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CONNOISSEUR MODELS 0 GAUGE LNER Class J15 0-6-0 Tender Engine



Parts Required To Complete

3 Sets 4' 10", 15 Spoke Driving Wheel (Slater's No 7858E)
3 Sets 4', 10 Spoke Tender Wheels (Slater's No 7848GE)
Plunger Pickups if desired (Slater's No 7157)

Available From Slater's, Temple Road, Matlock Bath,
Matlock, Derbyshire, DE4 3PG, Tel 01629 583993.
Mashima 1833 Motor and 40/1 Gear Set (Connoisseur)

Connoisseur Models, 33 Grampian Rd, Penfields, Stourbridge, DY8 4UE, Tel 01384 371418

LNRC Class J15

The Great Eastern Railway between 1883 and 1913 built this class of 272 locomotives. They were the classic maids of all work, as much at home on the country branch passenger train as they were on a main line goods or parcels train. Members of the class lasted until 1962.

As would be expected from a large and long lived class of locomotives built over such a long period of time there was many detail differences between individual members. Modellers wishing to represent a particular locomotive at a specific time are going to have to do some prototype research to provide photos of their chosen loco and work from these for detail, livery, etc.

As a starting point try to get Locos of the LNRC Part 5, The Railway Correspondence and Travel Society.

Just about any book on East Anglian Steam will have lots of J15 photos in it. But The Mid Suffolk Light Railway, Peter Pave, Wild Swan Publications Ltd, ISBN 0 906867 41 X, is a very good book for lots of J15 photos. Get these two books from your local library through their inter library loan book order system.

Also if you want to model East Anglian locos at a given period you should be a member of the Great Eastern Railway Society. Membership secretary, Jim Tant, 9 Clare Road, Leytonstone, London, E11 1JU.

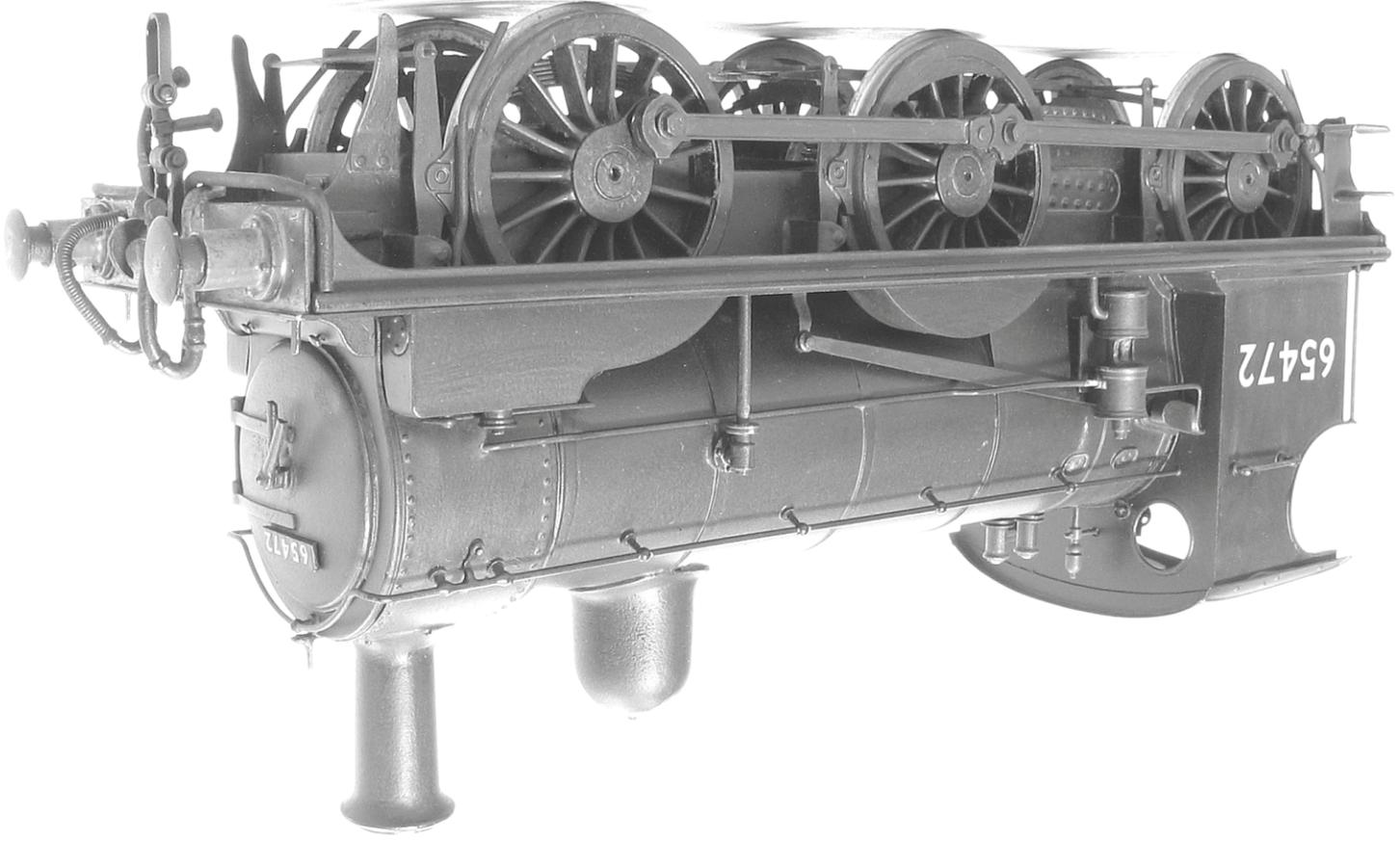
I have designed the kit to represent one of the later batch of locomotives built with vacuum and Westinghouse air brakes in LNRC and BR condition as this is the chosen modelling period of most of my customers.

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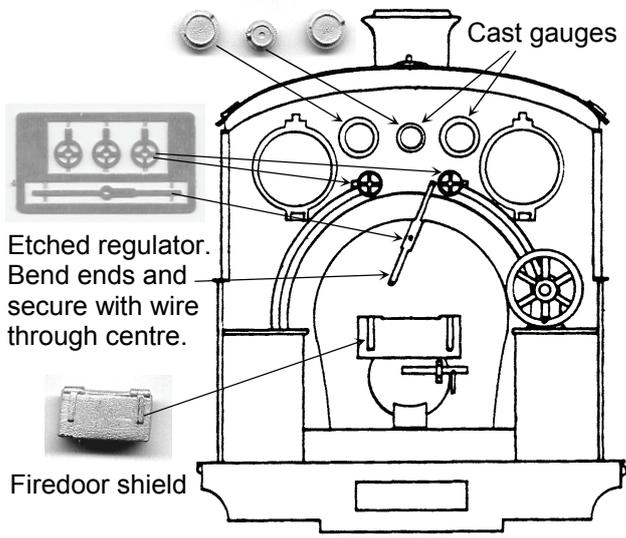
I have provided some additional parts and alternatives to give those who wish to make modifications to model a different loco or period a head start but I have assumed that they will have the knowledge to recognise the alternatives and know what to do with them.

For the modeller who just enjoys building a kit for the pleasure of a finished model and who does not wish to undertake extensive research as part of the project. I would recommend building the model to match the photographs of my sample loco. I have tried to build No 65472 to match photographs of the real loco running on the Mid Suffolk Light Railway. BR No 65472 was numbered 7544 by the LNRC and renumbered 5472 in 1946. Livery was plain black and I would recommend HMRs Transfers, Sheet 4a, LNRC yellow locomotive insignia or sheet 14, BR steam era loco & coach insignia. For details & order form send SAE to Historical Model Railway Society transfers sales officer, 8 Gilpin Green, Harpenden, Herts, AL5 5NR.

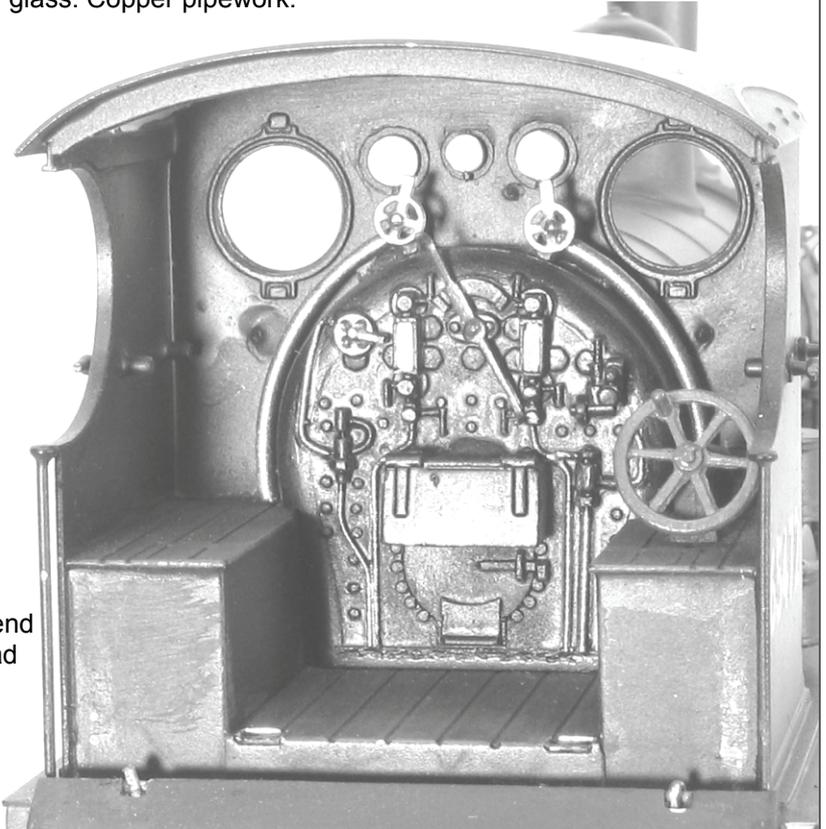
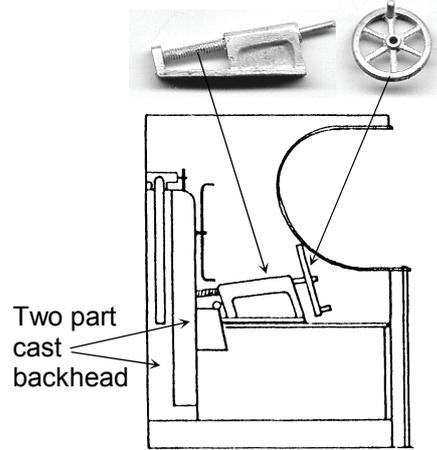
For continuity the instructions detail assembly of the chassis followed by the body and then fitting of the castings. In practice I would recommend constructing the basic chassis to the point that wheels are temporarily fitted but bearings are not yet soldered solid. Then constructing the body to the point that the boiler is made up but not yet fitted. In this way the basic chassis can be used to check clearances as the body is constructed. Then the body can be used to check the correct position and angle when installing the motor and its mounting plate. Clearances for the motor in the firebox are tight so it is important that it is positioned correctly. Once this is achieved body and chassis construction can proceed alongside each other as you wish.



With this set of kit instructions I have made the assumption that the builder is completely familiar with basic construction techniques and is experienced with fitting wheels, motor, pickups and achieving sweet running chassis. If this is not the case then you want a copy of my booklet, Hints, Tips & Frequently Asked Question Answered. This will help fill in the gaps.



Cab interior painting
 Black interior and backhead with dirty wood tops to boxes. Underside of cab roof white or buff. Brass spectacle frames (scrape off paint). Brass gauges with white faces. Brass handwheels. Brass water gauges with silver in centre to represent glass. Copper pipework.



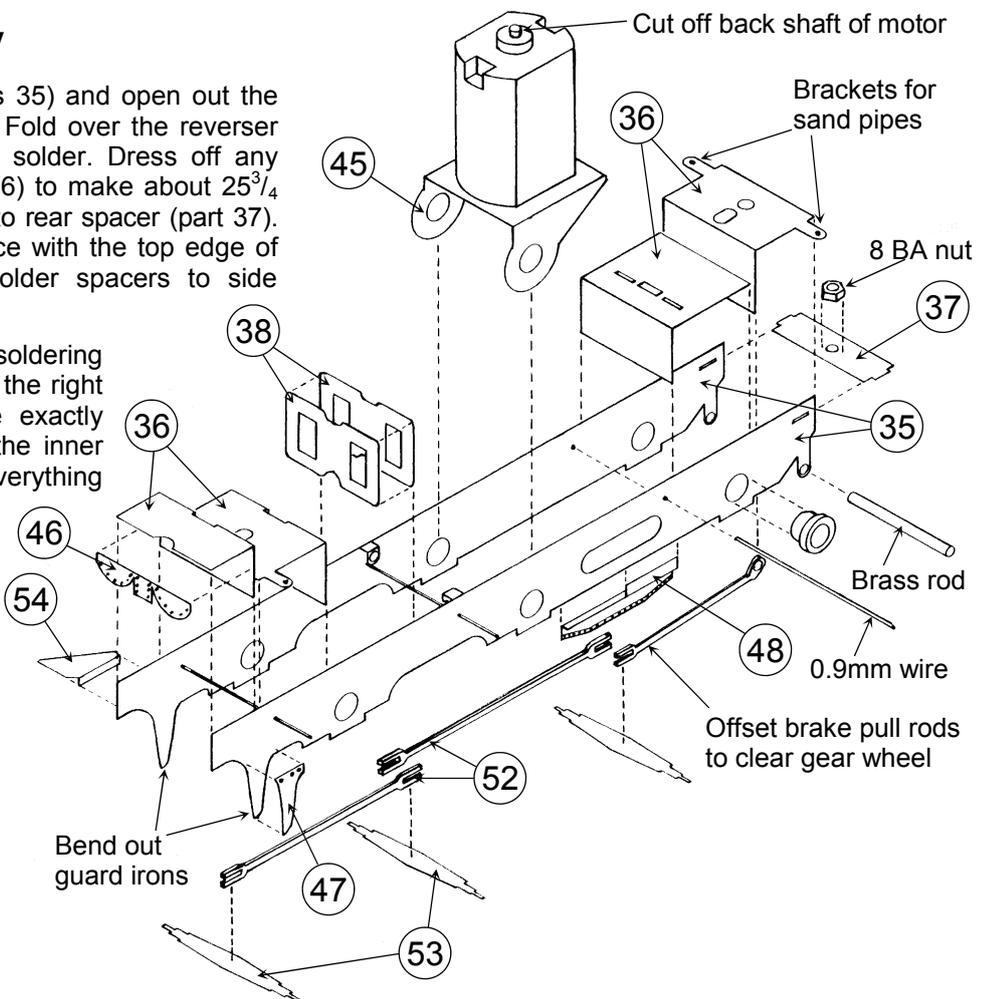
Main Chassis Assembly

1. Take the chassis side frames (parts 35) and open out the axle holes to take the turned bearings. Fold over the reverser shaft brackets and reinforce folds with solder. Dress off any cusp from the sides of spacers (parts 36) to make about $25\frac{3}{4}$ mm wide and fold up. Solder 8 BA nut to rear spacer (part 37). Then lay a side frame onto a flat surface with the top edge of the frame overhanging slightly and solder spacers to side frame.

Fit the second side frame by tack soldering only. Check that this frame is in exactly the right position and that the two frames are exactly opposite each other. Then starting at the inner spacers and working outwards solder everything solid.

Solder together the two halves of the motion bracket (parts 38). Spring into position between the frames locating into etched rebates and solder solid.

To maintain the look of the model underneath the boiler I have made the chassis as wide as I can (just under 27mm). This is wider than most chassis and therefore there is little side play for the wheels. The chassis will go around a 6' radius curve (PECO point) but you may wish to reduce the spacer widths if you require more side play for tighter curves.



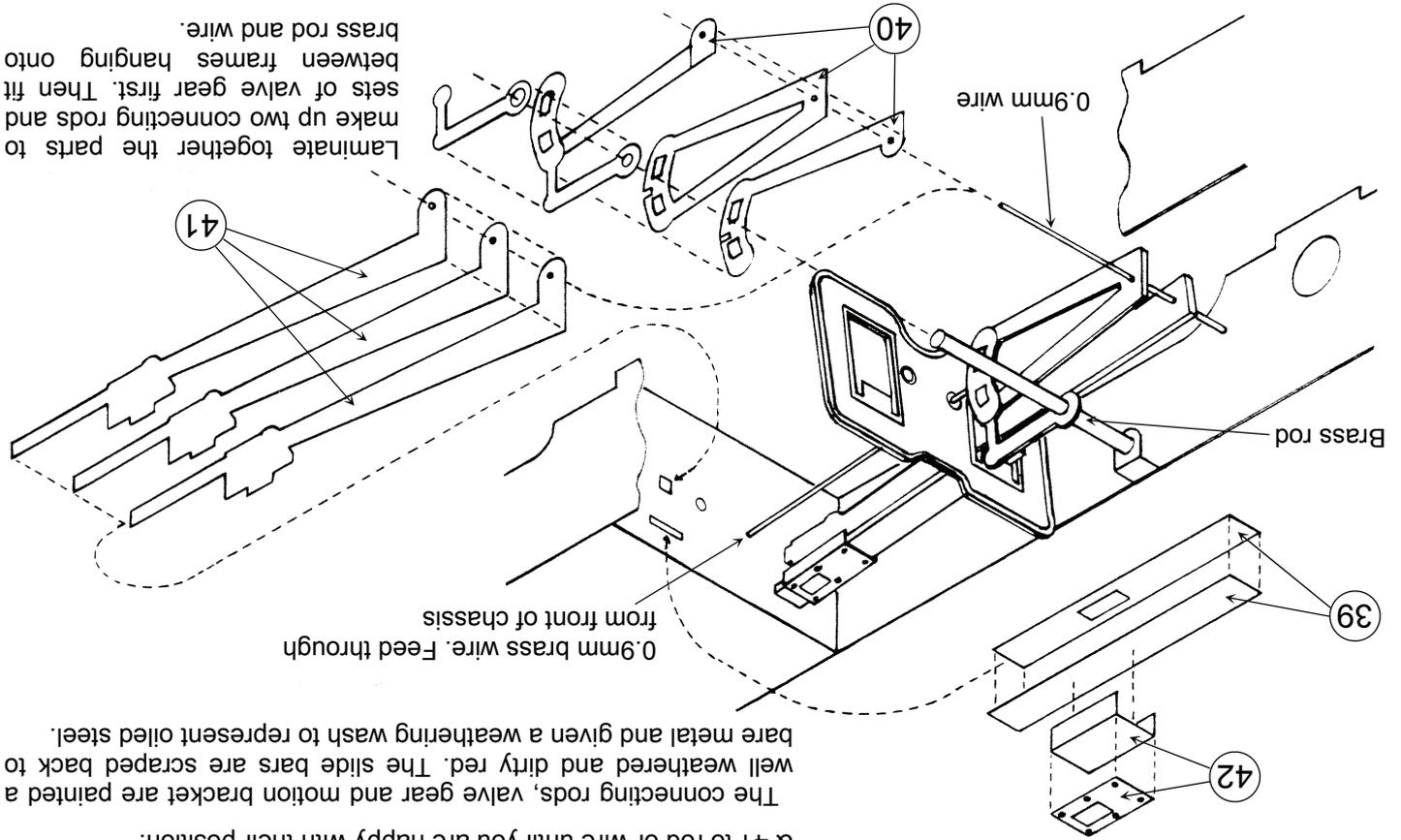
Inside Valve Gear Assembly

2. Assemble inside slide bars, connecting rods and valve gear from components 39 through 42. I think that the drawings and illustrations explain what is required better than words can. Don't solder parts 40 & 41 to rod or wire until you are happy with their position.

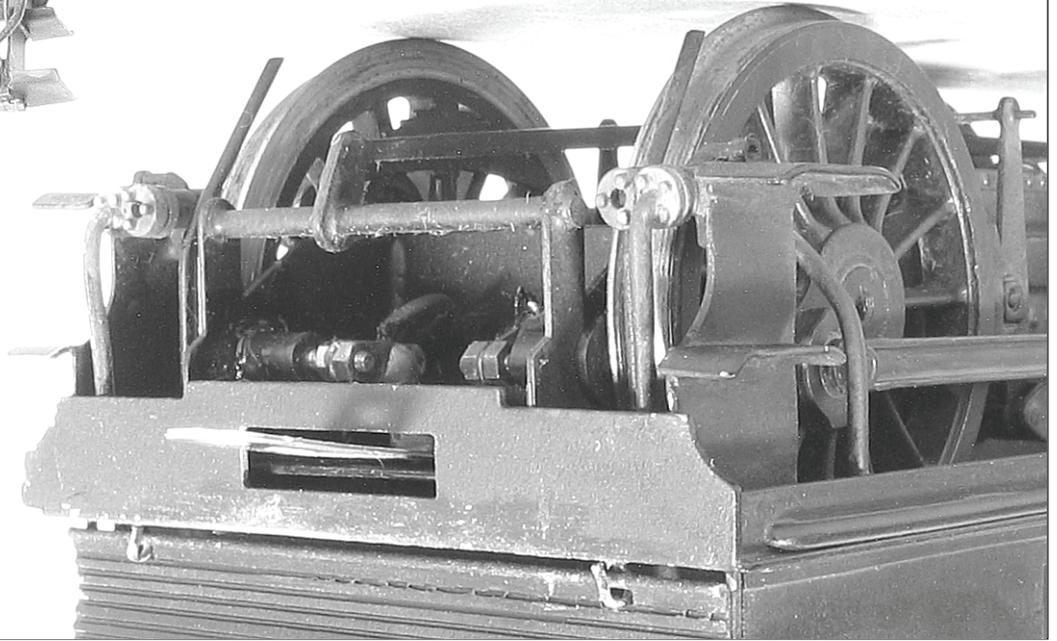
The connecting rods, valve gear and motion bracket are painted a well weathered and dirty red. The slide bars are scraped back to bare metal and given a weathering wash to represent oiled steel.

0.9mm brass wire. Feed through from front of chassis

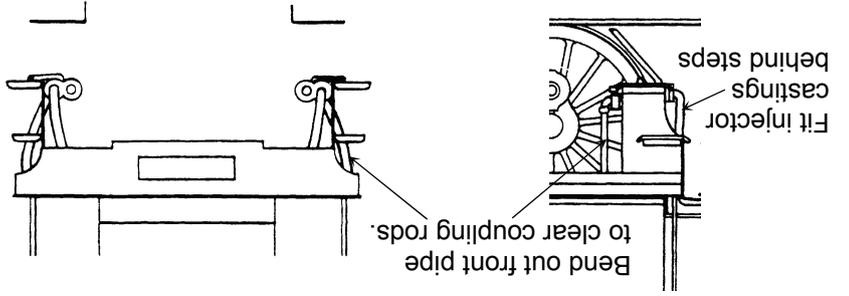
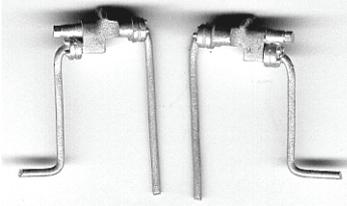
Laminate together the parts to make up two connecting rods and sets of valve gear first. Then fit between frames hanging onto brass rod and wire.



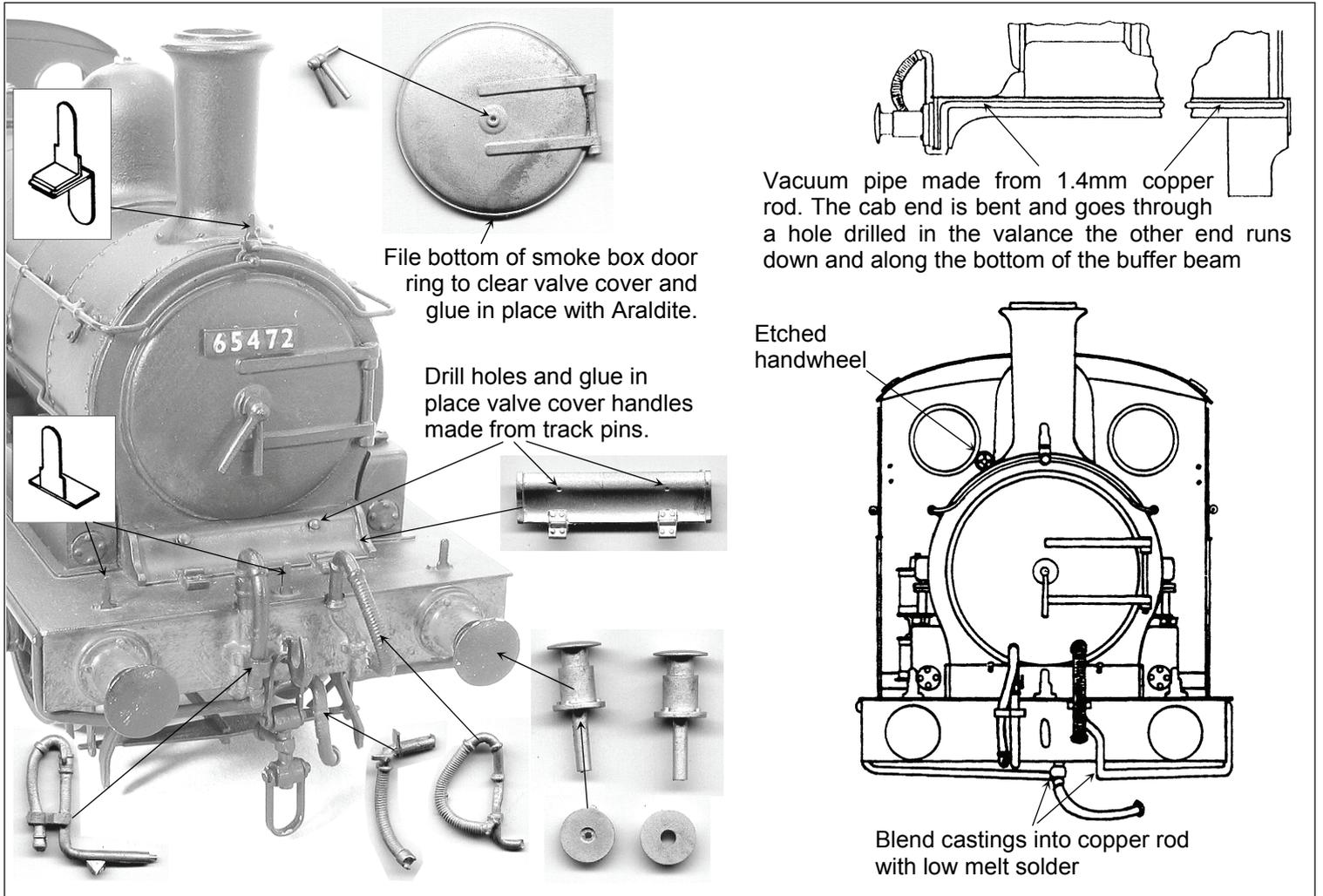
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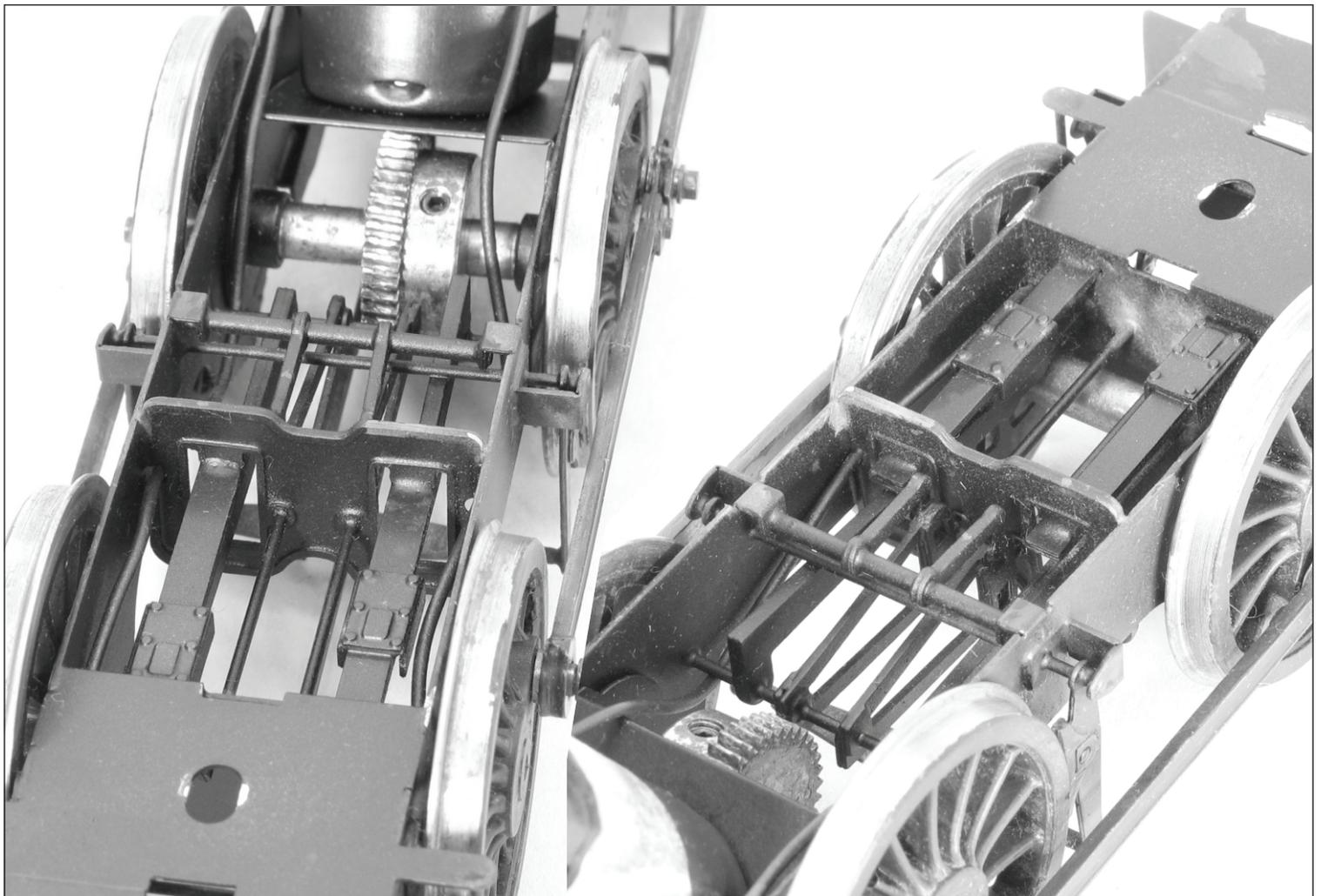
Note that the injectors are left and right handed and shaped to clear the wheels. The flat back (front) is mounted onto the step protrudes below the step back so that the drain pipe just



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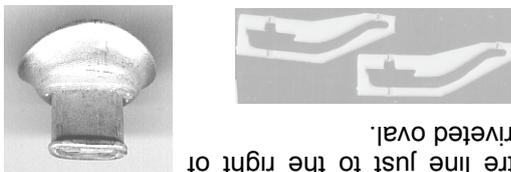


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Early stovepipe
Standard LNER
LNER short (F5 tank)
fitted to some locos to
reduce loading gauge

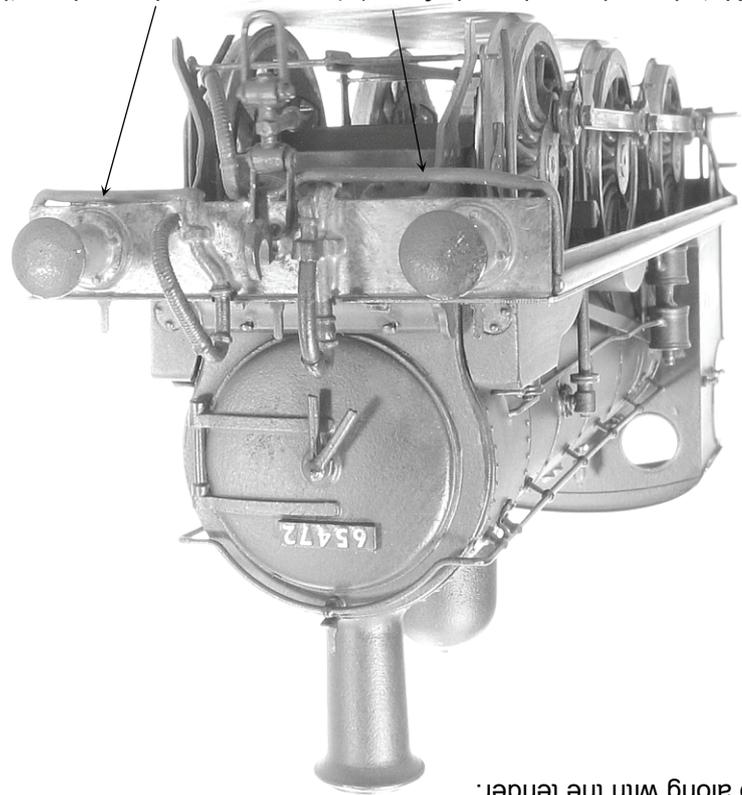


Fit cast clack valves and pipes. The valve top mounts into the boiler and the pipe goes through a hole in the footplate and is 70° soldered from the underside. I have also provided alternative separate clack valve tops to be used with short lengths of 1.2mm dia copper rod. Fit the sandbox filler lids into the holes on the top of the sandboxes. Then fit the cast dome and chimney.

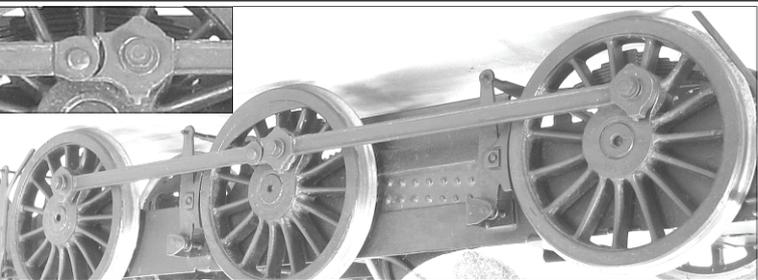


Fit cast ross pop safety valves or for early locos I have provided an alternative Ramsbottom valve and etched levers to be fitted into the slotted top. The whistle is then mounted on the base of the Ramsbottom safety valve positioned on the centre line just to the right of the riveted oval.

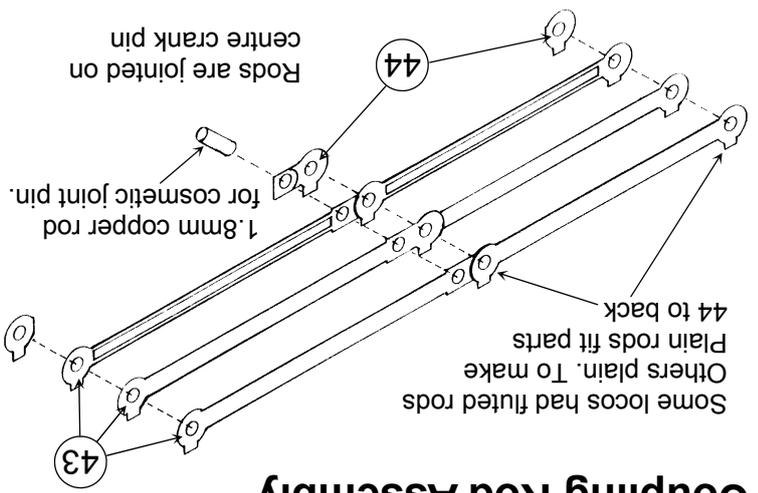
Note how pipework made from 1.4mm copper rod runs down the valance and along the underside of the buffer beam.



Fit the remaining castings, pipework and detail including the front coupling with reference to the following illustrations. That should then be the locomotive construction completed and ready for the paint shop along with the tender.

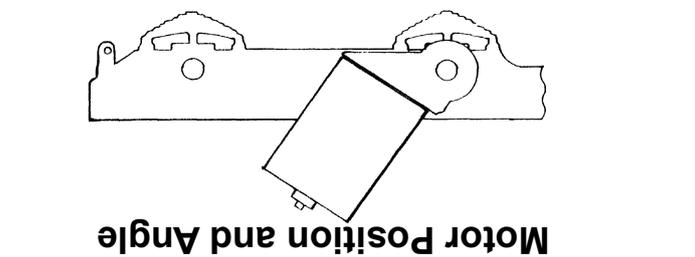


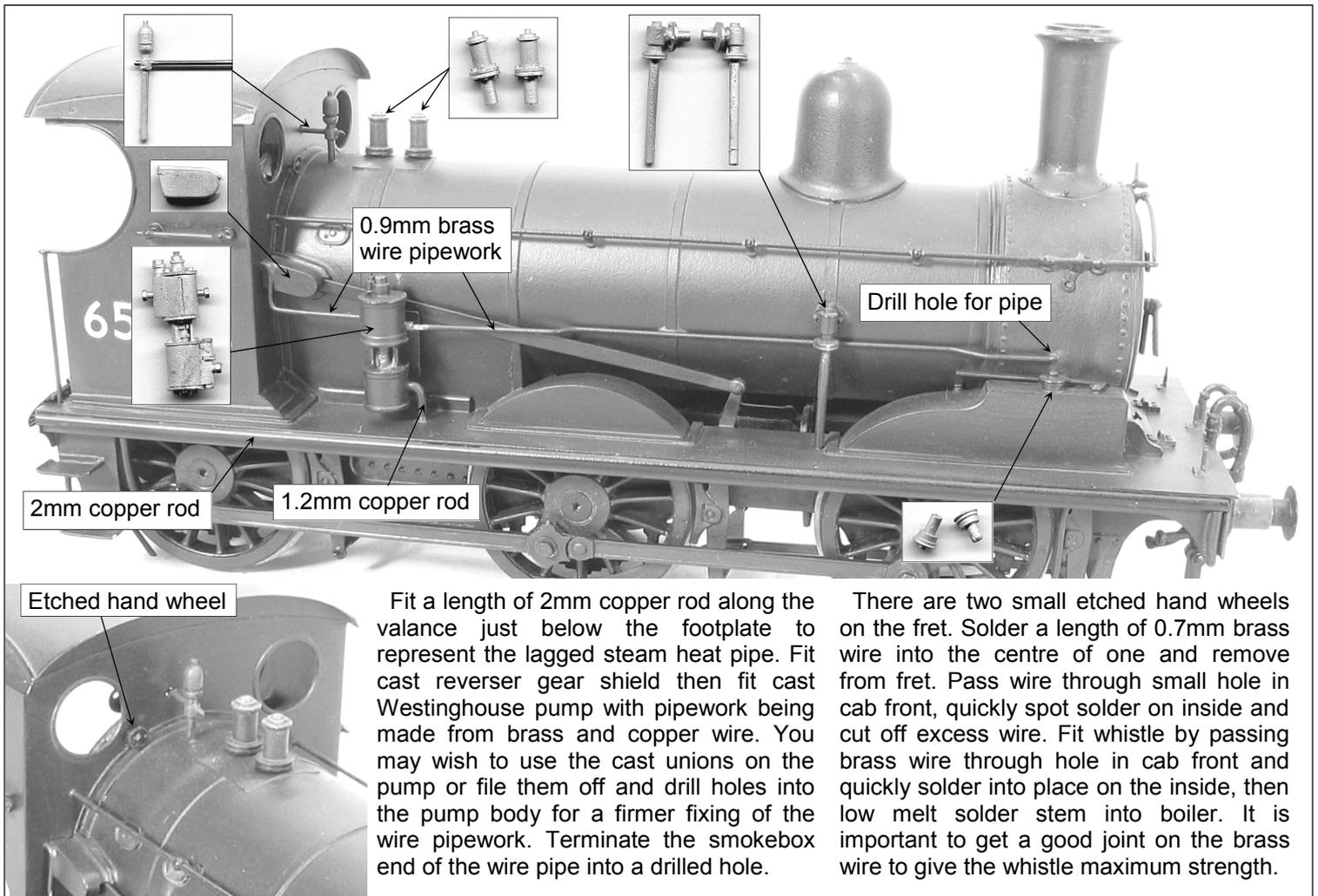
3. Laminate together the three parts of each coupling rod section (parts 43). Then fit the rod end bosses (parts 44) and fit a length of copper rod to cosmetically represent the joint pin. Tin the copper rod to represent oiled steel. Dress all edges of the rods with a file to blend in and ensure that the overlap joint is free of excess solder and will pivot freely.



The chassis can then be offered to the body and the motor and mount rotated until the correct position is found. Tack solder mount into position and then remove motor. The mounting plate can then be soldered solid to each side frame and the bearings soldered into the frames using a oiled axle passed through them to ensure alignment. The bearings on the centre axle may need moving slightly away from the sideframes to ensure minimum side play so that the gears will not move out of mesh. It is important that the motor mounting plate is as solid between the frames as possible to prevent any twisting or flexing at this most important point. So solder at all joints and folds.

4. Once the body is constructed as far as the boiler the motor mounting plate (part 45) can be fitted. Open out the holes in the wings to be a clearance for the turned bearings and then fold down the wings. Temporarily fit motor to mounting plate then slip down between frames and locate with two bearings and an oiled axle.

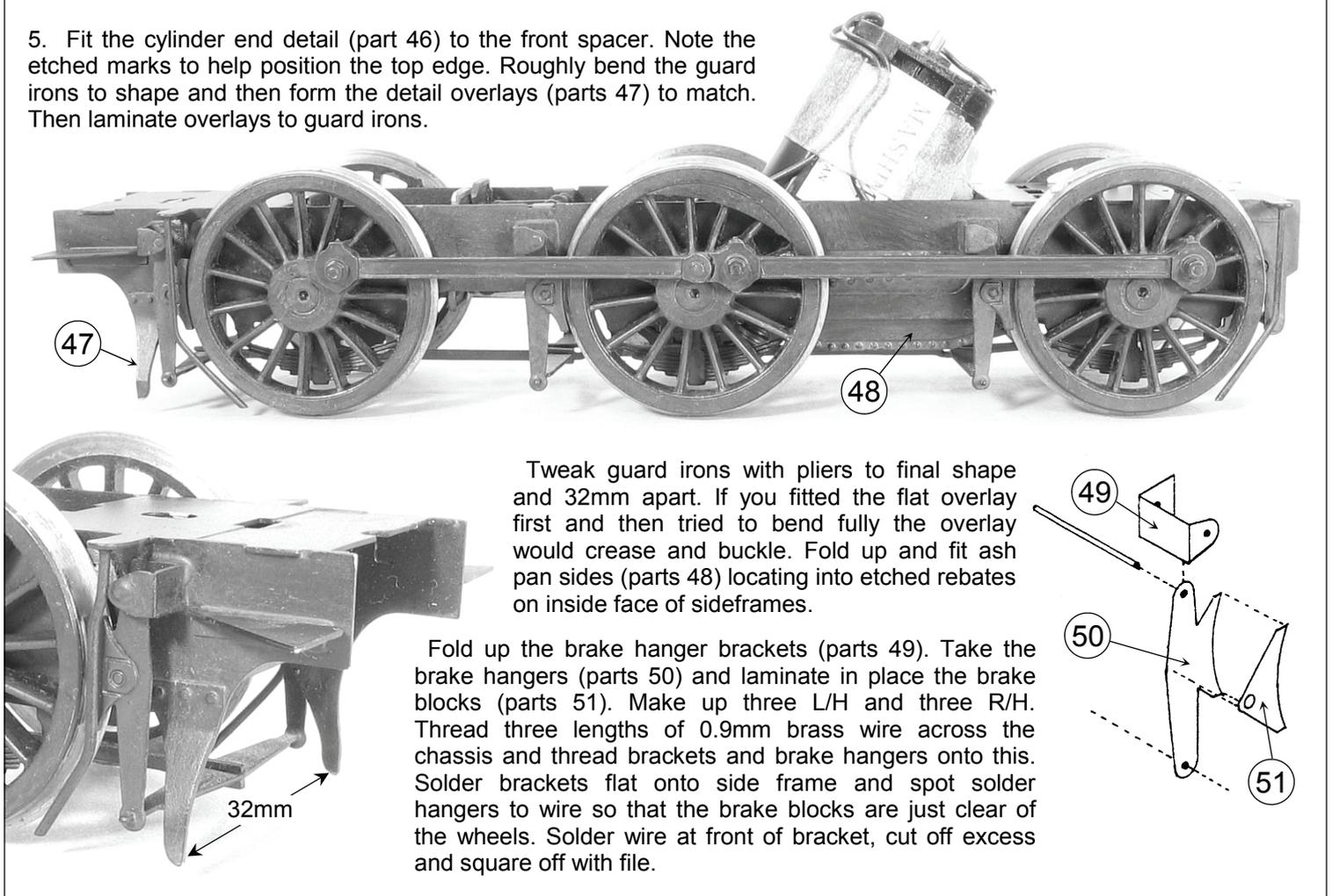




Fit a length of 2mm copper rod along the valance just below the footplate to represent the lagged steam heat pipe. Fit cast reverser gear shield then fit cast Westinghouse pump with pipework being made from brass and copper wire. You may wish to use the cast unions on the pump or file them off and drill holes into the pump body for a firmer fixing of the wire pipework. Terminate the smokebox end of the wire pipe into a drilled hole.

There are two small etched hand wheels on the fret. Solder a length of 0.7mm brass wire into the centre of one and remove from fret. Pass wire through small hole in cab front, quickly spot solder on inside and cut off excess wire. Fit whistle by passing brass wire through hole in cab front and quickly solder into place on the inside, then low melt solder stem into boiler. It is important to get a good joint on the brass wire to give the whistle maximum strength.

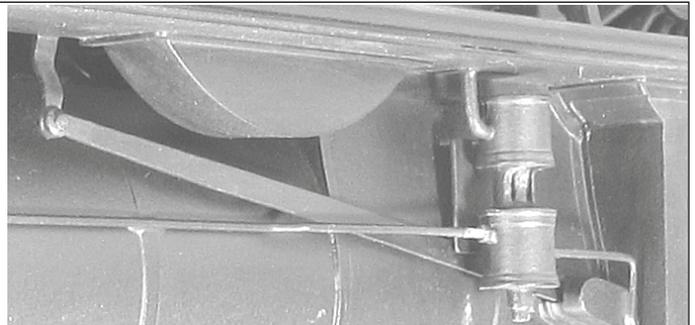
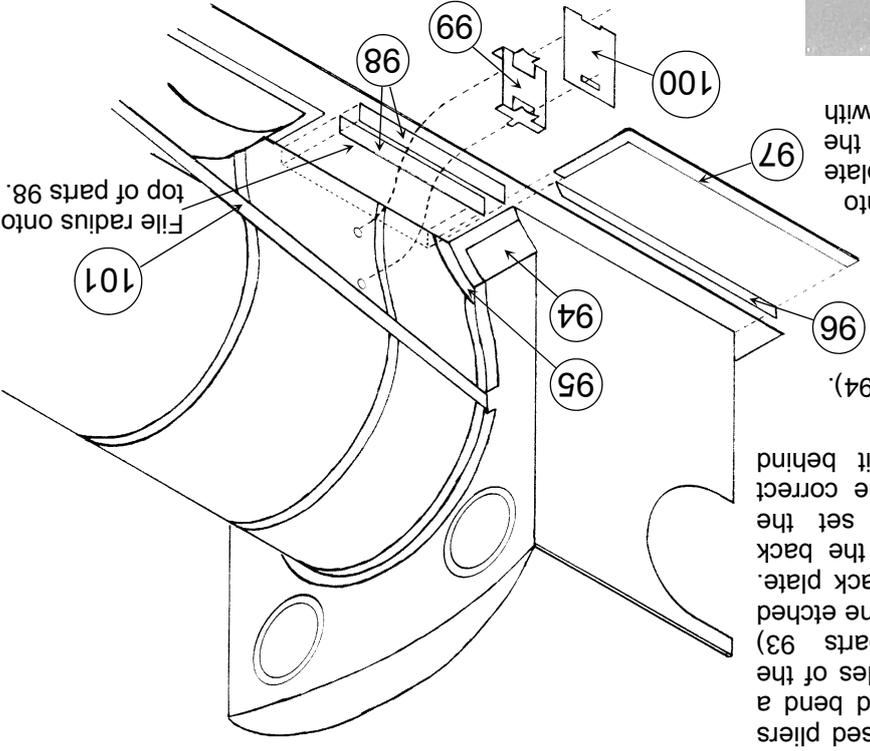
5. Fit the cylinder end detail (part 46) to the front spacer. Note the etched marks to help position the top edge. Roughly bend the guard irons to shape and then form the detail overlays (parts 47) to match. Then laminate overlays to guard irons.



Tweak guard irons with pliers to final shape and 32mm apart. If you fitted the flat overlay first and then tried to bend fully the overlay would crease and buckle. Fold up and fit ash pan sides (parts 48) locating into etched rebates on inside face of sideframes.

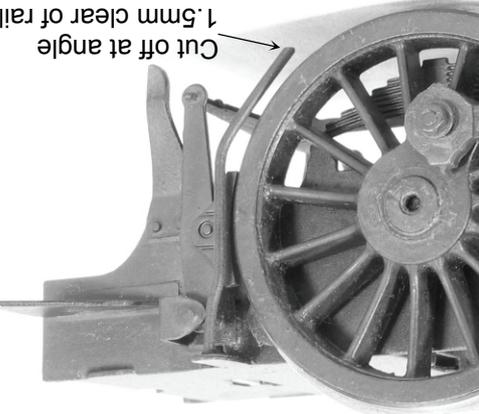
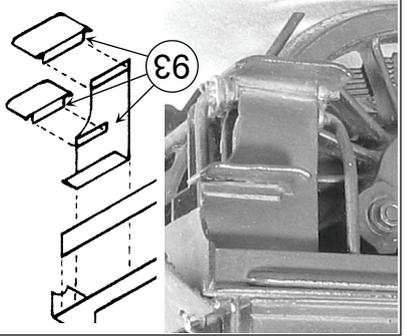
Fold up the brake hanger brackets (parts 49). Take the brake hangers (parts 50) and laminate in place the brake blocks (parts 51). Make up three L/H and three R/H. Thread three lengths of 0.9mm brass wire across the chassis and thread brackets and brake hangers onto this. Solder brackets flat onto side frame and spot solder hangers to wire so that the brake blocks are just clear of the wheels. Solder wire at front of bracket, cut off excess and square off with file.

Fold the top and bottom of Westinghouse pump bracket (part 99) and fit through slots in front plate (part 100) then solder together. Open holes in firebox to take pegs and fit bracket. Fit reverser reach rod (part 101) passing plain end through slot in cab front and securing the other end over the previously fitted handrails and then we are down to castings and detail.



Curve and then fit the cab splashers tops (parts 94). Note that the etched surface detail is to continue the cab beading. When soldered solidly into place dress any overhang to be flush with cab side. Fit firebox beading (parts 95) and cab beading (parts 96 & 97). Solder together the two sections of (parts 98) and file a radius onto the top edge before fitting at the firebox to footplate joint. When fitting the beading etc there is the opportunity to hide and fill any gaps and cracks with solder and clean back to give neat crisp corners.

7. Using flat nosed pliers fold the back and bend a radius on the sides of the step treads (parts 93) then solder into the etched rebates of the back plate. Fold the top of the back plate (this will set the steps inboard the correct distance) and fit behind valance.



Fit sand pipes made from 0.9mm brass wire. I bend with long nosed pliers the end of a length of wire to shape and solder this firmly into the spacer brackets. Then with side cutters snip to length at an angle. By using a long length of wire you will find it easier to position and solder the sand pipe to line up with the wheel tyre.

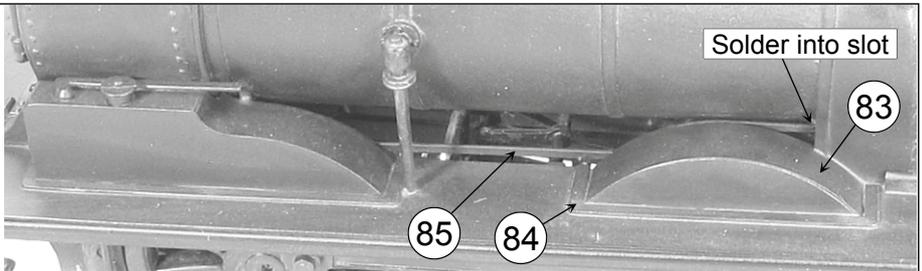
1.6mm Brass rod
0.9mm Brass wire
sand pipes



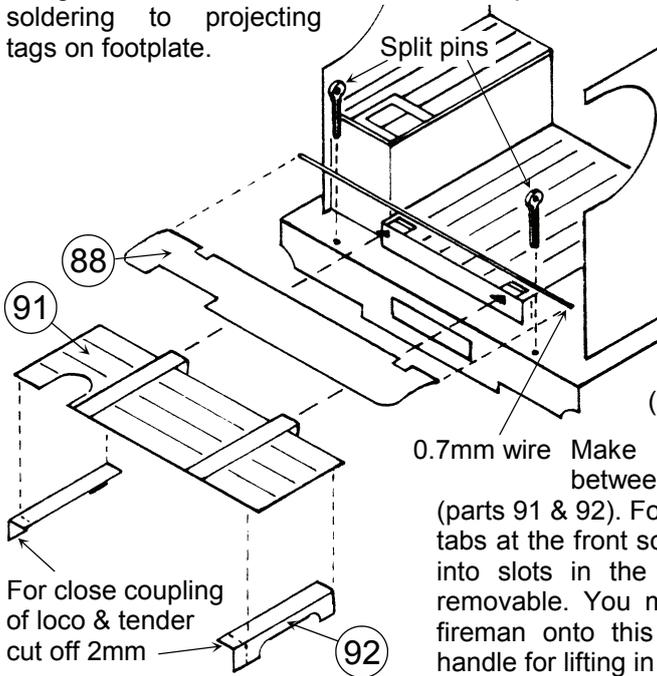
6. Solder together the two parts of each brake pull rod (parts 52). Spring the brake cross shafts (parts 53) between the brake hangers and solder solid so that all the shafts line up horizontally. Twist the pull rods into place locating the forked ends over the cross shafts and terminate the rear pull rod at a length of brass rod passed through the side frame brackets. Fold up the triangular buffer beam reinforcing brackets (parts 54) and then locate into the etched rebates on the sidestrames. Note that if you wished to replace the cast buffers with sprung ones these brackets will come exactly on the buffer centre line.

Brass rod offset to clear gear wheel
Pull rods offset to clear gear wheel

6. Fold up the centre splasher fronts then curve and fit the tops (parts 83). Fit footplate beading (parts 84). An oval works plate was fitted to the centre of the splasher front and I have included two etched ovals on the fret to provide a silhouette of this but you may wish to fit quality etched works plates from one of the specialist nameplate firms.



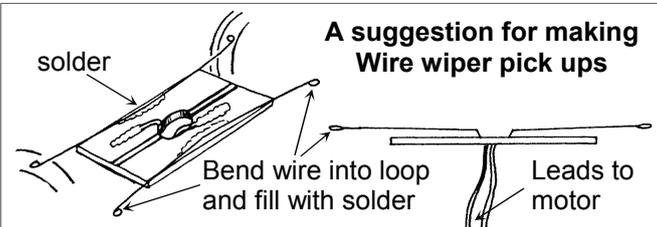
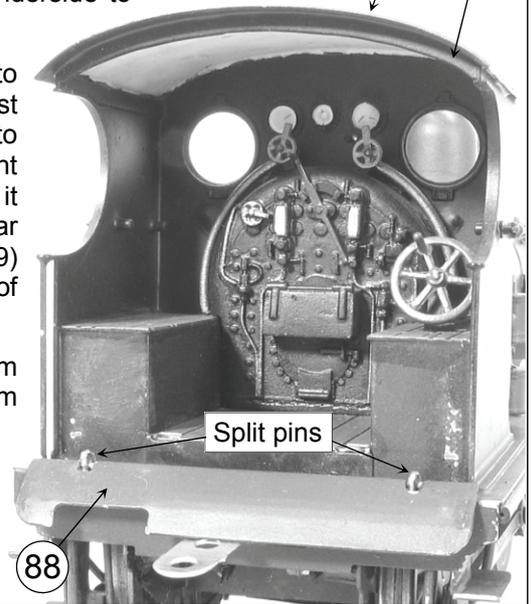
Fit sandbox operating pull rod (part 85) fitting end into slot in firebox front and spot soldering to projecting tags on footplate.



Curve the loco to tender fall plate (part 88) using the bend relieving lines on the underside to help you. Solder a length of 0.7mm brass wire into etched rebate and then thread two split pins over this wire and into the two holes in the footplate. Spot solder split pins from underside to form hinged fall plate.

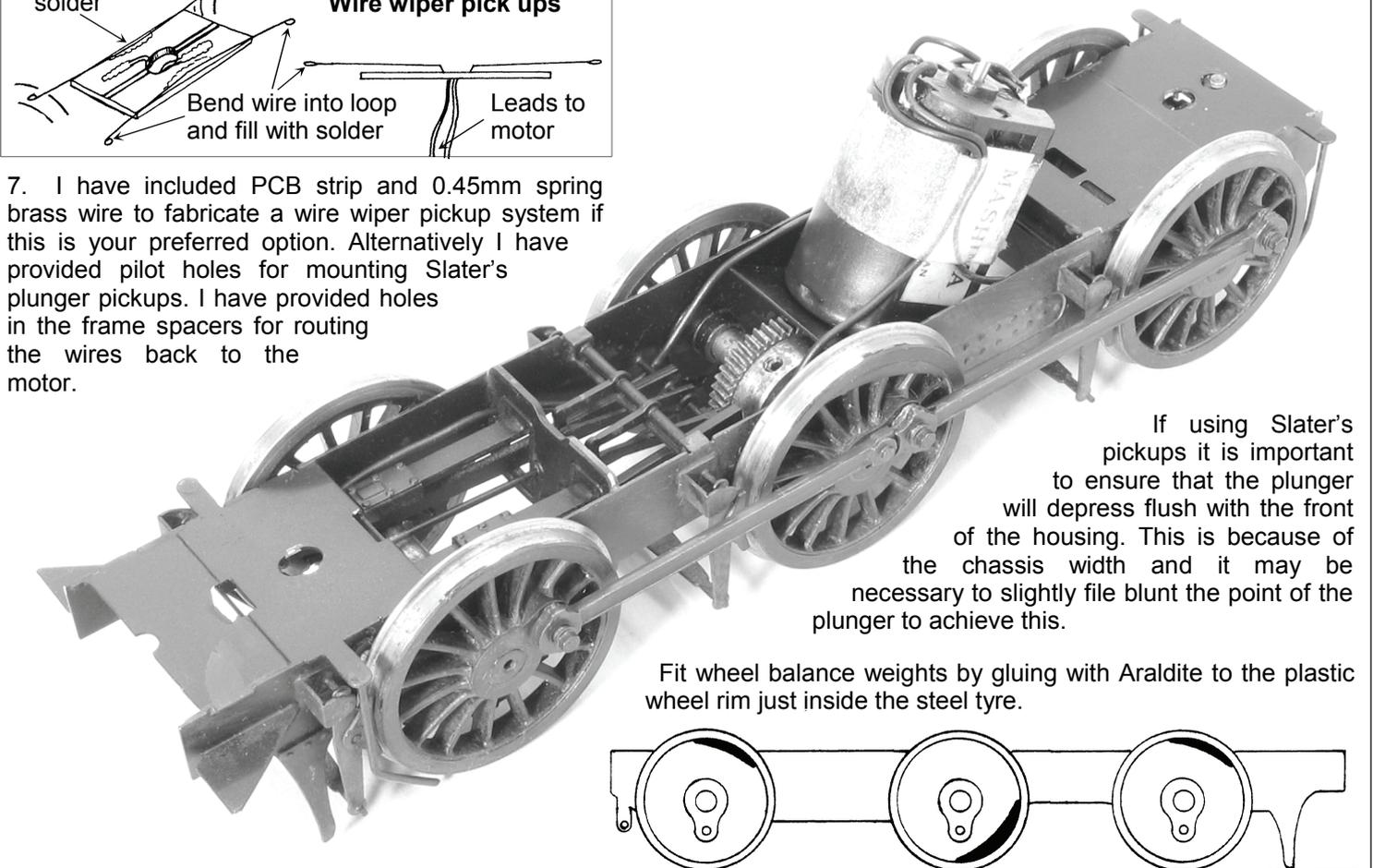
It is now a good idea to check the fit of the cast backhead into the cab to ensure that you won't have problems fitting it after painting. Fit rear cab roof support (part 89) then form and fit cab roof (part 90).

0.7mm wire Make up the hinged platform between loco and tender from (parts 91 & 92). Fold and reinforce the two tabs at the front so that it can be dropped into slots in the cab floor and remain removable. You may wish to mount the fireman onto this platform to provide a handle for lifting in and out.



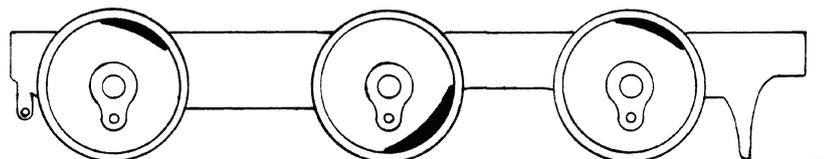
A suggestion for making Wire wiper pickups

7. I have included PCB strip and 0.45mm spring brass wire to fabricate a wire wiper pickup system if this is your preferred option. Alternatively I have provided pilot holes for mounting Slater's plunger pickups. I have provided holes in the frame spacers for routing the wires back to the motor.



If using Slater's pickups it is important to ensure that the plunger will depress flush with the front of the housing. This is because of the chassis width and it may be necessary to slightly file blunt the point of the plunger to achieve this.

Fit wheel balance weights by gluing with Araldite to the plastic wheel rim just inside the steel tyre.

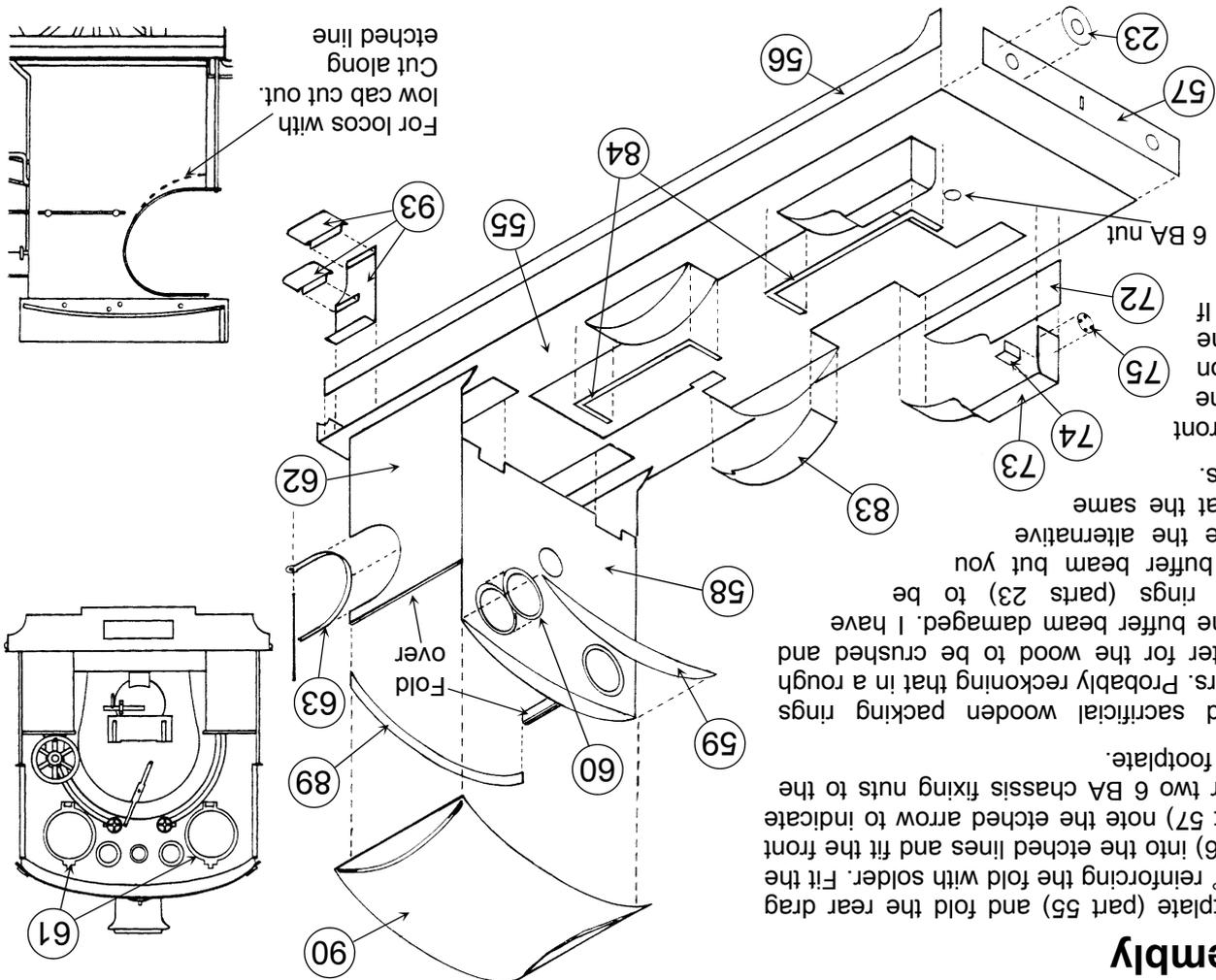


Body Assembly

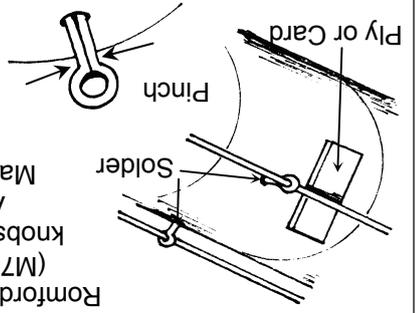
1. Take the footplate (part 55) and fold the rear drag beam through 90° reinforcing the fold with solder. Fit the valances (parts 56) into the etched lines and fit the front buffer beam (part 57) note the etched arrow to indicate top edge. Solder two 6 BA chassis fixing nuts to the top surface of the footplate.

The GER fitted sacrificial wooden packing rings behind their buffers. Probably reckoning that in a rough shunt it was better for the wood to be crushed and destroyed than the buffer beam damaged. I have provided etched rings (parts 23) to be soldered to the buffer beam but you may wish to use the alternative cast ones fitted at the same time as the buffers.

2. Take the cab front (part 58) and fit the cab roof extension (part 59) into the etched rebate. If modelling a loco with early low roof cut back at half etch and fabricate new plain roof.

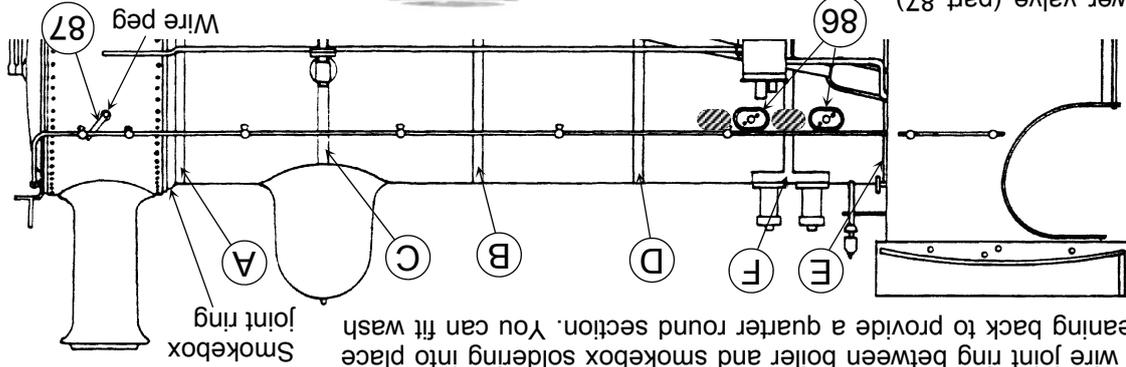


Once you are happy with the fit of boiler and smokebox to the footplate remove and fit boiler bands (parts 82). Refit boiler, check fit, then tack solder the boiler front to the smokebox and remove as a unit. Fit a soft wire joint ring between boiler and smokebox soldering into place with generous fillets and cleaning back to provide a quarter round section. You can fit wash out plugs (parts 86) now or later. Refit boiler/smokebox to footplate and solder into place at all joints. Keep checking as you do this that the body is not twisting. You can fit the boiler handrail formed from 0.7mm brass wire and blower valve (part 87) now or later. I have included split pins to support the handrails. I close up the eye of the split pin to be a loose fit around the wire before fitting into the hole in the boiler and use a piece of card to space the handrail evenly away from the boiler. You may prefer to replace these with turned brass handrail knobs and I would recommend the ones produced by Romford. Short knobs-(M7HRK7S), Long knobs-(M7HRK7L). Available from, Marks, P.O. Box 40, Watford, Herts. WD2 5TH, Tel 01923 249711.



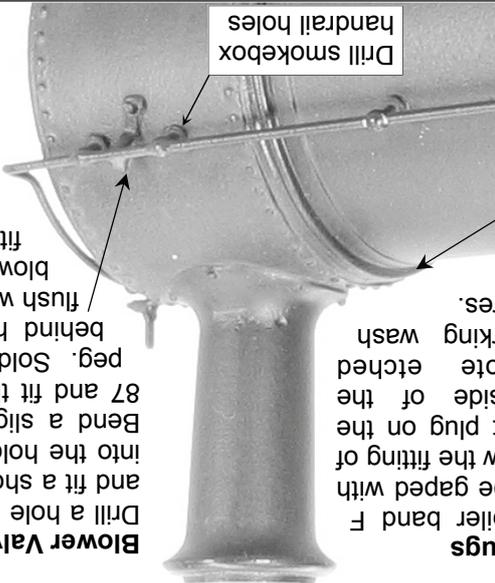
Wash Out Plugs

Note that boiler band F will have to be gaped with a file. To allow the fitting of the wash out plug on the left hand side of the firebox. Note etched crosses marking wash out plug centres.



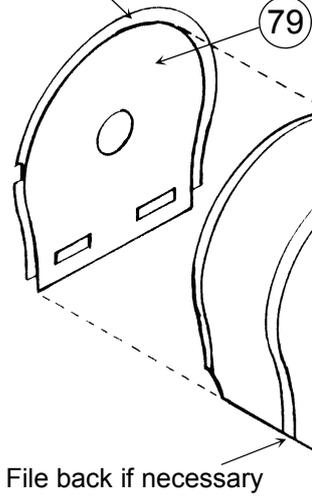
Blower Valve

Drill a hole in the smokebox and fit a short length of wire into the hole to form a peg. Bend a slight set into part 87 and fit the end over the peg. Solder to peg and flush with handrail. The blower valve was fitted to the right hand side only but I have included two of part 87 on the fret.



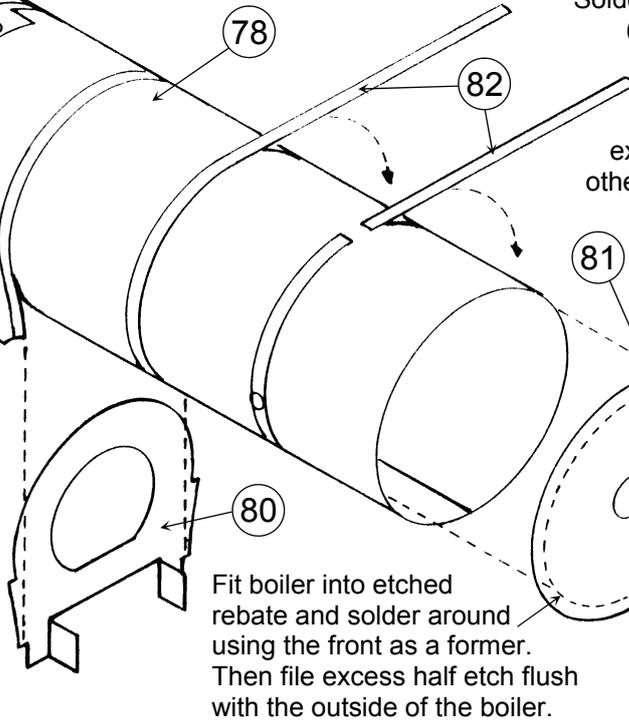
Boiler Assembly

Half etch represents angle joint on cab front. Do not file off.

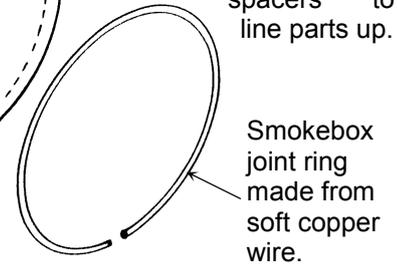


Full metal strip on boiler bands fit into etched grooves around boiler. This will help to keep the bands square and parallel as you solder them around the boiler. Use a large hot iron and plenty of flux so that the bands lay down flat on the boiler with a flash of solder down each side. Work the band from one end to the other.

5. Take the pre-rolled boiler (part 78) and decide if your loco is to be fitted with a Westinghouse pump. If so drill out with a fine drill the two half etched holes on the inside of the firebox to provide pilot holes for mounting the pump bracket later in construction. Then form the reverse curves of the bottom of the firebox to match the profile of the formers (parts 79 & 80). You may wish to anneal locally the brass with a pencil torch to make forming the curves easier.



Solder firebox end around rear former (part 79) noting etched centre marks at top of former and on inside of firebox. Then fit former (part 80). It is important that the formers are exactly positioned on the centre marks otherwise the boiler will lean over to one side. Then fit boiler front (part 81) and solder seam joint. Now check that you are happy with the way the boiler and smokebox fit onto the footplate. You may find that it helps to pass a length of tube through the holes in spacers to line parts up.



Smokebox joint ring made from soft copper wire.

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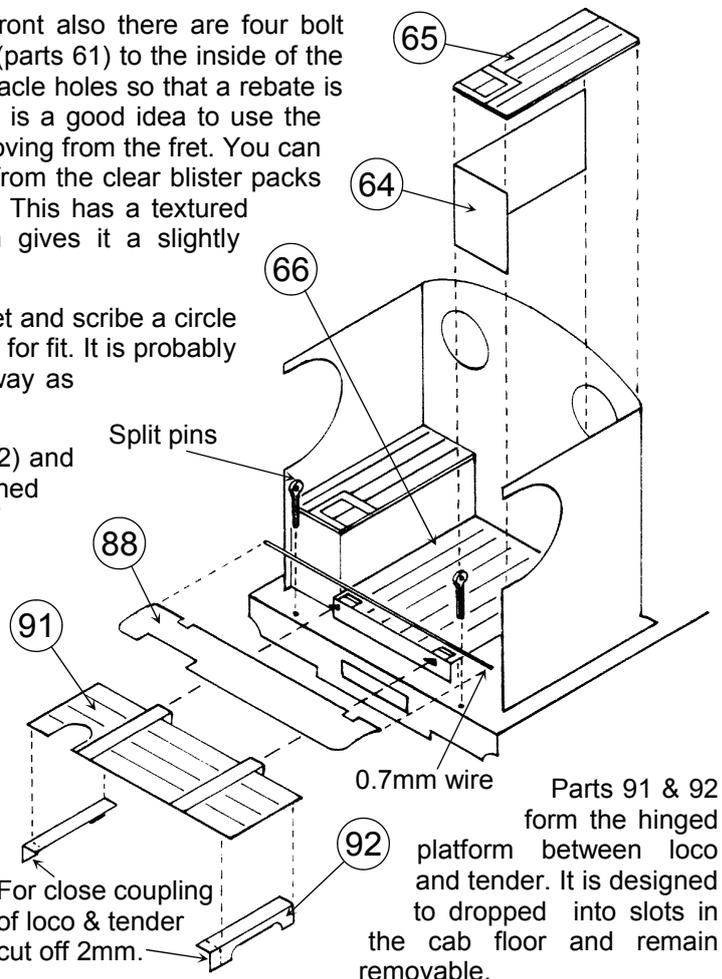
Fit spectacle rings (parts 60) into etched rebates in cab front also there are four bolt heads to be embossed from the inside. Fit spectacle frames (parts 61) to the inside of the cab front. These are slightly larger in diameter than the spectacle holes so that a rebate is formed into which the glazing can be glued after painting. It is a good idea to use the spectacle frames as a template to cut the glazing before removing from the fret. You can use clear plastic sheet for this but I prefer to cut flat sheets from the clear blister packs that many items are packaged in nowadays and use these. This has a textured surface probably caused by the moulding process, which gives it a slightly opaque quality that I think represents dirty windows just right.

Lay the etched spectacle ring on top of the clear plastic sheet and scribe a circle using a sewing needle held in a pin chuck. Cut out and check for fit. It is probably worth cutting out four glazing discs before storing safely away as you are bound to drop one as you glue them into place.

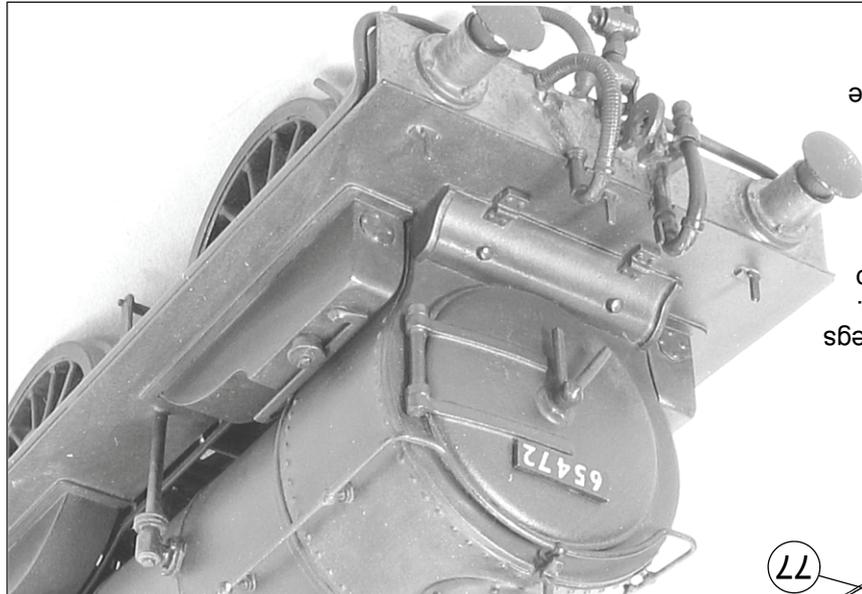
Fold over the top reinforcing strip on the cab sides (parts 62) and then fit the cab cut out beading (parts 63) using the etched rebates on the strips to aid location into the cut outs. Snip off excess. Some locos had a lower cab cut out and there is an half etched line to cut back to for this. This was mainly on the early built locos but check photos. The front tender handrail was also lower to correspond with this.

Fit cab front to footplate and then cab sides. Check that the cab is positioned and centred correctly on the footplate before soldering solid. Fit cab handrails made from 0.7mm brass wire passed through end of cab beading and spot soldered to footplate.

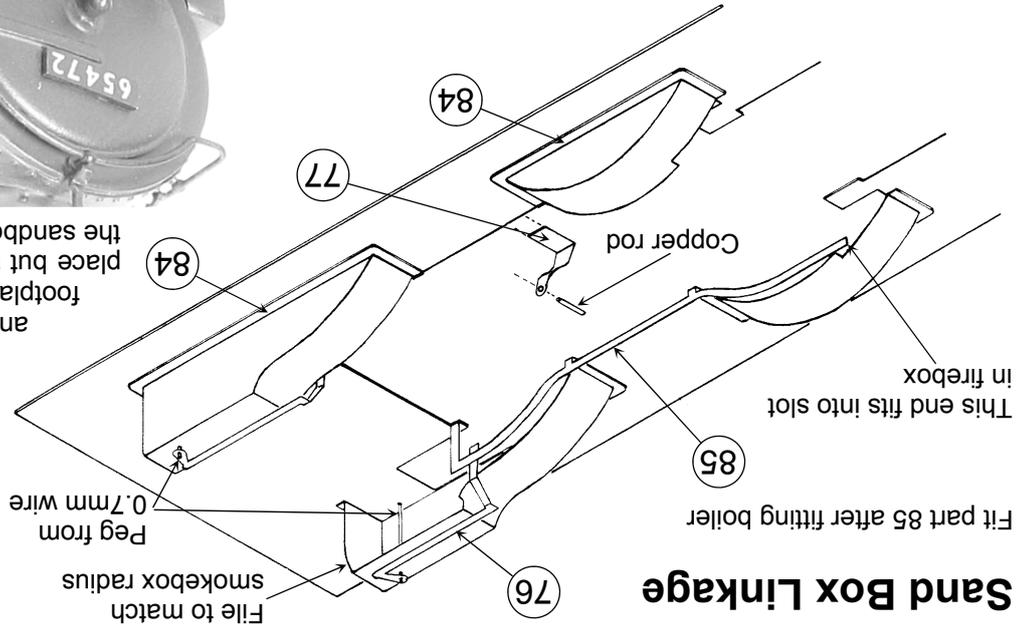
Fit cab boxes (parts 64) and tops (parts 65). Fold up and fit cab floor (part 66) locating tabs at the front edge into slots in cab front to set the height. It may be necessary to file the cab floor to achieve a snug fit.



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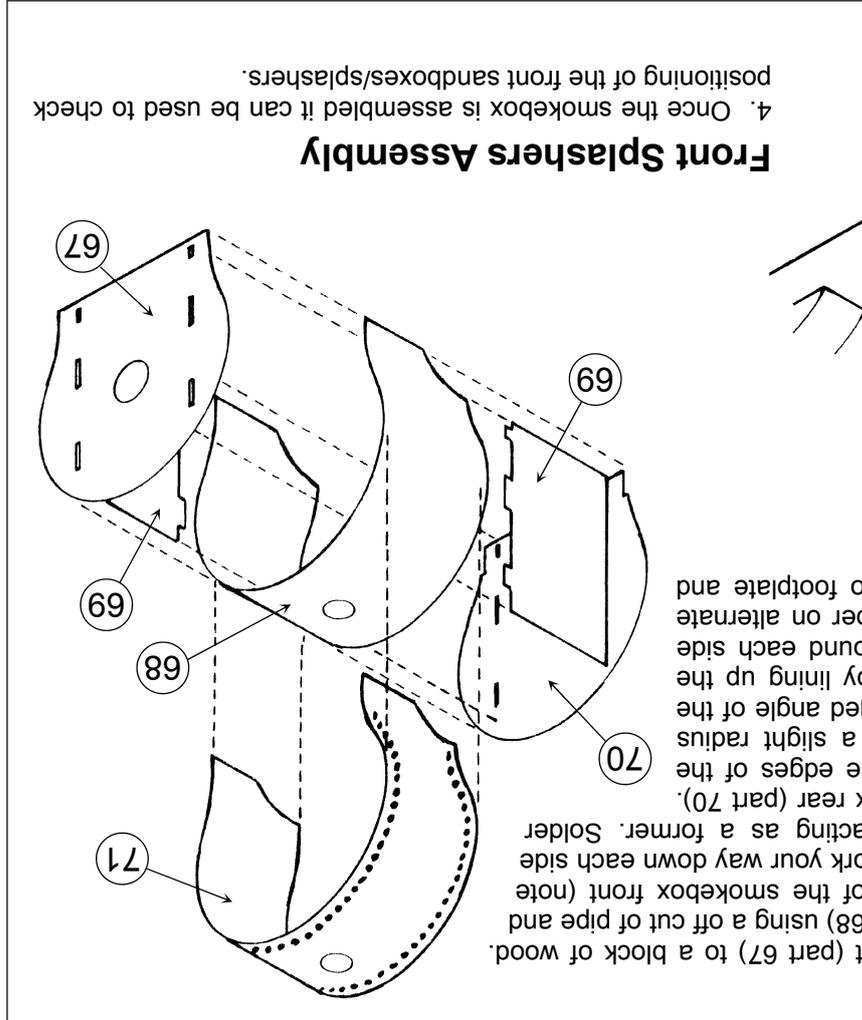


Solder 0.7mm brass wire into splashers to form pegs and then fold up and fit sandbox linkage (parts 76). Spot solder linkage at peg and splasher. Form up reverser linkage (part 77) and locate into rebate on underside of footplate. Fit a peg made from 1.4mm copper rod. It is a good idea to solder the peg into place with 60/40 solder as the reverser reach rod will be soldered to this later and the excess length of the peg trimmed off. Fit the footplate beading (parts 84) around the front splashers.

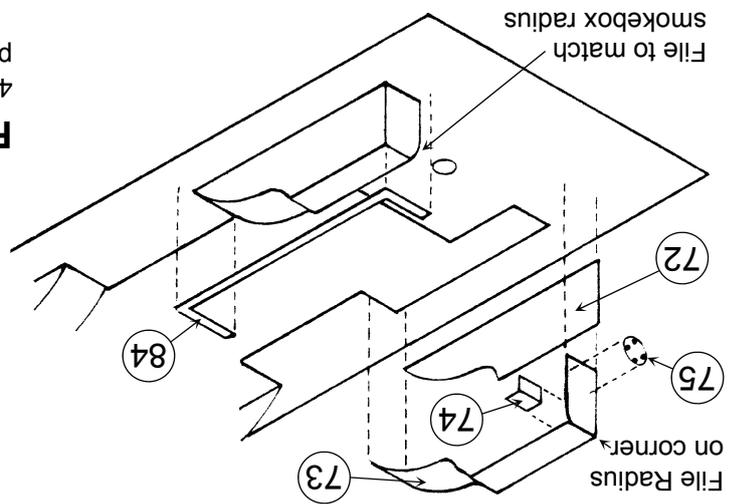


Sand Box Linkage

Take the splasher fronts (parts 72) and form up the front/top (parts 73) to match its profile. Firmly fix front to block of wood with drawing pins and solder front/top into place. Again the front acts as a former. Fit (parts 74) into corners and then file a radius on the outside edge. Fit circular access plates (parts 75) and then fit assembled splashers onto footplate. Do not solder the smokebox into place but try to get it to be a push fit between the sandboxes.

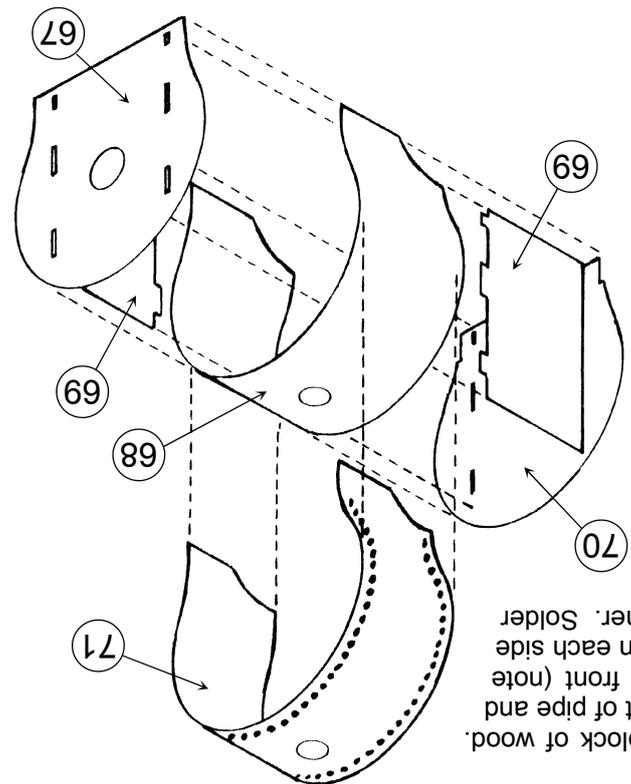


3. Firmly fix with drawing pins the smokebox front (part 67) to a block of wood. Then roughly pre-form the smokebox wrapper (part 68) using a off cut of pipe and drill shanks etc. Position the wrapper to the top of the smokebox front (note etched centre marks at top). Starting from the top work your way down each side soldering the wrapper with the smokebox front acting as a former. Solder spacers (parts 69) into place and then fit smokebox rear (part 70). File any projecting spacer tabs flush and dress the edges of the wrapper flush with the front and back. Then file a slight radius around the edges to give the impression of the forged angle of the front and back plate. Fit the rivet detail wrapper by lining up the chimney hole and work your way from the top around each side soldering short sections of each edge of the wrapper on alternate sides. Check the assembled smokebox for fit onto footplate and clearance of front driving wheels.



Front Splashers Assembly

4. Once the smokebox is assembled it can be used to check positioning of the front sandboxes/splashers.



Smokebox Assembly