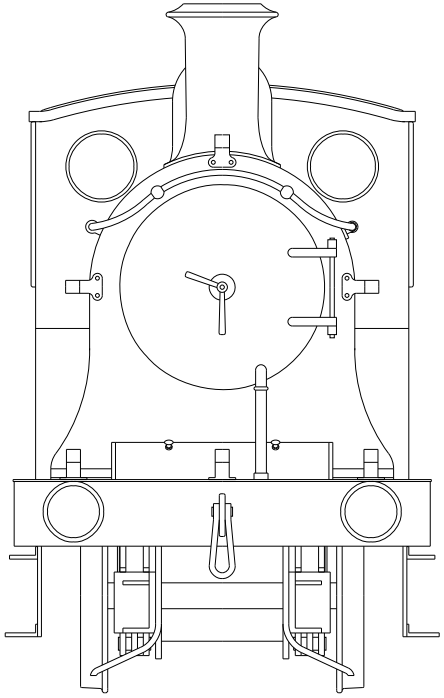
Finney7

LSWR DRUMMOND T9 WIDE CAB



CAUTION.

This product contains etched parts with very sharp edges and castings that may contain lead. Neither the Manufacturer, Distributor or Retailer can accept any liability for illness, injury or consequential damage caused when handling or building this product.

Read any instructions before assembly. Do not eat or drink whilst handling. Wash hands after use.

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BRIEF HISTORICAL DETAILS

The locomotives which form the subject of this kit are the 'wide' series of Dugald Drummond's celebrated T9 4-4-Os for the LSWR. A total of 15 locomotives were built at Nine Elms Works under 3 Order Numbers as follows:

Numbers	Built	Order No
300-304	12/1900-1/1901	T9
305, 307, 310-312	2/1901-5/1901	X9
313, 314, 336-338	5/1901-10/1901	G10

For a detailed history of this class refer to the following books:

Part two of 'The Locomotives of the L.S.W.R.' published by the RCTS.

LSWR Locomotives - The Drummond Classes published by Wild Swan.

Other valuable sources of information and photographs are:

The Drummond Greyhounds of the LSWR - D.L.Bradley - David & Charles

A Pictorial Record of Southern Locomotives - J.H.Russell - OPC

Drummond Locomotives - Brian Haresnape & Peter Rowledge - Ian Allan

Locomotives Illustrated No. 44 - The Drummond 4-4-Os and Double singles of the LSWR - Ian Allan

Southern Steam Locomotive Survey - The Drummond Classes - Bradford Barton

VARIATIONS/MODIFICATIONS INCORPORATED INTO THE KIT.

Starting with number 304 in June 1922 the locomotives were extensively rebuilt involving new:

Smokeboxes. New, larger, smokeboxes were fitted incorporating the 'Eastleigh' superheater. A small tube cleaning cock was fitted to the left side of the smokebox. This feature appears to subsequently have been removed. From March 1925 the 'Eastleigh' superheaters were replaced with a Maunsell designed superheater which involved the fitting of the characteristic Maunsell snifting valves to the top of the smokebox.

When the superheated smokeboxes were renewed the flush riveting was usually replaced by visible snap head rivets.

Smokebox door. From circa 1913 four clamping 'dogs' were fitted to the lower rim of the smokebox door.

Coupling rods. New fluted coupling rods were fitted.

Brake gear. The brake hangers and pull rods were changed for a more robust design.

Chimney. A new stove pipe chimney with high capuchon was fitted. Over the years this capuchon was lowered and eventually removed completely.

Hydrostatic lubricator. A four feed Detroit lubricator was fitted.

Vacuum pipe connection. The fitting of the extended smokebox meant the fitting of a new, lower, vacuum pipe connection to avoid the pipe fouling the opened smokebox door.

Carriage heating pipes. From 1901 onward the LSWR introduced steam carriage heating equipment. The steam pipe to the buffer beam mounted connections ran behind the right side valence.

Clackboxes. When built, all had their clackboxes sited on the bottom of the smokebox tube plate. From circa 1913 Drummond's successor Robert Urie placed the clackboxes conventionally on the boiler sides with the feed pipes following the original path from the injectors. From the mid 1920s onward the feed pipes were redirected, by a more accessible route, up through the platform and over the leading splasher.

Firebox cross water tubes. Those engines built with firebox cross water tubes had them removed by Urie starting with 303 (7/1913).

Sandboxes. The locomotives were built with the sandbox inside the smokebox with an external filler on the smokebox side. The smokebox sandboxes were quickly removed and replaced with boxes between the frames most by mid-1907.

Lamp brackets. The locomotives were built with Drummond's socket style brackets. The SR standardised on a design with the socket in the lamp. Many locomotives had the Drummond brackets adapted to accept the standard lamps but gradually the locomotives were fitted with new brackets of standard design.

Vacuum pipe. The vacuum pipe to the front connection initially ran under the locomotive. From the early 1920s onward this pipe was moved to a position outside the left side valence.

Couplings. Most of the engines appear in their early years to be running with a single long coupling link, although some carry three link couplings. Later the locomotives were equipped with screw couplings together with a hook to carry the coupling when it was not required.

TENDERS

The locomotives were built with 4000 gallon double bogie, 'Watercart', tenders. During the 1920s several exchanged their tenders for the 3500 gallon 6-wheel type to enable them to work on the Eastern and Central sections of the Southern Railway.

CHASSIS OVERVIEW

Note that many of the components for both chassis and body are handed left/right and care must be taken to ensure the correct component is used. Components are not always identified left/right separately but with care and common sense no problems should arise.

Gauge.

For Finescale, where little sideplay is required, the widest spacers can be used but they will need careful filing to make their width 26.0 mm. If you require your engine to negotiate sharp curves then the middle width spacers should be used.

The widest frame spacers supplied are suitable for Scaleseven and care will be needed to allow sufficient sideplay, especially in the leading axle to enable the model to negotiate moderate curves.

Suspension.

Rigid. The kit is supplied with top hat bearings to build a rigid chassis. Open out the main axle holes to accept top hat bushes and solder them in place. If the leading axle is 5/32" diameter then reduce the bearing diameter accordingly by fitting a sleeve from short lengths of the 3/16" tubing provided.

Sprung. If you are going to fit sprung horn blocks, you should open out the frame slots by cutting up the half etched lines and follow the manufacturers instructions.

Compensated. The simplest and most reliable suspension system is beam compensation and the necessary compensation beams are provided in the kit. Not provided are the hornblocks and bearings which are available as an extra item which includes instructions for aligning the hornblocks accurately.

Pickups. No pickup material is provided. The options are:

Scrapers. Attached to the middle frame spacer using printed circuit board.

Plunger. Open out holes P and fit according to the manufacturers instructions. It may not be possible to use plunger pickups if you wish to fit the inside motion because they may foul each other.

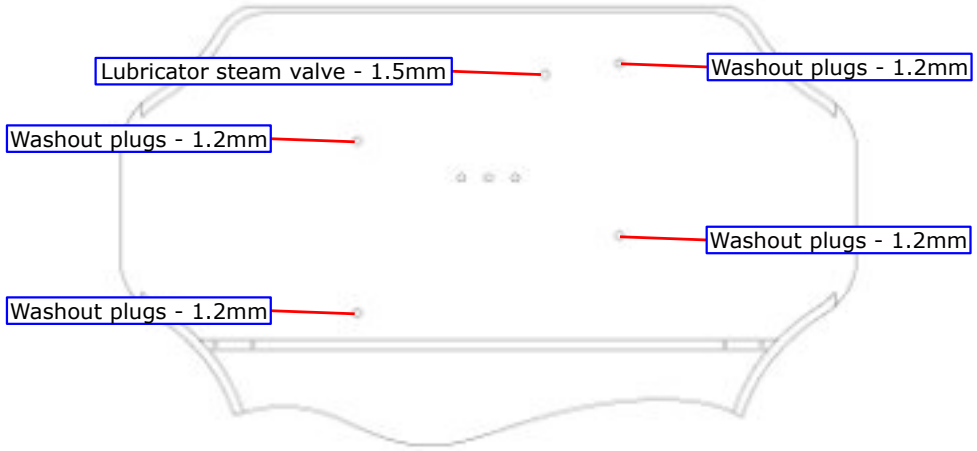
COMPONENTS NOT SUPPLIED

Wheels. Driving wheel - 6’ 7", 22 spoke, 3/16" diameter axle (2) Slater's Ref.7878SW

Leading wheel - 3' 7" diameter, 10 spoke, 5/32" diameter axle Slater's Ref.7843SWMF

Motor/Gearbox. A Canon 1833 motor is recommended with either an SDMP 40L/15 gearbox available from Finney 7.

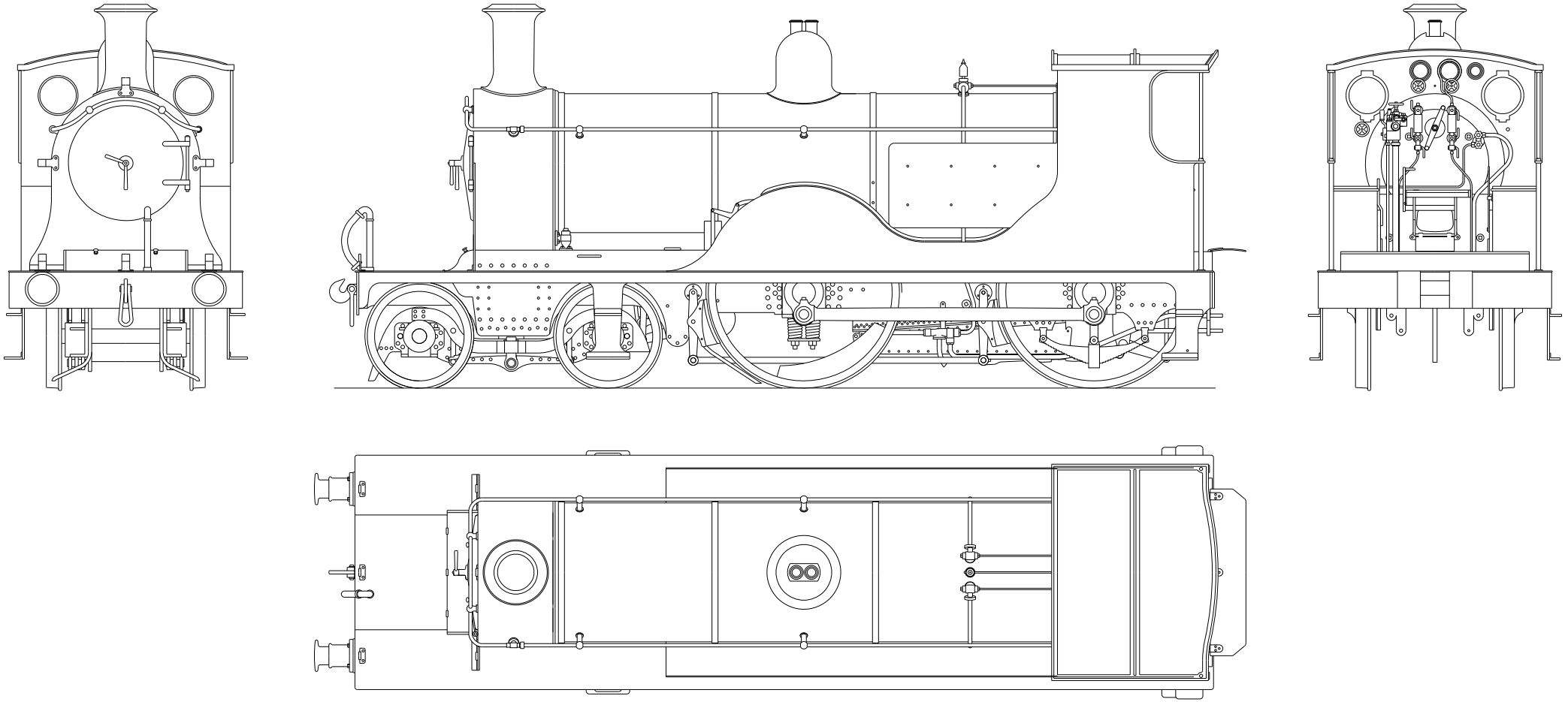
Inside Motion. A separate kit is available from Finney7 to construct the working inside motion.



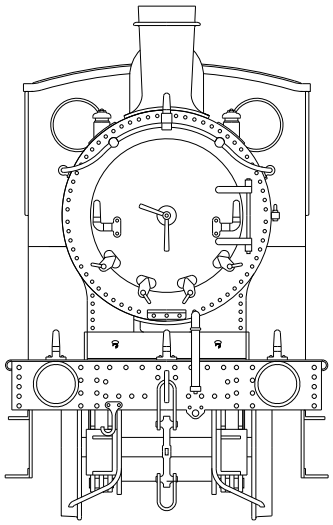
Rebuilt Firebox Drilling Template

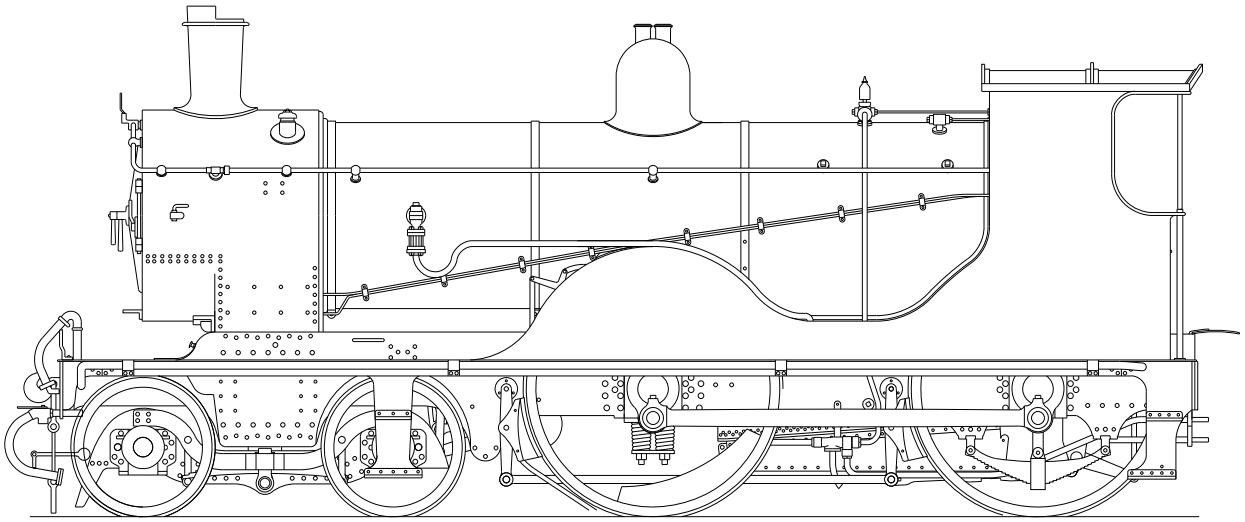


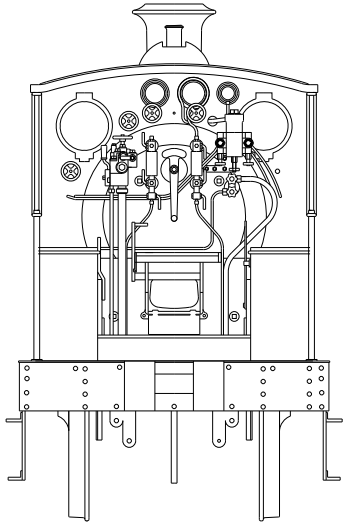
Rebuilt Smokebox Drilling Template

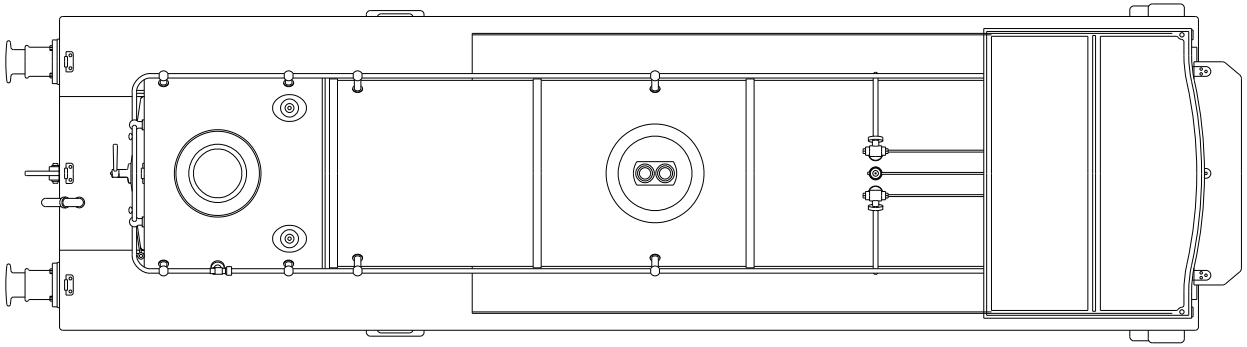


Circa 1907. Firebox cross water tubes, sandboxes repositioned between the frames, flush rivets on buffer beam, drag beam and hanging plates.









T9 late 1940s. Extended smokebox with Maunsell superheater, sandboxes between the frames,prominent riveting, SR lamp irons and large wash-out plugs.

FRAME PREPARATION

Part Numbers and Etch Numbers. These are all displayed in the text as part number/etch number as in (B1/1). Parts on this page are on Etch 1 unless detailed.

Coupling Rods. The coupling rods (M1 & M2 or M3 & M4) should now be made up so that they can be used as a jig for fitting the coupled wheel hornblocks accurately into place. First drill out all the crankpin holes to a convenient size which is well undersized for the crankpins. Remove all burrs caused by the drilling. Now drill a hole with the same drill into a suitable small block of wood and leave the drill in the wood with its shank projecting. This projecting shank is used as a mandrel to accurately align the two laminations of each rod.

Place the inner and outer laminations over the mandrel and using plenty of solder and flux solder the two laminations together. You should now have a rod with the bosses on each lamination perfectly aligned. The rods have been deliberately etched too large so that the thin etched edges can be carefully filed so that the 'laminated' effect is lost and the rods appear to be made from one piece of metal. The crankpin holes now need carefully opening out until they just fit, with no free play, the ends of the hornblock alignment jigs.

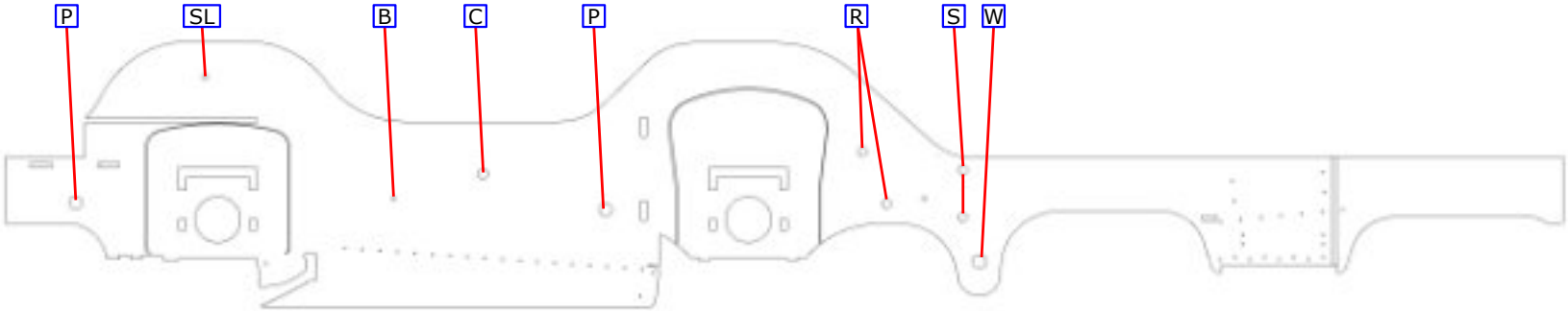
Frame Preparation. Start construction by preparing the frames (F1 & F2). To construct the kit as designed with a compensated chassis first remove all the axle holes by cutting along the half etched lines and clean up. The rear hornblocks are smaller than the front. Use the rear hornblock (F10) instead of the two components on the hornblock fret. Construct the hornblocks as described in the separate instructions. Solder one of the rear hornblocks to the inside of the frame aligning it with the half etched lines and with the bottom of the frame.

Now open out the following holes in the frames:

C	Compensation beam pivot - 1/8"
B	Brake hanger pivots - 0.8 mm
R	Reversing cylinder (WM2) - 1.4 mm
S	Sandboxes (WM1) - 1.2 mm if modelling a loco with frame mounted sandboxes
W	Weigh shaft if fitting inside motion - 2.0 mm
SL	Sanding Lever (C9) - 0.8 mm
P	Plunger - as required

If using plunger pick ups, suitable mounting holes need to be drilled, as directed in the manufacturer's instructions.

Emboss the appropriate frame rivets before bending the frames inward at the front along the etched line.



FRAME CONSTRUCTION

Parts on this page are on Etch 1 unless detailed.

Select the front, middle and rear stretchers (F5, F6 & F7) to suit your chosen gauge. Solder the 6BA bogie fixing nut over the hole in the front stretcher and, if required, add the alternative bogie pivot, from 2.0 mm wire, as shown below. The hole indicated is the preferred option. For inside motion tap the fixing hole as shown. Fold up the stretchers making sure the 1/2 etched fold lines are on the inside and that each bend is a right angle.

Check that all tabs on the stretchers fit properly in their corresponding chassis slots so that the spacer is hard up against the inside of the frames. Now assemble the frames and stretchers. Start by tack soldering the middle stretcher to both sides. Check that everything is square and hard against the frames. Solder the remaining stretchers to the frames checking constantly that the chassis is square and the frames are straight.

Place lengths of 0.8 mm wire through the brake hanger pivots leaving about 6 mm protruding on each side of the chassis, before removing the excess wire from between the frames.

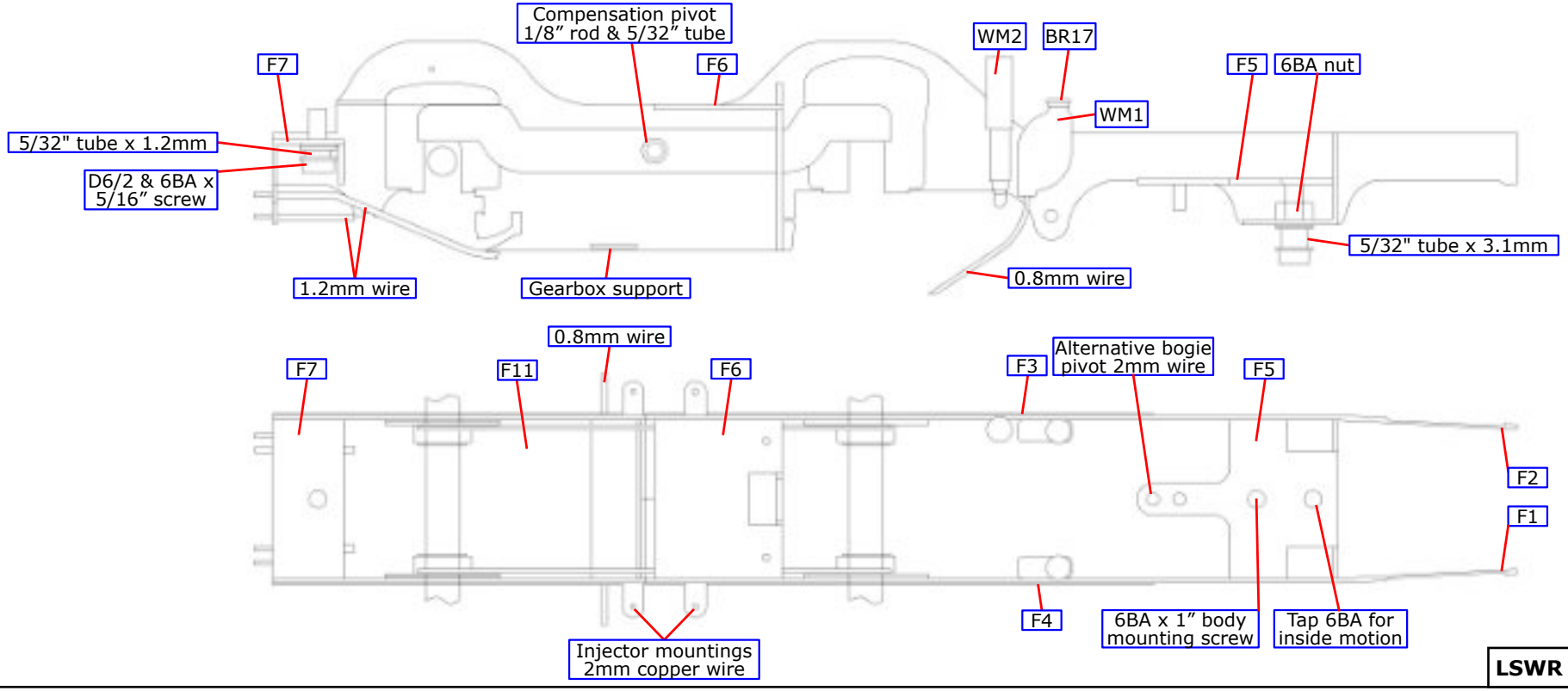
Fitting the Compensation Beams. Cut a piece of 1/8" brass rod so that it fits through the holes and is flush with the outside face of the chassis frames. Cut two equal pieces 3/32" tube which together fit between the frames and solder the beams (F11) to them close to one end.

Temporarily fit the beams and all the wheels and axles to confirm that the compensation works properly and check that the chassis is sitting level. The bogie rests on a suitable selection of washers (B7/2). One full thickness and one half thickness seems to work. When correctly set up the top of the frames should be 27.8 mm above rail level.

Make a bracket to support the motor/gearbox from scrap brass and solder it to the rear of the centre frame spacer.

Frame Overlays. Emboss all the rivets on the frame overlays (F3/2 & F4/2). Fold down the sand pipe and injector pipe brackets as appropriate. Those not required can be broken off. Check that the hornblocks are free in the slots in the overlays which only need tack soldering around their edges.

Inside Motion. If you are fitting working inside motion, build it now following the separate instructions.



BOGIE

Parts on this page are on Etch 1 unless detailed.

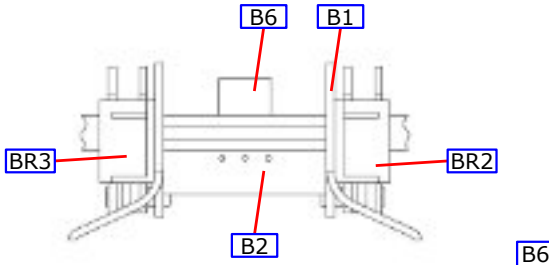
Bogie. The bogie carries the weight of the front of the locomotive and is the third balance point of the compensation system. Bogie clearance on curves is a particularly difficult problem with this prototype. The bogie is designed so that it is as close to the prototype as possible. Clearly some experimenting will be required once you have decided on the gauge being used and the desirable minimum radius of curve to be negotiated.

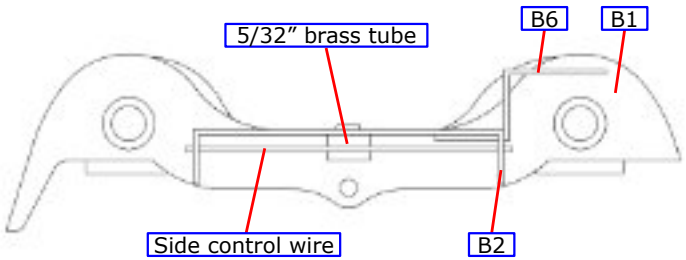
Note that if you decide to use one of the alternative bogie pivot positions the weight of the rear of the locomotive is still carried by the bogie. This means the 6 BA screw is still used to retain the bogie, but that the slot in the bogie stretcher will need opening out so that the bogie will pivot freely about the alternative pivot (see below). You may also decide to dispense with the side control wires.

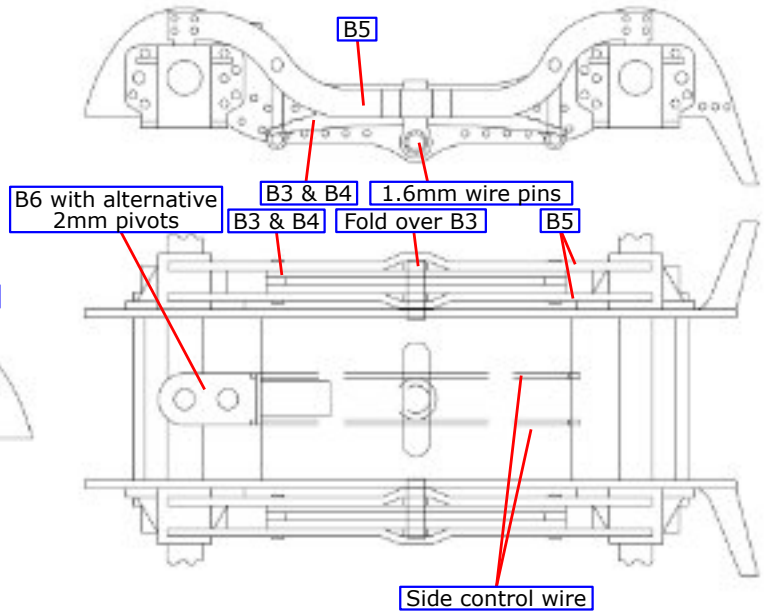
Emboss the bogie frame (B1) rivets and form the guard irons to shape. Fold up the appropriate bogie stretcher (B2/2) (use the middle width for O Finescale or the widest for Scaleseven) and solder in place in the slots in the frames. Note the slot for the bogie pivot bracket must be at the back. Solder the axle boxes (BR2 & BR3) in place and the wire stretchers from 1.2 mm wire. Carefully ream the axle holes to 5/32" diameter and temporally fit the wheels to check that the bogie is running true.

Using the bogie spring middle lamination (B4) as a guide drill two 1.2 mm holes and a 1.6 mm hole into a block of wood or Tufnol and insert 1.2 mm and 1.6 mm wire into appropriate holes. These pieces of wire are used as a jig to accurately align the spring components (B3 & B4) and the equalising beams (B5). Note the equalising beams are asymmetric - select carefully! Fold over the outer strips on the outer lamination through 180° before assembling all the components on the jig. Align carefully before soldering together. Trim the wire pins to length leaving the 1.6 mm wire long at the back to enable the assembly to be located on the bogie through the 1.6 mm hole in the frames. Repeat for the other side.

The side control springing can now be constructed as shown below soldering the spring wires at one end only. If appropriate, fold up the bogie pivot bracket (B6/2) and solder in place. Make up the bogie mounting screw and rear body fixing screw as shown on page 7.







ORIGINAL CONDITION - FINISHING THE CHASSIS

Parts on this page are on Etch 1 unless detailed.

Attach the balance weights to the wheels as shown in Fig 7 and fit the crankpins.

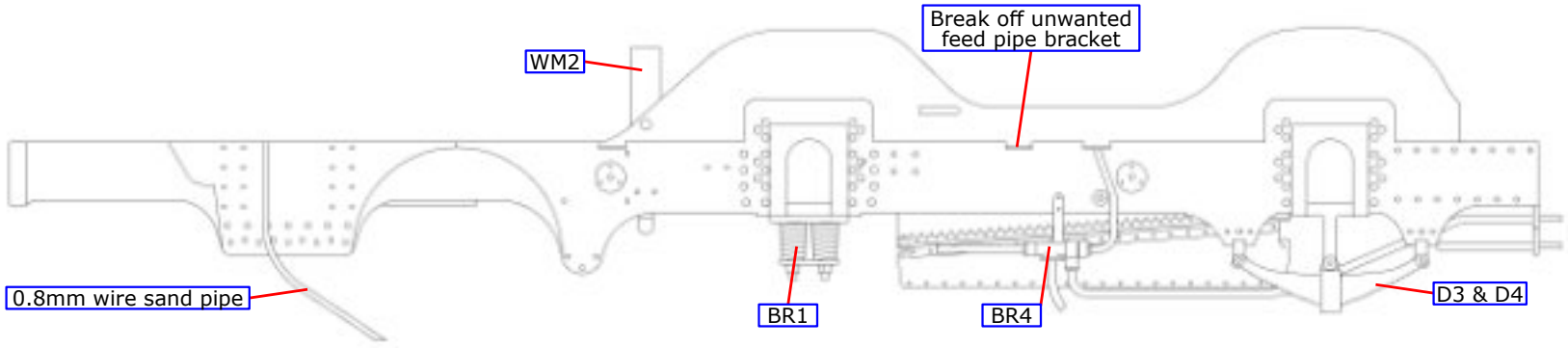
At this stage pickups should be assembled and fitted to the chassis.

Assemble the wheel sets, bearings and rods selecting 3/16" axle washers of appropriate thickness to control side play. The clearance between the crankpins and the inside of the splashers is very tight. Minimal side play on the coupled wheels is desirable especially in S7. It may be necessary to reduce the thickness of the crankpin nut to gain sufficient clearance.

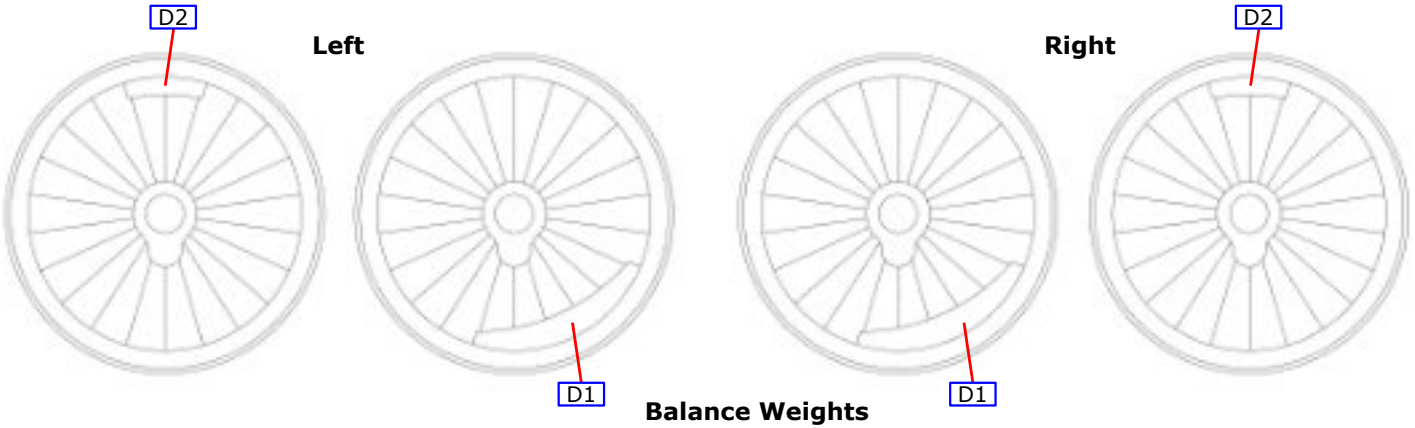
A thorough check of all clearances at this stage is important. You should now have a mechanically acceptable chassis. Now connect the motor to your pickups and test run.

Springs. Laminate two rear spring outer laminations (D3) around a rear spring middle lamination (D4) and clean up to remove all cusp. Repeat for the other spring. Once the wheels are in place solder the rear springs into position. Solder the cast front springs (BR1) in place. The axles are now retained by the springs as shown in Fig 5.

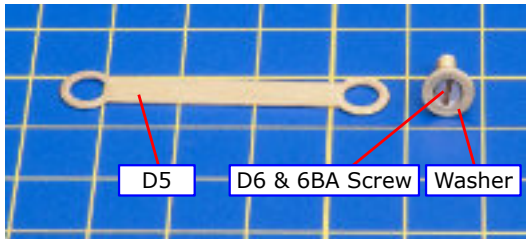
Complete the chassis detailing by fitting the steam reverse cylinder (WM2). Bend sand pipes from 0.8 mm wire and attach to the brackets on the frames. Fit the injectors (BR4) to the brackets on the frames as shown below.



Frames in Original Condition. Sandboxes in Smokebox, Feed Pipe from Injectors to Clack Boxes in Original Position.



Balance Weights



REBUILT CONDITION - FINISHING THE CHASSIS

Parts on this page are on Etch 1 unless detailed.

Attach the balance weights to the wheels as shown in below and fit the crankpins.

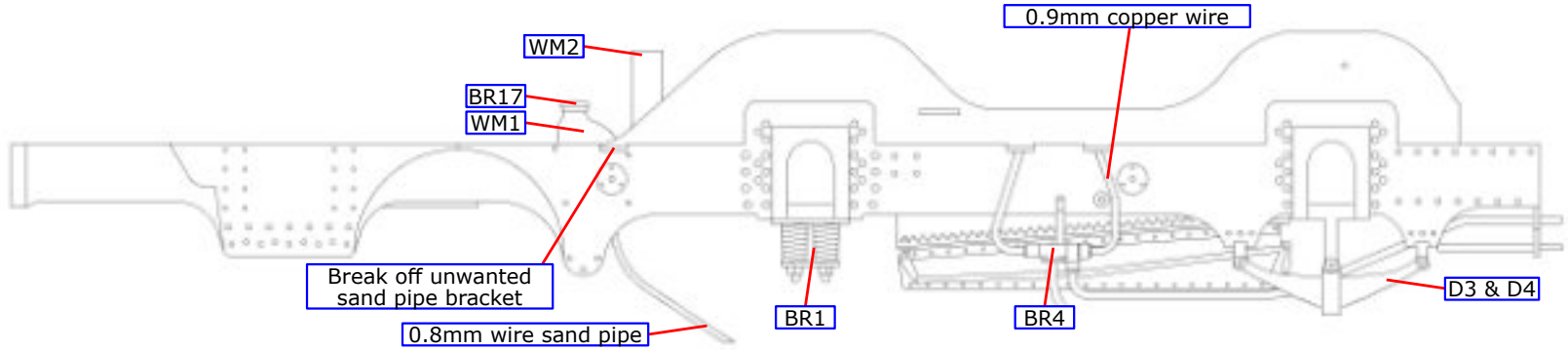
At this stage pickups should be assembled and fitted to the chassis.

Assemble the wheel sets, bearings and rods selecting 3/16" axle washers of appropriate thickness to control side play. The clearance between the crankpins and the inside of the splashers is very tight. Minimal side play on the coupled wheels is desirable especially in S7. It may be necessary to reduce the thickness of the crankpin nut to gain sufficient clearance.

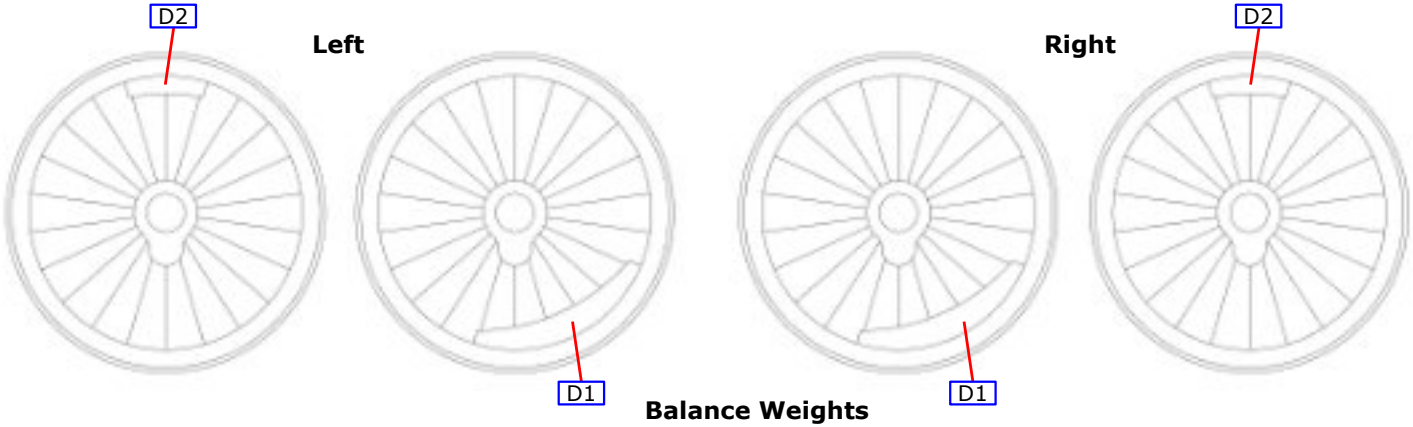
A thorough check of all clearances at this stage is important. You should now have a mechanically acceptable chassis. Now connect the motor to your pickups and test run.

Springs. Laminate two rear spring outer laminations (D3) around a rear spring middle lamination (D4) and clean up to remove all cusp. Repeat for the other spring. Once the wheels are in place solder the rear springs into position. Solder the cast front springs (BR1) in place. The axles are now retained by the springs as shown below.

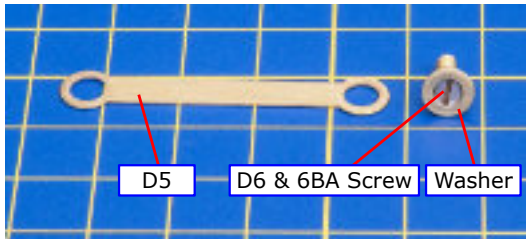
Fit the sandboxes (WM1) to each frame and then add the sandbox lids (BR17). Bend sand pipes from 0.8 mm wire and attach to the sandboxes. Remove the unwanted sand pipe brackets. Fit the steam reverse cylinder (WM2). Fit the injectors (BR4) to the brackets on the frames as shown below.



Frames in Rebuilt Condition. Sandboxes Between Frames, Feed Pipes From Injectors over Leading Splashers



Balance Weights

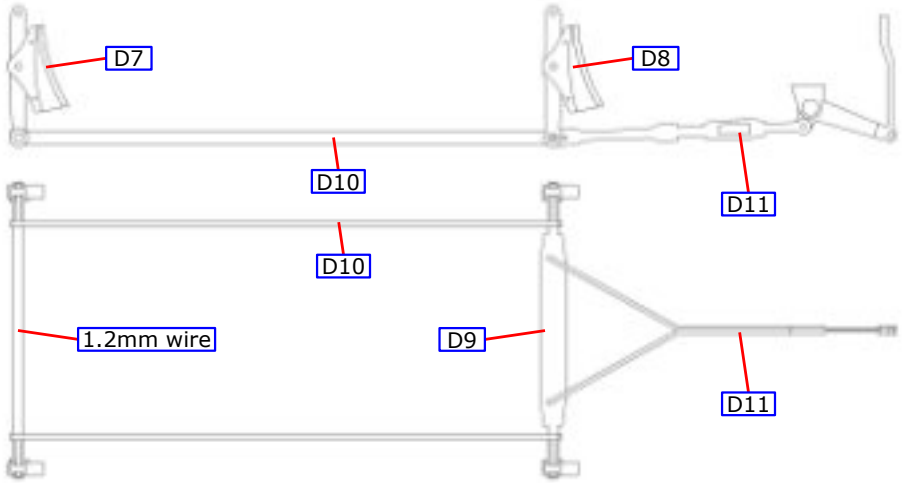


BRAKES

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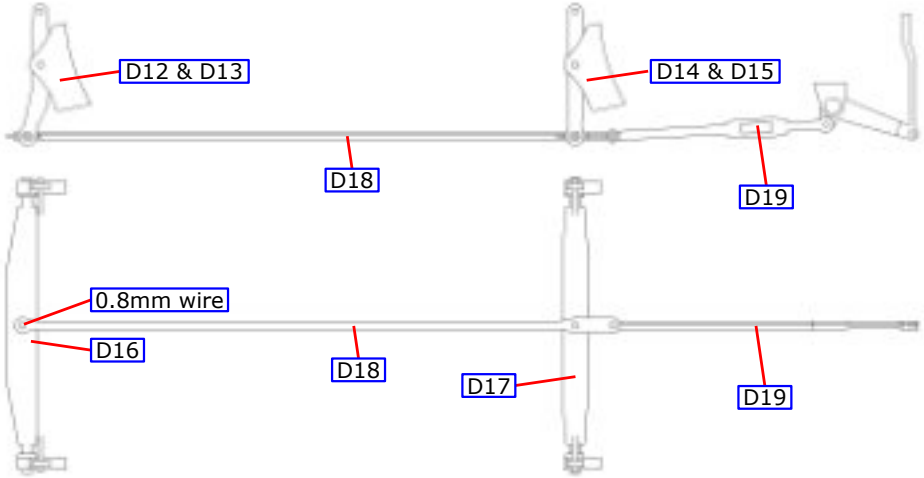
Original Condition. Assemble the brake shoes and hangers from their laminations (D7 & D8), ensuring you get two handed pairs. The rear brake pull rod (D11/2) can be made up from two laminations, ensuring that they form a 'Y' shape as shown. Start assembly by joining the front pull rods (D10/2) to the rear brake cross shaft (D9/2) and adding in the front cross shaft from 1.2 mm wire, ensuring the assembly is square. Add the brake pull rod piece, aligning it with the half-etched marks on the rear brake cross shaft.

The brake hanger and shoes can then be fitted to the assembly and the chassis, ensuring clearance for the driving wheels and any side-play.



Brake Gear in Original Condition.

Rebuilt Condition. Assemble the brake shoes and hangers from their laminations (D12 & D13, D14 & D15), ensuring you get two handed pairs. Laminate the brake pull rod & brake cylinder lever lamination (D19/2). Start assembly by joining the front pull rods (D18/2) to the front and rear brake cross shaft (D16/2, D17/2), ensuring the assembly is square. Add the brake pull rod piece, aligning it in the fork formed by the laminations of D18. The brake hanger and shoes can then be fitted to the assembly and the chassis, ensuring clearance for the driving wheels and any side-play.



Brake Gear in Rebuilt Condition.

FOOTPLATE, CAB SIDES & SPLASHERS 1

Parts on this page are on Etch 4 unless detailed.

Fold up the valance jig (U1/3) as shown below and solder the corner fillets (U2/1) in the etched grooves to strengthen the jig and ensure it remains square.

Solder a 6BA nut and the cab handrail base (U3/2) over the appropriate holes in the footplate (U4/4) as shown below. Fold the flaps along the lower edge of the cab and splasher sides (U5/3) through 90° and solder in place with the flaps under the footplate. It is essential that they are tight against the edges of the openings in the footplate.

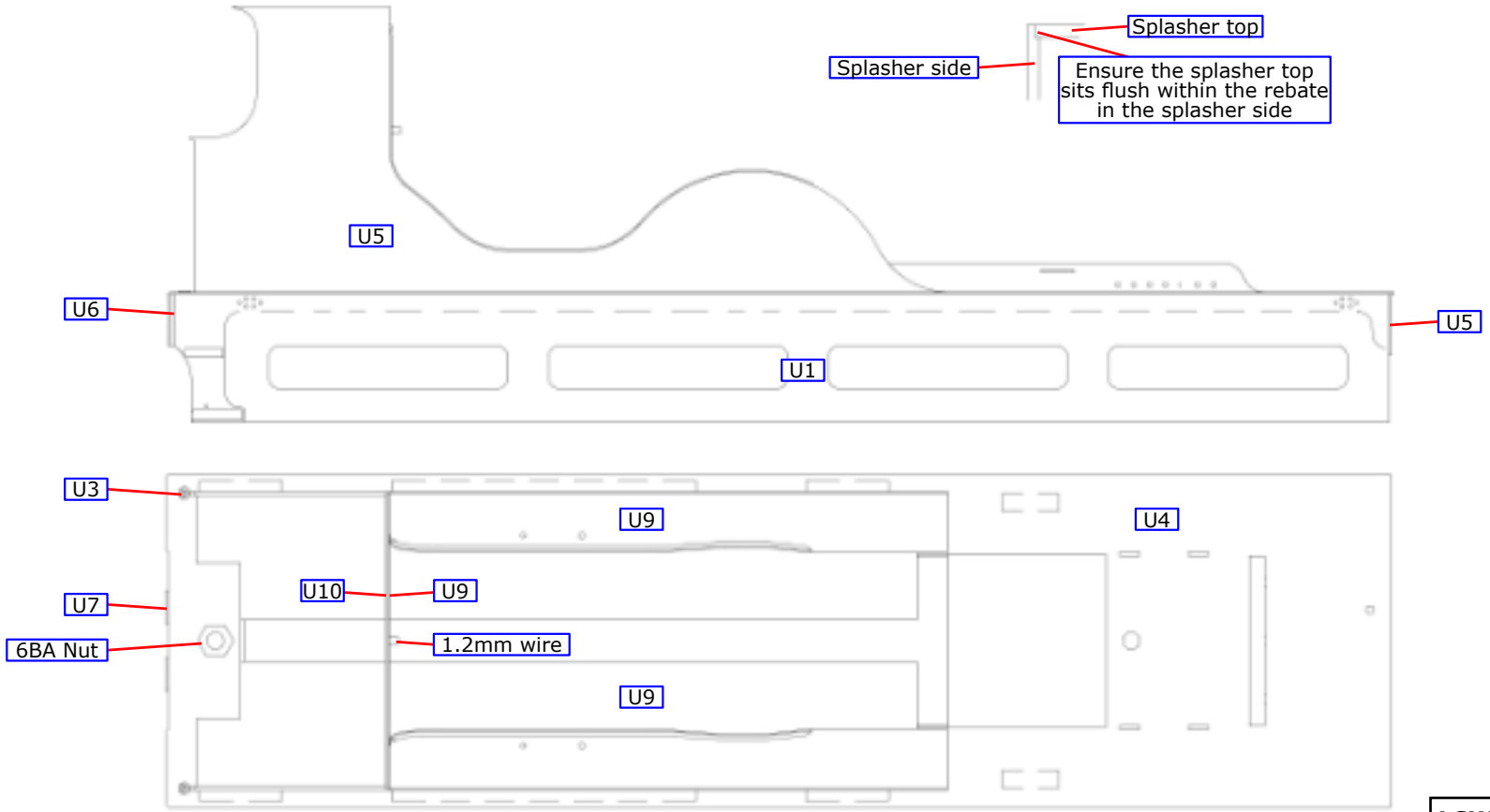
Fit the footplate over the valence jig and solder in place. Solder the buffer beam (U6) and the drag beam (U7) in place. Add the drag beam rubbing plates (U8/2).

Carefully curve the Cab front outside lamination/splasher top (U9/3) to shape by forming over suitable diameter rods constantly checking the fit with the splasher sides. Solder the cab front inner lamination (U10/3) to the cab outer lamination together with a length of 1.2 mm wire through the central hole to aid alignment.

Solder the cab front into the slot between the cab sides. The splasher top has to fit within the sides as shown below. Solder in place from the cab moving forward.

If appropriate add the pipes which run along the valences as shown on page 16, using part U13 and 1.2mm wire. Now remove the 'T' shaped central strengthening piece from the valence jig.

If appropriate, emboss the rivets in the front frame extensions (U14/2); the two rearmost holes are not rivets but serve to locate the sanding rod shown on page 13. Add the small handrails from 0.45mm wire before soldering in place in the slots in the footplate.

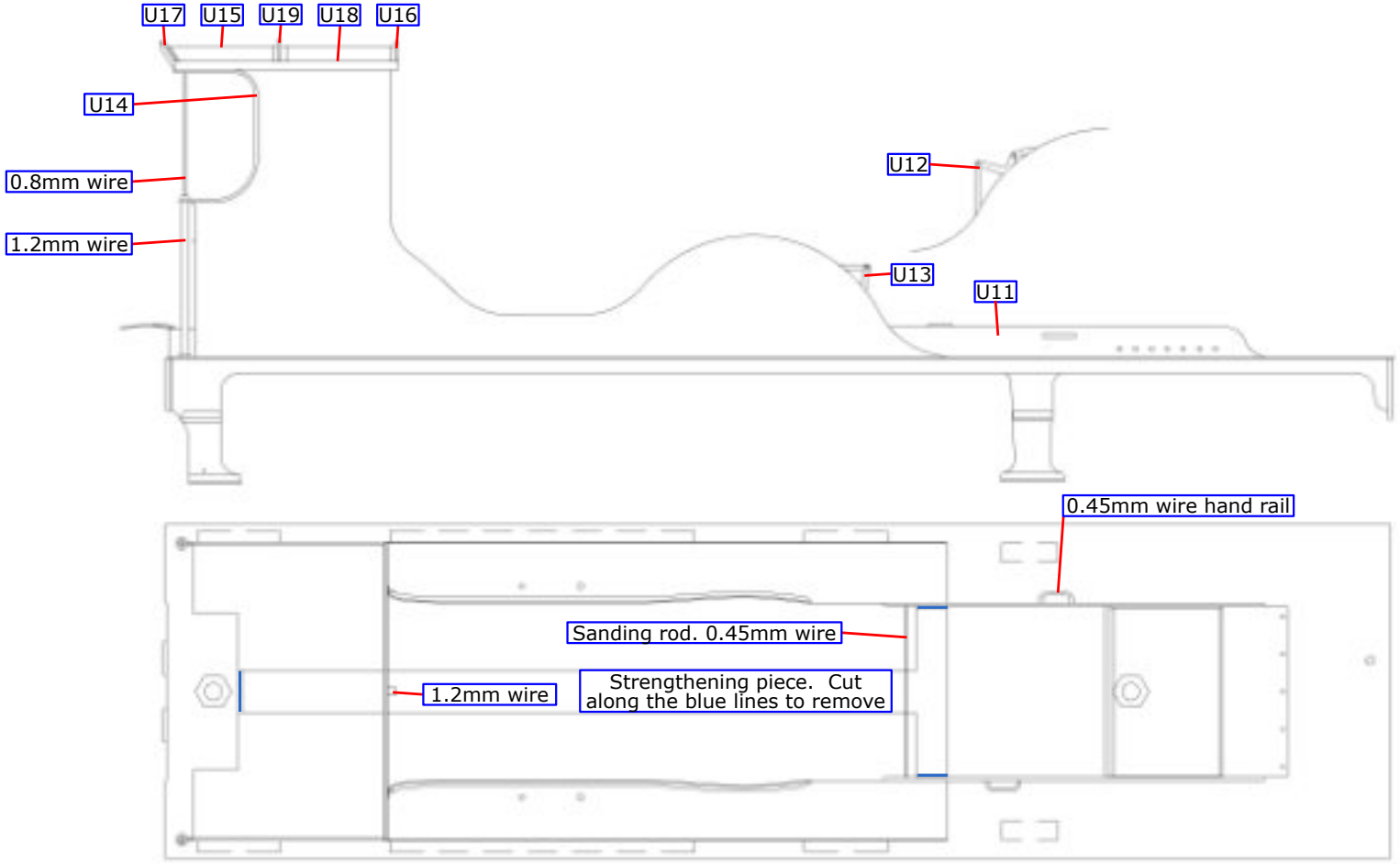


FOOTPLATE, CAB SIDES & SPLASHERS 2

If required, emboss the rivets on the front frame extension (U11/2), **note the two rearmost holes are not rivets but serve to locate the sanding rod** shown below. Add the small handrails from 0.45 mm wire before soldering the frame extensions in place in the slots in the footplate. Add the steam reverse linkage (U12/2) to the front left hand splasher and ,if appropriate, add the sanding rod linkage (U13/2) to the front right hand splasher, which is located by passing the sanding rod through the small hole.

Solder the cab cut-out beading (U14/2) in place. A tight fit is essential or it will appear to be too long. Fit the cab handrails as shown below. Leave a small projection at the top to represent the prototype fixing nut.

Form the cab roof (U15/4) to shape and add the angle pieces (U16/4, U17/4, U18/3 & U19/4). The cab roof is simply retained by the projections at the top of the handrail stanchions.



SMOKEBOX & SATURATED BOILER

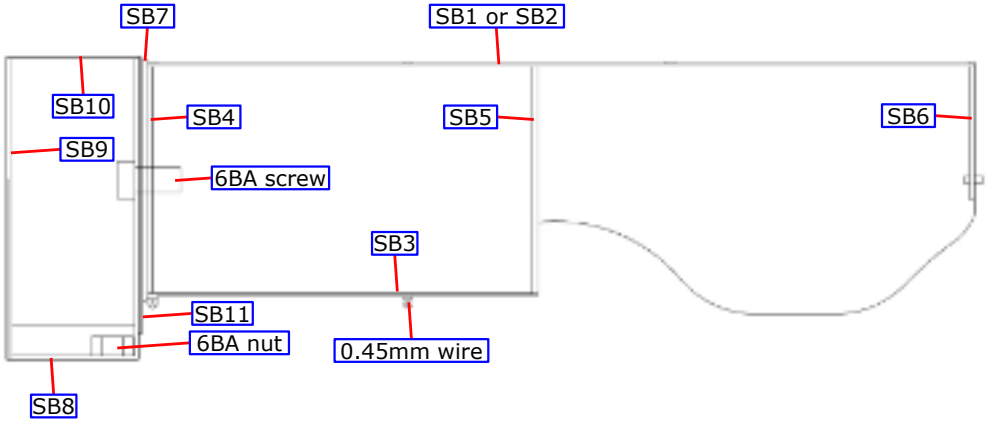
Boiler. Drill any additional holes required in the boiler wrapper (SB1/3 or SB2/3) using the template on page 3. Roll the wrapper and form the firebox sides to shape. Solder the wrapper ends together using boiler joining strip (SB3/2) and solder in the boiler front former (SB4/1). Now solder the middle former (SB5/1) and rear former (SB6/1) in place with the notch in the top of the rear former aligned with the notch in the wrapper. Represent the bolts in the joining brackets using 0.45mm wire.

Tap the hole in the boiler front former 6BA so that the smokebox and the boiler can be screwed together.

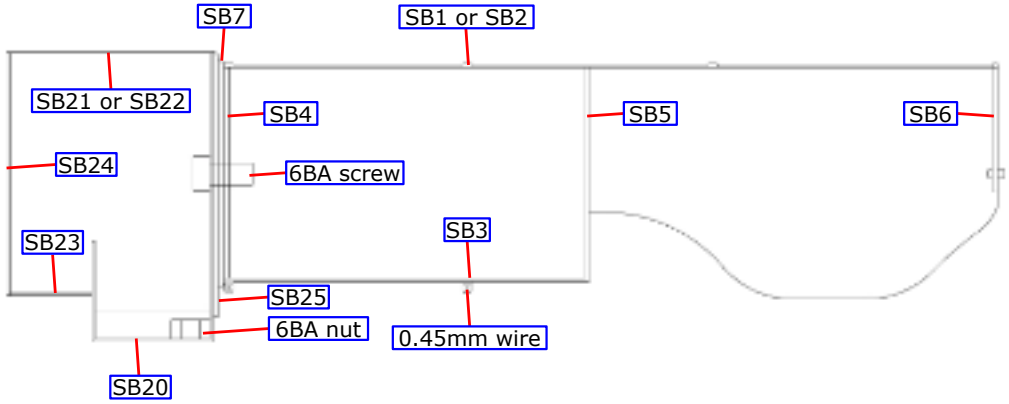
Saturated Boiler Smokebox. Fold up the smokebox base & rear former (SB8/2) and solder a 6 BA nut over the fixing hole. If appropriate, drill holes for the smokebox dogs in the smokebox front (SB9/1) before soldering to the base/rear former. Roll the smokebox wrapper (SB10/2) to shape and solder in place. Emboss the rivets in the smokebox rear plate (SB11/2) and if appropriate drill holes for the clack boxes (BR10) before soldering them in place on the rear of the smokebox.

Superheated Boiler Smokebox. As appropriate emboss the rivets in the smokebox base & rear former (SB20/2) before folding it up. Solder a 6 BA nut over the fixing hole. Drill any additional holes required in the smokebox wrapper, no rivets of riveted (SB21/2 or SB22/2), using the template on page 3. Roll the smokebox wrapper to shape and solder the smokebox wrapper joining plate (SB23/2) in place to join the front section. If required, emboss the rivets on the smokebox front (SB24/2) before soldering in place. Now solder the wrapper/front to the base & rear. Emboss the rivets in the smokebox rear plate (SB25/1) before soldering in place on the rear of the smokebox. Check that the oil pipes will fit in the small holes.

Now assemble the smokebox, smokebox and boiler ring (SB7/1) with a 6BA screw. Check the fit of the smokebox and boiler with the running plate, cab front and splashers. The boiler can be rotated on the dowel in the cab front to align the inner edges of the splashers and the lower edge of the firebox. Once any adjustments to the fit have been made, the boiler and smokebox can be removed from the cab, splashers and running plate for detailing



Saturated Boiler & Smokebox



Superheated Boiler & Smokebox

Before the valence jig is removed the boiler smokebox assembly must be permanently fixed in place. This is best done after as much as possible of the detailing work on these assemblies is complete. This should include the handrail and lamp brackets.

After permanently attaching the smokebox/boiler form the cylinder cover (part S13/2 or S27/2) and solder in place between the frame extensions. Complete the upper works detailing as shownon pages 15 & 16.

Using a carborundum disc in a mini-drill cut through the unwanted parts of the valence jig and snap off the redundant parts along the half etched lines. The edges of the valences will now need cleaning up.

ORIGINAL UPPER WORKS DETAILING

Parts on this page are on Etch 2 unless detailed.

Using a Carborundum disc in a mini-drill, cut through the unwanted parts of the valence jig and snap off the redundant parts along the half etched lines. Clean up the edges of the valences. Fit the boiler and smokebox to the footplate and cab. Solder in place.

Form the cylinder cover (U20) and add the cylinder cover knobs (BR18); solder the cover in place. Solder the wing plate & footplate vertical angles (U21) in place and then add the wing plate & footplate horizontal angles (U22).

If appropriate fold up the firebox water tubes cover (U23/3). Use a big fillet of solder in the corners so that they can be rounded to shape.

Fold the rear step treads, upper and lower (U24/3 & U25/3) and fit to the step back. Fold the front step treads, upper and lower (U26 & U27) and solder to the front step back (U28). Solder this assembly to the footplate.

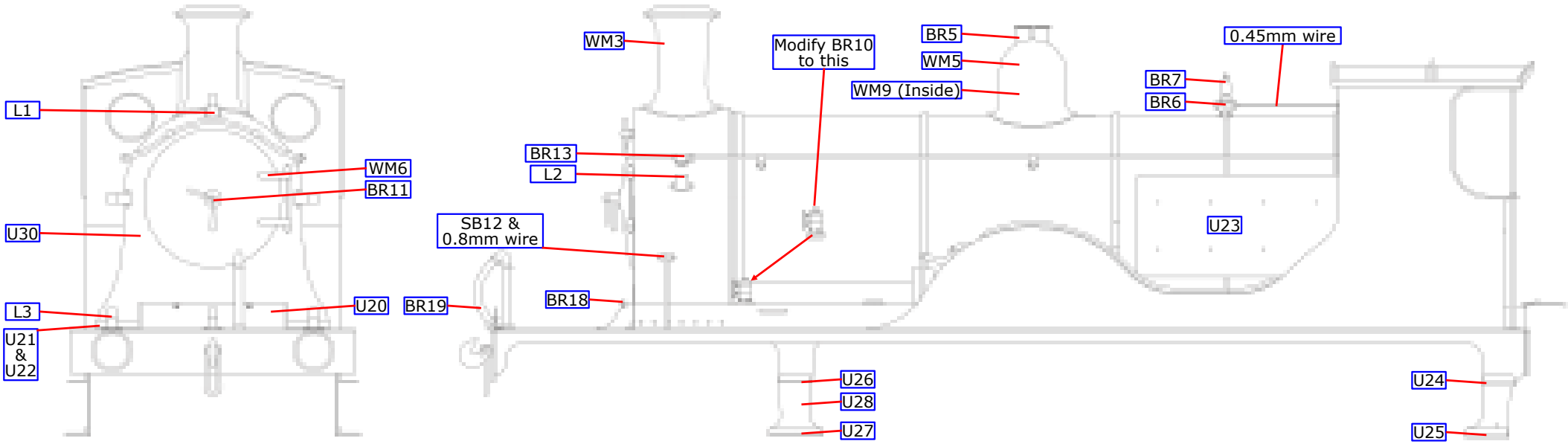
Modify the clackboxes (BR10) by removing the pipe tail and fit to the smokebox rear plate. Fit the smokebox door (WM6) and the smokebox door handles (BR11). Fit the original chimney (WM3). Fit the inside of the dome (WM9) and then the dome (WM5) as shown. Fit the safety valves (BR5) to the dome. Fit the two injector valves (BR6) and the whistle (BR7) to the firebox top. Use 0.45 mm wire for the injector valve operating rods.

Fit the buffer housings to the buffer beam. Solder the vacuum pipe (BR19) to the footplate.

Bend 0.8 mm wire to make the handrails. The smokebox front uses short knobs and the boiler sides uses medium knobs; attach the handrails and knobs. Fit the blower valve (BR13) to the left side of the smokebox. Fit the handrail to the frame extensions from 0.45 mm wire.

Fit the LSWR smokebox top lamp bracket (L1) and the LSWR smokebox side lamp brackets (L2) to the smoke box front. Fit the LSWR footplate lamp bracket (UL3) to the footplate as shown.

Fit the smokebox sand pipe flanges (U12) to the smokebox sides. Solder in place the smokebox sandbox filler (U13) and add the sand pipe from 0.8 mm wire.



REBUILT UPPER WORKS DETAILING

Parts on this page are on Etch 2 unless detailed.

Using a Carborundum disc in a mini-drill, cut through the unwanted parts of the valence jig and snap off the redundant parts along the half etched lines. Clean up the edges of the valences. Fit the boiler and smokebox to the footplate and cab. Solder in place.

Form the cylinder cover (U29) and add the cylinder cover knobs (BR18); solder the cover in place.

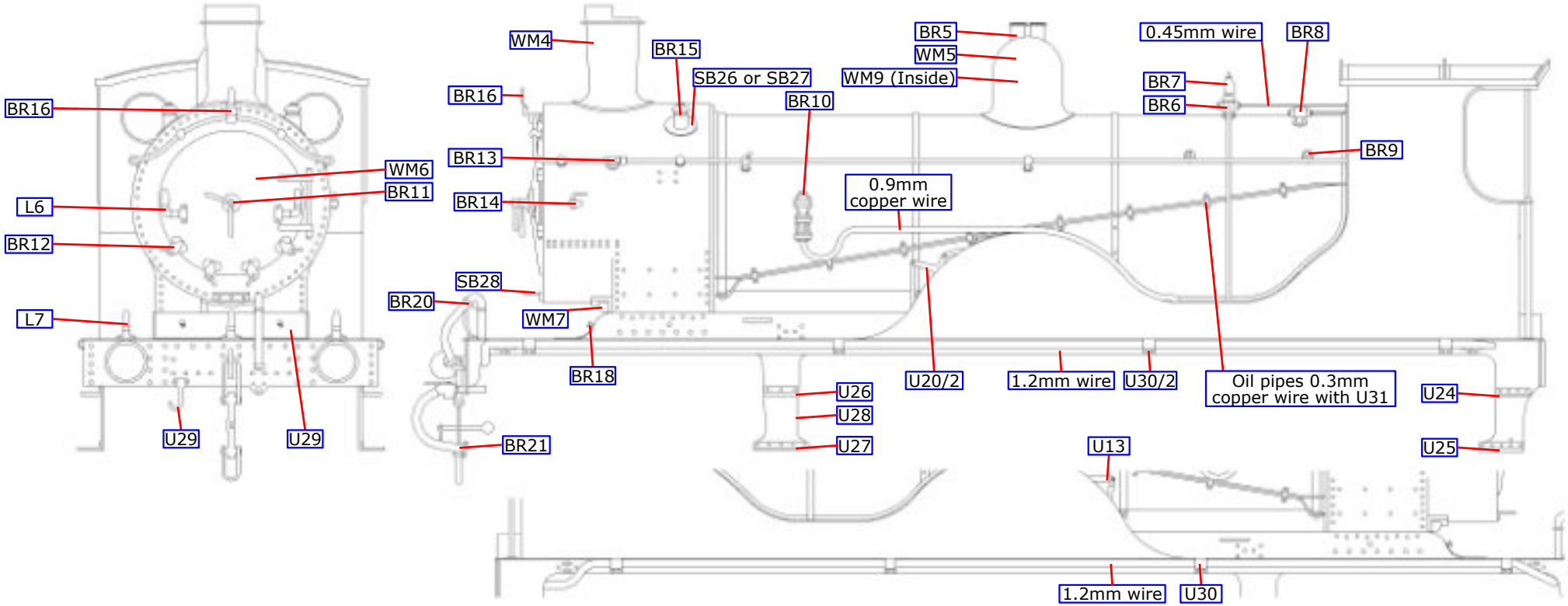
Fit the smokebox door (WM6) and the smokebox door handles (BR11). Fit the smokebox door dogs (BR12). Fit the snifting valve base plate (SB26) and the snifting valve (BR15)to the smokebox sides or fit the snifting valve blanking plate (SB27). Fit the smoke box 'chin' step SB28) under the smokebox front. Fit the tube cleaning cock (BR14) to the side of the smokebox. Fit either the LSWR/SR smokebox side lamp brackets (L4) or the SR smokebox side lamp brackets (L6) to the smokebox door. Fit the SR smokebox top lamp bracket (BR16) to the smokebox.

Fit the superheated chimney (WM4). Fit the inside of the dome (WM9) and then the dome (WM5) as shown. Fit the safety valves (BR5) to the dome. Fit the two injector valves (BR6) and the whistle (BR7) to the firebox top. Use 0.45 mm wire for the injector valve operating rods.

Bend 0.8 mm wire to make the handrails. The smokebox front uses short knobs and the boiler sides uses medium knobs; attach the handrails and knobs. Fit the blower valve (BR13) to the left side of the smokebox. Fit the handrail to the frame extensions from 0.45 mm wire.

Fold the rear step treads, upper and lower (U24/3 & U25/3) and fit to the step back. Fold the front step treads, upper and lower (U26 & U27) and solder to the front step back (U28/2). Solder this assembly to the footplate.

Fit the buffer housings to the buffer beam. Fit the LSWR/SR footplate lamp brackets (L3) or the SR footplate lamp brackets (L7) as appropriate. Solder the vacuum pipe (BR20) to the footplate. Fit the steam heating pipe (BR21) to the buffer beam.



CAB AND BACKHEAD

Parts on this page are on Etch 2 unless detailed.

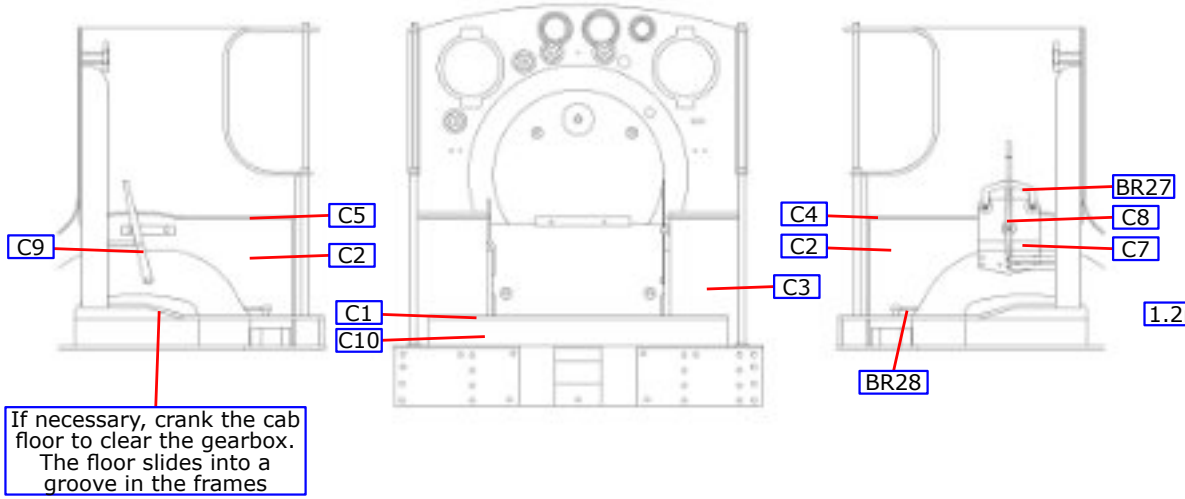
The cab floor is removable and slides into grooves in the frames; it is held in place by the hinges on the fall plate. The cab floor, the splasher back and top come in three widths to suit the chosen gauge. Select the appropriate width cab floor (C1), splasher back (C3/4), splasher top, left and right (C4/3 & C5/3) and the cab splasher sides (C2). Emboss the rivets for the fall plate in the floor.

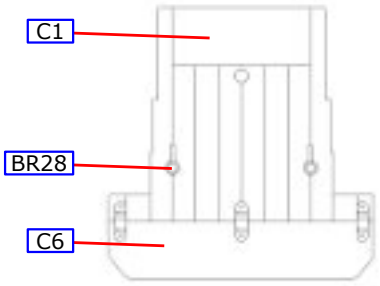
Form the joggle in the cab floor and ensure it fits into the frames and is clear of the gearbox. Solder the injector feed valve handles (BR28) to the floor.

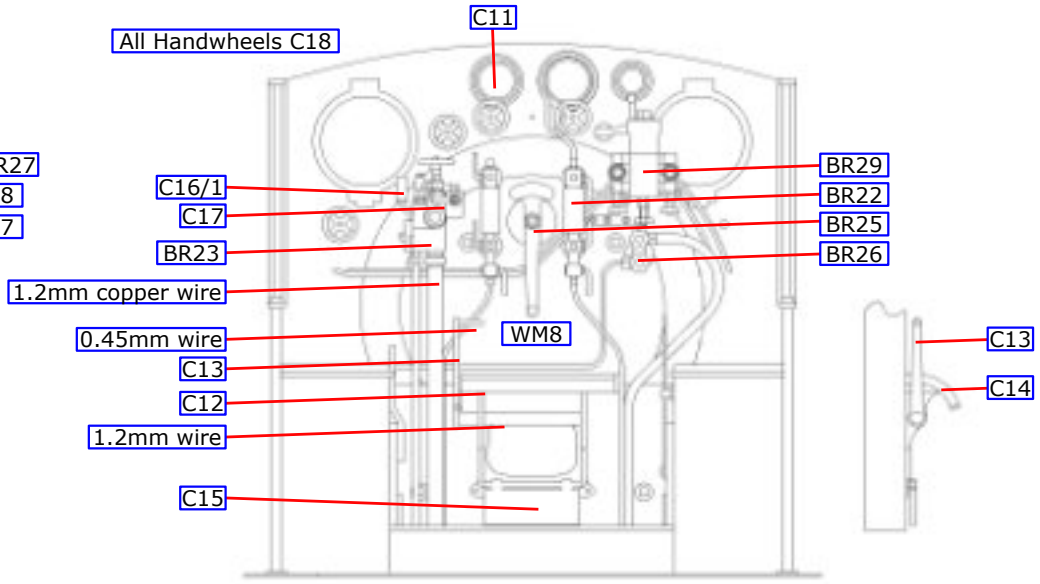
Form the curves in the splasher tops. Solder two short lengths of 0.8 mm wire to represent the sanding lever stops on the right splasher side. Solder the splasher sides in place in the etched groove under the splasher tops. Add splasher backs. Emboss the rivets in the steam reverse lever mounting plate (C7) and form the joggle to enable it to fit over the top of the left frame. Solder the mounting plate and the reversing lever (BR27) in place in the holes in the left splasher side before adding the reversing lever steam reverse indicator (C8). Solder the sanding lever (C9) in place on the right splasher side. Now solder the complete splasher assemblies in place in the grooves in the cab sides. Check that the body fits with the splasher sides outside the frames then solder the cab floor support (C10/4) in place as shown below.

Emboss the rivets in the fall plate hinges on the fall plate (C6). Fold over the fall plate hinge tabs. Check the fit of the cab floor and fall plate as described earlier.

Attach all the remaining components referring to the drawings and to photographs.





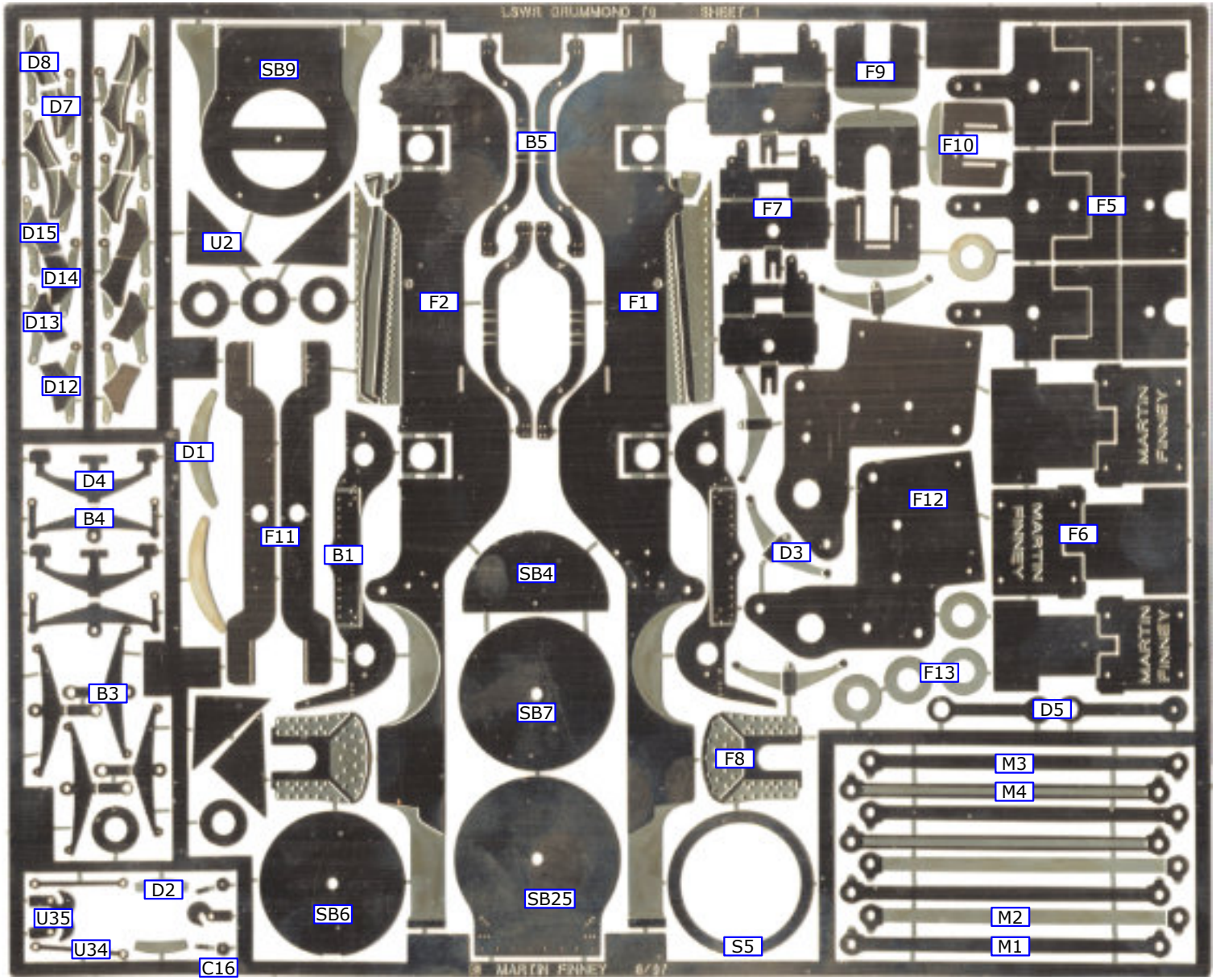


Backhead in Rebuilt Condition

Remove metal from the lower edges of the backhead casting (WM8) until it fits at the correct height between the splashers with its bottom edge level with the underside of the cab floor. Using the drawing of the cab interior the backhead can be assembled and the cab interior detailed.

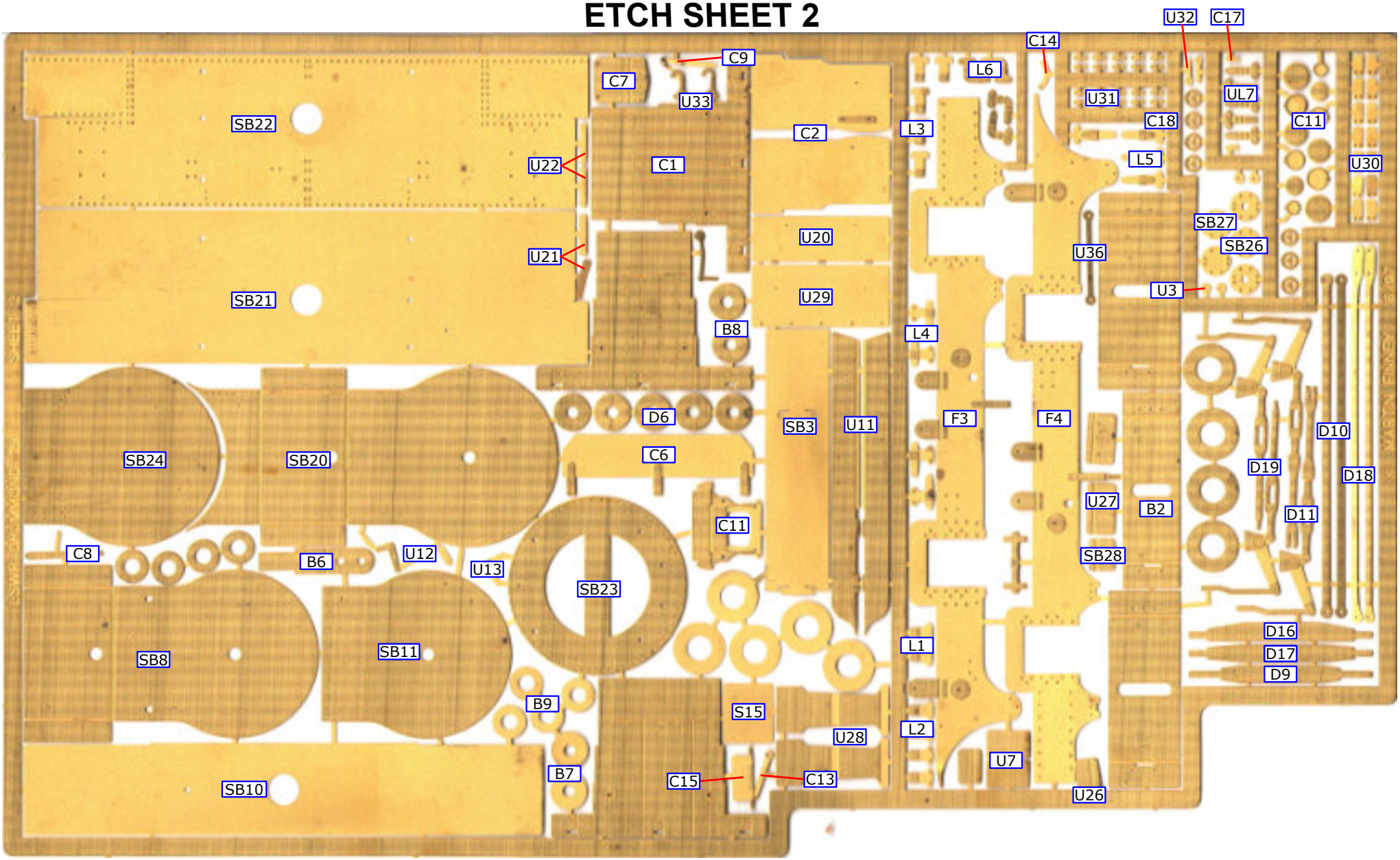
Finney7

ETCH SHEET 1



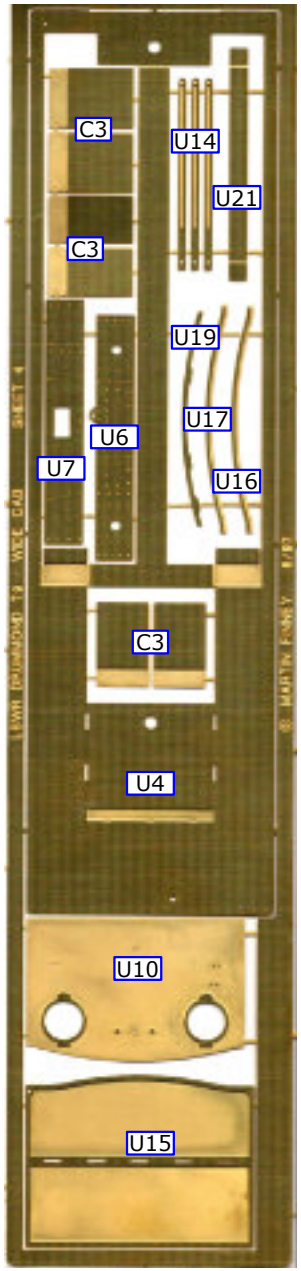
Finney7

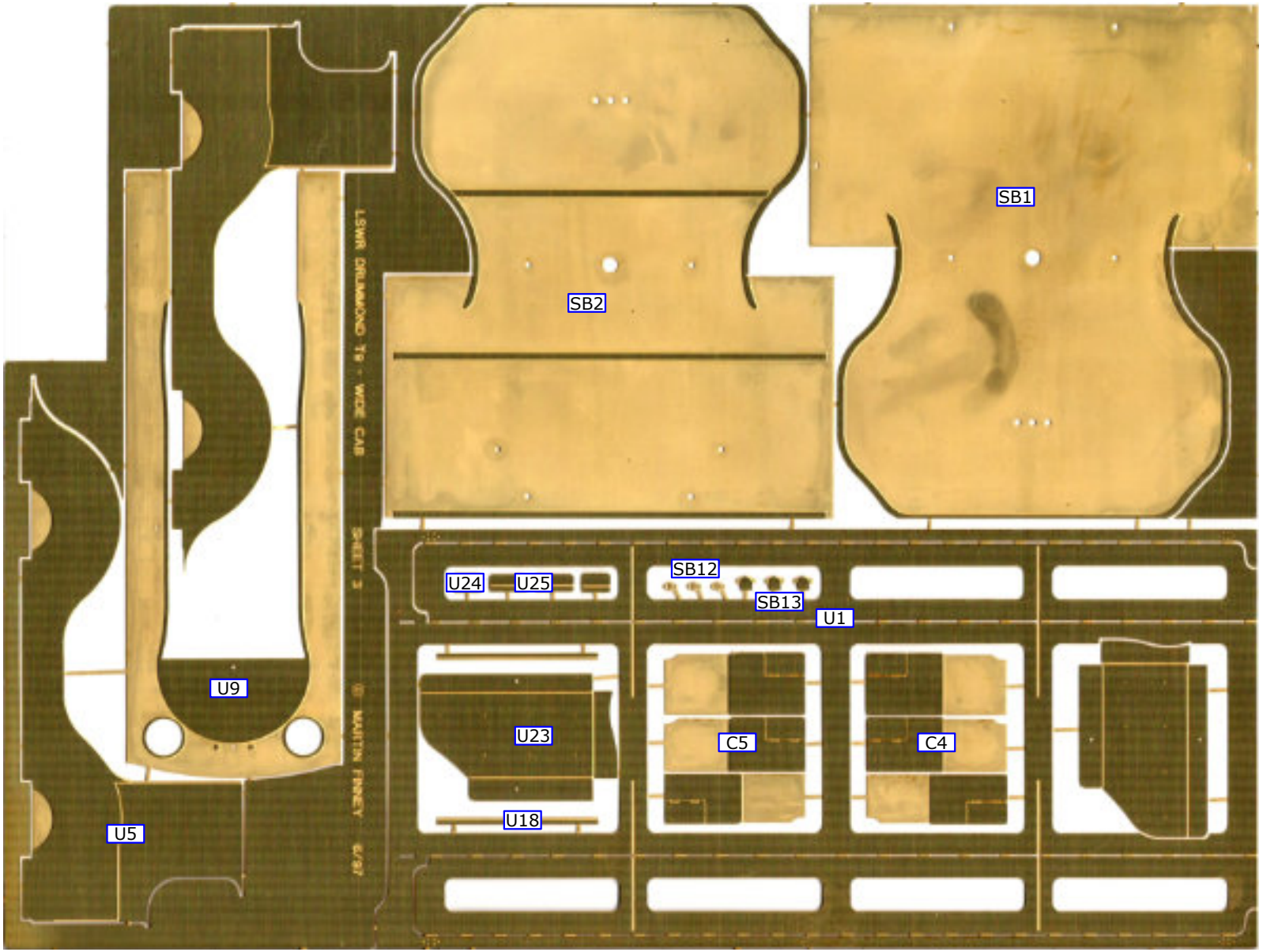
ETCH SHEET 2



Finney7

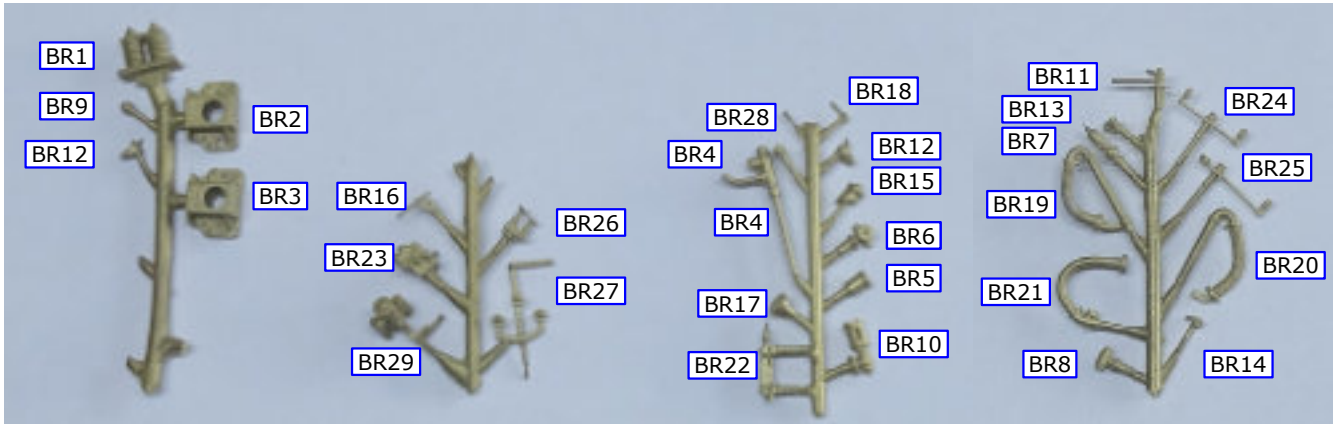
ETCH SHEET 3 & 4





BRASS/COPPER CASTINGS

BR1 Front axle springs (2)
BR2 Bogie axle box, left (2)
BR3 Bogie axle box, right (2)
BR4 Injector (2)
BR5 Safety valve (2)
BR6 Injector valve (2)
BR7 Whistle
BR8 Lubricator steam valve
BR9 Washout plug (4)
BR10 Clack box (2)
BR11 Smokebox door handles
BR12 Smokebox door dog (4)
BR13 Blower valve
BR14 Tube cleaning cock
BR15 Snifting valve (2)
BR16 Smokebox lamp bracket
BR17 Sandbox lid (2)
BR18 Cylinder cover knob (2)
BR19 Original vacuum pipe
BR20 Superheated vacuum pipe
BR21 Steam heating pipe
BR22 Water gauge (2)
BR23 Ejector/brake
BR24 Original regulator handle
BR25 Later regulator handle
BR26 Steam heating valve
BR27 Reversing lever
BR28 Injector feed valve handle (2)
BR29 Detroit lubricator



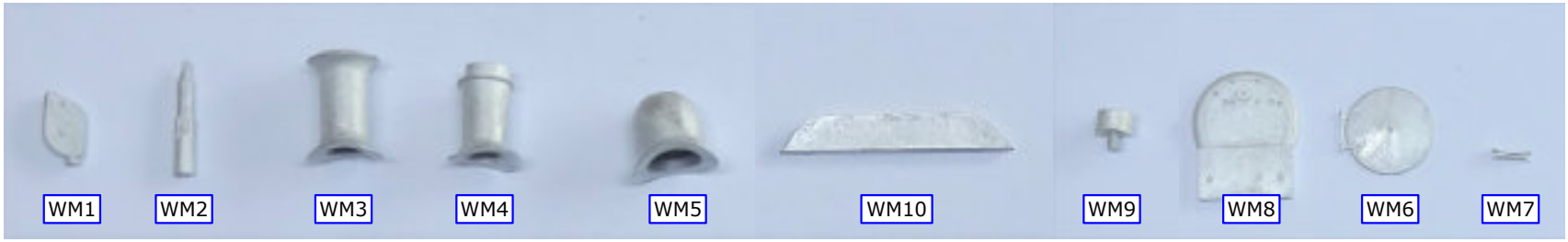
OTHER COMPONENTS

6BA x 1" screw
6BA x 5/16" screw (3)
6BA nut (3)
1/8" Brass wire for compensation beam pivots
5/32" OD Brass tube for compensation beam
0.45 mm Brass wire for injector/whistle valves & sand rod
0.8 mm Brass wire for brake hanger pivots, handrails & sand pipes
1.2 mm Brass wire for pipes, handrails, bogie & brake cross shaft
1.6 mm Brass wire for bogie pin
2.0 mm Brass wire for bogie pivot
0.5 mm Spring wire for bogie side control
0.3 mm Copper wire for oil pipes
0.9 mm Copper wire for pipe work
1.2 mm Copper wire for pipe from vacuum ejector
Short handrail knob (6)
Medium handrail knob (4)
Long Handrail knob (4)
Buffer casting, buffer, spring and nut (2)

Note. Screws may be supplied over-length and may require cutting to length.

WHITE METAL CASTINGS

WM1 Sandbox (2)
WM2 Steam reverse cylinder
WM3 Original chimney
WM4 Superheater chimney
WM5 Dome
WM6 Smokebox door
WM7 Casting under smokebox
WM8 Backhead
WM9 Inside of dome
WM10 Firebox side cover (2)



New part no, name and MF part number table

Bogie		
B1	Bogie frame (2)	1
B2	Bogie stretcher, three widths	2
B3	Bogie spring outer lamination (4)	1
B4	Bogie spring middle lamination (2)	1
B5	Bogie equalising beam (4)	1
B6	Bogie pivot bracket	2
B7	Bogie pivot washer	2
B8	Bogie fixing screw washer	2
B9	Bogie axle washer	2
Brakes		
D1	Balance weight, leading axle (2)	1
D2	Balance weight, trailing axle (2)	1
D3	Rear spring outer lamination (4)	1
D4	Rear spring middle lamination (2)	1
D5	Drawbar, 2 lengths	1
D6	Washer for drawbar screw (3)	2
D7	Brake hanger & shoe inner lamination (4)	1
D8	Brake hanger & shoe outer lamination (4)	1
D9	Rear brake cross shaft	2
D10	Front brake pull rod (2)	2
D11	Brake pull rod & brake cylinder lever lamination (2)	2
D12	Front brake hanger & shoe inner lamination (2)	1
D13	Front brake hanger & shoe outer lamination (2)	1
D14	Rear brake hanger & shoe inner lamination (2)	1
D15	Rear brake hanger & shoe outer lamination (2)	1
D16	Front brake cross shaft	2
D17	Rear brake cross shaft	2
D18	Front brake pull rod lamination (2)	2
D19	Brake pull rod & brake cylinder lever lamination (2)	2
Cab		
C1	Cab floor - 3 widths	2
C2	Splasher inside cab - side - (2)	2
C3	Splasher inside cab - back - 3 widths - (2)	4
C4	Splasher inside cab - top - 3 widths - left	3
C5	Splasher inside cab - top - 3 widths - right	3
C6	Fall plate	2
C7	Steam reverse lever mounting plate2	2
C8	Sanding lever	2
C9	Reversing lever - steam reverse - indicator	2
C10	Cab floor support U15	4
C11	Cab pressure gauges - (3)	2
C12	Fire hole	2
C13	Fire hole door handle	2
C14	Fire hole door handle ratchet	2
C15	Fire hole door flap	2
C16	Brake handle	
C17	Ejector handle	2
C18	Handwheel - (5)	2
Frames		
F1	Left frame	1
F2	Right frame	1
F3	Left frame overlay	2
F4	Right frame overlay	2
F5	Front frame stretcher, 3 widths	1
F6	Middle frame stretcher, 3 widths	1
F7	Rear frame stretcher, 3 widths	1
F8	Front cosmetic hornblock (2)	1
F9	Rear cosmetic hornblock (2)	1
F10	Working rear hornblock (2)	1
F11	Compensation beam (2)	1
F12	Portescap gearbox side, not used (2)	1
F13	Coupled wheel axle washer (8)	1
Motion		
M1	Plain coupling rod inner lamination (2)	1
M2	Plain coupling rod outer lamination (2)	1
M3	Fluted coupling rod inner lamination (2)	1
M4	Fluted coupling rod outer lamination (2)	1
Boiler		
SB1	Boiler wrapper - no bands S1	3
SB2	Boiler wrapper - with bands S2	3
SB3	Boiler joining strip S3	2
SB4	Boiler front former S6	1
SB5	Boiler rear former S4	1
SB6	Boiler middle former S5	1
SB7	Smokebox & boiler ring S7	1
Saturated boiler firebox		
SB8	Smokebox base & rear former S10	2
SB9	Smokebox front wing plate S11	1
SB10	Smokebox wrapper S12	2
SB11	Smokebox rear plate S9	2
SB12	Smokebox sand pipe flange (2) S18	3
SB13	Smokebox sandbox filler (2) S19	3
Superheated boiler firebox		
SB20	Smokebox base & rear former S22	2
SB21	Smokebox wrapper, no rivets S24	2
SB22	Smokebox wrapper, riveted S25	2
SB23	Smokebox wrapper joining plate S26	2
SB24	Smokebox front S23	2
SB25	Smokebox rear plate S21	1
SB26	Snifting valve base plate (2) S28	2
SB27	Snifting valve blanking plate (2) S29	2
SB28	Smoke box 'chin' step S30	2
Lamp Irons		
L1	LSWR Lamp bracket, smokebox top S16	2
L2	LSWR Lamp bracket, smokebox side (2) S17	2
L3	LSWR Lamp bracket, footplate - (3) U22	2
L4	LSWR/SR Lamp bracket, smokebox side (2) S31	2
L5	LSWR/SR Lamp bracket, footplate (3) U23	2
L6	SR Lamp bracket, smokebox side (2) S32	2
L7	SR Lamp bracket, footplate (3) U24	2
Upperworks		
U1	Footplate valence jig U2	3
U2	Footplate valence jig corner fillet - (4) U3	1
U3	Handrail stanchion base - (2) U4	2
U4	Footplate U1	4
U5	Cab side / Splasher side - (2) U16	3
U6	Buffer beam U5	4
U7	Drag beam U6	4
U8	Drag beam buffer rubbing plate - (2) U7	2
U9	Cab front outside lamination/splasher top U18	3
U10	Cab front inside lamination U19	4
U11	Front frame extension - (2) U14	2
U12	Steam reverse linkage U20	2
U13	Sanding rod linkage U21	2
U14	Cab cut-out beading - (2) U17	4
U15.	Cab roof U25	4
U16.	Cab roof - front angle U26	4
U17.	Cab roof - rear angle U27	4
U18.	Cab roof - side angle - (2) U28	3
U19.	Cab roof - centre angle U29	4
U20	Cylinder cover, saturated boiler S13	2
U21	Wing plate footplate angle, vertical (2) S14	2
U22	Wing plate footplate angle, horizontal (2) S15	2
U23	Firebox water tubes cover (2) S8	3
U24	Rear step tread, upper (2) U8	3
U25	Rear step tread, lower (2) U9	3
U26	Front step tread, upper (2) U11	2
U27	Front step tread, lower (2) U12	2
U28	Front step back (2) U10	2
U29	Cylinder cover, superheated boiler S27	2
U30	Steam pipe & vacuum pipe bracket (8) U13	2
U31	Oil pipe bracket (16) S20	2
U32	Steam pipe valve handle U34	2
U33	Coupling hook U30	2
U34	Coupling link U31	1
U35	Screw coupling hook U32	2
U36	Screw coupling - four pieces U33	2