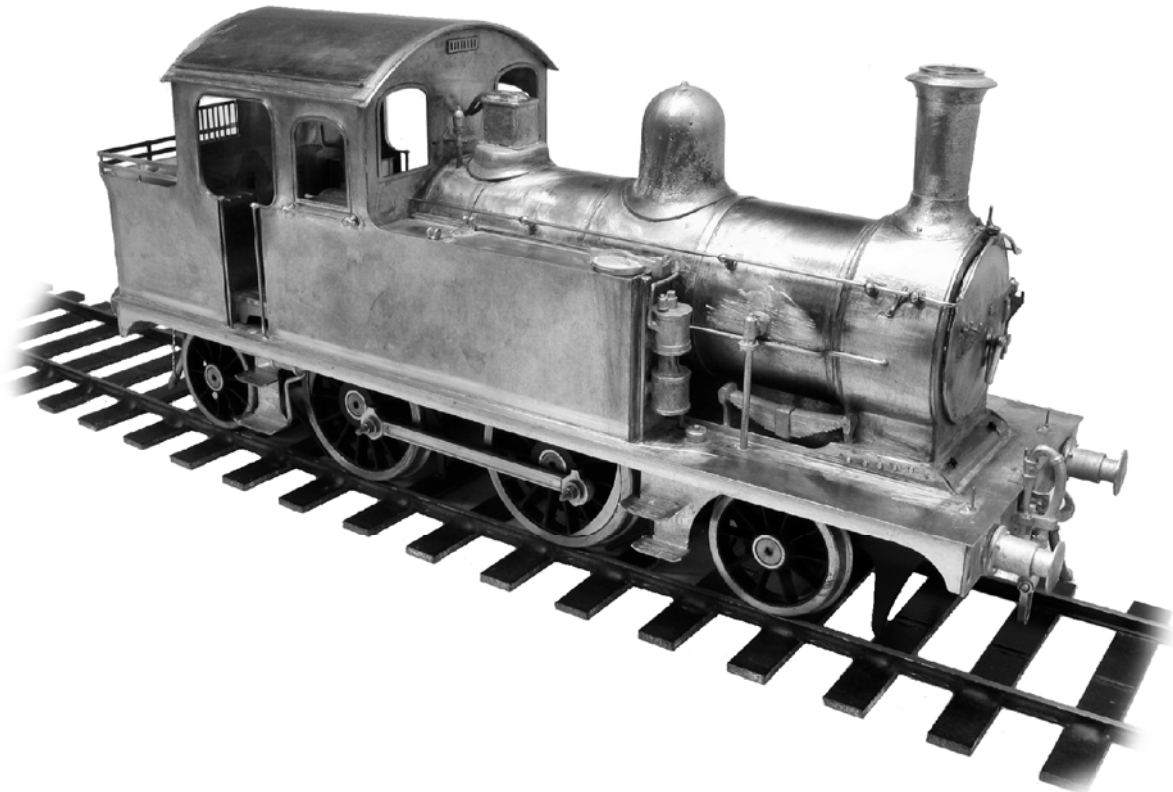


CONNOISSEUR MODELS

- 0 Gauge -

LNER Class F7, Crystal Palace Tank Body Construction



Prototype. This class of 12 locos built by the Great Eastern Railway from 1909 were designed by S.D. Holden for working branch line light passenger services. They were the first GER tank engines to feature the more modern 'Second Generation Design' details most noticeably the large side windowed cabs. They were quickly dubbed "Crystal Palace Tanks" or "Tomato Houses" when three later migrated to Scotland.

They also found a niche when the GER began push-pull or 'motor' train operation with these engines. Five of the class were fitted with a compressed air-operated control system.

Parts Required To Complete

2 Sets 4' 10", 15 Spoke Driving Wheel (Slater's Catalogue Number 7858GE)
2 Sets 3'6", 10 Spoke Bogie Wheel (Slater's Catalogue Number 7842)
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, *available from Connoisseur Models.*

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

Great Eastern Railway Y65, LNER Class Y7

Class comprised of twelve locomotives the first two numbered 1300 & 1301 were built summer 1909. These had distinctive cab front & back windows and this kits components will not represent these two without modification (*very practical with a little ingenuity*).

The other ten numbered 1302-1311 were completed by January 1910 & had all six cab windows to the same profile. This kit will represent these as built & includes alternative parts to cover significant changes to class members until last withdrawal in 1948. As a rough guide :-

As built, Westinghouse air as only train brake, Four column encased safety valve with levers, Two open coal rails, Chimney with rim cap.

Push Pull 'motor' train operating gear fitted to 1311 in October 1914. Then 1304, 1309, 1303 & 1305. This air operated gear required a second Westinghouse pump on the L/H tank front, coal rails increasing in height (*originally six open rails but soon infilled to twelve*), additional air connections on rear buffer beam (*they were intended to work bunker to coaches so the ever frugal GER only fitted connections at the back end*).

In 1924 number 8307 was fitted with additional vacuum brake ejector & mechanical Push-Pull gear for working GC section.

In 1931/2 numbers 8301, 8308 & 8310 were sent to Scotland. They had vacuum brake ejector fitted and the air brake was discarded.

From 1929 six new boilers were constructed to rotate around the class when overhauled. These had two Ross pop safety valves (*number 8300, 8302, 8309 & 8311 never carried these boilers*). Number 8306 had the first of them and the other seven all had a boiler with 'pop' valves at some period. Also cast chimney with rim.

The best place for information to give a good overview of the class is the internet. For GER period visit <http://www.gersociety.org.uk/index.php/locomotives/s-d-holden>

For LNER period visit <http://www.lner.info/locos/F/f7.php>

For Reference books, Locomotives of the LNER, part 7, Tank Engines-Classes A5 to H2, Published by The Railway Correspondence and Travel Society (*often referred to as the green bibles*).

Yeadon's Register of LNER Locomotives, Volume Thirty-Nine, Published by Book Law Publications, ISBN 1 899624 77 5.

Livery & Finishing, I assume that you have reference material for your desired livery & supplies of paint & transfers, particularly if you model the GER period. If this is not the case then fortunately the GERS website has a fully informative livery specification section <http://www.gersociety.org.uk/index.php/locomotives/liveries>

Likewise the LNER Encyclopaedia <http://www.lner.info/article/liveries/livery.php>

In brief the locos first carried standard GER blue livery then most received World War 1 austerity grey livery. Post 1923 LNER grouping they carried secondary passenger loco black with red lining. Some locos received plain black as an economy in later years.

All paints required can be found in the Phoenix paints range and proprietor Chris Stapleton is particularly knowledgeable on the requirements for GER & LNER locos. <http://www.phoenix-paints.co.uk/precision-paints/railway-colours.html>

GER Transfers for lettering are available from, Guilplates, 32 Wodeland Avenue, Guildford, Surrey, GU2 4JZ, 01483 565980/ 563156.

LNER Transfers for lettering are available from the Historical Model Railway Society (HMRS) www.hmrs.org.uk for order form or send to:- Voluntary sales officer, 8 Gilpin Green, Harpenden, Herts, AL5 5NR, SAE for list & order form. You will require sheet 4A, LNER yellow Locomotive insignia.

After painting, glaze the spectacle windows, I cut flat sheets from the clear blister packs that many items are packaged in nowadays.

Kit. I first produced this in 1992 & I was always pleased with how it represented this distinctive little loco class. In about 2004 when the casting moulds were life expired it was rested from the range. After request from customers the kit was refreshed and reintroduced in 2016. The kit components create a standard of model that's exactly what I want for my own layout.

If you enjoy building this kit and are satisfied with the quality, I would be most grateful if you could recommend it to your friends and fellow modellers. If you are not happy please tell me. Hopefully I will then be able to help and sort out any problem.

Stage 1

6BA nut soldered very firmly for chassis fixing screw

Fit cab beading parts 5. I prefer to form up two slightly overlong part lengths. Then accurately position and solder the handrail ends at the doorway first and then work around to a butt joint at the top.

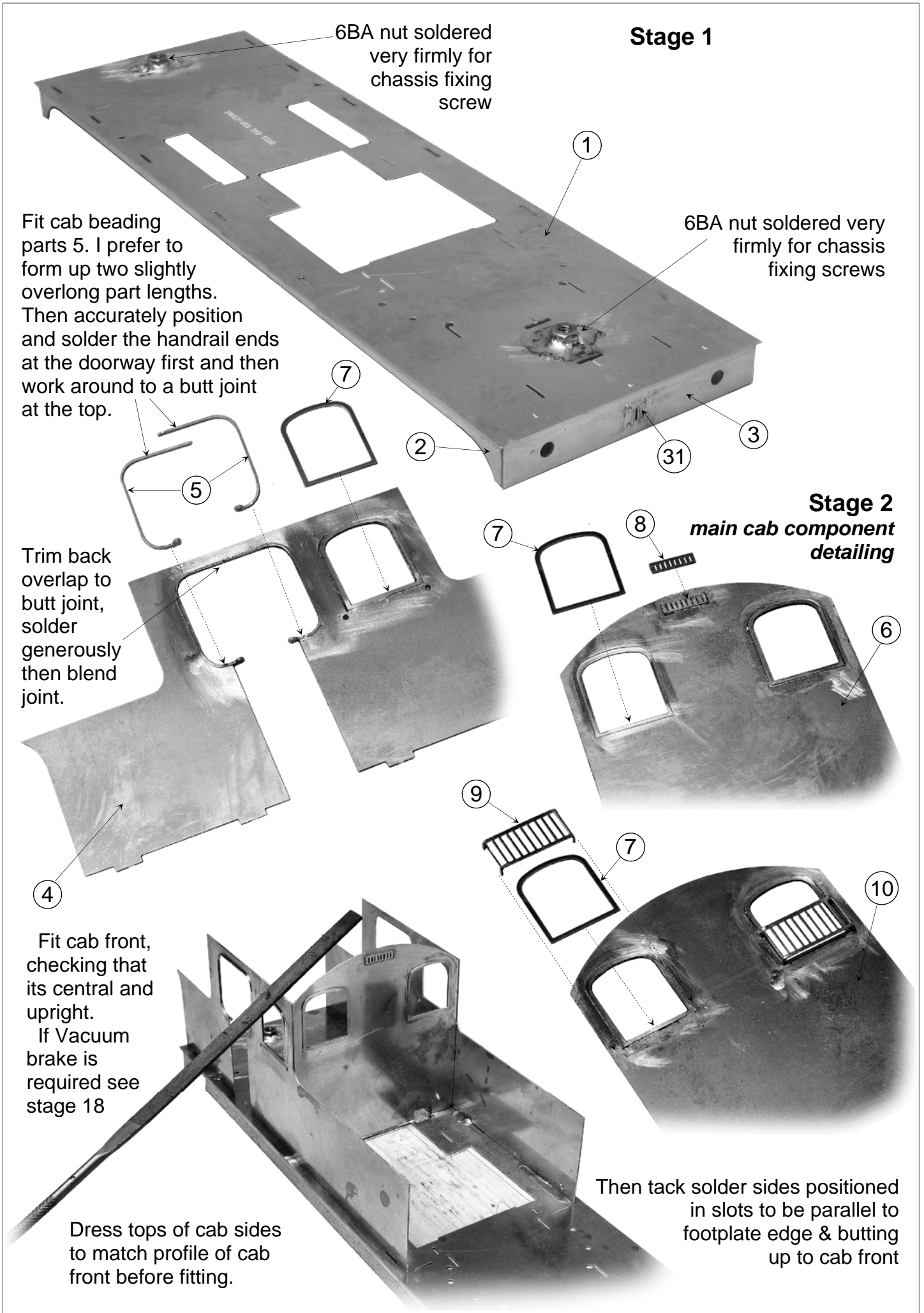
6BA nut soldered very firmly for chassis fixing screws

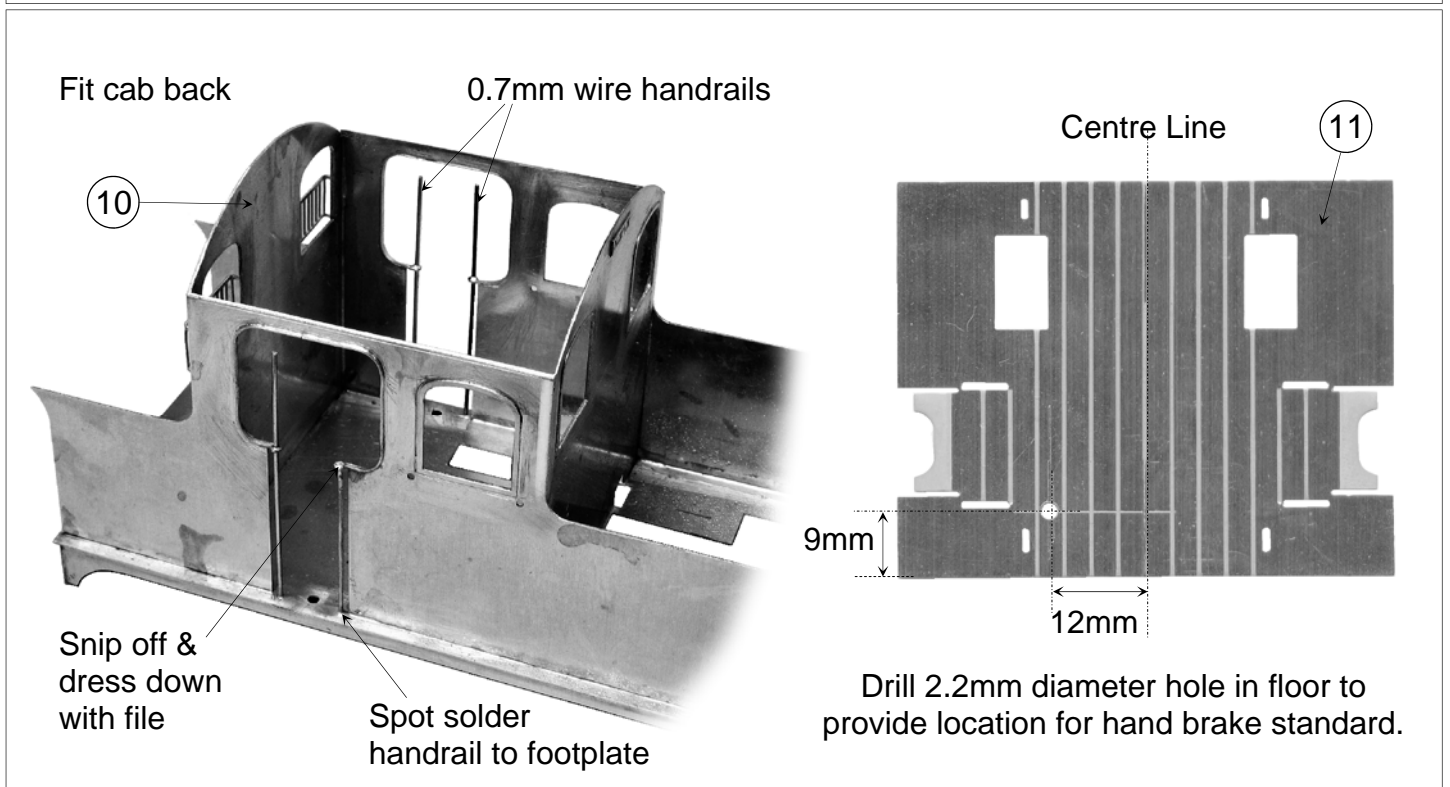
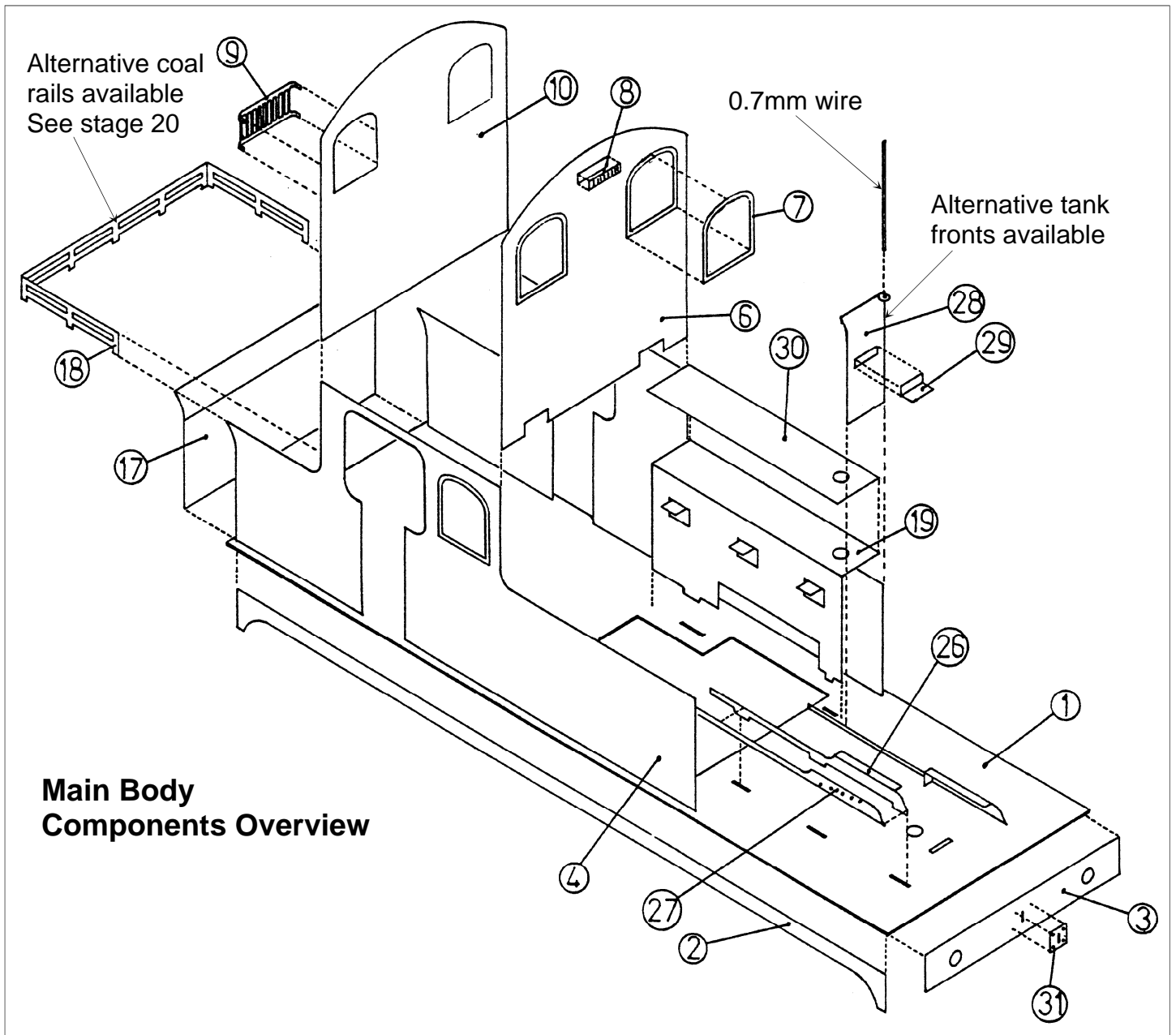
Trim back overlap to butt joint, solder generously then blend joint.

Fit cab front, checking that its central and upright.
If Vacuum brake is required see stage 18

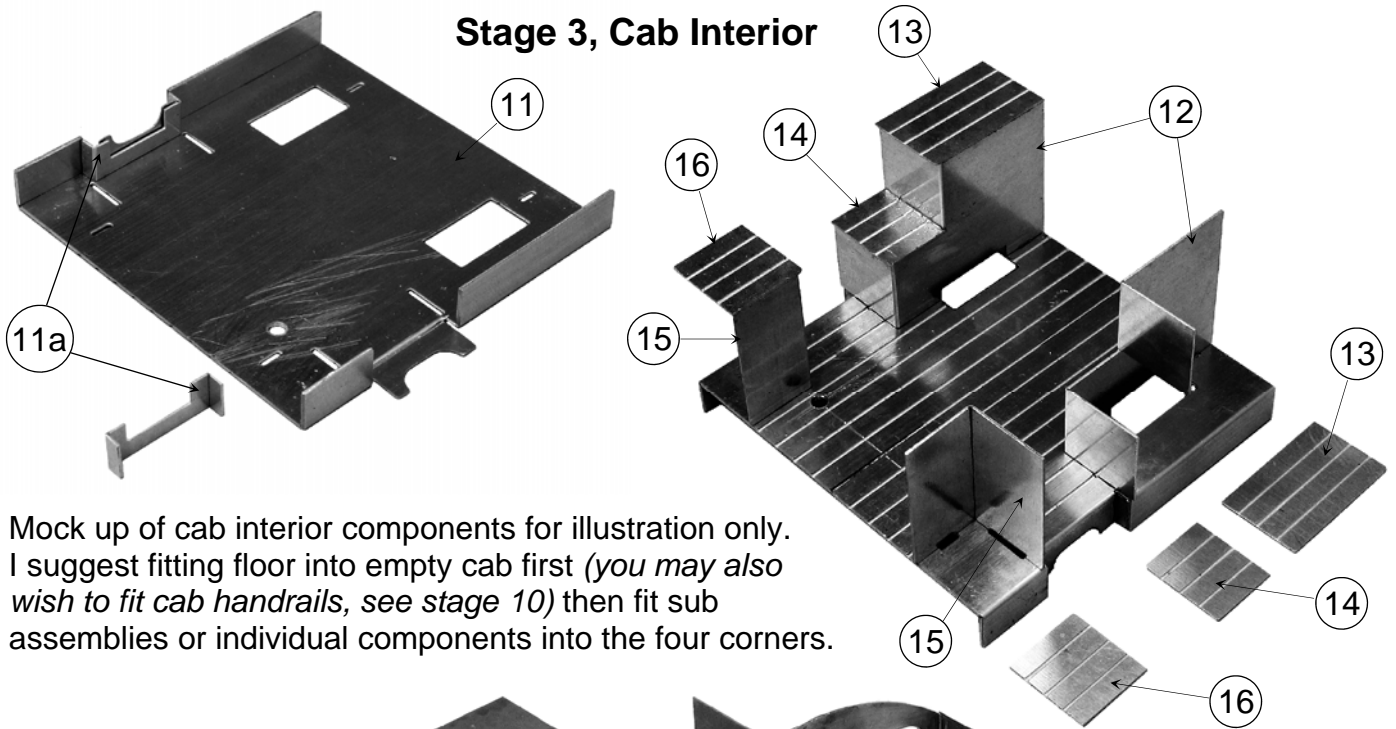
Dress tops of cab sides to match profile of cab front before fitting.

Then tack solder sides positioned in slots to be parallel to footplate edge & butting up to cab front

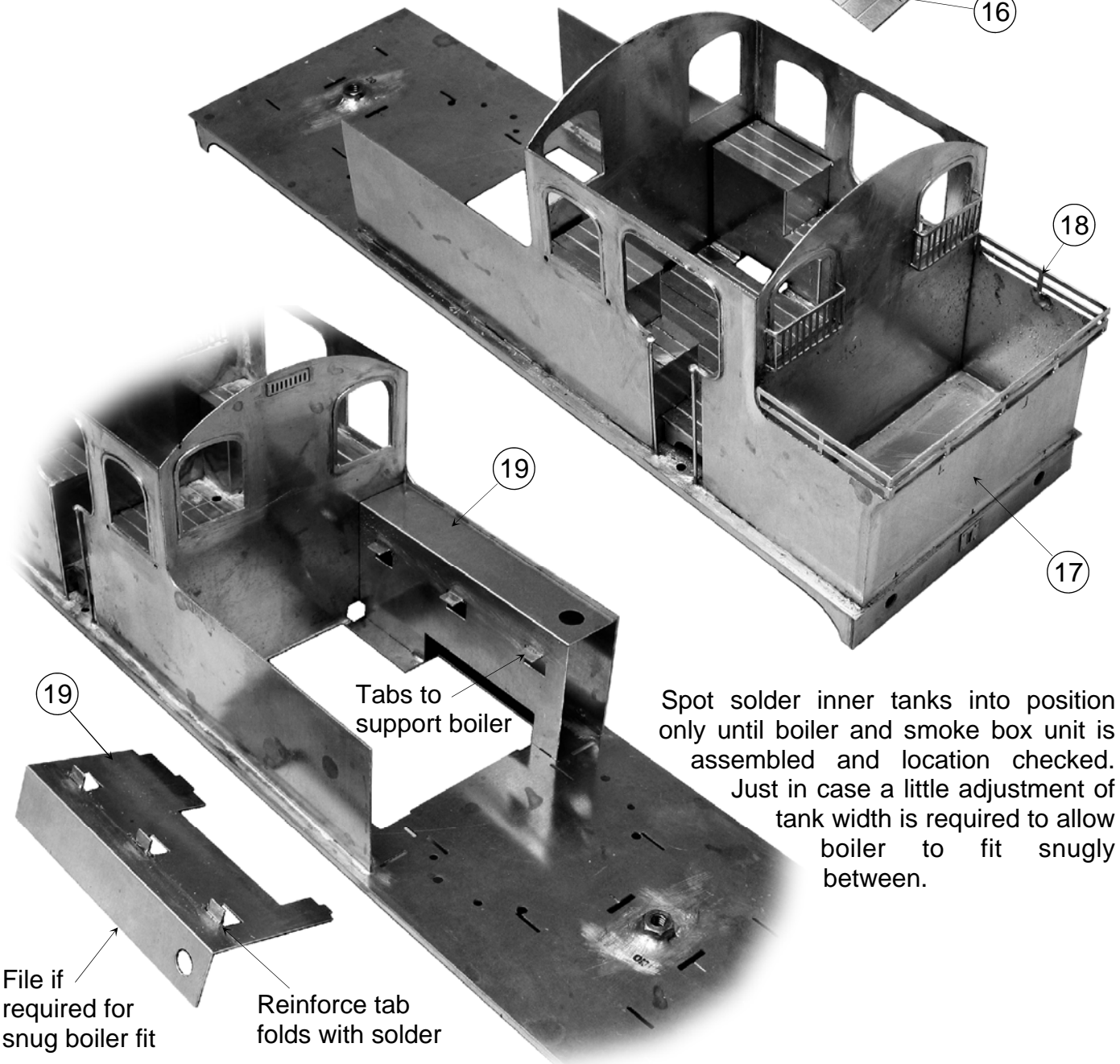




Stage 3, Cab Interior



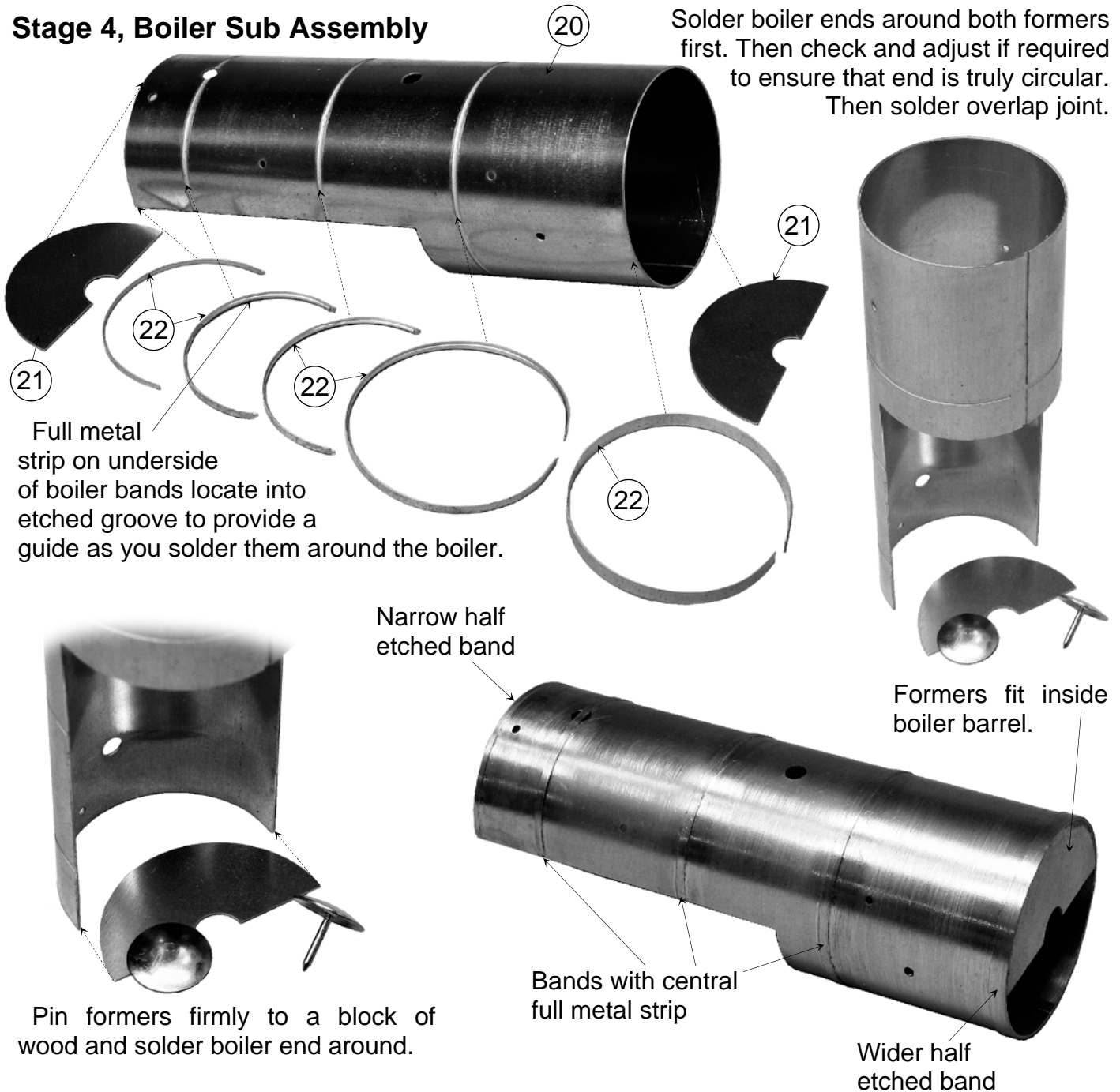
Mock up of cab interior components for illustration only. I suggest fitting floor into empty cab first (you may also wish to fit cab handrails, see stage 10) then fit sub assemblies or individual components into the four corners.



Spot solder inner tanks into position only until boiler and smoke box unit is assembled and location checked. Just in case a little adjustment of tank width is required to allow boiler to fit snugly between.

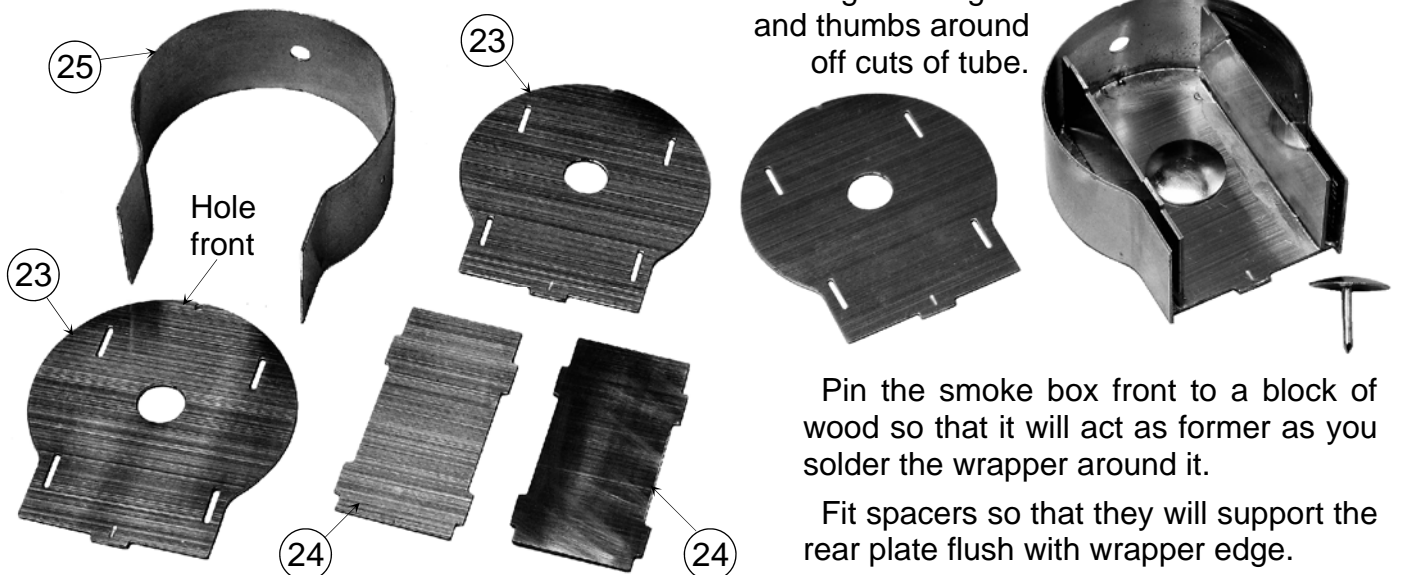
Stage 4, Boiler Sub Assembly

Solder boiler ends around both formers first. Then check and adjust if required to ensure that end is truly circular. Then solder overlap joint.

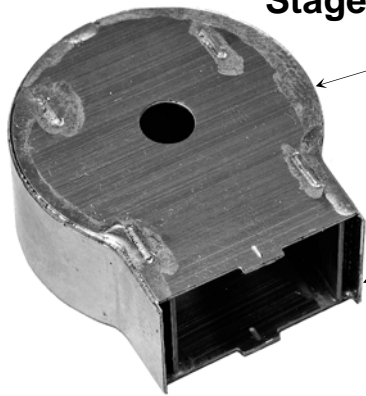


Stage 5, Smoke box Sub Assembly

Pre form the wrapper by working with fingers and thumbs around off cuts of tube.

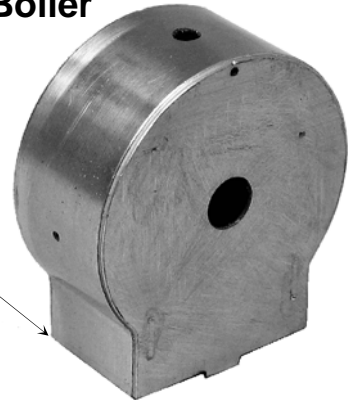


Stage 5 continued, Smokebox & Boiler



Fit smoke box rear plate and then dress joint with wrapper flush.

The wrapper is slightly over length so file off excess level with front/rear.



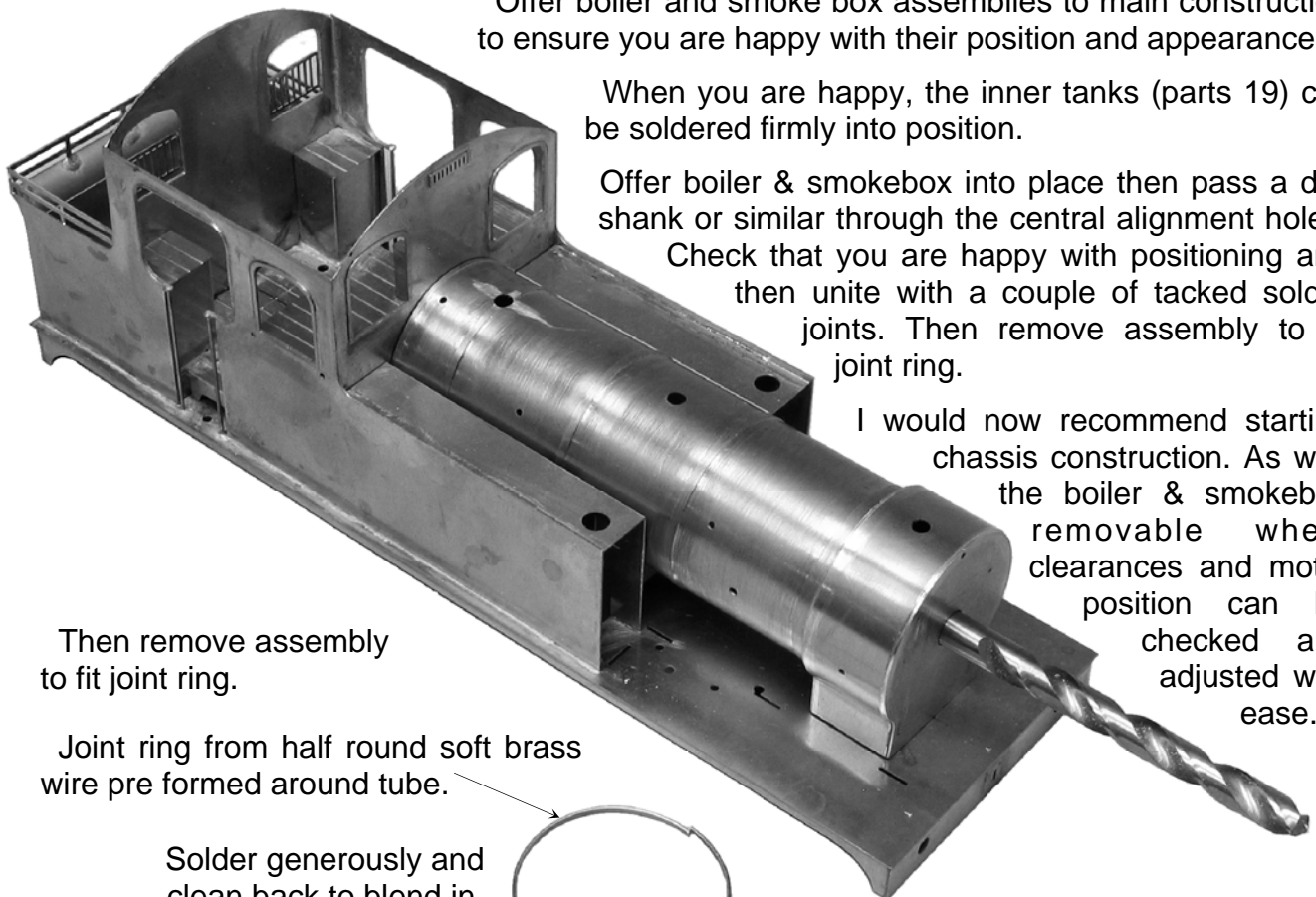
Offer boiler and smoke box assemblies to main construction to ensure you are happy with their position and appearance.

When you are happy, the inner tanks (parts 19) can be soldered firmly into position.

Offer boiler & smokebox into place then pass a drill shank or similar through the central alignment holes.

Check that you are happy with positioning and then unite with a couple of tacked solder joints. Then remove assembly to fit joint ring.

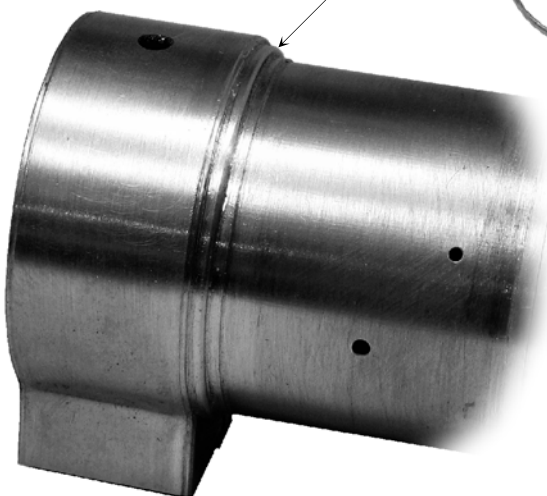
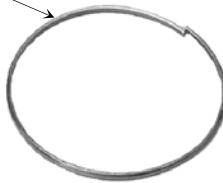
I would now recommend starting chassis construction. As with the boiler & smokebox removable wheel clearances and motor position can be checked and adjusted with ease.



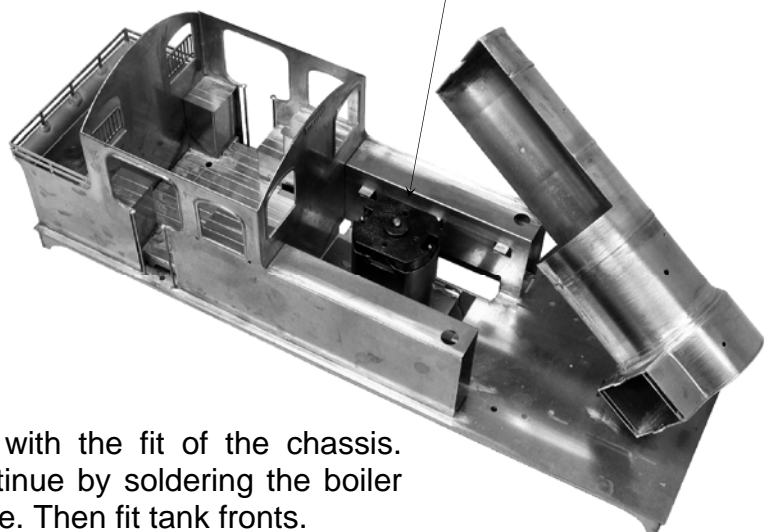
Then remove assembly to fit joint ring.

Joint ring from half round soft brass wire pre formed around tube.

Solder generously and clean back to blend in.



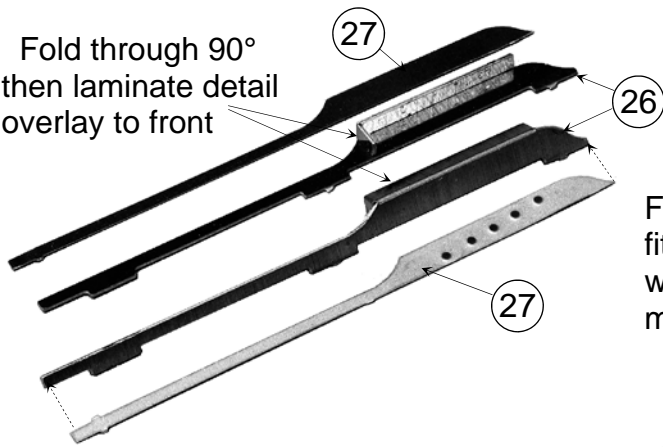
Motor clearance is tight



When you are confident with the fit of the chassis. Body construction can continue by soldering the boiler & smokebox firmly into place. Then fit tank fronts.

Stage 6, Body Assembly Continued

Fold through 90° then laminate detail overlay to front

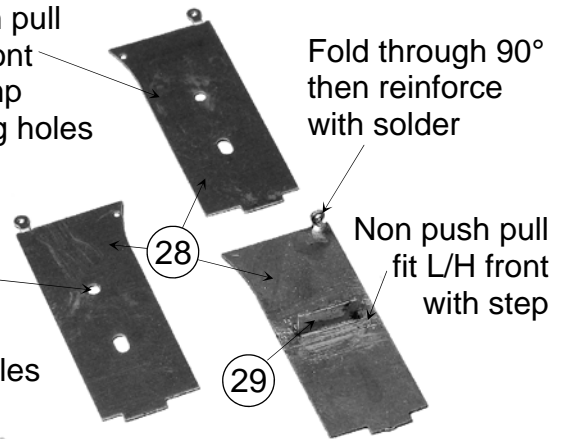


For push pull fit L/H front with pump mounting holes

Fold through 90° then reinforce with solder

For all locos fit R/H front with pump mounting holes

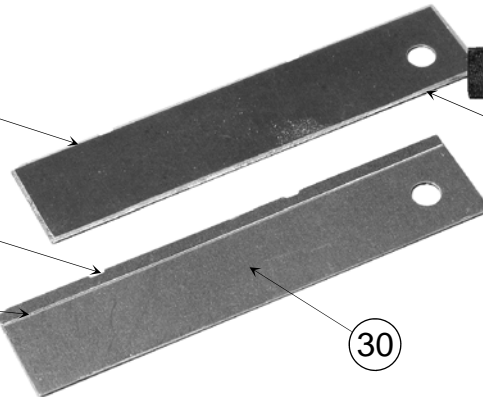
Non push pull fit L/H front with step



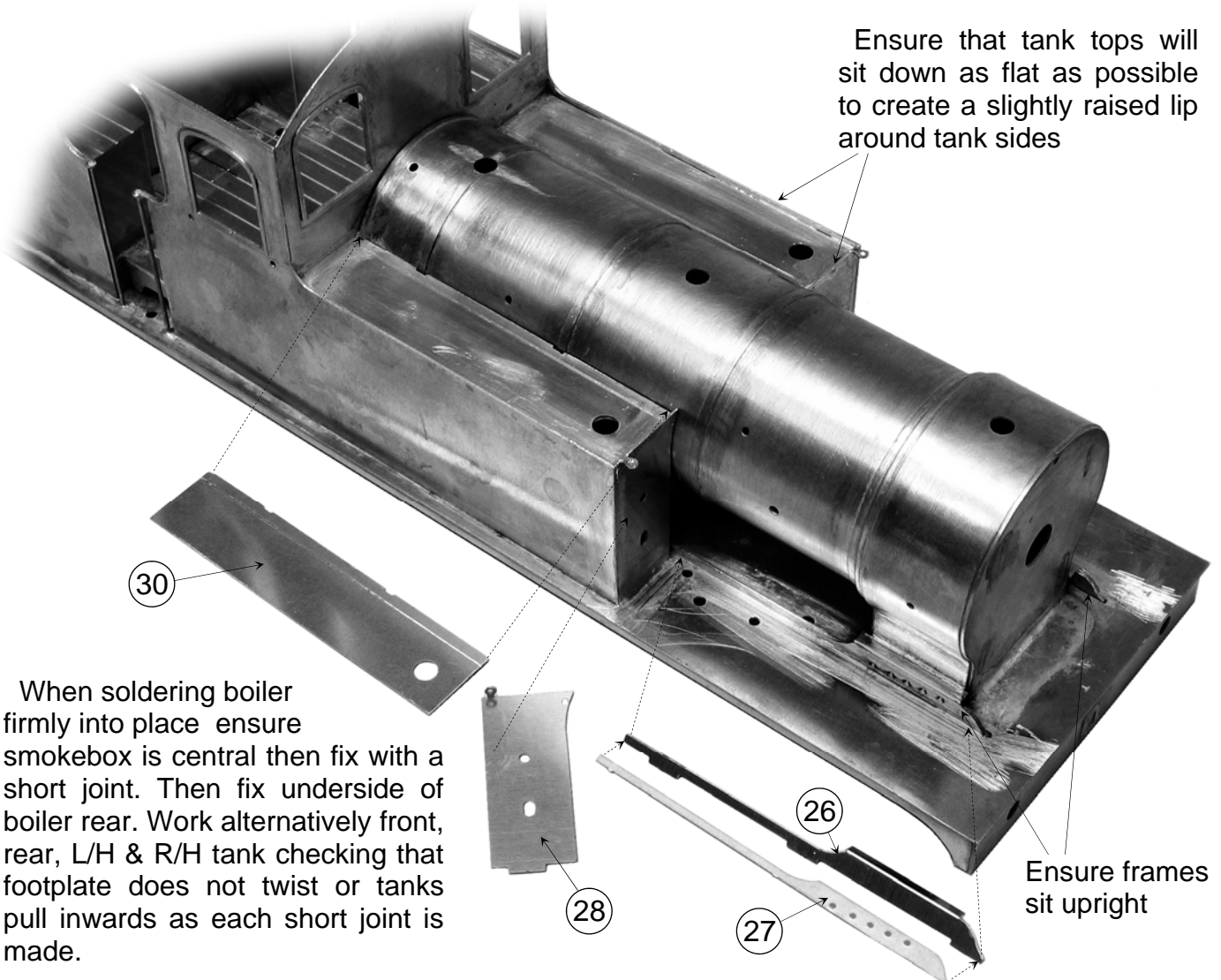
Half etch edge on underside, full metal with cut outs for boiler bands on top surface

File underside edges 45° to ensure that tank tops will sit down as flat as possible on inner tanks.

Scribe a line 10.5mm from tank side edge for positioning of tank to boiler infill strip joint.



Ensure that tank tops will sit down as flat as possible to create a slightly raised lip around tank sides



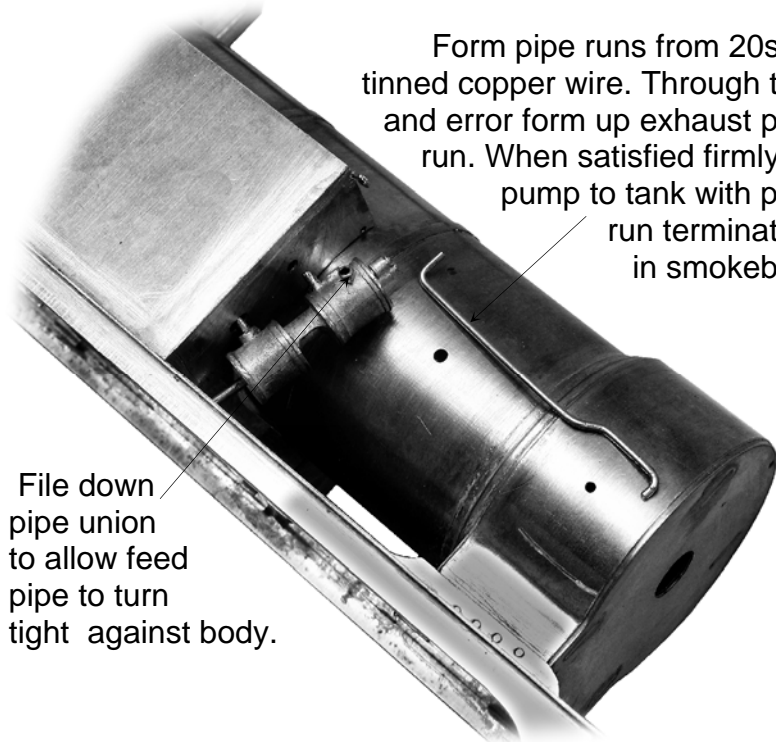
When soldering boiler firmly into place ensure smokebox is central then fix with a short joint. Then fix underside of boiler rear. Work alternatively front, rear, L/H & R/H tank checking that footplate does not twist or tanks pull inwards as each short joint is made.

Ensure frames sit upright

Stage 7, Westinghouse Pumps

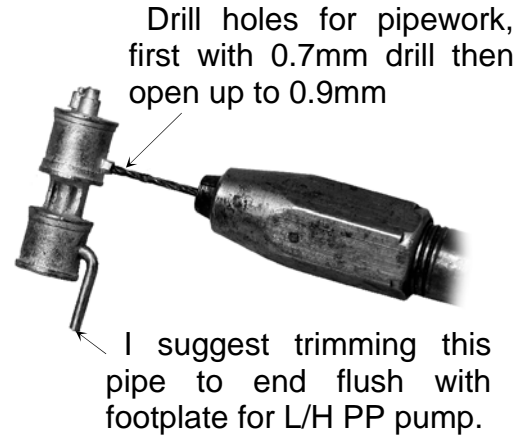
I found that now was a good point to fit the pumps and pipework. As built all locos had a pump on the R/H tank front for train air brake. A step was fitted to the L/H tank front.

When air operated push pull gear was fitted to some locos a second pump was fitted to the L/H tank front to provide airpower for this. I have provided an alternative L/H front with pump mounting holes. When PP gear was removed it appears that the step was replaced.



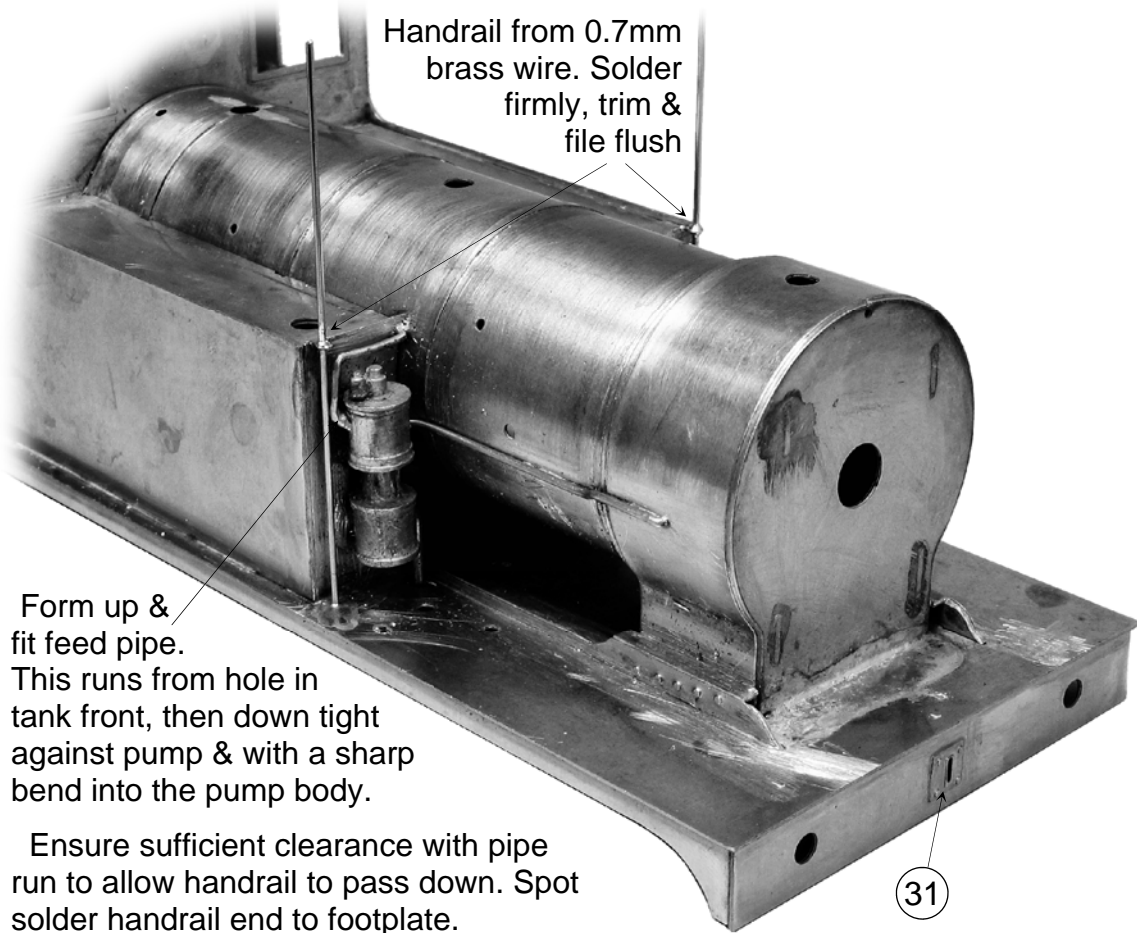
Form pipe runs from 20swg tinned copper wire. Through trial and error form up exhaust pipe run. When satisfied firmly fix pump to tank with pipe run terminating in smokebox.

File down pipe union to allow feed pipe to turn tight against body.



Drill holes for pipework, first with 0.7mm drill then open up to 0.9mm

I suggest trimming this pipe to end flush with footplate for L/H PP pump.



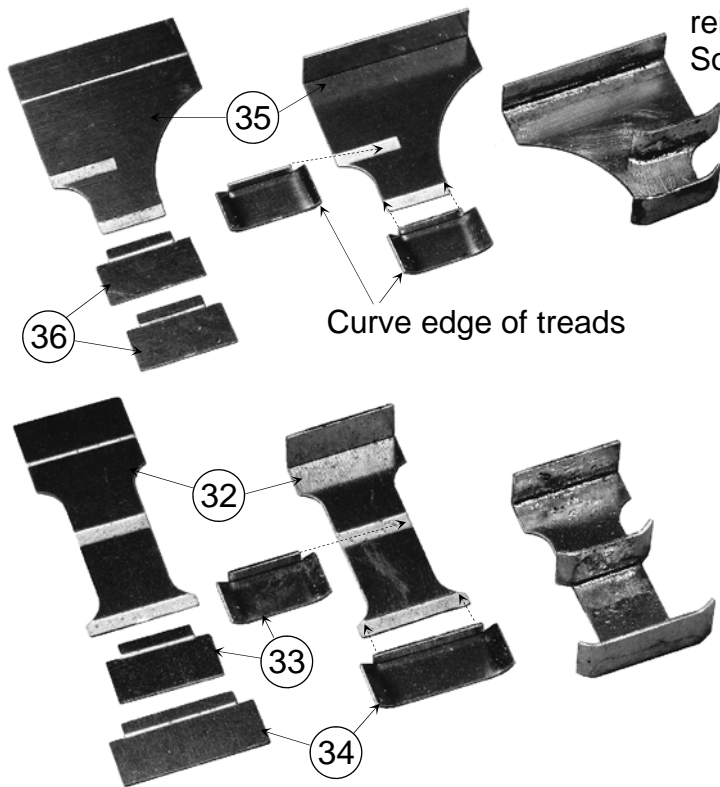
Handrail from 0.7mm brass wire. Solder firmly, trim & file flush

Form up & fit feed pipe. This runs from hole in tank front, then down tight against pump & with a sharp bend into the pump body.

Ensure sufficient clearance with pipe run to allow handrail to pass down. Spot solder handrail end to footplate.

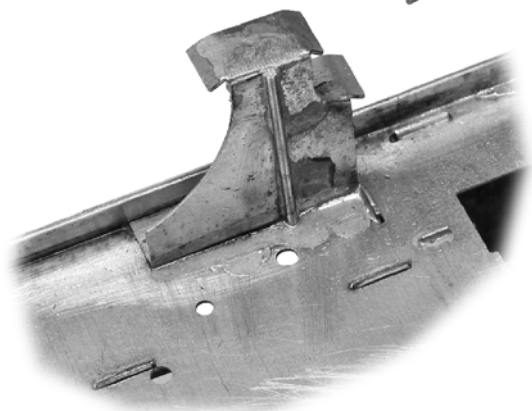
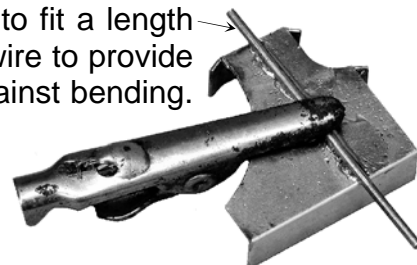
31

Stage 8, Footsteps



Curve edge of treads

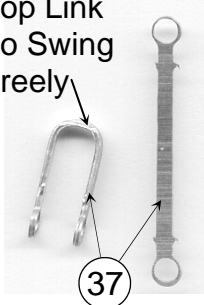
A refinement is to fit a length of 0.9mm brass wire to provide reinforcement against bending. Solder quickly.



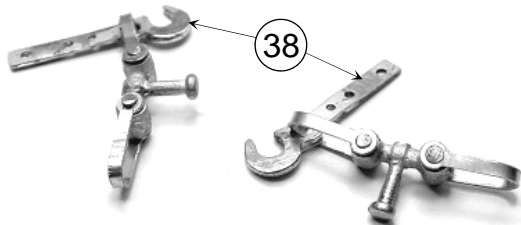
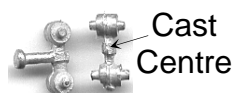
Fit footsteps hard against inside edge of footplate valance. Note etched marks to indicate position. Solder generously.

Form up and file **Cosmetic Screw Coupling**

Top Link To Swing Freely



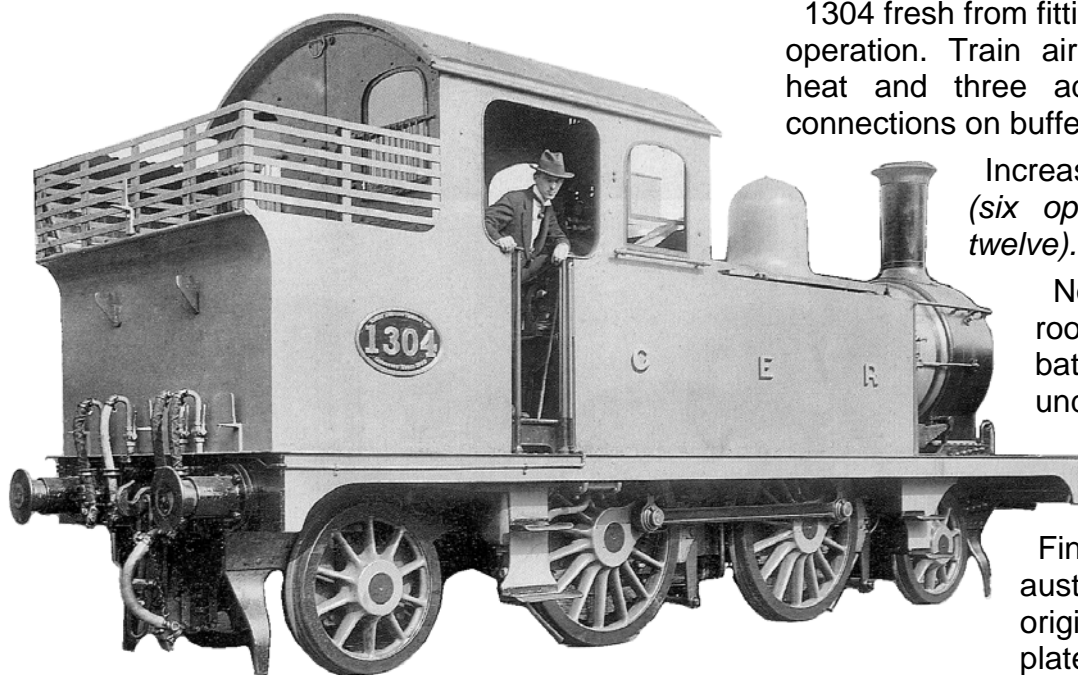
Solder together both halves of each hook and then using round-nosed pliers form the four links into U shapes. Dress the tops of two links with a file so that they will pivot freely in the slot in the hooks. Thread one of these links through the hook and spring the ends over the pegs on the cast centre.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



1304 fresh from fitting out for motor train operation. Train air brake pipe, steam heat and three additional air control connections on buffer beam.

Increased height coal rails (six open soon infilled to twelve).

Note thickness of cab roof with projecting battens around the underside edge.



Finished in WW1 grey austerity paint but with original brass number plate & G.E.R. lettering.

Stage 9, Cab Roof

Roof formers fit into half etched line on underside of roof and will also provide location for a removable cab roof

The single sheet roof gives a fair representation and was a standard approach when the kit was first designed.

With a little ingenuity a more sophisticated representation can be produced. GER wooden cab roofs had a projecting batten (about 0.75mm scale) around the underside edge.

Soldering four strips (taken from waste etch) around the underside represents this nicely.



20swg TCW Rain strip

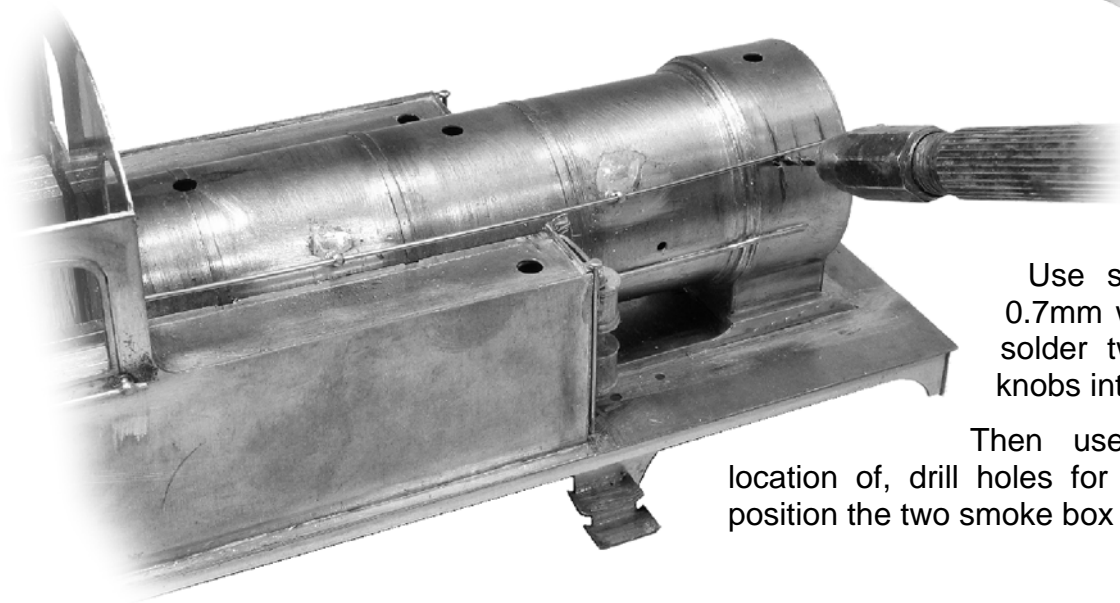
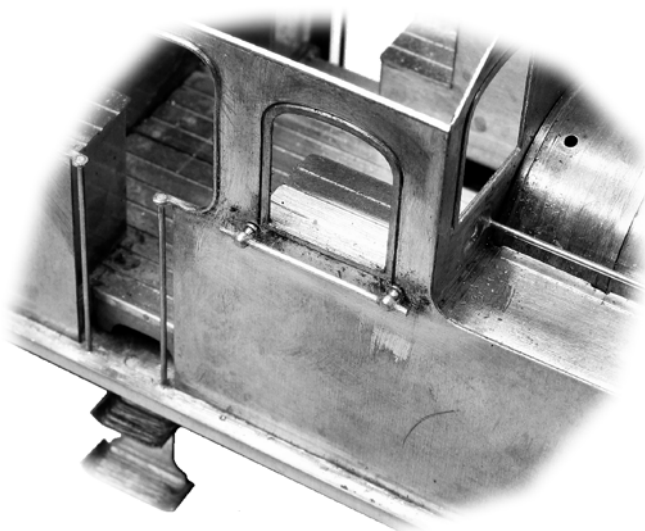
The prototype rain strip was a small section angle iron. I tried to provide these on the etch but found it impractical to fold up such a small section so substituted wire.

Stage 10, Handrails

Fit cab side handrails using short knobs. Holes will require enlarging with about 1.3mm drill. Interior tank components will impede the drill and limit the depth the tail of the handrail knob will pass through. So this tail will require sniping down before insertion.

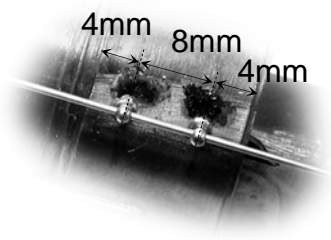
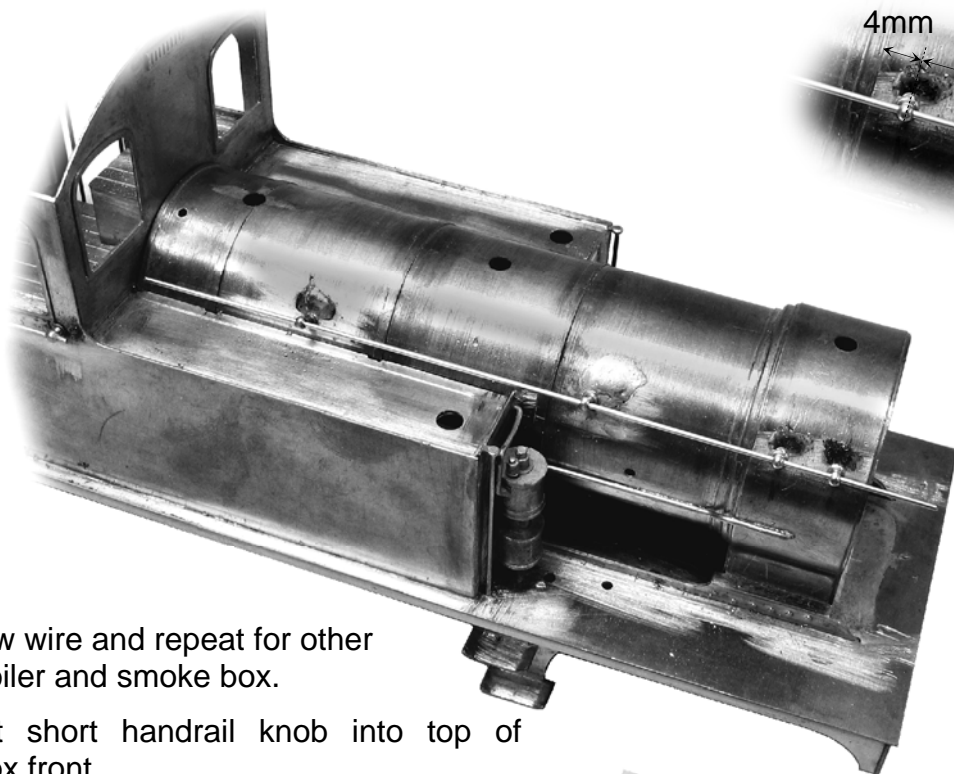
Alternatively you may wish to fit at stage 3 (page 5) and then file the tails flush before fitting cab interior components.

Threading a length of wire through knobs will make them easier to handle and position.



Use straight length of 0.7mm wire to position & solder two long handrail knobs into boiler.

Then use wire to mark location of, drill holes for and solder into position the two smoke box handrail knobs.



Withdraw wire and repeat for other side of boiler and smoke box.

Then fit short handrail knob into top of smoke box front.

I find it easiest to form the main handrail in two sections with the smoke box front curves overlapping generously.

Then feed down through boiler handrail knobs and snip to length to butt up against cab front.

Then trim curved smoke box handrails to terminate part way into front knob. Then solder to join the two sections.

Wire is annealed in a cigarette lighter flame and then curved (over length) to match smoke box diameter.

Then form bend to run down boiler

Work towards cab soldering at each knob. Then spot solder end to cab front.

Stage 11, Blower valve

On the prototype loco a operating rod ran through the hollow handrail and located through a slot in the rear of the handrails central smoke box section into a pivoted operating lever.

Drill 0.75mm hole on the smoke box centre line 2.5mm below the handrail. Solder length of 0.7mm brass wire into this hole and then snip off wire to form a peg projecting about 1.5mm.

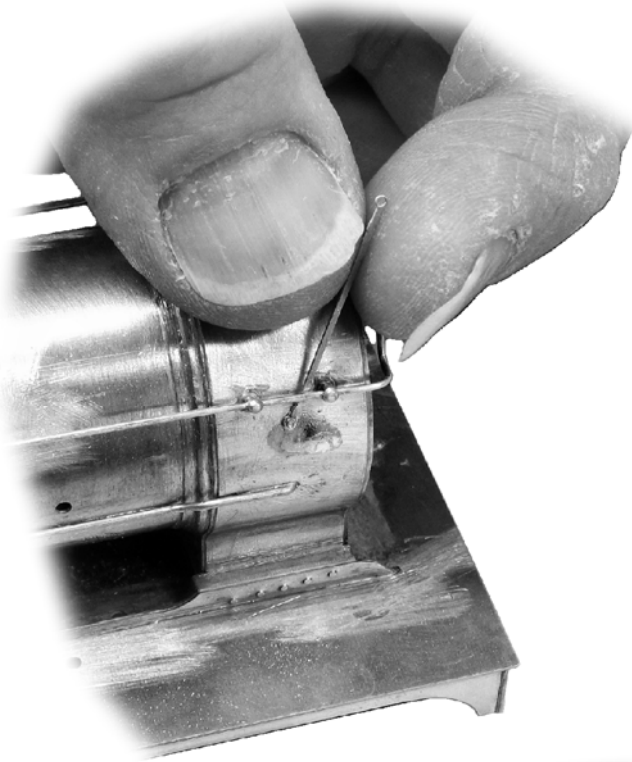
The etched operating lever is overlong for ease of handling and double ended to give a second chance if required.



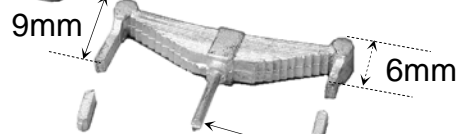
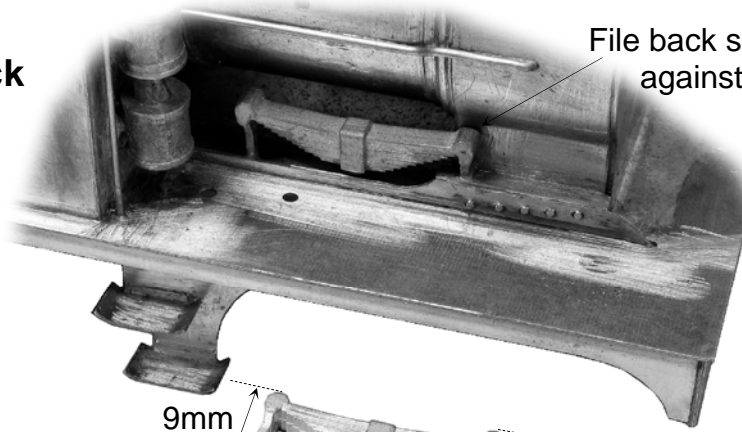
Select the best end and form a slight set on lever.

Stage 11 *continued*, Blower valve

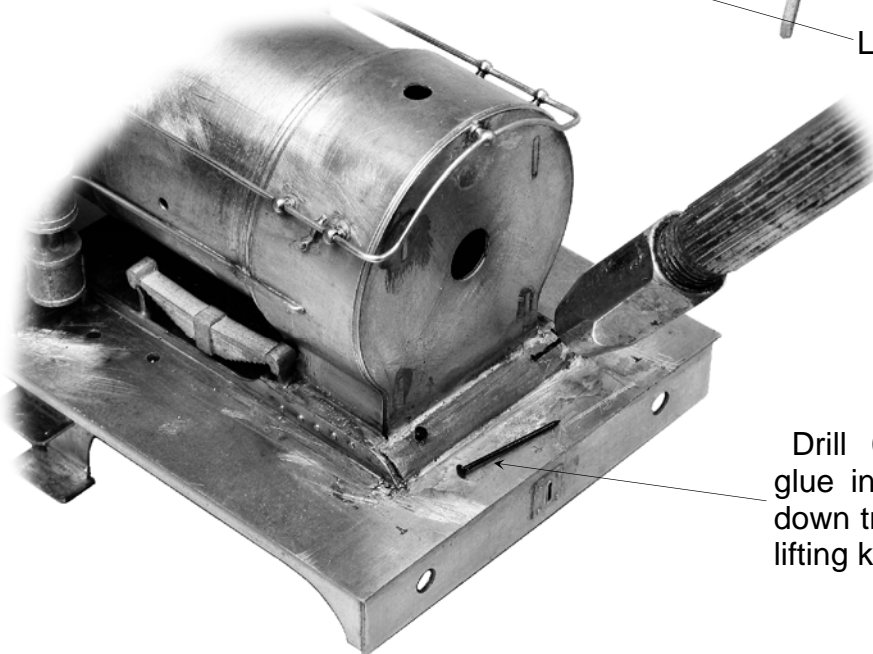
Locate and solder lever over wire peg and then solder to rear of handrail. Then snip off square to project about 1.5mm above handrail.



Stage 12, Radial Truck Spring Casting



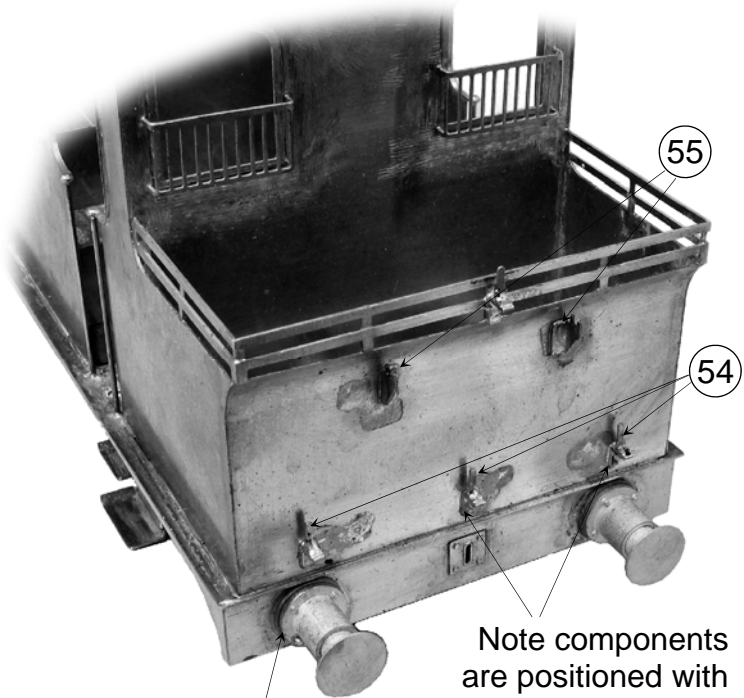
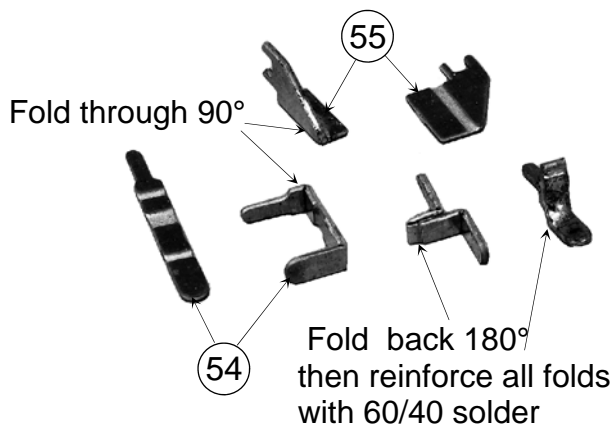
Locate into etched hole



Stage 13, Valve Cover Casting

Drill 0.6mm holes and then glue in place the heads of cut down track pins to represent the lifting knobs on the valve cover

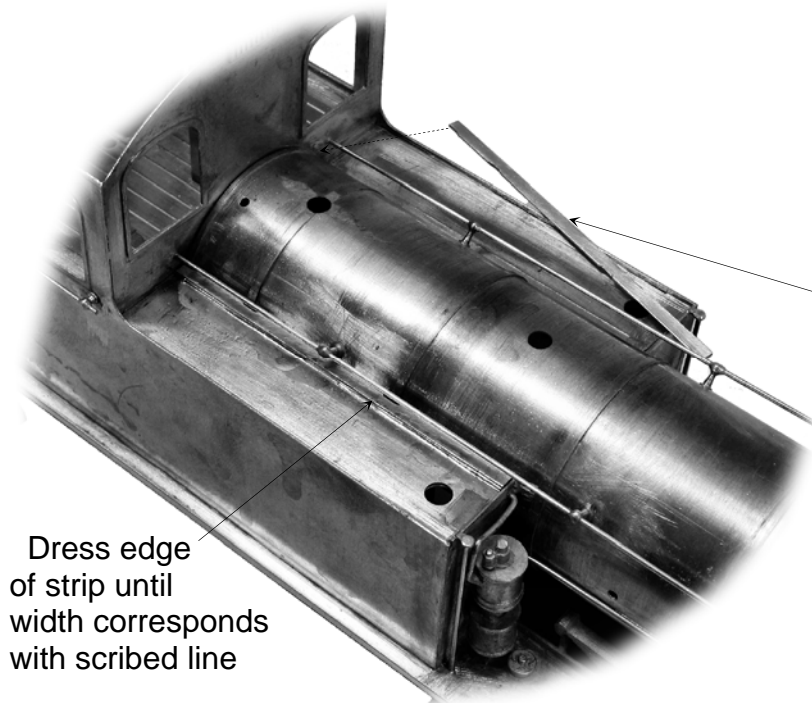
Stage 14, Rear lamp irons & destination board brackets



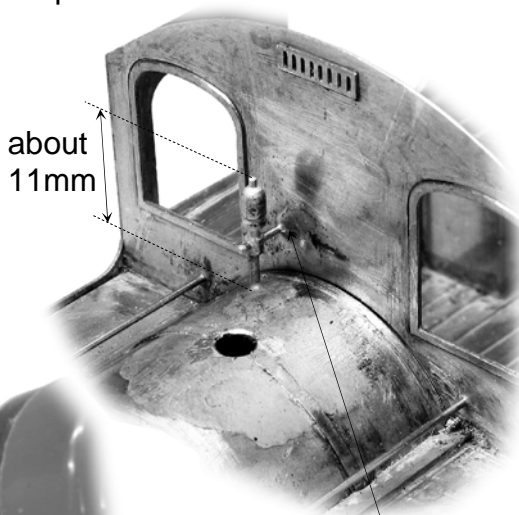
Note components are positioned with the aid of etched marks

GER buffers were fitted to beam with a wooden packing (probably sacrificial) ring between. I have provided castings for these.

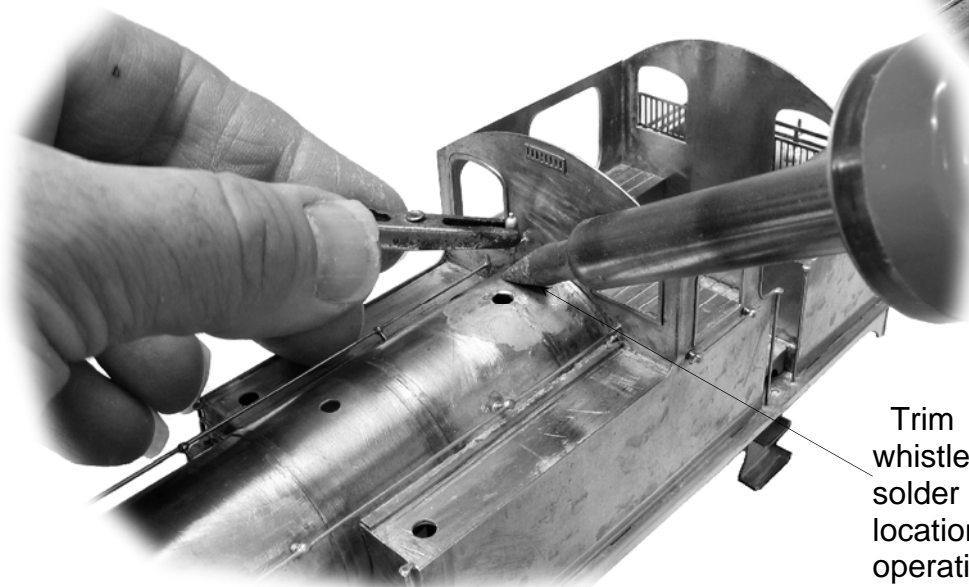
Stage 15, Boiler & tank top fittings



Fit double thickness tank to boiler infill strips taken from additional components etc.



Spot solder operating lever to cab front

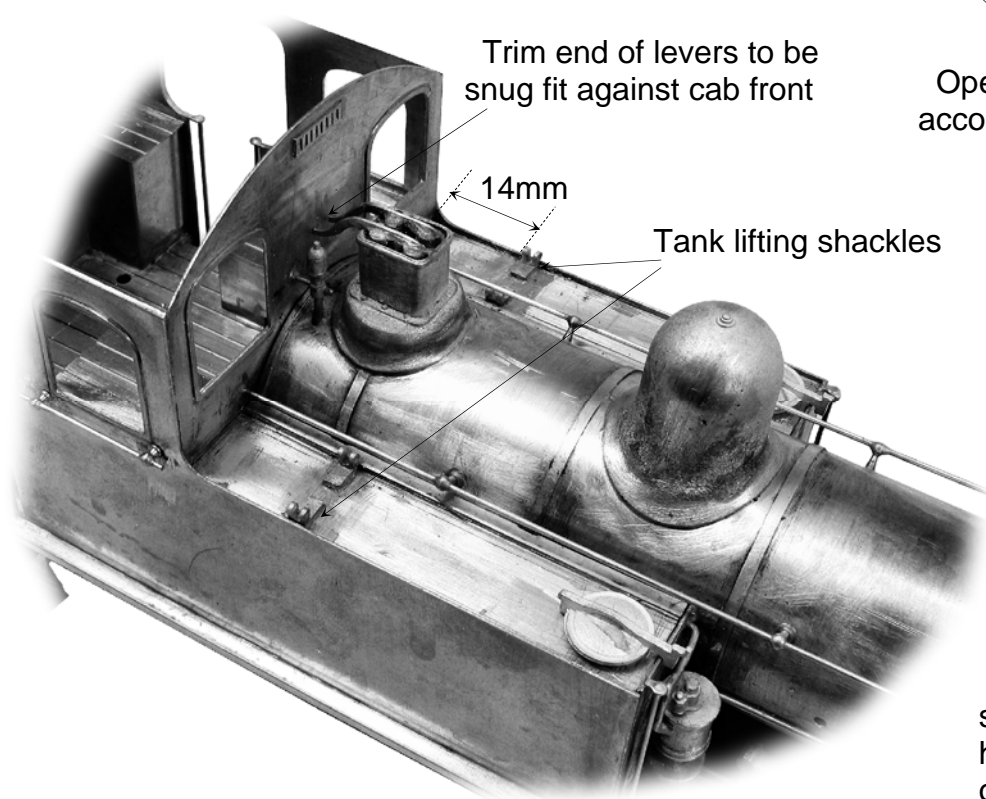
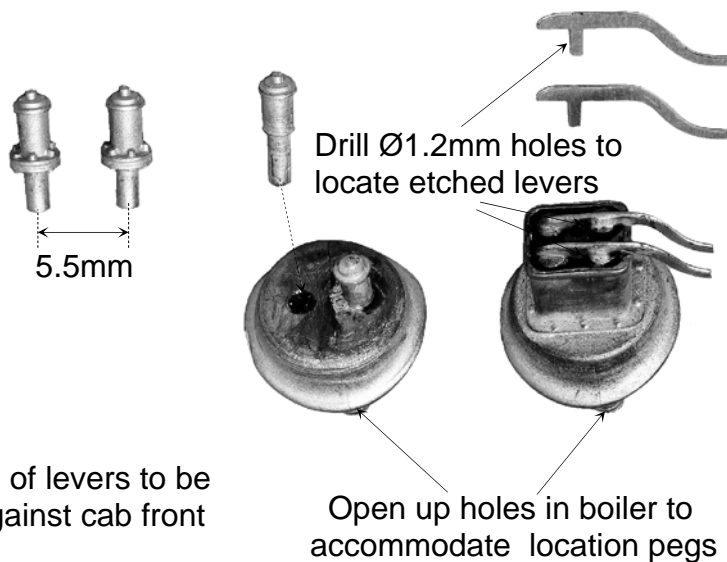


Trim operating lever so that whistle will stand upright. Then solder whistle pipe into boiler location hole and then spot solder operating lever to cab front.

Stage 15, *continued* Boiler & tank top fittings

Originally encased four column Ramsbottom safety valves with twin levers were fitted to all locos.

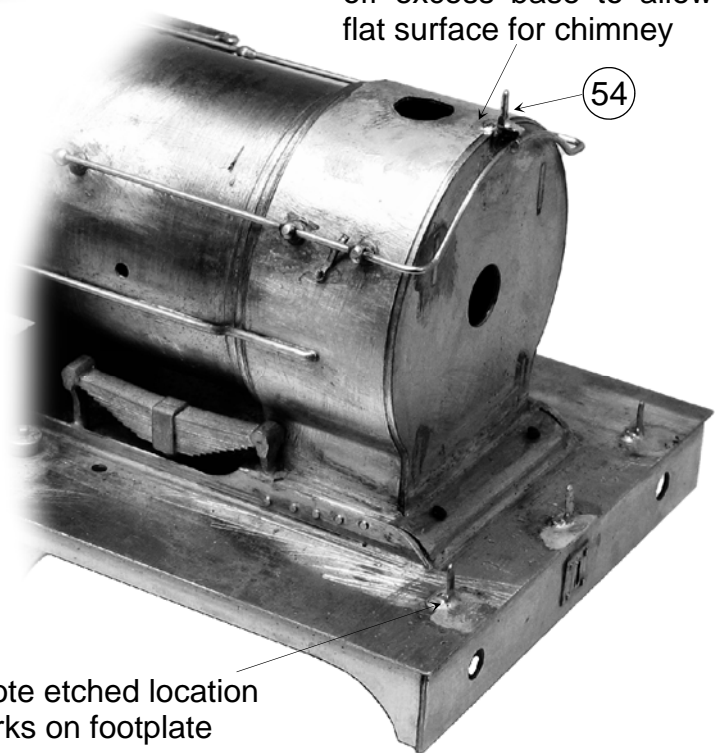
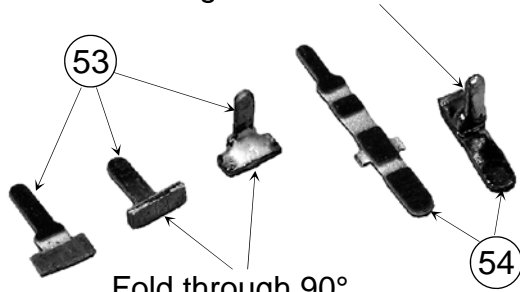
Later twin ross pop valves on a raised casing were fitted to most locos but some locos had the ross pop valves with a flanged base fitted direct into the boiler (*check photos*).



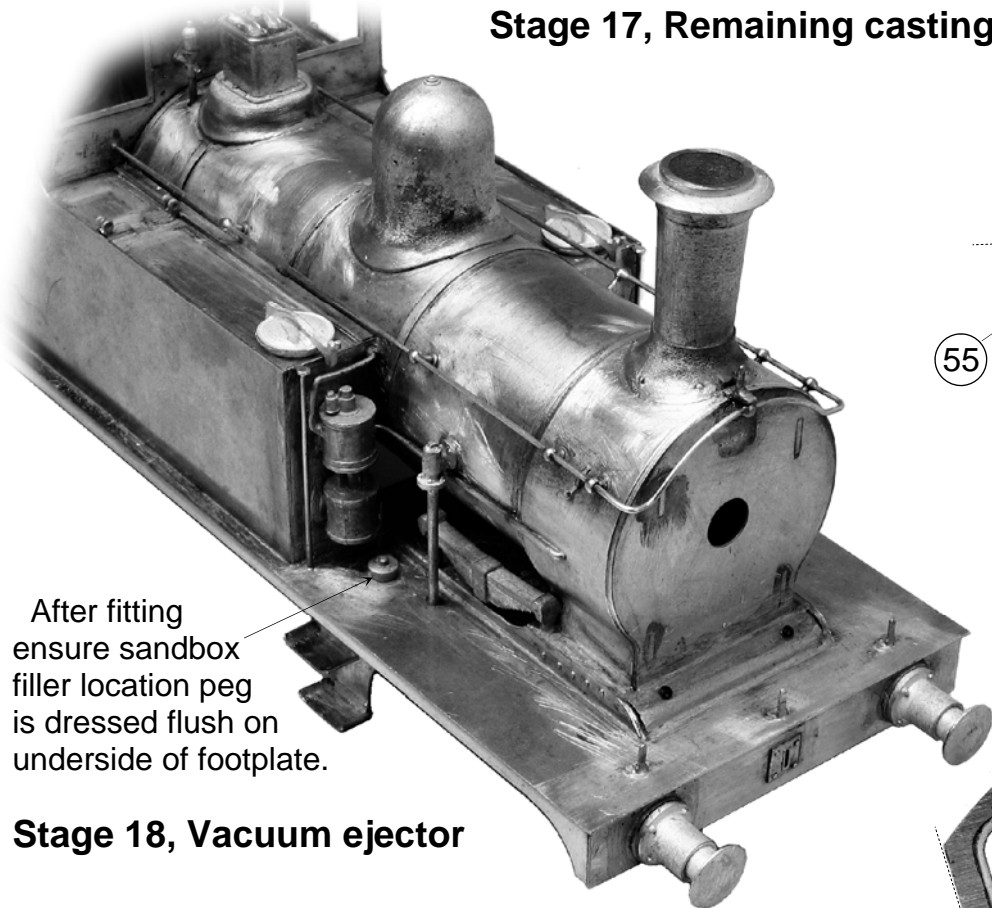
Solder generously to smoke box top just above handrail knob. Then dress off excess base to allow flat surface for chimney

Stage 16, Front lamp irons

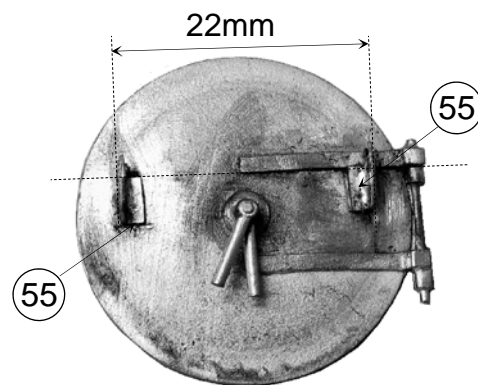
Fold through 90° then fold back through 180° to leave a flat base



Stage 17, Remaining castings & smoke box door

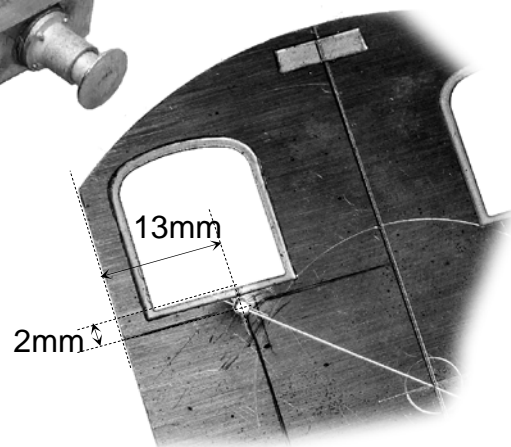


After fitting ensure sandbox filler location peg is dressed flush on underside of footplate.

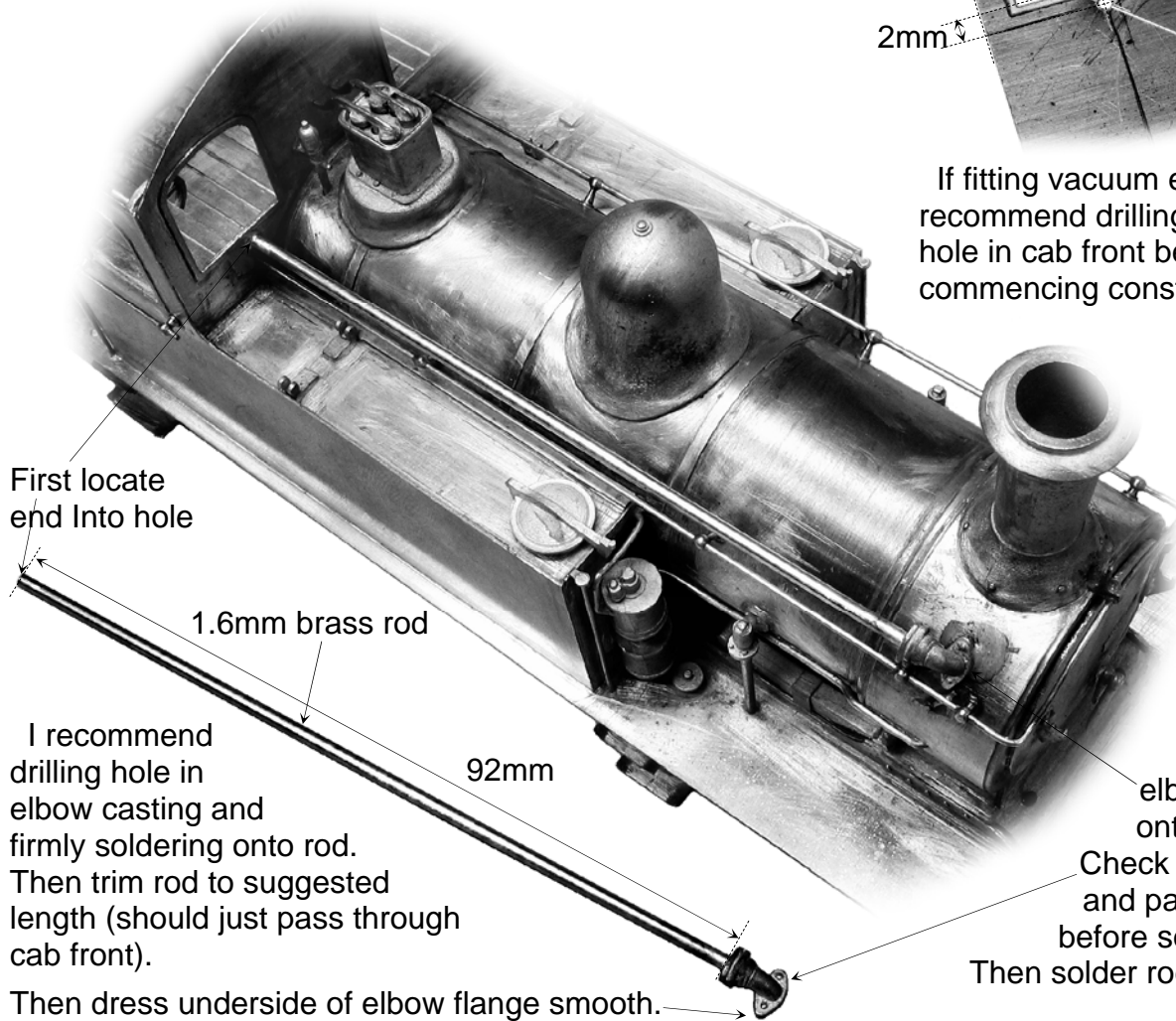


After fitting destination board brackets & locking handle I glue the door into place using Araldite.

Stage 18, Vacuum ejector



If fitting vacuum ejector I would recommend drilling a $\text{\O}1.6\text{mm}$ hole in cab front before commencing construction.



First locate end into hole

1.6mm brass rod

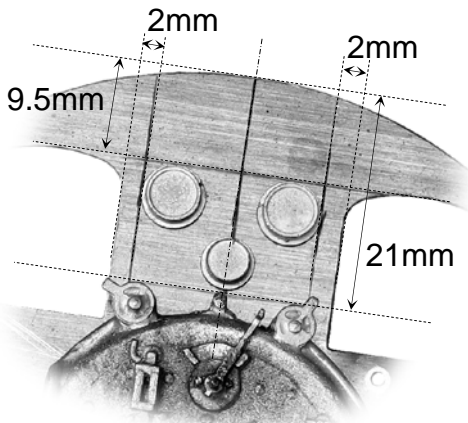
92mm

I recommend drilling hole in elbow casting and firmly soldering onto rod. Then trim rod to suggested length (should just pass through cab front).

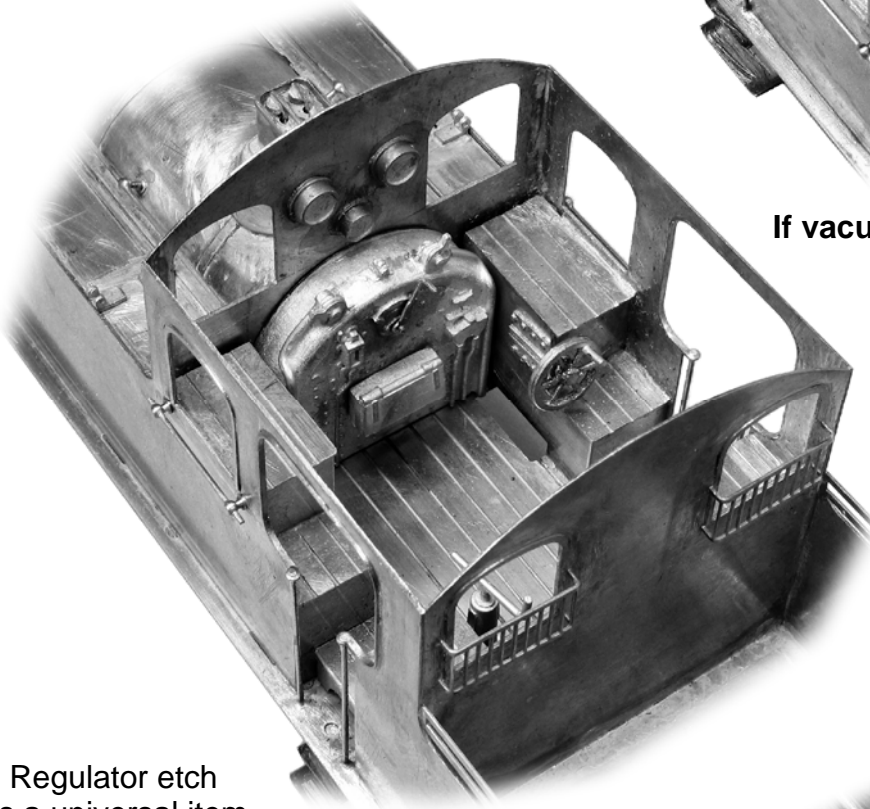
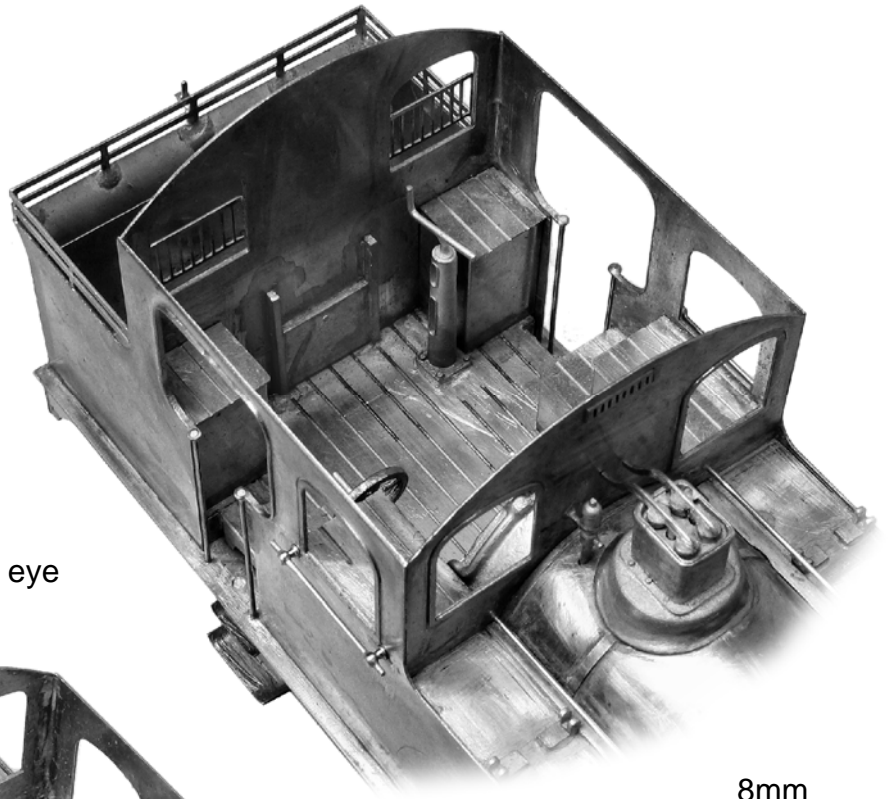
Then dress underside of elbow flange smooth.

Then position elbow flange flat onto smoke box. Check rod runs level and parallel to boiler before soldering solid. Then solder rod at cab front.

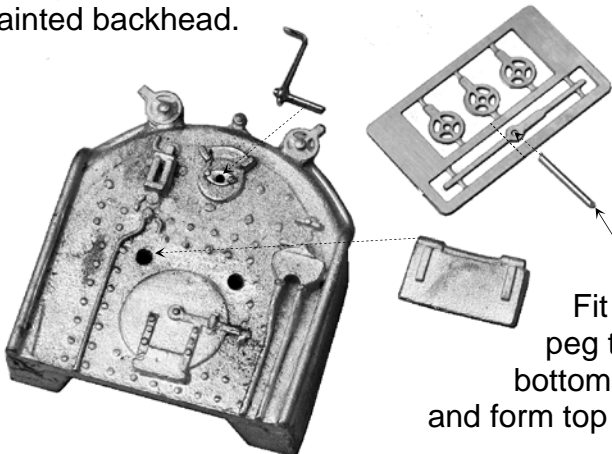
Stage 19, Cast cab fittings



In reality I position cab gauges by eye



Regulator etch is a universal item. You may wish to dress down cast handwheels then glue etched replacements onto painted backhead.



Fit 0.7mm wire peg then snip off bottom of regulator and form top through 90°

If vacuum brake is required

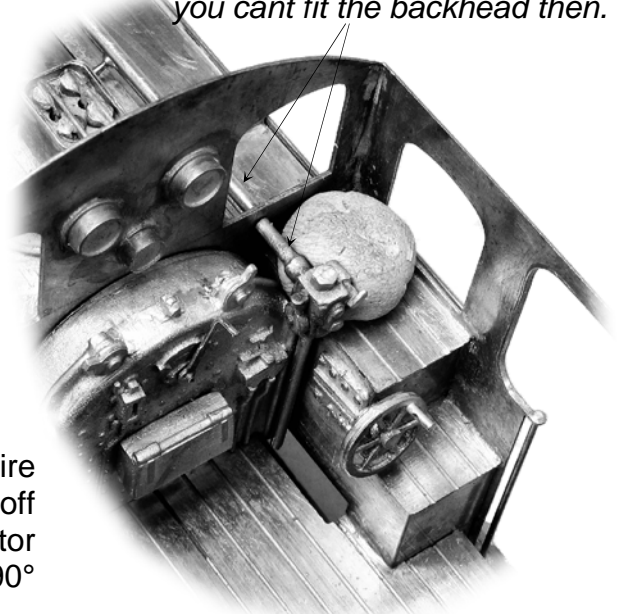


Fit 1.6mm brass rod into brake ejector

Then after the painted backhead is glued into the finished cab. The painted brake ejector can be fitted.

A ball of bluetack will hold it in position while the glue sets.

Position so that the pipe run corresponds. *I had the idea of continuing the rod 8mm through the cab front & fitting the ejector directly to this but you cant fit the backhead then.*



Stage 20, Couplings & buffer beam pipe work

If vacuum brake is required fit short pipe (to clear smoke box door when opened) to front buffer beam.

For all upstanding pipes file semi circular notch into footplate overhang to allow cast pipe to sit flat against front face of buffer beam

I solder coupling hook tail solid into buffer beam slot. Then trim tail flush with inside face

Air brake

Steam heat

5.5mm 8.5mm

Form loop around steam heat pipe then twist 29swg tinned copper wire to represent securing chain.

Solder to buffer beam rear to be clear of chassis side frame.

Once pipe work is fitted securely, trim tails and file stubs so that they do not prevent the chassis fitting snugly between buffer beams.

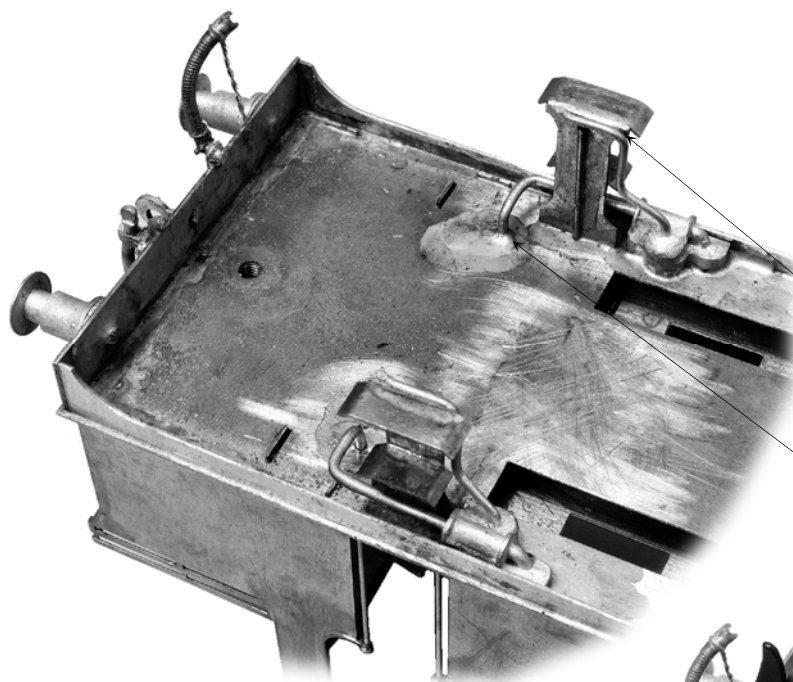
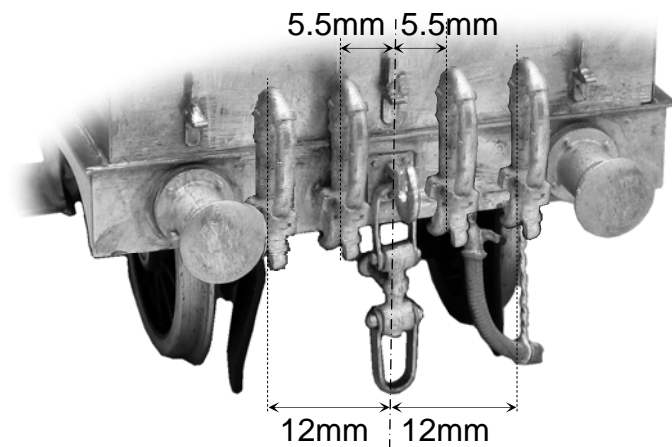
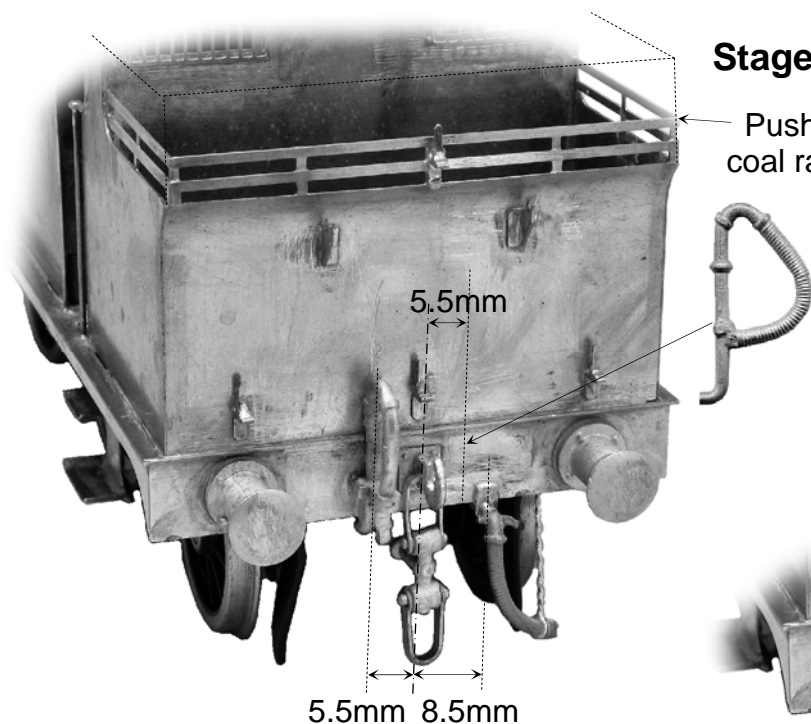
I recommend regularly offering up chassis as each new component is fitted.

Stage 20, pipe work continued

Push pull locos had higher closed coal rails (alternative part 18).

If required fit tall vacuum pipe to rear buffer beam.

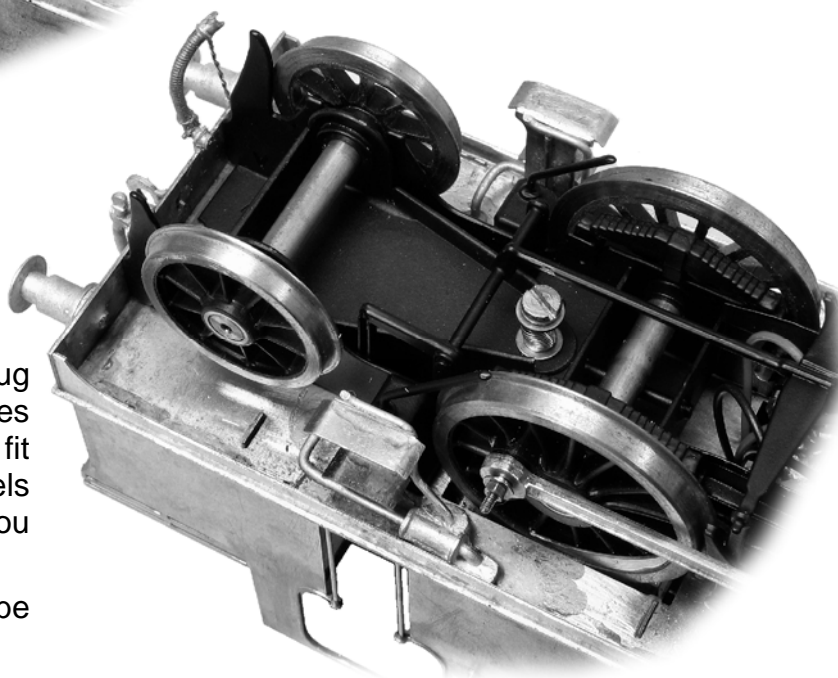
Locos with Push-Pull control gear had three additional air pipes fitted to the rear buffer beam.



Stage 21, injectors

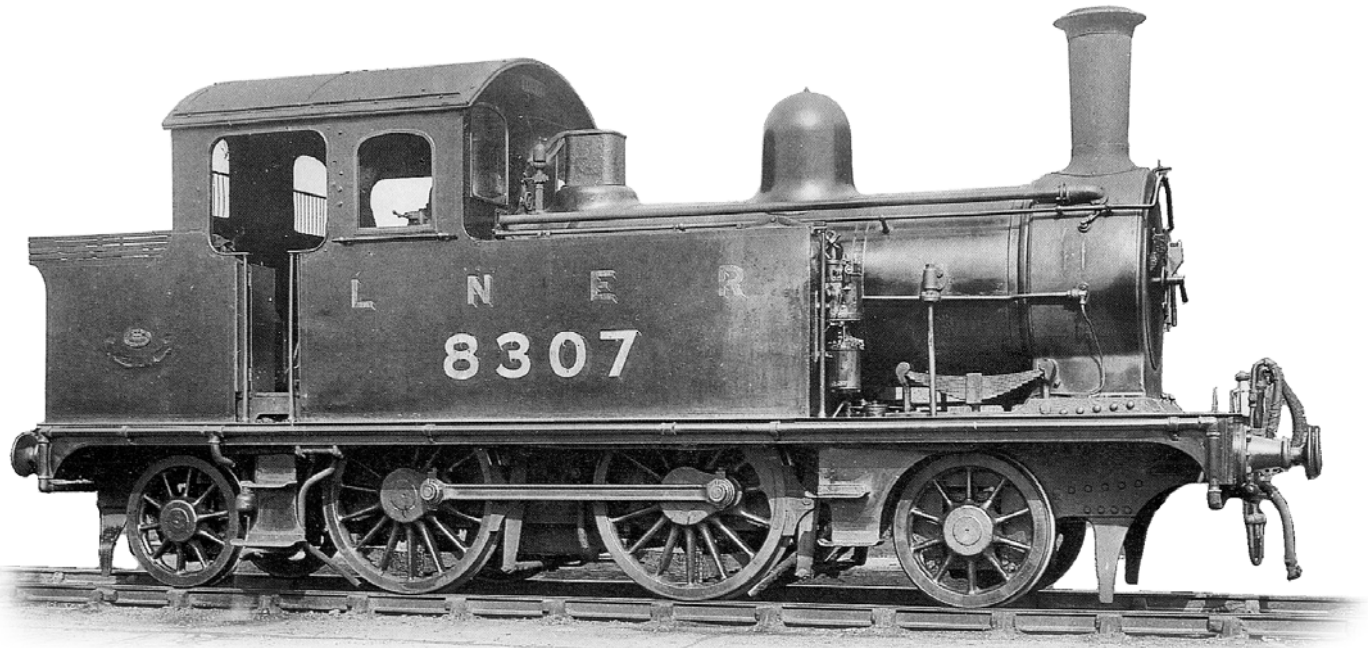
Solder drain pipe to back of step

Spot solder pipe end (*pipe end may not have cast fully so may require packing up with a little scrap*).

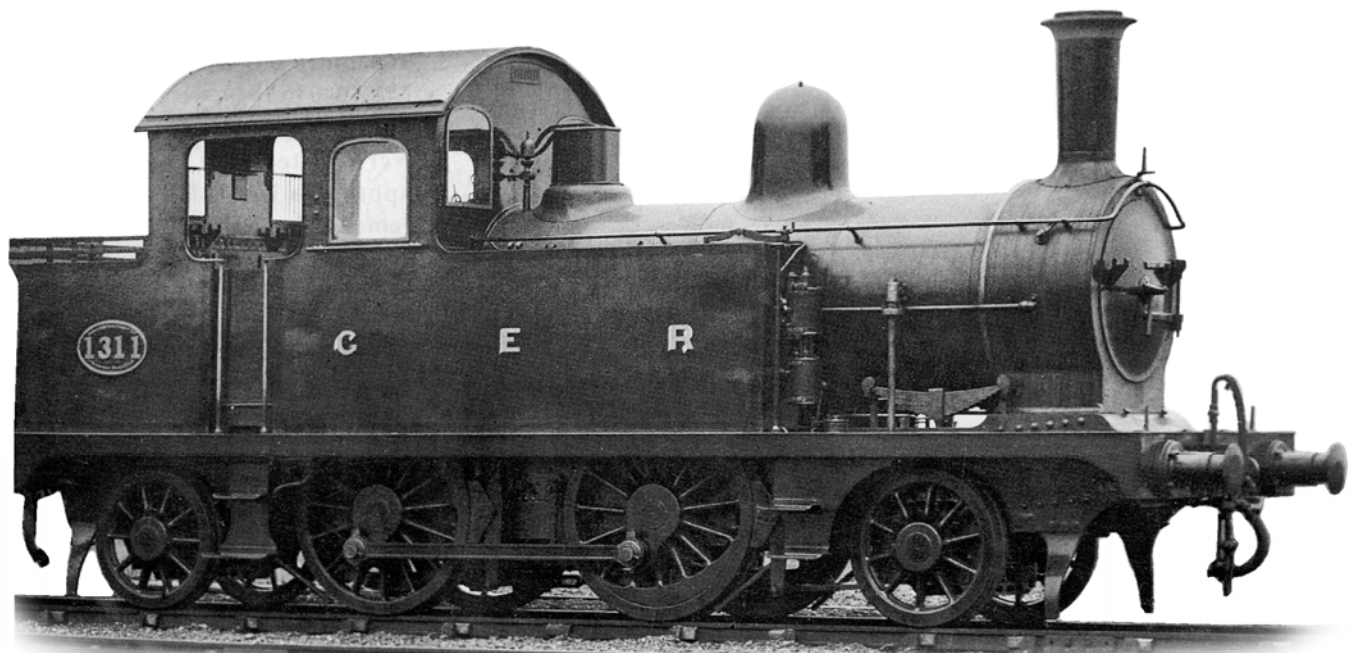


Things are getting a bit snug between sandboxes, injector pipes and crankpins. But everything does fit and clear nicely when the wheels revolve. Just keep checking as you go along.

Main construction should now be complete.



8307 fitted with vacuum brake in addition to air brake. Note ejector pipe running along boiler and through elbow into smoke box (*1.6mm brass rod*). Also train through pipe running along below footplate edge, turning down at each end and under the valance (*1.4mm copper rod*). Note smaller LNER oval number plate on bunker centred on the same position as the removed GER one. Finished in LNER black livery with single thickness red lining.



1311 as built, Westinghouse air as only train brake, four column encased safety valve with levers, two open coal rails, chimney with rim cap. Finished in GER blue livery with original brass number plate on bunker.

Also included to help with finishing are etched destination boards and head code discs. Along with etched fire irons that would be stowed on the L/H tank top.

**Great Eastern Railway Class Y65
LNER Class F7, 2-4-2 Tank**

