12) Assembly of the motion is described as working on one side at a time: -

# 10



- *(img10)* The crossheads (17 & 18) are formed by laminating the two frames together, with a ~13mm length of 0.45mm wire as the piston rod between the two units. Minimal solder is required as you will want to avoid flooding the guides and recessed detail with excess solder. Using the half etch line as a guide, cut the fret in half with a razor saw, then snip the crossheads from the frets.

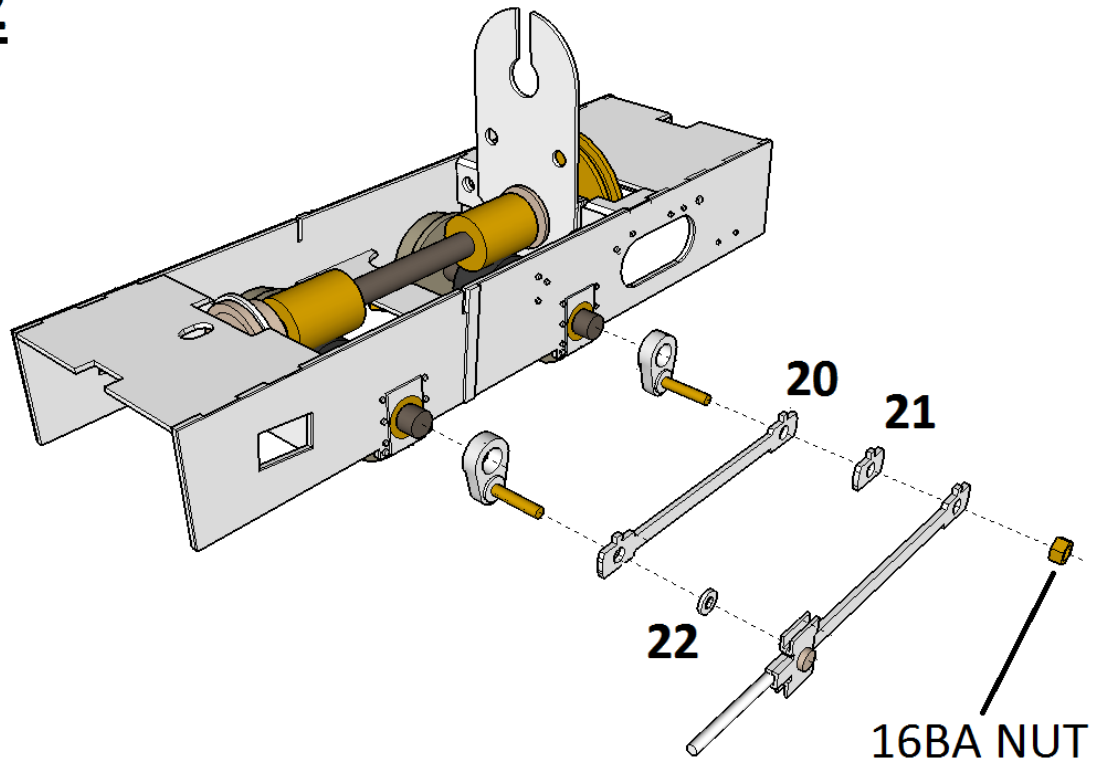
# 11



- *(img11)* The connecting rods (19) are to be joined to the crossheads via a lace pin. The joint must pivot freely and the tail end of the lace pin filed back flush to the back of the crosshead. The best way to achieve a free pivoting joint is to separate the washer and the connecting rod with a thin paper washer (newspaper/cigarette) saturated in light oil/WD40 with a swift application of solder to the joint.

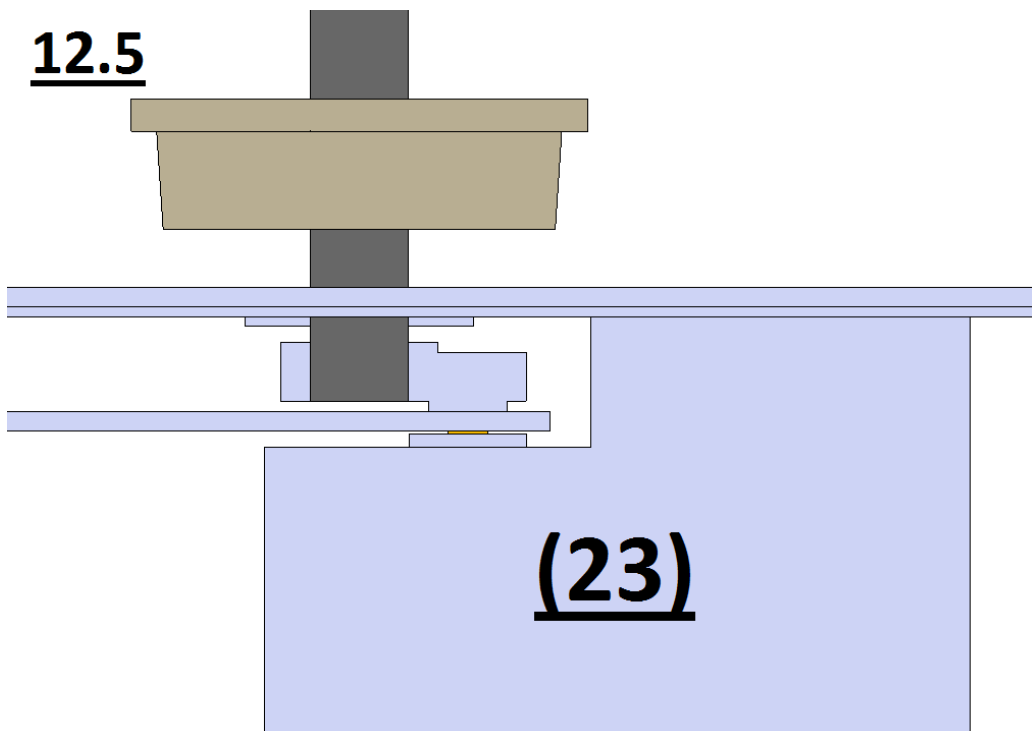


## 12



- *(img12)* Take the coupling rod (20) and fix the boss (21) to the coupling rod at the rear axle crank pin hole and lightly ream the crankpin holes to relieve the cusp of the etch. Place the rod over the crankpins and rotate the driving wheels at least one revolution to ensure the rod does not bind. If you do have a tight spot, gradually enlarge the rear crankpin hole to relieve the bind.

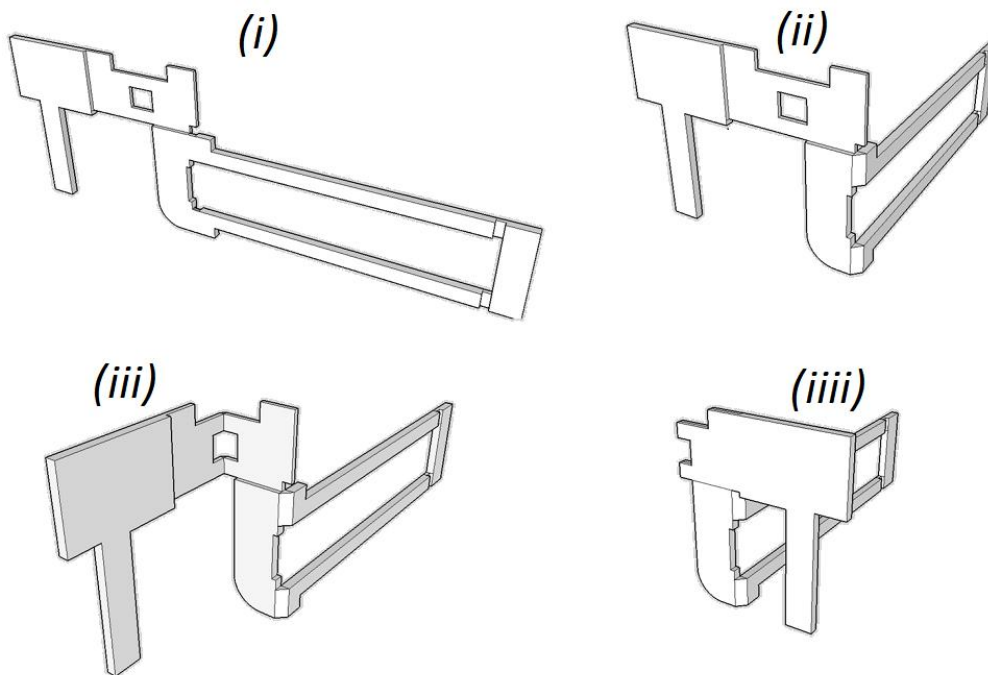
## 12.5



- The lead crank pin is retained by a 0.20mm thick washer (22) and is to be soldered in place, without jamming the motion up using the same technique as described for the connecting rods. File back the crankpin flush with the washer, however one must be mindful of the close proximity between the retaining washer and the back of the crosshead which must not touch. *(img12.5)* A nifty gauge is

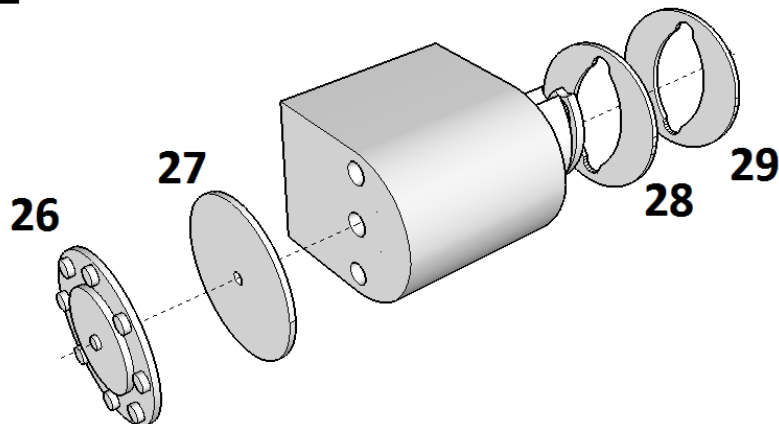
included in the etch (23) to ensure that the retaining washer is set back far enough to not cause an issue.

## **13**



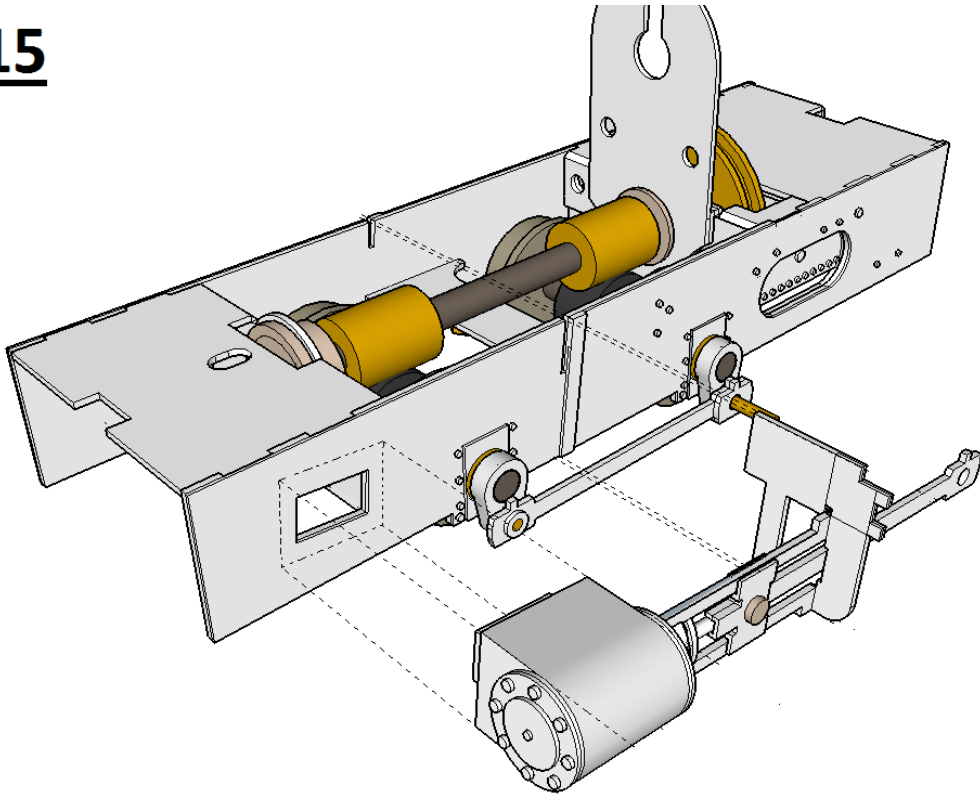
- *(img13)* The motion brackets (24 & 25) are formed as per diagram, bending the slide bars to 90 degrees before bending the motion bracket back on itself through 180 degrees, flattening the half etched portions together. Reinforce the joints with solder (leave bridging tags alone for the moment). Test fit the crosshead into the slide bars so that they slide back and forth smoothly and uninterrupted, the cusp of the slide bars will need relieving, and if the crossheads are still tight, very gently relieve material from the guide channels using a razor saw.

## **14**

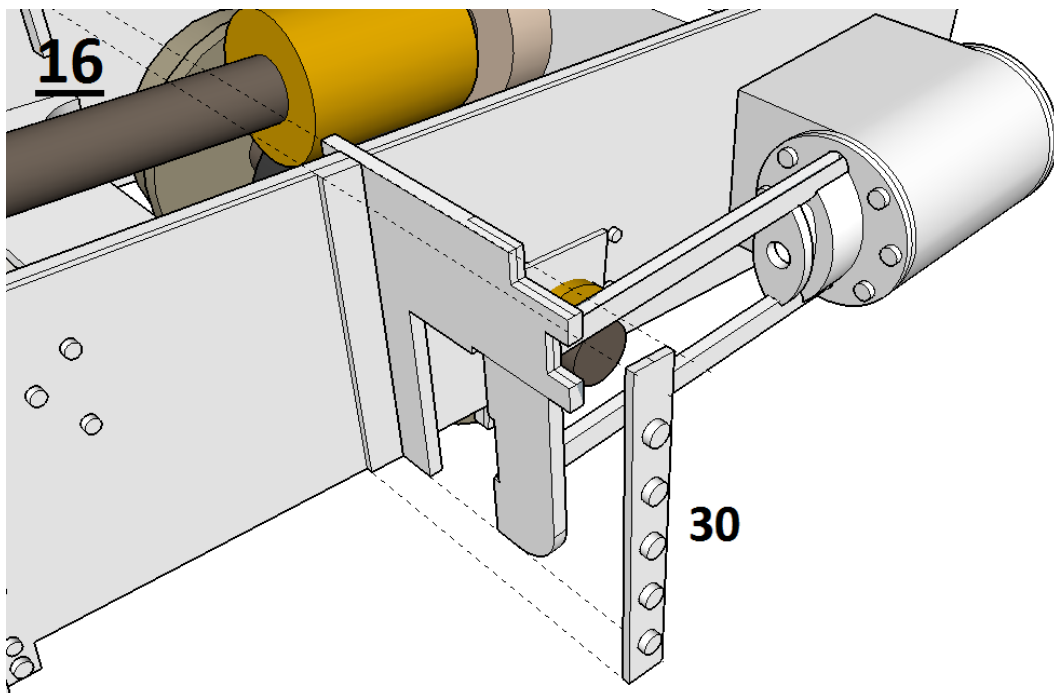


- *(img14)* The cylinders are 3D printed which have the holes for the slide bars and the piston rod already formed into the part, but these must be checked that to ensure that the parts correctly fit into them and relieved accordingly with a drill or tapered broach. The prints themselves have been degreased, but will require burnishing/fettling before they are fitted to the chassis. Add the front (26 & 27) and rear (28 & 29) cylinder covers, etched detail outermost with minimal adhesive as we don't want to flood the holes shut. Take care with the rear covers as the etched parts are uber (very) delicate.

# 15

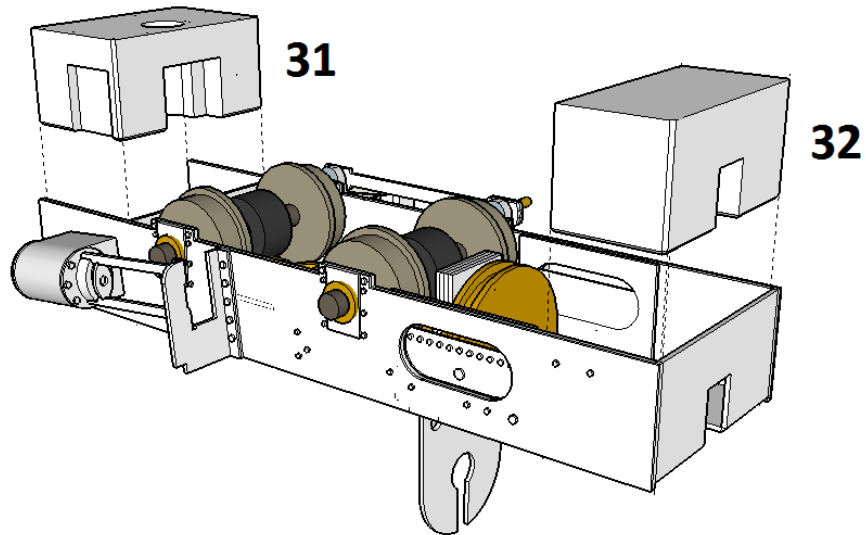


- *(img15)* Insert a crosshead into the slide bars and then insert it into the cylinder, checking that the piston rod slides back and forth ok. Apply adhesive to the joining face of cylinder and manoeuvre the assembly into place, locating it into the relevant slots in the frames, hooking the end of the connecting rod over the rear crankpin. Tack solder the motion bracket into place and rotate the wheels at least a few revolutions to make sure there is no binding present. If you're happy all is well, the connecting rod is retained by a 16BA nut which is soldered into place (using the paper washer technique) but must not be wound down tight onto the rods. Snip back the tail end of the crankpin and file flush.



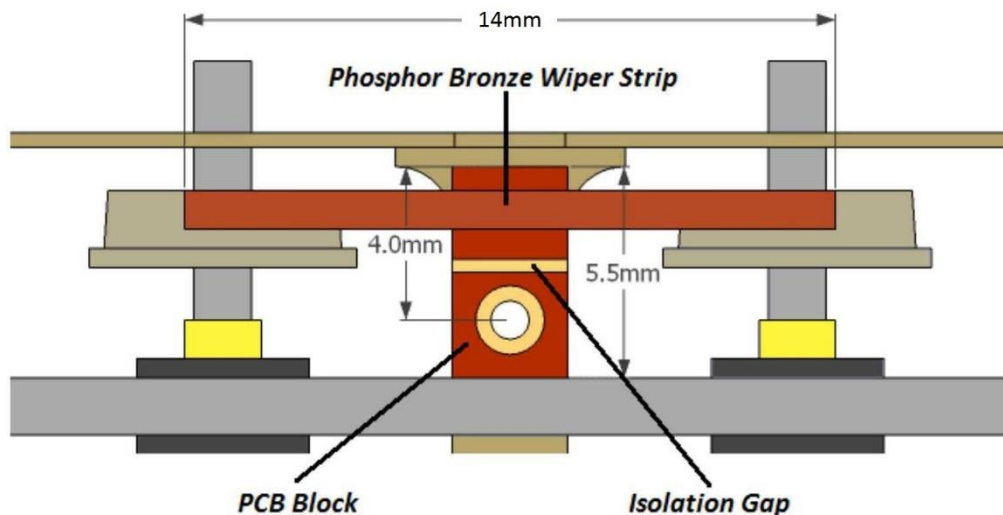
- *(img16)* Add the motion bracket bolt detail veneers (30) to the raised plinth, seam soldering the motion bracket in the process. Now dress the bridging tags flush with the motion bracket.

# 17



13) (*img17*) Fit the white metal front ballast weight (31) between the frames, and secure in place. A ballast weight for the rear of the frames (32) is included in the kit but isn't strictly needed as the completed model will have a near perfect 50/50 weight distribution without it.

## Pickup Assembly - Make x2

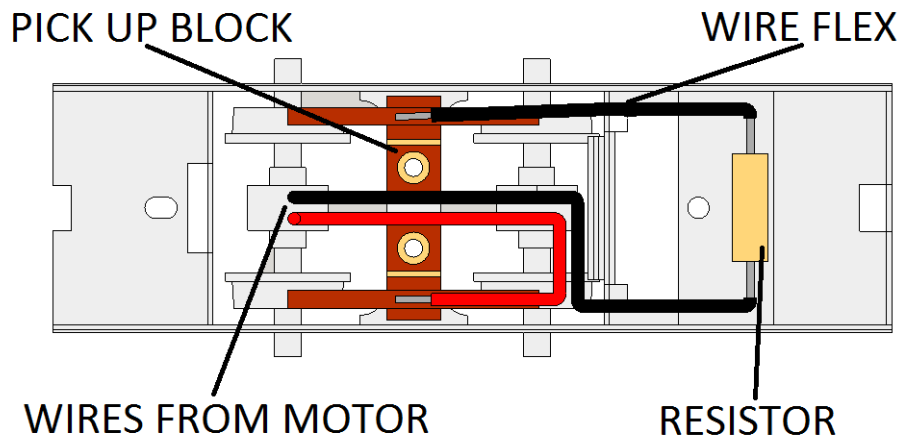


14) Fabricate the pick-ups from the copper paxolin (PCB) and phosphor bronze strip.

- Referring to the diagram, cut the PCB to length, drill a 0.8mm hole, and then countersink it to suit the 14BA fixing screw. Fit the PCB to the pick-up cross member, making sure it does not foul the lay shaft and is parallel to the cross member.
- The phosphor bronze strip is to sit equally spaced on top of the wheel tyres, the strip itself needing to be positioned slightly away from the flanges so as to avoid unwanted drag. When you are happy with its position, press the strip down onto the PCB using a cocktail stick, and solder in place.
- Remove the pickup assemblies, and file an isolation gap between the fixing screw hole and the strip, making sure the assembly does not touch the inside of the frames.
- Bend the pickup wipers downwards from the horizontal very slightly, yet not too much or it may create excessive drag on the drive train.

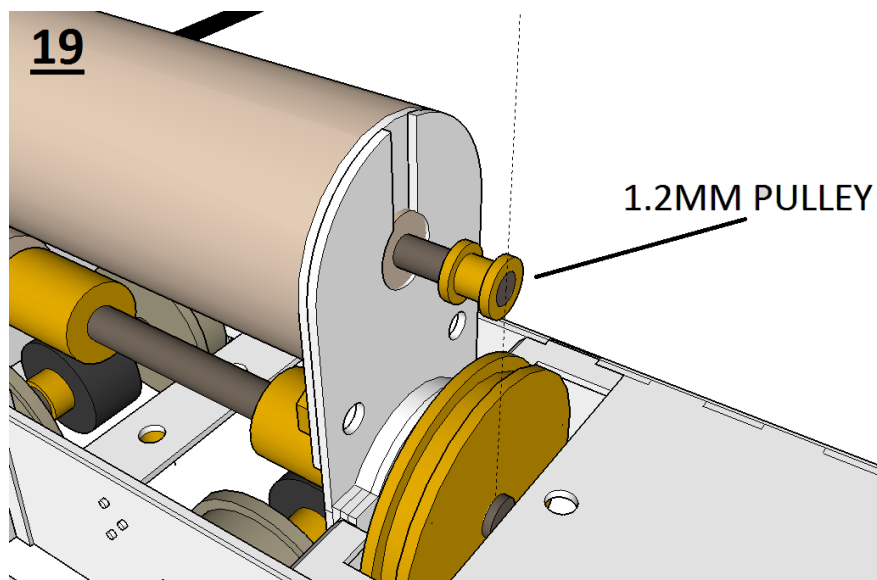
## 18

### PLAN VIEW



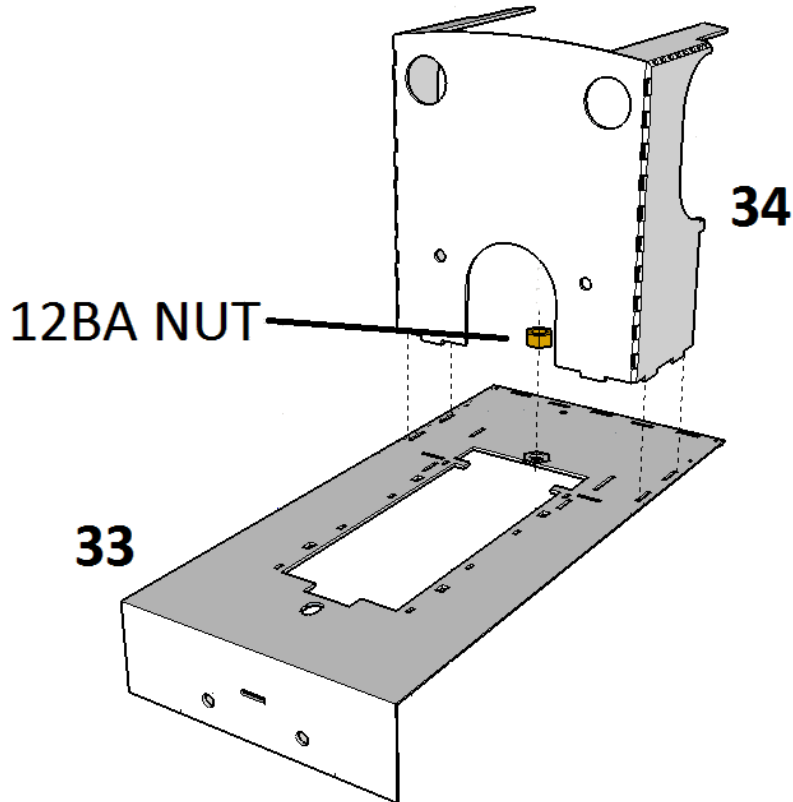
15) (*img18*) The next stage is to wire the electrical connections from the motor to the pick-ups with a resistor wired in parallel in the circuit. Referring to the wiring diagram, the sequence is as follows: -

- Route the power wires of the motor directly underneath it at 6 o'clock the entire length of the motor to the mounting bracket, the **red** wire running along the left-hand side of the loco, using thin strips of sellotape/insulation tape to hold them in place. Fit the motor to the chassis
- The **red** wire is to be routed forward to the pick up on the left-hand side of the loco. The wire will need trimming back, but leaving a little slack in the wire so it is not taught (mindful of the fact that there will be a boiler/saddle tank occupying the same space later on) and then solder the wire to the pick-up using low melt solder.
- The black wire from the motor is to be threaded through the left hand hole in the motor bracket and run along the inside of the frame towards the back of the loco.
- The resistor is to be situated between the frames at the rear, clear of the pulley and body fixing point and held in place with a spot of adhesive. Solder the wire from the motor to the resistor
- To the other end the resistor, solder a length of flex wire and route along the inside of the frames on the right-hand side, through the hole on the motor bracket and to the pick-up. Trim the wire to suit and solder to the pick-up.



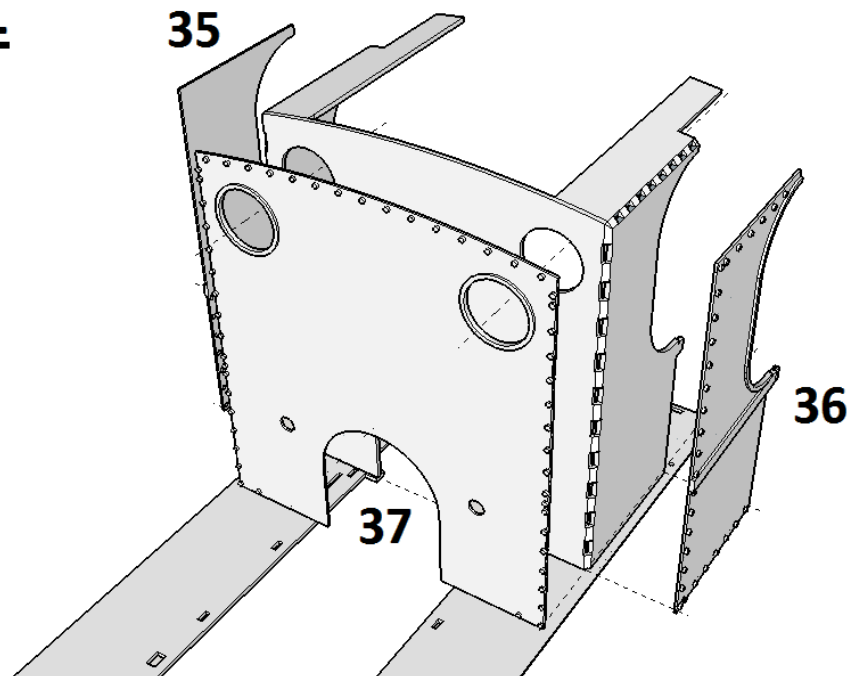
16) (*img19*) Slide the 1.2mm root pulley onto the motor and align it plum vertical with the 9mm root pulley on the lay shaft, securing in place with a tiny drop of retaining compound. Once this has cured, fit a 10mm drive belt to the pulleys.

# 20



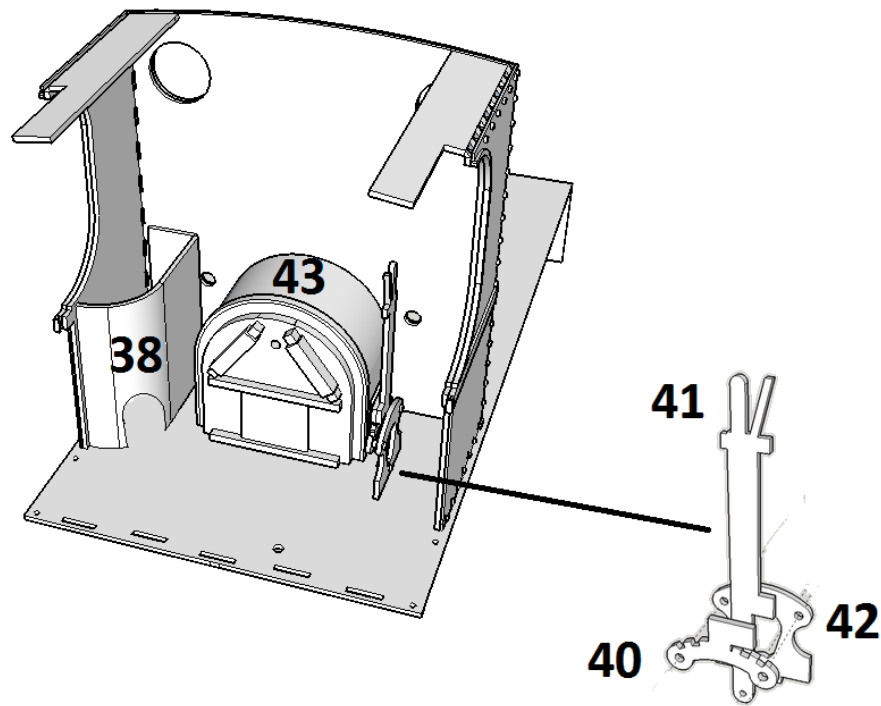
- 1) *(img20)* Take the footplate (33) and add a 12BA nut to the top side rear hole, locating the nut within the hexagon outline. Take the inner cab (34), fold the cab sides to 90 degrees, followed by the braces that are folded over to follow the radius of the roof line and clip into the locating slots in the footplate tack soldering in place only for the moment. Fold the buffer beam to 90 degrees.

# 21



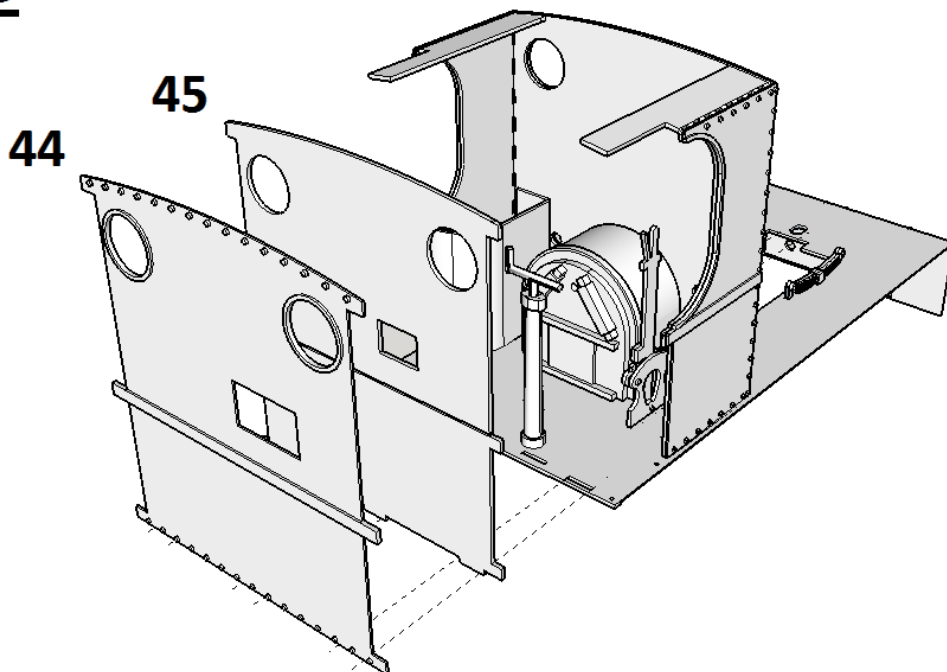
- 2) *(img21)* Attach the cab side veneers (35 & 36) to the inner cab, aligning the parts in line with the cab entrance. Add the front cab sheet veneer (37) between the cab side and seam solder the rest of the cab.

## 22

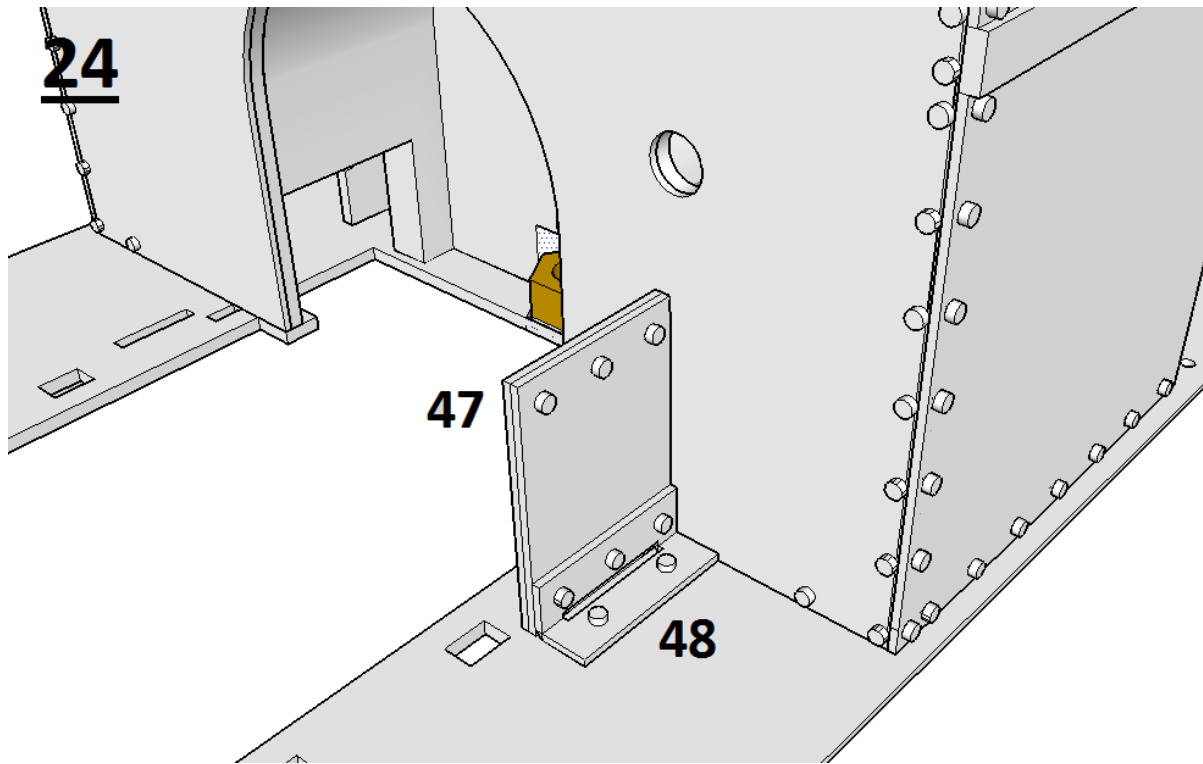


- 3) *(img22)* Form the coal bunker (38) using the template (39) to assist forming the part to shape and fix in place. The reversing lever is fabricated from three parts (40, 41 & 42) and are located using lengths of 0.31mm NS wire and soldered together in one piece. Fix the lever into place followed by the back head casting (43).

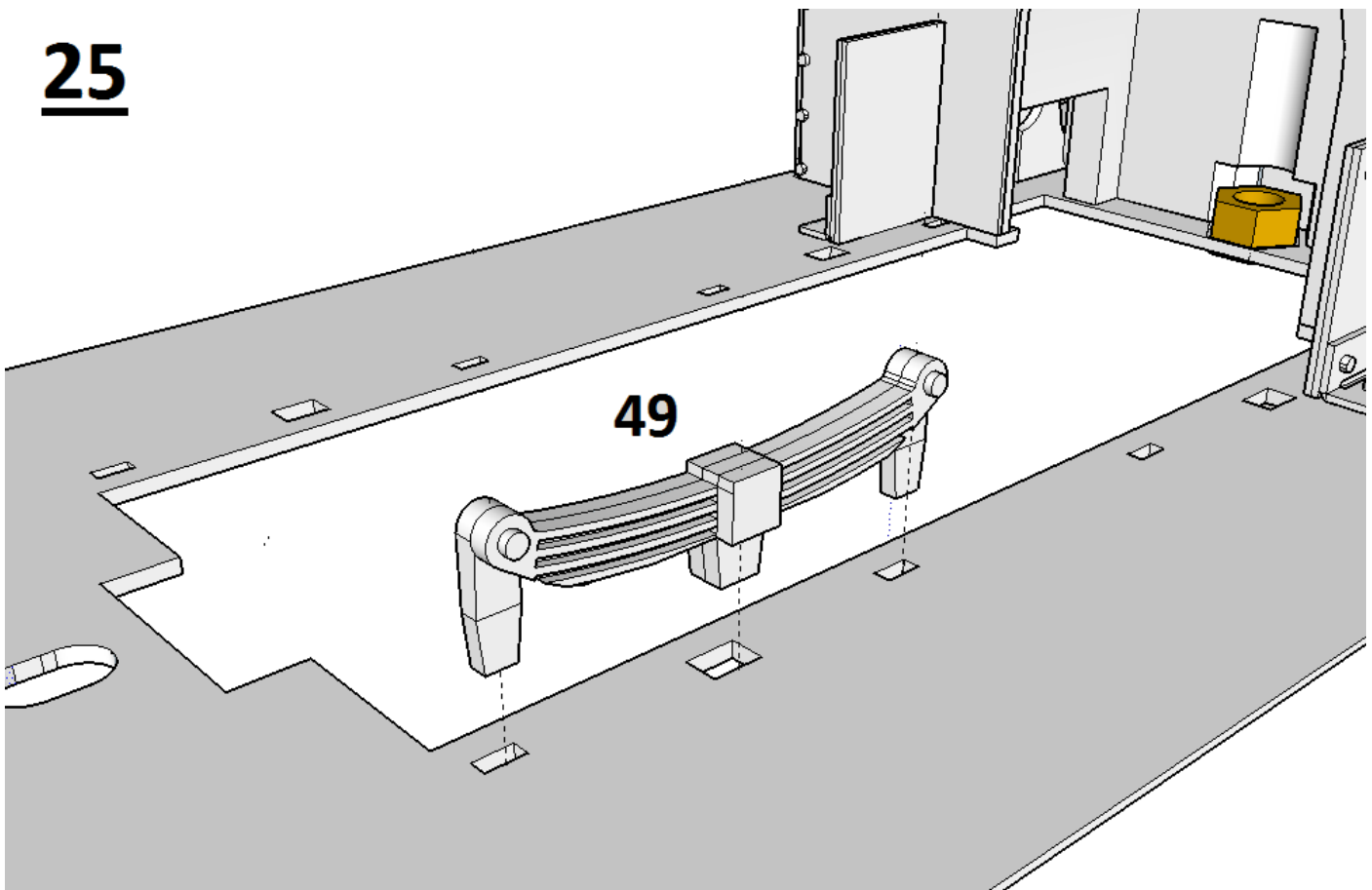
## 23



- 4) *(img23)* Tack solder the rear inner cab sheet (44) to the foot plate, followed by the outer rear cab sheet veneer (45). There is an option of leaving the upper rear cab sheet off the model (as per works photo) simply break off the upper portion of the inner cab at the half etched line, followed by cutting the outer veneer to suit. A bolt detail strip for the upper part of the cab is also provided (46a&b).



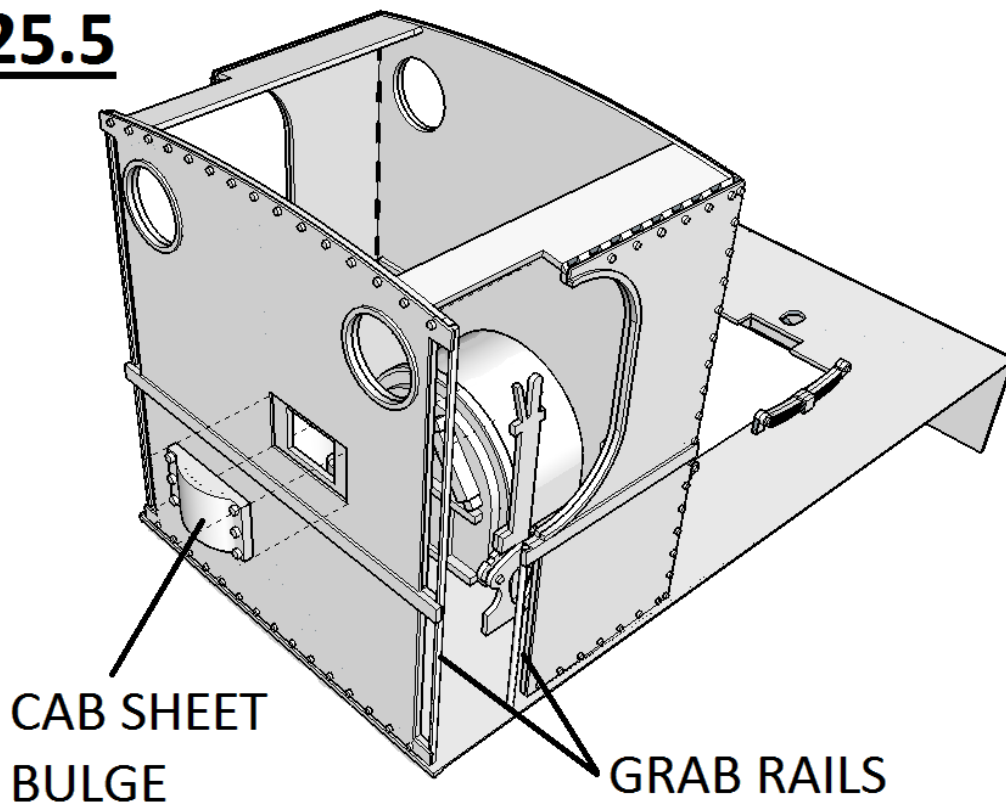
- 5) *(img24)* The saddle tank supports (47) are formed by layering 2 half etch thicknesses together by folding the part back on itself, leaving the bolt detail outermost. Fix the supports directly in front the cab sheet making sure they are dead vertical, then add the tiny angle brackets (48) which are folded to 90 degrees then fixed to the tank supports at the foot plate.



- 6) *(img25)* The leaf springs (49) are formed by folding the 3 segments back on one another on the bridging tags, with the half etched detail facing outwards. Solder each unit together before fixing to the footplate.

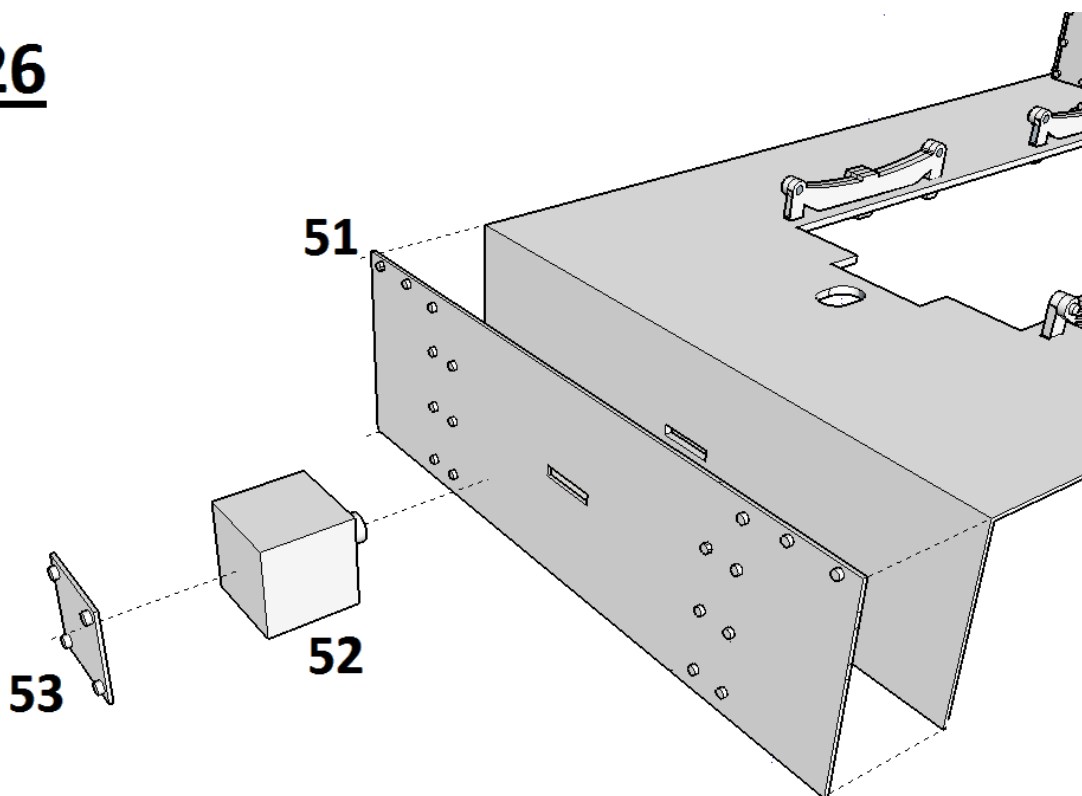


## 25.5



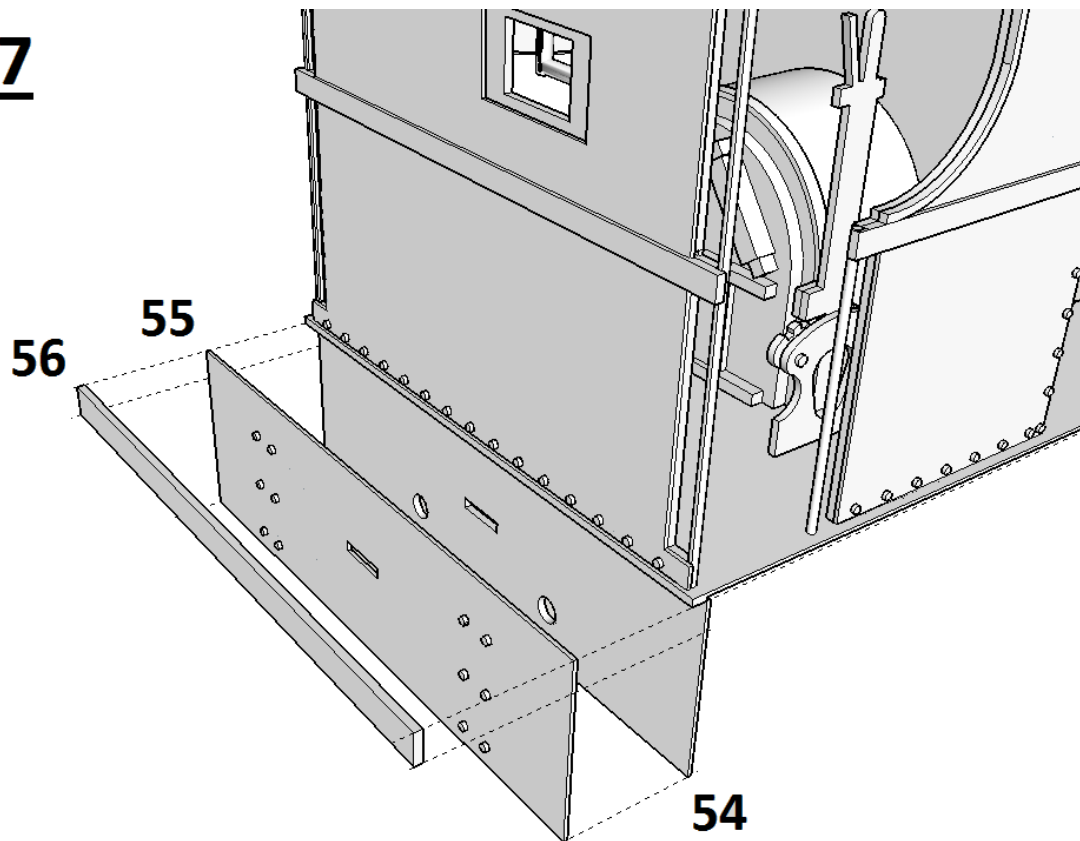
- 7) (*img25.5*) Add the cab entrance grab rails, formed by straight lengths of 0.30mm wire that locate through the holes in the floor and the notches in the cab sides and back sheet. Add the brake pedestal (50) to the inside of the cab. At this stage file back any protrusions flush on the underside of the footplate. Add the 3D printed cab sheet bulge to the rear of the cab sheet.

## 26



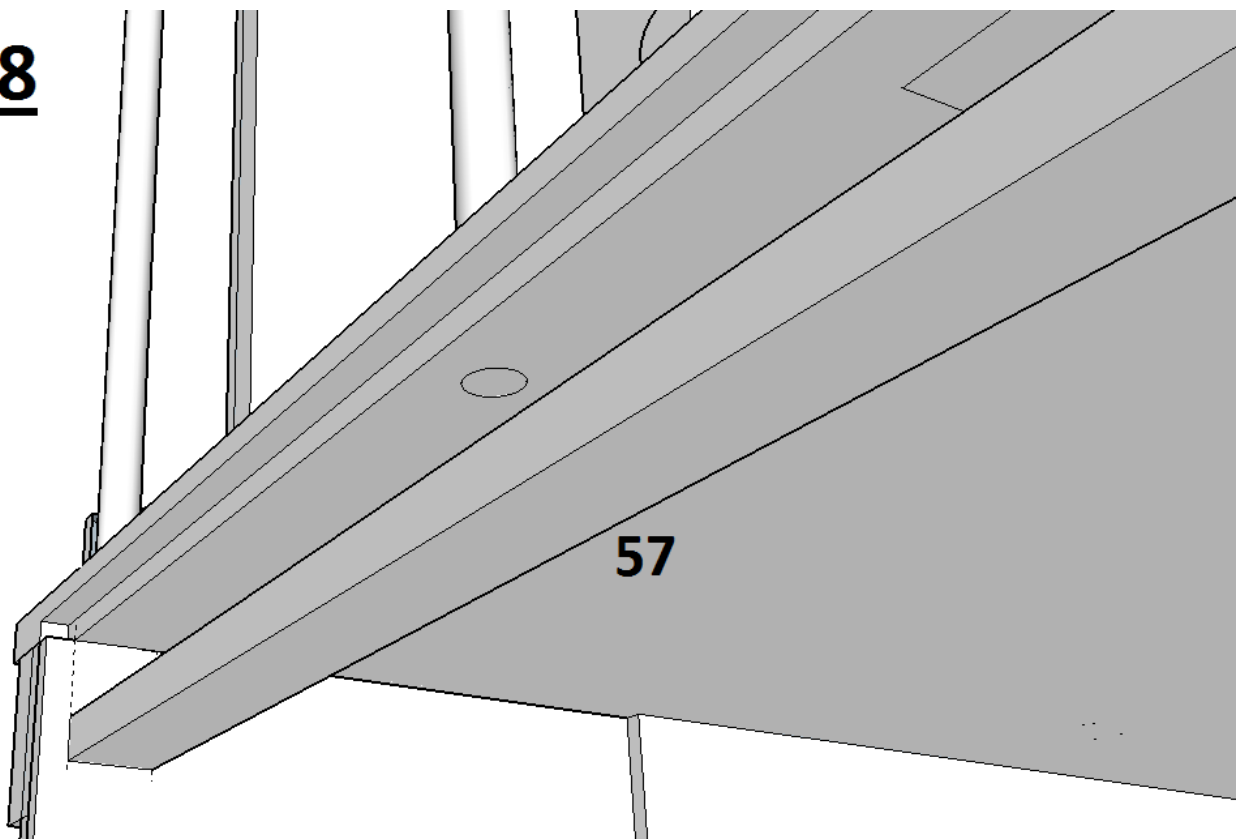
- 8) (*img26*) Add the front buffer beam veneer (51) to the footplate, aligning with the outer edges and the slot for the coupling. Drill through the holes in the back of the buffer beam with a 1mm drill, these are to locate the buffer blocks (52) with bolt detail veneers (53).

## 27



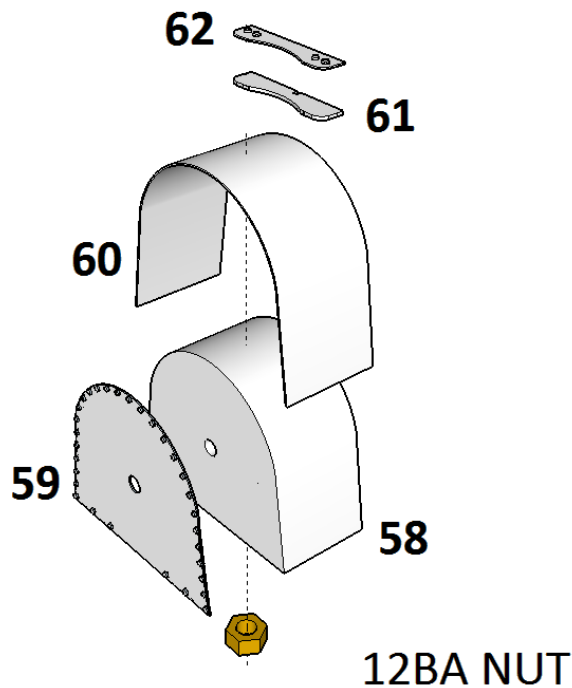
- 9) (*img27*) Add the inner rear buffer beam (54) to the underside of the running plate, followed by rear buffer beam veneer (55) aligning the outer edges and the slot for the coupling. Add the strip (56) along the top edge of the rear buffer beam. Drill through the holes in the back of the buffer beam with a 1mm drill, these are to locate the buffer blocks as per front buffer beam.

## 28



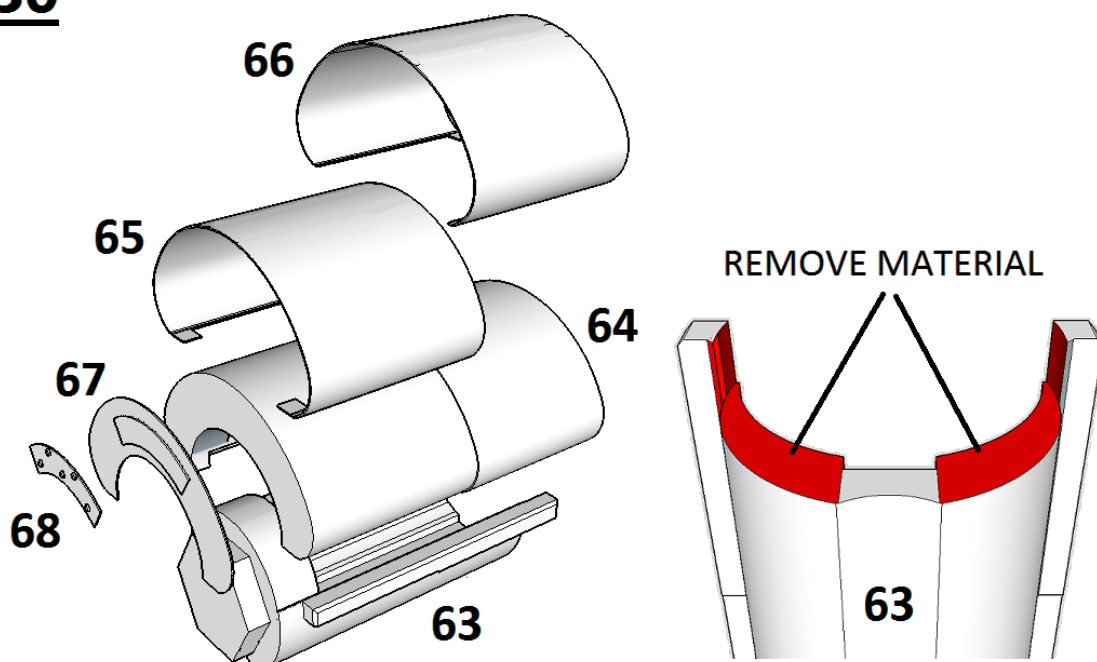
- 10) (*img28*) Add the valance strips (57) to the underside of the footplate, setting them slightly inwards of the outer edge, not overlapping the half etched ridge.

## 29



- 11) (*img29*) Prepare the smokebox casting (58) by drilling the holes through with a 1.5mm drill bit to accept the chimney, smokebox door and fixing screw. A 12BA nut is to be fixed (Soldered) to the underside of the smokebox ensuring that it must not sit proud of the surface, check that a 12BA bolt can be screwed home ok. Add the front smokebox veneer (59) using the locating hole for the smokebox door for alignment, followed by the outer wrapper (60) using the hole for the chimney for alignment. Note the orientation of the wrapper itself with the rivet detail facing outwards, there is also a gap in the rivet detail and an alignment lug for the tank support bracket (61 & 62) file back any protruding wrapper material flush with the underside of the smokebox.

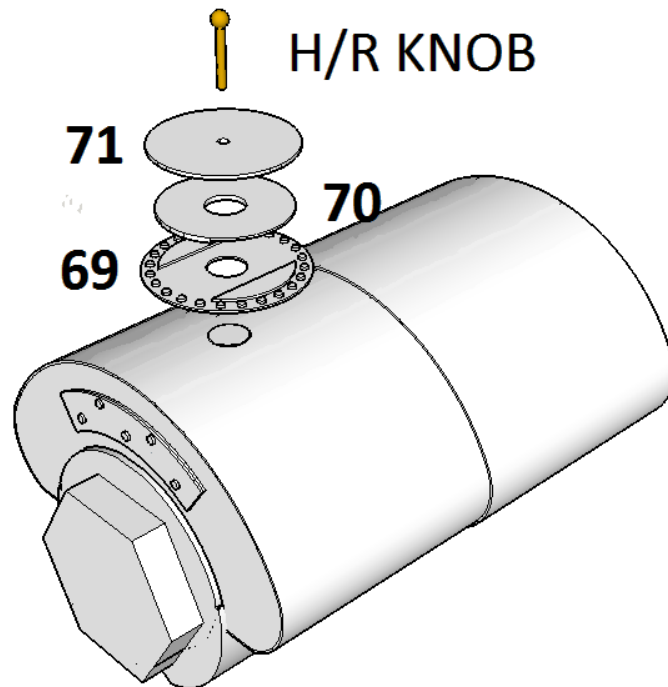
## 30



- 12) (*img30*) The lower boiler segment (63) requires a small modification to the casting (see diagram) before it fixes into the saddle tank (64). The saddle tank outer wrappers (65 & 66) form around the tank using the locating holes for aligning the wrappers centrally. Forming the wrapper themselves is no easy task but must be done

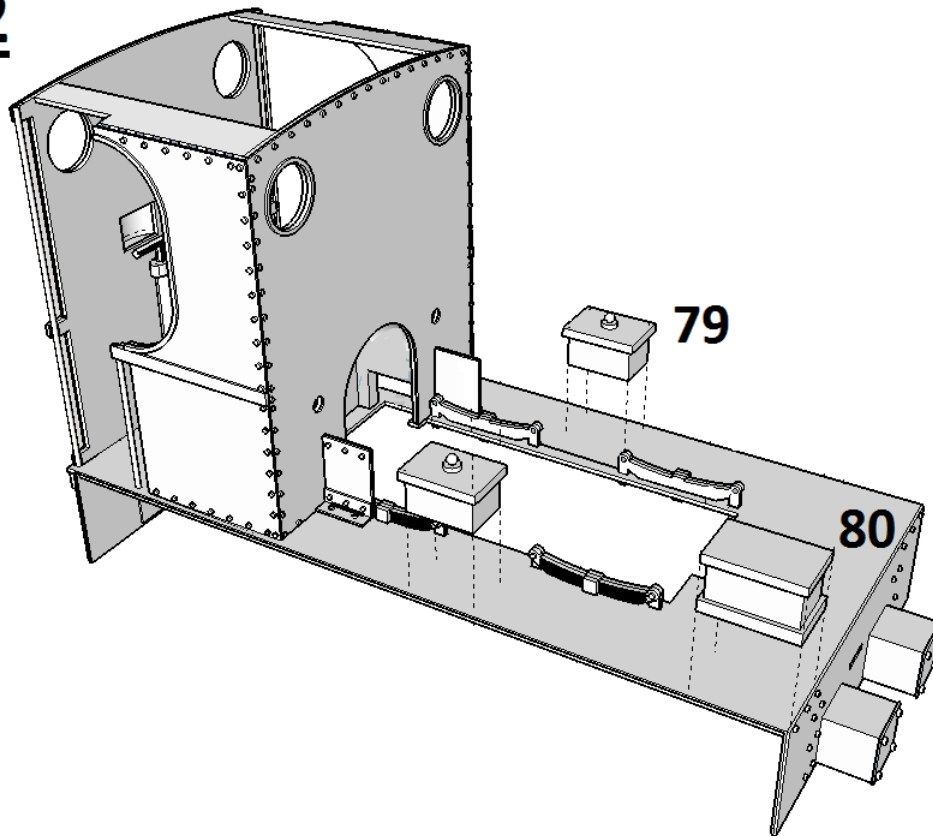
carefully as it will be all too easy to crease the material, so take your time. My suggestion would be to gradually form the wrapper around a tighter radius than the tank itself so that the wrapper doesn't tend to want to spring out and an even tighter radius for the ends of the wrapper, constantly checking against the casting. Once the wrappers have been formed, fix the front one in place first butting up to the recess in the casting followed by the rear wrapper. The rear wrapper overlaps the front one but it must not protrude beyond the rear of the casting where the boiler unit will eventually butt up to the cab later on. Add the front tank veneer (67) to the saddle tank, followed by the semi-circle shaped tank support bracket detail overlay (68) to the raised plinth.

## 31



- 13) (*img31*)** The tank filler is formed of 3 etched parts, form the flange ring (69) around the saddle tank so that the crescents are longitudinally along the tank and add the upper disc (70). The tank filler lid (71) will need a slight dish formed in the part and a handrail knob is added to the centre of the lid.
- 14)** Fix the smokebox to the boiler/saddle unit. Now would be a good time to temporarily check the fitment of the chassis to the foot plate and the installation of the boiler unit, it may be required to slightly enlarge & chamfer the locating holes in the front cab sheet to accept the locating lugs in the boiler unit.
- 15)** Add the chimney (72) with the tiny lubricator (73) to the back of it, followed by the smoke box door (74) and smoke box door dart (75). The dome (76) is to be added to the tank but is best off being polished and fitted after the loco has been painted. However, the locating hole for it must be slightly enlarged and the locating spigot on the dome must be shortened so that it does not protrude into the cavity for the motor.
- 16)** The injectors/clack valves (77&78) require drilling with a 0.4mm drill to accept the formed pipes (referring to the images of the loco – works photo side elevation in particular) and in turn drill the boiler/tank unit to accept the assemblies. There are two dimples in the underside of the saddle to locate the water balance pipe that is formed from wire. Be mindful of the pipe's close proximity to the worm gear and that it must not interfere with its operation.

## 32



**17)** (*img32*) The last few details to be added are the sandboxes (79) and the toolbox (80) to the footplate, the positions of these parts are shown as per works photo – sand boxes central to the wheelbase, but these had changed position when the loco was delivered to the customer. Sand box operating levers (81) are provided. Form the curve on the roof (82) by rolling the part on a mouse mat or several sheets of paper using a rolling pin of sorts, checking against the profile of the cab. Finally add the whistle (83) to the roof, the roof itself is best left off for painting and added later as the cab interior will be largely inaccessible otherwise.

### Painting & Final Assembly

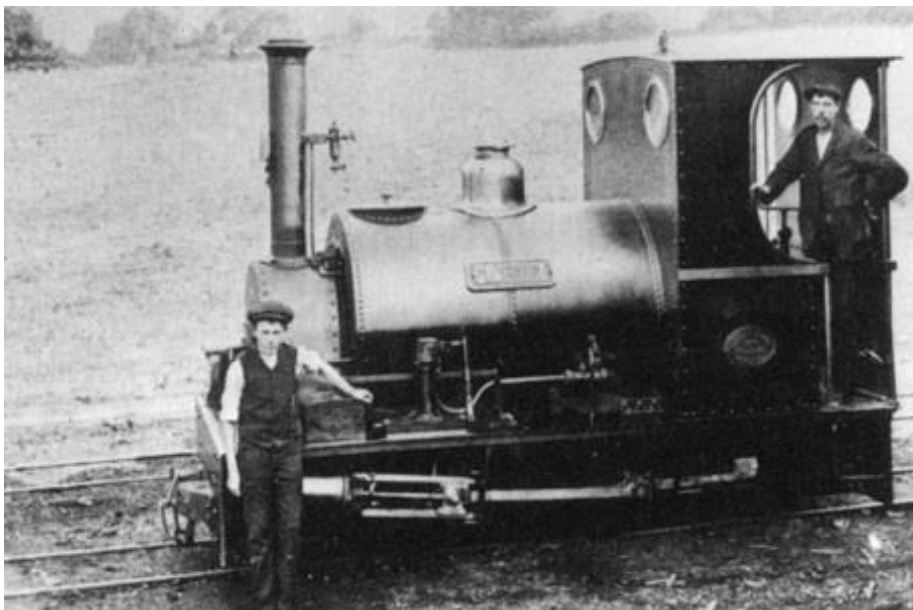
Remove the motor, pickups and drive belt from the chassis. Gently but thoroughly scrub both the body and the chassis with abrasive bathroom cleaner and an old tooth brush to clean off dirt/deposits of flux and tarnishing of the metal, rinse thoroughly and allow to dry. Mask off the inner workings & wheels of the chassis no paint must get into there. For painting it is recommended that a self-etching primer be used such as UPOL acid #8 aerosol primer for a base coat. Subsequent layers of paint are down to the chosen method of the builder but I would advise the use of an airbrush over brush painting. When you have finished painting and all parts of the loco have thoroughly dried, refit the pickups, motor and drive belt then last of all screw the chassis into the body, followed by the boiler unit using the two 12BA screws. Bespoke name & works plates are available from *Narrow Planet*.

### Maintenance

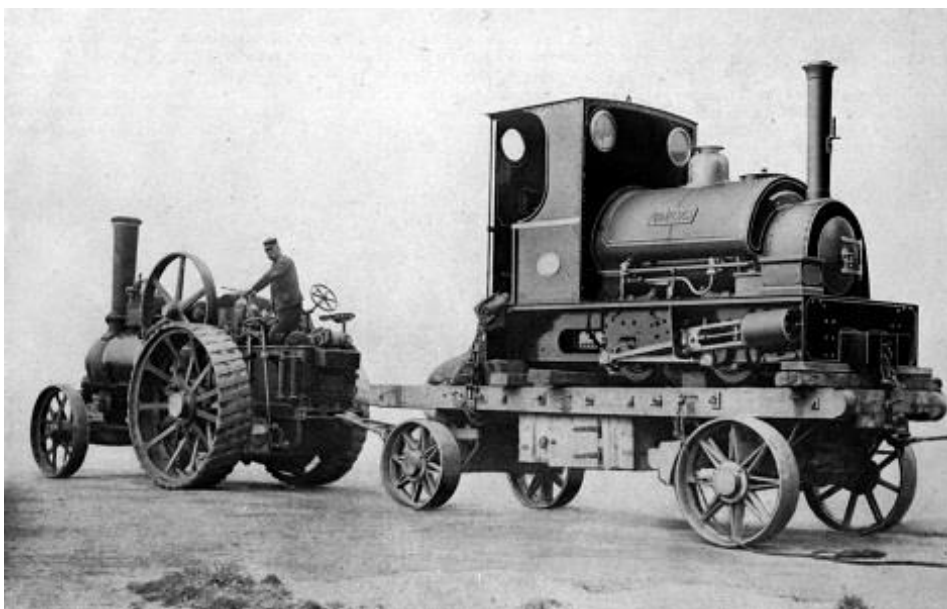
After the loco has run in, it will benefit from the tiniest amount of light oil applied to the bearings and gears. However, no oil must contaminate the drive belt and pulleys. The drive belt itself does not have an infinite life span and will need renewing periodically depending on usage and how well its maintained. 3 No. belts are supplied with the kit and replacement drive belts are available from *Nigel Lawton 009*.



*(Image reproduced courtesy of Quarry Faces)*

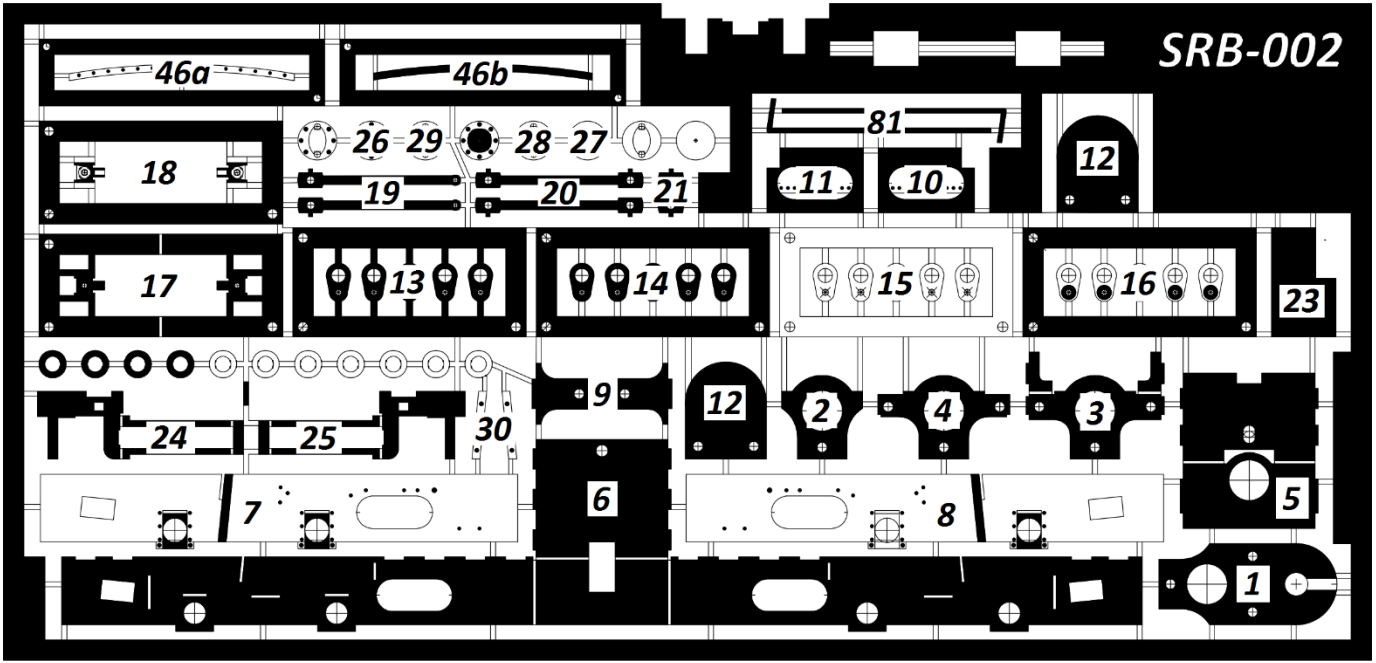


*(Image reproduced courtesy of Quarry Faces)*

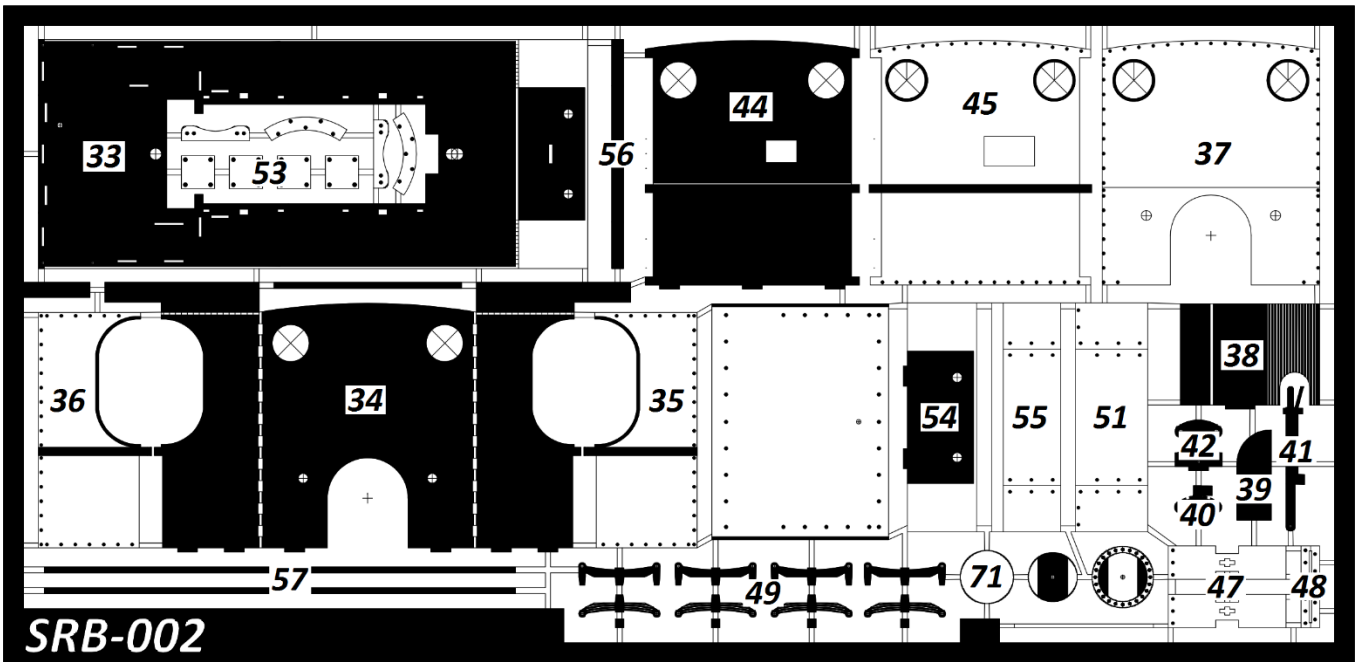


*(Image reproduced courtesy of Quarry Faces)*

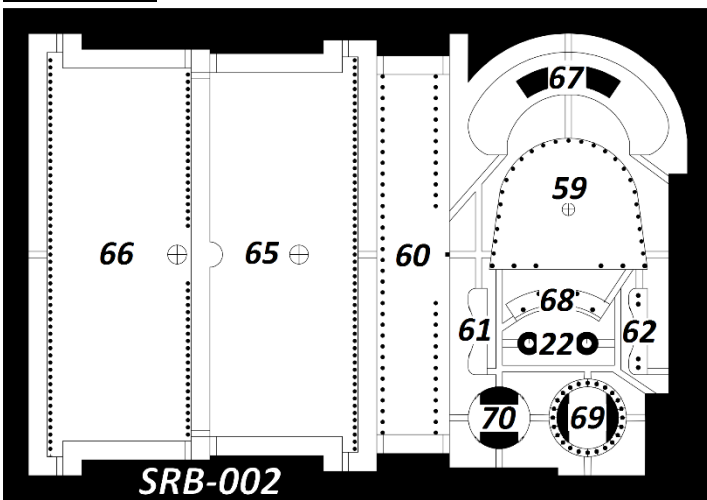
**Chassis Etch**



**Body Etch**



**Overlay Etch**



### **White Metal Castings**

Front ballast weight (31), rear ballast weight (32), back head (43), buffer blocks x4 (52), smoke box (58), lower boiler (63), saddle tank (64), chimney (72), sandbox x2 (79), toolbox (80)

### **Brass Castings**

brake pedestal (50), lubricator (73), smoke box door (74), smoke box door dart (75), dome (76), injectors/clack valves x2 (77/78), whistle (83)

### **Acknowledgments**

I would like to thank the following for their kind help during the development of this kit: - Stootly @ STAC Designs, Peter Wilson, Neil Sayer, Mark A. Greenwood, Steve Fulljames, Robin Thornes, Paul Webb and Julien Webb.

### **Links**

Narrow Planet: [www.narrowplanet.co.uk](http://www.narrowplanet.co.uk) [www.narrowplanet.myshopify.com](http://www.narrowplanet.myshopify.com)

The 009 Society: [www.009society.com](http://www.009society.com)

NG&IRM Review: [www.narrowgaugeandindustrial.co.uk](http://www.narrowgaugeandindustrial.co.uk)

Quarry Faces: [www.quarryfaces.org.uk](http://www.quarryfaces.org.uk)

Nigel Lawton 009 [www.nigellawton009.com](http://www.nigellawton009.com)

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