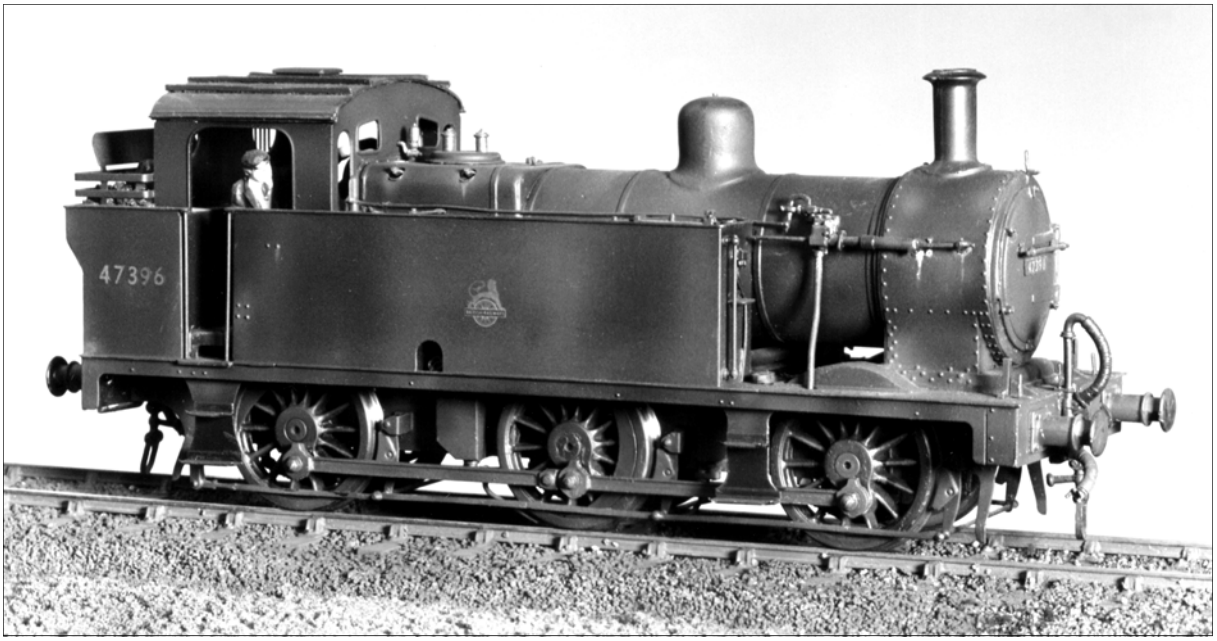
CONNOISSEUR MODELS

0 Gauge Locomotive Kit

LMS Class 3F Jinty Tank



Prototype. Fowler designed this class of locomotive as the LMS standard shunting and general-purpose tank. 422 members of the class were built. They were often used for local passenger trains and some were fitted for push-pull working. Some of the class lasted to the end of steam and a number are preserved.

Kit. The body is mainly brass. All the chassis and some of the heavier body components are in nickel silver. Slide bars and valve gear are represented between the frames. A nice level of cab detail is provided.

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 supper detail parts, can lift it into the showcase class. With the kit providing an accurate and economical base on which to work.

Parts Required to Complete

3 Sets 4’ 71/2”, 15 Spoke Driving Wheels (Slater’s Catalogue Number 7855)
Plunger Pickups if desired (Slater’s Catalogue Number 7157)
Handrail Knobs if desired as a replacement for split pins (Slater’s Catalogue Number, Short-7952) Available From Slater’s Plastikard, Old Road, Darley Dale, Matlock, Derbyshire, DE4 2ER, Telephone 01629 734053.
Mashima 1833 Motor and 40/1 Gear set.

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

GENERAL INSTRUCTIONS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

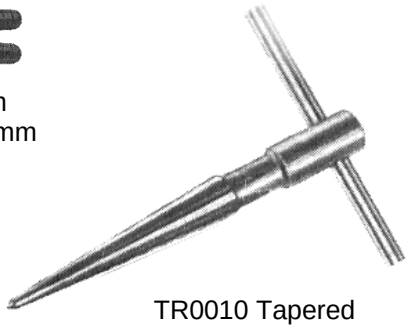
When attaching white metal fittings to brass the surface of the brass must be tinned with 145° solder to allow the solder to grip. The surface of the casting at the joint should be burnished bright. The casting can then be soldered into place with 70° solder and fillets of solder run into any gaps with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

SPECIFIC INSTRUCTIONS FOR LOCOMOTIVE KITS

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

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

TR0005 Micro Drill Reamer 1mm-5mm



TR0010 Tapered Reamer 3mm-12mm

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

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

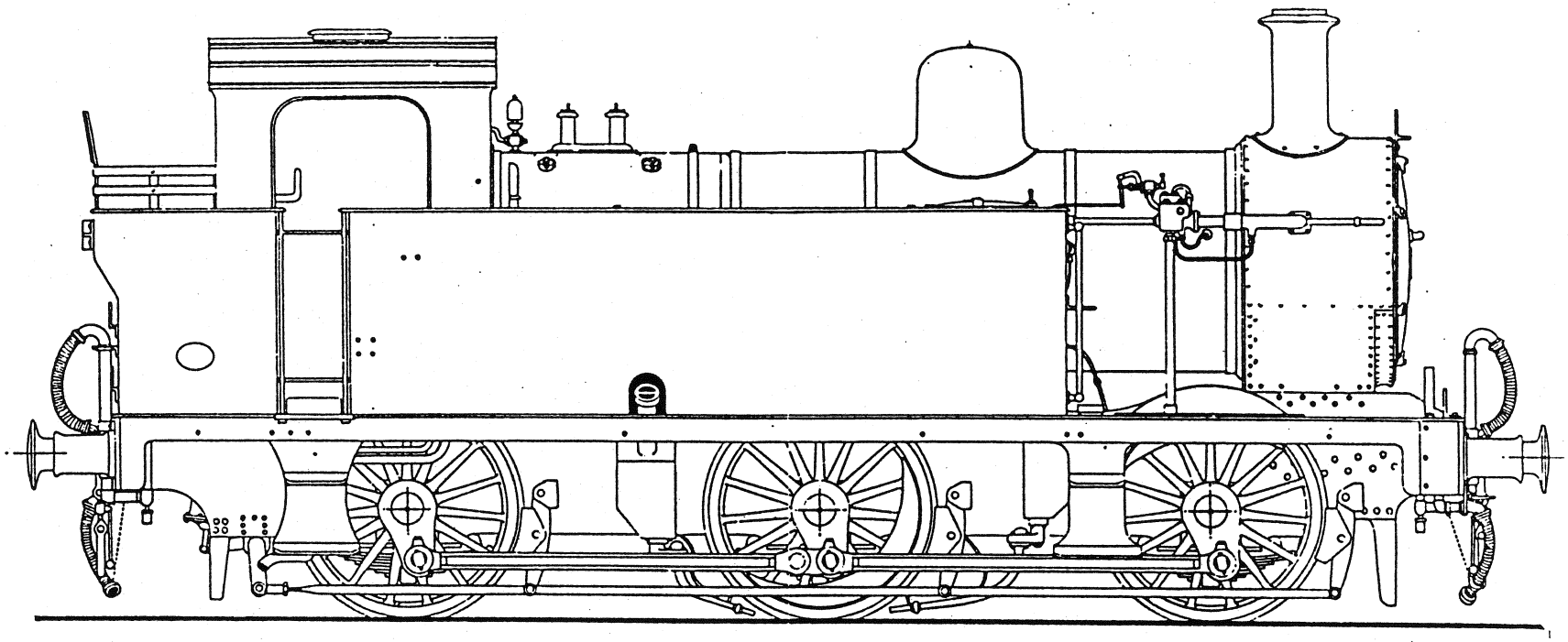
To form shallow curves, splasher tops, smoke box wrappers etc, use a piece of pipe or broom handle. Diameter is not crucial, a piece of one-inch water pipe covers cab roof to smoke box wrapper. Place part over tube and hold in place with finger and thumb of one hand. Work the metal in stages over tube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

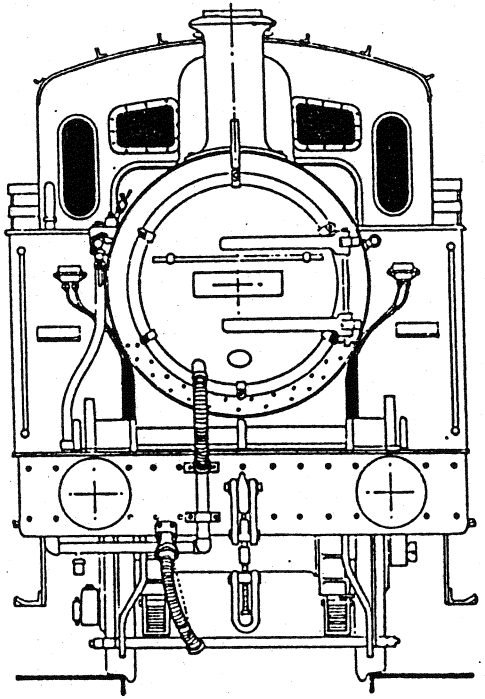
A technique you may find useful in working metal is to soften and remove the spring from the metal by heating (called annealing). The part is held with pliers and heated in a gas flame. (The gas cooker is ideal). Alternatively use a pencil torch that runs off lighter fuel. Heat part until a purple band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

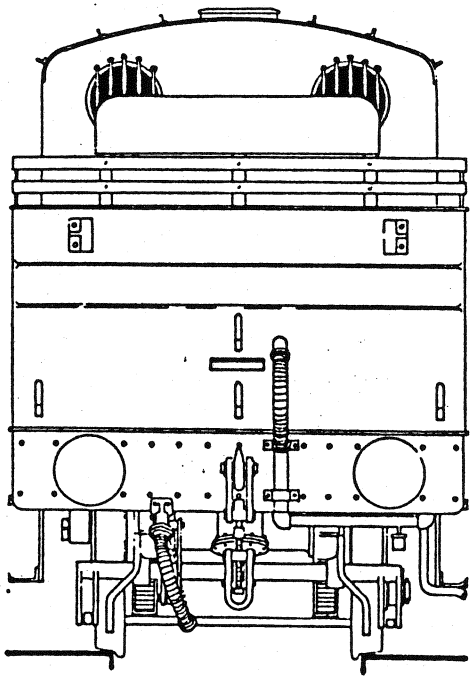
Damaged Parts and Shortages. If you damage an etching during construction it is not possible to replace individual pieces, but I am quite flexible in providing at minimum cost replacement frets (this will contain all the brass or N/S parts). Where a casting is damaged individual items can be replaced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

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

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

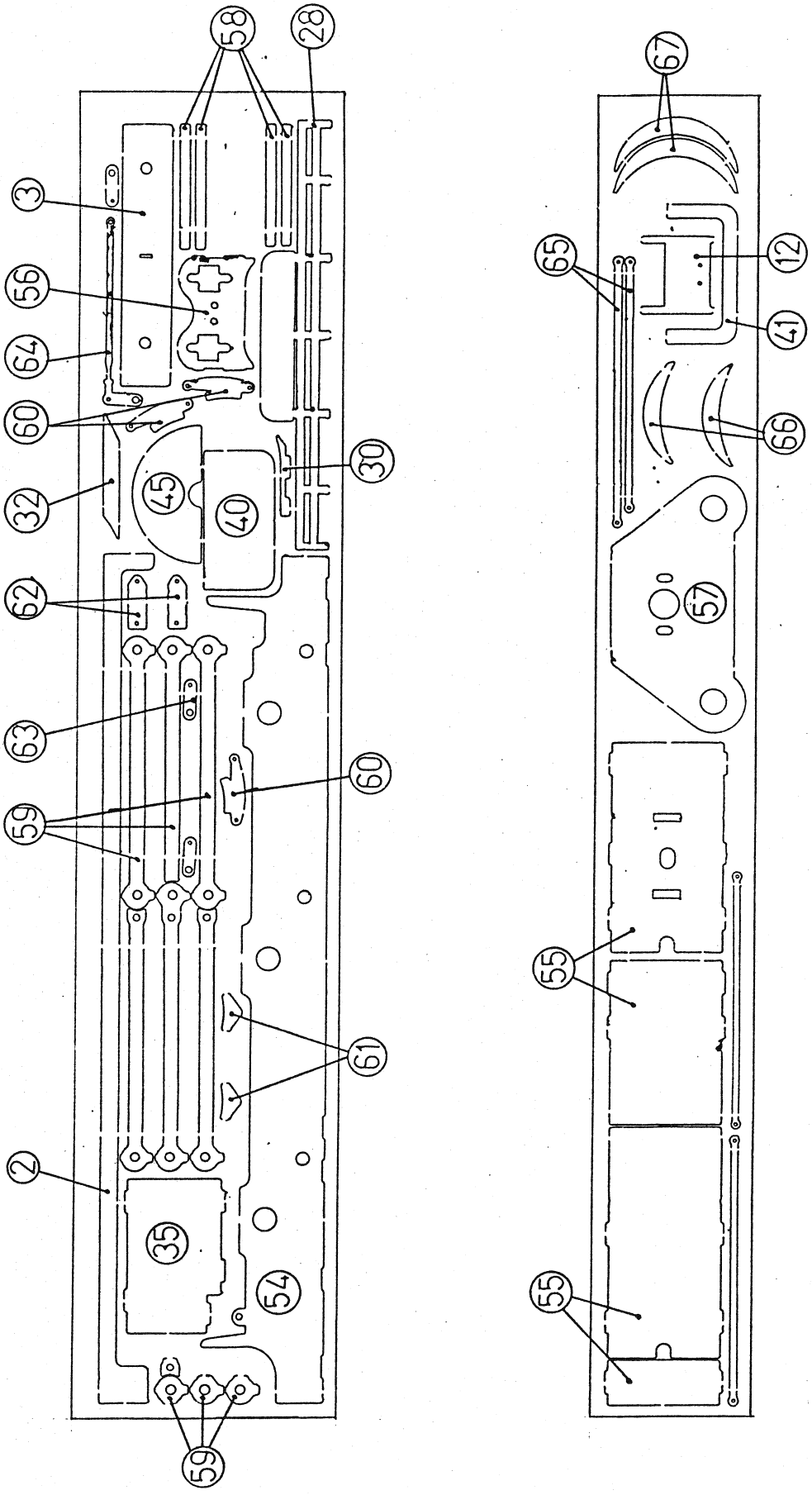




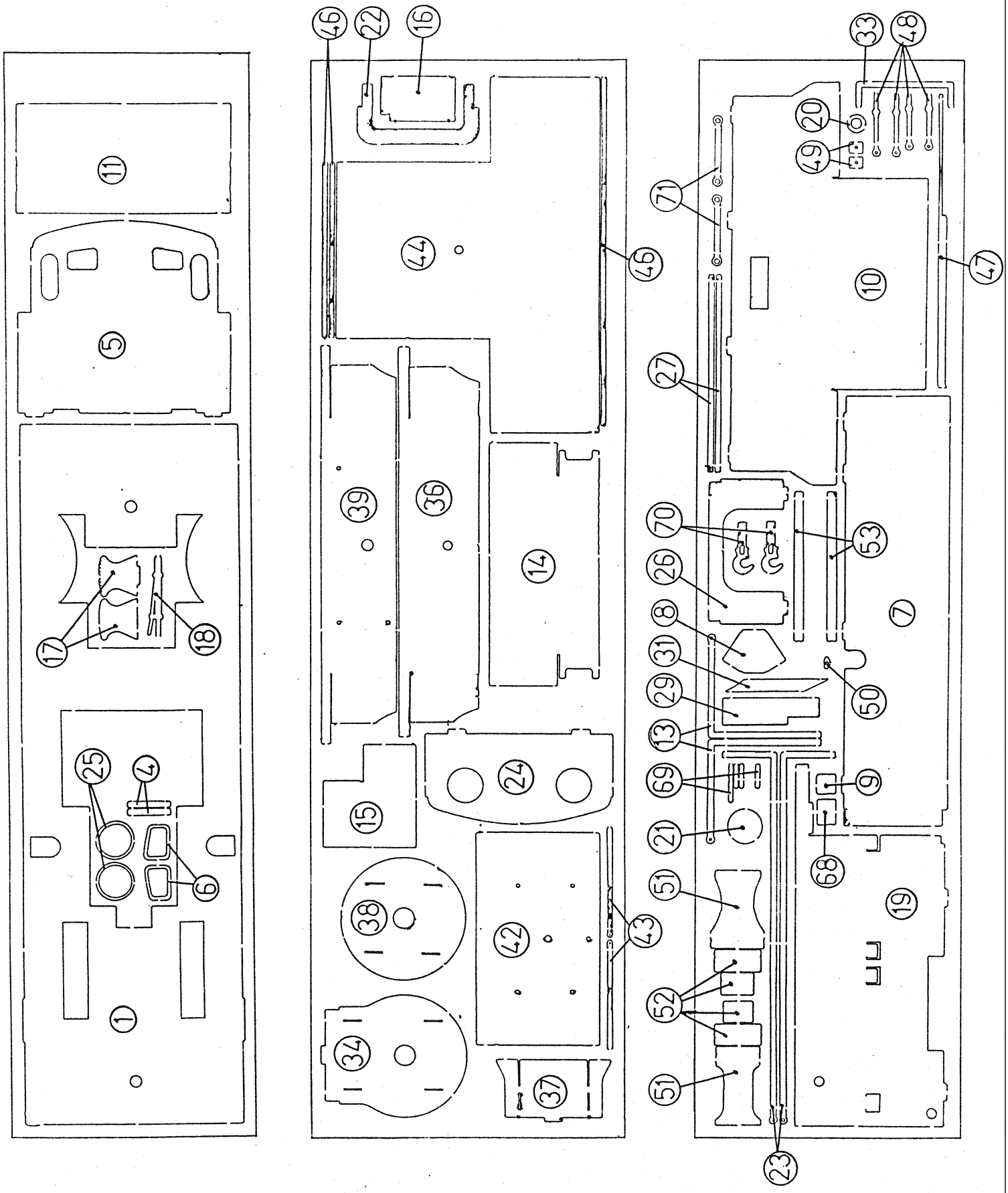


Drawings are photocopies and are only approximately to 7mm scale.

Nickel Silver Frets



Brass Frets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Basic Body Construction
Part identification and operation

Part 1, Footplate. Emboss from the underside the push out rivet detail.

Part 2, Valances. Emboss rivet detail at the front ends then fit to underside of footplate locating into the etched grooves.

Part 3, Buffer Beams. Emboss rivet detail then fit to footplate locating against the valance ends.

Part 4. Fit to underside of cab opening as shown. Then solder two 6BA nuts to footplate top as marked on fret. Fold up the front splasher sides.

Part 5, Cab Front & Parts 6, Central Window Frames. Fit window frames into etched rebates (outer oval windows had recessed frames so these are represented just by the etched rebate). Then fit cab front into slots centrally on footplate.

Parts 7, L/H & R/H Tank Sides. Emboss rivet detail, form to shape and fit into slots on footplate (check with engineers square that the two tank fronts are exactly opposite each other).

Parts 8. Form to shape and fit as shown.

Parts 9, Tank Steps. Fold through 90^{o} and fit to tank fronts locating into etched rebate.

Part 10, Bunker Body & Part 11, Bunker Back. Fold up bunker body and solder top to side joints. Form up the folds in the bunker back to match the profile of the sides. Tack solder bunker body to footplate and once happy with its position solder the bunker into place. Once you have made any adjustments required and you are happy solder joints solid.

Part 12, Coal Door. Fit to bunker front as shown (possibly before fitting bunker body to footplate). Make handle from 0.7mm brass wire and check that it will fit but don't solder into place until you have fitted the cab floor.

Part 13, Bunker Beading. Carefully fit R/H & L/H sections to bunker top as shown. Trimming and blending with solder the joint between the two sections.

Parts 14,15,16,17 & 18, Cab Floor & Fittings. Form up and fit floor to footplate. Then fit cab boxes and reverser. Once the floor is in fit the coal door handle.

Part 19, Inner Tanks & Part 20, Flanges. Fit circular flange detail overlays over the holes at the front of the L/H & R/H inner tanks. Check that a length of 3.2mm brass rod will pass freely through these holes. This will represent the balance pipe that linked the two tanks. Fold through 90^{o} and reinforce with solder the tabs that will support the boiler/firebox. Then fold tank tops through 90^{o} and fit to footplate as shown. Then fit tank balance pipe.

Parts 21, Access Covers. Fit to tank tops using etched location guides.

Part 22, Detail Overlay. Fit to cab front as shown.

Parts 23, L/H & R/H Tank Beading. Fit to top of tanks as shown.

Part 24, Cab Back & Parts 25, Spectacle Rings. Locate rings into etched rebates. Bend up and fit coal bars made from 0.45mm brass wire. Once all coal bars are soldered solid snip off and dress ends so that the inside face of the cab back is smooth. Then fit cab back into slots on bunker top.

Parts 26, Cab Sides & Parts 27, Beading. Fold top of sides through 90^{o} then fit beading around openings. Then solder sides to cab front and back as shown.

Part 28, Coal Rails. Carefully form to shape and fit to bunker top as shown.

Parts 29, L/H & R/H Splasher Tops. Curve to shape and fit to splasher sides and footplate as shown.

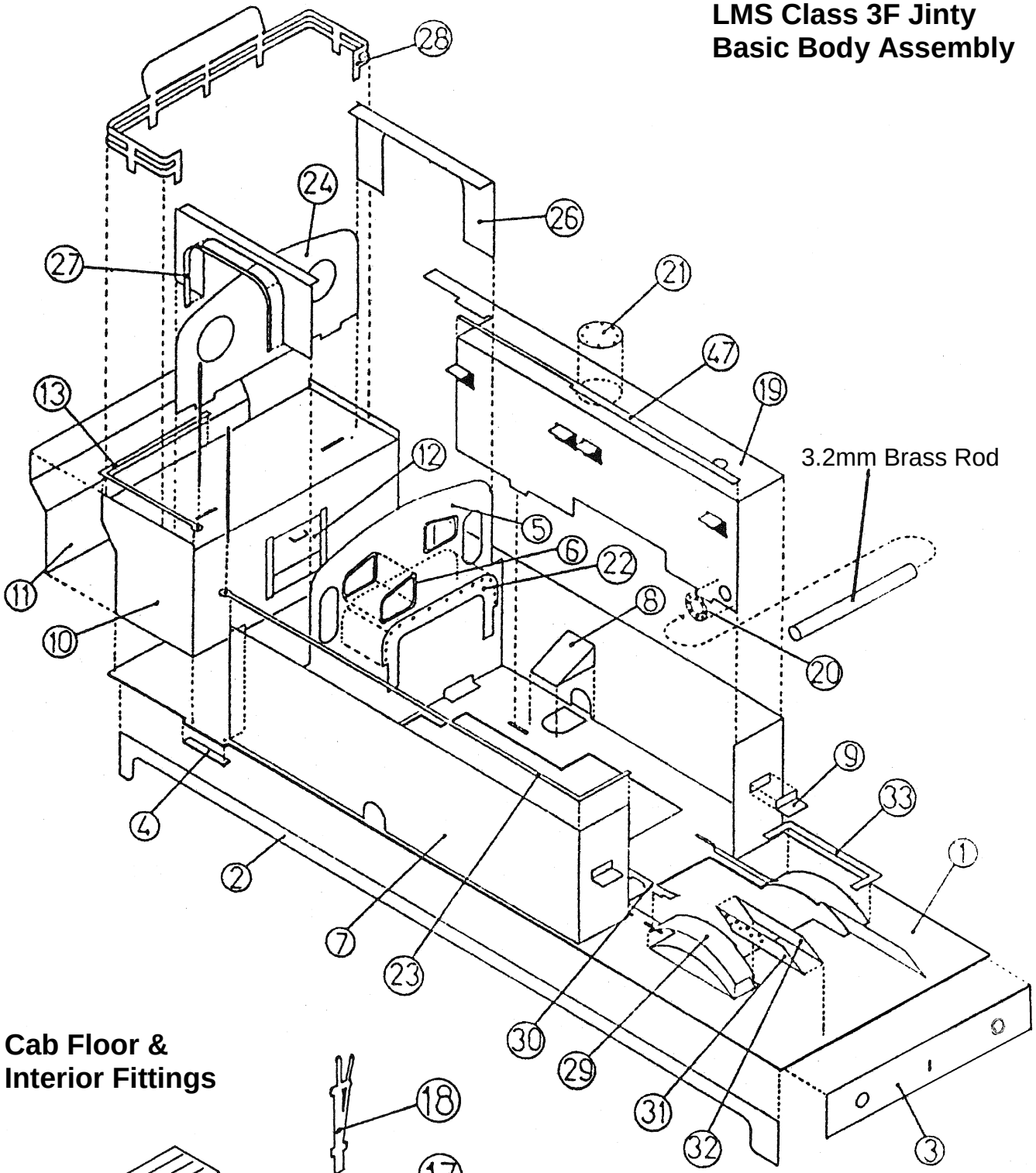
Parts 30, Frame tops. Fit into Slots in footplate as shown. These will represent the tops of the frames that sweep up above footplate level at the front end of the loco.

Parts 31, L/H & R/H Detail Overlays & Parts 32, Front Frame Tops. Laminate together to represent the parts of the frames that appear above the front footplate with the heavy bolt heads that secure the cylinder block/ valve chest between the frames. I suggest fitting these after fitting the boiler/smokebox.

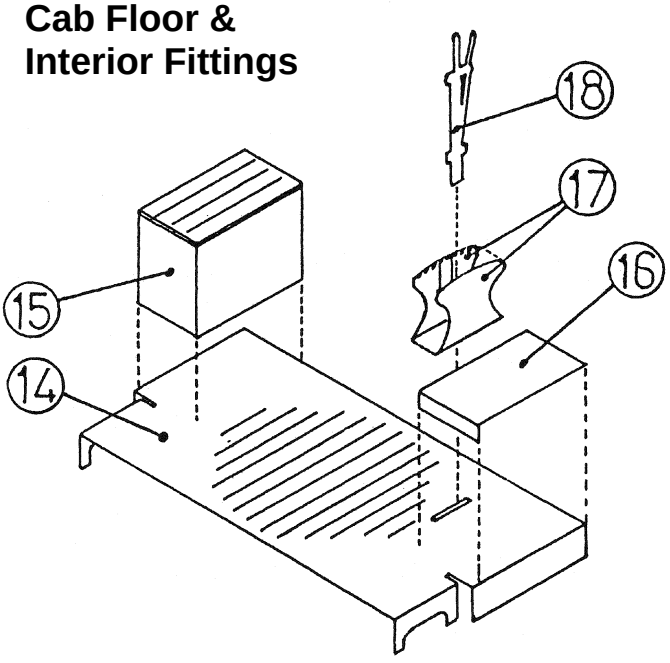
Parts 33, Splasher Beading. Trim to be a snug fit over the splasher and solder flat to footplate as shown to tidy everything up.

Parts 47, Boiler/Tank infill. Fit after boiler is in position to fill gap between tank top and boiler.

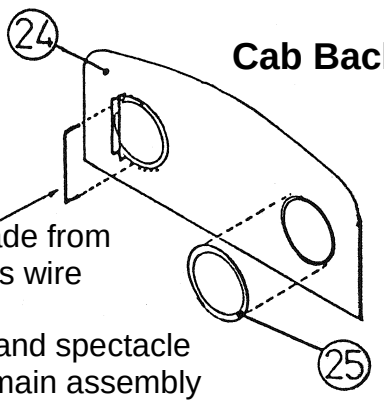
LMS Class 3F Jinty
Basic Body Assembly



Cab Floor & Interior Fittings



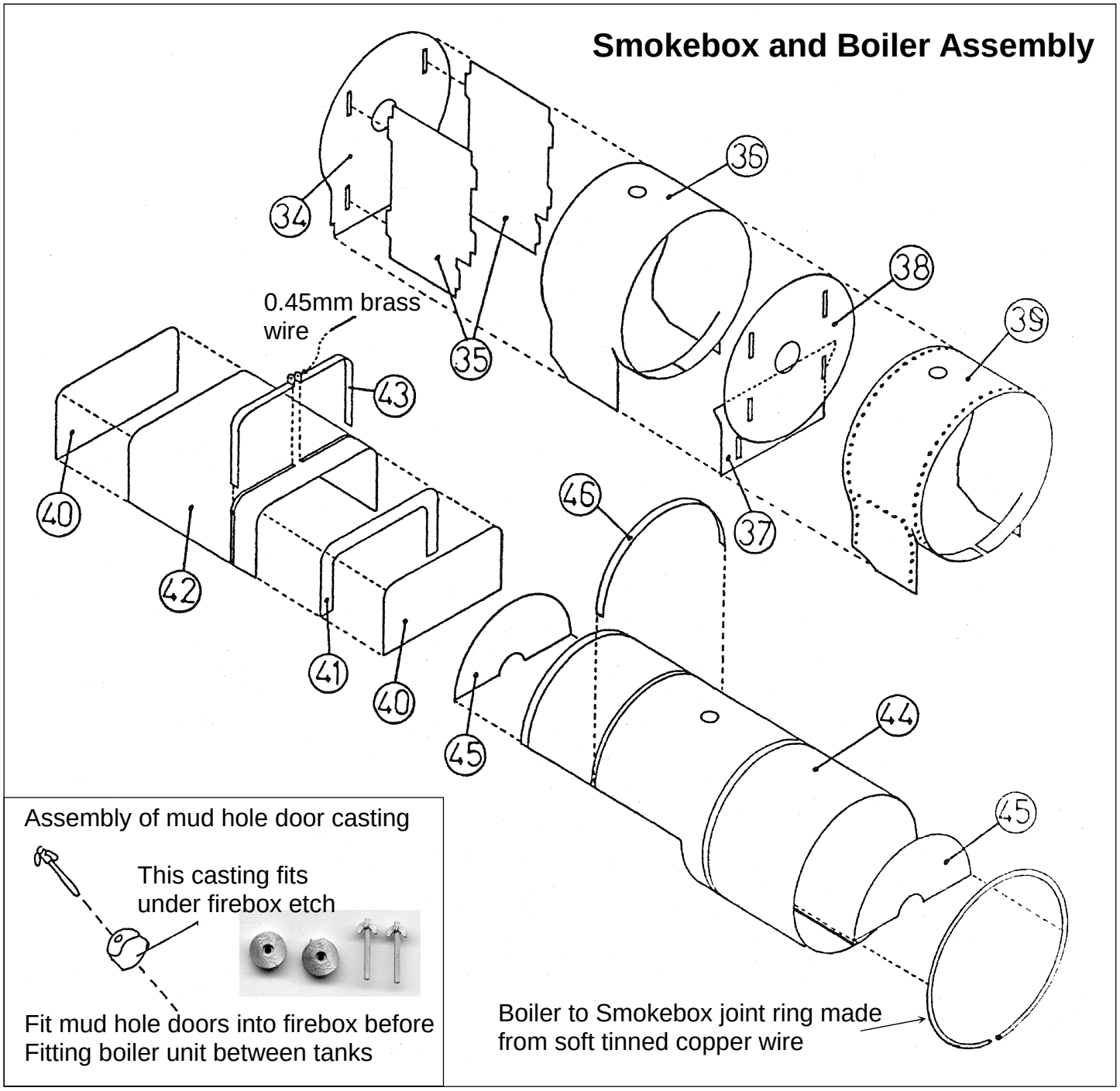
Cab Back



Coal bars made from 0.45mm brass wire

Fit coal bars and spectacle rings before main assembly

Smokebox and Boiler Assembly



Parts 34,35,37 & 38, Smokebox ends and spacers.

Part 36, Smokebox Construction Wrapper. Take the wrapper and roughly form up around tube or broom handle etc into a circle to match the smokebox front, part 38, and then flare out the bottom with reverse curves to match the smokebox rear, part 34.

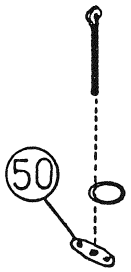
Then solder spacers between the back and two front sections to form up a solid unit that the roughly formed wrapper can be soldered around. The smokebox back and front sections should then act as solid formers to allow you to achieve smooth curves as you solder the wrapper into place. Then file a slight radius at the joints between wrapper and ends.

Part 39, Riveted wrapper overlay. Roughly form up to match smokebox assembly. Then using the chimney hole as a guide for location and checking that there is an equal gap at each side, solder around assembly.

Parts 40,41,42 & 43. Firebox Components. Make up unit as shown. Part 41 fits inside front to give extra thickness so that a radius can filed on the front end. Before fitting fold ends of cladding bands through 90^{o} and once fitted use a short length of 0.45mm wire to simulate band bolt. Open out holes so that the mud hole door clamp casting will fit through.

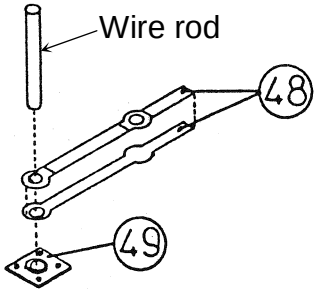
Parts 44, 45 & 46. Boiler Components. Make up unit as shown. Boiler bands, parts 46, fit into etched lines on boiler.

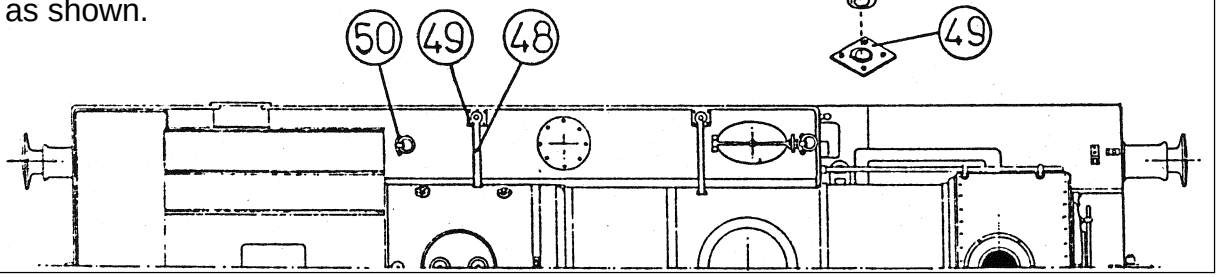
Final Body Detailing. It is suggested that this is completed after the basic chassis is assembled. This will avoid unnecessary handling with the risk of damaging delicate fittings.



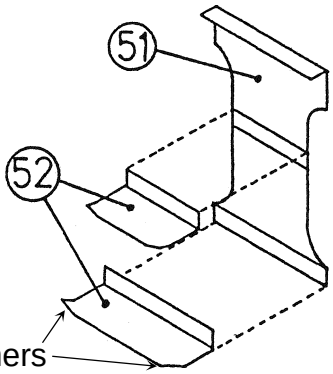
Parts 50, Lifting Rings. Fit overlays to tank tops. Make rings from soft tinned copper wire and pivot in eye of split pins as shown.

Parts 48 & 49, Tank straps Make up and fit as shown.

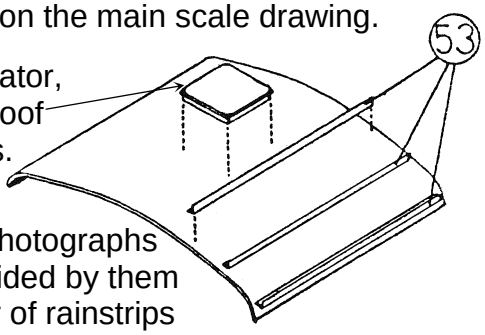




Parts 51 & 52, Cab & Footplate Steps. Make up as shown and fit to underside of footplate locating against valance rear.

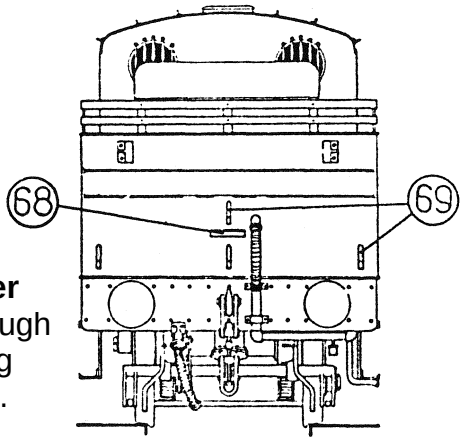


Part 53, Cab Roof Rainstrips. Fold through 90° and carefully solder or bond to cab roof casting in the positions shown on the main scale drawing.



Or study photographs And be guided by them as number of rainstrips and position varied between locos.

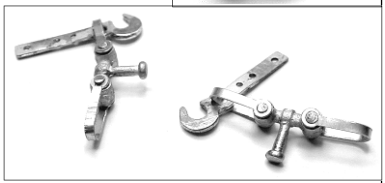
The balance of the final detailing and castings can be finished in any order that pleases you.



Part 68, Bunker Step, Fold through 90° and fit using etched location.

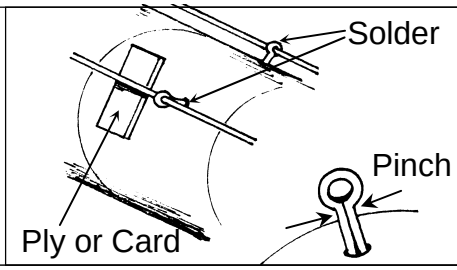
Parts 69, Lamp Brackets. Fold up and reinforce folds with solder then fit onto etched location positioning marks on front footplate and bunker.

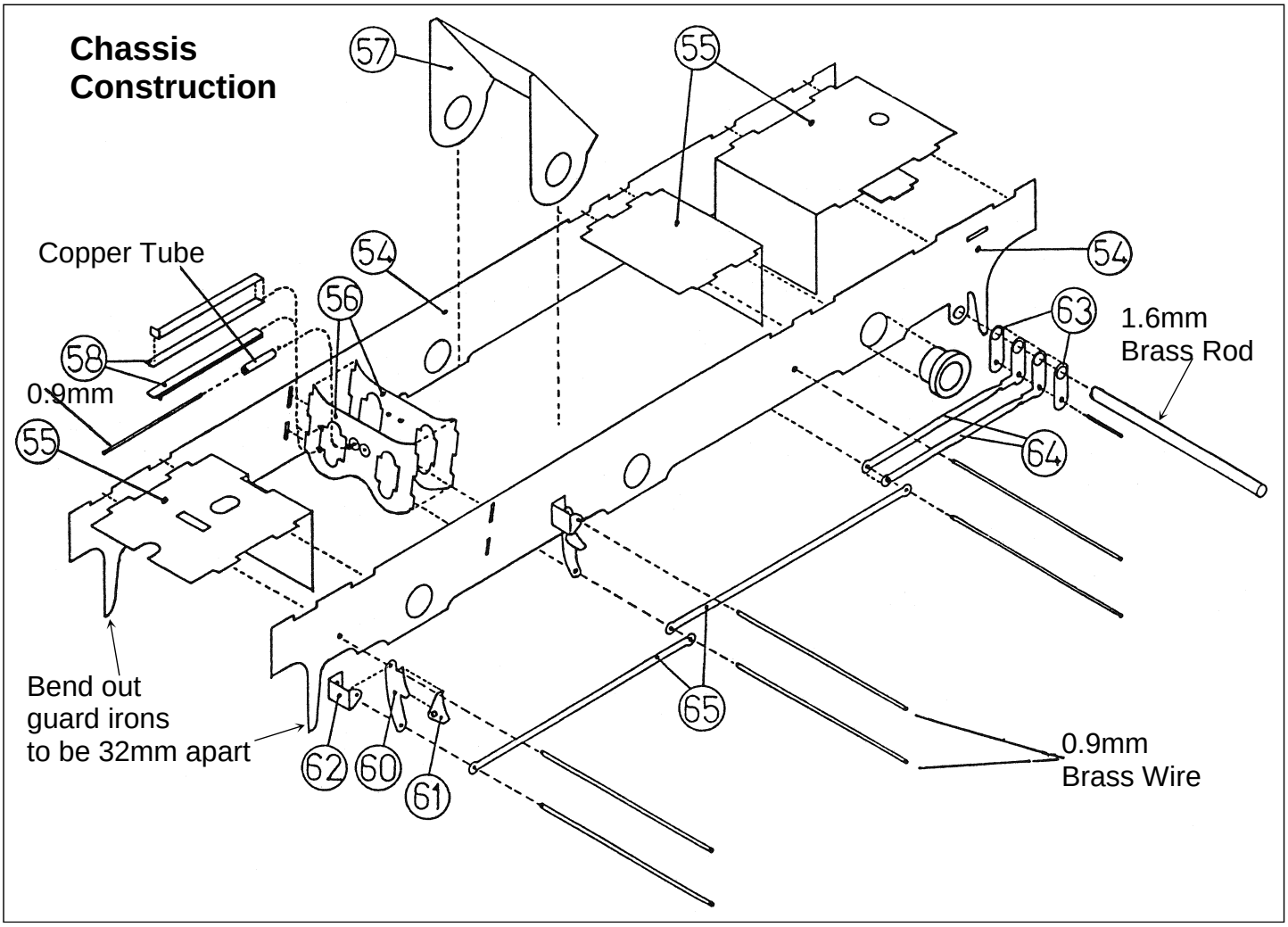
cosmetic screw coupling. Solder together both halves of each hook and then using round-nosed pliers form the four links into U shapes. Dress the tops of two links with a file so that they will pivot freely in the slot in the hooks. Thread one of these links through the hook and spring the ends over the pegs on the cast centre. Then fit the bottom link.



I pass the hook shank through the buffer beam slot then solder solid and trim off flush.

Fit the handrails made from 0.7mm brass wire. 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.





Parts 54, Chassis Sides. Emboss rivet detail then open out bearing holes with a tapered reamer.

Parts 55, Chassis Spacers. Form to shape and solder to one side frame (note the spacers are marked A,B,C and these correspond to A,B,C, on the inside face of the side frames to help with location). Then solder second side frame to spacers checking with an engineers square that the two frames will be exactly opposite.

Parts 56, Motion Bracket. Laminate together and solder between frames. It should spring between the frames and clip into etched location marks without distorting or forcing the frames apart.

Part 57, Motor Mount. Fold up and fit between frames locating with turned bearings. Find required angle for motor clearance in conjunction with body and then tack solder in position.

Pop the other bearings into side frames and temporarily fit wheels (with crankpins) and axles. Check that the chassis sits square with outer wheels level (centre wheels are lifted 0.25mm) when placed on a flat surface. Then solder bearings and all chassis joints solid.

Parts 58, Slide Bars. Make up as shown and fit between front spacer and motion bracket. Make up valve spindles from wire and tube as shown.

Parts 59, Coupling Rods. Laminate together as shown on drawing to form two sections for each side. I have designed them to have an overlapping pivot joint on the centre crankpin. Check that this joint remains free of excess solder so that it will pivot freely.

The knuckle joint that is the pivot point of the prototype locos rods is only a cosmetic representation on this kit. Fit a length of 1.8mm copper rod, dressed flush at the back and slightly proud at the front to represent the joint pin. Temporarily fit rods and check for smooth running, then remove.

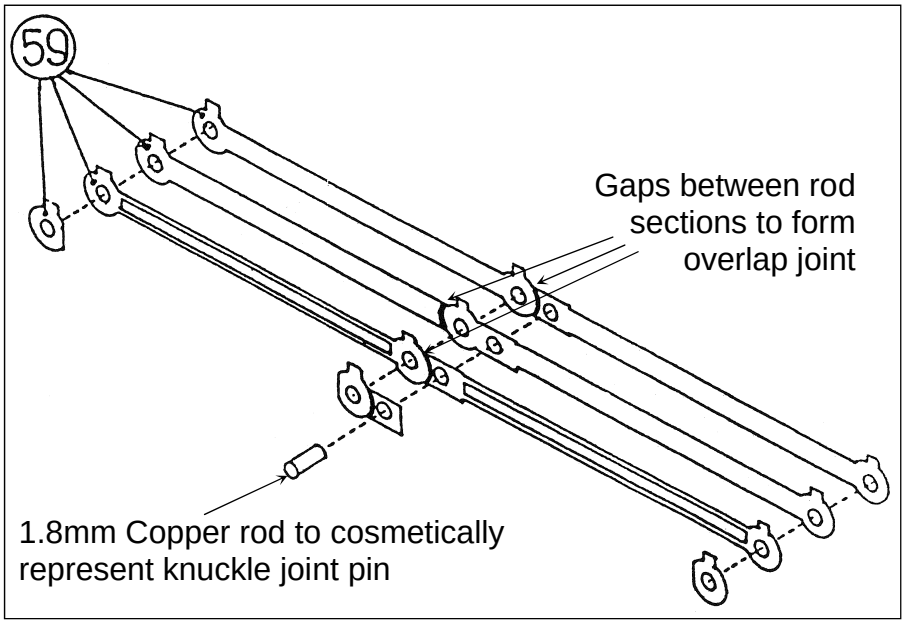
Parts 60 & 61, Brake Blocks and Hangers, Parts 62, Hanger Brackets. Fit lengths of 0.9mm brass wire across frames then thread brackets & hangers onto this. Solder bracket to side frame and hanger to wire so that the blocks line up with the wheel fronts. Fit wire through lower hanger holes.

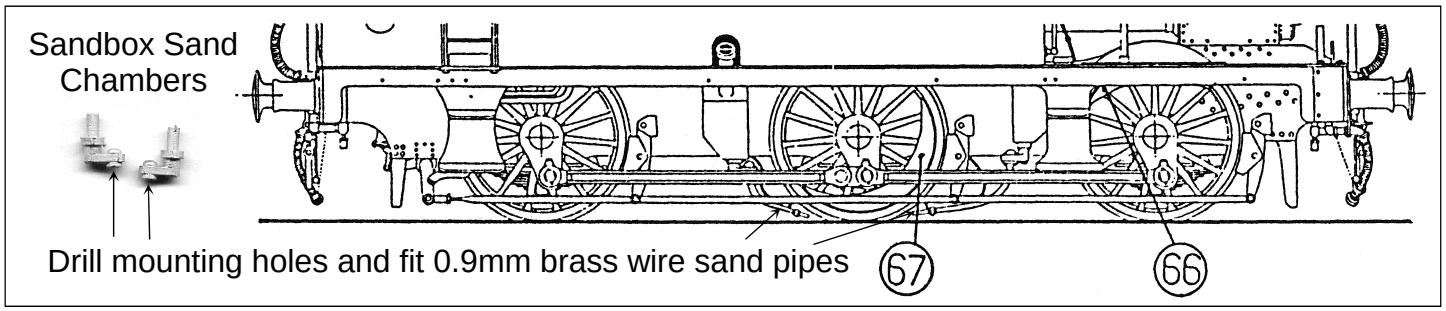
Parts 63 & 64, Rear Pull Rods. Parts 65, Centre & Front Pull Rods. Fit to run along in front of wheels but so wheels still remove.

Drill out hole in bottom of cast sandboxes and fit sand chambers. Then drill chambers to provide a firm fixing for 0.9mm brass wire. Fit filler pipes for below tank boxes then fit boxes to side frames (note etched positioning marks). Make & fit 0.9mm brass wire sand pipes.

Fit cast frame springs. These are a standard casting & may require a little trimming of mounting lugs.

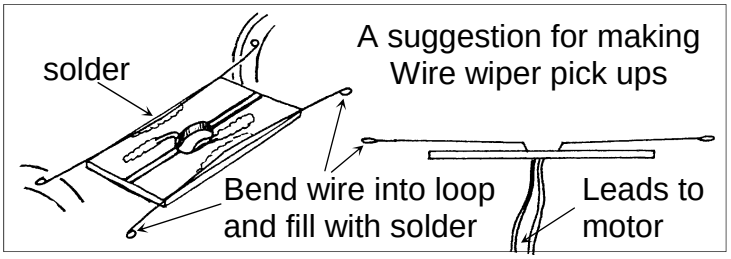
Parts 66, Outer Wheels Balance Weights, Parts 67, Centre Wheels Balance Weights. I glue to Slater's wheels with Araldite Rapid.





After painting the chassis fit electrical pickups and motor/gears and set up for sweet running.

I have included parts for making a wire wiper pickup system and pilot holes that can be opened up for Slater's plunger pickups are included on the side frames.



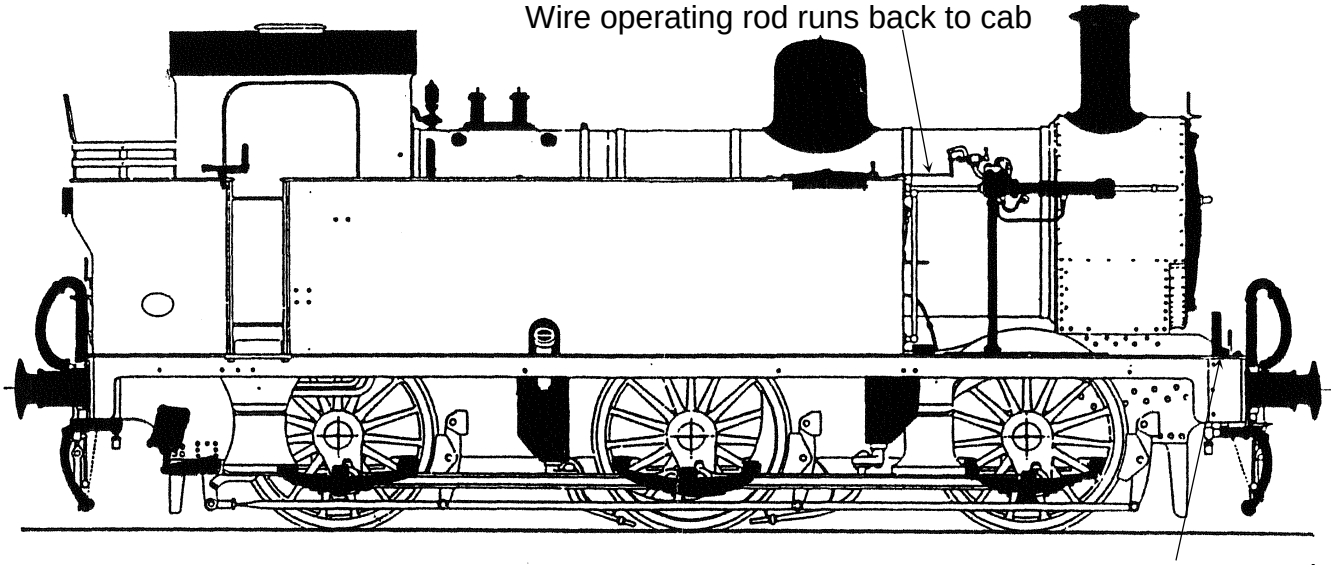
With these instructions I have assumed that you are experienced in setting up a chassis. If this is not the case extra instructions are included on the instruction sheet that comes with my motor and gearset. These can be downloaded free of charge from my website www.jimmcgeown.com or send a SAE and I will be pleased to provide them.

I have also produced comprehensive hints and tips help sheets for using Slater's wheels, plunger pickups, etc. These can also be downloaded free of charge from my website www.jimmcgeown.com or send a SAE and I will be pleased to provide a free copy of my hints and tips booklet for new customers.

It is intended that the cast cab roof is glued into place with Evo-Stik after the loco and cab interior have been painted and glazed. The joint can then be filled with milliput and touched up with paint to become invisible.

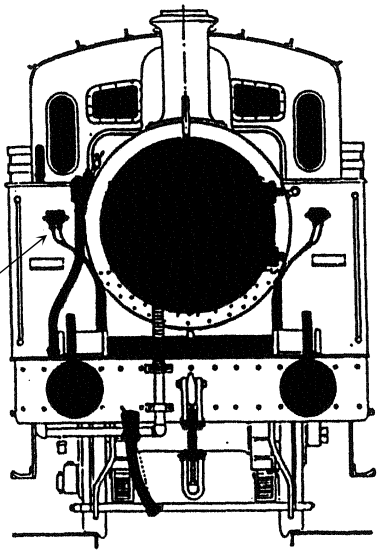
If you look carefully at the photo on page 15 you will see that I have not done this. The joint is not that noticeable below the rainstrip and it has the advantage that by twisting a knife blade in the crack the Evo-Stik bond can be broken and the roof removed if required. The choice is yours.

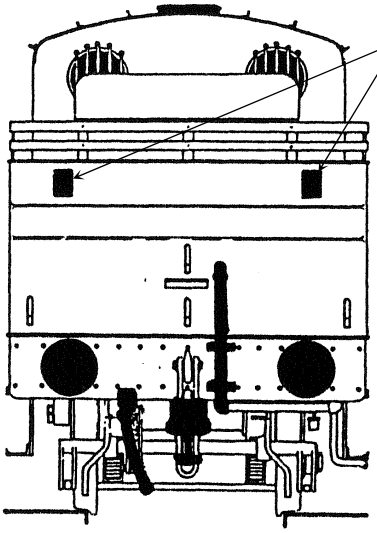
Casting Positions



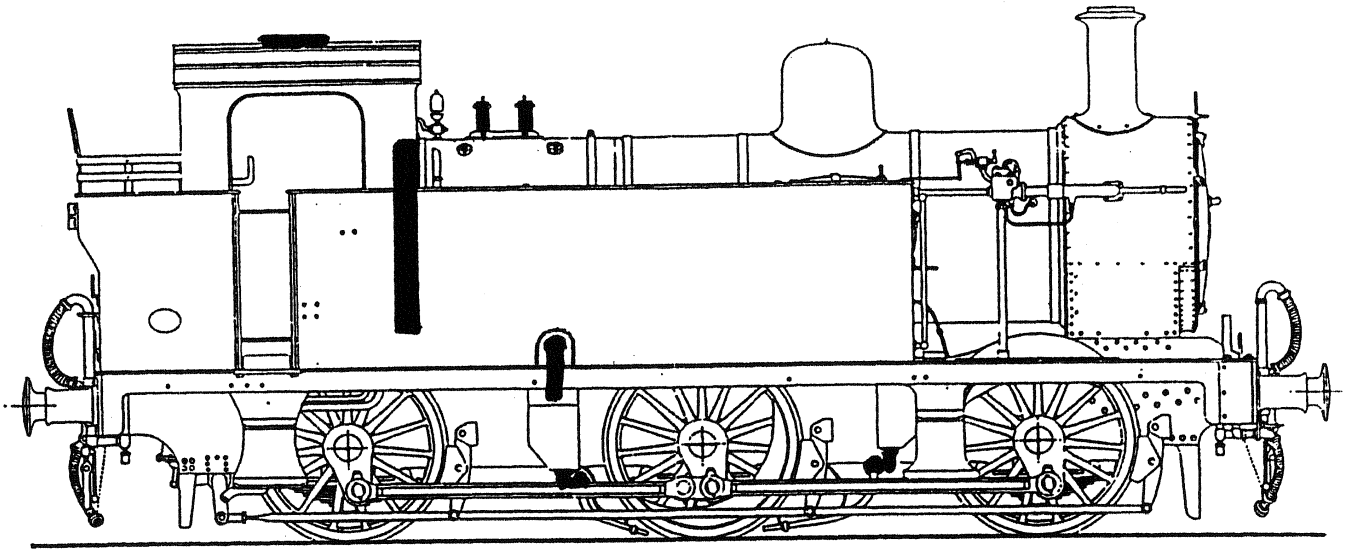
Tank Front Two Pipe Lubricators

Make pipe runs from 24swg tinned copper wire





Passenger train destination board brackets are not fitted to all locos

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