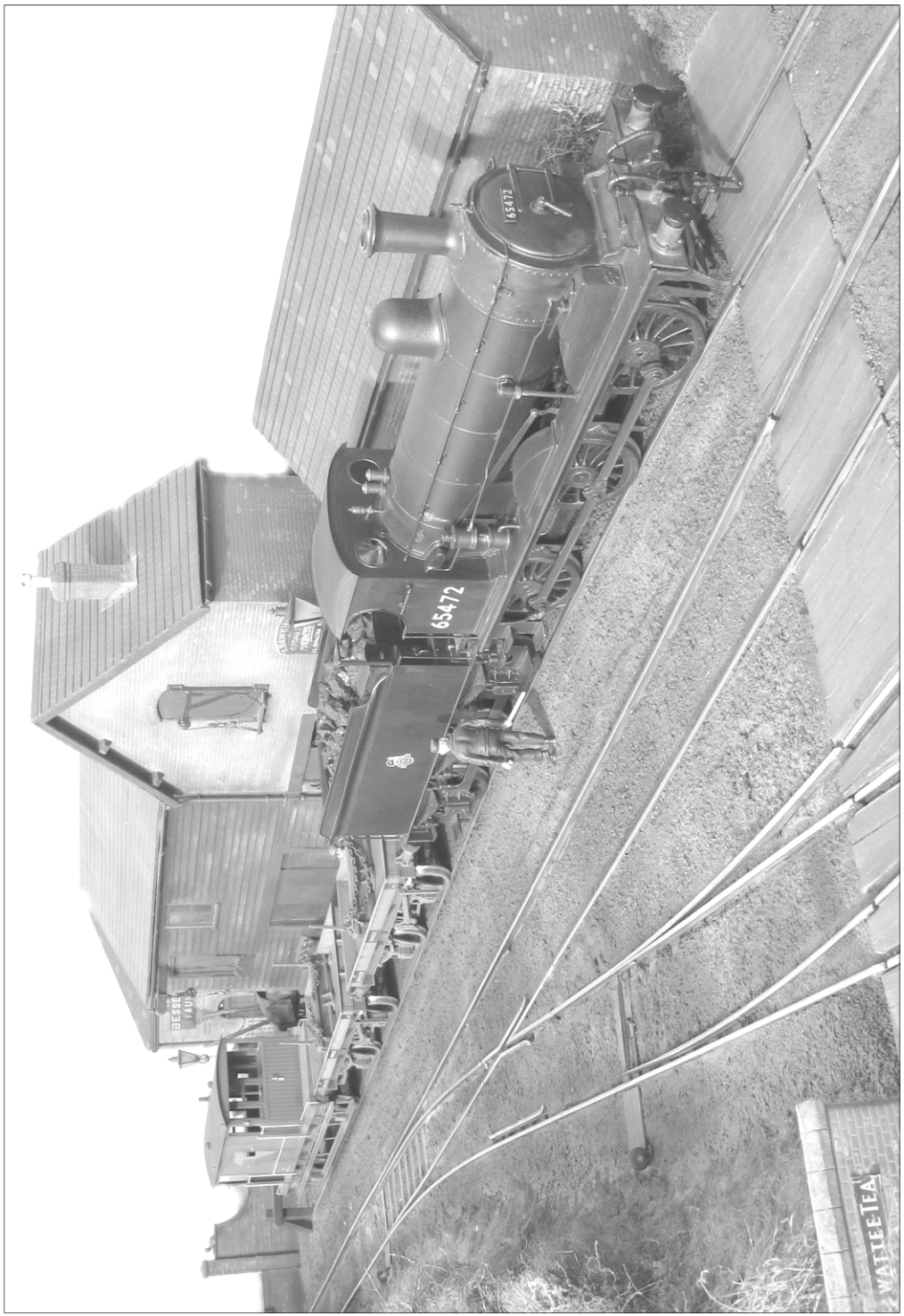
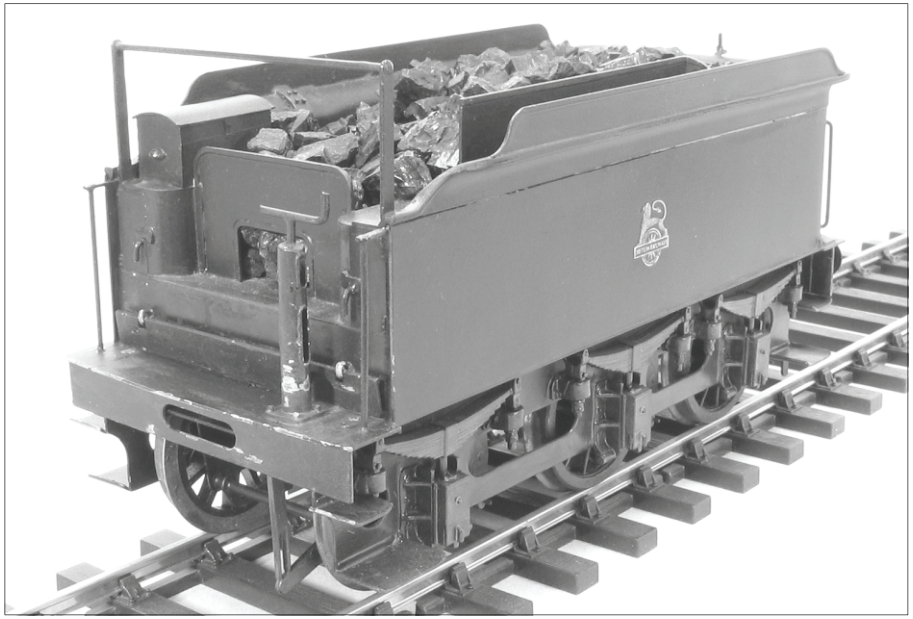


CONNOISSEUR MODELS
LNER CLASS J15
2640 GALLON TENDER



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.

It is not intended to be a state of the art kit, though those who wish to upgrade their model through the substitution of various fitting and by fabricating some of the smaller super detail parts, can lift it into the showcase class with the kit providing an accurate and economical base on which to work.

With these kit instructions I have assumed that you have already built a simple tank loco and are familiar with basic loco kit building skills. The instructions are intended to show clearly when and wear to fit a part but do not deal in depth with construction techniques. If you are a little unsure of your skills I would suggest building the tender first.

Wheels, 3 Sets 4', 10 Spoke (Slater's Cat No 7848GE)
Are Required To Complete

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.

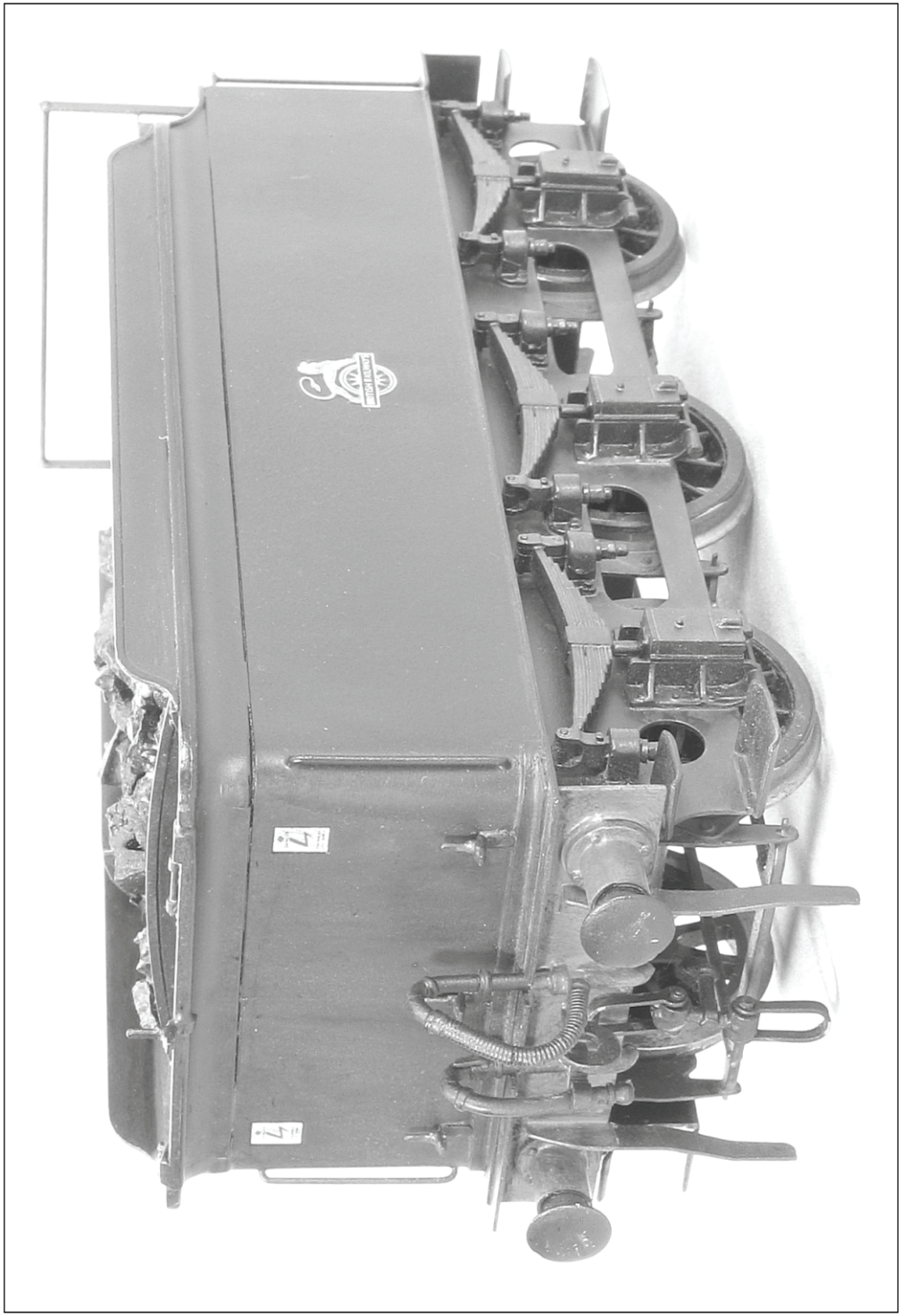
The main skill to master is soldering and I would recommend a Weller 40 Watt soldering iron. This has a 6mm diameter removable copper bit. The bit is shaped like a screwdriver and has a bright coating of solder (tinned). This combination of iron and bit shape is ideal for running fillet joints and has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

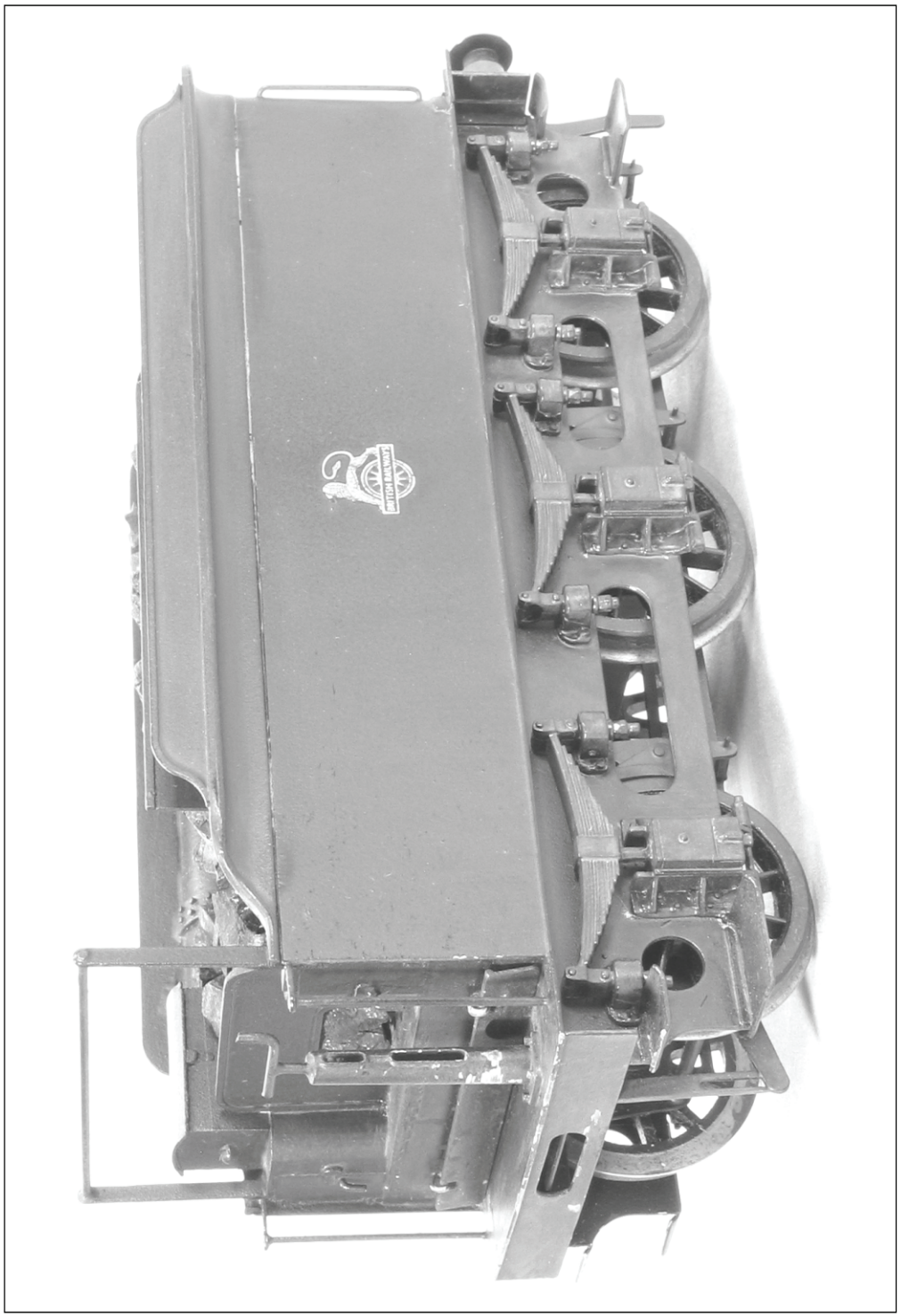
It is important to keep the bit clean and in good condition as you work. Get a soldering iron stand containing a damp sponge as old oxidized solder is wiped off on this before picking up fresh solder for each joint. If you haven't made a joint for some time you may find that a hard black crust has formed 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.

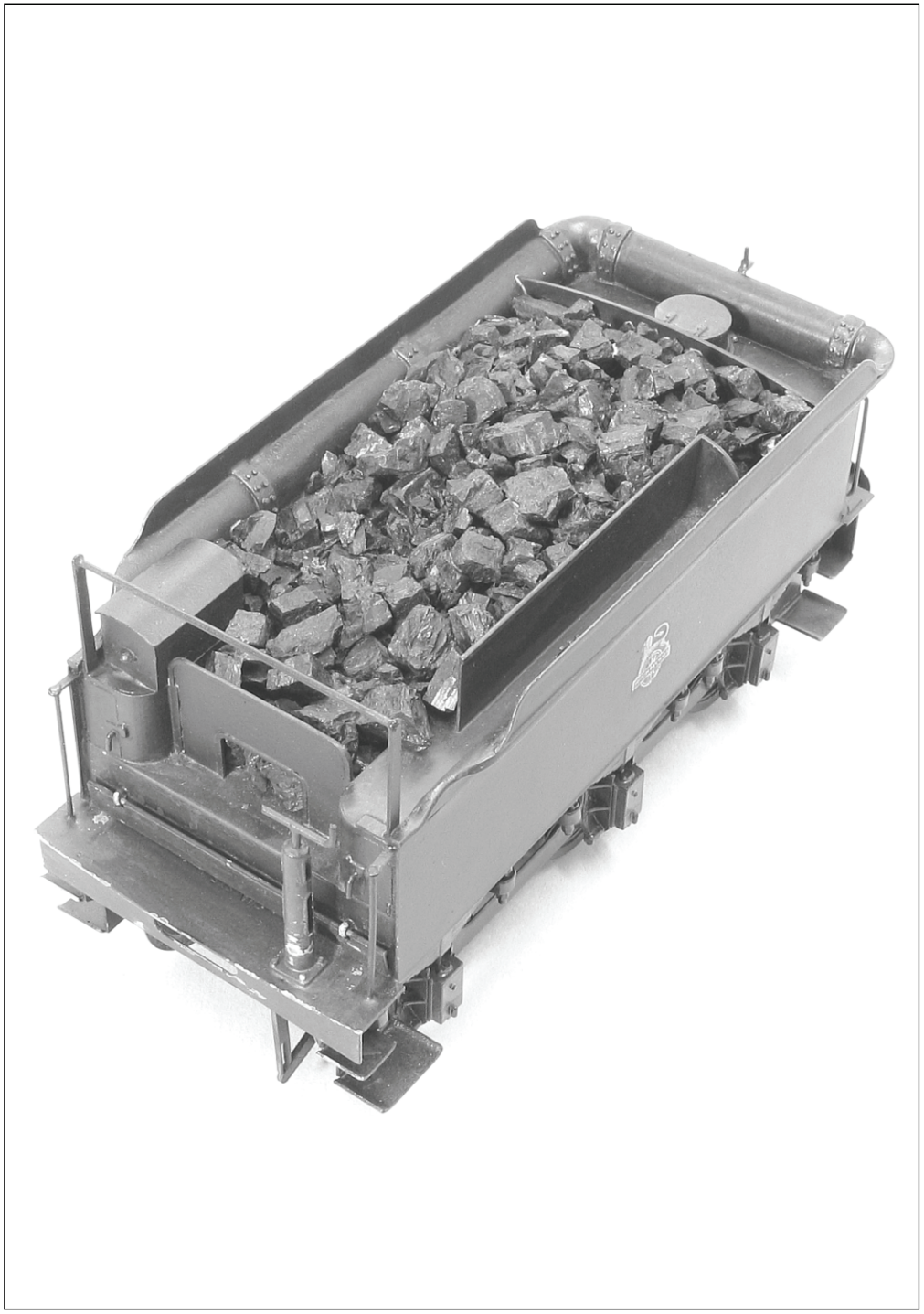
Try to complete all high-temperature soldering before attaching any of the cast whitemetal parts. These can be attached with two-part epoxy resin such as Araldite Rapid. Ensure the surfaces to be glued are clean and free of grease.

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



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 matter how careful you are in building the tender 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.

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.

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

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.

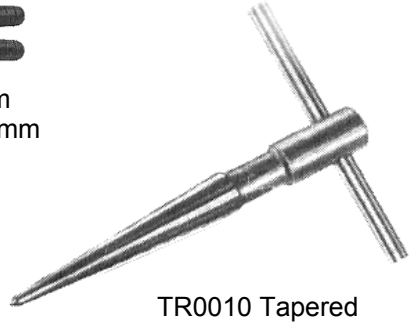
To form shallow curves, splasher tops, smoke box wrappers etc, use a piece of pipe or broom handle. Diameter is not crucial, a piece of one-inch water pipe covers cab roof to smoke box wrapper. Place part over tube and hold in place with finger and thumb of one hand. Work the metal in stages over tube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

TENDER SUPERSTRUCTUR ASSEMBLY

Parts are numbered in a logical assembly order. The slots and tabs don't give accurate location, they are only there to help position parts. Tack solder a part into place then adjust the next part to match. Solder solid only when happy with the assembly. I have tried to mark the etchings and provide location slots so that the positioning of parts is obvious without the need to constantly refer to complex exploded drawings. If you are a little uncertain about the positioning of a component from reading through the instructions don't worry as this should become obvious as construction progresses and most parts if offered up to the assembly will only fit into the correct place.

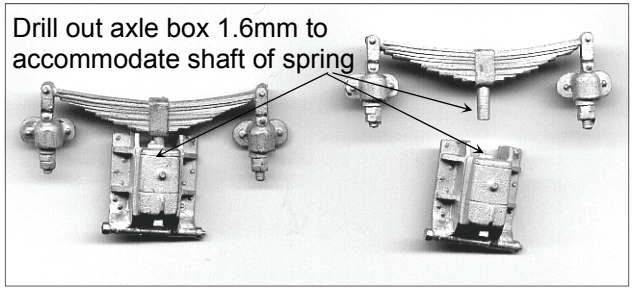
Take the footplate (part 1) and solder two 6BA chassis fixing nuts to the topside. This is best achieved by locking the nuts in place with the screw, remember to put a spot of oil onto the thread to prevent soldering everything solid. Fit the two internal spacers (parts 2 & 3) noting that there are etched guide marks to line up to help you get them centred. Fold up and fit the coal space floor (part 4) again noting the etched centring marks on front slots and tabs. Now check by laying a steel rule along that all the spacers are in line and will not make the tender sides bulge out when fitted.

Take the tender sides/back (part 5) and form the two curved corners. Use the tender top as a guide in forming these curved corners. There are etched bend relieving lines on the inside of the curves so be gentle when you form the curves around a drill shank etc as very little pressure is required. The corner handrail holes are on the centre line of the bend so these will give you a guide of where to start forming the curve. Also note that there is an etched centre mark on the bottom of the tender back to line up with a centre mark on the footplate. Once the corners are formed fit the sides/back to the footplate starting at the back and working down the sides. The sides fit virtually flush with the edge of the footplate.

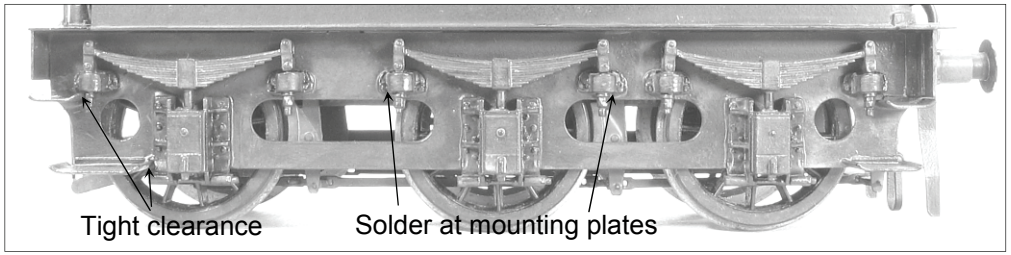
It is a good idea to fit the corner handrails made from 0.7mm brass wire now. As you can solder them from the inside before the tender top is fitted.

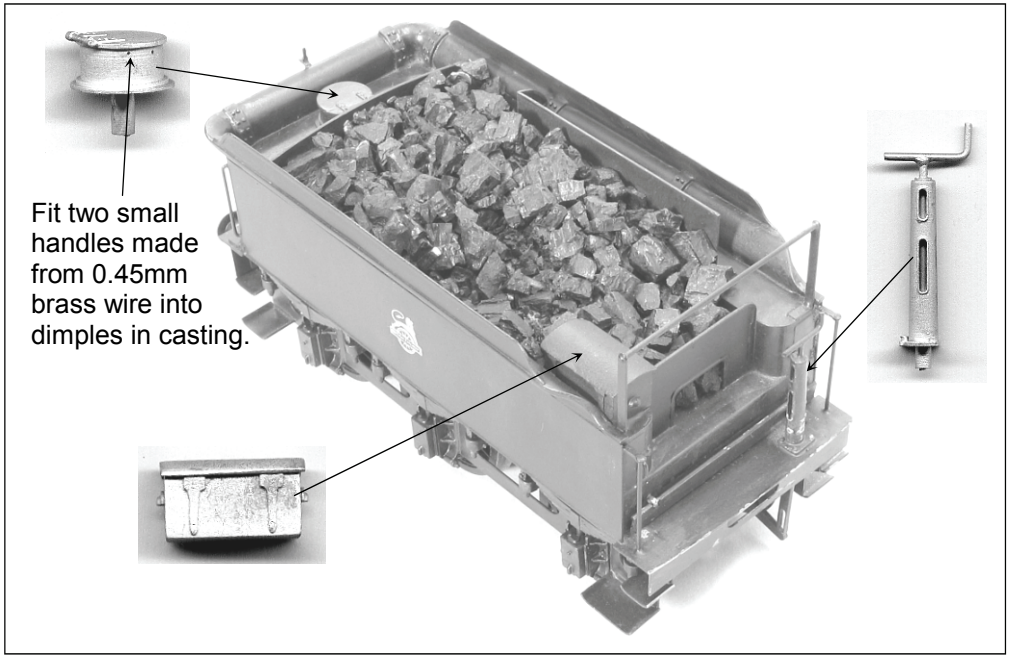
Drop the tender top (part 6) into place to make sure that it will fit and sit down onto the spacers correctly. Then form the front curves of the coal space sides (parts 7) using the lose tender top as a guide to help you. Now you can solder the tender top solidly into place but check that the tender body is not twisted as you do it as once the top is in place you will not be able to correct the twist. Now fit the coal space sides (parts 7) adjusting the curved fronts and trimming off any excess length to achieve a snug fit.

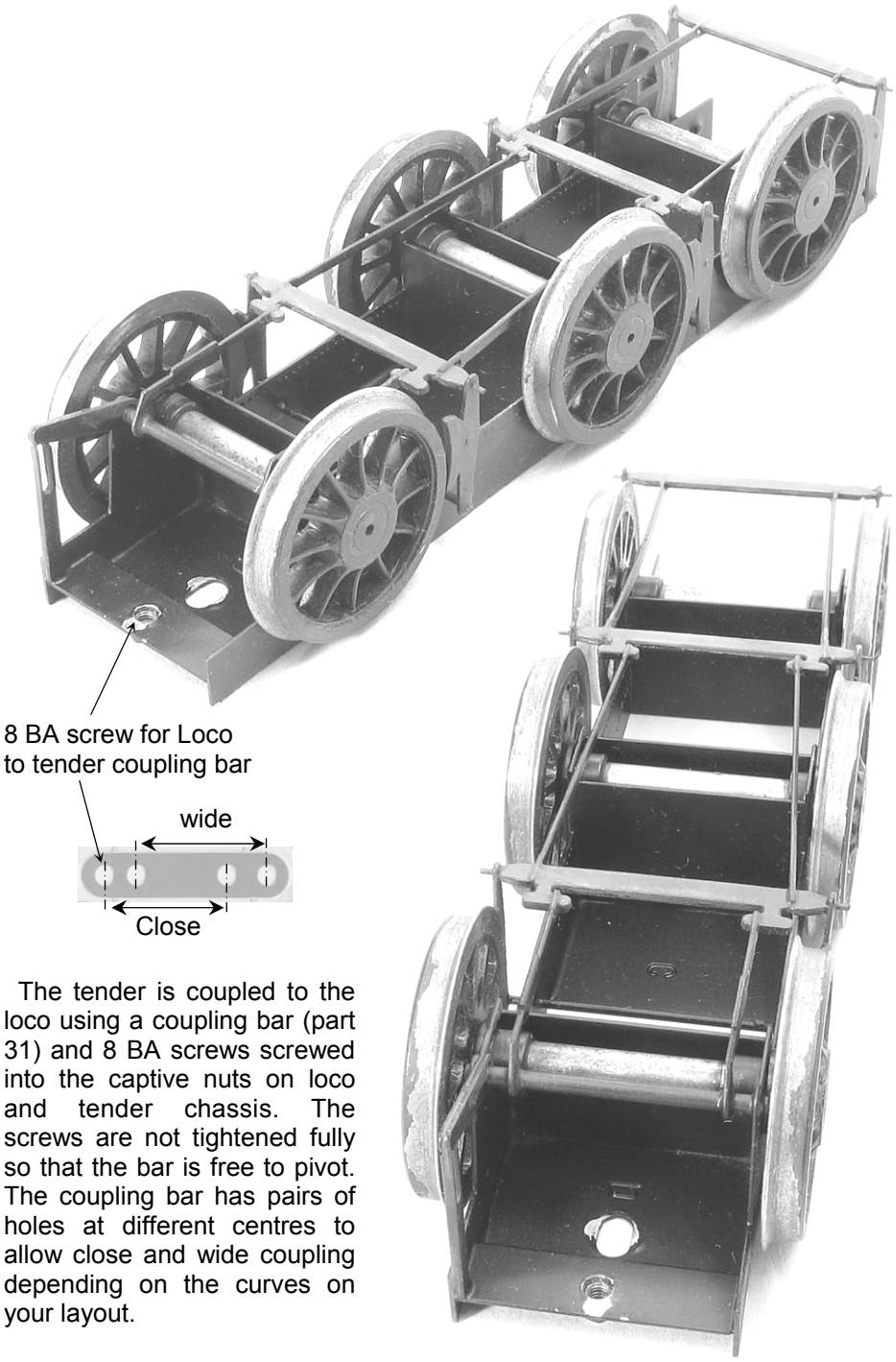
Fit the front drag/buffer beam (part 8). Check that you are happy with position of all parts and that the footplate is level on a flat surface and that the there is no twist in the body. Then solder all joints solid and blend the top edges of the coal space into the tender top.



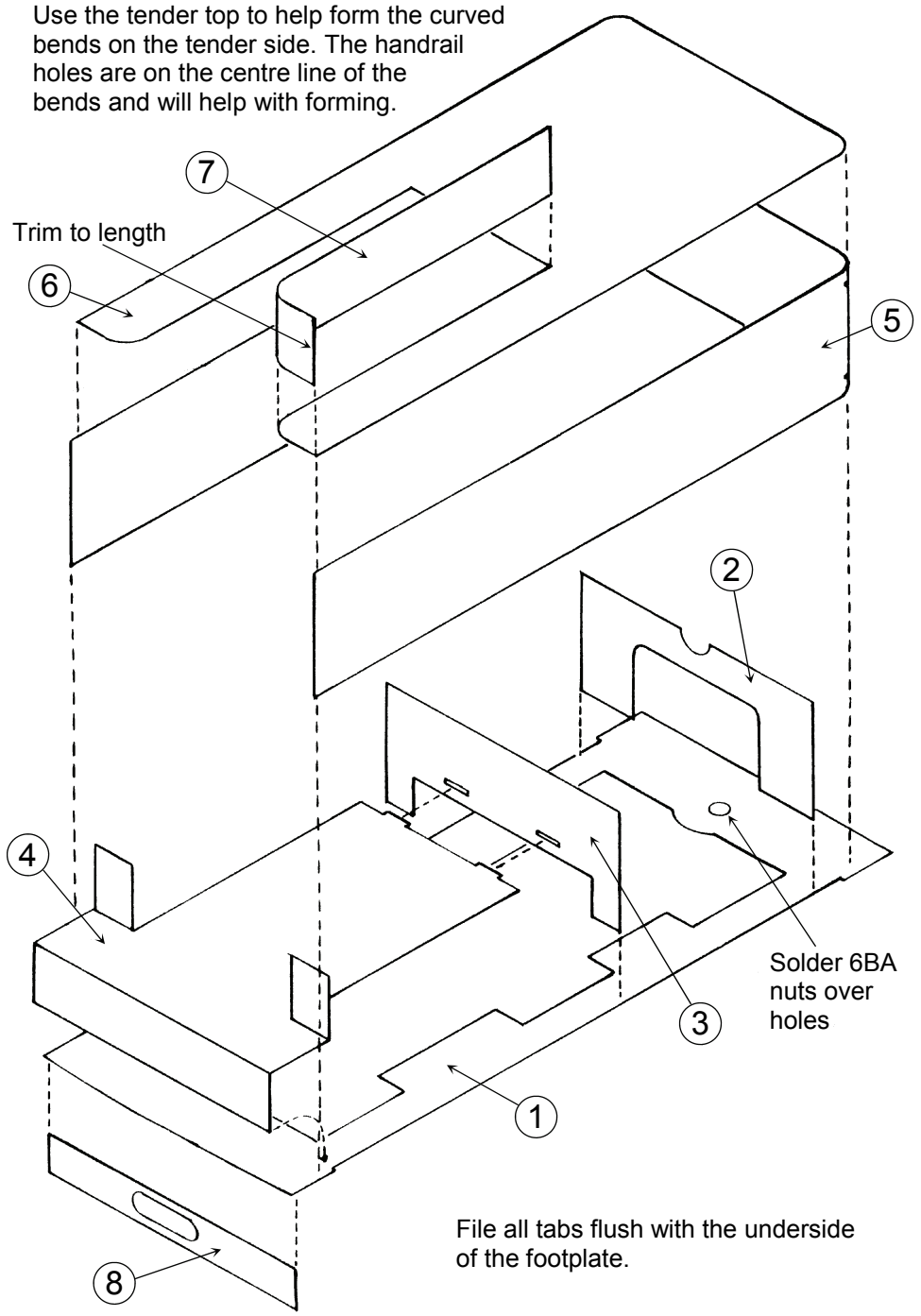
Now fit the remaining castings. The axle boxes are drilled out to accommodate the spring as close to the top as possible. The axle box and lose fitted spring are then fitted to the side frame using the location holes for positioning and all three axle boxes are soldered into position. The springs are then positioned by eye so that the tops of the hangers are just clear of the underside of the footplate and they are then soldered into position at the hanger mounting plates. You may find that a little filing of the castings or slight ovaling of the side frame location hole will be required to get the axle boxes and springs to fit snugly around the steps and look right to the eye. In particular the front axle box/spring is very close to the steps so have a dry run first. File the axle box location pegs flush on the inside face of the sideframes. Then fit tender filler, toolbox and brake standard castings.







The tender is coupled to the loco using a coupling bar (part 31) and 8 BA screws screwed into the captive nuts on loco and tender chassis. The screws are not tightened fully so that the bar is free to pivot. The coupling bar has pairs of holes at different centres to allow close and wide coupling depending on the curves on your layout.



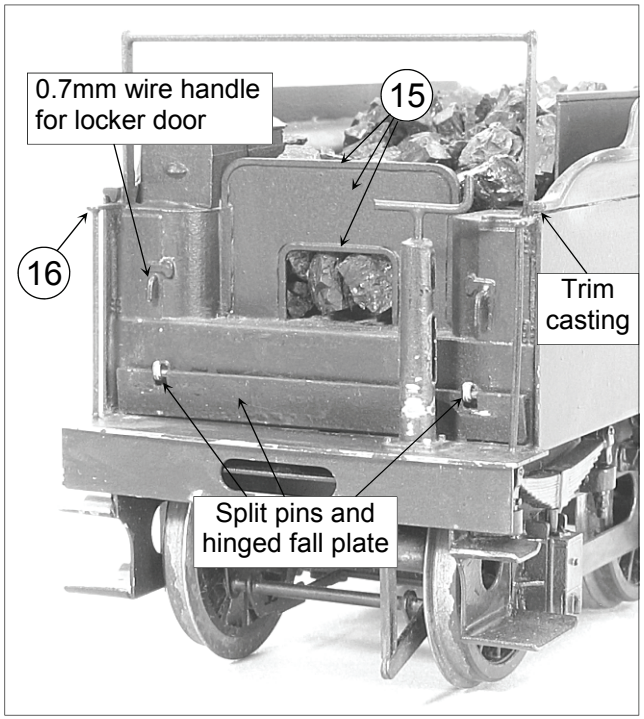
Fit the sideframes (parts 9) and rear buffer beam (part 10). Note that the buffer beam must be fitted the right way up and there is an etched arrow on the inside face to indicate the top edge that must be soldered to the footplate. Fit the reinforcing angles (parts 11).

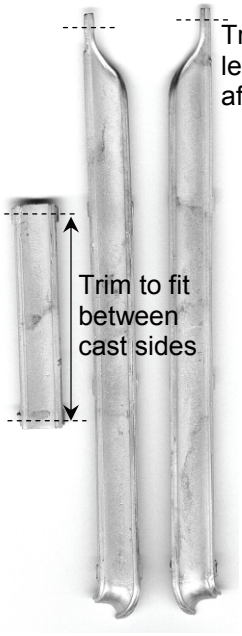
Fit the rear mounting angle made from (parts 12 & 13). It is probably best to fit part 13 first and then curve the ends of part 12 and fit this to the bottom of the tender back.

Fit the two locker doors (parts 14) to the tank fronts and fit handles made from 0.7mm brass wire.

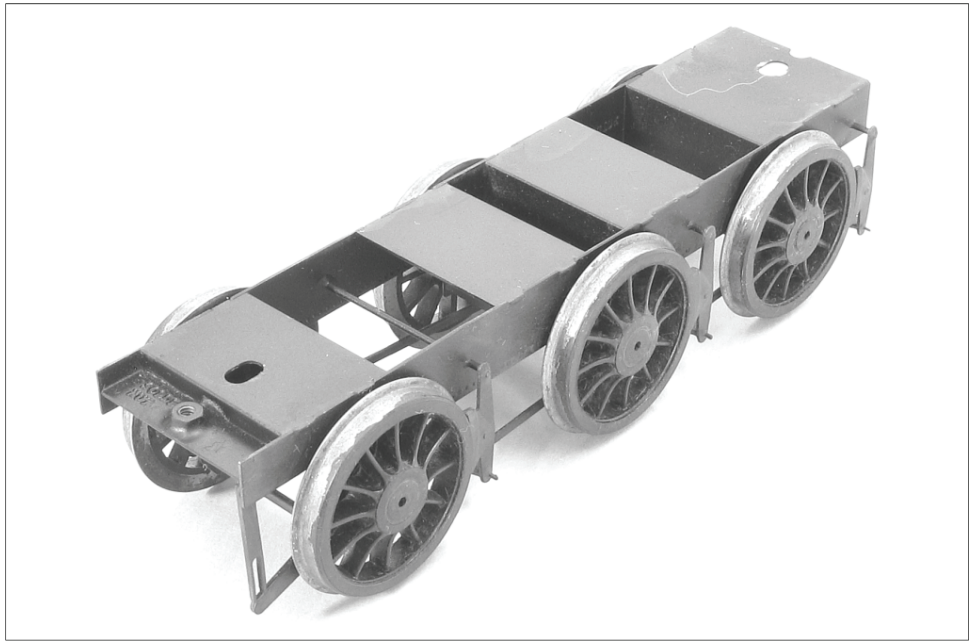
Fit beading and then fit coal space front (part 15).

Fit handrail supports (parts 16) soldering flat to the tender top and then fit handrails made from 0.7mm brass wire. This is unless you are modelling a loco that had a low cab cut out and then part 16 is folded and soldered to the tank front lower down (see later).

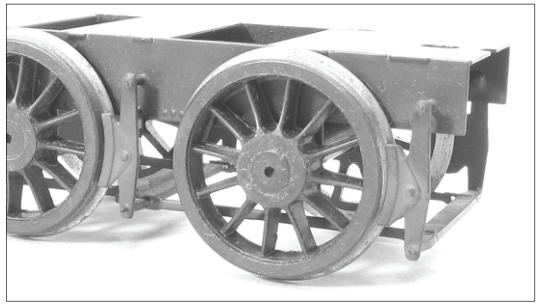




Fit cast flares. These are designed to be fitted using 70° solder and using any other method may give very inferior results. First thoroughly tin with 145° the tender top and the inside and outside faces of the top of the sides. Then using a large soldering iron (Weller 40 watt) run through a dimmer switch, to reduce the heat, tack with 70° solder on the inside the two side flares to the tender top. Then trim the back casting to fit between the sides and tack solder that into place. Then using plenty of flux run round a generous fillet of 70° solder between castings and tender top. Then using plenty of flux 70° solder around the outside of the tender sides at the joint between brass and casting so that the solder is pulled from the tender top underneath the castings and fills any gap between the brass and casting on the outside face. Also generously solder the joints between back and side castings and blend the joints with a old half round file.

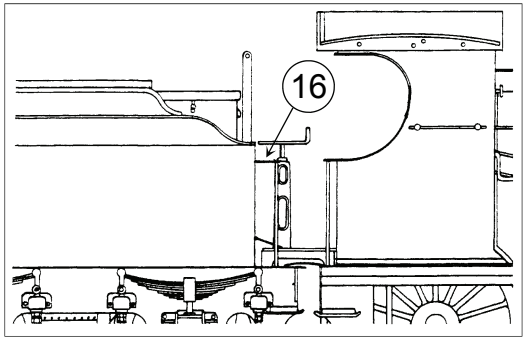


Then starting at the centre spacer and working outwards to the end of the frames solder the spacers solid. Solder a 8 BA nut over the hole in the front spacer to form a fixing for the tender to loco coupling bar. Fit bearings and wheels, packing out the outer bearings to reduce side play, but fit the centre bearings hard against the frames for maximum side play. I pass an oiled axle through the bearings as I solder them into place to ensure that they are aligned correctly. It is also a good idea to ream out the centre bearings slightly oversize to allow the wheels to follow any humps in your track.



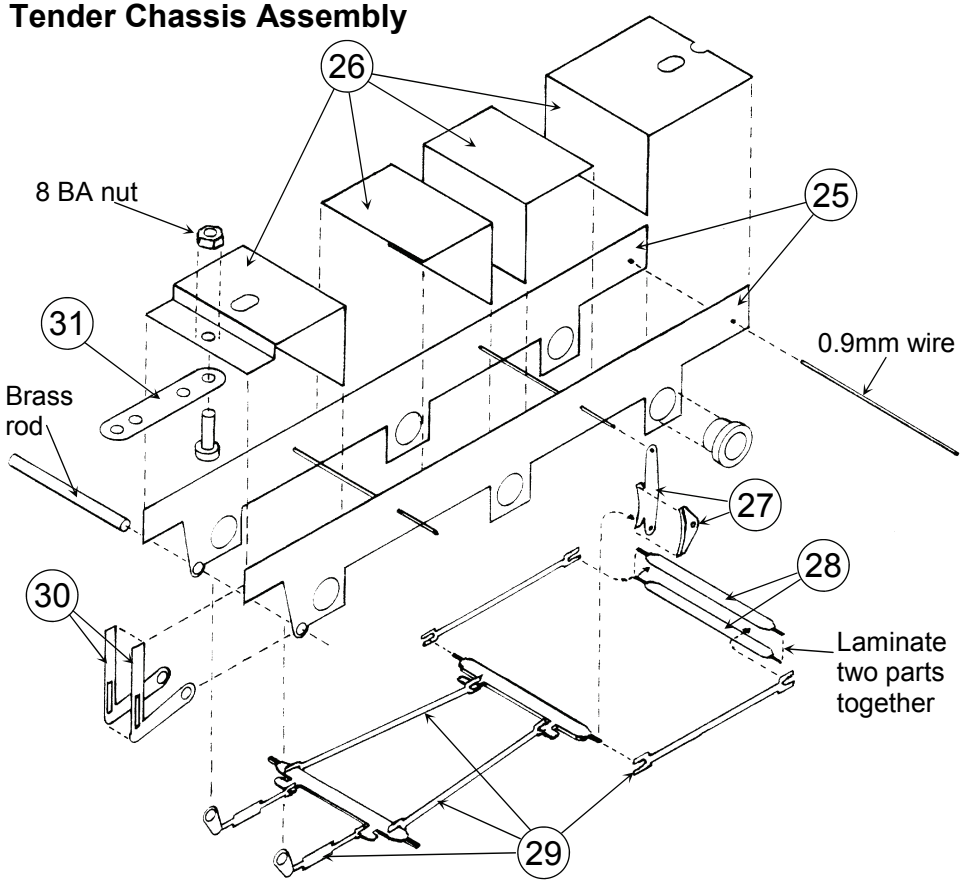
Take the brake blocks and hangers (parts 27) and soldering the blocks to the hangers, make up three L/H and three R/H. Thread three lengths of 0.9mm brass wire across the chassis and locate brake blocks onto this by spot soldering so that the brake blocks are just clear of the wheels.

Laminate together the two parts of each brake cross shaft (parts 28) so that the half etched lines are on the outside faces. Spring the cross shafts between the brake hangers and solder solid so that all the shafts line up horizontally. Take the pull rods (parts 29) and working from plain rear cross shaft forwards twist them into place so that the forked ends locate into the etched lines. Laminate together the two parts of the handbrake linkage (parts 30) and then pass a length of brass rod through the holes in the chassis sides threading the handbrake linkage and front pull rods onto it. Solder everything into place and trim the ends of the brass rod flush with the chassis sides.



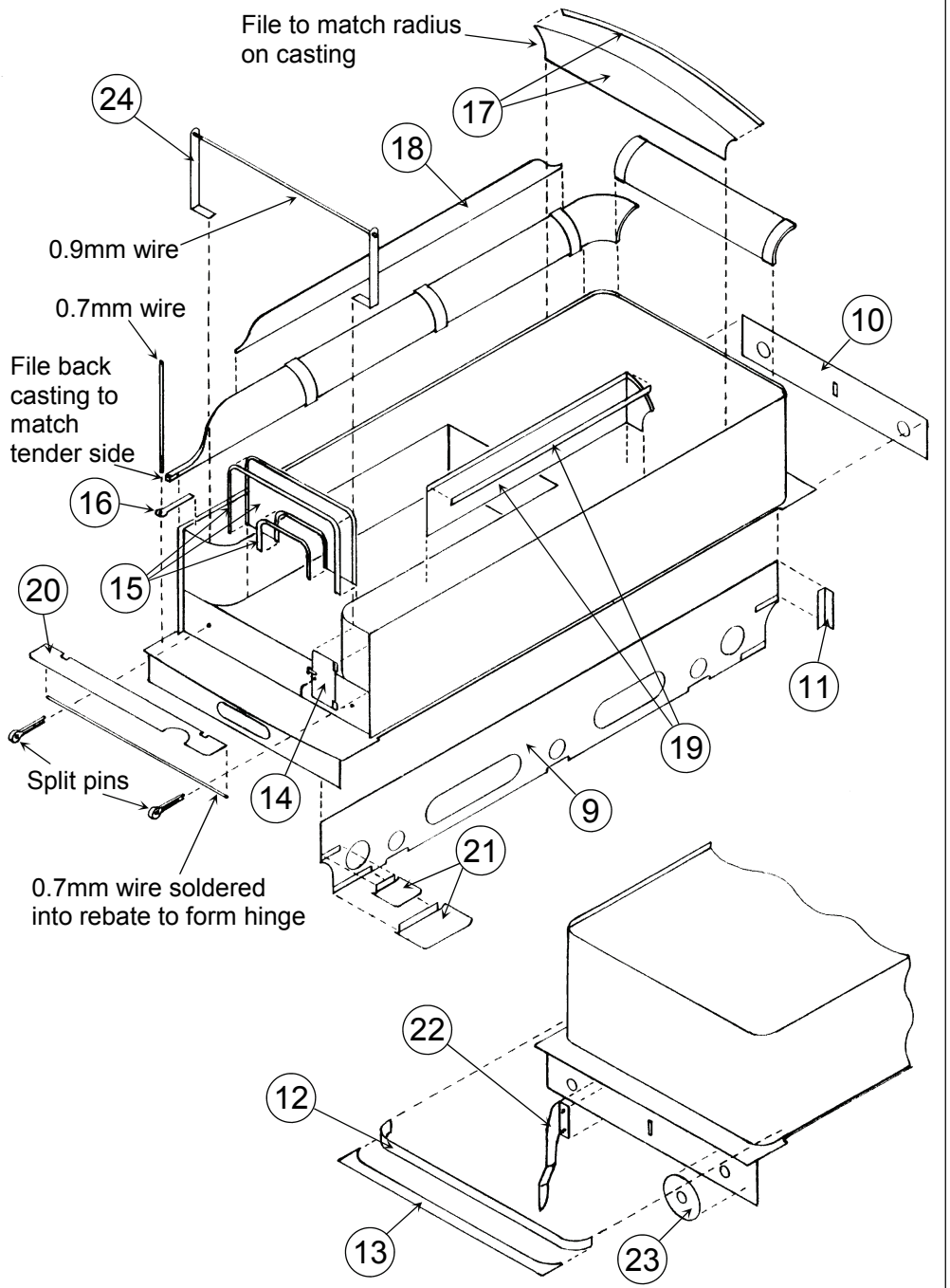
A number of J15's had a lower cab cut out and the tender handrails were correspondingly lower to match up with the cab. This was mainly on the early built locos but check photos. If you are modelling one of these locos part 16 will require folding through 90° and soldering to the tender front. The cab side has the cut out marked with a etched line so use this to set height.

Tender Chassis Assembly



Take the chassis side frames (parts 25) and open out the axle holes to take the turned bearings. Form up the frame spacers (parts 26) noting that the front one has a double fold and then lay a side frame onto a flat surface with the top edge of the frame overhanging slightly. Solder the spacers to the side frame. Fit the second side frame tacking into place at the centre spacer. Check that the second side frame is in exactly the right position and that the two frames are exactly opposite each other.

Fit both side castings for flared top first. Then trim the back casting to fit between sides. Fit castings after etched parts 16 but before part 17.

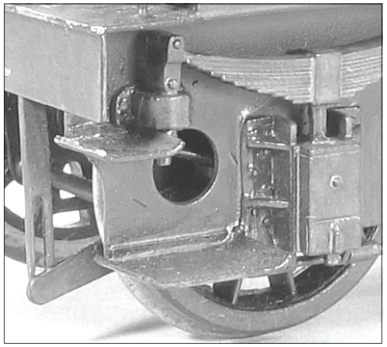


Now using a curved scalpel blade and fibreglass brush work around the solder joints scraping back and burnishing to reveal a sharp line at the joints with no gaps. On the prototype the flares were stepped out from the tender sides with a distinctive joint line. Trim the ends of the side flares to match the sides. The masters for the flares were made over length to accommodate shrinkage in the mould.

Fit the coal space partition (part 17) filing the radius ends to be a snug fit onto the curved cast flares. Fit the side coal boards (parts 18). These locate at the top of the cast flare against the riveted plates and should be soldered into place using 70° solder in a similar way to fixing the flares. Fit the fire iron compartment side (part 19) again dressing the radius on the end to match the cast flare.

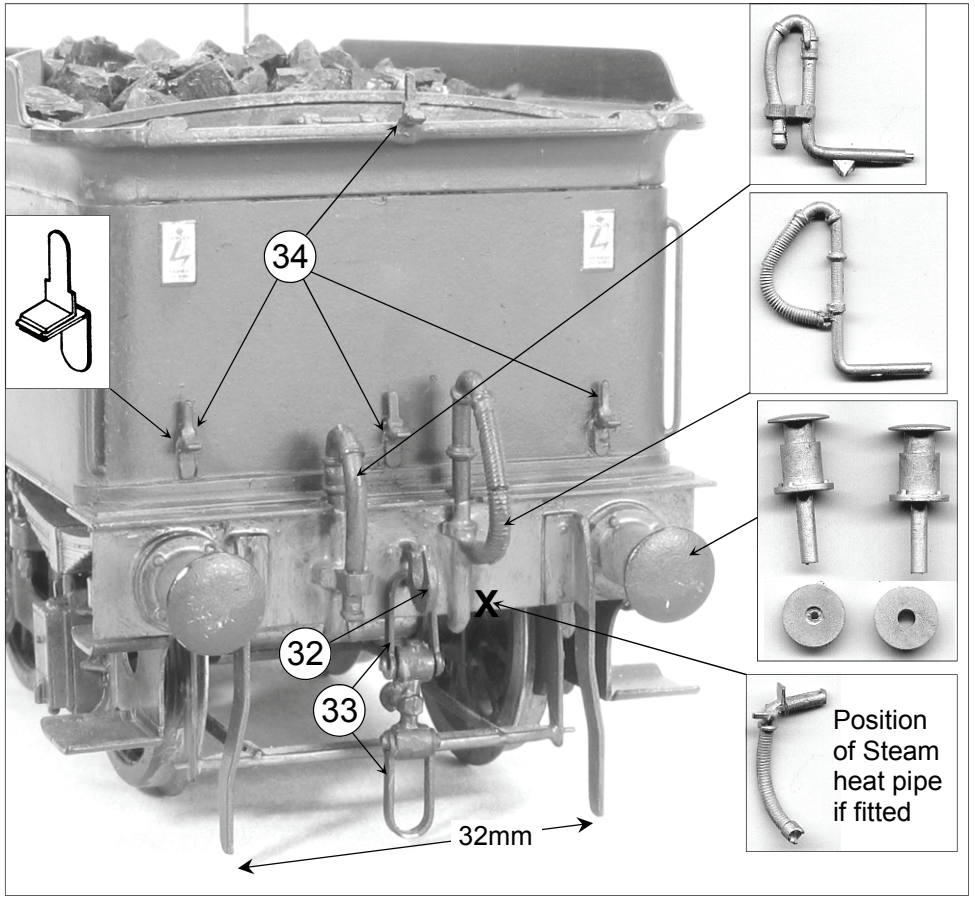
On GER tenders there was a hinged flap or fall plate at the front to prevent coal falling down between floorboards and tender. Solder a length of 0.7mm brass wire into the rebate on the underside of this fall plate (part 20) and then thread two split pins over this wire and into the two holes in the tender front. You should be able to get at the shanks of the split pins with your soldering iron from inside the tender body to spot solder them. This should then give you a hinged fall plate.

Using flat nosed pliers fold the back and bend a radius on the sides of the step treads (parts 21) and fit into the etched rebates on the side frames.



Fold up and fit the guard irons (parts 22) to the bufferbeam. Note that there are etched location marks to help positioning on the buffer beam and the ends should be set 32mm apart. There are etched buffer packing rings (parts 23) but you may wish to use the cast alternative ones.

Fit the weather sheet supports (parts 24) and crossbar made from 0.9mm brass wire. Fold up and fit the lamp brackets (parts 34) noting that there are etched location marks on the tender back. I reinforce the folds on the lamp brackets with 60/40 solder before fitting with 145° solder.



Cosmetic screw coupling. Solder together both halves of each hook (parts 32) and then using round-nosed pliers form the four links (parts 33) into U shapes. Dress the tops of two links with a file so that they will pivot freely in the slot in the hooks. Thread one of these links through the hook and spring the ends over the pegs on the cast centre. Then fit the bottom link. Pass one of the coupling hooks through the slot in the buffer beam, I solder it solidly into place and then snip of the shank. Keep the other hook for the loco.

You can fit the pipework and buffers now or later. The air and vacuum brake pipes will require half round rebates filled into the footplate to allow them to fit tight to the buffer beam. The steam heat pipe I tend to not bother fitting as they can get in the way of coupling up and these were often removed in summer but the choice is yours.

The GER used a sacrificial wooden packing ring behind the buffers and you want the thick ones for the tender.