CONNOISSEUR MODELS

0 Gauge Starter Loco Kit
Private Owner & Industrial 0-4-0 Tank

This generic little tank loco kit was inspired by the delightful little C14 tanks built by the LSWR for rail motor trains and quayside shunting. It was these locomotives that **Tri-ang** based their 00 gauge Nellie starter loco on and which was included in the first train set many young modellers myself included received for Christmas.

This kit is intended to provide the newcomer to 0 gauge, or etched loco construction, with a set of components that will produce quickly and easily a first loco and fulfils the important requirements of getting something running to boost enthusiasm and provide a valuable foundation of experience for more ambitious projects.

To help achieve this the instructions provide a tutorial text and are very comprehensively illustrated. A significant proportion of the instructions are devoted to construction techniques and the tools used and with a particular emphasis placed on the points in construction where things can go wrong. As any good tradesman or craftsman will tell you *"anybody can do a nice job if everything goes right the real skill is spotting when things are going wrong and having the knowledge to put then right again".*

For the experienced loco builder this kit should provide an enjoyable infill project perhaps to produce a first loco that will engage their son, daughter or grandchildren in the rich world of railway modelling or you could build it as a present for your wife and name it after her!

Parts Required to Complete

2 Sets 3' 6", 10 Spoke Driving Wheel (Slater's Catalogue Number 7842W). Plunger Pickups if desired (Slater's Catalogue Number 7157). Available From Slater's, Temple Road, Matlock Bath, Matlock, Derbyshire,DE4 3PG, Telephone 01629 583993.
Mashima 1833 Motor and 40/1 Gear set.

Connoisseur Models, 1 Newton Cottages, Nr Weobley, Herefordshire, HR4 8QX, Telephone 01544 318263

GENERAL INSTRUCTIONS

Please read this section carefully especially if this is your first etched brass kit. Many modellers fight shy of working in this medium but the basic skills are relatively easy to acquire. Once you've learned how to form and solder brass you'll find all kinds of modelling possibilities will open up for you.

Assembling an etched kit involves exactly the same skills that a scratchbuilder uses – the only difference is that the cutting out of the parts is already done for you. Some filing and trimming will be necessary from time to time. Where this is the case I have highlighted it in the instructions.

The main skill to master is soldering and I would recommend a Weller 40 Watt soldering iron. This has a 6mm diameter removable copper bit. The bit is shaped like a screwdriver and has a bright coating of solder (tinned). This combination of iron and bit shape is ideal for running fillet joints and has a good reserve of heat that is so necessary for soldering small parts onto large components. Note the shape and condition of a new bit as this won't last long and will need restoring back to this condition.

It is important to keep the bit clean and in good condition as you work. Get a soldering iron stand containing a damp sponge as old oxidized solder is wiped off on this before picking up fresh solder for each joint. If you haven't made a joint for some time you may find that a hard black crust has formed on the bit. Remove this with a brass wire brush (suede brush) and then feed some multicore solder onto each side of the bit to restore a bright surface (referred to as wetting or tinning the bit). After about 8 hours use you will find the bit is in poor condition with holes and a ragged edge. File the bit back to its original shape using a hand bastard file and then polish the surfaces on emery cloth. Coat the bit with Fluxite Soldering Paste (traditionally used by plumbers) and this will prevent the bare copper oxidizing as the iron heats up. Then feed multicore solder onto the bit to form a generous coating and leave to bubble away for a couple of minutes before wiping the excess off to give a bit almost as good as new.

A smaller Antex 25 Watt iron with a 3.2mm screwdriver bit is very useful for small assemblies and detail work such as handrails, but will have insufficient heat reserve for main assembly work. The Antex has a plated iron bit and after a little use with 145° solder a grey oxide appears on the bit that will prevent you from picking up the solder. Touch the bit to some multicore solder and it will flash over the bit wetting it so that you can continue picking up 145° solder. I have found no problems with mixing the two solders in this way.

I use 145° solder for virtually all assembly work. I prefer it in wire form, available from many tool merchants, but it is also produced in stick form by Carrs. I find that its lower working temperature helps to give a quick clean joint and limits the build up of heat which may cause distortion in components. I find that I can hold parts together with my finger ends and make a joint before heat reaches my fingers or other etched parts drop off.

I use 60/40 tin/lead fluxed multicore electrical solder (melting point about 190°) mainly to keep the iron bits in good condition. As it gives a slightly stronger joint than 145° I sometimes use it for small spot joints on handrail wire, lamp brackets etc, but still use extra liquid flux.

For all brass and nickel silver work I use Carrs green label liquid flux. You will soon get the feel for how much to use but more problems are caused by too little flux than too much.

Before soldering components together thoroughly clean both surfaces along the join line with a glass fibre burnishing brush. Using your tweezers or a knife blade etc, hold the parts together in the correct position and with an old paintbrush run some flux along the area to be joined. Still keeping the parts correctly aligned, pick up a small quantity of solder on the tip of your iron and carry it to the joint (unlike electrical soldering when you feed solder into the joint). Hold the iron against the joint just long enough for the solder to flash between the parts. Don't let go of the parts until the solder has cooled – this takes from five to ten seconds. To run a fillet of solder along a joint, wait until the solder flashes between the parts and then pull the molten solder along the joint with the iron tip. Don't load the iron tip with a lot of extra solder work the joint in 1" lengths bringing in small quantities of solder.

Brass is a very forgiving material and if you get something out of alignment use heat from the iron to desolder the joint before starting again. For complicated assemblies it is a good idea to only tack solder parts together. You can then make adjustments by desoldering until you are happy with the location of parts and then solder solid.

When you need to laminate two or more layers of brass together align the parts then carefully clamp them together either in the vice or by holding them with miniature crocodile clips. Run flux around the edges and then go around with the soldering iron. Clean up thoroughly afterwards.

To fit small parts and overlays on to a larger assembly, such as strapping to a wagon side, when you need to prevent finely detailed areas such as planking becoming clogged up with solder tin the back of the small component first, then hold in place on the model and apply flux. Carefully wipe the tip of your iron on a sponge to remove any solder from it (dry iron), and then touch it against the parts to be joined. After a few seconds you'll see molten solder bubbling from the edges. Still holding the parts in place remove the iron and allow the joint to cool. An alternative is to use solder paint (I would recommend Carrs 188 solder paste). As the name suggests this is a flux and solder in one. Simply apply a thin coat of solder paint to the back of the component instead of tinning. Still apply a small amount of liquid flux before you solder the part into place.

Any surplus solder should be removed using a craft knife, I find No 10 curved scalpel blades ideal, then burnish clean with a glass fibre brush. With practice you'll learn how to use the minimum amount of solder to do the job. Flux is corrosive so after each soldering session give your model a good scrub with washing up liquid or Jif. After a day or two any remaining flux residues will show as a green film which should be washed away.

To cut parts from the fret use a sharp Stanley knife on a piece of hardboard or a pointed scalpel blade on a block of softwood. Remove tags and burrs with a fine file.

Three-dimensional parts are formed by folding. On an etched brass kit the fold lines are normally half-etched on the inside of the fold. You'll be able to fold most parts using smooth-jawed pliers. For longer parts folding bars are desirable.

Other useful tools include a bench vice, a good pair of tweezers, a set of Swiss files (get a full set of cheap ones and then buy quality replacements for the three that you use the most), a pin vice with a selection of drills from 0.5mm to 2.1mm plus a few larger sizes that you use regularly (2.6mm for axle bearings etc), some square-nosed pliers and some very pointed-nosed ones, preferably with smooth jaws. Buy cheap tools first and duplicate the most used ones with quality.

Try to complete all high-temperature soldering before attaching any of the cast whitemetal parts. These can be attached with two-part epoxy resin such as Araldite Rapid. Ensure the surfaces to be glued are clean and free of grease.

A better alternative is to solder your white metal castings using Carrs 70 degree low melt solder and Carrs red label white metal flux. The iron should be run at a much lower heat so that you do not melt the castings. I have a domestic light dimmer switch and plug socket fixed to a piece of wood, wired up with a lead and standard mains plug fused at 3 amps to the input side of the dimmer switch and the output of the dimmer switch into the plug socket (remember to continue the earth). Plug your 40 Watt iron (25 Watt iron won't work) with a clean and freshly tinned bit into this and experiment with adjusting the switch until you find the range of temperature at which the solder melts but a scrap casting does not. **Note** as the iron is running at a lower voltage it will take longer to heat up, so when you think the adjustment is correct do check a few minutes later on another scrap casting to see that it doesn't melt. Then scribe a mark on the switch knob to indicate this position.

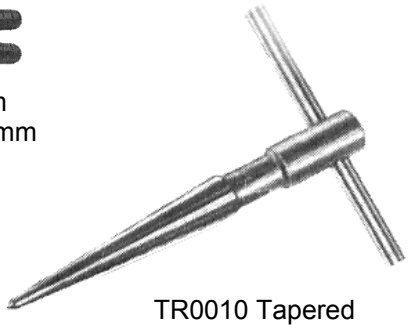
When attaching white metal fittings to brass the surface of the brass must be tinned with 145° solder to allow the solder to grip. The surface of the casting at the joint should be burnished bright. The casting can then be soldered into place with 70° solder and fillets of solder run into any gaps with no risk of melting the casting. Virtually all castings will be improved by a little extra fettling work. Flash can be cleaned out using a sharp pointed knife blade, part lines removed by scraping back with a curved blade and then blending in using a fibreglass brush. The casting moulds tend to distort when metal flows in so check castings for square and even thickness.

SPECIFIC INSTRUCTIONS FOR LOCOMOTIVE KITS

Hole Sizes. Because of the etching process holes will normally be found undersize, for example the turned brass bearings will not fit holes in chassis sides, and a simple fitting operation is required. The best tool for opening up holes of this size is a cheap tapered reamer available at most model railway shows from tool suppliers. By rotating this gently in the hole you quickly open holes to correct size, without risk of tearing the metal. By trial and error on the first hole you will soon establish how much material requires removal. For smaller holes, such as those for the location of casting's etc these are best opened up using a set of cheap tapered broaches, or by twisting a small round file in the hole.

BRC250 6 Piece Cutting Broach Set 0.7-2mm
BRC300 12 Piece Cutting Broach Set 0.65-4mm

TR0005 Micro Drill Reamer 1mm-5mm



TR0010 Tapered Reamer 3mm-12mm

Three very useful tools purchased from SQUIRES, 100 London Road, Bognor Regis, West Sussex, PO21 1DD, Telephone 01243 842424.

Forming Parts. While the boiler in this kit is pre-formed, other forming is best achieved as construction progresses as this enables the parts to be adjusted to each other. To make a tight curve at full metal thickness, such as tank front, bunker rear etc, take a piece of rod slightly under size of the curve required (a drill shank is ideal). Place roughly on centre line of bend, holding in place with thumbs and pull upwards with fingers, forming approximately 30 degrees of the bend. Check with eye and adjust if necessary before forming 60 degree of bend then offer part to model. Final adjustment of fit is easily made on last stage of bending.

To form shallow curves, splasher tops, smoke box wrappers etc, use a piece of pipe or broom handle. Diameter is not crucial, a piece of one-inch water pipe covers cab roof to smoke box wrapper. Place part over tube and hold in place with finger and thumb of one hand. Work the metal in stages over tube with finger and thumb of the other hand until correct radius is formed.

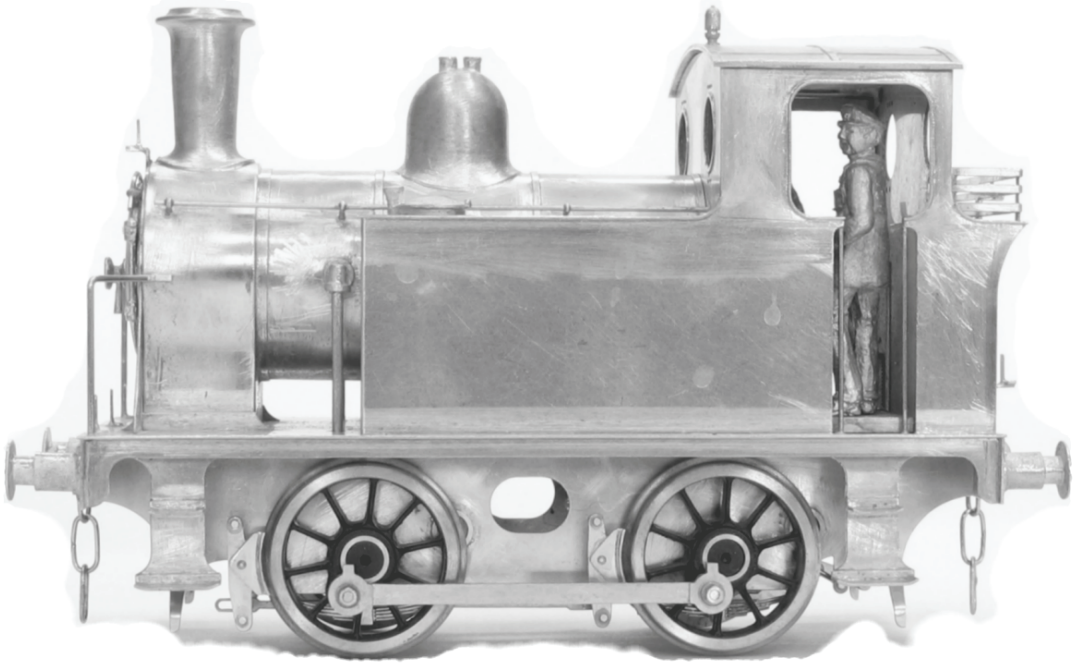
A technique you may find useful in working metal is to soften and remove the spring from the metal by heating (called annealing). The part is held with pliers and heated in a gas flame. (The gas cooker is ideal). Alternatively use a pencil torch that runs off lighter fuel. Heat part until a purple band appears close to the edges and then remove from heat. Do not overheat part as it will then become too soft and unworkable. Remember you can reheat if not workable. Allow part to cool naturally in the air.

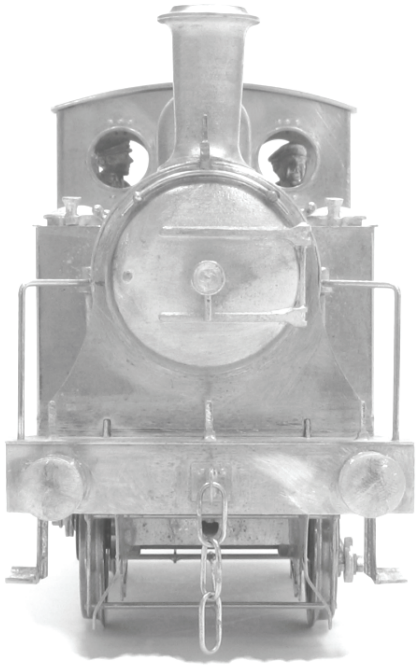
Damaged Parts and Shortages. If you damage an etching during construction it is not possible to replace individual pieces, but I am quite flexible in providing at minimum cost replacement frets (this will contain all the brass or N/S parts). Where a casting is damaged individual items can be replaced as I have full control of production. Because of the complexity of the product, combined with the low volume way it is produced, I try to exercise a high degree of quality control in production and packing but if you find you are short of an item or find a sub standard part please approach me for a replacement.

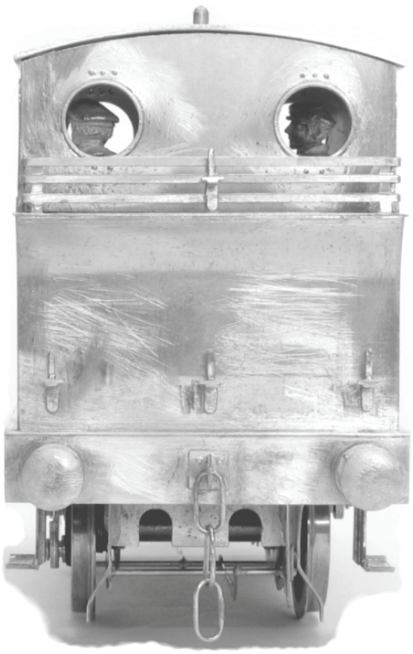
Fibreglass Scratch Brush. The scratch brush is like a propelling pencil holder into which a fibreglass refill is fitted and which will give a vigorous abrasive action. I find this tool indispensable for cleaning up and removing solder. One very useful tip is to soak the refills in dilute PVA glue (Evostick resin W wood glue let down 50/50 with water and a spot of washing up liquid) and then drill holes in a block of wood and stick the ends of the refills in the holes while they harden off. This will make the refills much more abrasive and longer lasting and also stops the fibres breaking off and ending up in your fingers. You will need to give the refill a good rub to get it started but if you use green label flux you will soon have plenty of rusty tools that need cleaning.

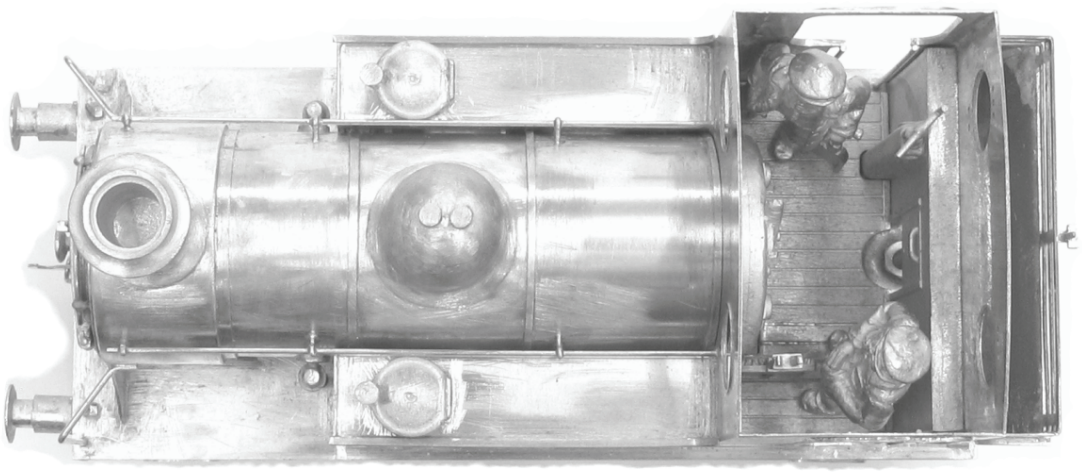
A fibreglass brush and most other general modelling tools can be obtained from Squires Model and Craft Tools, 100 London Rd, Bognor Regis, West Sussex, PO21 1DD, Tel 01243 842424. They do a free catalogue and a very good mail order service.

PRIVATE OWNER & INDUSTRIAL TANK LOCOMOTIVE

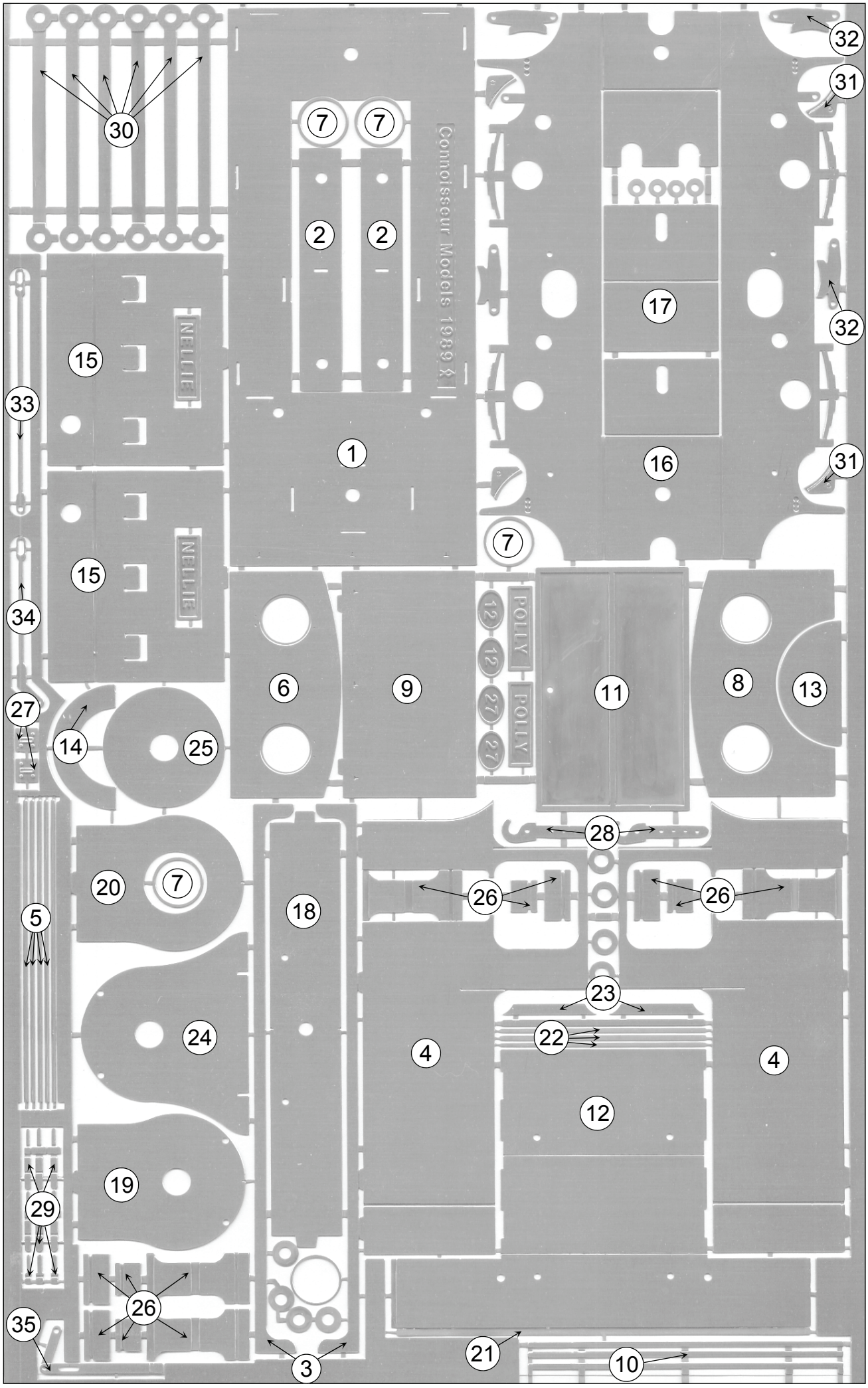








I have tried to reproduce these photographs close to scale size to provide a guide for positioning components


Connoisseur Models 1989 ©
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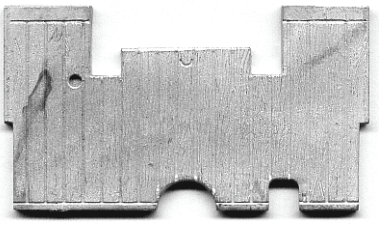
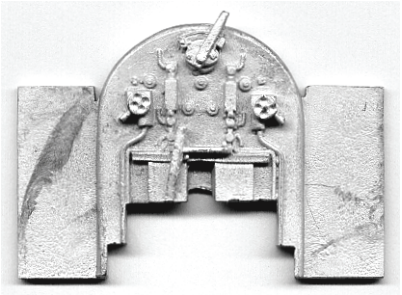
Parts Identification and check list

2 X 10” length 0.45mm hard brass wire for wiper pickups. 2 X 10” length 0.7mm brass wire. 2 X 10” length 0.9mm brass wire. 1 X 6” length 22 swg soft tinned wire (rainstrips). 1” X 2.4mm brass rod for axle compensation.

Printed Circuit Board Strips
For Use With Wire Wiper Pickups



Cab Floor

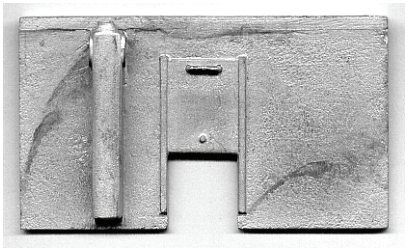


Cab Front & Back Head

Split Pins X 8

Handbrake
Handle

Reversing Lever



Bunker Coal Space Front

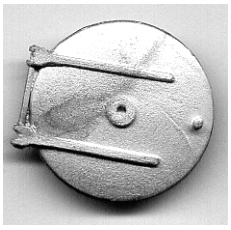
6BA Brass Screws X 2
6BA Brass Nuts X 2

Electrical Wire
For Pickups.
1 X 15” Black
1 X 15” Red

Smoke Box
Spacer

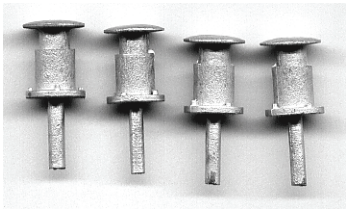
Chimney

Dome



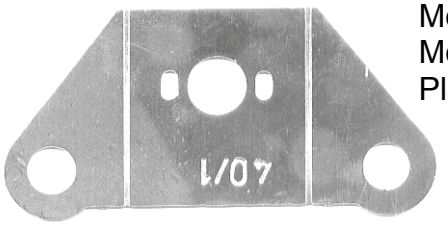
Smoke Box
Door

Smoke Box
Door
Locking
Handle and
Hand Wheel



Buffers X 4

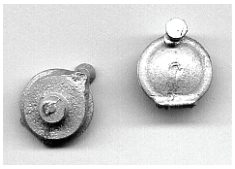
Brass Links For 3 Link
Couplings X 6



Motor
Mounting
Plate

4 X Brass Axle Bearings

Whistle



Tank Fillers

Clack Pipes

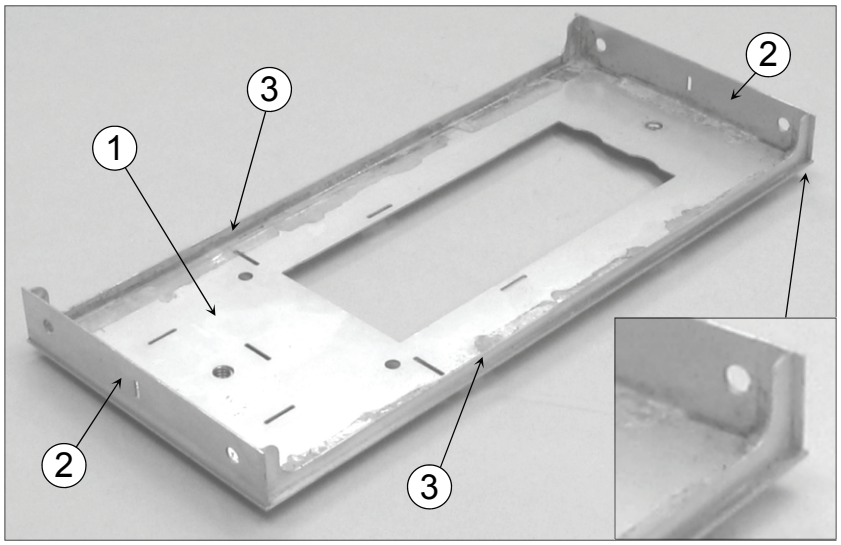
I have tried to make the assembly instructions very comprehensive particularly with regards to the text so that it will be as helpful as possible to the newcomer to etched locomotive kit building. Hopefully you will not find them daunting at first sight as a significant proportion of the text will only become relevant if it covers a technique that you are completely unfamiliar with or if things start going wrong. I would recommend that you quickly read through the full instructions and highlight the sections that will be relevant to your experience and the sections that can be ignored unless required.

If you are an experienced kit builder you will probably wish to mainly use the illustrations but I would recommend that you still quickly read through the text.

0-4-0 Industrial Tank Assembly Instructions

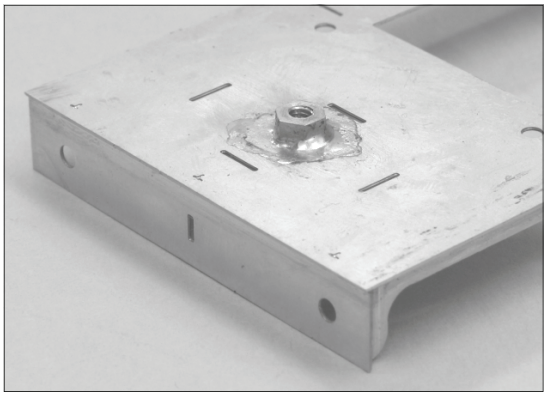
1. Take the main footplate (part 1) and remove the components from inside the central cut out. The top surface is the one with the etched lettering and etched marks. Familiarise yourself with the slots to locate components. The four slots in a square are to locate the smoke box and this is the front end. The slots along the sides locate the tank sides and the two slots at the edge of the end locate the bunker back and obviously this is the rear end.

Place the footplate top surface down onto a flat block of wood and solder one of the buffer beams (parts 2) to the rear edge just outboard of the two slots. The holes for buffers and couplings are slightly closer to one edge than the other so fit the buffer beams so that there is a wider gap between footplate and buffer hole so that the buffers will be level with the bottom of the buffer beam. I tack solder at the centre of the buffer beam first and then check and adjust by gentle bending until it is square and central before soldering solid. Ensure that the two bunker back locating slots remain free of solder.



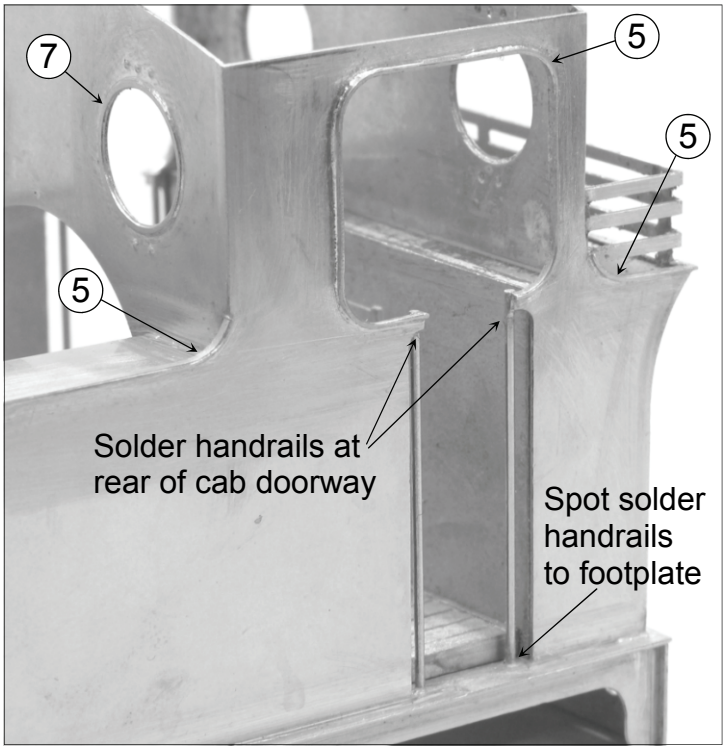
Then solder the two valances (parts 3) upright along the footplate edges just outboard of the tank side slots and with the end hard up against the buffer beam. Again I tack solder the valance near the buffer beam end and gently adjust using pliers until it sits upright and square. I then solder the end solidly to the buffer beam before working along the valance in short sections of about 20mm at a time. In this way you can keep adjusting the valance to ensure that it remains upright and parallel to the footplate edge as you work along it. To make these adjustments I find it helpful to apply a constant gentle pressure to the edge of the valance with the end of a flat file as I work along its length. Then solder the second buffer beam (part 2) to the front end of the footplate hard up against the ends of the valances.

Solder two nuts to the top surface of the footplate locating over the chassis fixing holes. This is best achieved by locking the nut into place with a screw and washer (etched washers located between cab sides). Dress the six flats of the nuts with a flat file so that they are bright and clean to help the solder make the best joint possible. Place a little oil on the screw thread and this will help to prevent the solder from flowing under the nut and locking everything solid. A Fluxite type paste flux is probably best for soldering the nuts into place.



2. Take the cab and tank sides (parts 4) and solder a length of beading (parts 5) around the cab openings. To achieve this I find it best to first roughly pre form the beading to the cab opening by curving the corner bends around the shank of a drill (the half etch of the beading fits into the cab opening). I lightly secure the cab side (inside face down onto a flat block of wood and starting at one side of the cab doorway (the beading is slightly over length so that it can overhang the edges of the doorway). First I tack solder the beading into place. I work my way around the four sides of the cab opening, pressing the beading hard into place and snugly into the corners with a knife point. If required remove the cab side from the block of wood and gently reform the corner bends using fingers and drill shank (I normally find that I get half way around the cab opening and then find that the next two corners require slight adjustment) then replace onto the wood block and continue around to the other side of the cab doorway. Once you are happy with the way the beading is tacked into place you can run a solder joint around it. If you use plenty of flux and only a little solder you should find that it flashes along the joint requiring only a little scrapping with a knife blade and cleaning up with a fibreglass brush. You can then trim back the excess beading in the cab doorway.

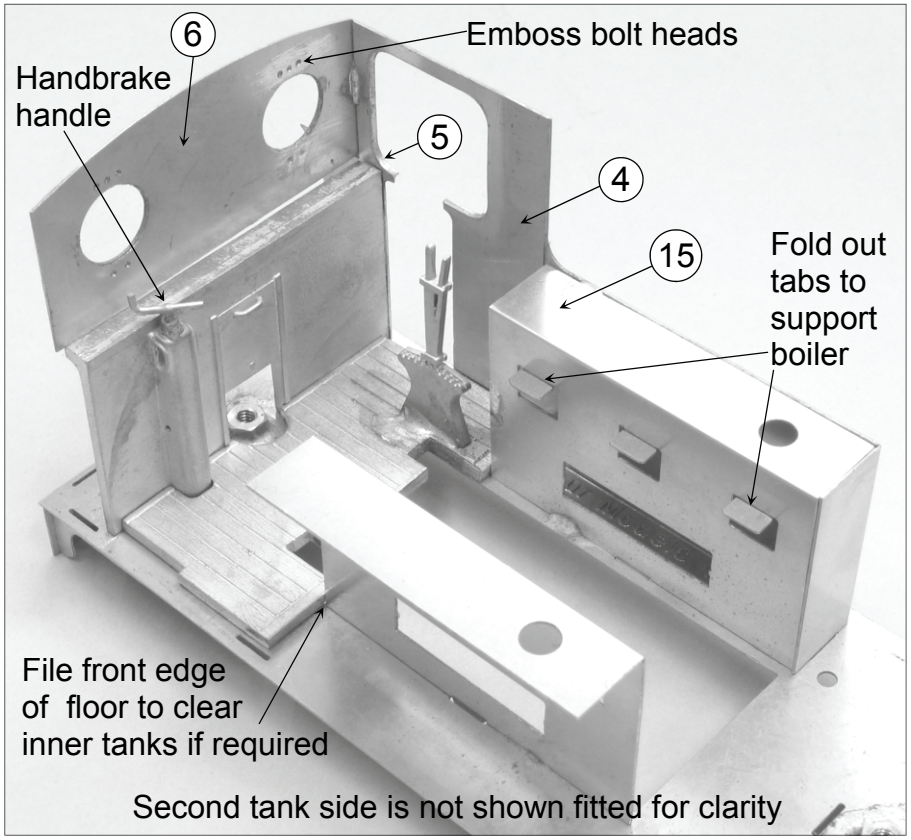
There are extra lengths of beading that can be fitted to the top edge of the tanks (fold tank fronts first) and bunker sides if desired (this helps to give the loco a South Western look) or you may have to use it to have a second attempt at the cab beading. Many modellers find fitting beading a little tricky at first but you soon get the knack for it and then you may even find it very enjoyable.



Fold the front of the tanks through 90 degrees and then fit the tank/cab sides into the slots in the footplate. If required dress the tabs slightly or clear any cusp from the slots with a sharp scalpel blade so that the tank/cab sides sit down snugly and when pushed hard against the outside of the slots run parallel to the footplate edge. Tack solder the tank/cab sides into place and then, using an engineers square, check that they are sitting upright and exactly opposite each other. Once happy solder solid.

Fit cab handrails made from 0.7mm brass wire. Using a long length of wire to help get the handrails upright spot solder one end to the footplate and then solder to the back of the doorway. Then snip off flush with the cab beading with flush cutting side cutters.

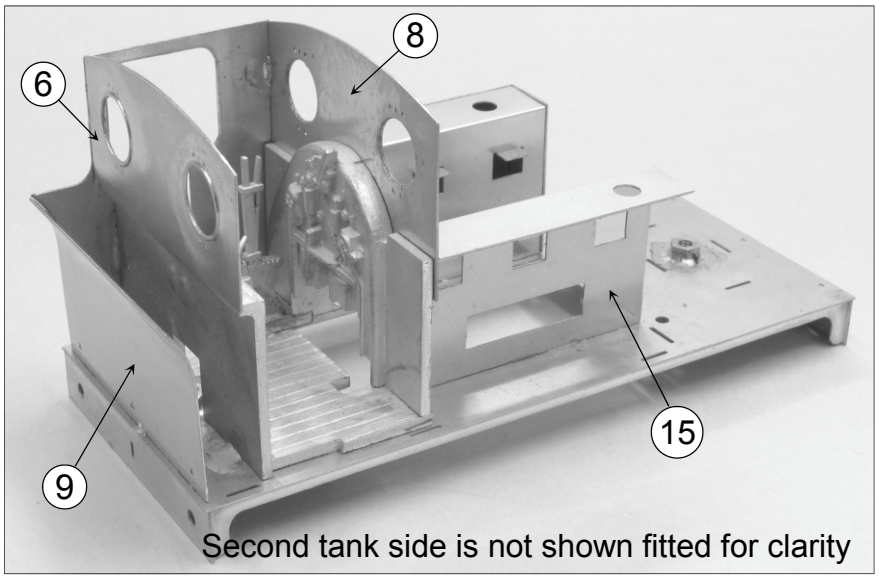
3. Take the cab back (part 6) and emboss the bolt heads using a scriber point and then fit the spectacle rings (parts 7) into the half etched rebates. Also fit spectacle rings to the cab front (part 8). Fit the cab back between the cab sides locating into the etched grooves. Check before soldering that the cab sides are not pushed out of square and if necessary dress back the side edges of the cab back.



Originally the kit did not have any cab detail but I have now produced some castings to provide a basic interior (this also provides some useful weight). These castings will probably require reducing in width slightly to fit snugly between the cab sides. So offer each into place and file down if required. Then take the cast bunker front and drill out 1.3mm the hole in the top of the handbrake column and fit the handbrake handle. Then solder the cast bunker front to the footplate so that it is just set back slightly from the doorways. With castings this thick you can probably get away with soldering directly to the footplate using normal solder and the iron on full heat.

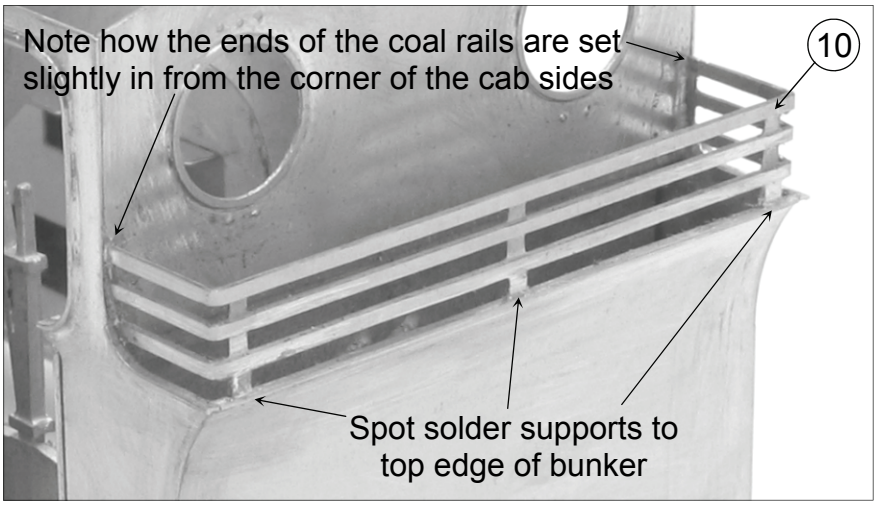
Fit the reversing lever to the cab floor and then fit the cab floor into place, offer an inner tank (part 12) into place just to check if a small amount requires removing from the front of the floor. The backhead/cab front casting is probably best glued into place after the loco is painted.

4. Then fit the cab front spectacle plate (part 8). Again locating into the etched grooves but check that it does not push the cab sides outwards. Form the gentle curve at the top of the bunker back to match the curve of the bunker sides (noting that there are three half etched marks to help locate the lamp brackets, so make sure that these are on the outside face). I form the curve by gently working the bunker back with fingers and thumb over an offcut of $^1/_2$" diameter tube trying to match the curve as near as possible to the bunker sides. I then solder the bunker back into place so that the top edge is level with the bunker sides (a slight gap at the bottom where it joins the footplate can be easily filled but if the top does not look level it will detract from the appearance of the loco). Then run a generous fillet of solder up the outside face of the two corners. I then dress the joints using flat and half round files to form a crisp square corner. In this way any slight discrepancy in the curve of the bunker back is blended into the curve of the bunker side.



Second tank side is not shown fitted for clarity

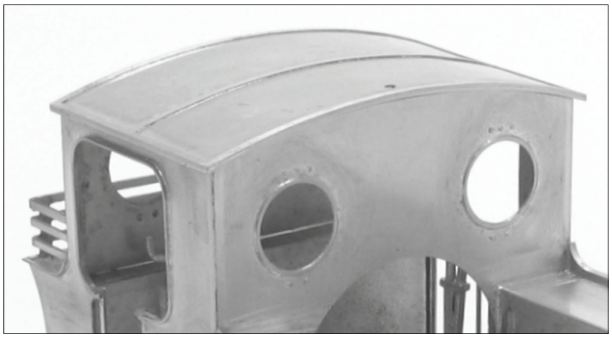
Fold up the coal rails (part 10) the etched fold lines are of a generous width and depending upon how tight you make the fold this will allow a little variation in the width of the coal rails and allow them to be matched to the width of the bunker. Once happy with the width reinforce the insides of the fold with a little 60/40 solder. Then if necessary you can dress the ends of the coal rails with a flat file where they fit against the cab back so that they will sit square and run parallel to the cab back when viewed from above.



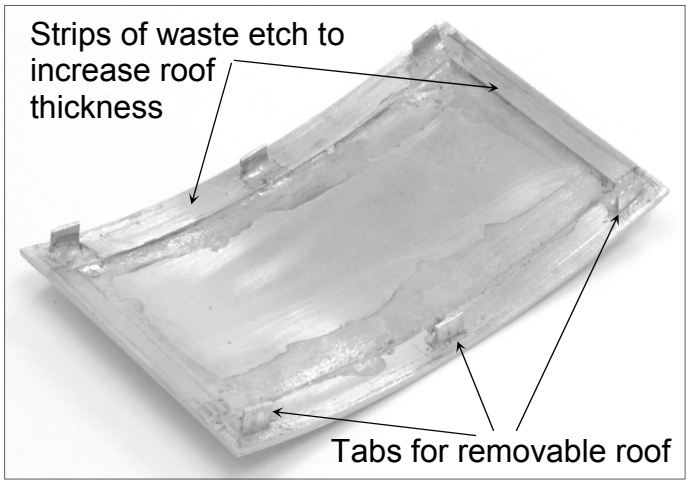
Once you are happy with how the coal rails will fit spot solder the centre one of the three support legs to the top edge (or beading if fitted) of the bunker back. This will hold the coal rails into place but allow you to view them from all angles and make slight adjustments by gentle bending until you are happy that they are square and in the correct position. Then solder solid the ends to the cab back and the other two support legs to the top edge of the bunker back.

5) The cab roof (part 11) can be used with the etched surface upwards to give the appearance of a wooden cab roof with beading (this gives a South Western look to the loco) or plain side up with rainstrips made from wire to give the appearance of a steel sheet roof (this gives a North Eastern/ LNER look to the loco) or even etched side up with extra wire beading (for a Caledonian or North British look).

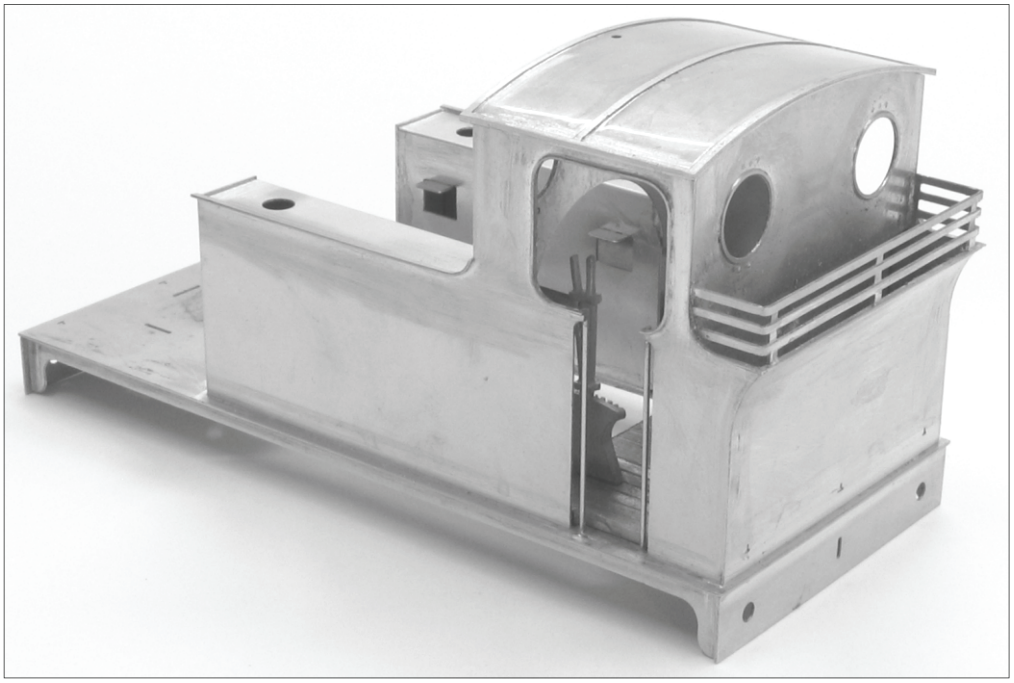
I chose the wooden roof appearance for my model and gently curved the roof by working with fingers and thumbs over an offcut length of $^3/_4$" water pipe. By now you will have guessed that I have a selection of offcuts of different diameter rod and tube at the back of my bench. These I find invaluable for constructing etched kits and for example the $^3/_4$" water pipe is used for a range of jobs from forming smoke boxes to coach tumble homes.

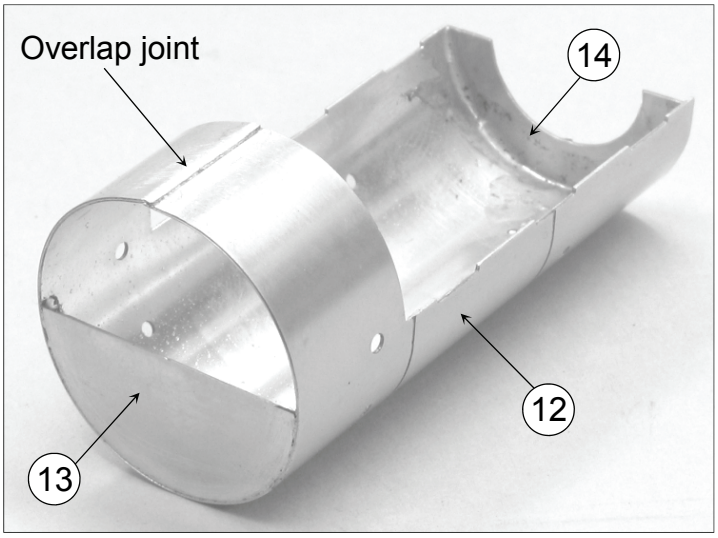


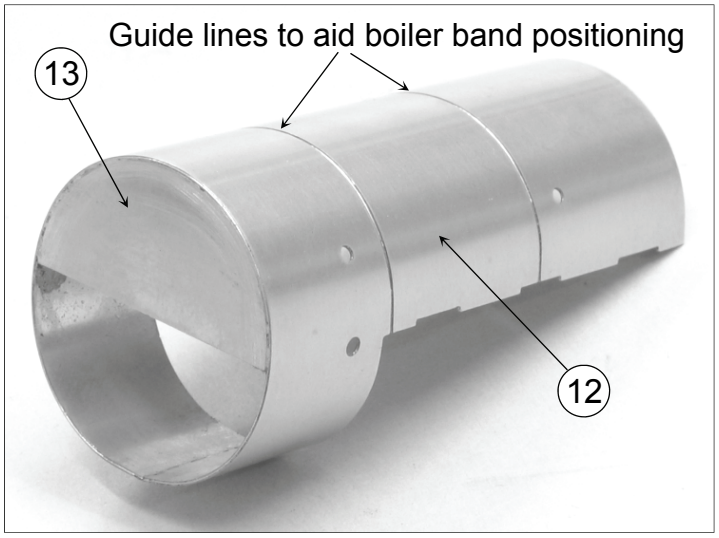
I also soldered strips of waste etch around the underside of the roof to increase its thickness to better represent a wooden roof. The cab roof can be glued into place with Evo-stick after painting but I soldered six tabs to the underside so that it fitted into place like an English snuff box lid and would remain removable if required. These tabs were made from a longer strip of waste etch held upright between finger and thumb and spot soldered to the roof before sniping off to leave a tab about 3mm long.



6. Take the boiler (part 12) and check that it is formed reasonably well and free of flats and creases. I work it gently with fingers and thumbs over the $^{3}/_{4}$" water pipe getting the radius slightly tighter than required. Then solder the two semi circular boiler formers inside either end (part 13 smoke box end, part 14 cab end). I achieve this by securing a former with drawing pins to a block of wood and spring the boiler end around it. The former should push the boiler out to its correct radius (the reason for forming the radius slightly tight) and give a smooth even curve. Run a generous fillet of solder around the inside. Then solder the front full part of the boiler at the half etched overlap joint. This joint allows a little adjustment so gently work the front of the boiler to be as circular as possible but any egg-shaped-ness that appears here should not be noticed on the finished model. Once soldered blend in the outside of the joint with a flat file.

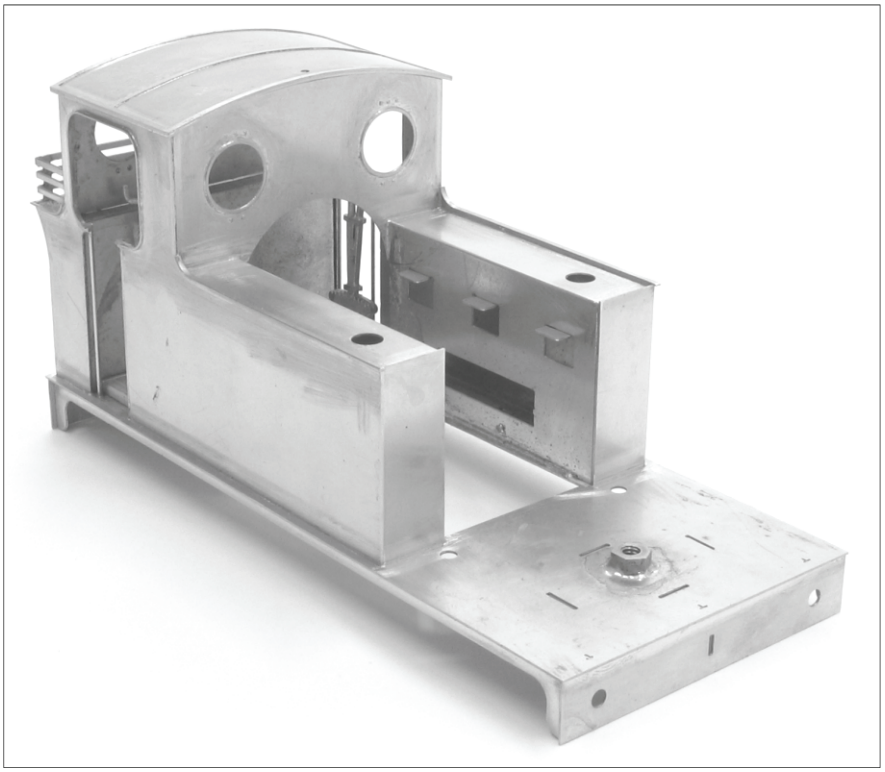




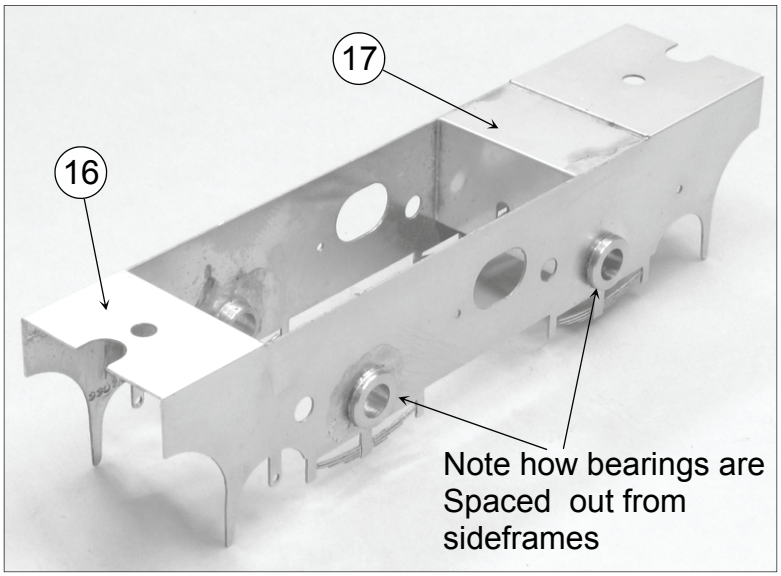


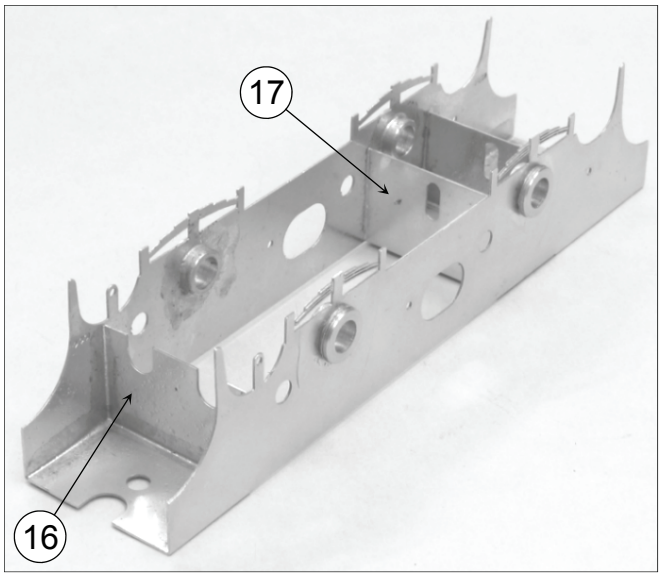
7. Take the inner tanks (parts 15) and fold the tops through 90 degrees. Fold out the three tabs that will support the boiler and set its height. Then fit the inner tanks into place using a single tack of solder at the footplate and check that the assembled boiler will fit snugly between the tanks. If it is too tight the distance between the inner tanks can be increased by dressing the edges of the tank tops.

When happy with the fit of the boiler solder the inner tanks solidly into place at every joint. These inner tanks provide a great deal of rigidity to the body assembly but when soldering them into place there is also a risk of the solder pulling the tanks and twisting the body. So I would recommend working one joint at a time by tack soldering first and then checking for square (also that the boiler still fits). Also progress by working a joint on the left hand tank and then its equivalent joint on the right hand tank.

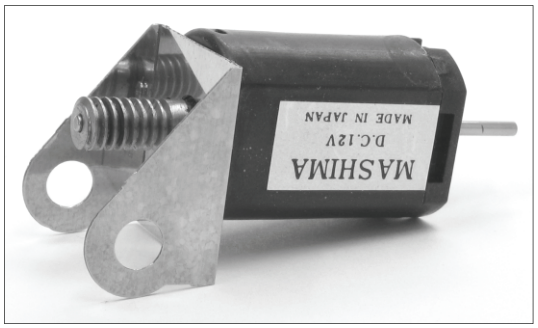


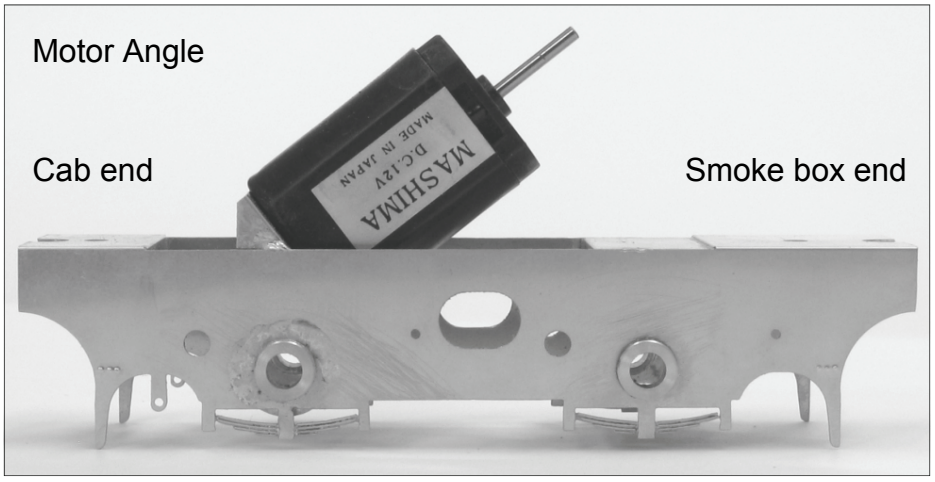
8. Now is a good point in construction to assemble the basic chassis as with the cab interior in place and the boiler removable the motor position can be determined. Take the main chassis (part 16) and using a tapered reamer open out the axle holes to take the turned brass bearings. Also open out the holes in the wings of the motor mount to be a snug clearance for these bearings. Emboss the three bolt heads above each of the guard irons and then fold the chassis sides through 90 degrees. Fold down the two end spacers and check that the chassis is square. Once happy run fillets of solder up the joints between the fold down spacers and the chassis sides. Fold the extra spacer (part 17) through 90 degrees and solder between the frames to form a U section around the front axle. Check the chassis again for square and then run fillets of solder along all joints and fold lines to provide rigidity.





Fold the two wings of the motor mount through 90 degrees and reinforce the folds with solder. Temporarily screw the motor to the mount. You will probably have to use a round needle file to dress a small amount of etching cusp off the inside of each of the oval screw holes of the mount to exactly match the hole centres on the front of the motor. Slip the motor and mount between frames and retain by fitting (unsoldered) two turned axle bearings. You can now offer the chassis up to the body and determine the angle that the motor requires mounting so that it does not foul any part of the body. Once you have determined the correct motor angle tack solder the motor mount to one side frame and then remove the motor.



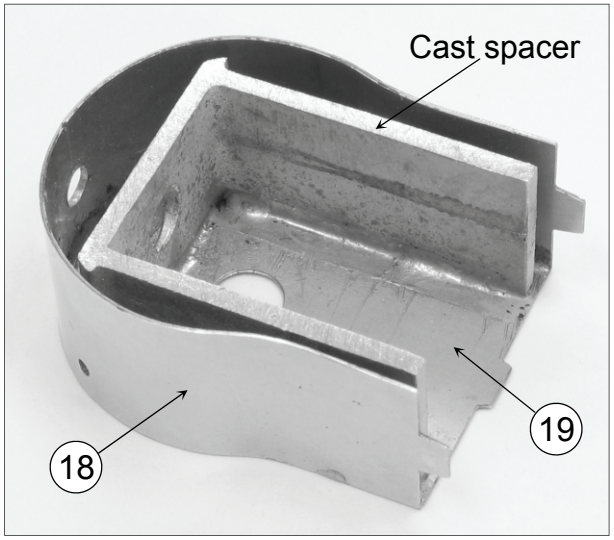


Now solder the turned bearings into the side frames. I pop them into the frames and then pass a lightly oiled axle through them to ensure that they are both correctly aligned. Don't worry if the axle is slightly tight in the bearings as the bearings can be opened out with a tapered broach to provide a nice running clearance once the bearings are soldered solid. I have designed the chassis to be just over 25mm wide to provide sufficient clearance for coarse scale wheels. If using Slater's fine scale wheels it is a good idea to reduce the potential side play by pushing the bearings outwards along the axle away from the side frames. A distance of 28-28.5mm over the outside faces of the bearings is about right. I solder the bearings into place on the inside face of the chassis sideframes by using a generous amount of liquid flux and then with a hot iron carrying a good amount of solder. I place the iron tip at the joint between bearing and side frame so that the iron is heating both the bearing and the side frame. I find that after a few seconds when the heat has built up the flux pulls the solder off the iron bit and flows around the circumference of the bearing. I find that soldering a bearing this way is a lot more controllable than soldering on the outside face of the chassis side frame.

You should also find that the soldered bearings have firmly secured the wings of the motor mount. The motor mount should be slightly narrower than the chassis and there will probably be a slight gap between the edges of the main mounting plate and the chassis side frames. Fill this gap with a length of wire or strip of waste etch and run a good fillet of solder up the joint between mounting plate and side frame. If you don't use something to fill the gap the solder will tend to pull the side frames inwards and distort them. It is important that the motor mounting plate is soldered solid as this will make it very rigid and prevent any tendency for it to flex when the motor is under load. It will also provide extra rigidity to the chassis. We can now return to body construction.

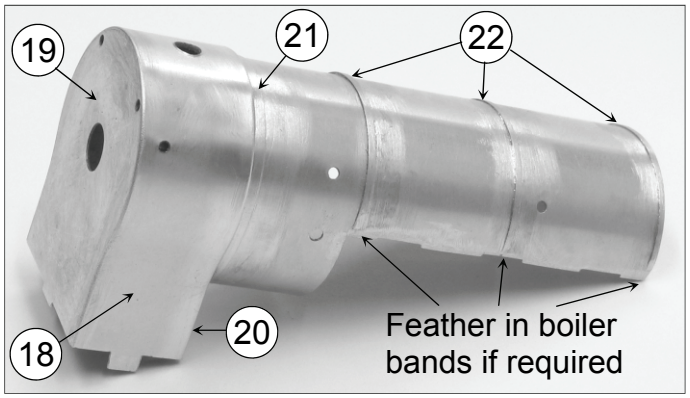
9. Take the smoke box wrapper (part 18) and using tube pre-form it to match the profile of the smoke box front (part 19). Then secure the smoke box front to a block of wood using drawing pins and solder the wrapper around the edges (the two small handrail support holes towards the front) so that the front acts as a former. Start by positioning the wrapper to the centre of the smoke box front top, there being a small half etched centre line mark to aid positioning. Work your way around each side and down to the bottom in short sections working each side alternatively. Don't be afraid to remove the assembly from the wood block and adjust the curved wrapper using fingers and thumbs if you think the wrapper is not running around the front correctly. I normally find that a slight adjustment is required when I have worked my way down to the reverse curves.

I have provided a cast spacer to fit inside the smoke box and come within a metal thickness of the edge to provide a support as you solder the smoke box back (part 20) into place. As castings never come out an exact size I have made it slightly thicker than required so that it can be filed down with a large coarse file to the correct thickness. I have provided tapered edges on one side to help with this. The correct thickness is going to be a metal thickness less than the distance between the inside face of the smoke box front and the edge of the wrapper. About 24mm but in practice just file it down and keep offering it into place until it looks right by eye. Then press the smoke box back into place and make any slight adjustments to the spacer with the file until the edges of the smoke box back are flush with the edges of the wrapper.

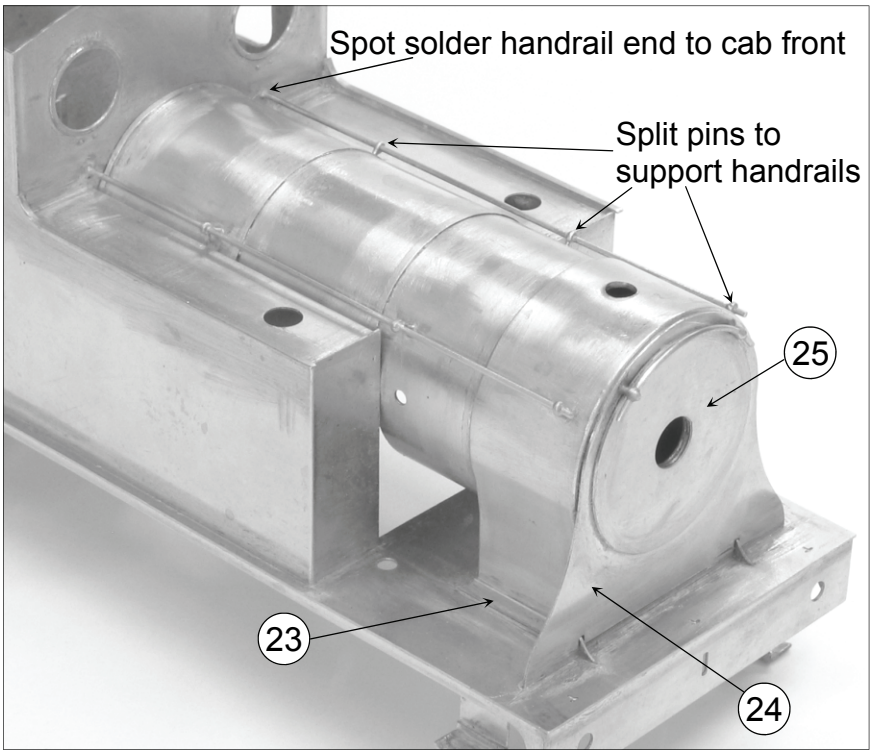


Once happy with the spacer solder it into place. Then fit the smoke box back (part 20) again positioning the top at the etched centre marks. Again work from the top around each side but this time you will be soldering on the outside face. Once completed check the assembly for square (particularly at the bottom) and check that it will fit into the four slots on the footplate. Then fill any slight gaps in the wrapper joints with solder and dress the joints to blend into the front and back face. Any slight creases in the wrapper can be smoothed out using a flat file.

10. The boiler bands can now be fitted to the boiler assembly. Fit the wider long band (part 21) around the front edge of the circular front section. Pre curve a short length of one end of the band (I find that if I try and pre curve the entire length of the band I end up with it twisted and kinked) and tack solder into place at the overlap joint. Then work around the boiler end by pulling the band tight and tack soldering into place as you go. Then using the same technique fit two of the shorter bands (parts 22) to the boiler centre section. There are two etched guide lines to help keep the bands straight and the bands are positioned on the cab side of these lines. If you wish you can also fit the third short band around the cab end of the boiler but I prefer to leave it off until the boiler and smoke box are united. Then if there is a slight gap between boiler and cab side this can be closed by fitting the band so that it slightly overlaps the boiler end. Check the fit of the boiler between the tanks and if it is now tight use a flat file to feather the ends of the bands into the boiler.



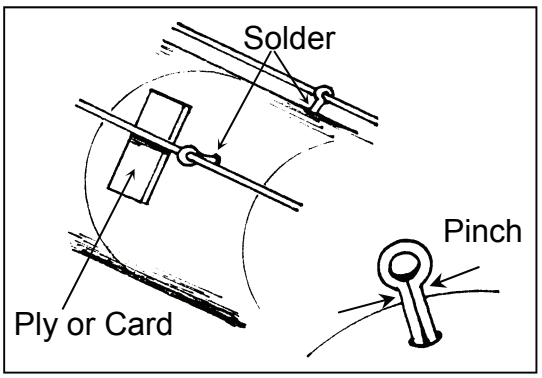
When the boiler is correctly positioned between the tanks and the smoke box assembly fitted into the footplate slots view the assembly from all directions. Check that the boiler front is central to the smoke box back and that there is an equal step up around the circumference of the boiler front to the larger smoke box diameter. Check that the boiler top is level and that the smoke box looks upright from the side and square to the footplate when viewed from above. Slight adjustments can be made to the smoke box position by opening out a slot slightly using a sharp scalpel blade. Boiler height and level can be adjusted by filing where it sits on the inner tank tabs. When happy join the boiler to smoke box with a couple of tack joints. Then remove the assembled boiler/smoke box and make a permanent joint by running a generous fillet of solder around the circumference of the boiler front. Refit the boiler/smoke box and check for any gap between boiler end and cab. Then fit the third short boiler band making allowance for any gap.



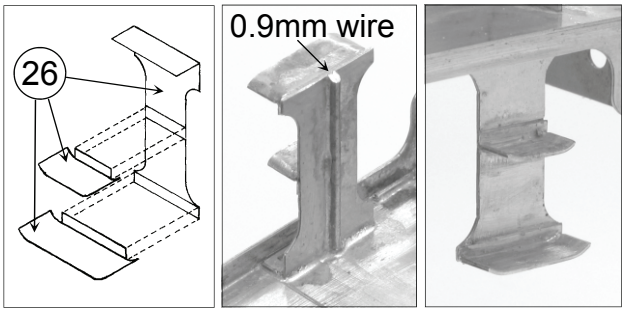
Now tack solder the smoke box front to the footplate and the underside of the boiler to each of the inner tanks. Now check that the body and tank sides are still square, that the footplate is still straight and level (particularly that the footplate in front of the tanks is not running up or dipping down) and that the buffer beams are not twisted (body does not rock on the buffer beams when placed on a flat surface). When happy solder the joints solid.

11. Fit the frame extensions (parts 23) at the base of the smoke box sides. Then fit the smoke box wing plate (part 24) ensuring that the centre and handrail holes correspond (the wing plate fits better one way than the other). Then fit the smoke box door ring (part 25). Snip off and file flush the smoke box tabs on the underside of the footplate.

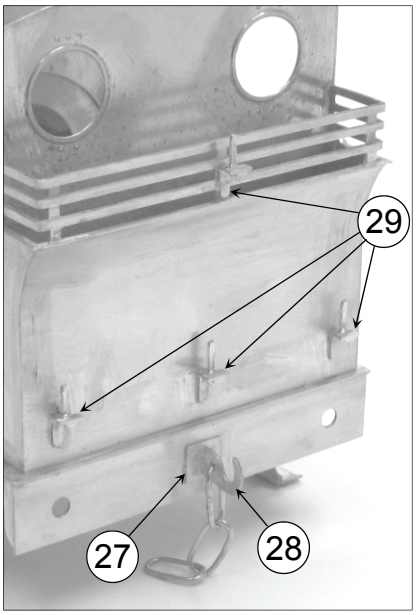
12. Fit the handrails made from 0.7mm brass wire. The position of the supports are marked on the boiler and smoke box and In common with the other kits in my range I have included split pins to support the handrails. These are fairly easy to use and their appearance can give a better representation of the prototype handrail supports than some of the turned brass alternatives. I close up the eye of the split pin to be a loose fit around the wire before fitting into the hole in the boiler and use a piece of card to space the handrail evenly away from the boiler. For the curved smoke box front handrail I find it helpful to anneal the wire in a cigarette lighter flame and then form about twice the length needed to the required radius. This extra length will be easier to handle when spacing away from the smoke box and you can trim to length after soldering solid.

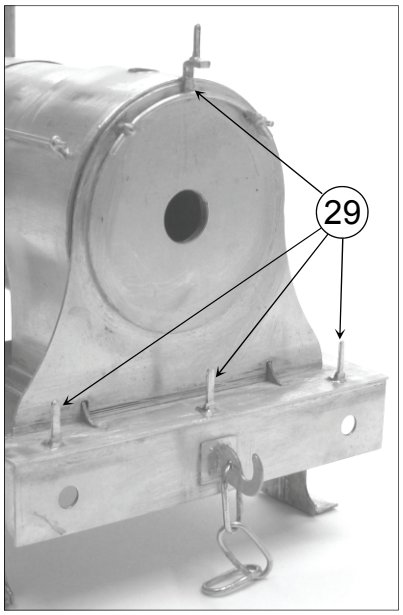


If you would prefer to replace these with turned brass handrail knobs (I cant buy them in for much less than you can buy them direct and to include them tends to raise a kit price disproportionately) then I would recommend the ones produced by Romford. Short Knobs (M7HRK7S), Medium length knobs (M7HRK7M), Long knobs (M7HRK7L). Available from, Markits, P.O. Box 40, Watford, Herts., WD2 5TH, Tel 01923 249711.

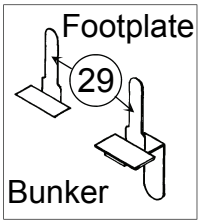


13. Make up the footsteps (parts 26). As these can be a little vulnerable to damage I use 60/40 solder for their assembly. Take the step treads and using pliers fold the back edge through 90 degrees and then form a radius on the two sides. Reinforce the back fold by running a small amount of solder into the fold line. Then generously solder the treads into the rebates on the step back plates. Fold the top through 90 degrees and again reinforce the fold with solder. To add extra strength I also solder (quickly using 145° solder so that the treads don't fall off) lengths of 0.9mm brass wire to the rear of the back plates. Then using 145° solder fit the assembled steps to the underside of the footplate so that they aligne with the cab doorways and towards the front buffer beam aligned with the smokebox front. The top folded section of the step should be hard against the inside face of the valances.



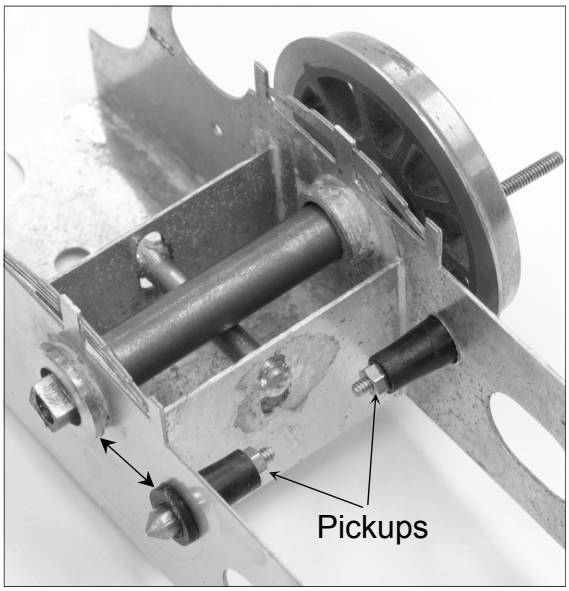


14. Solder the coupling reinforcing plates (parts 27) to the buffer beams so that the slots in the plates correspond with the coupling slots but ensure that the slots remain free of solder. Make up the coupling links. I close up the links by holding the curved end in the jaws of a pair of round-nosed pliers in one hand and squeeze the flat parts of the link parallel with long-nosed pliers held in the other hand. Once you have six even-shaped closed links, you can open each one slightly and thread three together. The last link passes through the hole in the coupling hook (part 28). I reinforce the joint of each link with a spot of 60/40 solder. Pass the tail of the hook through the buffer beam slot and then solder solid to the rear of the buffer beam. Then snip off the tail of the coupling. Some people prefer to spring the coupling by retaining it using a coil spring and split pin and this is why the hook has a long tail with holes in but I have never been convinced by this method.

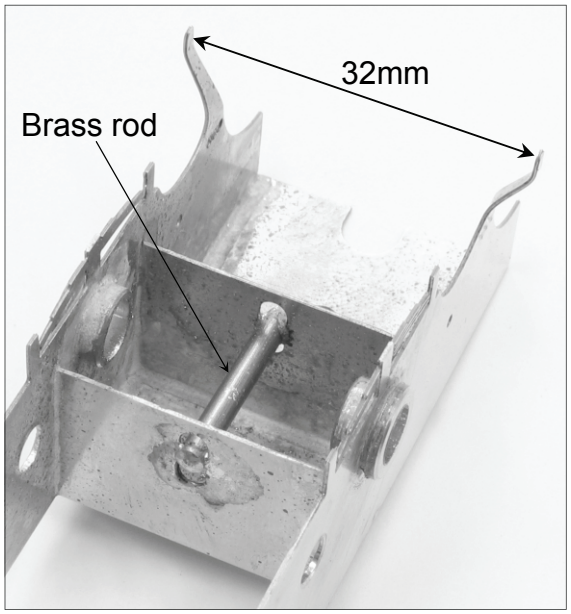


Fold up the lamp brackets (parts 29). As these are a little vulnerable to damage

I reinforce the folds with 60/40 solder. Hold the end of the bracket with long nosed pliers and apply a spot of flux to each of the folds. Then apply the iron bit carrying a small amount of 60/40 solder to the edge of the bracket. The flux should draw the solder off the iron bit and into the folds to neatly strengthen them. Then solder the brackets into place using 145° solder. Fit three on the front footplate, one to the top of the smoke box, three on the bunker back and a central one onto the coal rails. Note that there are etched marks to help with positioning. Once you have completed all soldering you can dress the central folded section of the brackets back with a file to neaten up the brackets. That is all the body brass work completed and I would suggest that you now complete the chassis.



16. If you are fitting plunger pickups (see later) now is a good point to open out the mounting holes in the assembled chassis. In theory I have put the holes in exactly the right position for the pickups to bear onto the back of the wheel tyre. In practice when using the Slater's wheels I found that some had a little of the plastic centre intruding into the tyre very close to where the pickup runs. I would suggest that you fit a wheel onto an axle and make up a pickup so that you can offer them into place and check that the positioning will be correct as you open up the holes. As the pickup holes require opening up by about $^1/_2$mm I would Recommend first using a round file to move the edge of the hole away from the axle centre line by $^1/_2$mm converting the circular hole into a slight oval. Then using a tapered broach open up the hole (making it circular again) until the moulded pickup housing is a snug push fit. By doing this we have slightly moved the pickup hole centre away from the axle centre to remove the risk of the pickup being interrupted. I fit the pickups after painting the chassis.



As designed the chassis provides a simple rigid 0-4-0. A refinement that you may wish to try is to introduce a little compensation. Pass an axle through the front bearings and then pass a length of brass rod through the two oval holes in the spacers. Solder the rod into place so that it bears down on the axle. Remove the axle and either ream out with a tapered broach the axle holes 10-15 thou oversize or file (use a round or $^1/_2$ round file) the top and bottom of the bearing hole into a slight oval. Refit the axle and you should have a slight rock of about 5 thou on each side, this does wonders for electrical pickup. Also bend out the guard irons using long nosed pliers so that they are 32mm apart.

17. Now prepare the Slater's wheels. Remove any plastic flash or moulding pips from the backs of the wheel by rubbing them flat on a piece of fine emery cloth (this flash can sometimes interfere with the plunger pickups). The crankpin screw head needs to be flush with the back of the wheel (it may interfere with the shoulder of the bearing otherwise) so it will be necessary to drill a countersink hole. Use a 2.5mm drill in a hand held pin chuck. Drill gently and keep checking with the head of the screw until the hole is the correct depth. The screw is designed to self tap into the plastic and then lock itself. I don't trust this and prefer to screw it in until the head is just proud of the wheel back. I then fill the countersink hole with Araldite and then screw it in until it locks. Leave the wheels until the Araldite has set and then clean of any excess Araldite by rubbing the wheel on the emery cloth. This should leave the screw head embedded in Araldite and prevent the potential problem of the screw turning when you are trying to undo the crankpin nut.

You may find that the square axle end is a tight fit into the centre of the wheel and this needs correcting. With a fine flat file gently dress each of the four sides of the axle end.

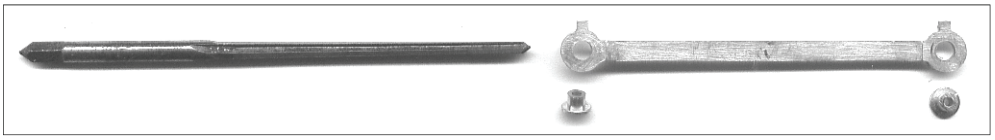
I find it helps to lay the bottom flat of the axle end onto the edge of a block of wood. This helps me keep the file parallel as I file the top flat. Offer the axle end into the wheel centre and repeat if necessary. You are aiming to get a gentle push fit but with no rocking or movement on the square. A good guide is to get it so that you can remove the wheel from the axle with just your finger nails around the steel tyre. If you have to grip the tyre with your finger ends to pull it off you will find it difficult to remove the wheels to paint the chassis. Once happy fit the wheel sets into the chassis remembering to quarter the wheels (the crankpins on one side should lead the other by 90degrees). Check that the chassis sits level on a flat surface without rocking (twist slightly if required).

18. Make up the coupling rods (parts 30) by laminating together the three parts of each rod. The way I do it is to separate the three laminates of one rod from the etch at a time. Clean off the tabs so that the three laminates will fit together flush along their length. I then use three miniature electrical crocodile clips, one in the centre and one at each end just inside the crankpin holes, to hold the laminates together. I then pass drill shanks through the crankpin holes to line up the three laminates. Check by eye that the drill shanks are parallel and square to the rod.

Then using plenty of flux, solder along the top edge of the rod. Start in the centre and work out towards each crankpin hole. By working from the centre outwards this reduces the risk of the laminates distorting and bowing apart with the heat. You should find that some solder has run between the laminates to the bottom edge (if it starts dripping out the bottom you are using to much solder). Reposition the crocodile clips and solder the bottom edge. Only use a little solder on the iron and you should find that it pulls any excess solder from the top edge through the laminates to the bottom edge leaving you with a neat top and bottom edge. Remove the drill shanks from the crankpin holes and reposition the crocodile clips so that they clamp the end bosses tightly together. Then solder around the bosses until a little solder bubbles out into the centre of the crankpin holes. Now gently clean up the rods and file all the edges so that the cusps of the laminates blend in to give the impression of one solid piece. If you wish you can tin the front face of the rod with a thin flash of solder to give the impression of oiled steel. This is particularly effective if you are later going to weather the chassis using paints.

This is not the only way to make up the rods. Some people tin all the surfaces (or use solder paint) of the laminates. Then using a rod as a guide drill through the crankpin holes squarely into a block of wood. They then use the drill shanks to peg the three laminations together before sweating them solid.

Now open out the crankpin holes in the rods to accept the brass top hat bearing bushes. This is best done with a tapered broach or tapered engineers reamer (I have one that tapers from 3mm to 2mm and is 40mm long (see yellow pages for a good engineers tool merchant they are not cheap but will last a lifetime). With the reamer gently work from both sides of the rod until the bush is a smooth free fit into the hole.

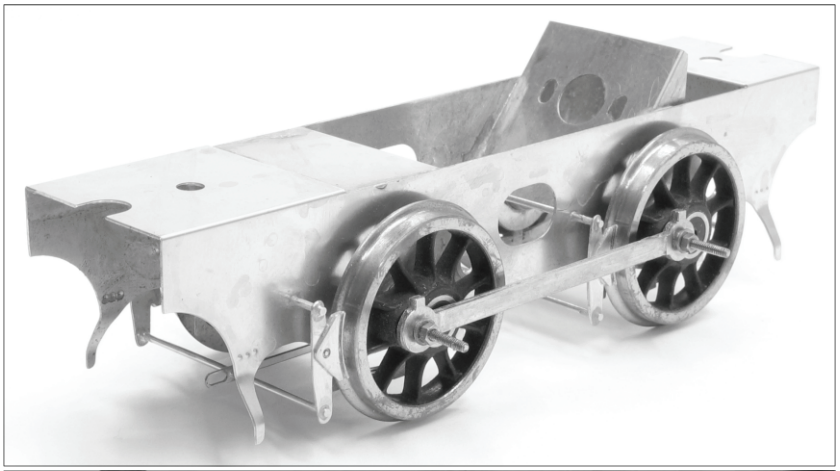


We now have to reduce the length of the bush to prevent sloppy side play in the rods. Place a bush onto a block of wood then place a coupling rod face down over the bush. By pressing down on the rod with your finger you should be able to gently file the bush until it is 0.010” to 0.015” proud of the rod. These bearing bushes are not soldered into the rods but locked onto the crankpin with a nut and washer. So it is important that they will revolve freely in the holes in the rods.

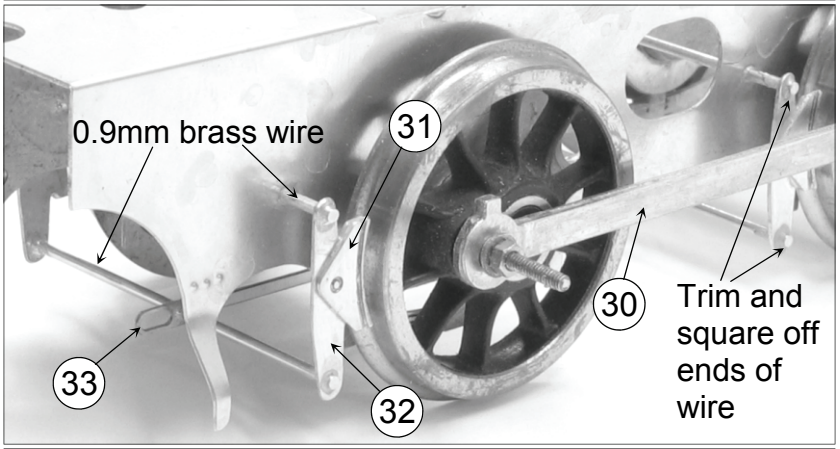
Now fit the bushes onto the crankpin screws and fit the coupling rods gently locking them into place with the washers and nuts. Check that the wheels will turn without binding. If you do have a problem gently revolve the wheels with your finger tip until you hit the tight spot then check the rods. You should find that one rod still moves freely on the crankpins and this side is OK. You should find that the rod on the other side is tight on the crank pins and this is where the problem is. Normally the problem is a crankpin screw that is not square in the wheel (unless you have reamed the hole in the rod out of square). With a round file gently file oval the hole in the rod until it fits freely onto the crankpins and then refit the rod and check the chassis again.

At this stage don't worry about slight tight spots. If you can push the chassis along the bench without the wheels skidding along then all is OK.

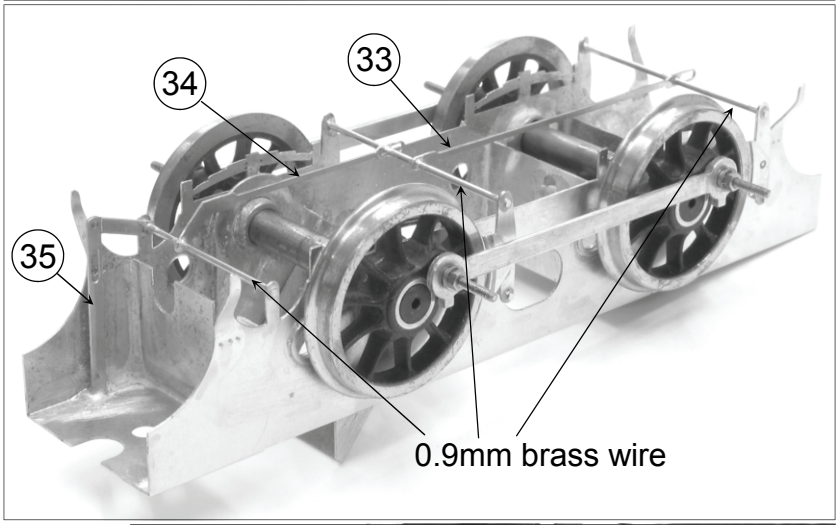
As the wheels are best removed for painting the chassis the chances are that they will not go back on in the same place. The correct point to make final adjustments is after painting and fitting pickups but before fitting the motor. If you have filed a crankpin hole in the rods oval it I worth marking this wheel so that you can match them up again on reassembly. Remove the rods and place safely to one side.

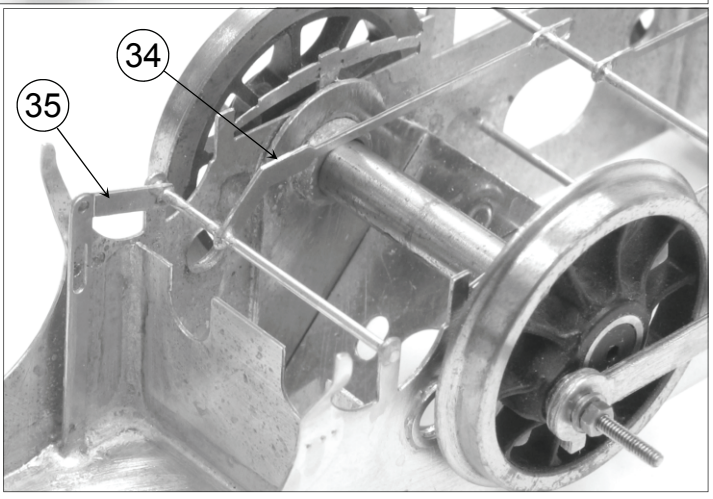


19. Solder the brake blocks (parts 31) to the brake hangers (parts 32). Remember to make up a pair of left hand and a pair of right hand brakes. Then thread two overlong lengths of 0.9mm brass wire across the chassis to form mountings for the brake hangers. Solder the wire into place at the holes in the side frames. Now spot solder using 60/40 solder the brake hangers to the wire so that the brake blocks line up with the wheels. I grip the bottom of the brake hanger with a crocodile clip and this gives me more control in holding it in the correct position. Solder the brake hanger so that the brake block follows the curve of the wheel and is set back slightly from the front face of the tyre. Try to position the brakes as accurately as possible as you solder to the wire but it is possible to gently bend and tweak them to their exact position using long nosed pliers after soldering.

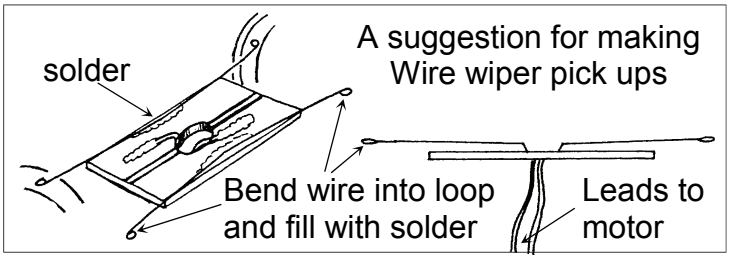


Now thread 0.9mm brass wire through the bottom holes in the brake hangers also threading the wire through the brake pull rods (parts 33 and 34) to form the brake cross shafts. Solder the wire at the brake hangers and then thread wire through the side frame brackets to form the brake operating cross shaft threading the handbrake linkage (part 35) onto the wire at the same time. Solder the wire at the side frame brackets. Now solder into position the pull rods and handbrake linkage. Pull rod 33 is positioned on the centre line, pull rod 34 is offset to allow clearance for the gear wheel and the handbrake linkage 35 is positioned just inboard of the R/H side frame (so that it would correspond with the cab handbrake column). Then using flush cutting side cutters trim the wire cross shafts to length and square off the ends. The chassis can now be stripped down for spraying black (see painting later). I also spray primer and black the front of the wheels (slip plastic insulation stripped from electrical wire over crankpin screws to prevent clogging threads) and then scrape the tyres clean using a curved scalpel blade.

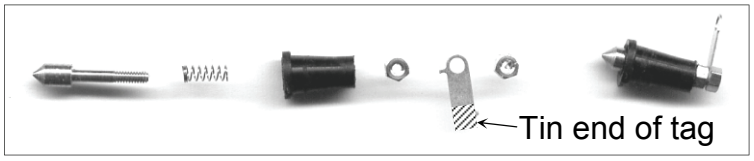




20. Once the chassis is painted you can address the matter of pickups. There are two options, plunger pickups or wiper pickups. The choice of which is very much down to personal preference and modellers seem to be equally divided between those that like plungers and those that have a very strong dislike for them, reckoning that they always jamb or put too much braking pressure on the wheels and would never use anything other than wipers. I have occasionally used wipers (mainly for additional tender pickups on tender locos) and have had successful results fabricating them from 0.45mm spring brass wire soldered to PCB mounting plates Araldited across the chassis. I have included these materials and a suggestion for making them. For myself I am a great fan of plunger pickups and have used them almost exclusively on all my locomotive chassis. I prefer to use Slater's plunger pickups and if this is your first locomotive I suggest you give them a try first.



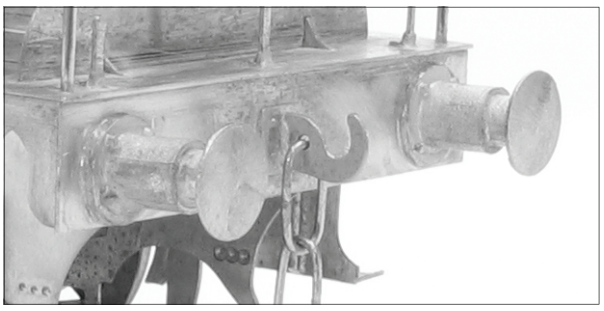
I have found that Slater's plunger pickups require a little care in their preparation and fitting if they are to work reliably. First the pack contains some spacing washers to be used with narrow chassis and I would suggest that you consider using these. Then drill out the back hole in the plastic housing 1.4mm. I then run a 2.4mm drill down the inside of the plastic housing twisting the drill between finger and thumb. This will remove any wisps of plastic that may jamb the plunger. By twisting the drill between finger and thumb there is no risk of the drill binding and drilling right through the end. Then fit the spring onto the plunger and fit into housing running a nut onto the back end. When fully depressed the plunger should sit virtually flush with the end of the housing. It is important that you use the etched solder tag that is locked between two nuts on the end of the plunger. If you try to solder the electrical wire direct to the plunger you will melt the threaded end into the plastic housing. This will cause the plunger to jamb in use even if it feels free before fitting (this is probably what people who don't like plungers have done). I tin one end of the etched tag with electrical solder before locking between the nuts. In this way I can solder the tinned end of the electrical wire very quickly onto the tag with no risk of heat getting to the plunger. I prefer to fit a separate length of electrical wire to each pickup and join the wires as I terminate them at the motor tags. I find that this is neater and easier than trying to link the pickups on each side together using jumper wires.



If you are a little unsure about this you can solder the wire to the tag. Then lock it between the nuts and thread the wire and plunger through the hole in the chassis. Once the plunger is fitted into the chassis I run a ring of Araldite around the housing on the inside face of the chassis side.

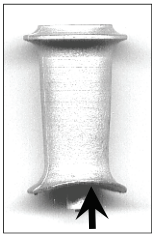
Now clear any paint from the inside of the bearings and refit wheels and rods (gently nip tight the crankpin nuts using long nosed pliers) fitting the gearwheel onto the back axle. Check that the chassis runs freely and then fit and wire up the motor. Hopefully you are fitting one of my motor/gear sets and full instructions for fitting and adjusting to achieve a sweet running chassis are included. If the motor is not one of mine I would happily send you a set of instructions on receipt of a SAE. You should now have a completed chassis that runs like a Swiss watch so its probably time for a cup of tea. While the kettle is boiling you can snip off the extra length of crankpin and dress back flush with the face of the nuts using a flat file. This should create a slight burr on the thread at the nut and this will help to keep the nut locked into place. If required in the future a slight twist of the nut with pliers will break off the burr allowing you to remove the nuts.

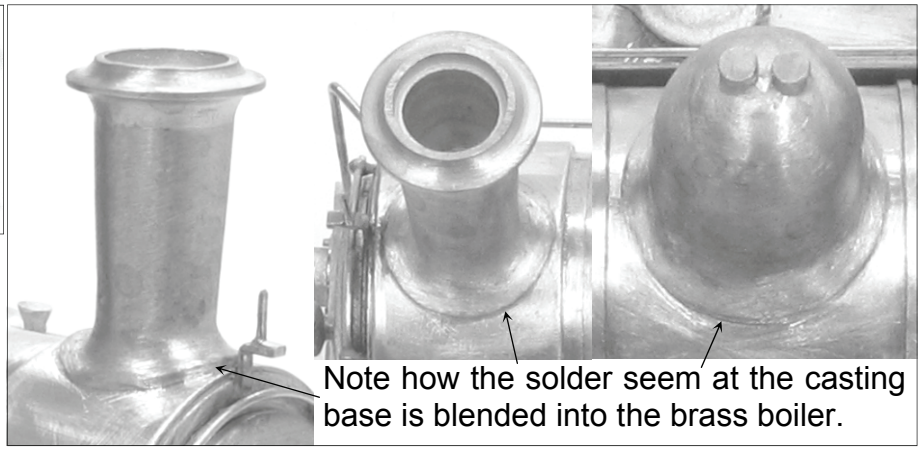
21. Now fit the white metal castings referring to the main photos to help with their positioning. I find it best to solder as many of the castings as I can into place using 70° solder. Talcum powder is used to dust the surface of the moulds to act as a release agent for the castings. This ingrains itself into the surface of the casting and gives them a matt finish. This also prevents solder flowing freely over the surface of the casting. You will find it helpful to burnish bright with a fibreglass brush the parts of the casting that you require a seem of solder to flow onto.



Fit the buffers by tack soldering into place first then check by eye that they are straight and square (nothing draws the eye to a finished loco like a drooping buffer). Once happy solder solid running a solder filet all around the buffer body and using plenty of flux so that the solder flows underneath between the casting and buffer beam for maximum strength. Then snip of the casting tails flush with the inside face of the buffer beam.

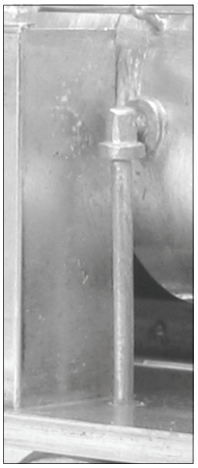
A little extra care and work at the bases of the chimney and dome will pay dividends with their appearance after the loco is painted. Check that the chimney sits down and follows the curve of the smoke box as well as is possible. A little scraping of the underside of the flange with a curved scalpel blade at the centre point may be required. Then tin the brass smoke box with a circle of 145° solder slightly larger in diameter than the chimney flange. Using 70° solder tack the chimney into place and check by eye from all directions that the chimney is upright and square. Then using plenty of flux run a filet of 70° solder all around the circumference of the chimney. Work slowly with the iron bit (running through the dimmer switch) and allow time for the heat to build up and the solder to flow underneath the flange. Try to achieve a continues seem of solder with no gaps or air pockets. Then using the curved scalpel blade scrape back the excess solder from the brass work. Then using the fibreglass brush work around the base of the flange to reveal a distinctive circular edge to the casting but feathering the solder below into the brass. This should prevent the nasty crack between chimney and smoke box that often becomes apparent after the model is painted with its first coat of primer.





Note how the solder seem at the casting base is blended into the brass boiler.

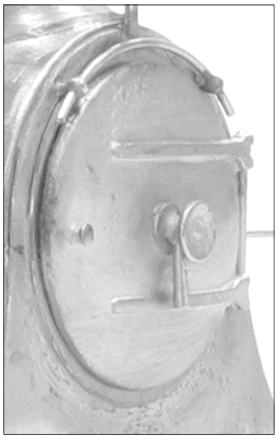
Fit the dome in a similar way. The base of domes can be dressed to match the boiler curve by wrapping fine wet and dry emery cloth over a piece of tube (1" water pipe) and gently rubbing the dome forwards and backwards. Position the dome by eye and again only tack into place until you have checked its position from all directions. Use the chimney as a reference to sight that the dome is upright and in line relevant to it (a good reason to take time in ensuring that the chimney is positioned correctly first).



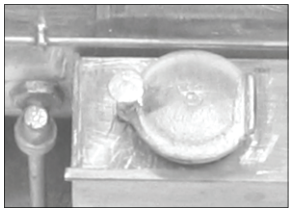
Fit the clack pipes first tacking the top into position at the boiler hole and the bottom of the pipe to the underside of the footplate where it passes through the hole. Once happy with position try and get a filet of solder to flow all around the flange that joins the top to the boiler and again clean back and blend the casting in to the brass boiler.

Fit the whistle into the mounting hole in the cab roof. Tin both the underside and top side of the roof around the hole. Using a generous spot of flux solder the whistle into place so that the solder completely flows around the base of the whistle. A little of the solder should also flow through the hole to the tined surface on the underside. This should give maximum strength to the whistle fixing. Again clean back and blend the whistle base into the cab roof.

Drill out the central hole in the smoke box door so that the locking hand wheel and handle are a push fit into it. I then secure the handle with a spot of solder but you could use glue if you wish. As it would be difficult to run a neat seem of solder around the smoke box door I fix it into place using Araldite.



Fit the tank fillers again these would be difficult to solder neatly so I use Araldite. Just check that the side of the filler just clears the handrails when it is fitted into its mounting hole. Slightly oval the holes if necessary.



That should be all the construction completed. On my sample model I could not resist fitting extra shunters guardrails between the smoke box and front footplate. A number of the C14's were fitted with these when they were used for Quay side shunting duties.

22. Painting is a vast subject that cannot be covered fully here. The important thing with a metal model is to get a good base coat of primer. Hopefully you have been cleaning up and washing the model at the end of each modelling session but it will still need thoroughly cleaning before painting. I give my models a good scrub with a stiff-bristled paint brush in a sink full of hot water, as hot as your hands can bear, and cheap washing up liquid (the expensive stuff that's kind to your hands has an oil in it that will stop the paint keying to the metal). If you know somebody who works in catering and can scrounge you some industrial-strength liquid this is better still. Then rinse the model a couple of times in clean warm water and place in a dust-free box to dry. I use car aerosol primer and Halfords grey primer is one of the best. For the best results you want to spray at room temperature (25°C) on a dry day, avoid cold, damp or humid days. I find it helps to warm the model to about 30°C (put it in the airing cupboard overnight) and I warm up the paint tin by putting it onto a radiator (about 40°C, but use your common sense as I don't want anybody blowing themselves up). I find it best to prime the model in two light coats, about 15 minutes apart and then leave for 48 hours to harden off (in the airing cupboard in a dust-free box).

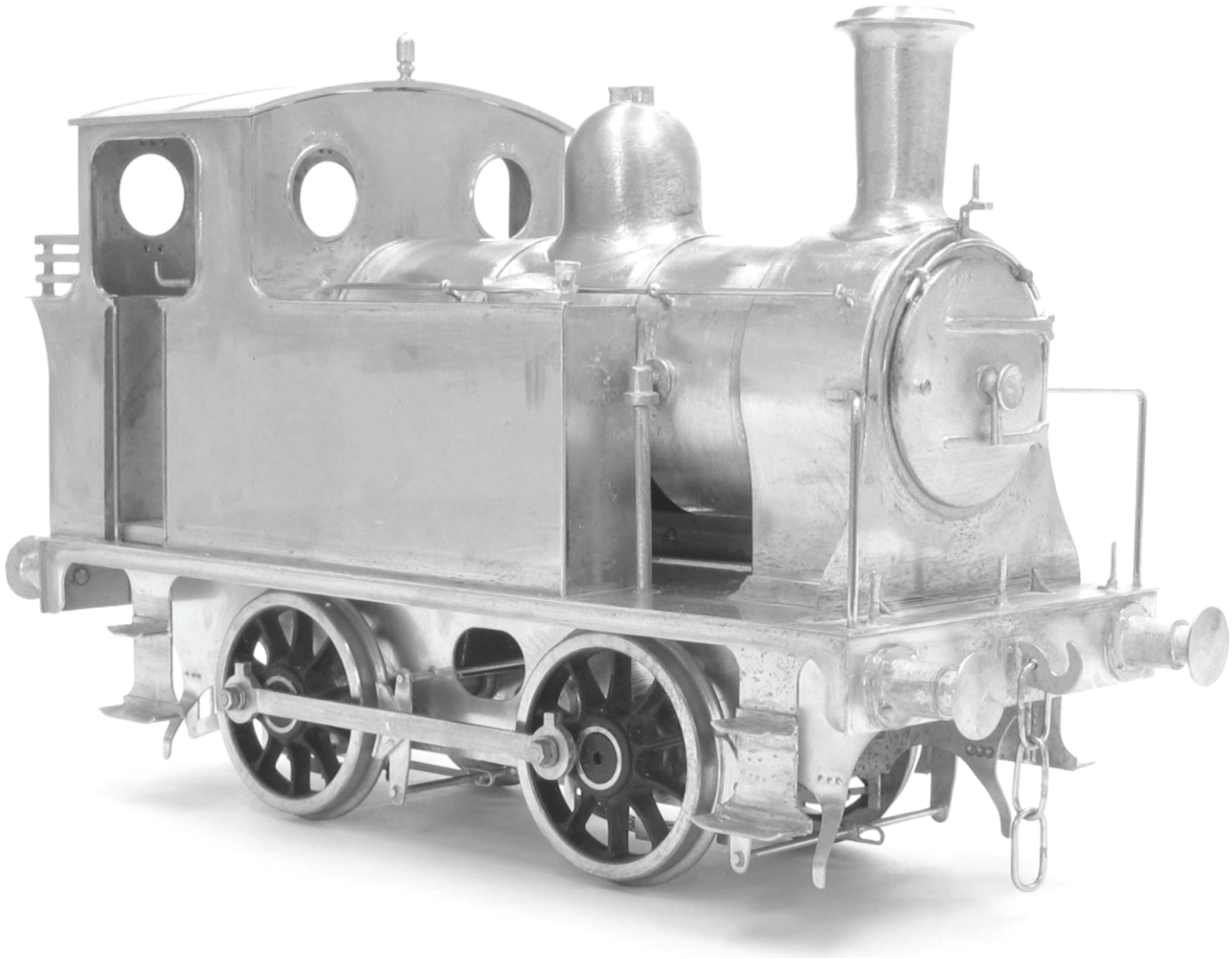
I brush-paint my models with Humbrol enamel. For years I just stirred it up and painted straight from the tin but I was never completely happy with the results. Recently two things have transformed my painting. The first was a copy of Martyn Welch's book, The Art of Weathering, Wild Swan Publications, ISBN 1 874103 11 9. Martyn's basic techniques are very useful and almost foolproof. The second thing is to mix the paint in the tin and then transfer it to a palette (a sheet of clean plasticard) with blobs of lighter and darker shades of paint surrounding the main colour. Then work the paint with the brush on the palette, slightly varying the tones of the paint. This seems to totally change the texture of the paint and the way it goes on and covers on the model.

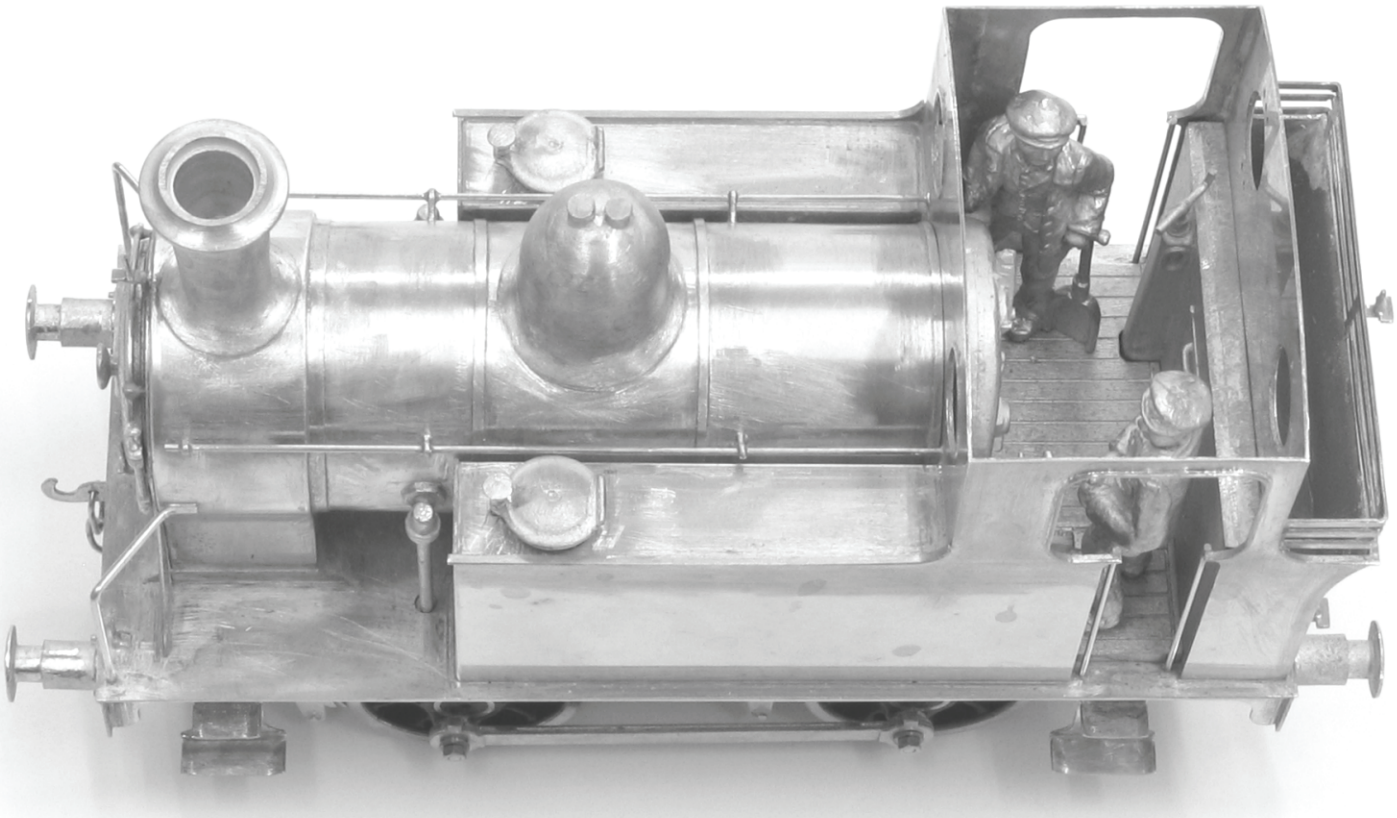
For livery the main body colour is completely your choice but I would recommend painting the chassis, footplate, smoke box and cab roof black. Perhaps also the top of the tanks depending on the main body colour. The cab floor should be dirty wood and the bunker coal space front black. The rest of the cab interior could be a dark dirty cream through to a subtle shade of light brown. The backhead would be black with pipe work picked out in copper and brass. You could paint the regulator handle, top of reverser and handbrake handle dirty red. The spectacle windows could be glazed with discs of clear plastic sheet but I prefer to cut flat sheets from the clear blister packs that many items are packaged in nowadays and use these. This has a textured surface probably caused by the moulding process, which gives it a slightly opaque quality that I think represents dirty windows just right.

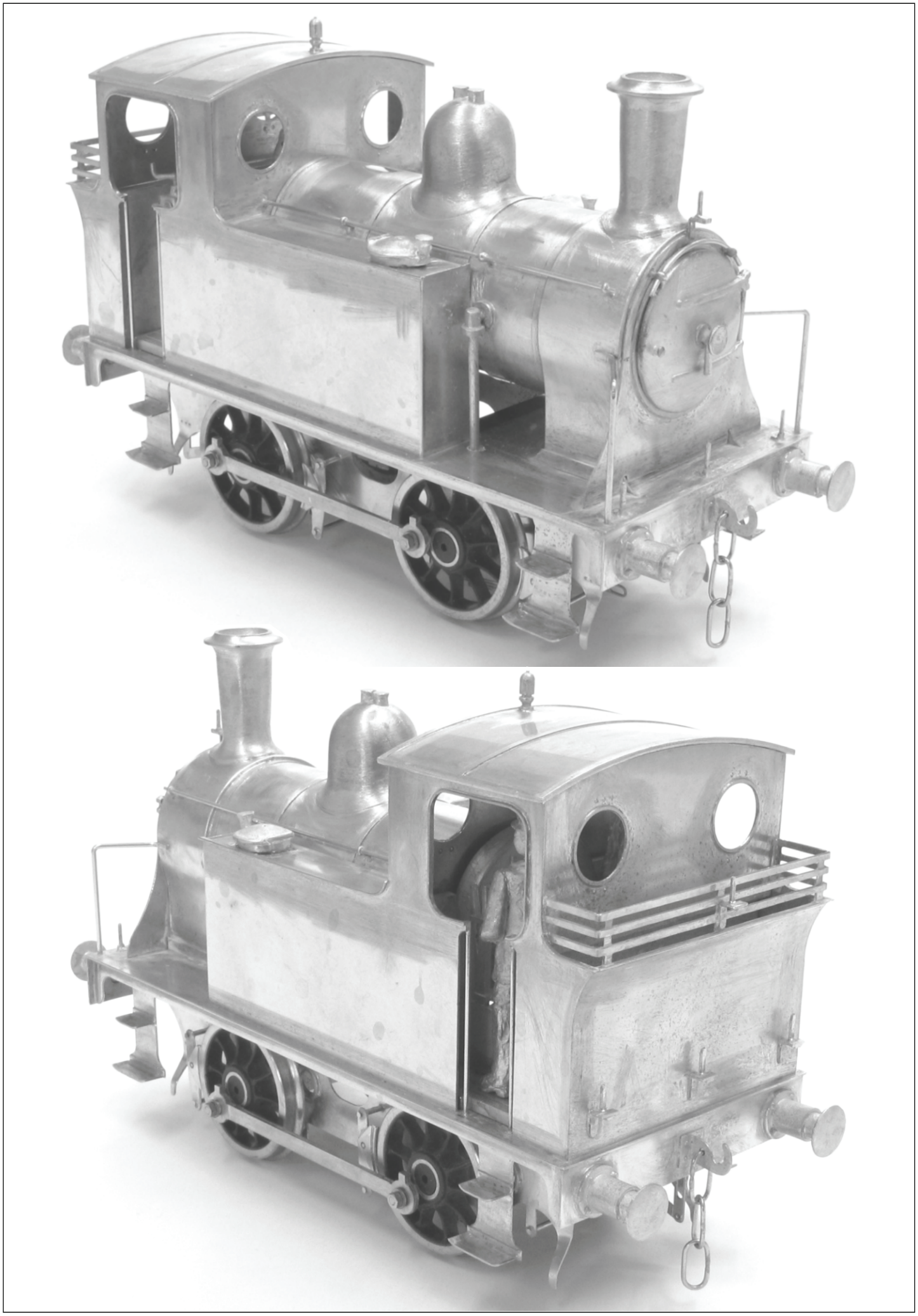
I have included some basic name and number plates and these should be primed and then painted with the nameplate background colour (I would suggest red or black). Then when the paint has really hardened they can be gently rubbed face down on fine wet and dry to burnish off the paint from the surface of the lettering.

The chassis is fixed to the body using two 6BA screws into the captive nuts that you soldered to the footplate as one of the first operations. No mater how careful you are in building a loco body you will probably have built in a slight twist. It is important that the body does not twist the level chassis out of square so I recommend only locking tight one screw leaving the other slightly backed off.

0 GAUGE STARTER LOCO KIT
PRIVATE OWNER & INDUSTRIAL 0-4-0 TANK







I hope that you have enjoyed building this loco and are pleased with your finished results. Particularly if you are a newcomer to 0 gauge and that it has helped you increase your skills. If you have got a finished running loco out of the parts then there is nothing that you can not achieve in the future. Just work your way up through more sophisticated kits in logical steps gaining more experience as you go. Kit building should be pleasantly challenging but not frustratingly difficult (I find that real life provides plenty of this) and hopefully you have found this to be the case with this kit.

I first produced this set of parts in 1989 when 0 gauge was just broadening out from a scale that was only available to an exclusive few to one that was within the reach of the average modeller. I think that the kit sold for £30.00 then and it caused a bit of a stir as there was nothing else available in this sort of price bracket. It helped to get quite a few modellers started in 0 gauge and made me a lot of new friends.

I steadily produced the kit over the years but in 2005 the casting moulds for this kit failed and the instruction sheet masters were so tatty they had to be handled like the dead sea scrolls. I was going to drop the kit from my range reckoning that it had done its work and that there was better kits on the market to help introduce the newcomer to 0 gauge. But I have a great sentimental attachment to this kit as Nellie was one of my first kits and its introduction provided me with my first stable stepping stone on the road to building up a small business as an alternative to being on the Dole in the late nineteen eighties Britain.

So over Christmas 2005 I started making new moulds with new and improved castings and then produced a new set of instructions using my now standard digital images and desk top publishing. In 1989 the idea of an individual being able to practically produce this sort of instruction sheet was pure science fiction. I have enjoyed a terrific amount of pleasure improving this kit and hopefully some of this will be experienced by the modellers who build it.

Can You Help Me?

If you have enjoyed building this kit and have been satisfied with the quality, I would be most grateful if you could recommend it to your friends and fellow modellers. Although my kits are not perfect, I try to put a lot of time and effort into producing them. If I can get extra sales of a kit through customer's personal recommendation and I find that word of mouth is the best form of advertising. This will help me to put extra time and money into developing the next kit. Hopefully this will give me more satisfied customer to recommend my kits to their friends.

If you are not happy with this kit then please tell me. Hopefully I will then be able to help and sort out any problem.

Best Regards And Happy Modelling

Jim McGeown