

Fig 1. Round Top Firebox 2301 (Dean Goods) Class GA

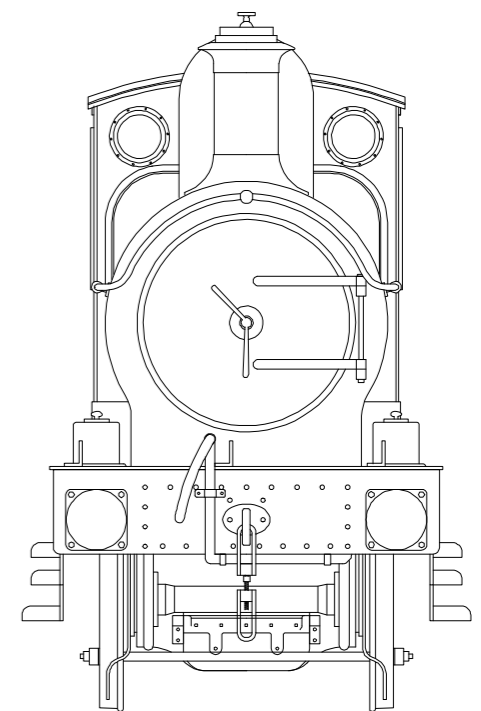
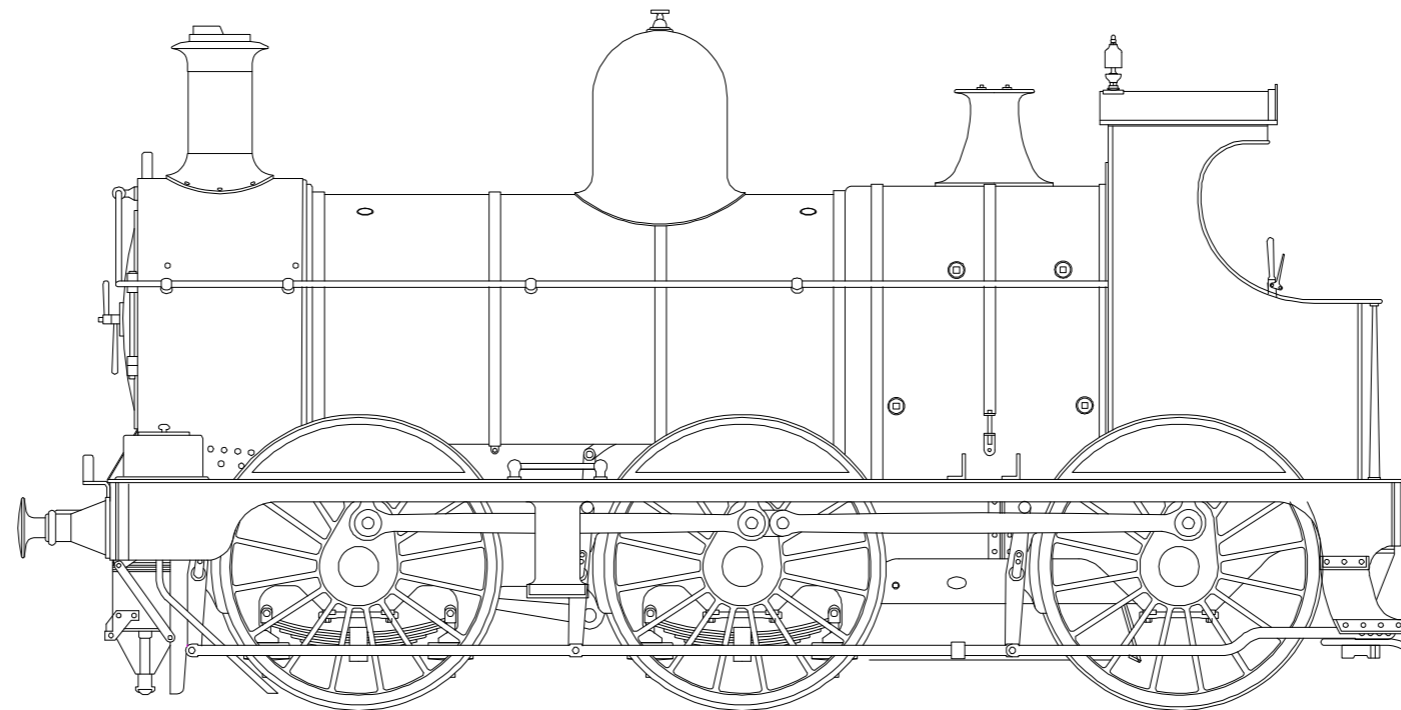
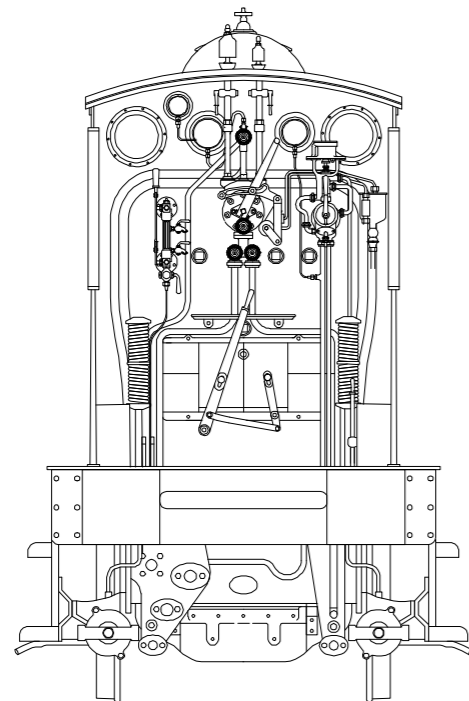


Fig 2. Belpaire Firebox 2301 (Dean Goods) Class GA

FRAME CONSTRUCTION

COUPLING RODS

The coupling rods should now be made up to use as a jig for fitting the coupled wheels hornblocks accurately into place.

First drill out all the crankpin holes to a convenient size which is well undersize 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 mandrill to accurately align the two laminations of each rod.

Using plenty of solder and flux, solder the two laminates together. You should now have a rod with the bosses on each laminate perfectly aligned. Repeat with the other pair of laminates.

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 fork joints are now pinned using the 1.6 mm nickel silver wire. Retain the pins, which should be a tight fit, by lightly soldering on the inner face of the rods. The correctly assembled rods should now have a completely flush inner face.

FRAMES

Having decided which chassis to construct you can now start construction by preparing the inside frames.(F1 & F2).

First open up the following holes in the frames:

- P only if plunger pickups are being used
- B for brake hanger pivots - 0.8 mm
- R for reversing lever cross shaft - 1.6 mm
- A for compensation beam pivot - 1/8"
- S to fit the steam brake cylinders

Emboss the rivets on the ash-pan sides and then fold the ash pan sides along the half etched lines to match the firebox front frame spacer (F5).

FRAME SPACERS AND ASSEMBLING THE CHASSIS

If you are fitting inside motion modify the front frame spacer (F6) as shown in the diagram and tap the hole for the inside motion fixing screw 6BA. Fold up the small tabs on the front spacer and solder the 1.6 mm steel wire front compensation beam in place.

Fold up the front and rear spacers (F6 & F4) making sure the half etched lines are on the inside of the bend and that each bend is a right angle. Check that all tabs on the spacers fit properly in their corresponding chassis slots so that the rest of the spacer is hard up against the inside of the frames.

Now assemble the frames and spacers. Start by tack soldering the rear spacer to both sides. Check that everything is square and that the spacers are hard against the frames. Put an axle (or better a longer piece of 3/16" rod) through the rear bearings and

place the chassis on a piece of graph paper to check that the axle is square to the frames. If all is well solder the remaining spacers to the frames. It is important to check constantly that the chassis is square and that the frames are straight.

Now fit the front coupled wheels hornblocks using the coupling rods as jigs.

Solder 0.8 mm wire through frame holes B to form the brake hanger pivots. and remove the sections of wire between the frames.

FITTING THE COMPENSATION BEAMS

Cut a piece of 1/8" brass rod so that it fits through the holes marked A and is flush with the outside face of the chassis frames.

Prepare two pieces of 5/32" bore brass tube. Each should have a length of 3 mm. On the compensation beam (F10) open up the hole to accept the brass tube and solder the beams to the pieces of tube close to one end of the tube. Slide the rod through one frame, through a tube & beam, a paper washer, the two washers, a paper washer, a tube & beam and then through the other frame. Solder securely to each frame. Push the beam into place and then push the paper washer and brass washer in to hold the beam in place. Solder the the washer in place. Repeat on the other side. Remove the rod from between the two beam assemblies to leave space for the motor and gearbox.

The third beam is the piece of 1.6 mm steel wire soldered to the front spacer. The front of the engine is supported on this beam resting on the leading axle. Fit all the wheels and axles temporarily so that the beams are resting on the axle bearings. Confirm that the compensation works properly and check if the chassis is sitting level.

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

| No. | Description | Sheet | | | |
|-----|--|-------|-----|---|----|
| M1 | Plain coupling rod front inner lamination (2) | A1 | F1 | Left frame | A1 |
| M2 | Plain coupling rod front outer lamination (2) | A1 | F2 | Right frame | A1 |
| M3 | Plain coupling rod rear inner lamination (2) | A1 | F3 | Guard iron strut (2) | A1 |
| M4 | Plain coupling rod rear outer lamination (2) | A1 | F4 | Rear frame spacer | A1 |
| M5 | Fluted coupling rod front inner lamination (2) | A1 | F5 | Firebox front frame spacer | A1 |
| M6 | Fluted coupling rod front outer lamination (2) | A1 | F6 | Front frame spacer | A1 |
| M7 | Fluted coupling rod rear inner lamination (2) | A1 | F7 | ATC shoe mounting frame spacer | A1 |
| M8 | Fluted coupling rod rear outer lamination (2) | A1 | F8 | Rear axle cosmetic hornblocks (2) | A1 |
| | | | F9 | Leading & centre axle cosmetic hornblocks (4) | A1 |
| | | | F10 | Compensation beams (2) | A1 |

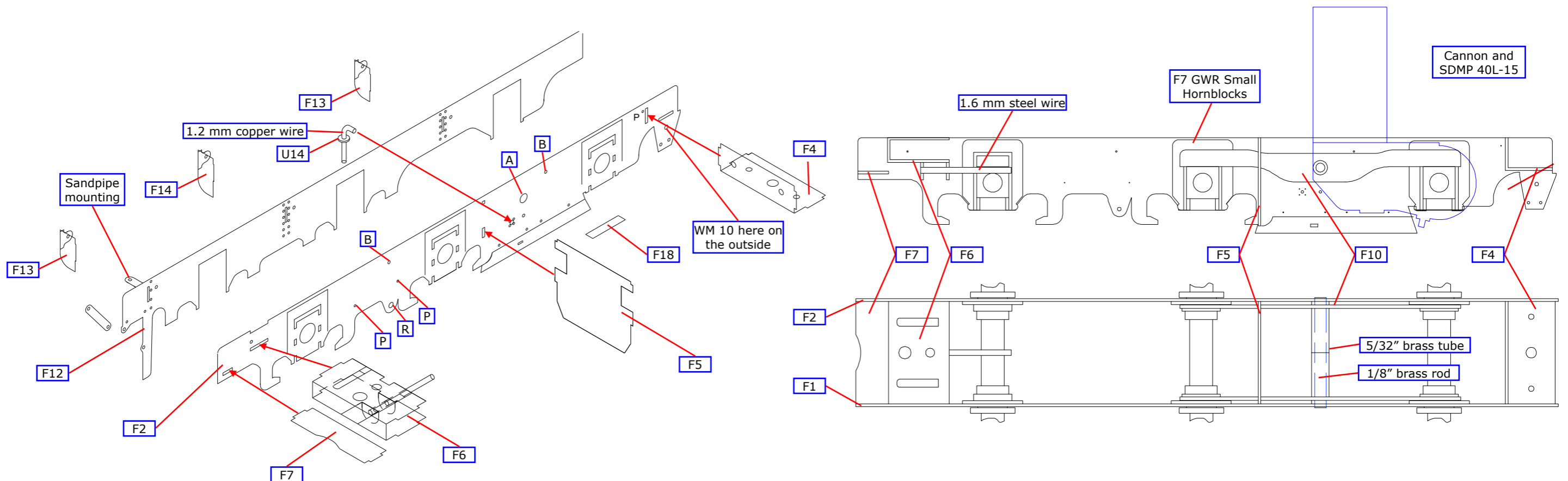


Fig 3. Chassis Construction

FRAME CONSTRUCTION

FRAME OVERLAYS

Emboss all the rivets in the frame overlays, left and right (F11 & F12). Use the brake hanger pivots to accurately locate the overlays onto the frames and then tack solder around the edges. Fold down the sandpipe mounting brackets and strengthen with a fillet of solder. Fit the guard iron struts (F3) using 0.8 mm wire as pins. Fit the mud door brackets (F15) on the ash-pan sides and make the pipe from the right side ash-pan as shown in the Fig 3. Fix the steam brake cylinders (WM10 & WM11) to the frames.

If you are fitting working inside motion then build it next following the separate instructions.

FINISHING THE CHASSIS

Laminate the spring laminations (F16 & F17) and clean up to remove the laminations. The two leading axles are now retained by the springs and the rear axle by the rear axle hornblock tie (F18). Fit the motor and gearbox. Fit the wheels and axles and then fit the coupling rods. Check for full and free movement.

Assemble the brake hangers (F20) by first embossing the rivet on each lamination. Laminate a pair of hangers together using a pair of 0.8 mm drills in a piece of wood to align the laminates. The front of each hanger is detailed with the brake hanger overlay (F21), as shown in the diagram, the small hole in the back of the overlay locating on the previously embossed rivet. Slide the brake hangers onto the pivot wires. Solder the brake hanger pivot brackets (F13 & F14) into the slots in the overlays as shown in Fig 3 to keep the hangers in place. Remove the sections of wire between the frames.

Make the brake cross shafts from 0.8 mm wires. Fit the brake pullrods, the front (F22) and the rear inner and outer (F23 & F24). Fit the brake rod safety bracket (F25) to the ashpan. Again, check for full and free movement.

Fit the sandpipes from 1.2 mm wire; the mountings are shown on Fig 3.

Attach the balance weights to the wheels using photographs as a guide to the appropriate weight and its position.

Make the drawbar up by soldering a washer around the top of a 6BA screw head as shown below. The drawbar fits under this washer when the screw is screwed into the chassis.

| No. | Description | Sheet |
|-----|---|---------|
| F11 | Left frame overlay | B3 |
| F12 | Right frame overlay | B3 |
| F13 | Brake hanger bracket, leading & trailing axle (4) | B3 |
| F14 | Brake hanger bracket, centre axle (2) | B3 |
| F15 | Mud door bracket (2) | B2 |
| F16 | Spring middle lamination (4) | A1 |
| F17 | Spring outer lamination (8) | A1 |
| F18 | Rear axle hornblock ties (2) | A1 |
| F20 | Brake hanger/shoe lamination (12) | A1 |
| F21 | Brake hanger overlay (6) | B1 |
| F22 | Front brake pull rod (2) | B3 |
| F23 | Rear inner brake pull rod (2) | B3 |
| F24 | Rear outer brake pull rod (2) | B3 |
| F25 | Brake pull rod safety bracket (2) | B1 |
| F26 | Early balance weight, leading & trailing axle (4) | A1 |
| F27 | Early balance weight centre axle (2) | A1 |
| F28 | Later balance weight, leading & trailing axle (4) | B1 |
| F29 | Later balance weight, centre axle (2) | B1 |
| F30 | Drawbar | B3 |
| F31 | Axle spacing washer | A1 & B1 |

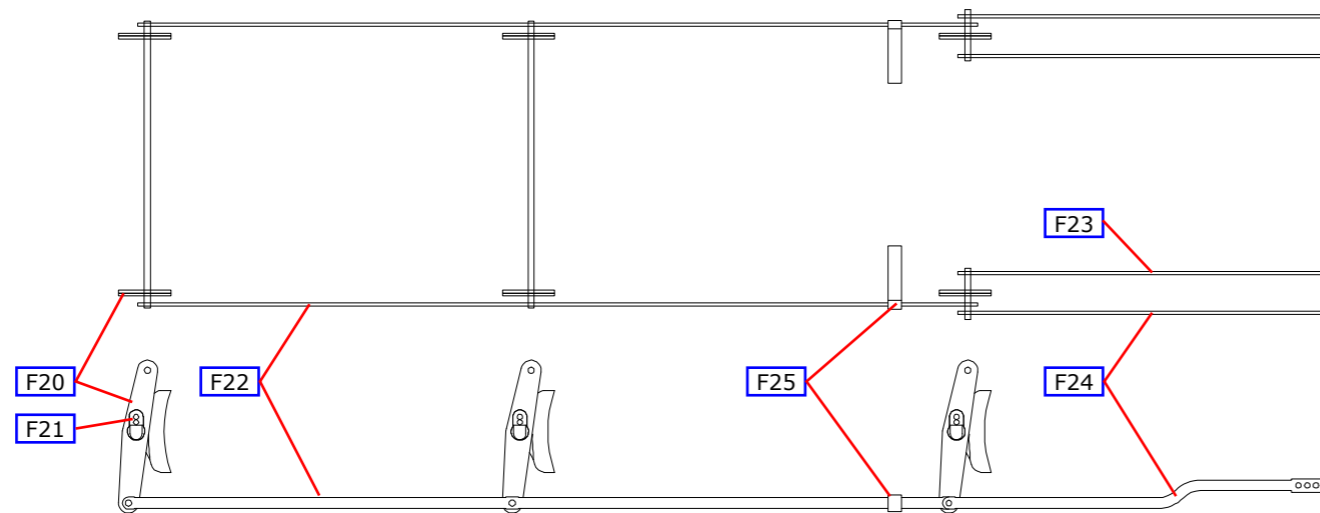


Fig 4. Brake Construction

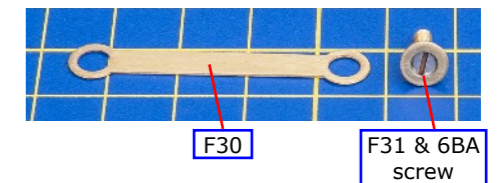


Fig 5. Drawbar Construction

FOOTPLATE

FOOTPLATE

Fold the edges of the footplate (U1) at right angles and fold up the splasher fronts, reversing lever and lamp brackets. Prepare the footplate overlay, narrow or wide (U2 or U3) by embossing the rivets under the lamp brackets. Place the overlay in place and temporarily join to the footplate with a screw through the body fixing holes at the front and rear. Now solder together all round, fix the rear body fixing nut in place under the footplate and open out all the footplate holes to suit each part.

If you have fitted inside motion remove the section of footplate shown by the half etched line to clear the mounting bracket.

On the valence overlays, left (U4) and right without (U5) or with ATC (U6), emboss the rivets behind the steps and the rivets for each pipe clip. Fold down the pipe clips and fold up the steps.

Steps 2301-2360. Remove the front step tread from valance overlay. Emboss the rivets on the front step overlay (U7) and fold up the tread. Solder the overlay over the step back on the valance. Emboss the rivets on the rear step upper tread (U8), fold up and solder in place on the rear step back on the valance. Solder the valances in place.

Steps 2381-2580. Emboss the rivets on the rear step upper tread (U9), fold up and solder in place on the rear step back on the valance. Solder the valances in place.

Emboss the rivets on the bufferbeam (U10) and then add the coupling pocket (U11). Solder the buffer beam in place. Emboss the rivets on the drag beam (U12) and then add the drag beam rubbing plates (U13). Solder the drag beam in place.

By referring to photographs bend the valance mounted vacuum pipe to shape using 1.2 mm wire and attach it by bending the clips through the small slots and soldering inside. Use either the circular or oval pipe unions (U14 or U15) to represent the flanges of the pipe joints. Similarly, if required, fold up the ATC conduit from 0.45 mm wire and attach to the valance using lengths of the ATC conduit bracket strip (U16), see Fig 7. Fix the ATC bell (WM16), the ATC tank (WM17) and the ATC battery box (WM18) to the inside of the right hand cab sheet as shown.

Flush Rivet Splashers. Curve the splasher tops, leading, centre and trailing (U17, U18 & U19) to shape by rolling underneath a suitable rod or dowel on a resilient surface - a piece of rubber sheet. The rear splasher tops should be narrowed to match the width of the cab floor as shown in the diagram. Solder the centre and rear splasher tops in place followed by the splasher backs, leading and centre and trailing (U23 & U24).

Snap Head Rivet Splashers. Curve the splasher tops, leading, centre and trailing (U20, U21 & U22) to shape by rolling underneath a suitable rod or dowel on a resilient surface - a piece of rubber sheet. The rear splasher tops should be narrowed to

match the width of the cab floor as shown in the diagram. Solder the centre and rear splasher tops in place followed by the splasher backs, leading and centre and trailing (U23 & U24).

Add the handrails above the front steps. Add the sandboxes (WM7) as indicated by the GA. Solder the vacuum pipe (BR7) to the buffer beam and then add the vacuum pipe dummy (BR8). Add the buffer housings (WM6) to the buffer beam. Solder the ATC plunger switch (BR25) to the ATC shoe casting (BR24) and then solder the shoe casting to the back of the buffer beam.

Slightly curve the fall plate (U25) and hinge to the footplate with staples of 0.45 mm wire as shown in the diagram.

| No. | Description | Sheet | No. | Description | Sheet |
|-----|---|-------|-----|---|-------|
| U1 | Footplate | B3 | U16 | ATC conduit bracket strip | B2 |
| U2 | Narrow footplate overlay, 2301-2360 & 2381-2450 | B1 | U17 | Leading splasher top, flush rivets, (2) | B3 |
| U3 | Wide footplate overlay, 2451-2580 | B1 | U18 | Centre splasher top, flush rivets (2) | B3 |
| U4 | Left valance overlay | B3 | U19 | Trailing splasher top, flush rivets (2) | B3 |
| U5 | Right valance overlay | B3 | U20 | Leading splasher top, snap head rivets (2) | B3 |
| U6 | Right valance overlay with ATC conduit brackets | B3 | U21 | Centre splasher top, snap head rivets (2) | B3 |
| U7 | Front step overlay, 2301-2360 (2) | B1 | U22 | Trailing splasher top, snap head rivets (2) | B3 |
| U8 | Rear step upper tread, 2301-2360 (2) | B1 | U23 | Leading splasher back (2) | B3 |
| U9 | Rear step upper tread, 2381-2580 (2) | B1 | U24 | Centre & trailing splasher back (4) | B3 |
| U10 | Buffer beam | B2 | U25 | Fallplate | B3 |
| U11 | Coupling hook pocket | B3 | U26 | Straight reversing rod, 2301-2360 | B3 |
| U12 | Drag beam | B2 | U27 | Curved reversing rod 2381-2580 | B3 |
| U13 | Drag beam buffer rubbing plate (2) | B3 | U28 | Smokebox Lamp bracket 105 | B3 |
| U14 | Circular pipe union (4) | B3 | U29 | Lamp bracket, buffer beam centre | B1 |
| U15 | Oval pipe union (6) | B1 | U30 | Lamp bracket, buffer beam outer (2) | B1 |

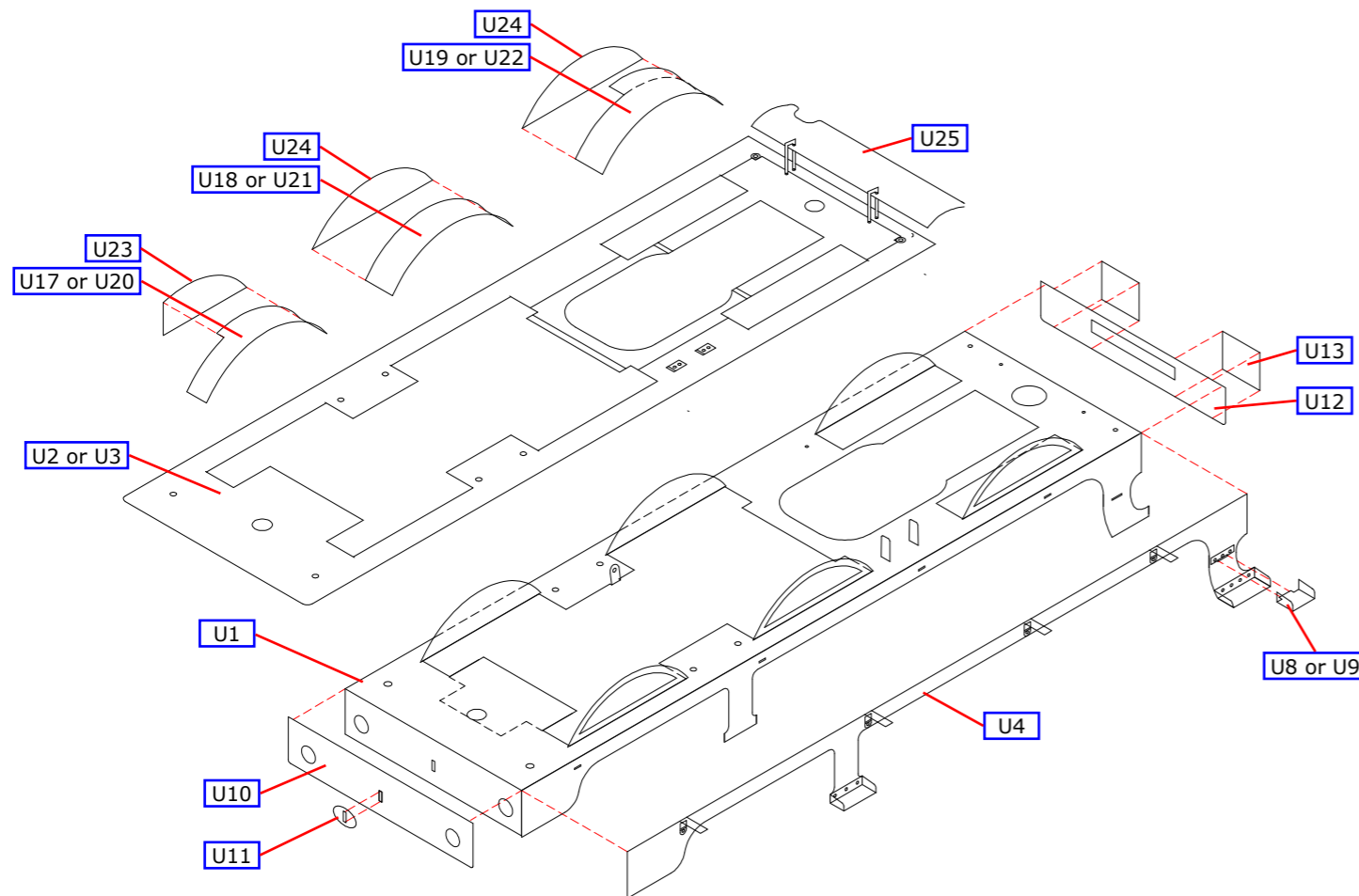


Fig 6. Footplate Construction

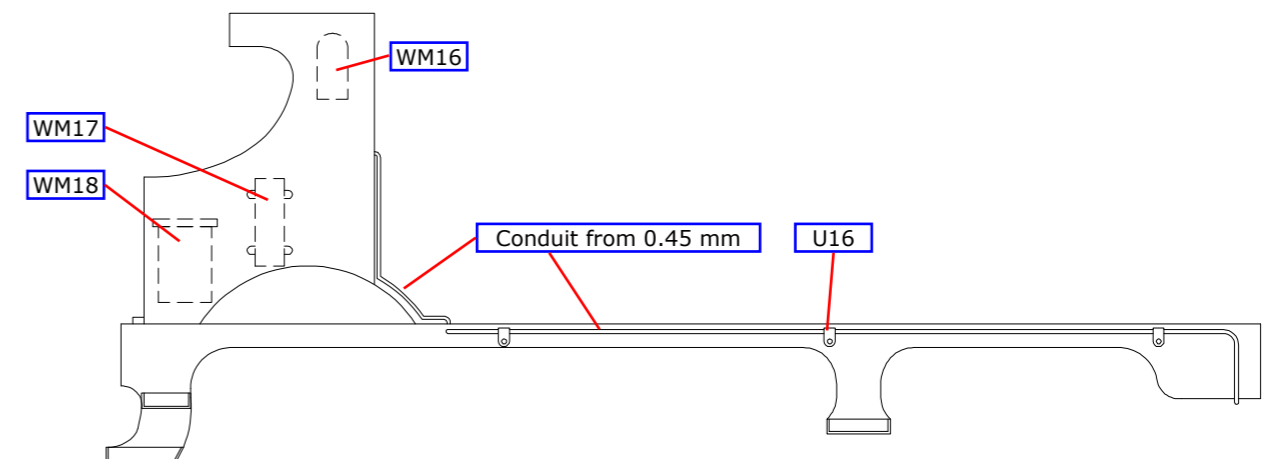


Fig 7. ATC Fittings on Right Hand Side (Inside Cab Shown Dotted)

CAB

Parts are supplied for the round or Belpaire firebox cab front, for the different cab side cut-outs for 2301-2360 or 2381-2580, both with or without rivets, and for steel or canvas covered roofs.

Round Top Firebox Cab. Emboss the rivets on the cab front (C1) and then attach the window frames (C2). Solder the cab front in place. Select the appropriate cab sides from (C3, C4, C5 or C6) and reduce in height to match the cab front. Attach the cab cut out beading (C7) to the cab side, fitting the etched groove over the edge of the cab side. If required, fold up the cab seat bracket (C8) and solder to the inside of the cab side, Assemble the seat (C9) into the bracket; the seats are designed to work. Solder the cab side into place on the footplate with a small overlap to the cab front; the handrail holes on the beading should match the handrail holes in the footplate. Attach the rear handrails from 0.8 mm nickel silver wire. Solder the cab roof support (C10) between the rear edges of the cab sides ensuring the cab roof line is horizontal.

Belpaire Firebox Cab. Emboss the rivets on the cab front, high or low roof (C11 or C12) and then attach the window frames (C13). Solder the cab front in place. Select the appropriate cab sides from (C3, C4, C5 or C6) and attach the cab cut out beading (C7) to the cab side, fitting the etched groove over the edge of the cab side. If required, fold up the cab seat bracket (C8) and solder to the inside of the cab side, Assemble the seat (C9) into the bracket; the seats are designed to work. Solder the cab side into place on the footplate with a small overlap to the cab front; the handrail holes on the beading should match the handrail holes in the footplate. Attach the rear handrails from 0.8 mm nickel silver wire. Solder the cab roof support, high or low roof (C14 or C15) between the rear edges of the cab sides ensuring the cab roof line is horizontal.

Canvas Roof. Curve the cab roof (C16) to match the cab structure and then solder in place. Add the side mouldings (C17), the front and rear mouldings (C18) and the transverse strip (C19), if required.

Steel Roof With Side Rainstrips. Curve the cab roof (C20) to match the cab structure and then solder in place. Add the side rainstrips (C21).

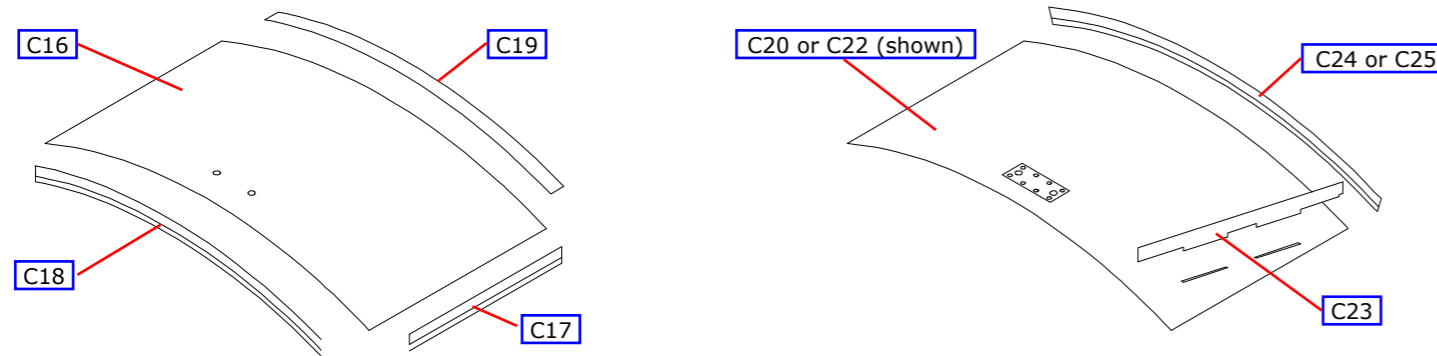
Steel Roof With Angled Rainstrips. Curve the cab roof (C22) to match the cab structure and then solder in place. Add the angled rainstrips (C23).

Solder the whistles to the cab roof. The large (BR22) on the left, the small (BR23) on the right.

There is a choice between an early reversing lever quadrant (C28) and a later cast quadrant (WM20). Emboss the rivet at each end of the reversing lever quadrant lamination (C28) and solder them together leaving a slot in the middle then solder the assembly in place in the holes in the cab floor. If required, add the cast quadrant in place. Add the lever reverse handle (BR21). The rear springs (WM15) mount in the holes in the footplate.

Backhead. Select the appropriate backhead either roundtop (WM13) or Belpaire (WM14). The backhead is designed to be soldered to the cab floor; this can be done before or after detailing to suit. Detail, as appropriate, to the drawings below.

| No. | Description | Sheet |
|-----|--|-------|
| C1 | Cab front, roundtop firebox | B2 |
| C2 | Window frame for roundtop firebox (2) | B3 |
| C3 | Cab side without rivets, 2301-2360 (2) | B2 |
| C4 | Cab side with rivets, 2301-2360 (2) | B2 |
| C5 | Cab side without rivets, 2381-2580 (2) | B2 |
| C6 | Cab side with rivets, 2381-2580 (2) | B2 |
| C7 | Cab side cutout beading (2) | B2 |
| C8 | Cab seat bracket (2) | B1 |
| C9 | Cab seat (2) | B1 |
| C10 | Cab roof support, roundtop firebox | B2 |
| C11 | Cab front, Belpaire firebox & high roof | B2 |
| C12 | Cab front, Belpaire firebox & low roof | B2 |
| C13 | Window frame for Belpaire firebox (2) | B3 |
| C14 | Cab roof support, Belpaire firebox & high roof | B2 |
| C15 | Cab roof support, Belpaire firebox & low roof | B2 |
| C16 | Canvas covered wood cab roof | B3 |
| C17 | Canvas covered roof side moulding (2) | B1 |
| C18 | Canvas covered roof front & rear moulding (2) | B3 |
| C19 | Canvas covered roof transverse strip | B2 |
| C20 | Steel cab roof with side rainstrips | B3 |
| C21 | Side rainstrip (2) | B1 |
| C22 | Steel cab roof with angled rainstrips | B3 |
| C23 | Angled rainstrip (2) | B1 |
| C24 | High steel cab roof rear angle | B3 |
| C25 | Low steel cab roof rear angle | B3 |
| C26 | Cab floor | B2 |
| C27 | Cab floor platform | B3 |
| C28 | Cab reversing lever quadrant (2) | A1 |



Canvas Covered Wood Roof

Steel Roof (Angled Rainstrip Shown)

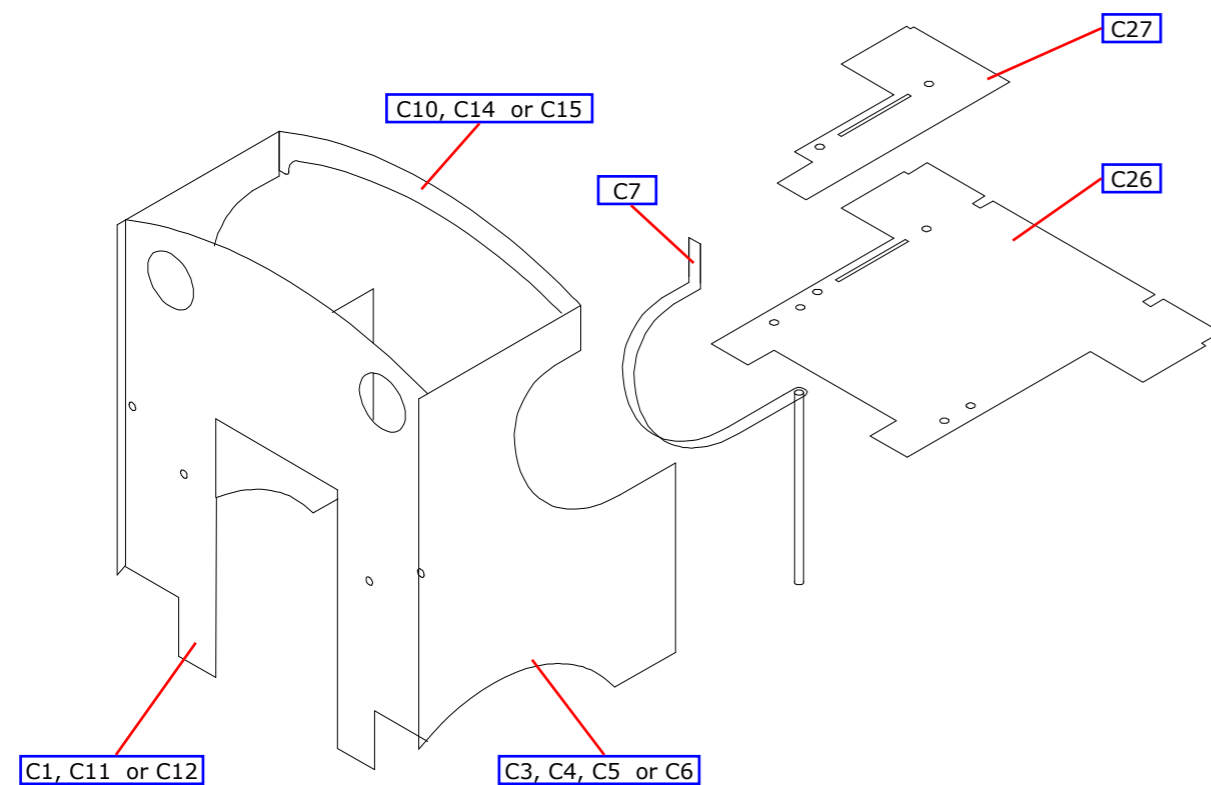


Fig 8 Cab Construction

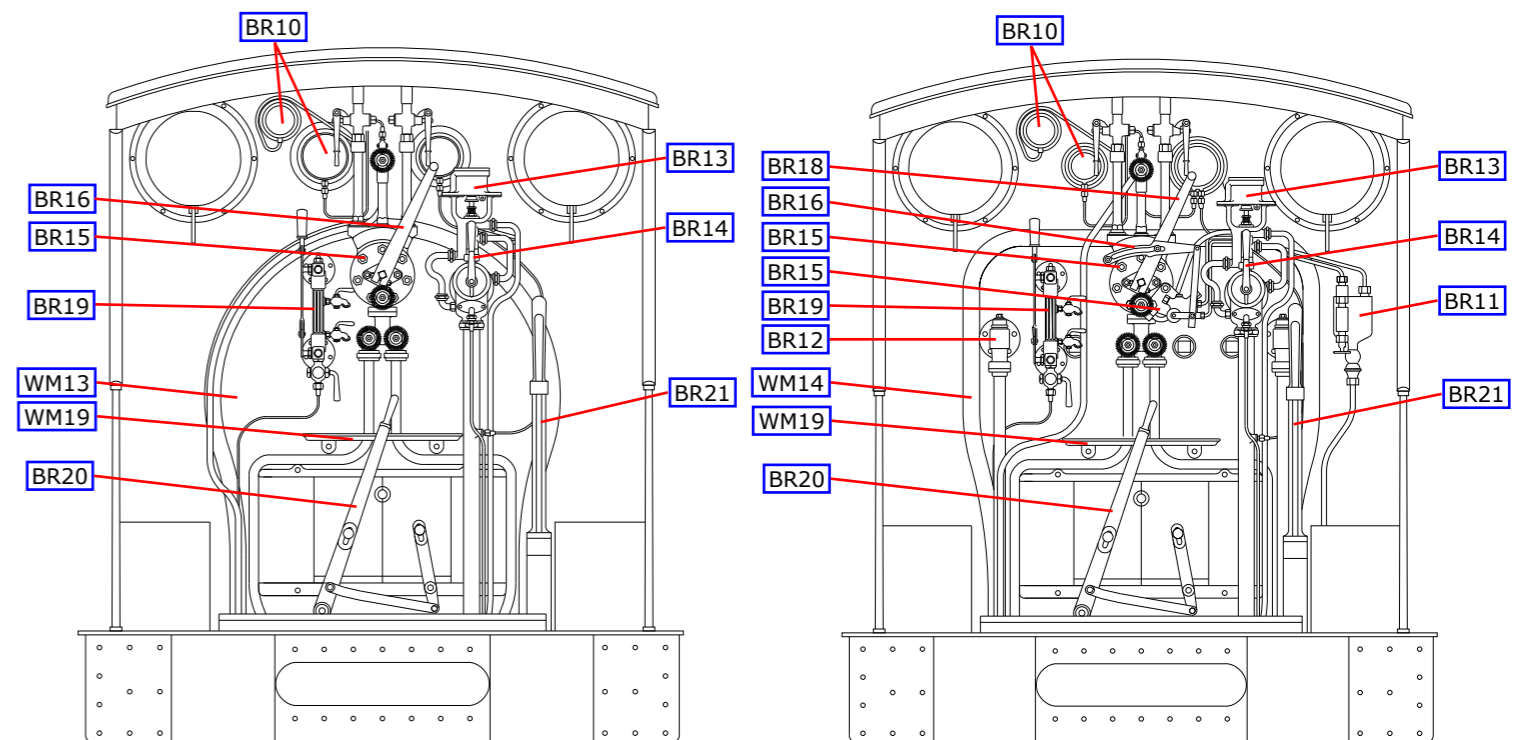


Fig 9. Roundtop Backhead

Fig 10. Belpaire Backhead

FIREBOX, BOILER AND SMOKEBOX

ROUND TOP (S4) FIREBOX, BOILER AND SMOKEBOX

Boiler. Emboss the rivets as needed on the boiler and round top firebox wrapper (SB1) on the dome boiler band and firebox band. Some early boilers appear to have no boiler washout plugs so, if necessary, file the boiler washout plugs flush and smooth. Form the boiler by rolling around suitable sized rod or dowel. Ensure that the fit is correct over the boiler front and rear formers (SB2 & SB3). Solder a 6BA nut over the hole in the centre of the front former to allow the smokebox to be screw fixed to the boiler.

Bend the boiler band joining brackets on the boiler joining strip (SB4) and fit through the small slots from inside the boiler. The cutouts in the rear former are to clear the boiler joining strip and the etched notch at the top of the rear former must align accurately with the small slot in the inside of the wrapper. If the fit of the joining strip and formers is good, solder the wrapper ends together with the joining strip and fit and solder the formers so that they are almost flush with the ends. Solder two short pieces of 0.8 mm wire into the two holes in the rear former to act as dowels to locate the firebox front former. Represent the bolts in the joining clips using 0.45 mm wire.

Solder the round top firebox washout plugs, upper row of three (SB5) and lower row of two (SB6) in place. Fit the round top firebox front and rear formers (SB7 & SB8) in place ensuring that the firebox does not become twisted, ensure that the slot for the reversing lever is on the right hand side. Solder two short pieces of 0.8 mm wire into the two holes in the rear former to act as dowels to locate the firebox onto the cab front. Fold the firebox band joining clips (SB9) by bending near the small hole, solder in place from inside and complete with a short piece of 0.45 mm wire to represent the tightening bolt.

BELPAIRE (B4) FIREBOX, BOILER AND SMOKEBOX

Solder together the two laminations of the firebox front former (SB10). The firebox front and the rear formers (SB11) must now be spaced apart by using suitable long bolts and washers through the pairs of holes in both front and rear. Some old brass chassis spacers joined together with studding would be suitable. When correctly spaced apart (35.3 mm inside, 37.1 mm outside) the front will fit in the half etched recess in the footplate and the cab front (pegged to the firebox rear with 0.8 mm wire) will fit in the half etched slot in the footplate. File a little from the lower edge of the firebox rear former so that it rests in front of this slot.

Emboss the rivets for the ends of the cladding fixing bands on the firebox wrapper, early or late (SB12 or 13). In pencil mark the wrapper centre on its inside and outside. Using the notch in the top of the formers as a guide, centre the wrapper and mark in pencil the position of the top bends.

Form the bends over a suitable rod held in a vice. When happy with the forming solder the wrapper to the formers ensuring a large fillet of solder around the front join. Remove the temporary spacers and check the fit on the footplate. Round the front edges and corners of the firebox with a file using photographs as a guide. Fold the firebox band joining clips (SB9) by bending near the small hole, solder in place from inside and complete with a short piece of 0.45 mm wire to represent the tightening bolt. Solder the firebox washout plugs in place using a suitable combination of the three row, two row or individual washout plugs (SB5, SB6 or SB14).

Remove the boiler from the boiler and firebox wrapper (SB1) by cutting behind the rearmost boiler band. This is best done with a sharp knife on a hard surface. Emboss the rivets on the dome boiler band. If you wish to fit the separate boiler washout plugs (SB14) drill out the half etched ones in the boiler wrapper. Form the boiler by rolling. Solder a 6BA nut over the hole in the centre of the boiler front former (SB2) to allow the smokebox to be screw fixed to the boiler. Check the boiler wrapper for fit around the front and rear formers (SB2 & SB3). Bend the boiler band joining clips on the boiler joining strip (SB4) and fit through the small slots from inside the boiler. The cutouts in the formers are to clear the boiler joining strip and the etched notch at the top of the rear former must align accurately with the small slot in the wrapper. If the fit of the joining strip and formers is good, solder the wrapper ends together with the joining strip and fit the formers so that they are almost flush with the ends. Solder two short pieces of 0.8 mm wire into the holes in the rear former to act as dowels to locate the boiler with the firebox. Check the boiler/firebox fit. Represent the bolts in the joining clips using 0.45 mm wire.

SMOKEBOX.

Fold the smokebox base (SB15) into an inverted tray and solder a 6BA nut over the hole for the body fixing screw. Early fireboxes have a square front edge whilst later they have a pressed front plate giving a rounded edge. The position of the smoke box door also changed. All smokebox variations are possible with the components supplied.

For a square front edge use the early smokebox front (SB16) to the front of the base and for a rounded front edge use either the early or the later front (SB17). Emboss the four rivets on the front former and drill through the hole for the steam lancecock if needed. Solder the selected front former and the rear former (SB18) to the base. Roll the smoke box wrapper, flush riveted or snaphead rivets (SB19 or SB20) to shape and solder in place with its edges flush with the front and back formers.

Round the edge of the second rear former (SB19) and solder to the rear and do the same for the front if appropriate. Fold up and fit the two smokebox side steps (SB22). If required, curve the top feed overlay (SB23) to match the boiler and fit to the boiler. Fit the top feed casting (WM5)

If you have fitted inside motion remove the section between the half etched lines on the lower edge of the smokebox rear so that it will fit over the cylinder front.

Round and polish the edge of the smokebox and boiler ring (SB21). Screw the smokebox to the boiler with the ring sandwiched between. Now check fit the boiler/smokebox to the firebox. Remember the bottom of the boiler is parallel to the footplate. When happy with the alignment solder the boiler/smokebox to the firebox and solder the firebox to the footplate. Fit the firebox side bracket (SB24) or the firebox side bracket cover (SB25) as required.

When the boiler is mounted on the footplate add the chimney, tapered or parallel (WM1 or BR1). Add the inside of the dome (WM2). Solder then dome lubricator (BR3) to the polished dome and then fit the dome over the inside casting. Fit the safety valve base (WM3) and the safety valves (WM4) to the firebox. Polish and then attach the appropriate safety valve cover (BR4 or BR5).

Add the appropriate smokebox door, late or early (WM8 or WM9) to the smokebox. Add the smokebox door handles (BR6). Add the steam lance cock (BR9) to the smokebox front. Add the smokebox pipe cover (WM12) on the right hand side.

| No. | Description | Sheet |
|------|--------------------------------------|--------|
| SB1 | Boiler and round top firebox wrapper | 117 B2 |
| SB2 | Boiler front former | A1 |
| SB3 | Boiler rear former | A1 |
| SB4 | Boiler joining strip | B3 |
| SB5 | Row of three washout plugs (2) | B3 |
| SB6 | Row of four washout plugs (4) | B3 |
| SB7 | Round top firebox front former | A1 |
| SB8 | Round top firebox rear former | A1 |
| SB9 | Firebox band joining clips (4) | B2 |
| SB10 | Belpaire firebox front former (2) | A1 |
| SB11 | Belpaire firebox rear former | A1 |
| SB12 | Early Belpaire firebox wrapper | B1 |
| SB13 | Later Belpaire firebox wrapper | B1 |
| SB14 | Individual washout plugs (4) | B1 |
| SB15 | Smokebox base | B2 |
| SB16 | Early smokebox front former | B3 |
| SB17 | Later smokebox front former | B3 |
| SB18 | Smokebox rear former (2) | B3 |
| SB19 | Flush riveted smokebox wrapper | B1 |
| SB20 | Snaphead riveted smokebox wrapper | B1 |
| SB21 | Smokebox and boiler ring | B2 |
| SB22 | Smokebox side step | B2 |
| SB23 | Top feed overlay | B2 |
| SB24 | Firebox side bracket (2) | A1 |
| SB25 | Firebox side bracket cover (2) | A1 |

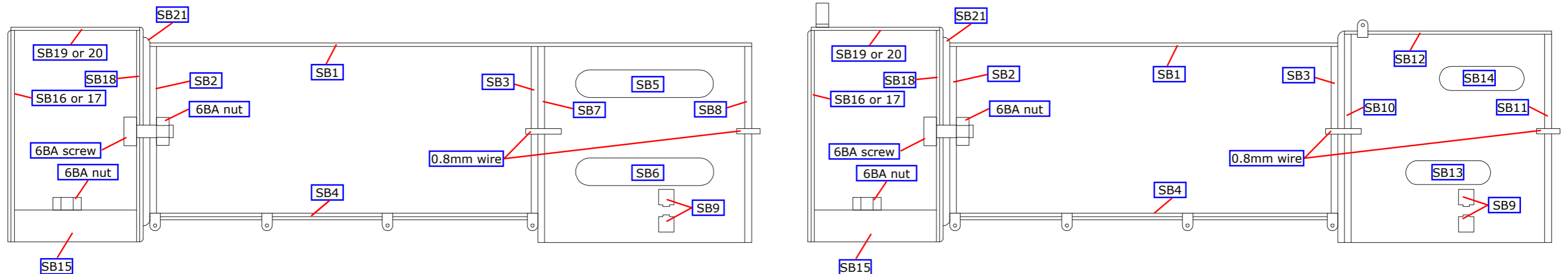
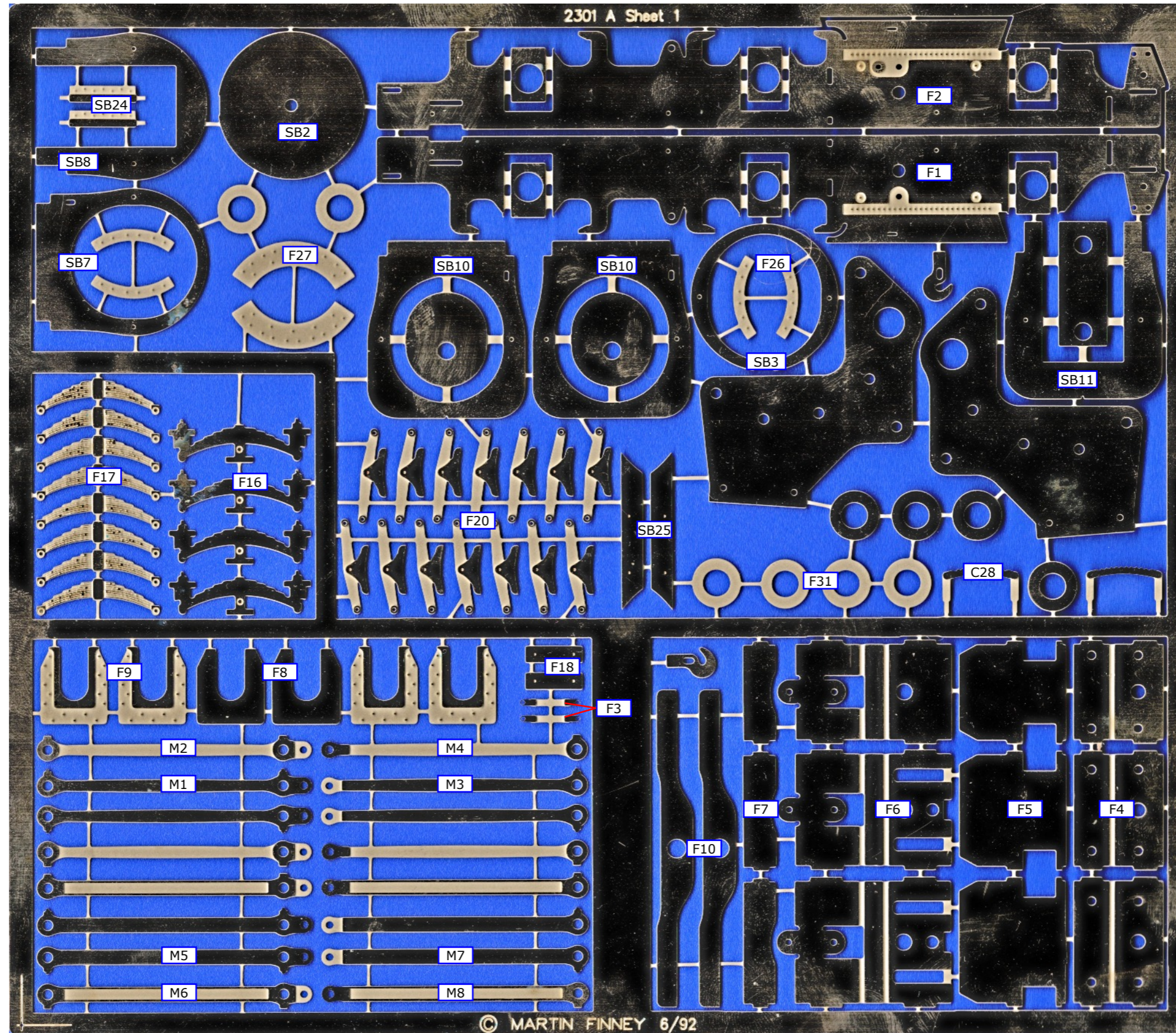
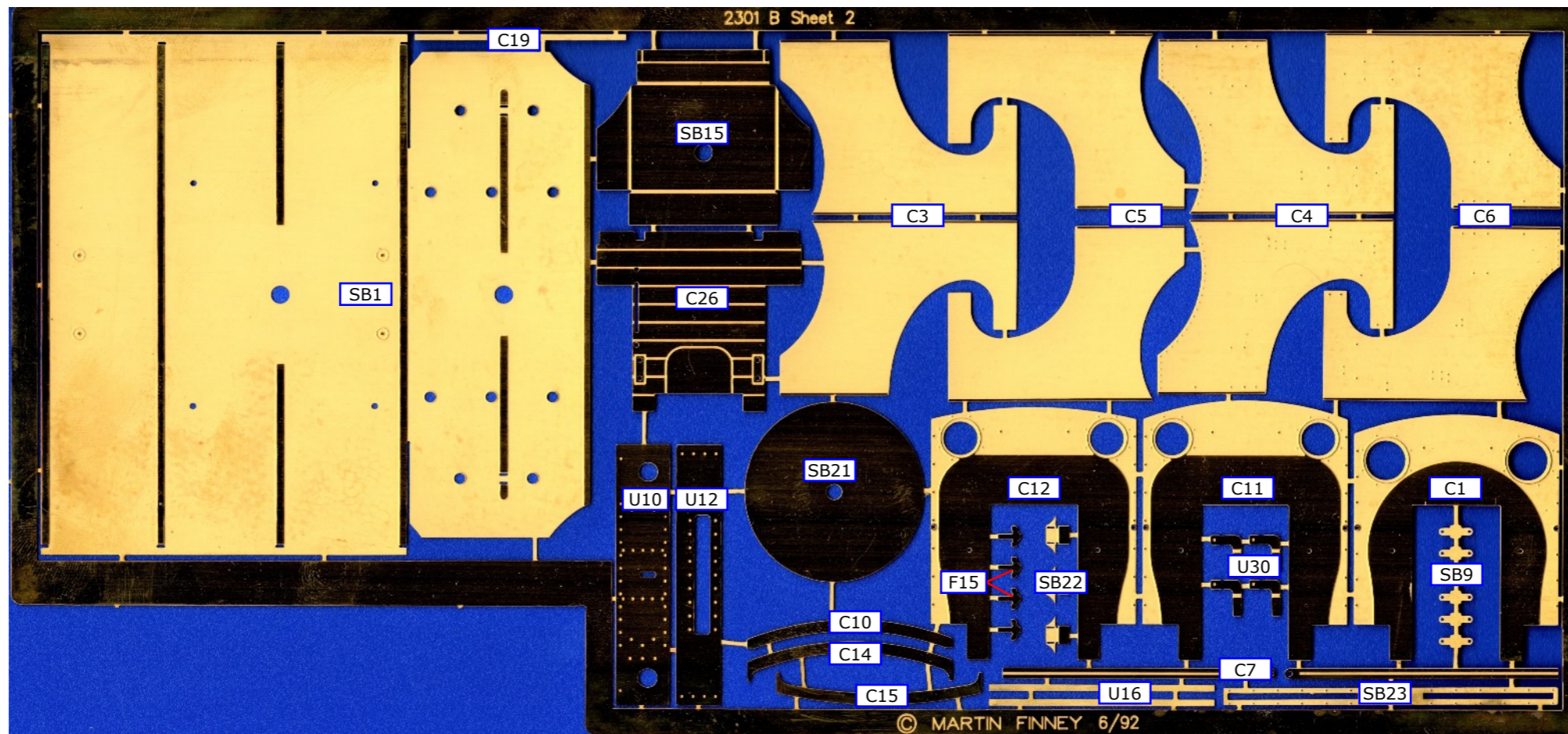
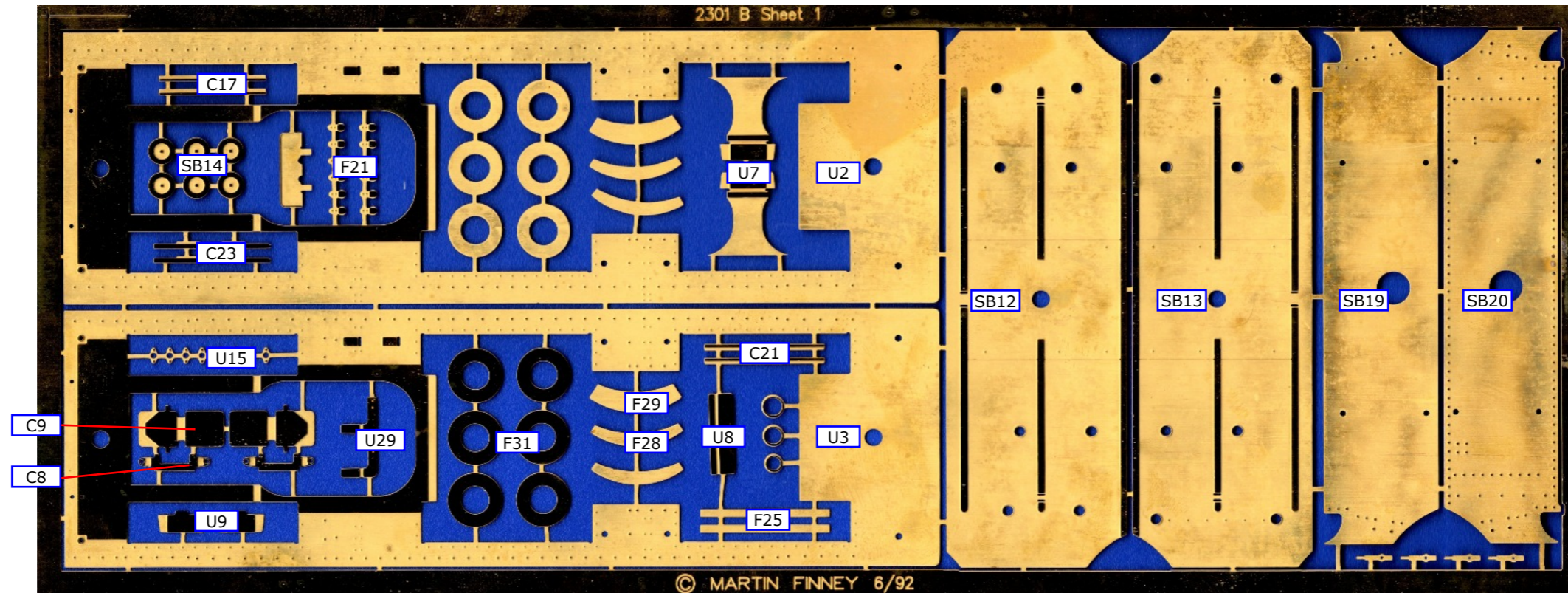


Fig 11. S4 Boiler (left) and B4 Boiler (right)

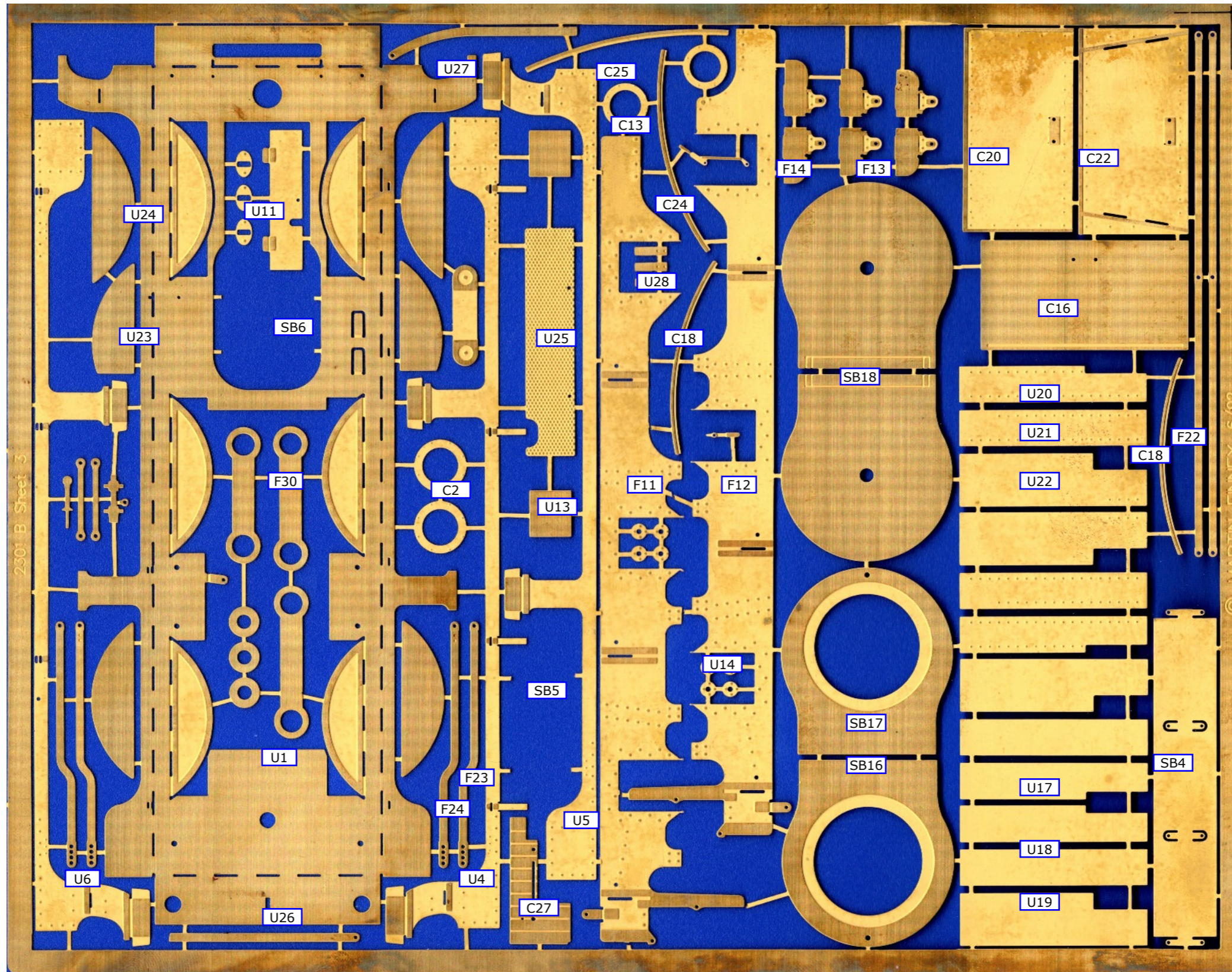
ETCH SHEET A1



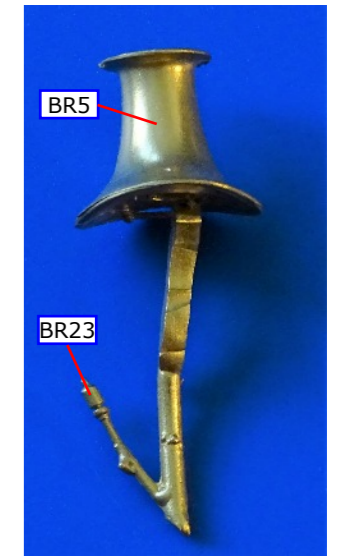
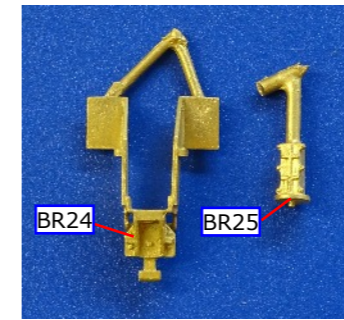
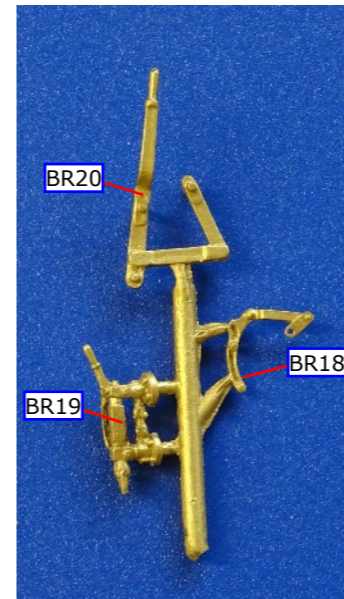
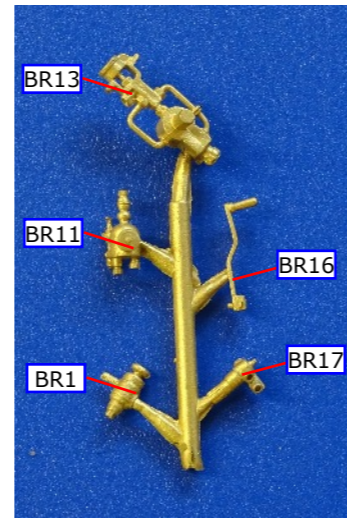
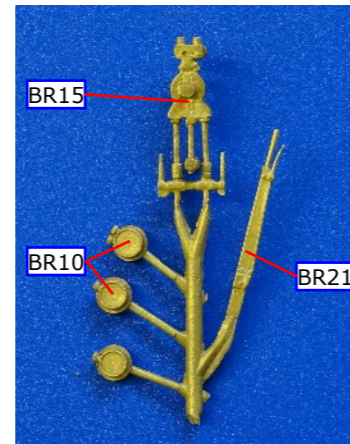
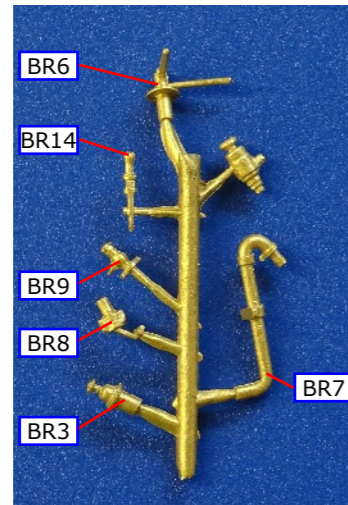
ETCH SHEET B1 & B2



ETCH SHEET B3



CASTINGS



BRASS/COPPER CASTINGS

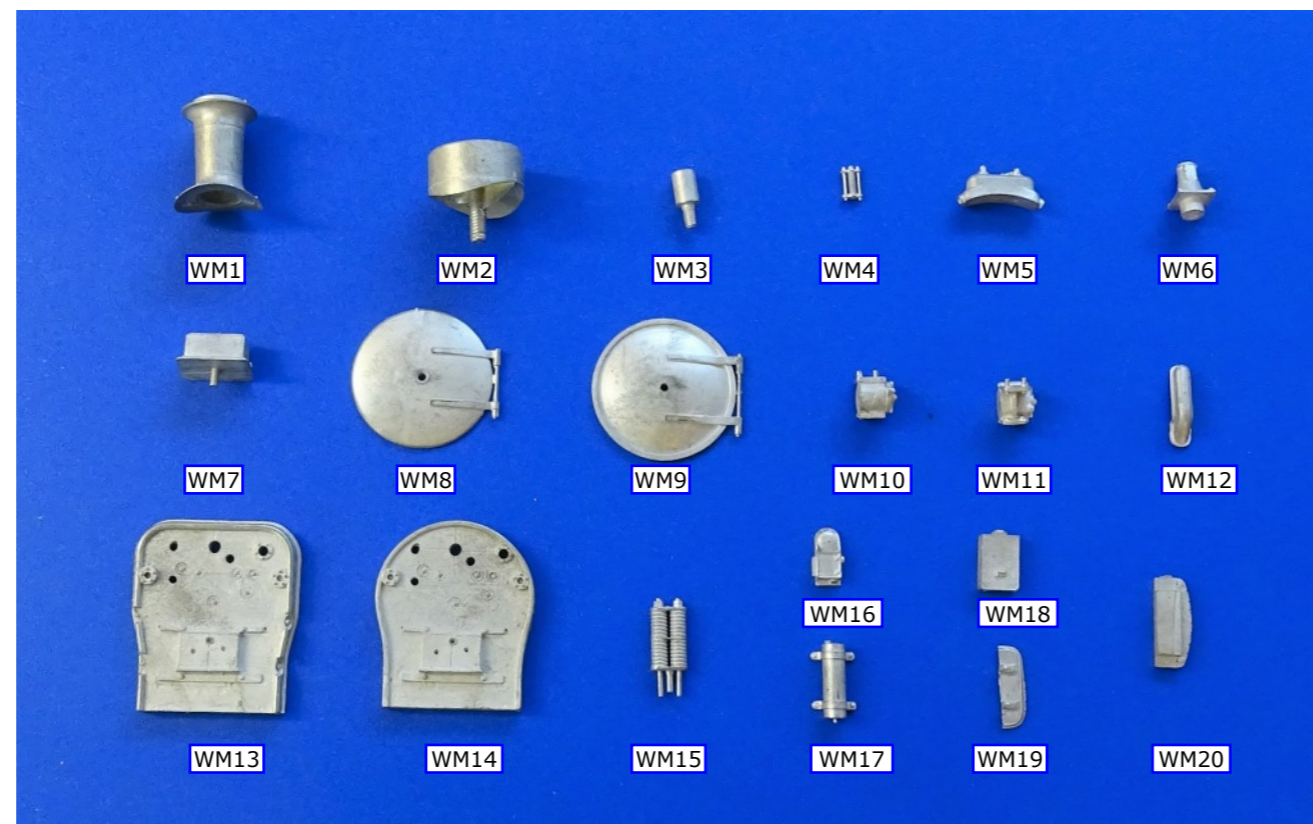
- BR1 Parallel chimney
- BR2 Dome
- BR3 Dome lubricator
- BR4 Belpaire firebox safety valve casing
- BR5 Roundtop firebox safety valve casing
- BR6 Smokebox door handles
- BR7 Vacuum pipe
- BR8 Vacuum pipe dummy

- BR9 Steam lance cock
- BR10 Cab pressure gauges (3)
- BR11 Sight feed lubricator
- BR12 Clackbox (2)
- BR13 Combined ejector & brake
- BR14 Combined ejector & brake handle
- BR15 Regulator mounting
- BR16 Regulator handle
- BR17 Jockey valve

- BR18 Jockey valve & regulator linkage
- BR19 Water gauge
- BR20 Firebox door handle
- BR21 Lever reverse handle
- BR22 Large whistle
- BR23 Small whistle
- BR24 ATC Shoe
- BR25 ATC Plunger switch

WHITE METAL CASTINGS

- WM1 Tapered chimney
- WM2 Inside of dome
- WM3 Safety valve base
- WM4 Safety valve spring (2)
- WM5 Top feed
- WM6 Buffer housing (2)
- WM7 Sandbox (2)
- WM8 Later smokebox door
- WM9 Old smokebox door with ring
- WM10 Steam brake cylinder, left hand
- WM11 Steam brake cylinder, right hand
- WM12 Smokebox pipe cover
- WM13 Round top firebox backhead
- WM14 Belpaire firebox backhead
- WM15 Rear springs (2)
- WM16 ATC bell
- WM17 ATC tank
- WM18 ATC battery box
- WM19 Backhead Shelf
- WM20 Lever reverse base, later type



OTHER COMPONENTS

- 3/16" bore bearing (6)
- 6BA Cheese Head screws (3)
- 6BA nuts (2)
- 0.8 mm Nickel silver wire for cab hand rails
- 1.6 mm Nickel silver wire for coupling rod fork joints
- 1/8" Brass wire for compensation beam pivot
- 5/32" Outside diameter brass tube for compensation beams
- 1.6 mm Steel wire for front compensation beam
- 0.8 mm Brass wire for brake hanger pivots and handrails
- 0.45 mm Brass wire fallplate hinges and ATC conduit
- 1.2 mm Brass wire for vacuum pipe and sand pipes
- 1.4 mm Brass wire for top feed pipe
- Short handrail knob (8)
- Medium handrail knob (1)
- Variable length handrail knob & flange (4)
- Buffer head, bush, washer & spring (2)
- 0.8 mm & 1.5 mm copper wire for backhead pipes
- Vacuum pipe hose