CONNOISSEUR MODELS

LNER Class Y7

Kit Composition. The main body and chassis components are etched in brass with cast white metal fittings. Cab interior is detailed and a cast backhead is provided. Alternative castings are included to cover some of the modifications and differences between members of this class of loco that existed during their working lives. The etched brass boiler is pre-rolled and wire, screws, bearings etc are included.

This kit has been designed to provide a set of quality components that will allow the modeller, who has basic kit building skills, to build an 0 gauge model of the prototype to a standard of detail that is suitable for operating models on most 0 gauge layouts.

Parts Required to Complete

2 Sets 3'6", 10 Spoke Driving Wheels (Slater's Cat No 7842W),
Plunger Pickups if desired (Slater's Cat No 7157),
Available from Slater's, Old Road, Darley Dale, Matlock,
Derbyshire, DE4 2ER, Tel 01629 734053.
Mashima 1833 Motor and 40/1 Gear Set (available from myself).

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.

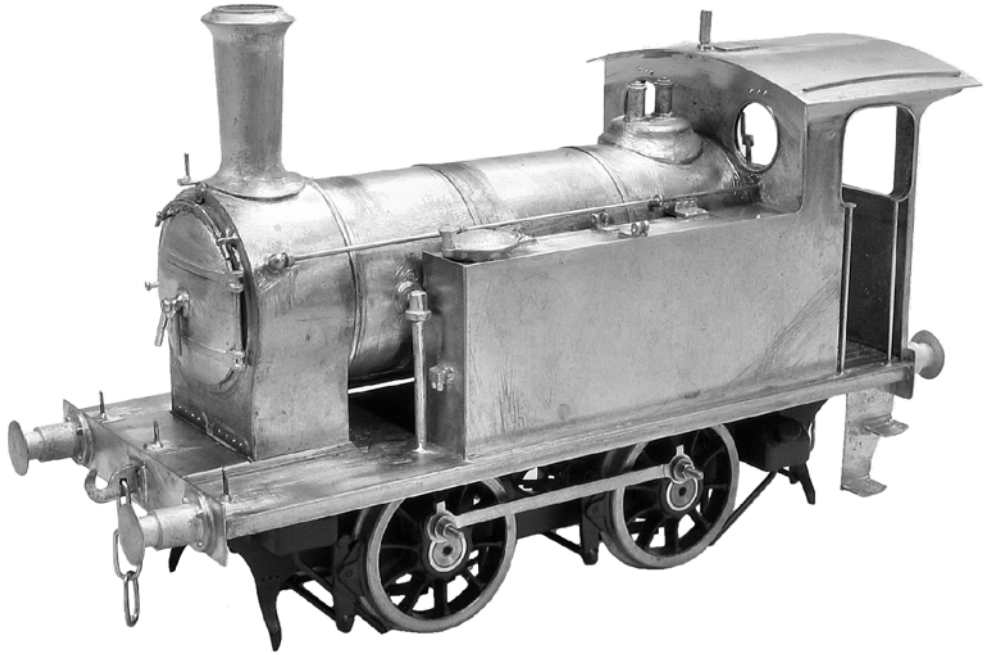
The main skill to master is soldering and I would recommend a Weller 40 Watt soldering iron. This has a 6mm diameter removable copper bit. The bit is shaped like a screwdriver and has a bright coating of solder (tinned). This combination of iron and bit shape is ideal for running fillet joints and has 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 tips 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



HMRS transfers, sheet number 18 contains NER loco & coach insignia. Details and an order form can be obtained from HMRS Transfers, Brian Webb (volunteer sales officer), 8 Gilpin Green, Harpenden, Herts, AL5 5NR.

After grouping the LNER continued the overall black lined red livery until around 1928 when they changed to unlined black. Lettering and number was on the side tanks (see photo of LNER model). The LNER did not renumber most ex North Eastern locos until 1946. HMRS transfers, sheet number 4A contains LNER yellow insignia for black locomotives.

After painting you may wish to glaze the spectacle windows and a hole template is located in the left hand corner of the fret. If you hold a sewing needle in a pin chuck and use the template to scribe circles on the glazing material. You can cut these out and these should pop perfectly into the inner spectacle rings (parts 9). For this glazing you can use thin clear plasticard, but I prefer to cut flat sheets from the clear blister packs that many items are packaged in nowadays. 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 a oil bottle, bucket and loco crew and once painted these should finish off the cab of your model nicely and hopefully your loco is now ready for a long working life.

Reference Books

Locomotives of the LNER, Part 9B, Tank Engines-Classes Q1 to Z5.
The Railway Correspondence and Travel Society, ISBN 0 901115 41 X.

An Illustrated History of NER Locomotives, Ken Hoole,
Oxford Publishing Co, ISBN 0 86093 323 7.

North Eastern Record, Volume 3, J.M. Fleming, *for the* NE Railway Association, *published by* The North Eastern Railway Association, ISBN 0 902 835 20 3.

Weblink, www.lner.imfo/locos/Y/y7shtml.

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 onto 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, are best opened up using a set of cheap tapered broaches, or by twisting a small round file in the hole.

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.

There is much debate about what are the precise livery details for any historical loco at any time so I have assumed that if you are an established NER modeller you will have your own reference library. If you are a general modeller who wants general guidance then I don't think we can do better than look at how the preserved locos are painted today and copy them. Try a google images search, "LNER Class Y7", then look for images on flicker, you will find plenty of colour pictures.

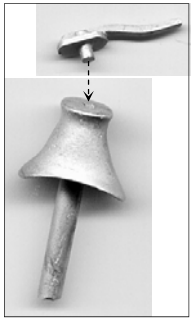
The standard NER livery for tank locos until 1904 was black for top surfaces of footplate, steps, tank tops etc & smokebox. Boiler, tank sides, cab etc, Saxony green with black edges lined white. Tank sides, ends and bunkers were panelled by a 2" black band with a $^{3}/_{16}$" white line on each side. Buffer beams vermilion with buffers and beams edged black and lined white. Cab roof colour is a bit unsure but was probably grey when first painted but was very soon dirty black. Cab interior cream with dirty wood floor.

From 1904 the NER changed tank loco livery to overall black with fine red lining and lettered NER but locos would only be repainted when they entered works for general repair.

Fit lubricators, hopefully you have already decided the type you wish to fit and have drilled the required location holes as you removed the parts from the main fret. Locos were originally fitted with a ball type lubricator mounted on either side of the smokebox.

These were later replaced on many locos with two pipe box type lubricators. If your eyesight is good enough you may wish to represent the fine oil pipes so before fitting to the tank fronts drill out the pipe union nuts to give a slight rebate into which the pipe work fabricated from 24swg soft wire can be located. I then fold a length of wire into two, trim the ends level and solder into the pipe union nuts. Then form the two parallel pipes to run down and then behind the bottom of the tanks. I find this easier than trying to fit two separate pipes.

Locos from the first builds were originally fitted with a Ramsbottom safety valve. The separate safety valve lever should be fitted to the safety valve body and then the end of the lever trimmed back so that it will just touch the front of the cab.



The five post 1923 built locos were fitted with Ross Pop valves mounted on a base. Some changes happened to individual locos during the life of the class caused by boiler swaps etc, so check your photos. I suggest low melt soldering the base casting to the boiler and then drilling at the dimpled positions holes that the valves are a snug (with a spot of Araldite) push fit into.

The chimney location hole in the top of the smoke box wrapper should be gently opened out with a tapered reamer until the cast location peg will fit into it. This location peg is a large diameter as this was the spigot that was held in the lathe while the chimney master was being shaped. The hole in the wrapper is smaller so that it doesn't crease when it is formed to shape. I suggest soldering the top lamp bracket to the smokebox front just before fitting the chimney.

Drill out the centre of the smoke box door and fit the distinctive locking hand wheel that was fitted to NER locos. I have also included a casting for the more conventional pair of locking handles that were later fitted to many locos. I suggest glue fitting the door with Araldite.

Information is that as built tapered buffers were fitted to all members of the class but photographs show many locos fitted with parallel buffers. Originally I provided parallel buffers with this kit but as I now have a master for a tapered buffer produced for another kit in my range. I have also provided these but the mounting holes in the buffer beam will need opening out significantly using a tapered reamer (possibly before fitting beams to footplate)

Originally a bell shaped whistle was fitted onto the cab roof but photos show many locos running with an organ pipe type.

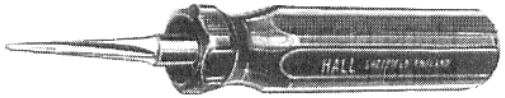
Forming Parts. While the boiler in this kit is pre-formed, other forming is best achieved as construction progresses as this enables the parts to be adjusted to each other. To make a tight curve at full metal thickness, such as tank front, bunker rear etc, take a piece of rod slightly under size of the 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.

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



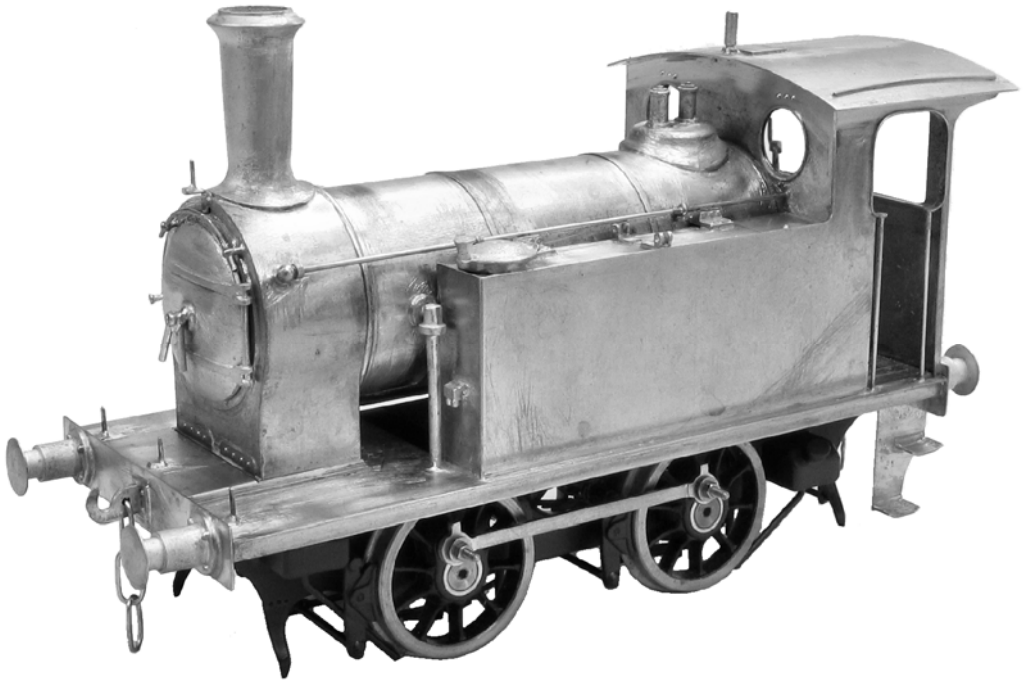
TR0005 Micro Drill Reamer 1mm-5mm

TR0010 Tapered Reamer 3mm-12mm

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

NER Class H, LNER Class Y7

19 members of this class were built by the NER, with a further five being added by the LNER for dockside and light shunting work. 12 were sold during their long lives to industrial users. A number of the class rose to fame working on the North Sunderland light railway. Two locomotives lasted into BR days and two are preserved. No 1310 on the Middleton Railway, Leeds & No 985 on the Great Central Railway (North), Loughborough.

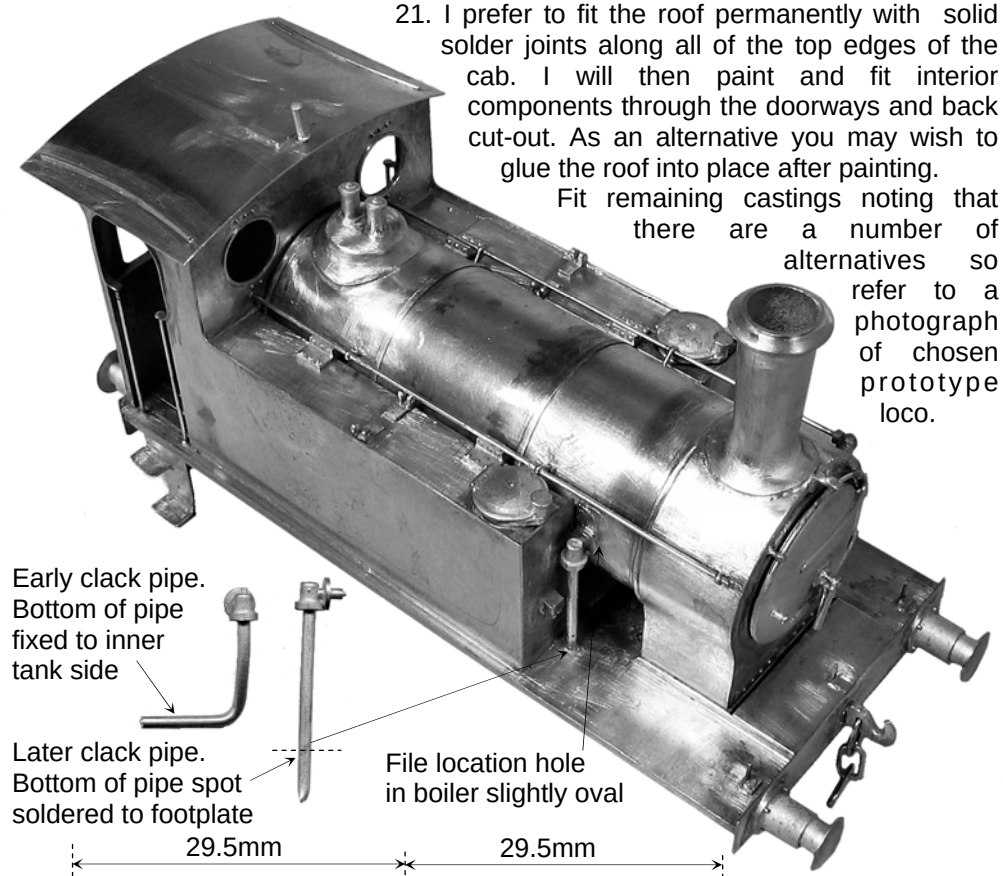


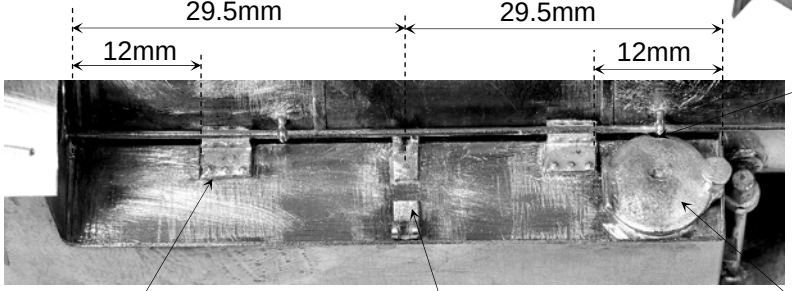
The Y7 kit was originally produced in 1988 and was the second kit that I designed and my first loco. When first produced it was well regarded and proved very popular. At this time I was one of a few new manufactures who started producing small loco kits in a price bracket that broadened out 0 gauge from a scale that was only available to an exclusive few to one that was within the reach of the average modeller. My Y7 helped to get quite a few modellers started in 0 gauge and made me a lot of new friends.

Since 1988 standards of sophistication expected from a kit have risen and when in 2013 the casting moulds were completely worn out the opportunity was taken to improve the kit. Castings were improved by including in the new moulds suitable castings from kits developed after 1988 and I have also made a few new masters. I photographed a model under construction so that these new digital instructions were possible. I have also detailed how the modeller can with a little ingenuity and scrap etch upgrade some of the etched components.

21. I prefer to fit the roof permanently with solid solder joints along all of the top edges of the cab. I will then paint and fit interior components through the doorways and back cut-out. As an alternative you may wish to glue the roof into place after painting.

Fit remaining castings noting that there are a number of alternatives so refer to a photograph of chosen prototype loco.

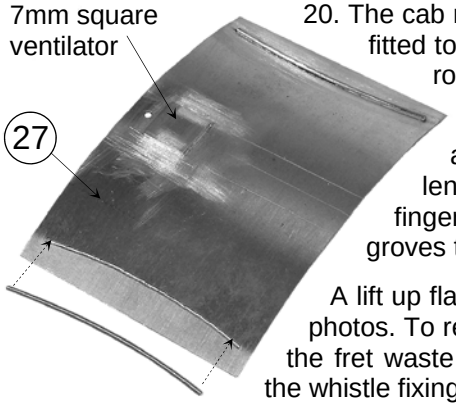




Tank brackets. Original fitting on all locos. File end at angle to blend into boiler curve and get joint between the two L shaped brackets to line up with tank inner edge.

Tank lifting lugs. I don't think these are an original NER fitting but they appear on photos of No 68088 in 1948 and they are there on No 985 in preservation today. So as I had a master for this fitting I have included them.

Clearance for tank filler casting is tight. File tank top hole slightly oval towards tank edge and a slight notch in casting to clear handrail support. Then filler should fit snugly into place with a little Araldite around the fixing peg.

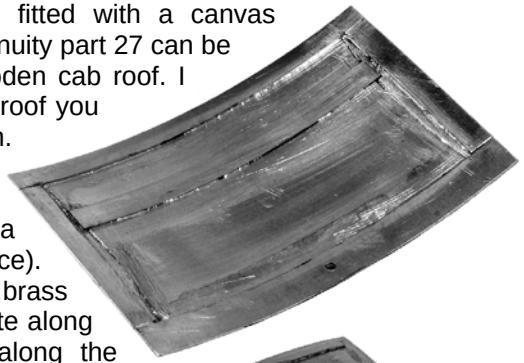


20. The cab roof provided represents the sheet steel roofs fitted to the locos in later years and reflects what the roof looked like on the preserved locos in 1988.

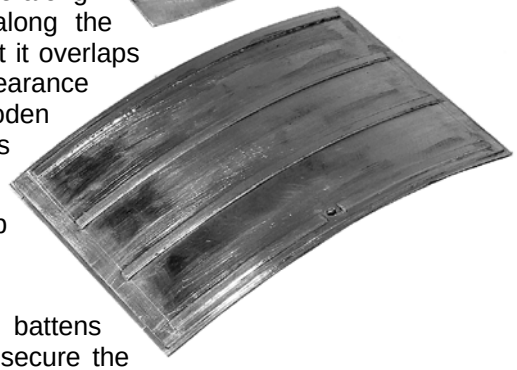
Curve the roof (part 27) by gently forming around a offcut of pipe or tube. Precurve a length of soft wire by gently pulling between finger and thumb and solder into half etched groves to represent rainstrips.

A lift up flap to provide ventilation also appears in some photos. To represent this cut a 7mm square of brass from the fret waste and solder centrally on the roof just behind the whistle fixing hole about 5mm from the roof edge.

When original built the locos were fitted with a canvas covered wooden roof. With a little ingenuity part 27 can be modified to represent the earlier wooden cab roof. I would suggest that before curving the roof you file all four edges back by about 0.5mm. Then curve the roof with the etched groves on the underside (run a little solder into the groves to prevent a crease appearing on the top surface). Then after curving solder a strip of brass about 3mm wide (you will find the waste along the edge of the etched fret ideal) along the underside edge of all four sides so that it overlaps by about 0.5mm. This will give the appearance of the thicker stepped edge of the wooden roof and also return the roof to its original size.



Also fit a strip at the point that the cab back joins the roof.

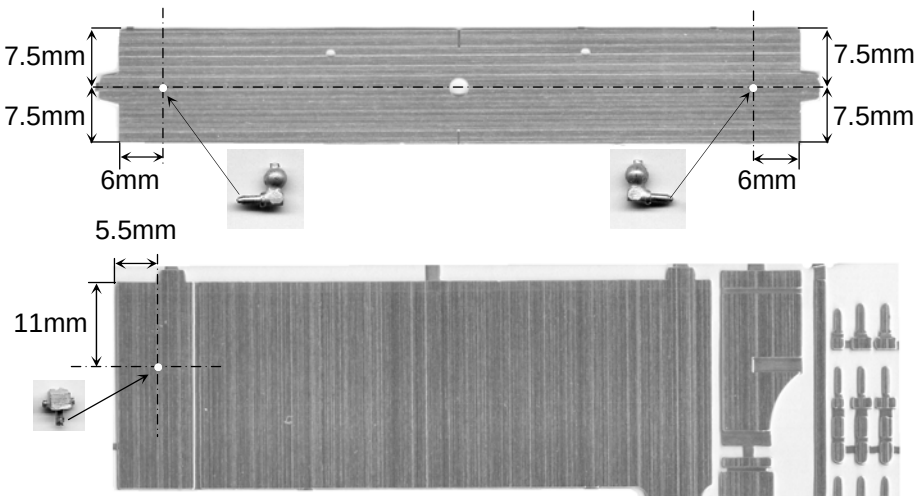


The top surface of the roof had thin battens running across it (presumably to help secure the canvas). Photographs show variety in the number, size and position of these battens. So I have modelled what looked like a typical arrangement.

Outer battens running 1.5mm from the front and back edge terminating 2.5mm from the roof sides. Front batten gaped at whistle position. Two inner battens spaced evenly between. The battens are about 1.5mm wide strips produced from scrap etched fret. In fact the spare Cab beading (Parts 5) are about right but unfortunately not long enough to go over the roof. But you can use two for the gaped front batten and splice two together with a joint at the roof centre for the back batten.

I think that these improvements have refreshed my Y7 and moved the standard of the finished model up a level. Although I have learnt much and improved a lot over the last 25 years I am still very pleased with my first loco kit design. I think it stands as a very honest product against more recently designed kits produced today and is still better than some. Hopefully you will get a lot of pleasure building it.

Jim McGeown, July 2013

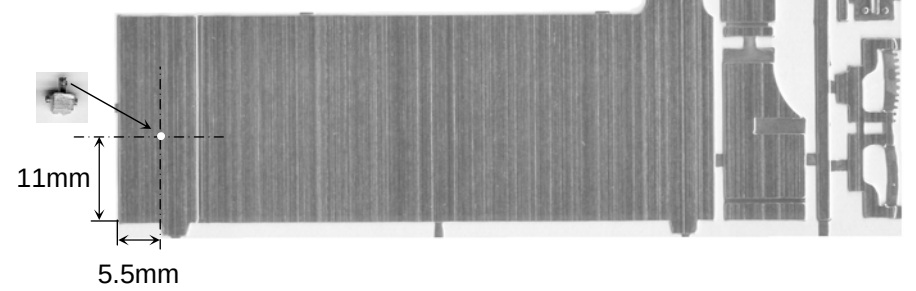


There were two types of lubricator fitted to these locomotives.

Originally ball shaped lubricators were fitted either side of the smoke box.

Later a pair of two pipe box type were fitted to the front of the tanks.

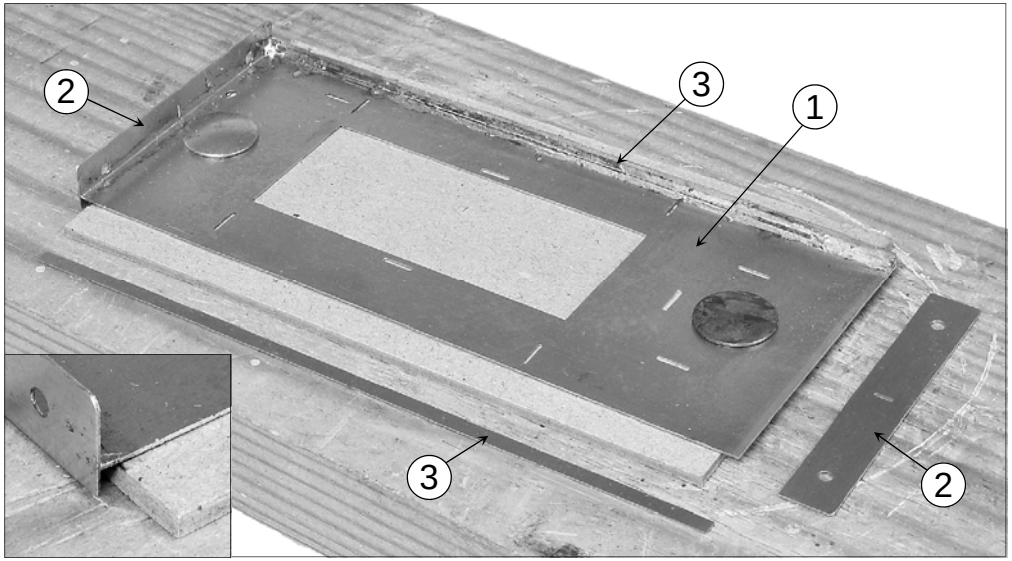
Decide on the type that you wish to fit and then mark out and drill location holes for these before removing parts from the fret.



Footplate Assembly

1. First fit the buffer beams (parts 2) to the footplate (part 1). These protrude about 1.5mm above footplate level. Can I suggest cutting a piece of 1.5mm thick card slightly smaller than the footplate and then using it as a packing piece, pin the footplate, top surface down (note the word top etched onto top surface) to a flat off-cut of soft wood. Use drawing pins passed through the body fixing screw holes etc.

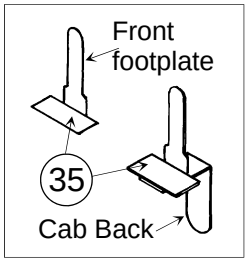
Then using drawing pins, pin a buffer beam to the edge of a square off-cut of wood so that the buffer beams top edge (the curved corners are at the bottom) is level with the flat surface of the wood. In this way the buffer beam on the block of wood can be slide up to the footplate and will remain square as it is soldered into place.



2. Trim the valances (parts 3) to be a slightly loose fit between the buffer beams (this is to prevent the valances buckling when they expand due to the heat of soldering into place). Then solder each valance upright along the footplate edges just outboard of the tank side slots. Once fitted I would recommend cutting a piece of flat softwood so that it fits between the buffer beams and valances to provide a flat solid support for the footplate as construction progresses.

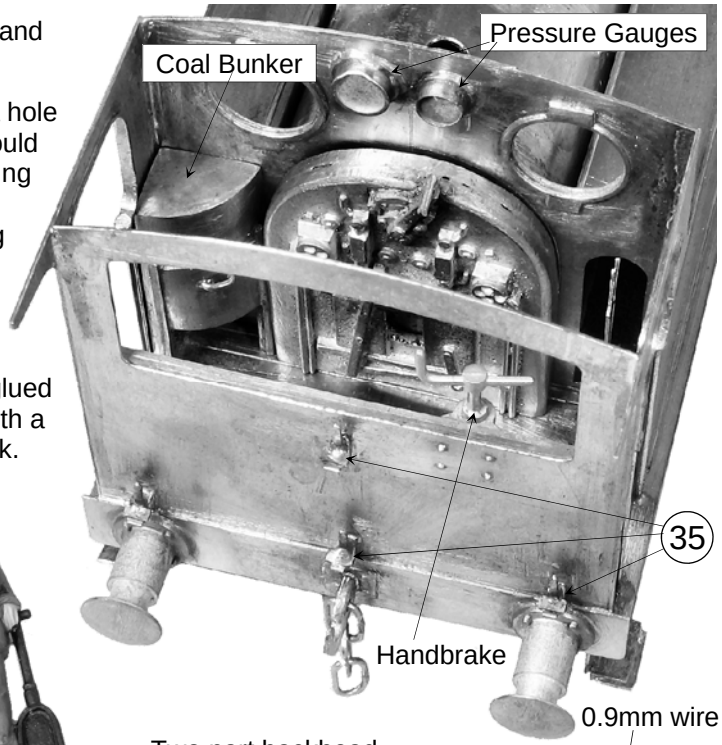
Solder two nuts to the top surface of the footplate locating over the chassis fixing holes. This is best achieved by locking the nut into place with a screw (it may be useful to use a rough washer under the screw head made by piercing a hole through a scrap of thin card). Dress the six flats of the nuts 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.

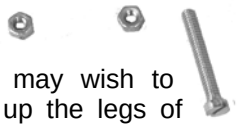
Fold up the lamp brackets (parts 35). As these are a little vulnerable to damage I reinforce the folds with 60/40 solder. Hold the end of the bracket with long nosed pliers and apply a spot of flux to each of the folds. Then apply the iron bit carrying a small amount of 60/40 solder to the edge of the 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. Note that there are etched marks to help with positioning.



19. Check positioning and fit cab interior castings.

Drill 1.6mm dia hole for handle. I would recommend fitting column to cab back but leaving handle until after the locos painted. Then the red painted handle can be glued into the hole with a spot of Evo-Stik.

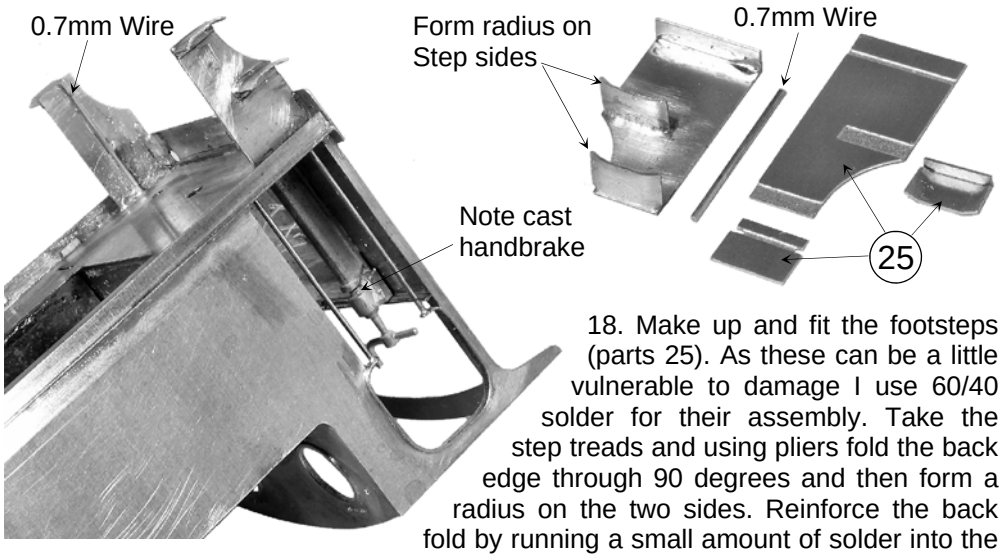




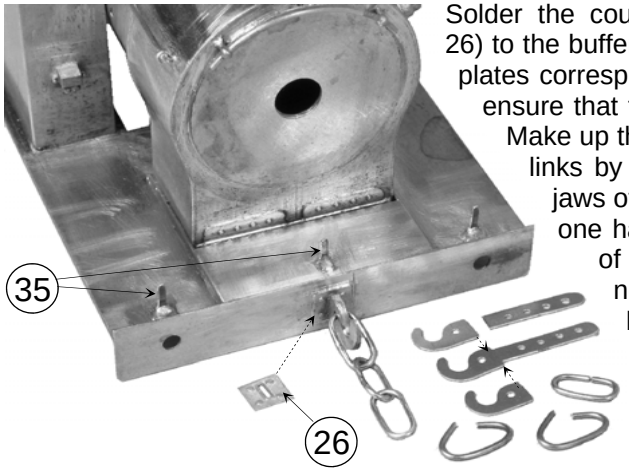
You may wish to drill up the legs of the loco crew and insert with Araldite a peg made from a length of 10BA bolt . Then drill holes in cab floor so that the figures can be threaded through the cab doorways and bolted into place after the loco is painted. Ensure clearance for chassis.

0.9mm wire

Two part backhead. I would recommend painting separately and then fitting into the painted loco by passing through the cab back cutout. Glue with Evo-Stik.



18. Make up and fit the footsteps (parts 25). 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 reinforce with solder. This top fold fits against the back of the valance and will position the steps the correct distance inboard. To add extra strength I also solder (quickly using 145° solder so that the treads don't fall off) lengths of 0.7mm brass wire to the rear of the back plates.



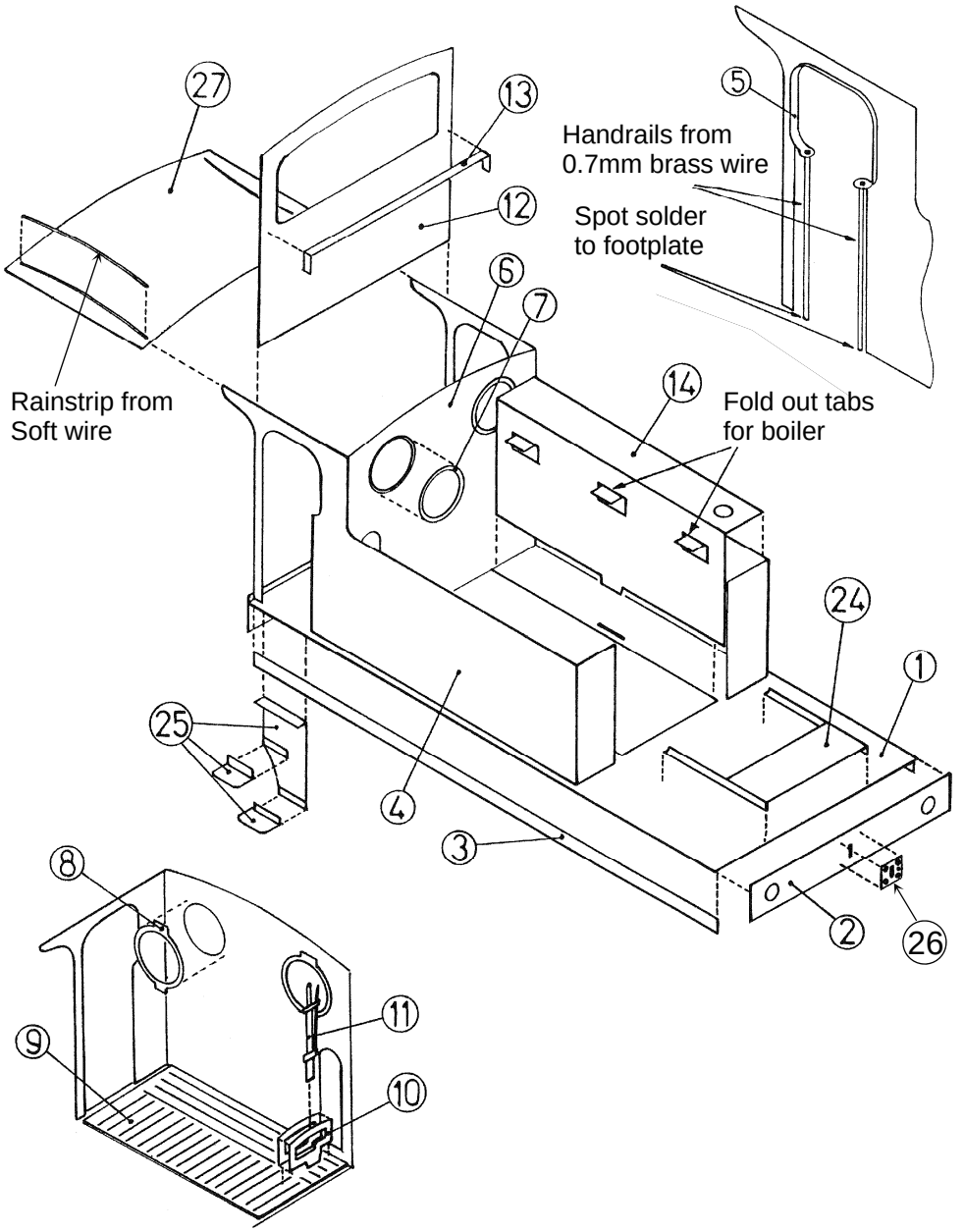
Solder the coupling reinforcing plates (parts 26) to the buffer beams so that the slots in the plates correspond with the coupling slots but ensure that the slots remain free of solder. Make up the coupling links. I close up the links by holding the curved end in the jaws of a pair of round-nosed pliers 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.

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.

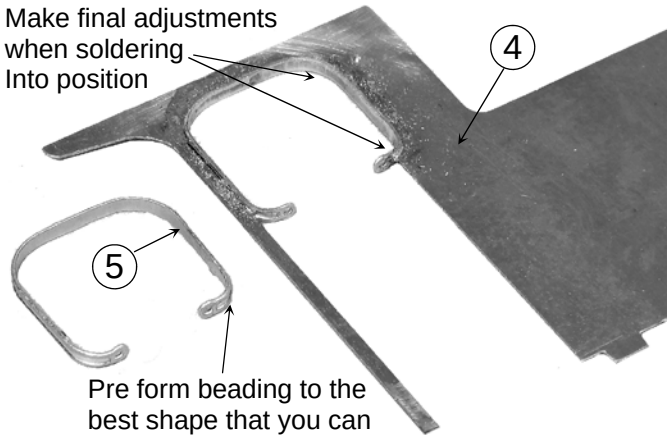
A single thickness hook will be very serviceable but I have proved some spare hooks and if you wish laminate three together and file to better represent the compound curved and shaped cross section of a prototype hook. Cut the tails off the extra hooks first as you will only get a single metal thickness through the slot.

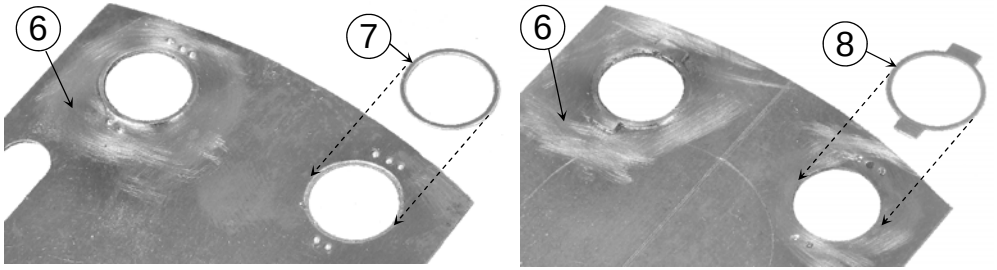
LNER Class Y7 Main Body Assembly

Parts are numbered in a logical assembly order. The slots and tabs are provided to give a rough guide to positioning and to help hold the components in place while soldering. They do not form totally accurate locations.



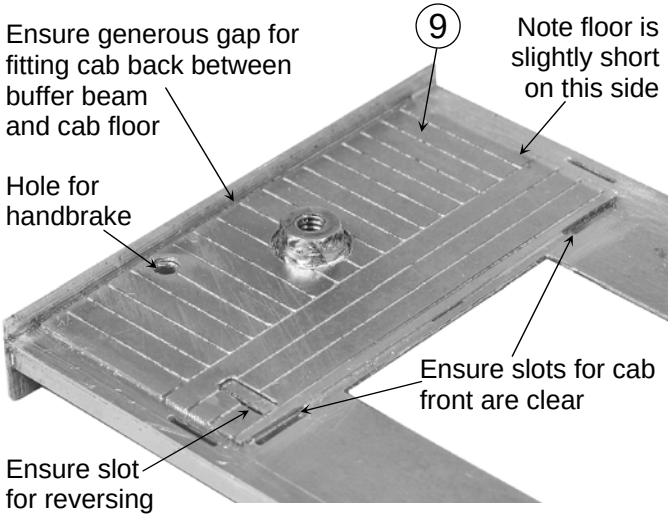
3. Pre form and then solder a length of beading (parts 5) around the cab openings. You will notice that there are three sets of beading and this is because I can never determine the exact length required until I test build the first sample model so I try three slightly different lengths. I find that the medium length fits the best.





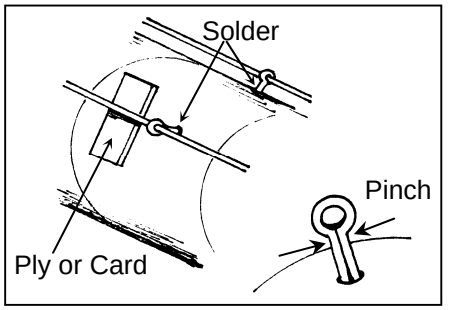
4. Emboss the bolt heads from the rear face and then fit the spectacle rings (parts 7) into the rebates in the cab front (part 6) Then solder the inner spectacle rings (parts 8) onto the rear face so that they cover the bolt holes.

5. The cab floor (part 9) can be fitted after soldering fixing nuts to footplate. I was a fair bit out with some of my dimensions on this component. Centre the clearance hole over the nut and ensure the floor sits flat (neat solder required around nut). Align holes for handbrake column and that's as good as you are going to get. Achieve all other clearances by filing the floor.



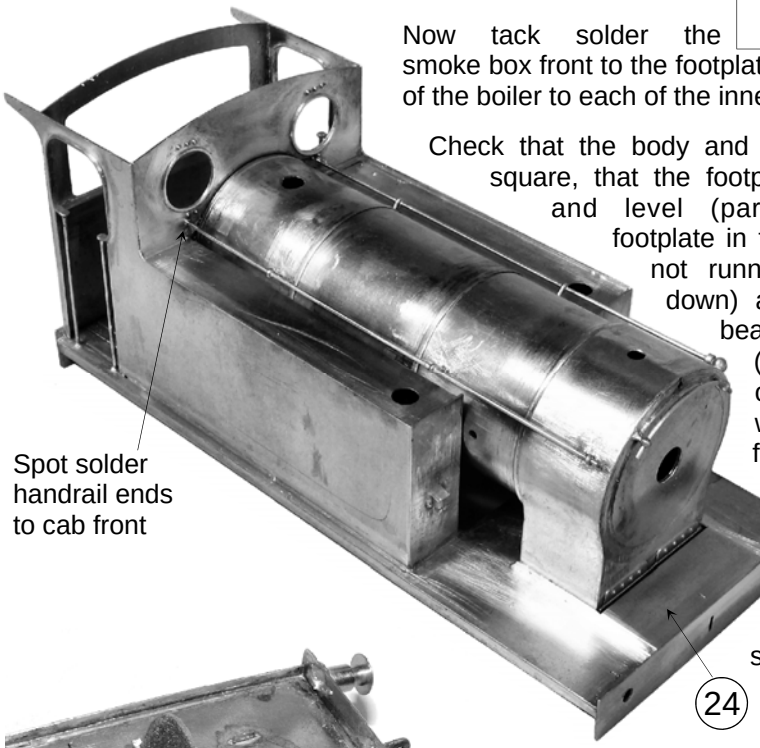
lever is clear. Widen cut out in floor with sharp knife point if required

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.



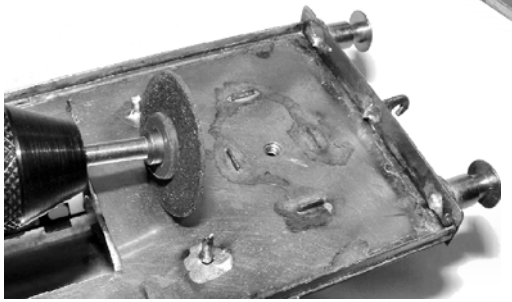
I close up the eye of the split pin to be a lose fit around the wire before fitting into the hole in the boiler and use a piece of card to space the handrail evenly away from the boiler. For the curved smoke box front handrail I find it helpful to anneal the wire in a cigarette lighter flame and then 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.

Now tack solder the smoke box front to the footplate and the underside of the boiler to each of the inner tanks.



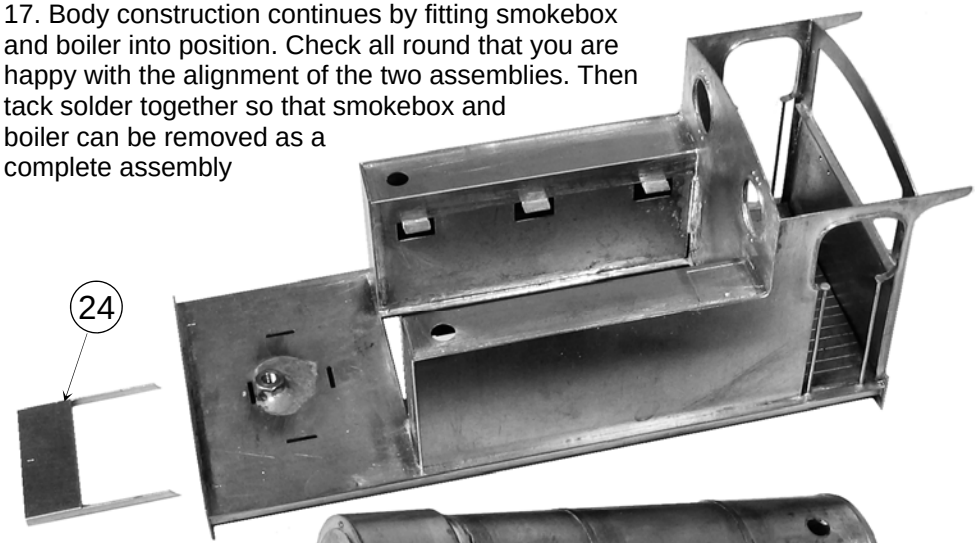
Check that the body and tank sides are still square, that the footplate is still straight and level (particularly that the footplate in front of the tanks is not running up or dipping down) and that the buffer beams are not twisted (body does not rock on the buffer beams when placed on a flat surface).

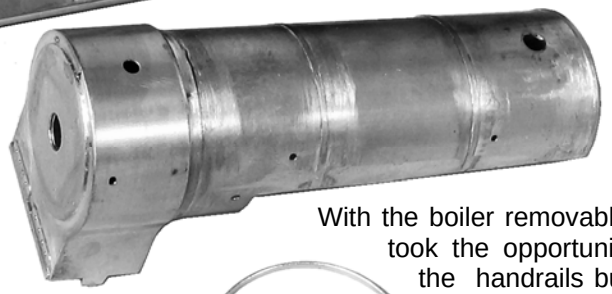
When happy solder the joints solid. Then fit the raised footplate section (part 24).



As construction progresses I would recommend trimming any projecting tabs flush so that the body will still sit flat on a block of wood. A grinding disc in your minidrill is ideal for this operation.

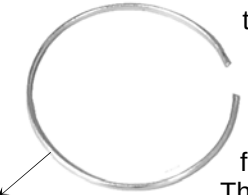
17. Body construction continues by fitting smokebox and boiler into position. Check all round that you are happy with the alignment of the two assemblies. Then tack solder together so that smokebox and boiler can be removed as a complete assembly





I suggest using half round brass wire to represent the radiused joint ring between boiler and smokebox. Working around a length of tube form wire into ring. Then dress one side with a flat file to reduce the half round towards quarter round.

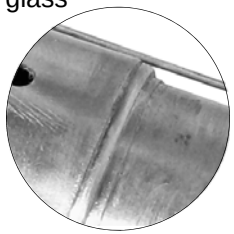
With the boiler removable I also took the opportunity to fit the handrails but these can be fitted later in construction if desired.



Handrails are made from 0.7mm brass wire. The position of the supports are marked on the boiler and smokebox.

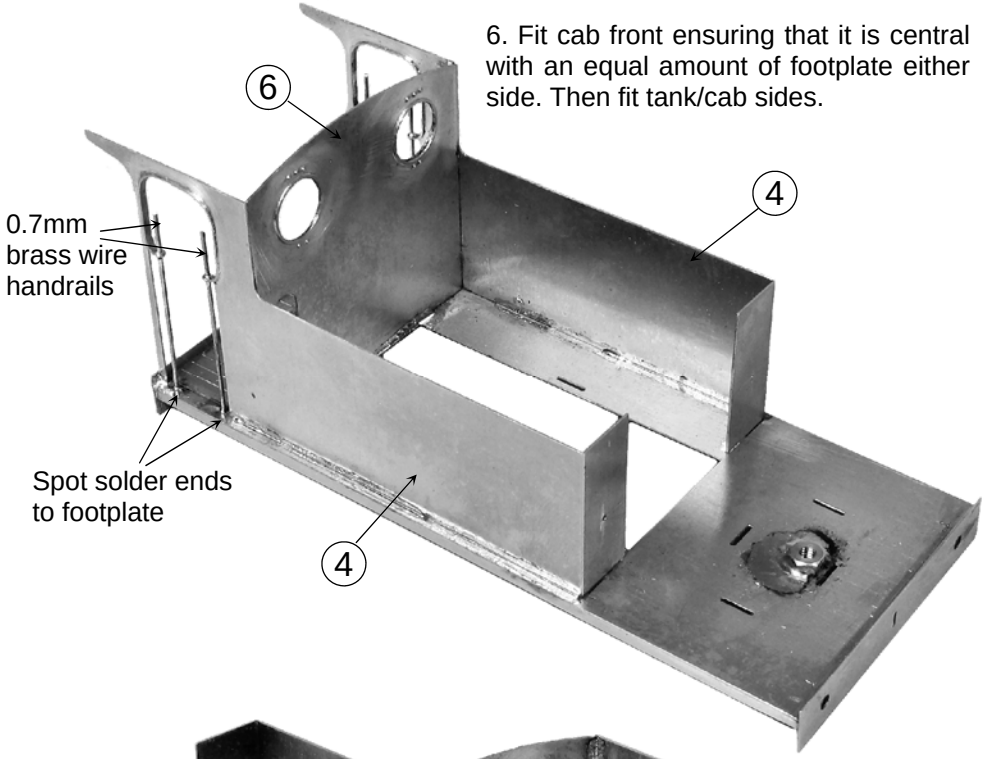
Then starting at the underside boiler joint solder joint ring around the circumference.

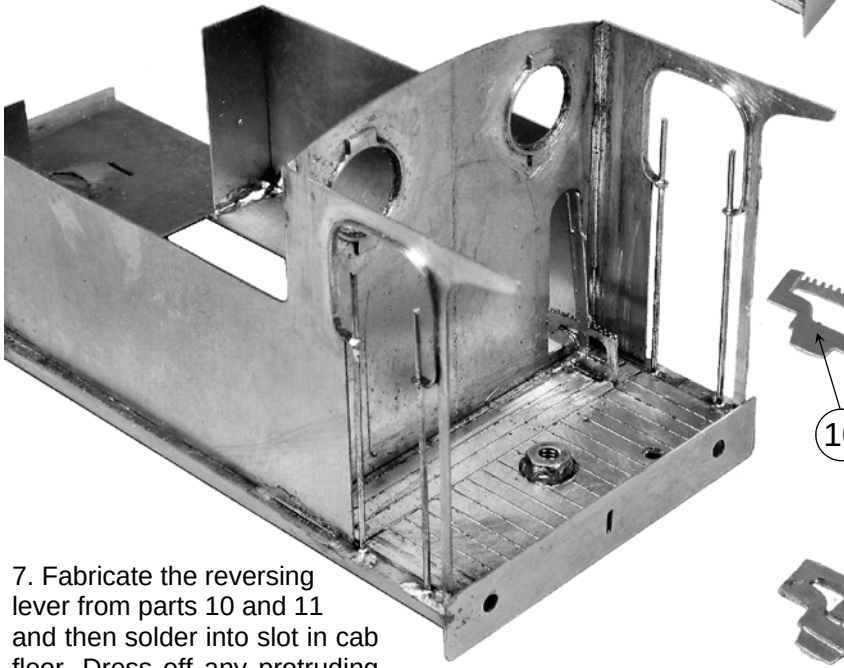
Use plenty of flux so that the solder is drawn in to fill the gaps. Then burnish the joints with a fibre glass brush to blend everything in.

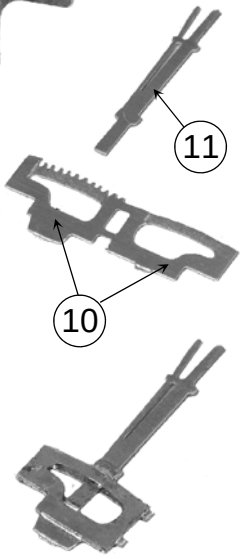


The L/H boiler handrail terminates in a cast blower valve. Drill a hole about 0.8mm diameter into casting to provide a firm fixing for the handrail wire before fitting the casting. Cut rear of handrails flush with boiler end to fit against cab front.

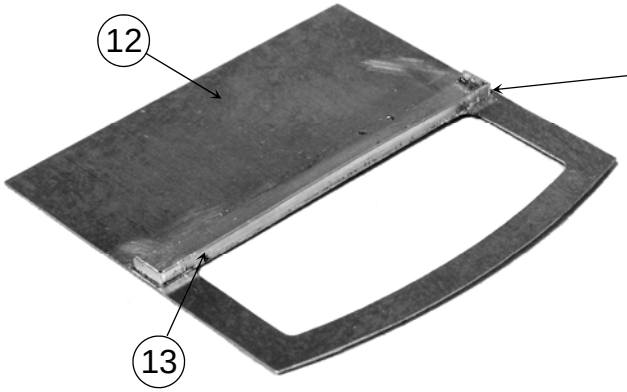
6. Fit cab front ensuring that it is central with an equal amount of footplate either side. Then fit tank/cab sides.



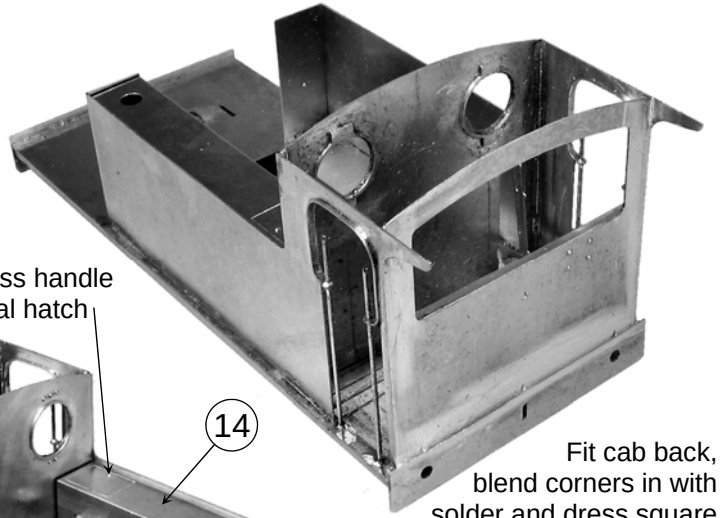




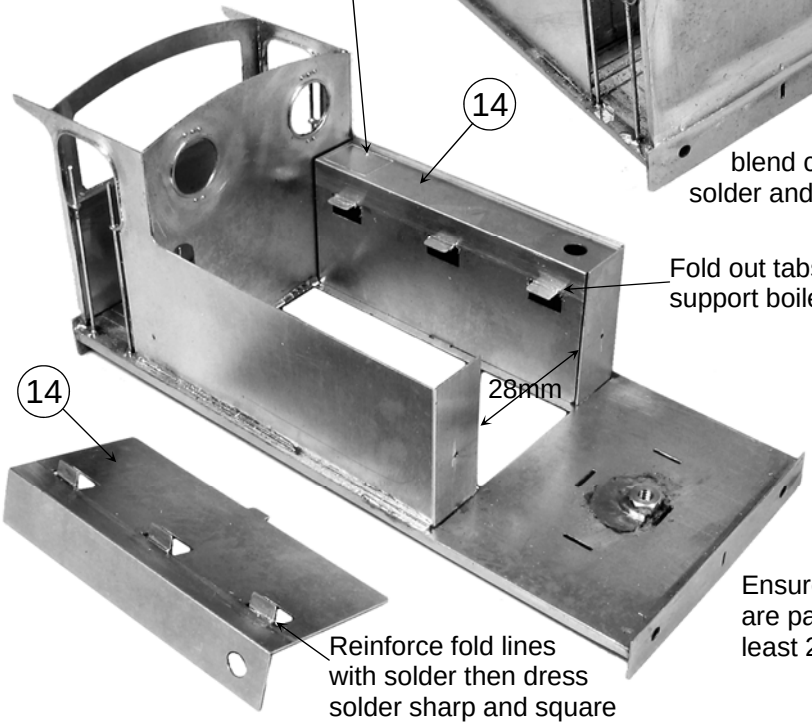
7. Fabricate the reversing lever from parts 10 and 11 and then solder into slot in cab floor. Dress off any protruding tabs on underside of floor.



8. Fold ends of strip through 90°. This is to help you solder the strip at right angles to the cab back. Once this strip is soldered solid remove the folded ends.

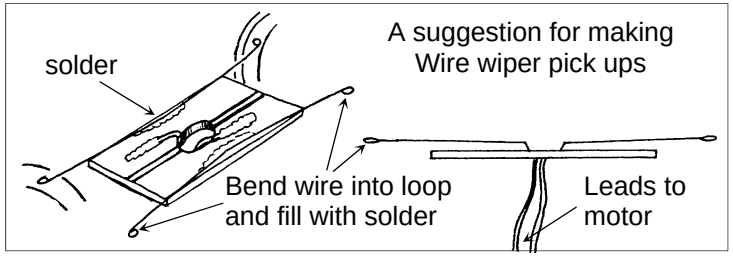


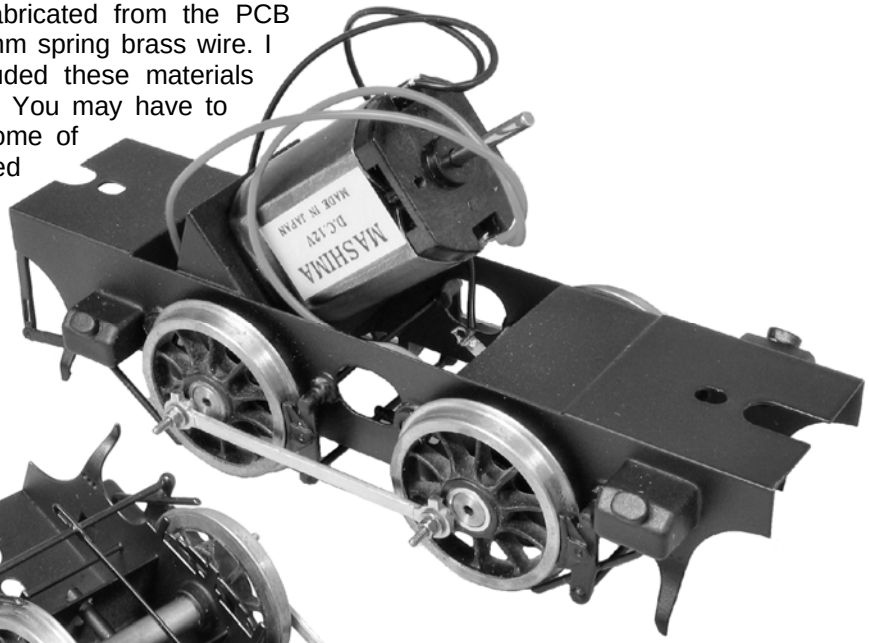
Fit cab back, blend corners in with solder and dress square

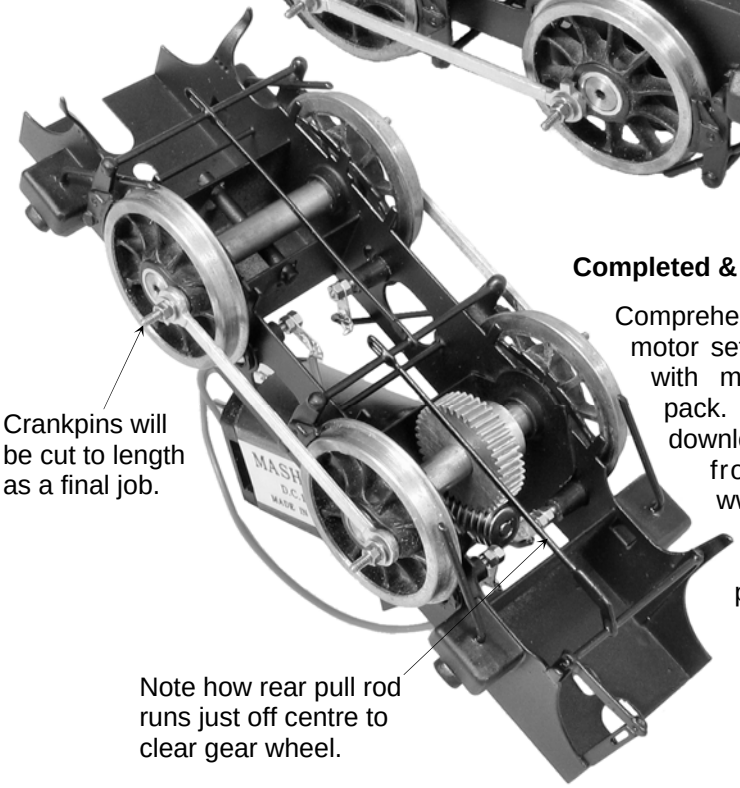


Ensure inner tanks are parallel and at least 28mm apart

I would now strip down and paint the chassis. During reassembly I would fit the Slater's plunger pickups and wiring. An alternative is to fit wire wiper pickups fabricated from the PCB and 0.45mm spring brass wire. I have included these materials in the kit.. You may have to remove some of the etched spring detail for the wire wipers to touch the wheels.



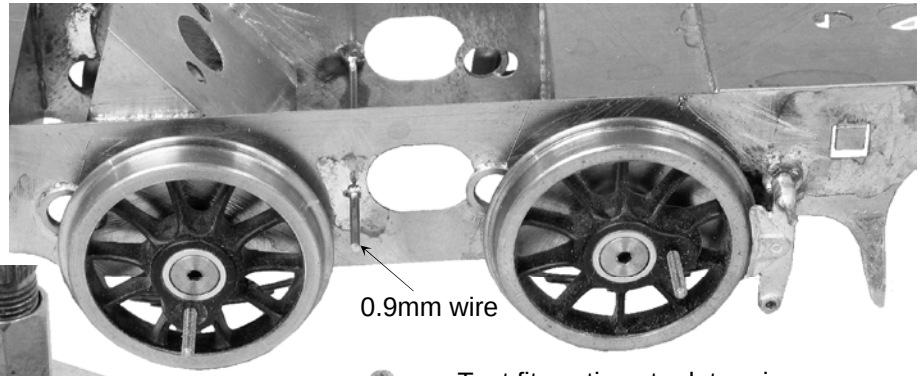


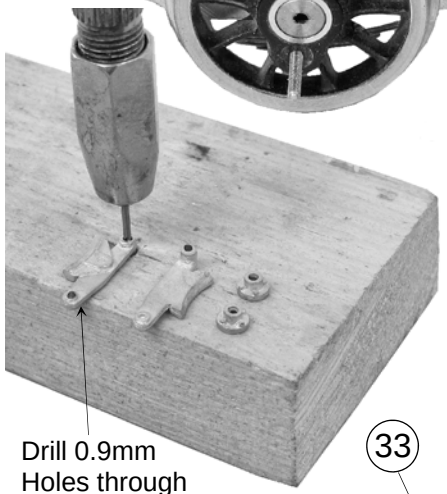


Completed & Painted Chassis

Comprehensive instructions for motor set-up etc are included with my motor & gearset pack. Also these can be downloaded free of charge from my website www.jimmcgeown.com or send a SAE and I will be pleased to provide them.

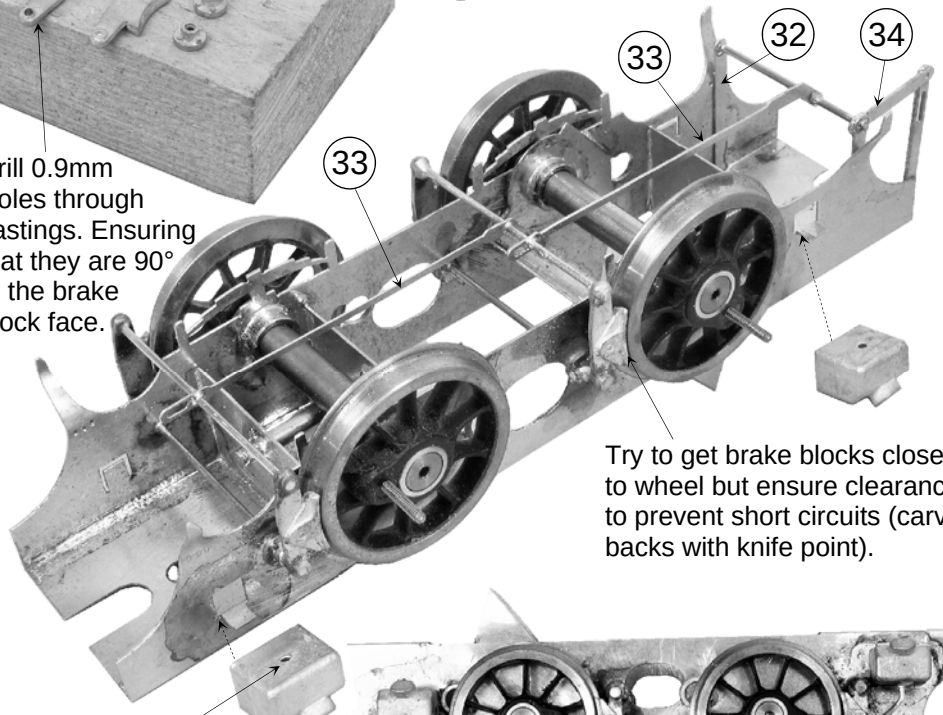
16.





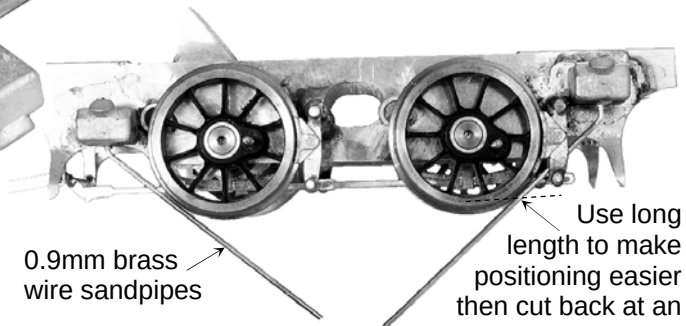
Test fit castings to determine adjustments required. Then file top of hanger to line up brake block with front of wheel tyre. With sharp knife point carve brake block to clear wheel tread.

Drill 0.9mm Holes through castings. Ensuring that they are 90° to the brake block face.



Try to get brake blocks close to wheel but ensure clearance to prevent short circuits (carve backs with knife point).

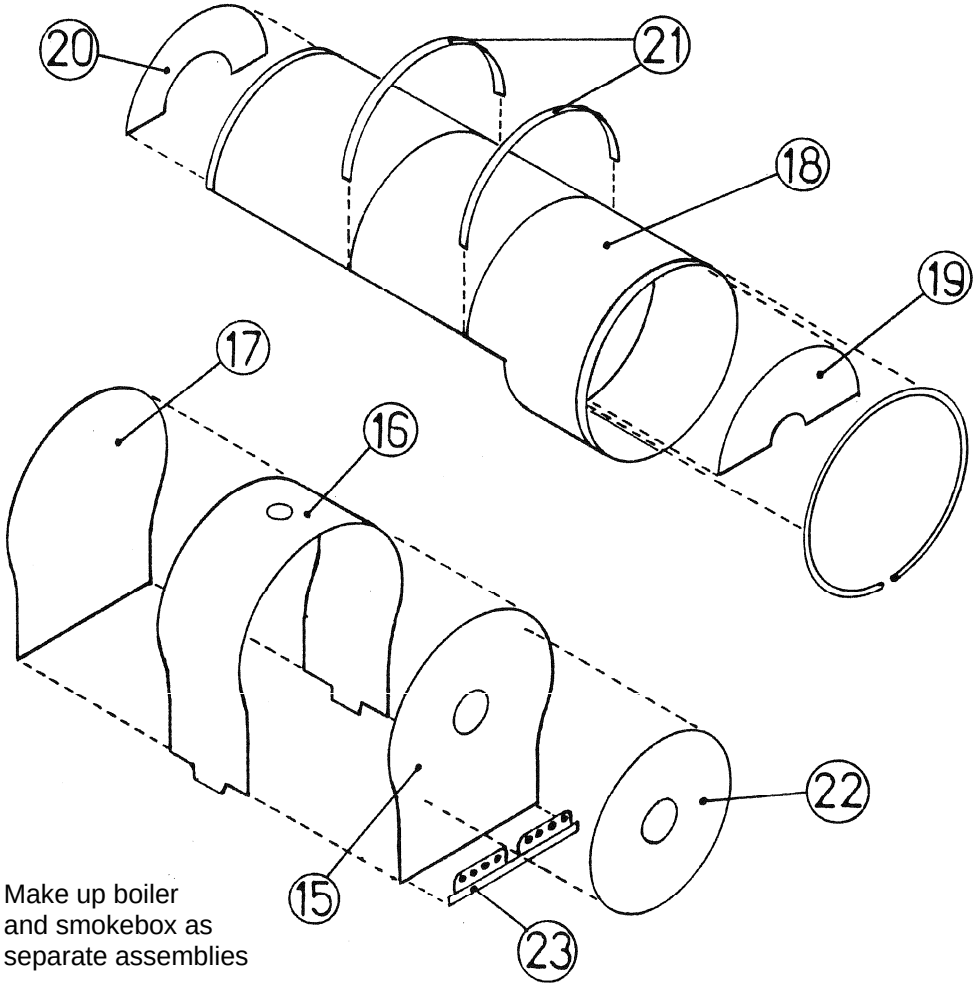
Drill 0.9mm hole for sandpipe before fitting to chassis. Locate over fold out tags.



0.9mm brass wire sandpipes

Use long length to make positioning easier then cut back at an angle to clear rail tops.

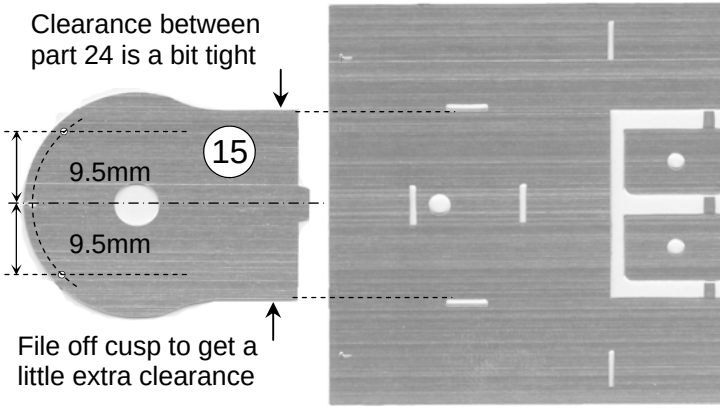
LNER Class Y7 Boiler & Smokebox Assembly Drawing



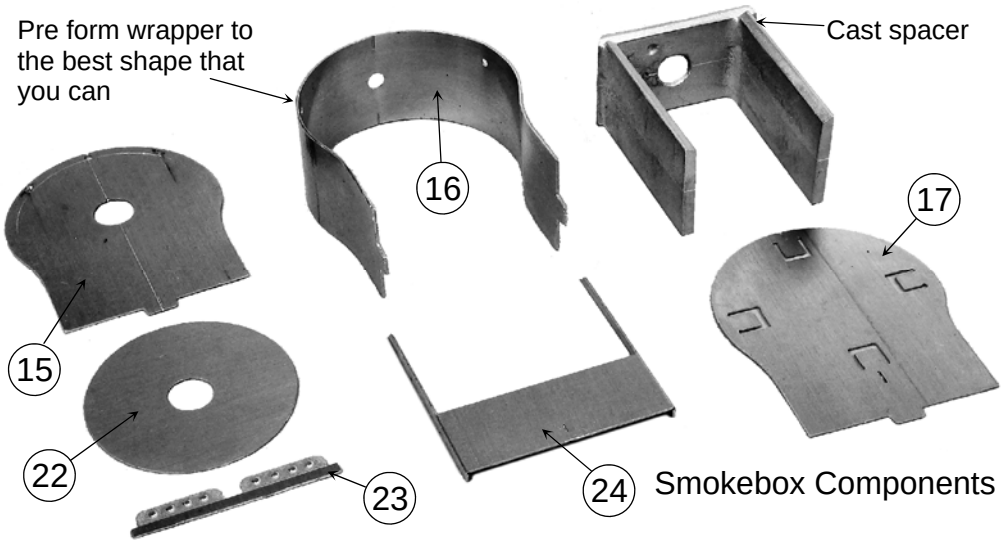
Make up boiler and smokebox as separate assemblies

Some locos had a continues handrail with a central support and a hole is etched for this. Most locos had a separate smokebox handrail with two supports. I would suggest drilling two new holes and fitting separate handrails. It is easier!

Clearance between part 24 is a bit tight

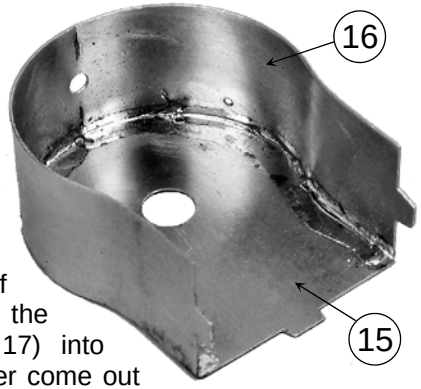


File off cusp to get a little extra clearance

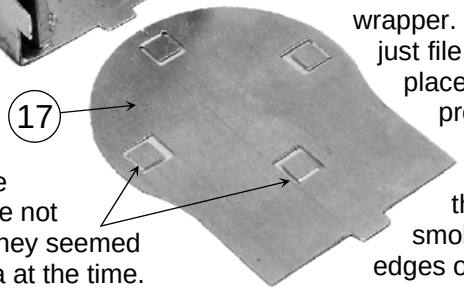


Smokebox Components

9. Secure the smoke box front (part 15) to a block of wood using drawing pins and solder the wrapper (part 16) around the edges 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.

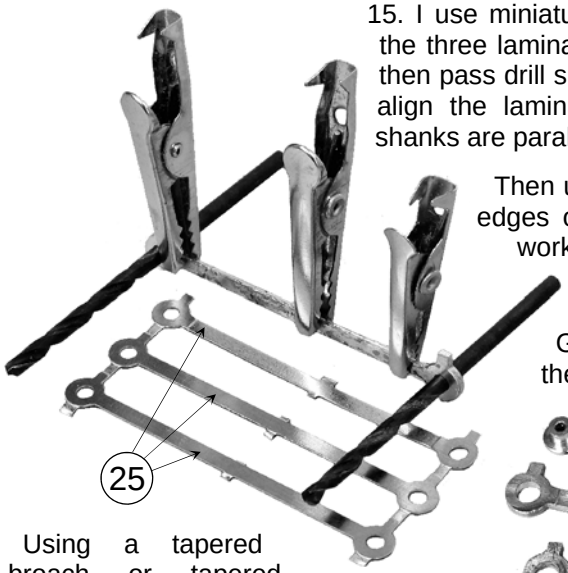


I have provided a cast spacer to fit inside the smoke box and come within a metal thickness of the edge to provide a support as you solder the smoke box back (part 17) into place. As castings never come out an exact size I have made it slightly thicker than required so that it can be filed down with 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 13.5mm 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.



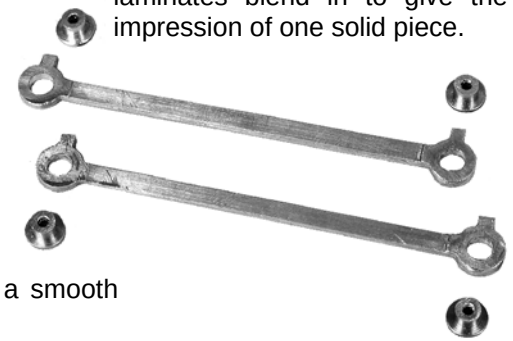
Ignore these tabs they are not required. They seemed a good idea at the time.

15. I use miniature electrical crocodile clips to hold the three laminates of the coupling rods together. I then pass drill shanks through the crankpin holes to align the laminates. Check by eye that the drill shanks are parallel and square to the rod.



Then using plenty of flux, solder along the edges of the rod. Start in the centre and work out towards each crankpin hole.

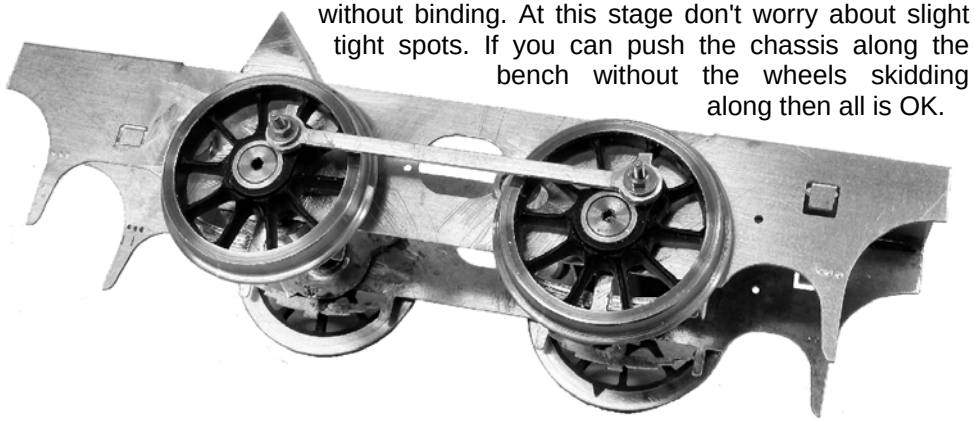
Gently clean up the rods and file all the edges so that the cusps of the laminates blend in to give the impression of one solid piece.



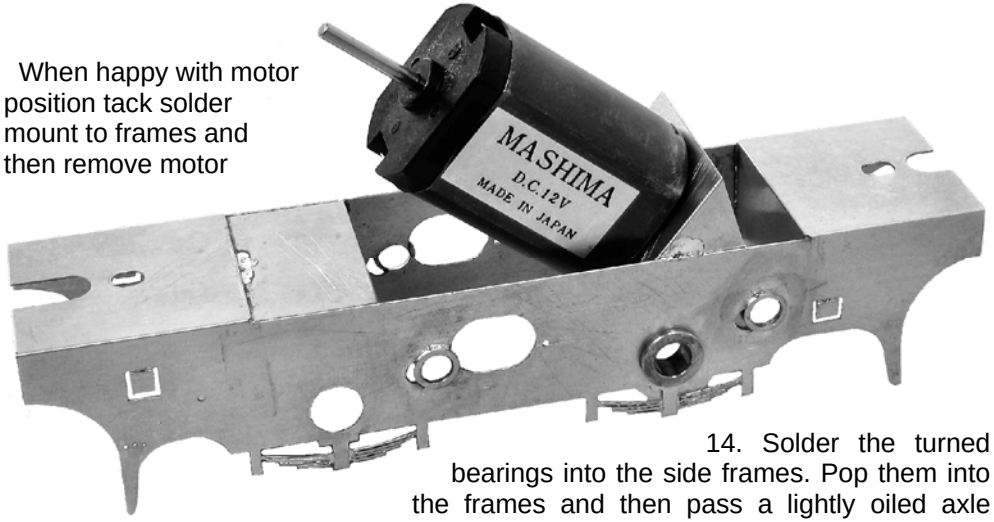
Using a tapered broach or tapered engineers reamer open out the crankpin holes in the rods to accept the brass top hat bearing bushes. Gently work from both sides of the rod until the bush is a smooth free fit into the hole.

I recommend reducing the length of the bushes 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.

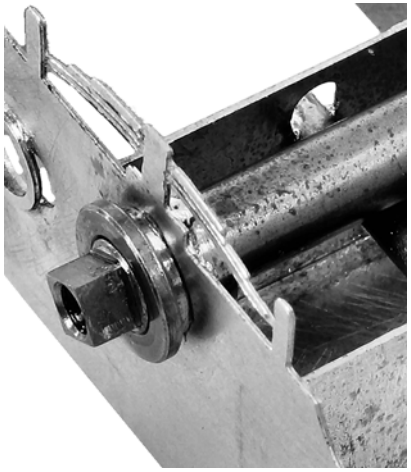
Now fit the bushes onto the crankpin screws and fit the coupling rods. Gently locking them into place with the washers and nuts. Check that the wheels will turn without binding. At this stage don't worry about slight tight spots. If you can push the chassis along the bench without the wheels skidding along then all is OK.



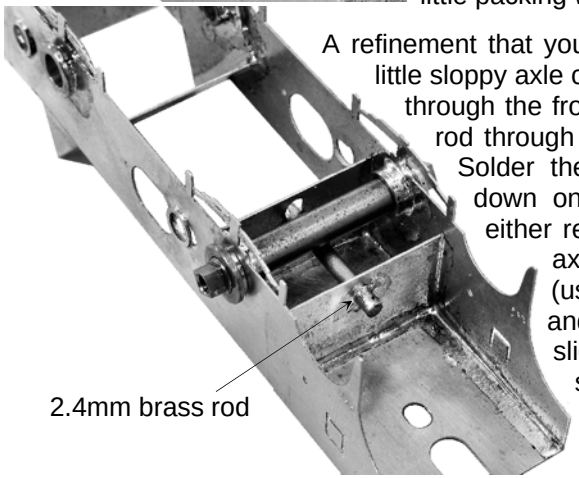
When happy with motor position tack solder mount to frames and then remove motor



14. Solder the turned bearings into the side frames. Pop them into the frames and then pass a lightly oiled axle through them to ensure that they are both correctly aligned. The chassis is 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 wheel 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.

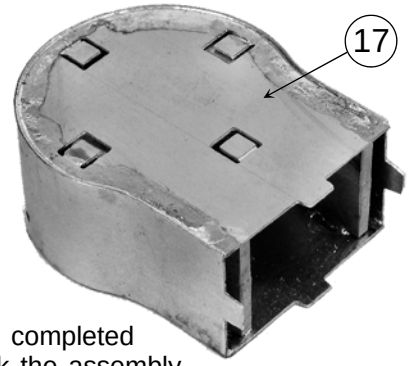


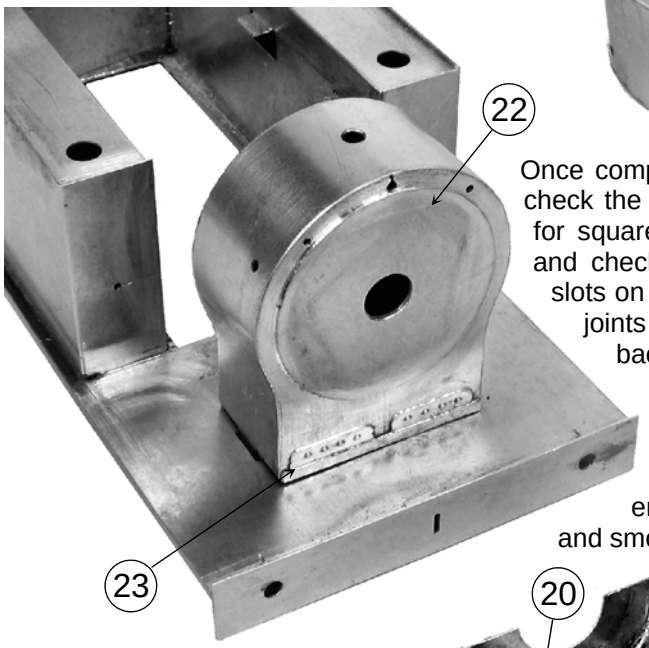
Check that you are happy with the assembly and that it is not twisted. Then solder solid all joints and fold lines. Solder the motor mount in as many places as possible. If there is a slight gap between mount and frame it may require a little packing with scrap etch strip.



A refinement that you may wish to try is to introduce a little sloppy axle compensation. With an axle passing through the front bearings 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.

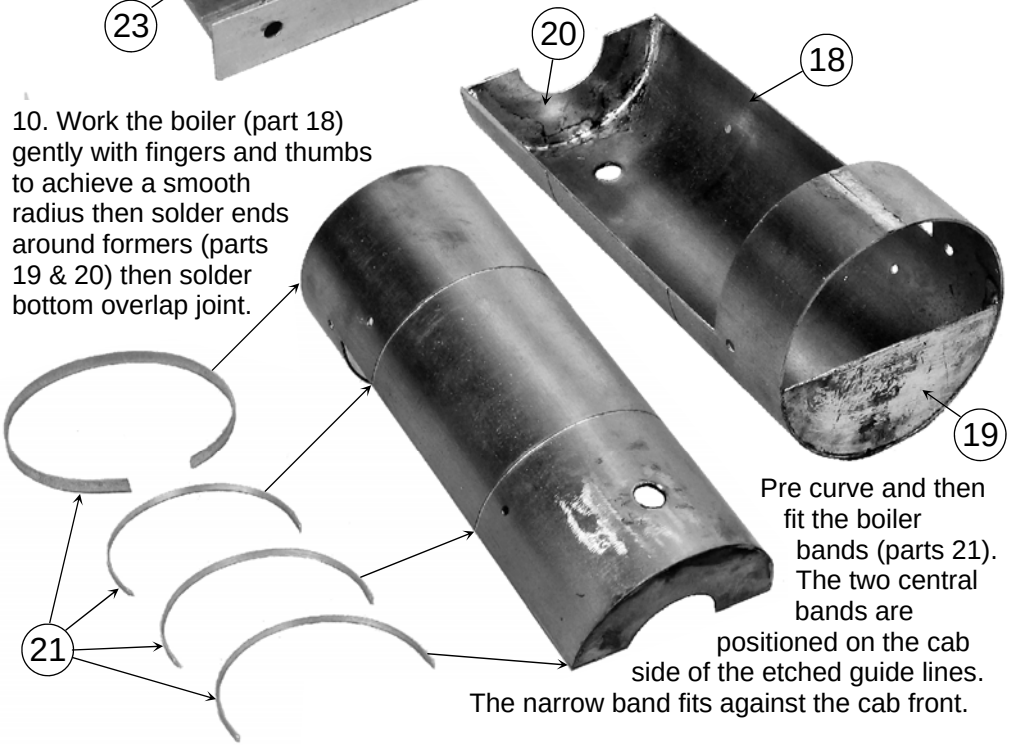
Once happy with the spacer solder it into place. Then fit the smoke box back (part 17) again positioning the top at the etched centre marks. Work from the top around each side soldering on the outside face.





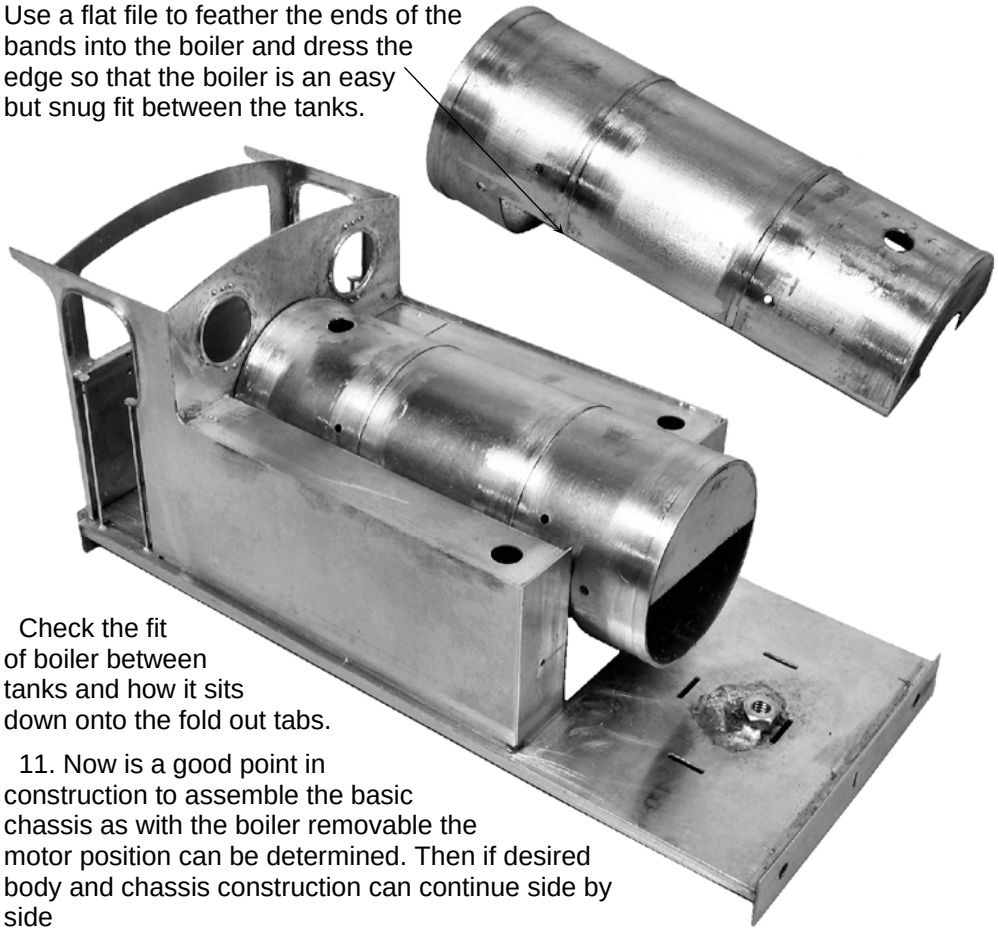
Once completed check the assembly for square (particularly at the bottom) and check that it will fit into the four slots on the footplate. Then dress the joints to blend into the front and back face and form a slight radius to the edge. Any slight creases in the wrapper can be smoothed out using a flat file. Then fit the cylinder end detail overlay (part 23) and smoke box door ring (part 22).

10. Work the boiler (part 18) gently with fingers and thumbs to achieve a smooth radius then solder ends around formers (parts 19 & 20) then solder bottom overlap joint.



Pre curve and then fit the boiler bands (parts 21). The two central bands are positioned on the cab side of the etched guide lines. The narrow band fits against the cab front.

Use a flat file to feather the ends of the bands into the boiler and dress the edge so that the boiler is an easy but snug fit between the tanks.



Check the fit of boiler between tanks and how it sits down onto the fold out tabs.

11. Now is a good point in construction to assemble the basic chassis as with the boiler removable the motor position can be determined. Then if desired body and chassis construction can continue side by side

When the kit was originally developed in 1988 the only suitable small diameter wheels available were from the turned cast iron ranges. Slater's range was only just being developed and contained only a few diameters. Cast iron wheels were the excepted first choice and the Y7 chassis was designed for these.

Cast iron wheel backs have a wide flat rim ideal for plunger pickups and good practice was to position the pickup centre inwards so that the edge of the wheel flange covered and obscured the pickups plastic housing.

This is the opposite to Slater's wheel backs as these have part of the rim as a plastic moulding and more significantly a V shaped notch projects further into the metal of the rim. This can reduce the effective pick up area to as little as 1mm from the flange edge.

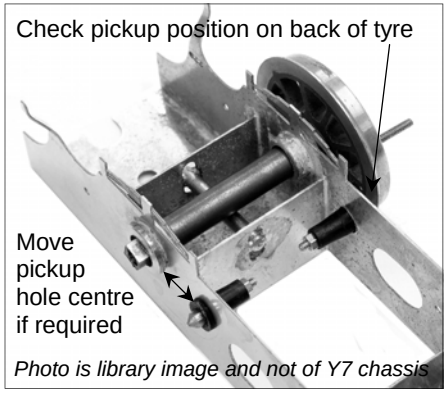
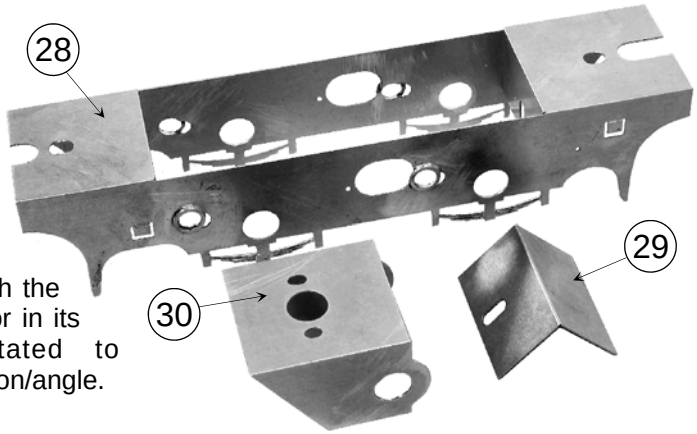
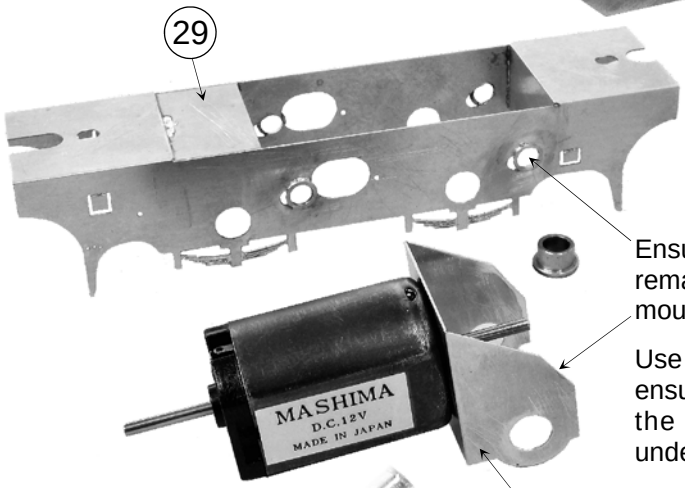


Photo is library image and not of Y7 chassis

13. Fold chassis and spacers through 90° then fit spacer part 29.

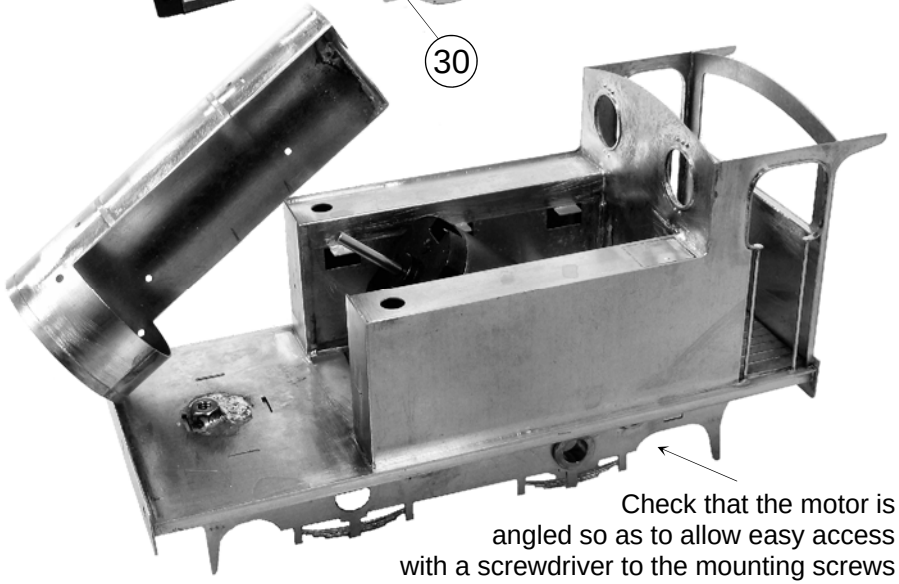
Temporarily fit motor to mount and locate between the frames by slipping two bearings loosely through the holes. So that the motor in its mount can be rotated to determine its best position/angle.





Ensure that pickup holes remain clear. Shape motor mount to achieve this.

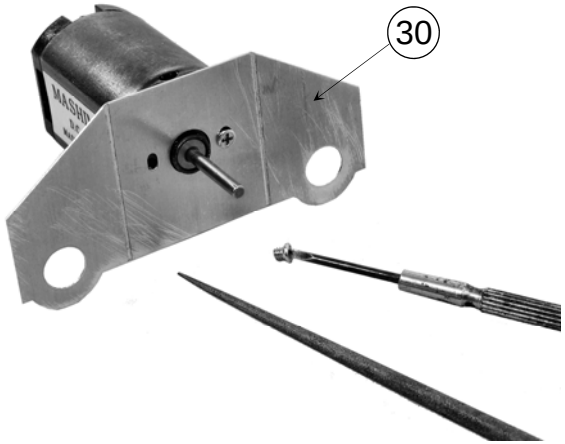
Use body and boiler to ensure that the back end of the motor clears the underside of the boiler.

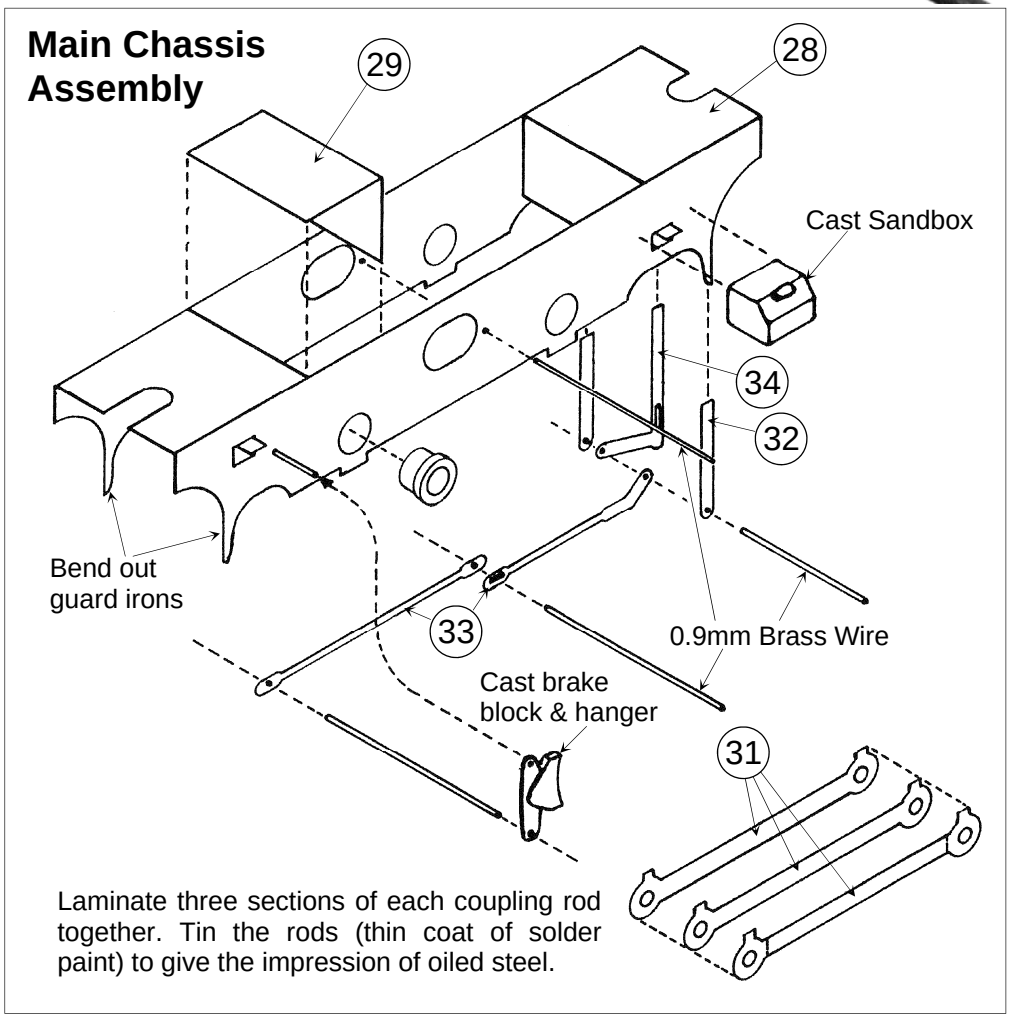


Check that the motor is angled so as to allow easy access with a screwdriver to the mounting screws

12. Before folding motor mount I would recommend checking screws for an easy fit. If required gently open out slotted screw holes with a round file.

Fitting the motor on a constructed model is a bit of a fiddle at the best of times. It really helps confidence if you know with certainty that the holes are spot on. I find a magnetised jewellers screwdriver very useful in handling the screws.





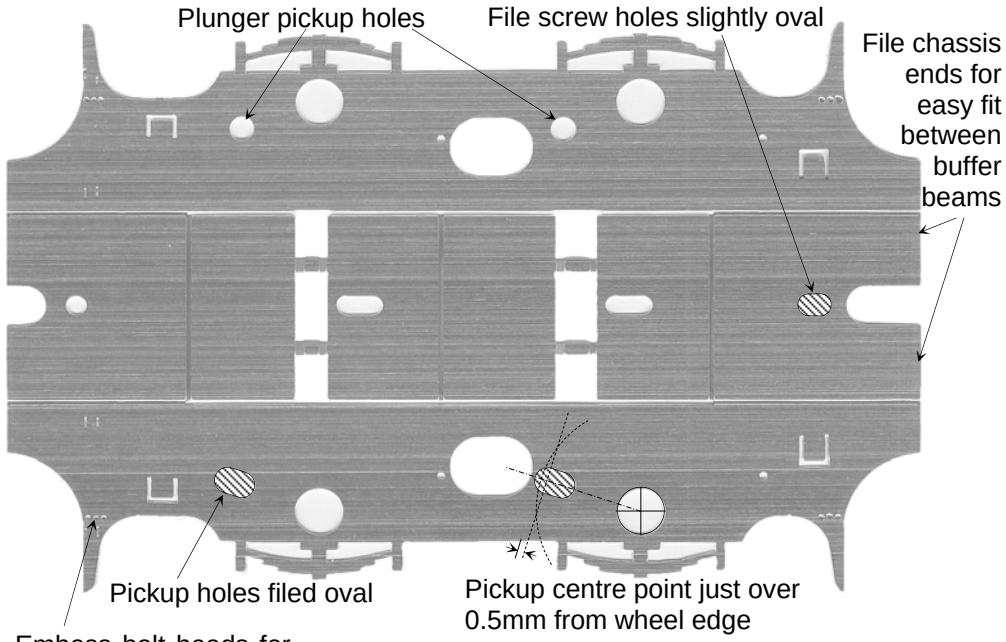
Laminate three sections of each coupling rod together. Tin the rods (thin coat of solder paint) to give the impression of oiled steel.

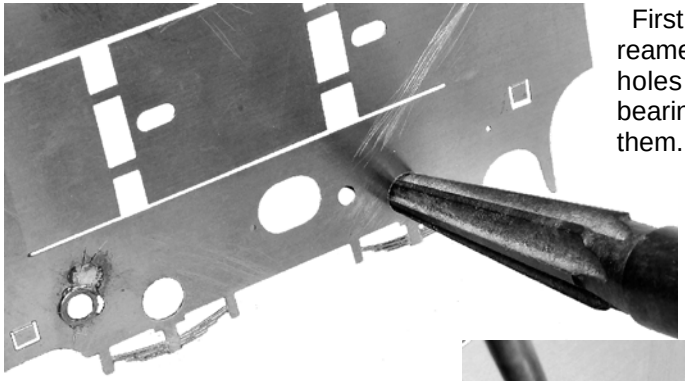
Nowadays Slater's have an extensive range that is the first choice for the majority of modellers and these can be used on the Y7 very successfully after a little modification work on the chassis etch.

When I opened this pack of Slater's 7842W 3'6" diameter wheels in March 2013 I was disappointed to see how big this V notch was (it has always been smaller and neater on previous wheel sets that I have used). So if you have a desire to give cast iron wheels a try to see what you think of them then this may be the model to do it with.

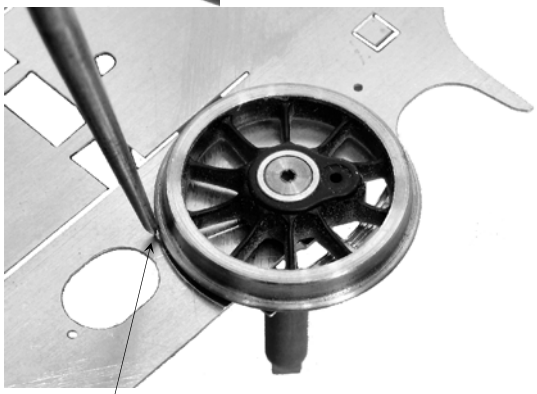
So if you wish to use Slater's wheels and pickups the pickup holes will need moving outwards to provide a centre point just short of the flange edge. Fortunately included with the Slater's pickups is the very components we require to achieve this in the form of etched packing washers.

The original etched pickup holes will be slotted outwards to the new pickup centre points and then the washers soldered over to provide a new circular mounting hole. This is best achieved as a first task with the chassis etch in the flat. First Make up a plunger pickup so that it can be used to help determine and check position. Then fit a single wheel onto an axle.

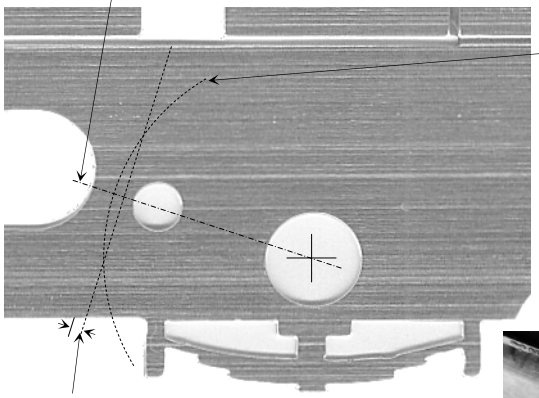




First using your large tapered reamer gently open out the axle holes so that the turned bearings are a good snug fit into them.



Then scribe a projected line from the wheel centre through the original pickup centre point. These scribed guide lines only need to be as accurate as you can manage by eye.

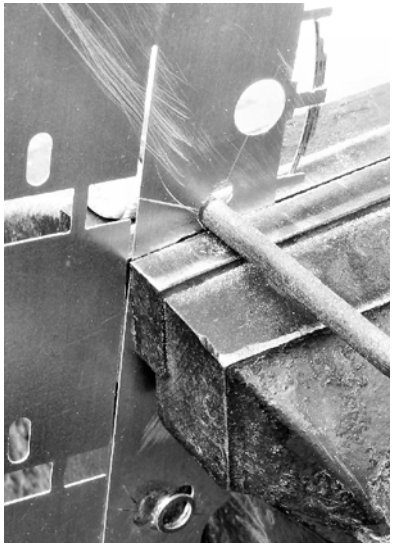


Then using a wheelset with a turned bearing on the axle. Scribe around the wheel edge

Then scribe a line through what will be the new pickup centre point (just over 0.5mm from the wheel edge).

Then using this line, position an etched washer over the new pickup centre (half etched tags are a good guide for the eye).

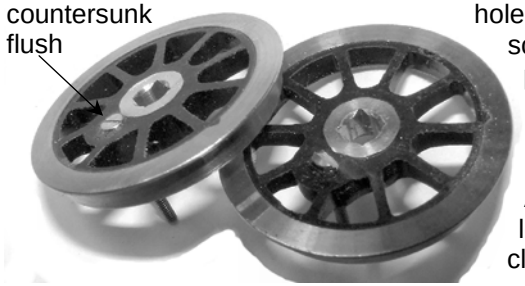
Then with a soft pencil mark the shape of the sloted hole required.



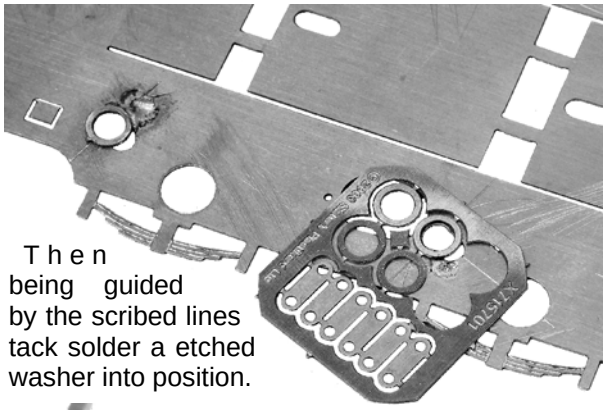
When you are happy that all four holes have been modified with pickup position and operation checked. The pickups can be placed to one side until after the completed chassis has been painted. Then they can be fitted with confidence.

For extra instructions for Slater's plunger pickups I have produced a comprehensive hints and tips help sheet. Also sheets for wheels, motor set-up etc. These can be downloaded free of charge from my website www.jimmcgeown.com or send a SAE and I will be pleased to provide them.

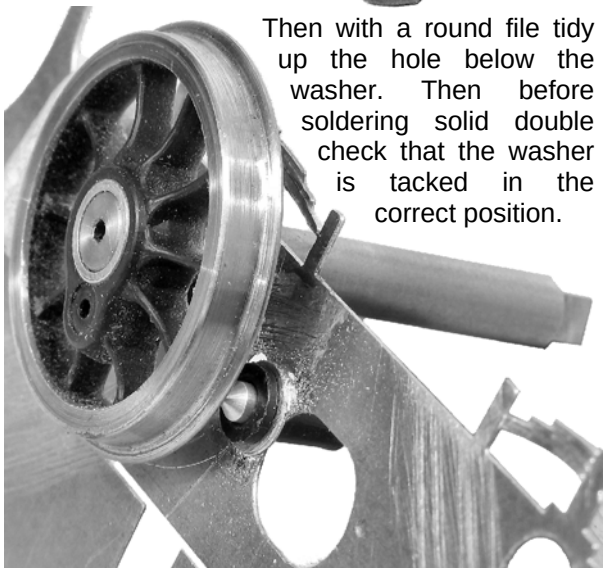
Crankpin screw head countersunk flush



Then clamp firmly in your vice and with a sharp round file slot the hole.



Then being guided by the scribed lines tack solder a etched washer into position.



Then with a round file tidy up the hole below the washer. Then before soldering solid double check that the washer is tacked in the correct position.

Now would also be a good time to fit the crankpins. 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 2.5mm countersink hole to the depth of the screw head. 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. When set rub wheel on emery cloth to clean up. Now construct chassis.