

## LNER Class J50



**Prototype.** Gresley designed this class in 1922 for the GNR. The design became the LNER standard shunting engine, with 72 built. This class lasted until 1963. There were a number of variations in the J50 class and this kit is based upon a J50/2.

**Kit.** Because of the shape of the prototype this kit is a bit more complicated and challenging than a simple side tank but the parts fit together well. The main body components are brass and the chassis is all nickel silver. The kit was originally designed without cab detail but now includes cast back head, reversing lever, brake standard and plywood floor to enable the cab interior to be detailed.

### Parts Required To Complete

3 Sets 4'7 $\frac{1}{2}$ " , 14 Spoke Driving Wheels (Slater's Catalogue Numbers 7855W)  
Plunger Pickups if desired (Slater's Catalogue Number 7157)  
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  
Proprietor Jim McGeown**

## 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.

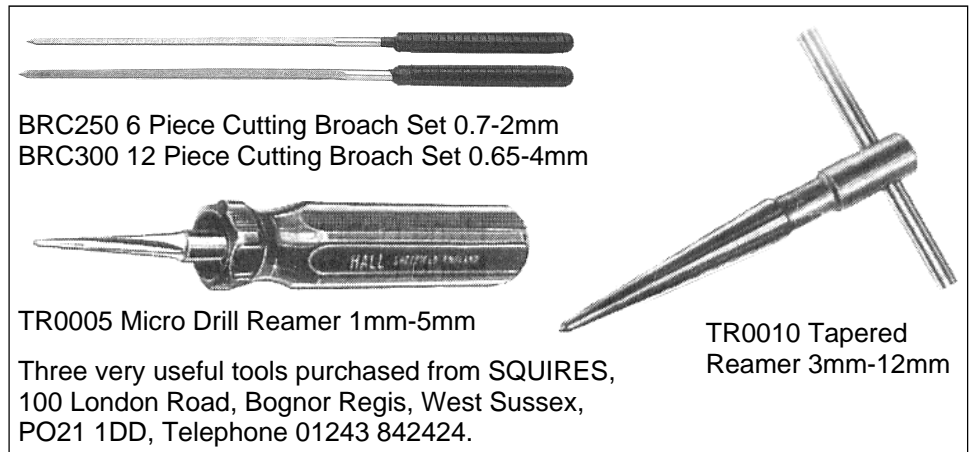
Try to complete all high-temperature soldering before attaching any of the cast whitemetal parts. These can be attached with two-part epoxy resin such as Araldite Rapid. Ensure the surfaces to be glued are clean and free of grease.

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.



**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.

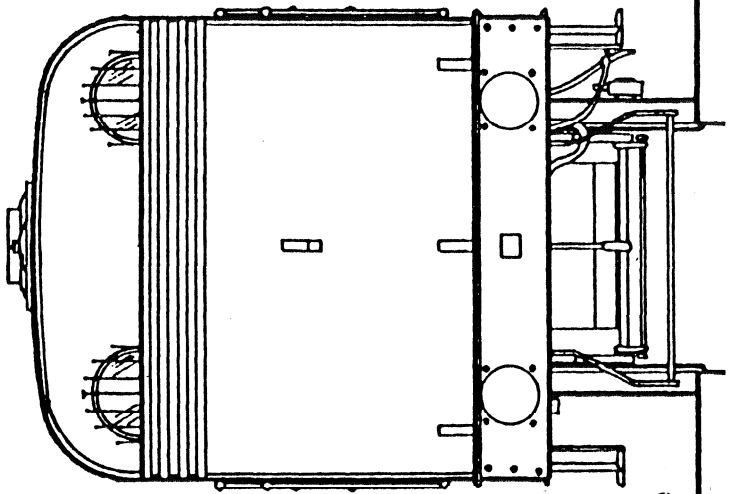
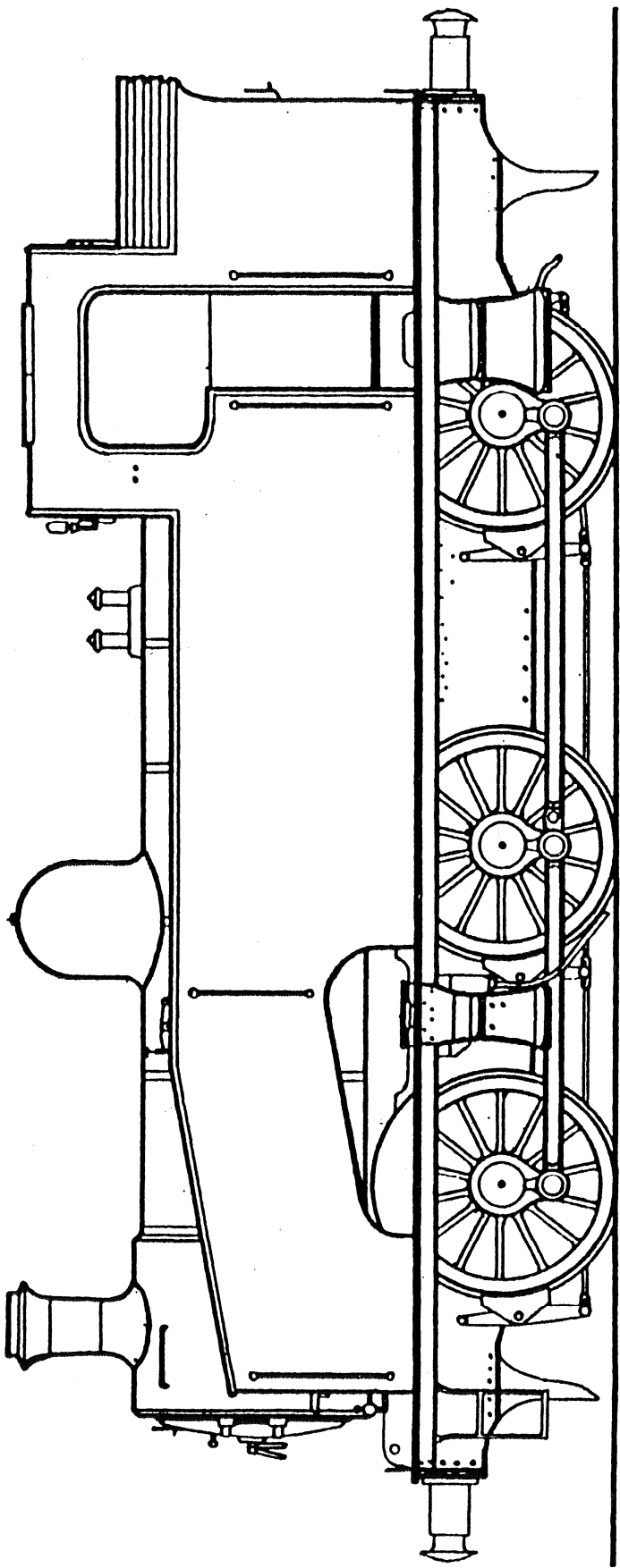
To form shallow curves, splasher tops, smoke box wrappers etc, use a piece of pipe or broom handle. Diameter is not crucial, a piece of one-inch water pipe covers cab roof to smoke box wrapper. Place part over tube and hold in place with finger and thumb of one hand. Work the metal in stages over tube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

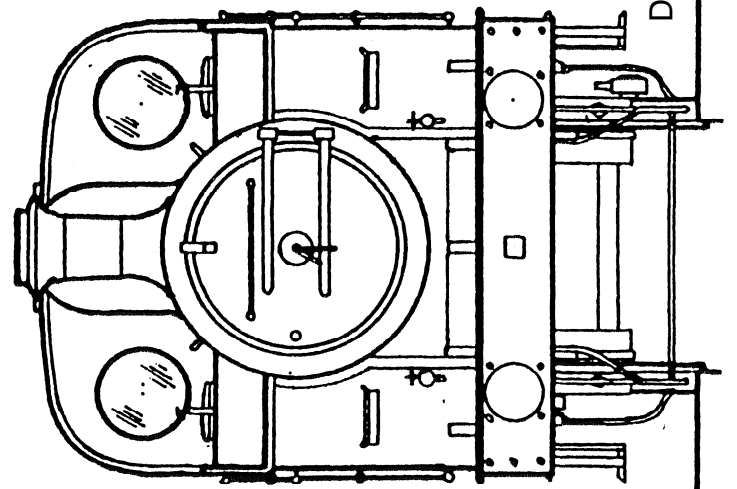
**Damaged Parts and Shortages.** If you damage an etching during construction it is not possible to replace individual pieces, but I am quite flexible in providing at minimum cost replacement frets (this will contain all the brass or N/S parts). Where a casting is damaged individual items can be replaced 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.

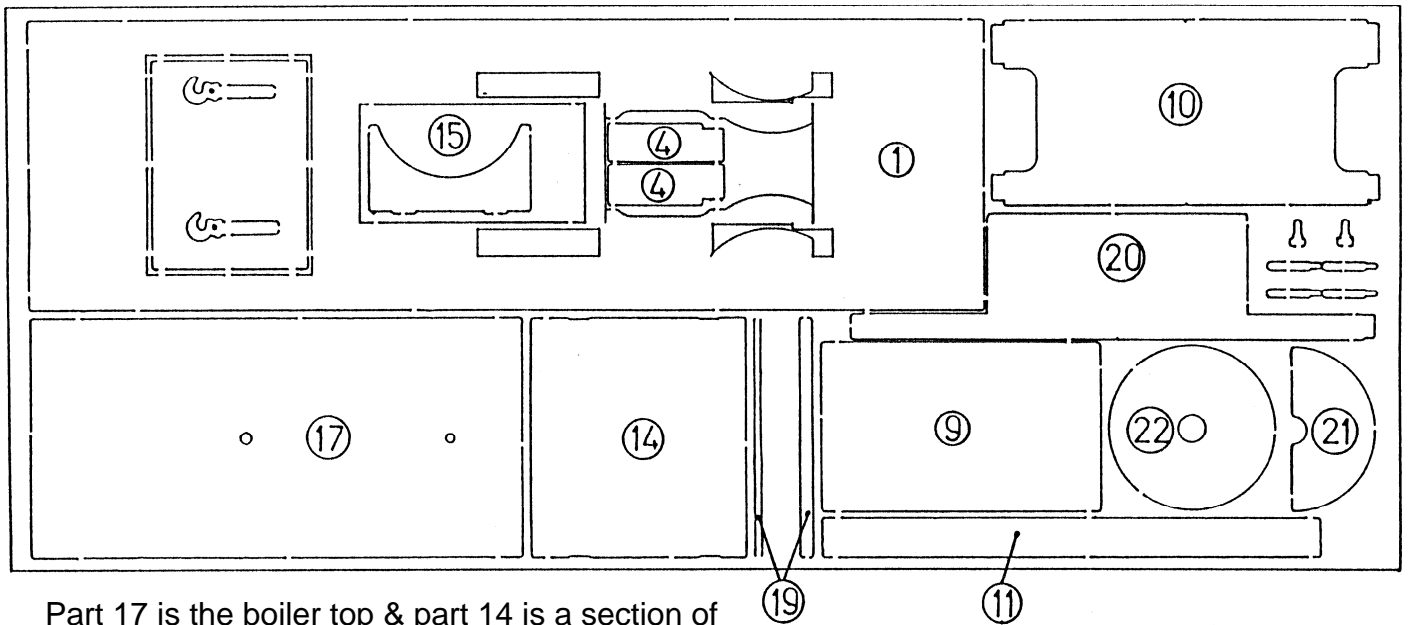
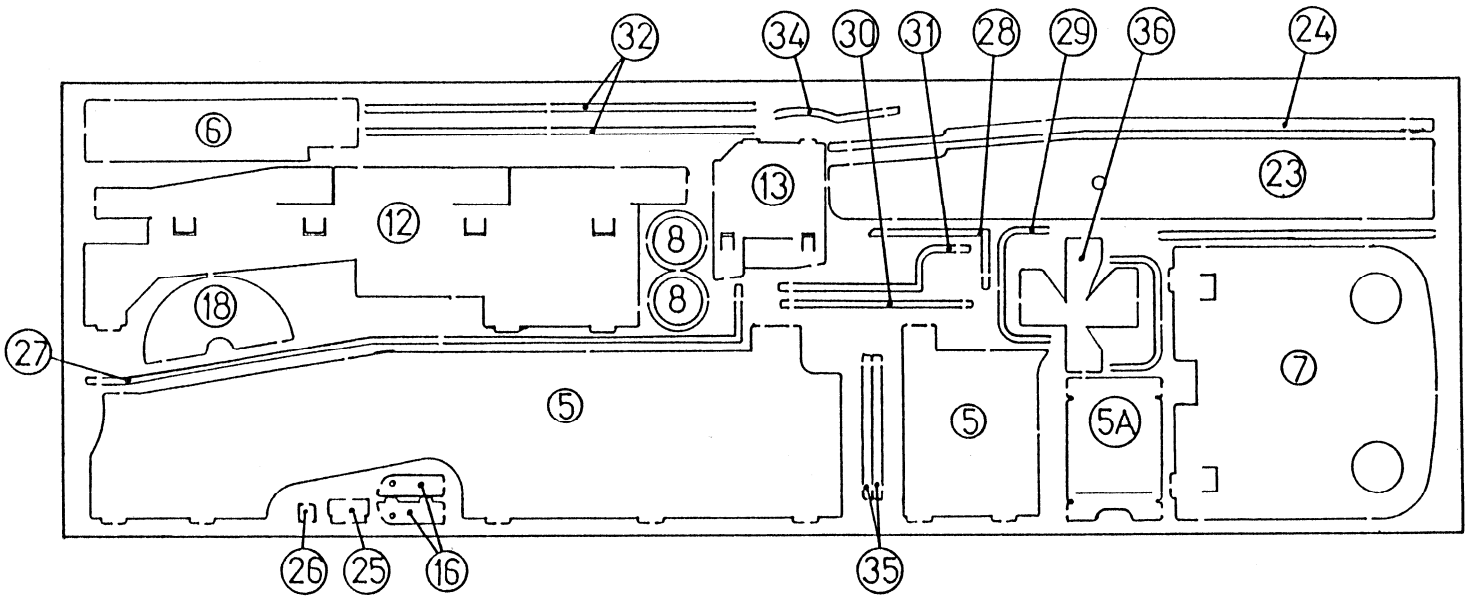


The main part of these instructions are scanned from the original paper masters used on a photocopier. These were created before the existence of modern computer desk top publishing, using pen, ink and ribbon typewriter and physically cut out and pasted up.

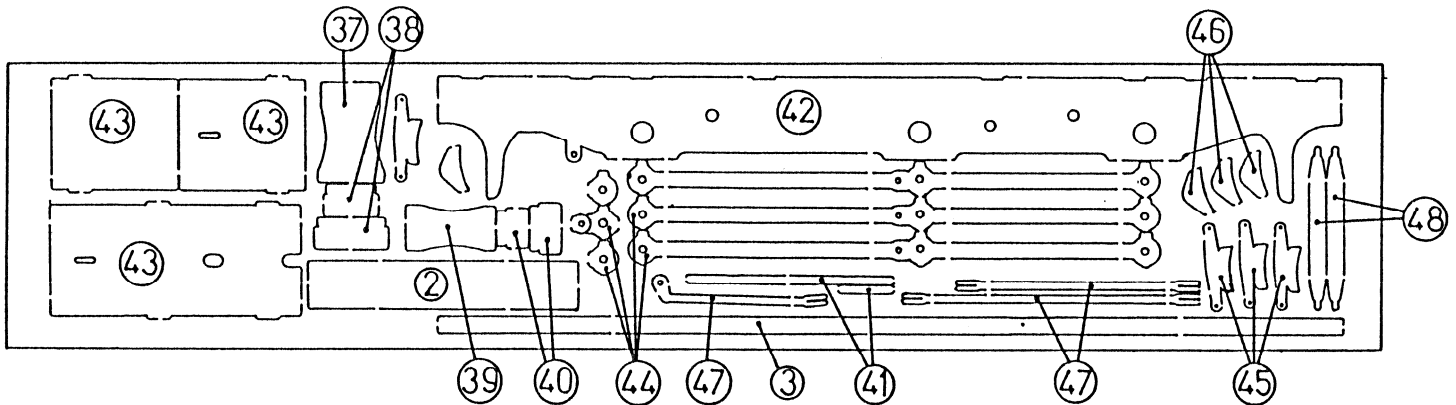


Drawings Only Approximately To Scale

## LNER Class J50, Etched Parts Identification



Part 17 is the boiler top & part 14 is a section of underside. You will find these parts removed, pre rolled & wrapped separately

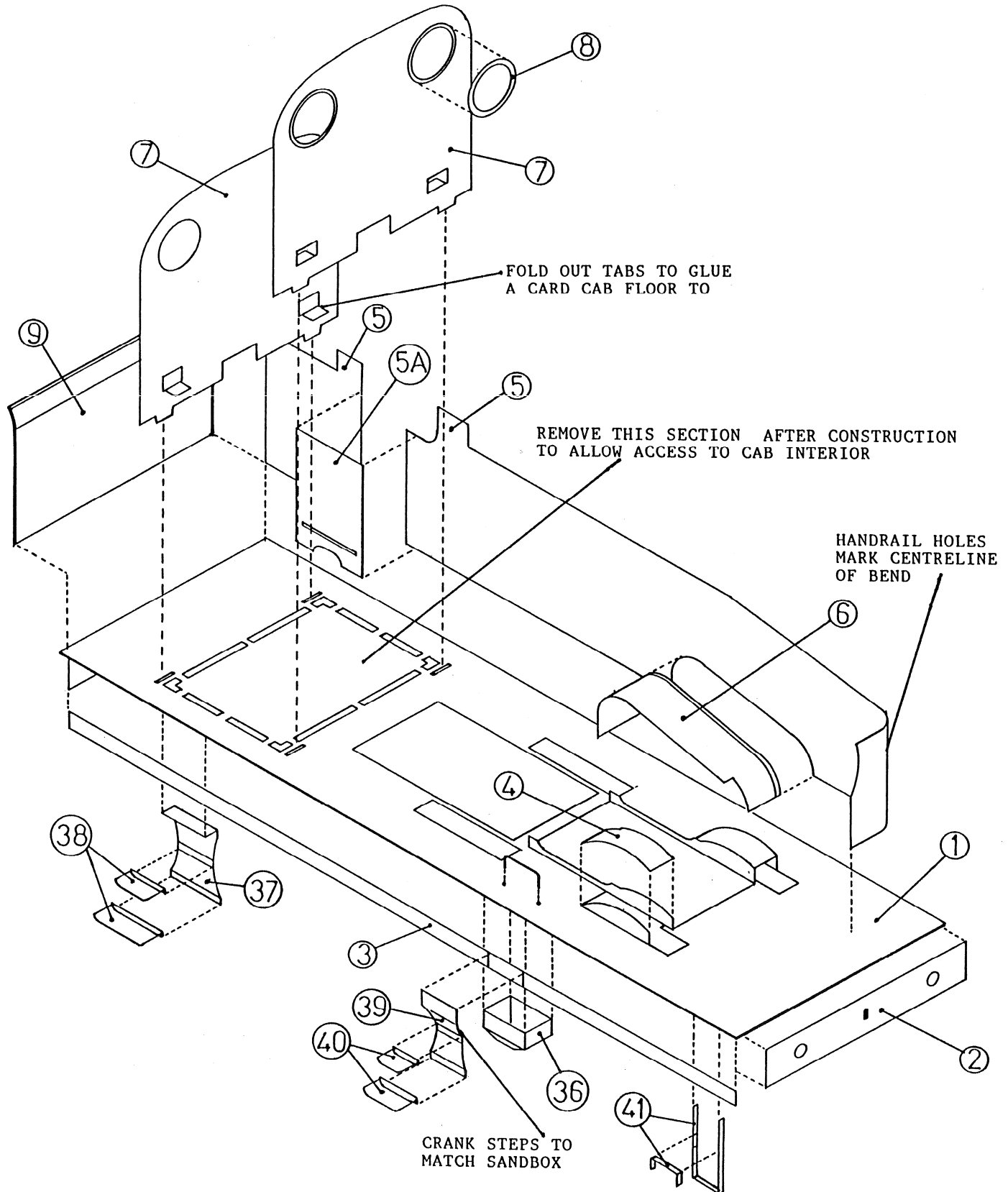


Above parts are etched in Nickel Silver.  
You will find the section repeated as mirror image to provide L/H & R/H chassis sides etc.

POINTS TO NOTE

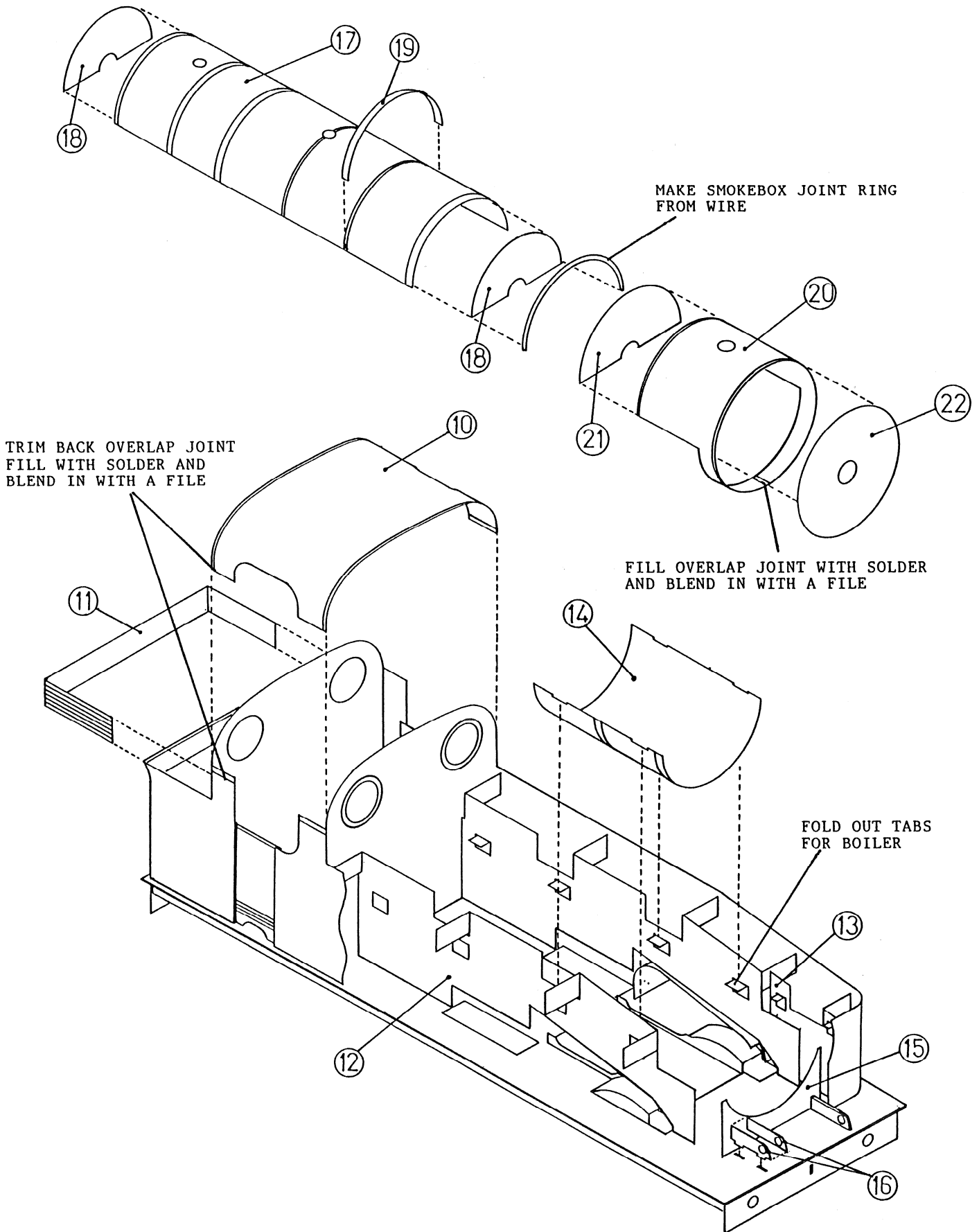
Parts are numbered in a logical assembly order. Tack solder a part in place, then adjust the next part to match. Some parts are designed oversize to be trimmed to size. Solder solid when happy.

Solder cab door (5A) to tank and bunker side before removing parts (5) from fret.

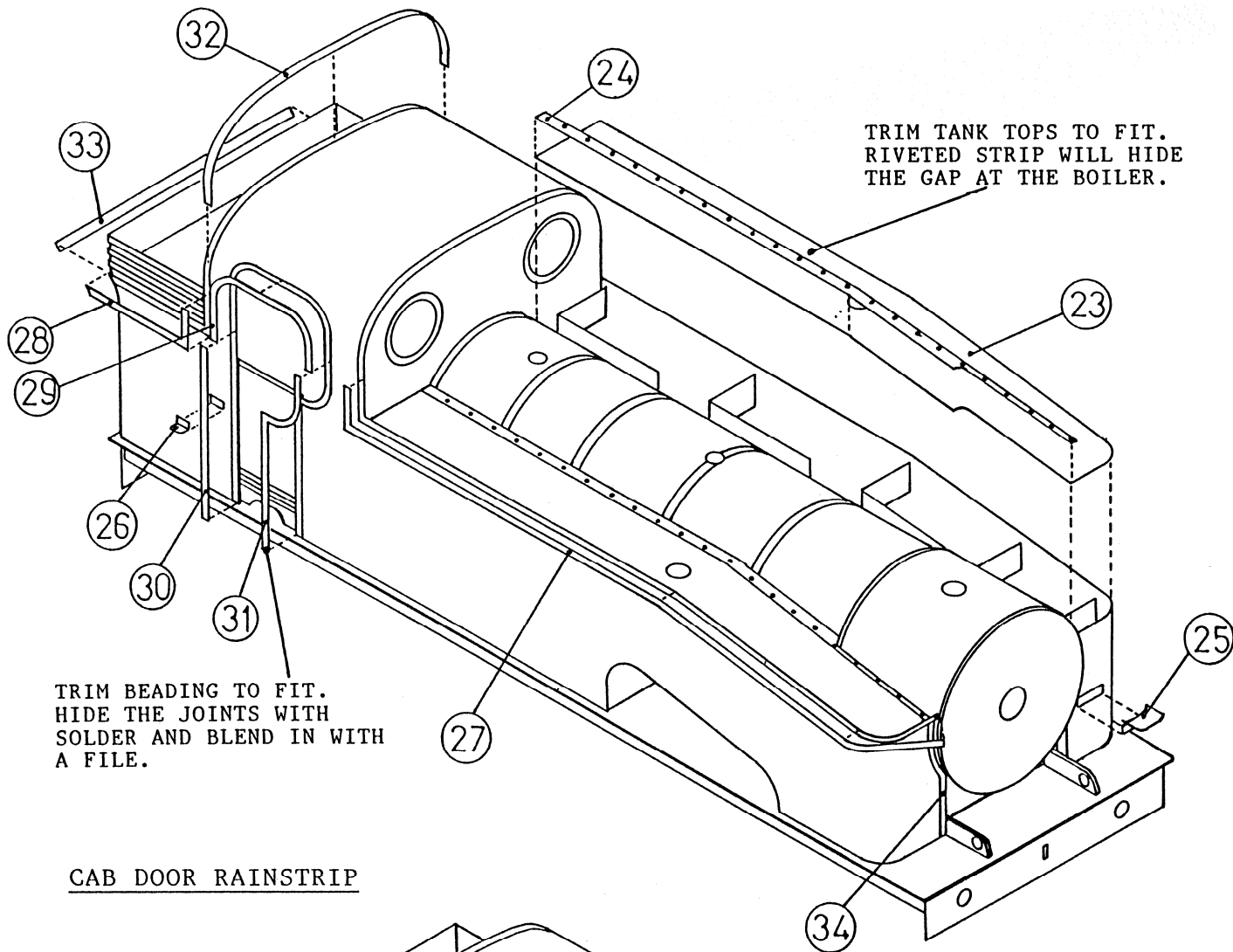


POINTS TO NOTE

Be careful of body twisting when soldering inner tanks and boiler in place

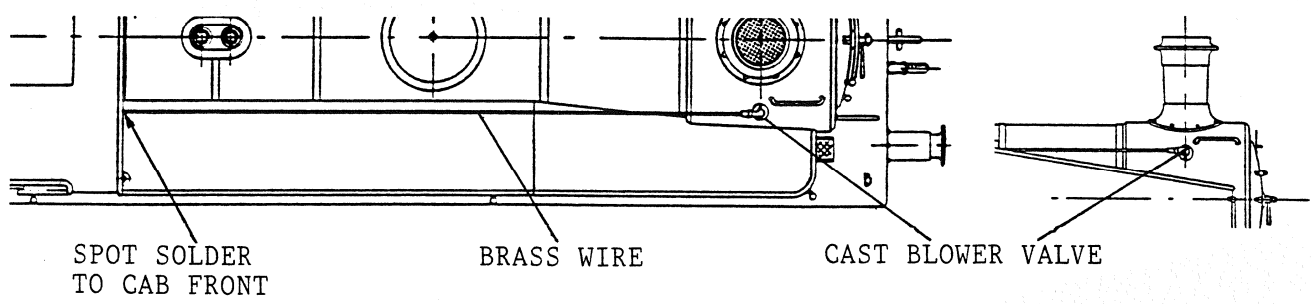
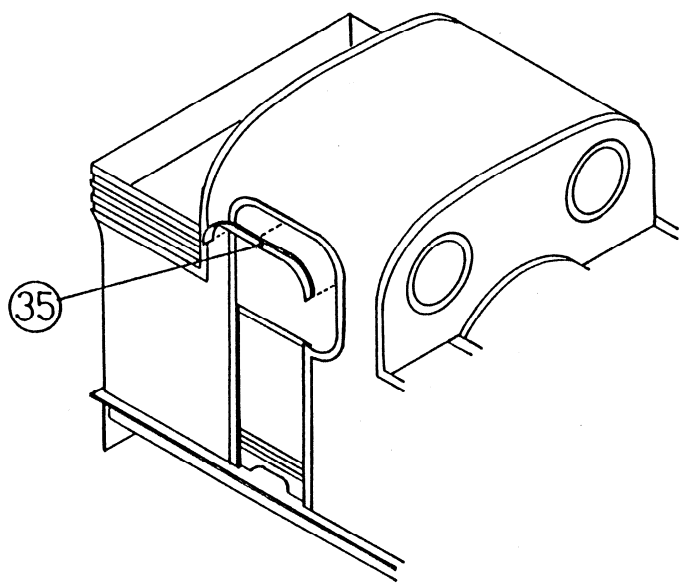


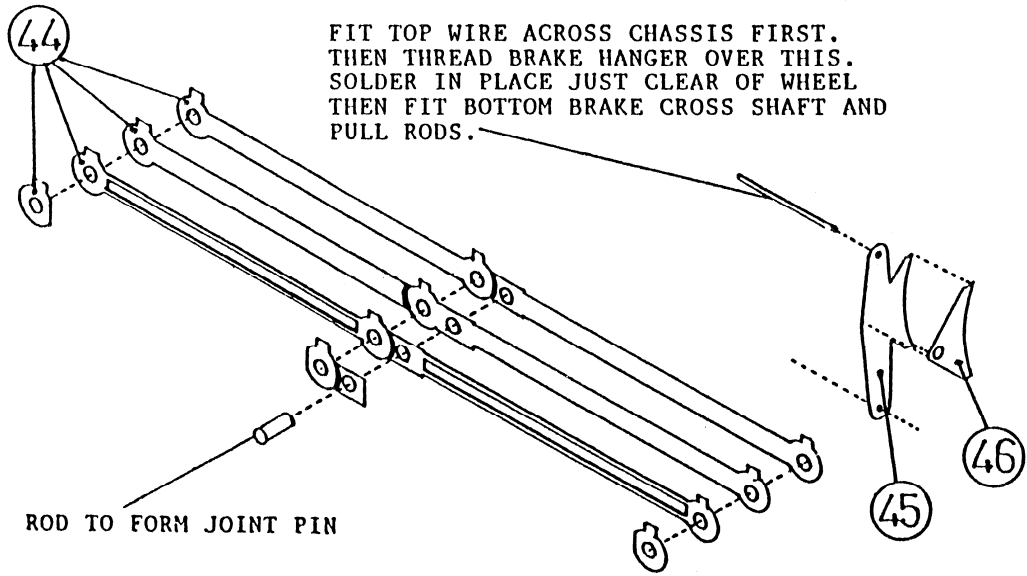




TRIM BEADING TO FIT.  
HIDE THE JOINTS WITH  
SOLDER AND BLEND IN WITH  
A FILE.

CAB DOOR RAINSTRIP





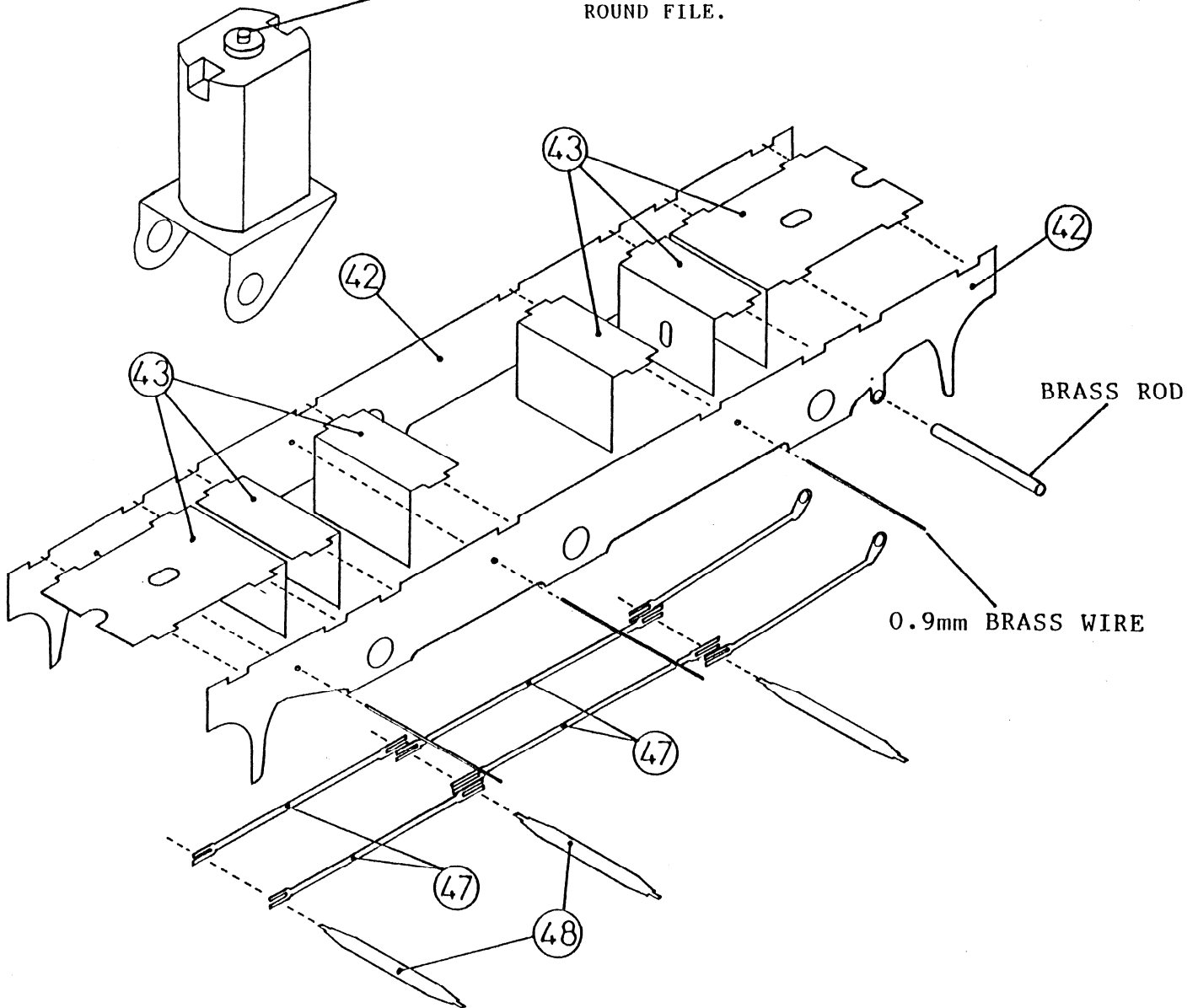
FIT TOP WIRE ACROSS CHASSIS FIRST. THEN THREAD BRAKE HANGER OVER THIS. SOLDER IN PLACE JUST CLEAR OF WHEEL THEN FIT BOTTOM BRAKE CROSS SHAFT AND PULL RODS.

ROD TO FORM JOINT PIN

FIT MOTOR MOUNT ONTO CENTRE BEARING BUSHES

CUT OFF BACK SHAFT OF MOTOR

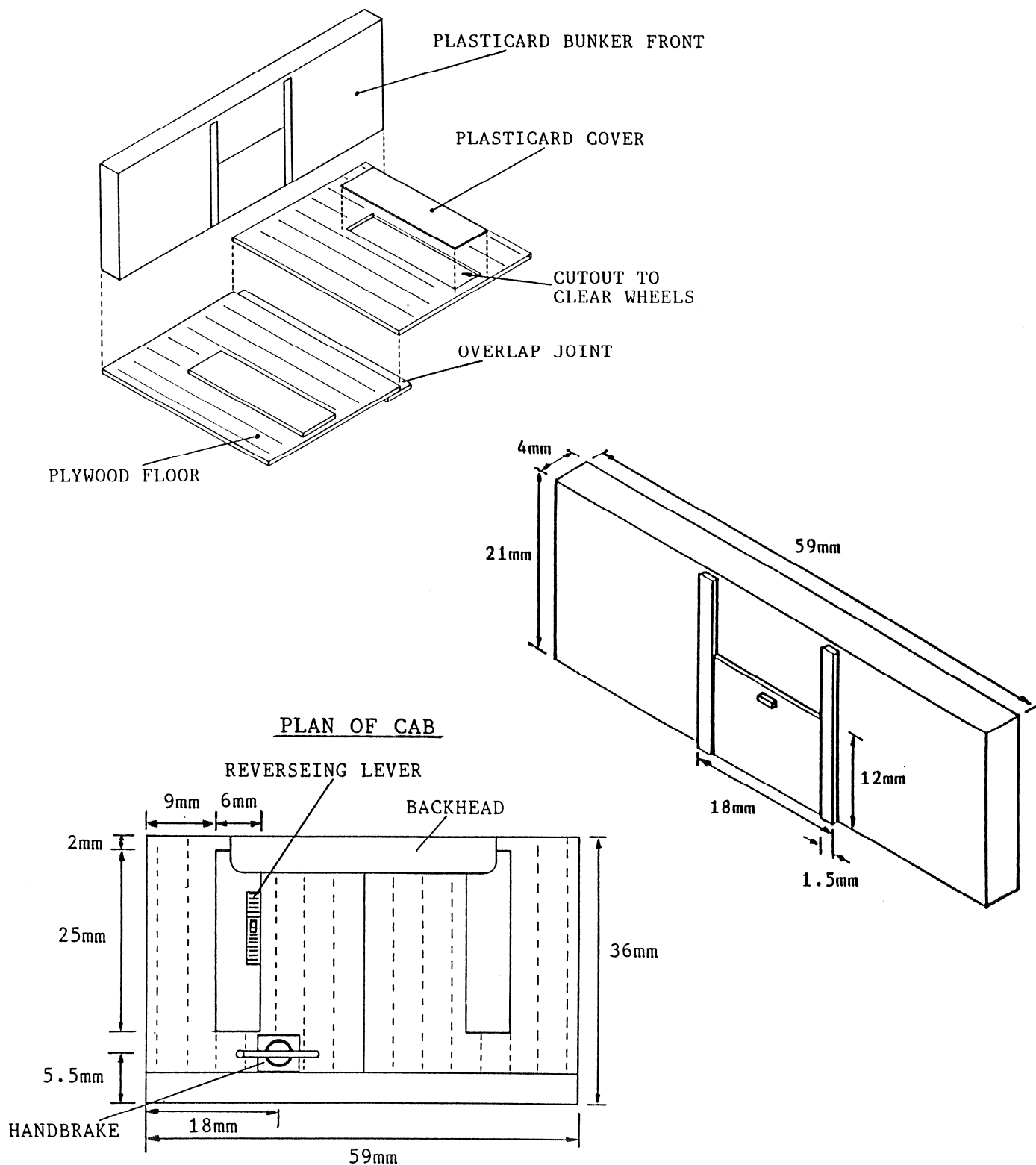
FIT RODS ONTO CRANKPINS AND CHECK FOR BINDING GENTLY OVAL ANY OFFENDING HOLES WITH A FINE ROUND FILE.



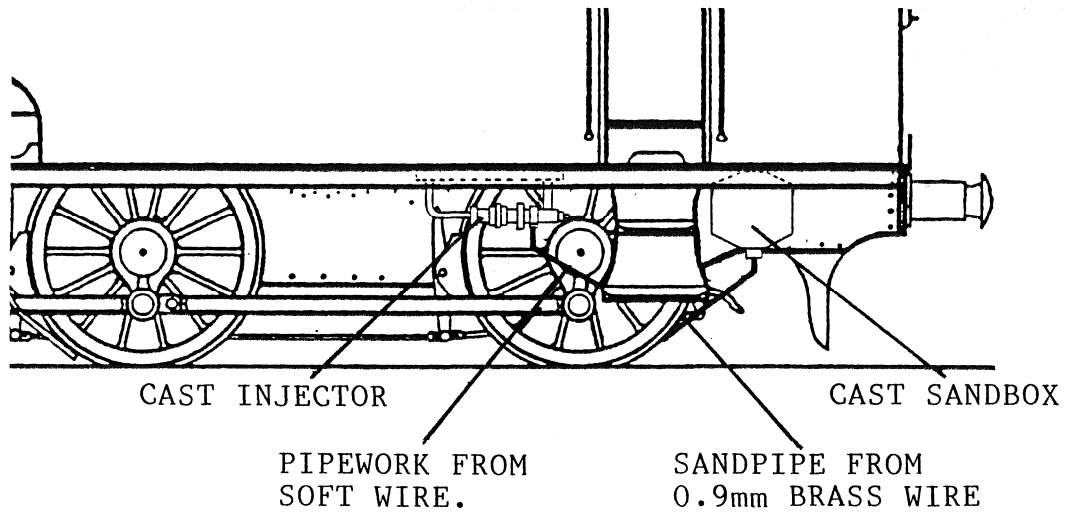
FIT SPRING CASTINGS, THESE ARE A STANDARD CASTING AND WILL NEED TO BE CHOPED A BIT TO FIT THE FRAMES.

## CAB DETAIL

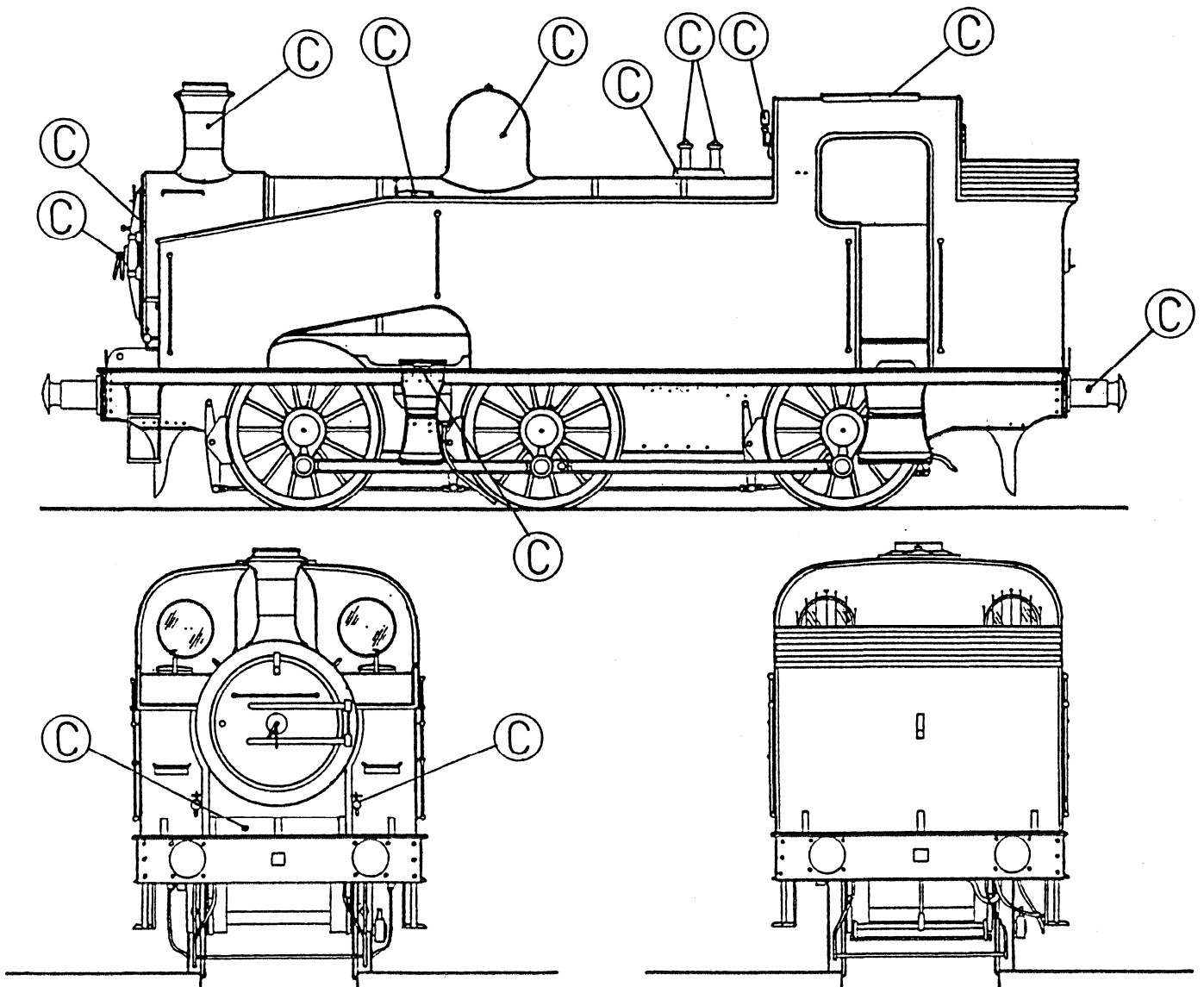
Originally the parts for this kit did not include cab detail. I now provide castings and material so that with a pleasant evenings scratchbuilding you can produce a basic cab interior suitable for a layout loco. This is a bit of a compromise but hopefully an acceptable one.



PAIN'T AND GLAZE INSIDE OF CAB FIRST. THEN GLUE BUNKER FRONT TO CAB BACK AND BACKHEAD TO CAB FRONT. THEN FIT THE HALF OF THE FLOOR WITH THE HANDBRAKE AND REVERSEING LEVER ON. THE FLOOR IS GLUED TO THE FOLD OUT TABS. THEN FIT THE SECOND HALF OF THE FLOOR.



FIT REMAINING BODY CASTINGS WITH REFERENCE TO DRAWINGS.



REFERENCES

LOCOS OF THE LNER 8a R.C.T.S

