

## CONSTRUCTING THE CHASSIS

Remove and store the parts not required from the frames. Emboss the rivets on the side frames, left and right (F1 & F2) then fold the side frames at 90° along the half etched lines. Check that the bearings fit in appropriate slots, carefully opening the slots with a file if necessary. Solder the rear bearings in place. Select either the rod type hornguide ties or plate type; construct the appropriate hornguide ties as shown in the GAs using 1.2mm rod if required. Fold up the brackets for the front brake cross shaft, strengthening the folds with a fillet of solder.

Emboss the rivets on the well tank (F3), fold up along the half etched lines and solder the seams. Fold down the brackets for the vacuum pipe and the rear scoop cross shaft.

Construct the compensation beam by soldering the two halves (F5) together. Cut the piece of 5/32" brass tubing to fit between the sides of the well tank. Solder the compensation beam centrally on the tube. Fit the beam inside the well tank using the piece of 1/8" brass wire as the pivot.

**Water Scoop.** If appropriate, bend the water scoop front plate (F17) through approximately 10° along the half etched line and then attach the water scoop front plate to the front of the water scoop casting. Now attach the water scoop to the well tank. Add the stays from 0.8mm wire, passing them through the holes in the front plate and the slots in the well tank bottom and then attach them to the scoop at the rear. Add the scoop rear cross shaft from 1.2mm wire and fit the scoop rear cross shaft to scoop lever (F14).

Assemble the side frames and well tank bolting them together with 6 BA bolts & nuts through the holes at the front and back. Check that the assembly is square and that the top surface of the assembly is flat. Remove one of the front bolts, pivot the frames apart, fit the wheel sets and refit the bolt. Now check that the compensation works properly and that the chassis is level. The height can be adjusted by filing the ends of the compensation beam or by adding a further extra 'foot' and side play can be limited by using the washers (F22).

When you are satisfied with the mechanical performance of the chassis carefully solder the side frames to the well tank, avoiding soldering the bolts, then remove the bolts and complete the soldering. Fold up the scoop cross shaft bracket on the front plate (F4) before soldering the plate in position.

**Scoop Operating Mechanism.** Refer to Fig 3. The front cross shaft is a 14mm piece of 1.6mm nickel silver wire. Assemble the scoop standard to cross shaft levers (F12) and the front cross shaft to actuating rod lever (F13) onto the shaft and solder the shaft in place. The bottom of the standard is a piece of 0.8mm wire that should be soldered into the hole in the chassis. Solder the standard to cross shaft levers to the wire and shaft. Solder the actuating rod lever to the cross shaft as shown in Fig 3.

The rear cross shaft is a piece of 1.2mm wire; thread the wire through the supports and the rear cross shaft to scoop lever (F16) as shown and solder the shaft in place. Make 0.8mm pin joints between the scoop actuating rod (F14) and the scoop actuating rod lever on the front shaft and the scoop rear cross shaft lever (F15). When everything fits as shown, solder all in place.

Before proceeding any further with the chassis the basic body shell must be constructed as described in section 3.

**Brake Operating Mechanism.** (Blue in Fig 2). Attach the steam brake cylinder casting (WM10). The brake shaft is made from 1.6mm wire and should be cut to be just longer than the width over the frames. Thread the two sets of brake pull rod lever laminations (F9), the brake cylinder to cross shaft lever laminations (F10) and the brake standard to cross shaft lever laminations (F11) onto the shaft and solder the shaft in place. The bottom of the standard is a piece of 0.8 mm wire that should be soldered into the hole in the chassis. Solder the brake standard to cross shaft levers to the wire and to the shaft. Solder the two brake cylinder to cross shaft levers either side of the piston rod and then solder them to the shaft. Don't solder the pull rod levers (F9) to the cross shaft yet.

Solder the brake shoes (F7) together, back to back, (or use the castings part WM9) and solder them between the hangers (F6) using 0.8mm wire as pins. Solder the hangers in place suspending them from pieces of 0.8mm wire. Check the clearance between the brake shoes and the wheels making any necessary adjustments. Using 0.8mm wire as cross shafts, fit the pull rods (F8) and attach them to the brake pull rod levers using pieces of 0.8mm wire as pins.

Form the sand pipes from 1.2mm wire and attach them through the hole in the front plate. Attach the axlebox castings (WM1).

Solder together the 3 pieces (F18) to make the vacuum pipe drip trap and drill out the small holes on either side to fit 1.2mm wire. Construct the vacuum pipe as shown in Fig 4, soldering the rear bracket (F21) inside the well tank and bending the pipe to align with the vacuum pipe on the rear buffer beam. Similarly make the steam heating pipe, as shown in Fig 4, soldering it to the bottom of the well tank on the opposite side to the vacuum pipe.

No.	Description	Sheet	No.	Description	Sheet
F1	Left frame	1	F12	Scoop standard to front cross shaft lever (2)	2
F2	Right frame	1	F13	Front cross shaft to actuating rod lever	2
F3	Well tank	1	F14	Water scoop actuating rod	2
F4	Front plate	3	F15	Actuating rod to rear cross shaft lever	2
F5	Compensation beam (2)	1	F16	Rear cross shaft to scoop lever	2
F6	Brake hangers (12)	1, 2 & 3	F17	Water scoop front plate	3
F7	Brake shoes (12)	3	F18	Steam pipe drip trap (3 pieces)	3
F8	Brake pull rods (2)	1	F19	Steam pipe drip trap lever	2
F9	Brake cross shaft to pull rod (4)	2	F20	Vacuum pipe drip trap (3 pieces)	1
F10	Brake cylinder to cross shaft lever (2)	2	F21	Vacuum pipe rear bracket	1
F11	Brake standard to cross shaft lever (2)	2	F22	Side control washer	1

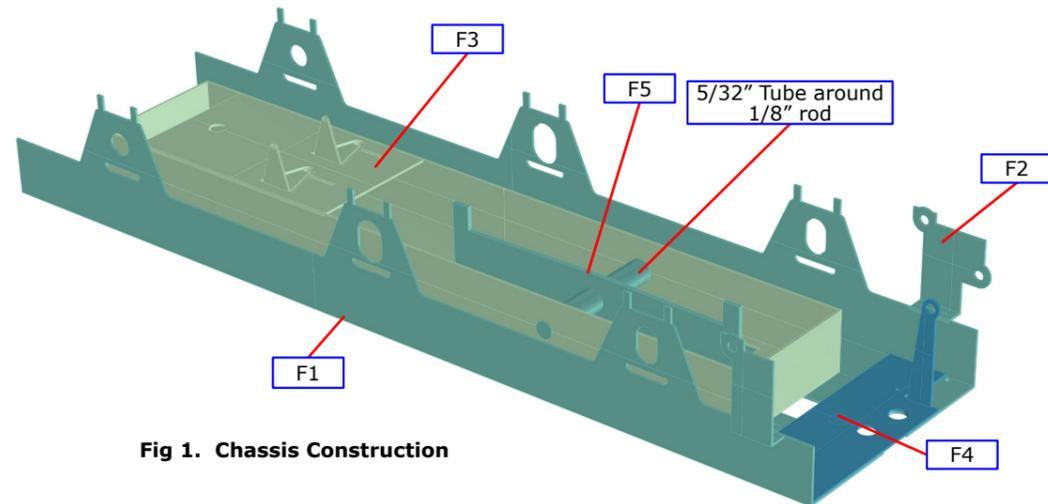


Fig 1. Chassis Construction

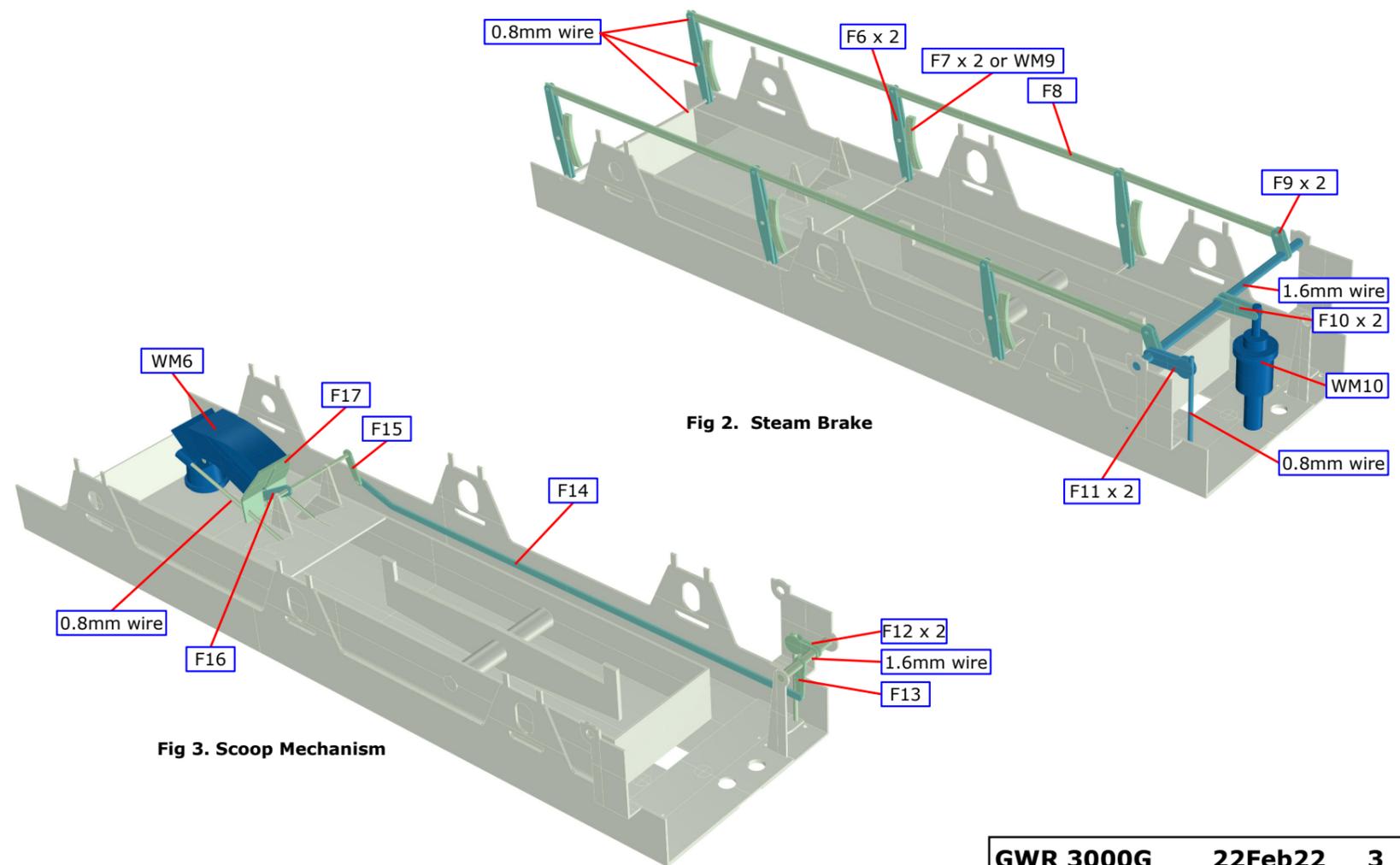


Fig 2. Steam Brake

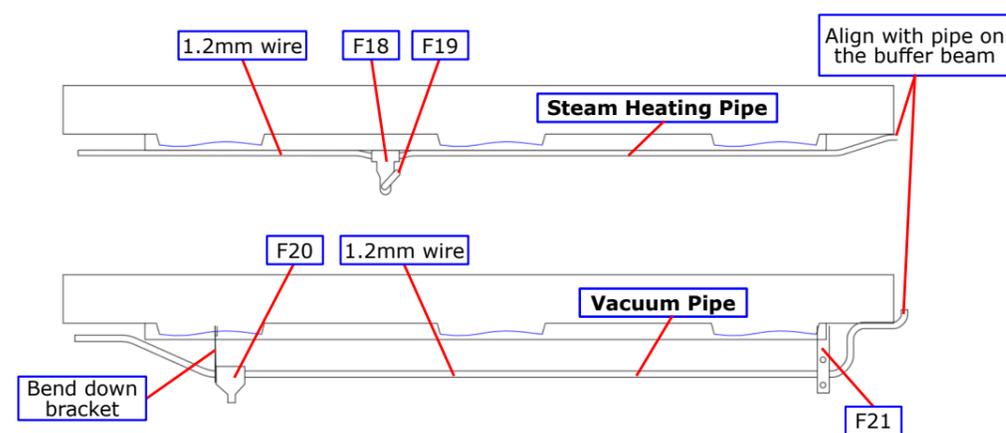


Fig 4. Steam Heat & Vacuum Pipes

Fig 3. Scoop Mechanism

## CONSTRUCTING THE NARROW FOOTPLATE BODY

If required, remove the front side extensions from the narrow footplate (U1) as shown below by the dotted lines. Emboss the rivets on the brake standard and water pickup standard bases. Now fold through 90° the coal space rear and fold through 90° the small tabs on each side. Solder a 6BA nut above the body fixing holes at the front and back of the footplate.

If your tender is to have coal rails, remove the coal plate brackets from the tank former (U3). Fold up the tank former taking care that the coal plate brackets, if not removed, are not bent. Solder the front of the tanks around the outside of the former top.

Solder the tank top overlay (U4) to the tank former and then file it flush with the sides of the former. Determine from the GAs which of the holes for the water filler, water dome, overflow pipe fountain, vents, water level gauge and fire iron bracket are required and then drill out the holes from inside the tank using the holes in the tank former as a guide.

Fit the tank former to the footplate, fitting the tabs through the appropriate slots. Fold over the tabs outwards at 90°. Check that the assembly is square and that the footplate is flat before soldering it together.

Fold the coal hole overlay (U5) along the slots and solder in place. If you are building a pre Lot 45 tender, modify the sides and back overlay (U6) as shown below using the modification overlays (U7 & U8). Emboss the rivets for the rear step brackets. Carefully form the flare in the sides and back by bending around a rod of 5 mm diameter, checking with the jig (U9). Form the rear corners in the sides/back wrapper (the holes for the handrails are on the centre of the bend) and then solder it to the tank former. This requires plenty of heat and flux. Carefully curve to shape the small 'fingers' at the corners, fill the gaps with solder and then file to shape. Low melt solder seems to work best after first tinning the area with ordinary solder. This should be left until all other soldering is complete to avoid the possibility of a meltdown.

If coal plates are to be fitted shape the coal plate brackets and solder them to the flare. Now fit the coal plates (U10).

Emboss the two rivets on the coupling hook base on the rear buffer beam overlay (U11) and then solder it to the rear buffer beam (U12). If required, solder together the two coupling hook laminations (U13) and attach to the rear bufferbeam. Solder the rear bufferbeam in place allowing the footplate to overhang very slightly.

Solder the valences (U14 & U15) in place against the edge of the tank former tabs. Note the valences are handed. Emboss the rivets on the front bufferbeam overlay (U16) and then solder it to the front buffer beam (U17) before soldering the complete front bufferbeam in place.

No.	Description
U1	Narrow footplate
U3	Tank former
U4	Tank top overlay
U5	Coal hole overlay
U6	Sides and back overlay
U7	Right side modification overlay
U8	Left side modification overlay
U9	Jig for side flare
U10	Coal plates (2)
U11	Rear buffer beam overlay
U12	Rear buffer beam
U13	Coupling hook laminations (2)
U14	Left valence
U15	Right valence
U16	Front buffer beam overlay

Sheet No.	Description	Sheet No.
2	U17 Front buffer beam	3
3	U18 Left front step back	2
3	U19 Right front step back	2
3	U20 Left curved front step overlay	2
1	U21 Right curved front step overlay	2
3	U22 Left straight front step overlay	2
3	U23 Right straight front step overlay	2
1	U24 Left rear step back	2
1	U25 Right rear step back	2
3	U26 Left rear step overlay	2
3	U27 Right rear step overlay	2
1	U28 Lower front step tread (2)	2
3	U29 Upper front step tread (2)	1
3	U30 Lower rear step tread (2)	2
3	U31 Upper rear step tread (2)	1

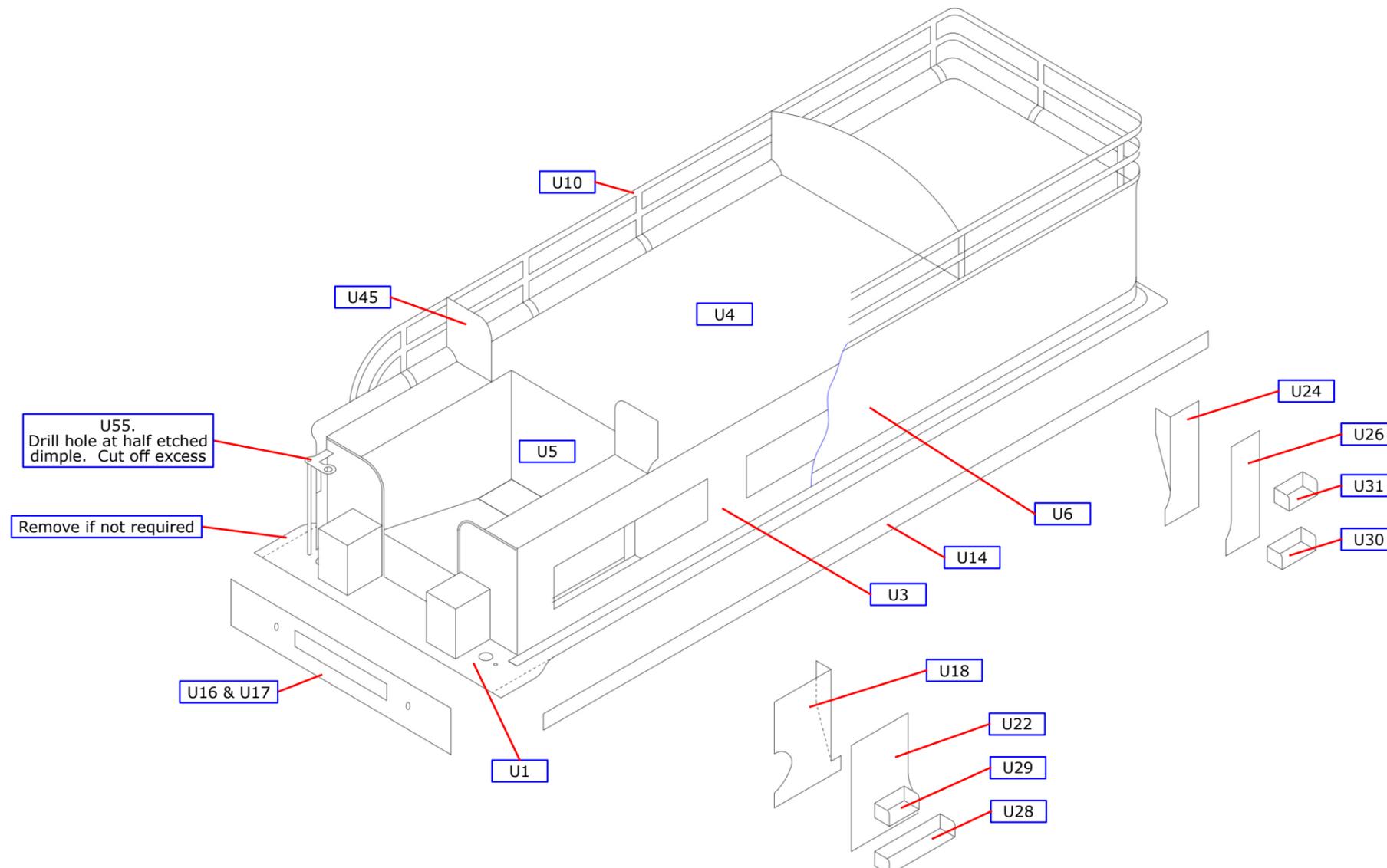


Fig 5. Narrow Footplate Tank Construction

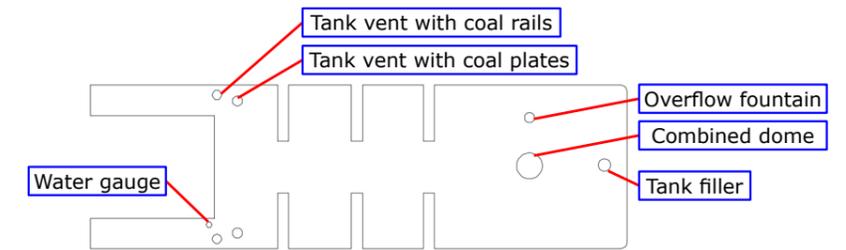


Fig 6. Tank top holes from below

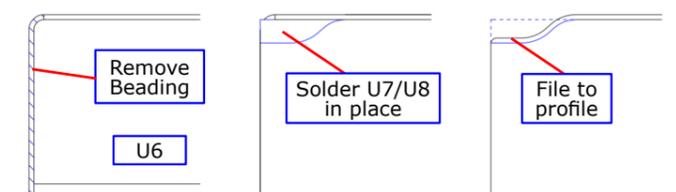


Fig 7. Pre Lot A38 Tender Modification

## CONSTRUCTING THE WIDE FOOTPLATE BODY

Fold up the front step treads on the wide footplate (U2). Emboss the rivets on the brake standard and water pickup standard bases. Now fold through 90° the coal space rear and fold through 90° the small tabs on each side. Solder a 6BA nut above the body fixing holes at the front and back of the footplate.

If the tender is to have coal rails, remove the coal plate brackets from the tank former (U3). Fold up the tank former taking care that the coal plate brackets, if not removed, are not bent. Solder the front of the tanks around the outside of the former top.

Solder the tank top overlay (U4) to the tank former and then file it flush with the sides of the former. Determine from the GAs which of the holes for the water filler, water dome, overflow pipe fountain, vents, water level gauge and fire iron bracket are required and then drill out the holes from inside the tank using the holes in the tank former as a guide. Fit the tank former to the footplate, fitting the tabs through the appropriate slots. Fold the tabs outwards to 90°. Check that the assembly is square and that the footplate is flat before soldering it together.

Fold the coal hole overlay (U5) along the slots and solder in place. Emboss the rivets for the rear step brackets on the sides and back overlay (U6). Carefully form the flare in the sides and back by bending around a rod of 5 mm diameter, checking with the jig (U9). Form the rear corners in the sides/back wrapper (the holes for the handrails are on the centre of the bend) and then solder it to the tank former. This requires plenty of heat and flux. Carefully curve to shape the small 'fingers' at the corners, fill the gaps with solder and then file to shape. Low melt solder seems to work best after first tinning the area with ordinary solder. This should be left until all other soldering is complete to avoid the possibility of a meltdown.

If coal plates are to be fitted shape the coal plate brackets and solder them to the flare. Now fit the coal plates (U10).

Emboss the two rivets on the coupling hook base on the rear buffer beam overlay (U11) and then solder it to the rear buffer beam (U12). If required, solder together the two coupling hook laminations (U13) and attach to the rear bufferbeam. Solder the rear bufferbeam in place allowing the footplate to overhang very slightly.

Solder the valences (U14 & U15) in place against the edge of the tank former tabs. Note the valences are handed. Emboss the rivets on the front bufferbeam overlay (U16) and then solder it to the front buffer beam (U17) before soldering the complete front bufferbeam in place.

No.	Description
U2	Wide footplate
U3	Tank former
U4	Tank top overlay
U5	Coal hole overlay
U6	Sides and back overlay
U7	Right modification overlay for sides
U8	Left modification overlay for sides
U9	Jig for side flare
U10	Coal plates (2)
U11	Rear buffer beam overlay
U12	Rear buffer beam
U13	Coupling hook laminations (2)
U14	Left valence
U15	Right valence
U16	Front buffer beam overlay

Sheet No.	Description	Sheet
2	U17 Front buffer beam	3
3	U18 Left front step back	2
3	U19 Right front step back	2
3	U20 Left curved front step overlay	2
1	U21 Right curved front step overlay	2
3	U22 Left straight front step overlay	2
3	U23 Right straight front step overlay	2
1	U24 Left rear step back	2
1	U25 Right rear step back	2
3	U26 Left rear step overlay	2
3	U27 Right rear step overlay	2
1	U28 Lower front step tread (2)	2
3	U29 Upper front step tread (2)	1
3	U30 Lower rear step tread (2)	2
3	U31 Upper rear step tread (2)	1

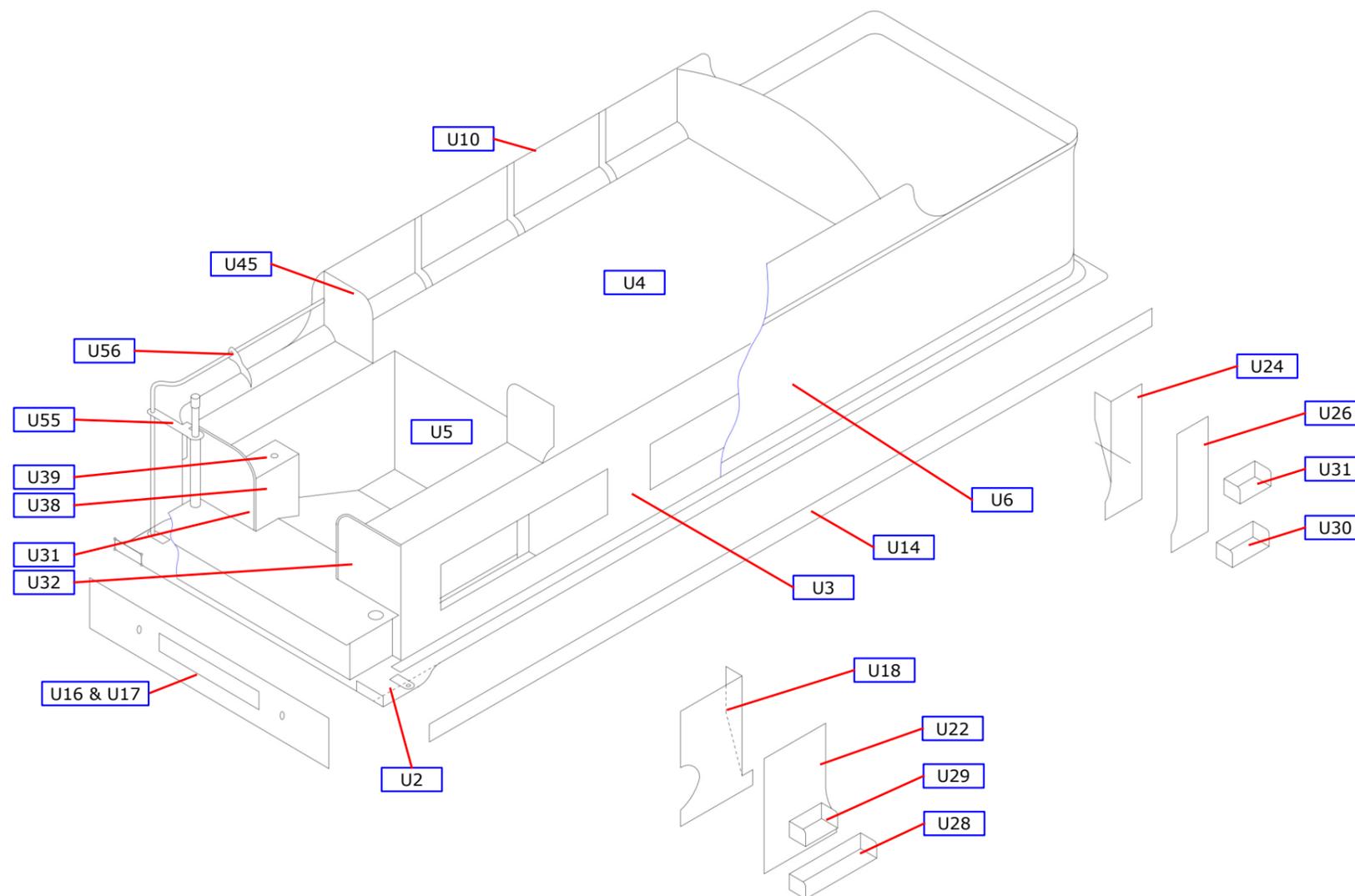


Fig 8. Narrow Footplate Tank Construction

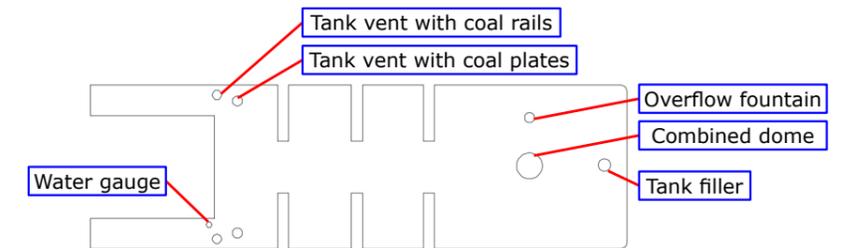


Fig 9. Tank top holes from below

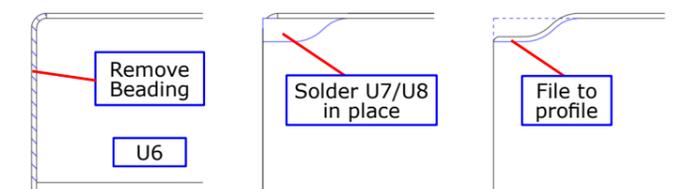


Fig 10. Pre Lot A38 Tender Modification

## DETAIL 1

**Coal rails, no water scoop, narrow footplate, cylindrical water filler, original sandboxes on footplate in front of tank, identical toolboxes, overflow fountain, straight front step, rod hornguide ties.**

Fit the quadrant plates (U31 & U32) to the front of the tank and solder in place.

**Sandboxes.** Fold up the original sandboxes (U33) and solder together with the sandbox lid (U34). Attach them to the footplate against the quadrant plates.

**Division Plates & Coal Rails.** The alternate positions of the rear division plate and front coal plates are marked on the tank top overlay by small 'nicks' in the sides. Laminate the original division plate (U43) and then solder in place. The original front quadrant coal plates (U45) can now be fixed in place. Attach the coal rails (U52).

**Toolboxes.** Fit the symmetric toolboxes (WM3) as shown below. Fold and fit the toolbox to tank top brackets (U66) to the front face of the toolbox. The toolbox padlocks (U67) can be fitted now or glued on after painting to keep the brass finish.

**Brake and Water Standards.** Use the short standards for the early tenders with low footplate. Drill out the top of the brake standard (BR6) to accept the top piece (BR7); solder the top piece in place. Attach the handles for the standard from 0.6mm wire. Fix the assembled standard in place.

**Handrails.** On the handrail brackets (U55) drill the 0.8mm holes for the handrail wire at the half etched dimple; note the brackets are handed. Fold along the half etched line and strengthen the fold with a fillet of solder. Modify the brackets as in Fig 9. Fix the brackets over the standard and attach inside the sides. Fit the front handrails using 0.8mm wire. Fit the rear handrails from 0.8mm wire with two handrail knobs as shown.

**Lamp Brackets.** Emboss the rivets on lamp brackets (U63, U64 & U65) before folding to shape. The lower brackets are attached to the bufferbeam.

**Tank Water Fittings.** Fit the tank vents (WM8) behind the coal plates. Fit the overflow fountain (WM11) and the tank filler (WM4) to the tank top behind the division plate. Fit the handle to the water filler made from 0.6mm wire.

**Final Details.** Fit the water feed valve lever (BR2) to the tank top as shown below. Align the vacuum pipe (BR1) with the notch in the rear of the footplate. Solder in place. The steam heating pipe (BR3) fits in the bracket under the buffer beam. The steam heating pipe tap handle (U68) fits on the lower spigot on the casting. Plastic pipe is supplied for both hoses and the steam heating pipe end piece (BR4) goes on the end of the pipe.

**Buffers.** Build the buffers as shown below and then fit to the buffer beam. Fit the front buffers (BR9).

No.	Description	Sheet	No.	Description	Sheet
U31	Left front quadrant plate	1	U62	Tank rear step (2)	1
U32	Right front quadrant plate	1	U63	Upper lamp bracket	2
U33	Original sandbox (2)	1	U64	Lower outer lamp bracket	2
U34	Original sandbox lid (2)	2	U65	Lower centre lamp bracket	2
U43	Original division plate lamination (2)	3	U66	Toolbox to tank top bracket (2)	1
U45	Original front coal plate (2)	3	U67	Toolbox padlock (2)	2
U52	Coal rail	1	U68	Steam heating pipe tap handle	2
U55	Front handrail bracket to front of side (2)	2			

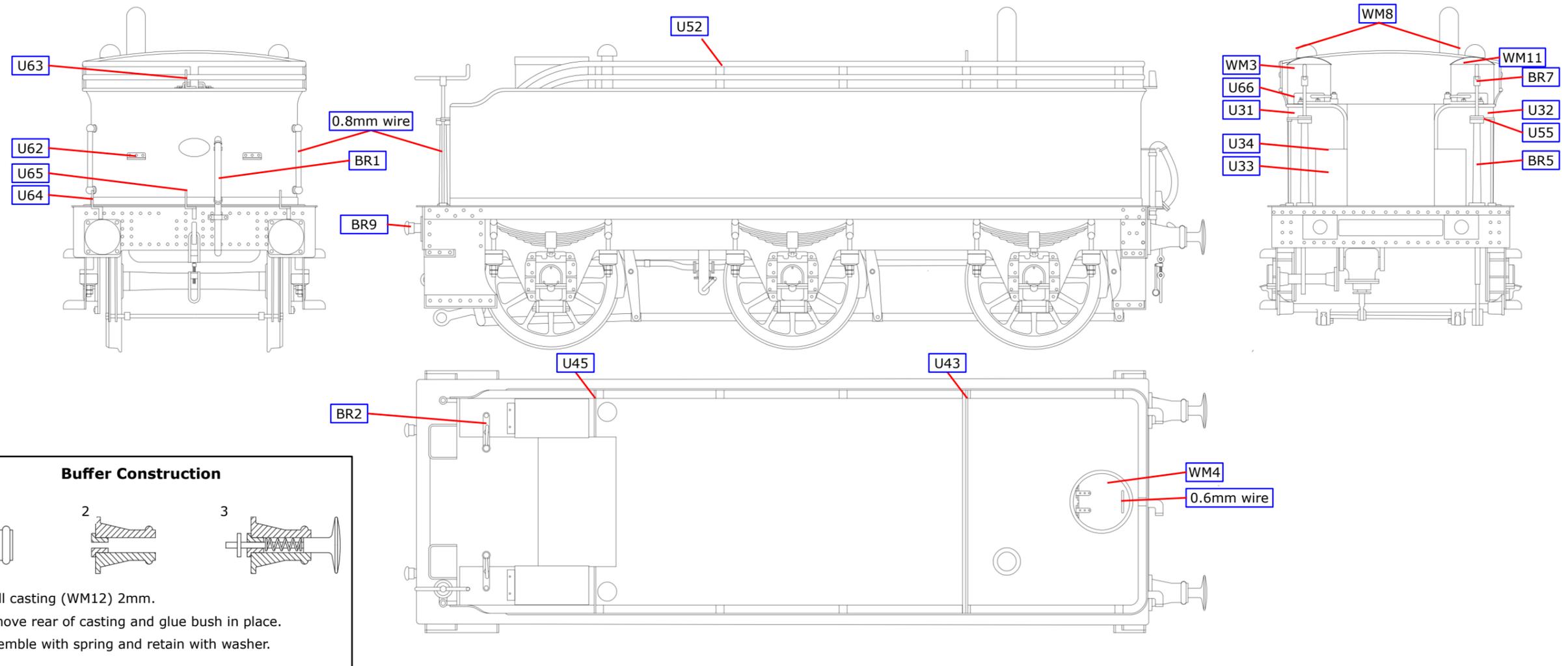


Fig 9. Detail 1.

## DETAIL 2

### Coal rails, water scoop, narrow footplate, combined water filler / scoop fountain, original sandboxes on footplate in front of tank, identical toolboxes, overflow pipe, curved front step, rod hornguide ties.

Fit the quadrant plates (U31 & U32) to the front of the tank and solder in place.

**Sandboxes.** Fold up the original sandboxes (U33) and solder together with the sandbox lid (U34). Attach them to the footplate against the quadrant plates.

**Division Plates & Coal Rails.** The alternate positions of the rear division plate and front coal plates are marked on the tank top overlay by small 'nicks' in the sides. Laminate the original division plate (U43) and then solder in place. The original front quadrant coal plates (U45) can now be fixed in place. Attach the coal rails (U52).

**Toolboxes.** Fit the symmetric toolboxes (WM3) as shown below. Fold and fit the toolbox to tank top brackets (U66) to the front face of the toolbox. The toolbox padlocks (U67) can be fitted now or glued on after painting to keep the brass finish.

**Brake and Water Standards.** Use the short standards for the early tenders with low footplate. Drill out the top of the brake and water scoop standards (BR6) to accept the top piece (BR7); solder the top piece in place. Attach the handles for the standards from 0.6 mm wire. Fix the assembled standards in place.

**Handrails.** On the handrail brackets (U55) drill the 0.8mm holes for the handrail wire at the half etched dimple; note the brackets are handed. Fold along the half etched line and strengthen the fold with a fillet of solder. Modify the brackets as in Fig 10. Fix the brackets over the standard and attach inside the sides. Fit the front handrails using 0.8mm wire. Fit the rear handrails from 0.8mm wire with two handrail knobs as shown.

**Combined Water Filler and Scoop Fountain.** Emboss the rivets on the combined water filler and scoop fountain sides (U58) and form to shape. Solder to the base (U57). Emboss the rivets on the top (U59). Make the handle from 0.6mm wire. Attach the top to the sides and then solder in place on the tank top. Fit the tank vents (WM8) behind the coal plates.

**Lamp Brackets.** Emboss the rivets on lamp brackets (U63, U64 & U65) before folding to shape. The lower brackets are attached to the bufferbeam.

**Final Details.** Fit the water feed valve lever (BR2) to the tank top as shown below. Align the vacuum pipe (BR1) with the notch in the rear of the footplate. Solder in place. The steam heating pipe (BR3) fits in the bracket under the buffer beam. The steam heating pipe tap handle (U68) fits on the lower spigot on the casting. Plastic pipe is supplied for both hoses and the steam heating pipe end piece (BR4) goes on the end of the pipe.

**Buffers.** Build the rear buffers as shown below and then fit to the buffer beam. Fit the front buffers (BR9).

No.	Description	Sheet	No.	Description	Sheet
U31	Left front quadrant plate	1	U57	Combined water filler and scoop fountain base	2
U32	Right front quadrant plate	1	U58	Combined water filler and scoop fountain sides	3
U33	Original sandbox (2)	1	U59	Combined water filler and scoop top	2
U34	Original sandbox lid (2)	2	U62	Tank rear step (2)	1
U40	Raised footplate	2	U63	Upper lamp bracket	2
U41	Raised footplate rear support	1	U64	Lower outer lamp bracket	2
U42	Raised footplate front and sides support	2	U65	Lower centre lamp bracket	2
U43	Original division plate lamination (2)	3	U66	Toolbox to tank top bracket (2)	1
U45	Original front coal plate (2)	3	U67	Toolbox padlock (2)	2
U52	Coal rail	1	U68	Steam heating pipe tap handle	2
U55	Front handrail bracket to front of side (2)	3			

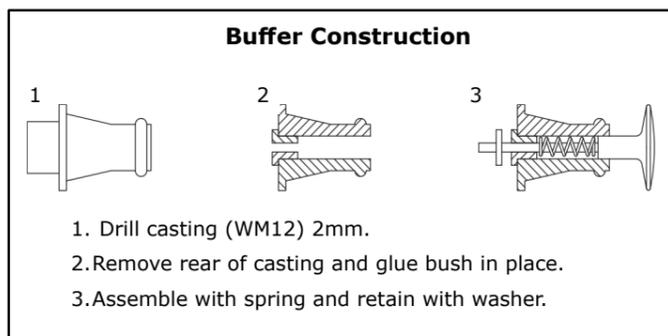
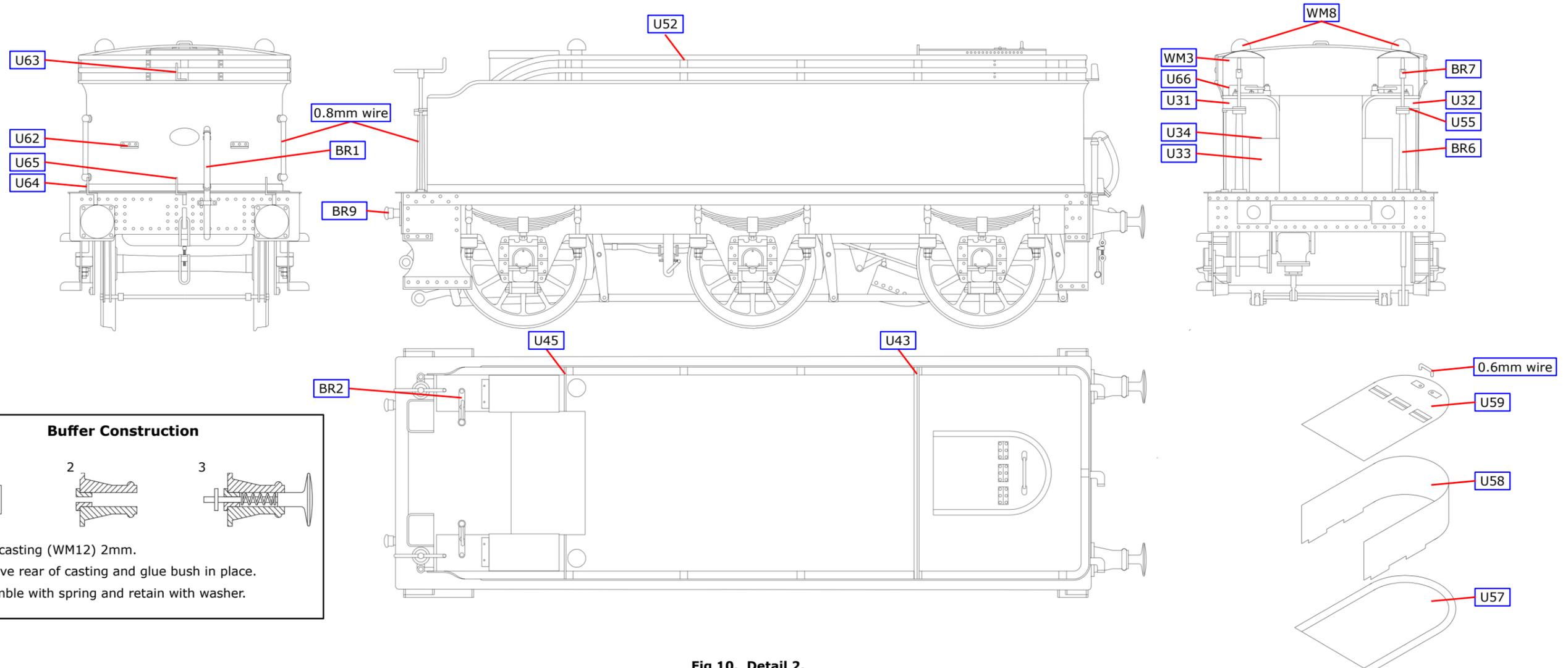


Fig 10. Detail 2.

## DETAIL 3

**Sides with no drop at front, coal rails with front extension, widened footplate, raised footplate, combined water filler & scoop fountain, tank vents, repositioned sandboxes, identical toolboxes, curved front step, rod hornguide ties**

Fit the quadrant plates (U31 & U32) to the front of the tank and solder in place.

**Later Sandboxes.** Emboss all the rivets in the sandbox side and top (U35 & U36). Form the sandbox side to match the top, solder together and attach to the footplate on the left side behind the quadrant plate. Emboss the rivets in the casing side (U37), fold to shape and solder to the casing top (U38). Fit the casing to the right side of the coal hole behind the quadrant plate.

The raised footplate (U40) can be modified to accommodate the various sandbox and footplate height options using the half etched lines on the underside as a guide. Modify the footplate and fit using the supports (U41 & U42).

**Division Plates & Coal Rails.** The alternate positions of the rear division plate and front coal plates are marked on the tank top overlay by small 'nicks' in the sides. Laminate the original division plate (U43) and then solder in place. The original front quadrant coal plates (U45) can now be fixed in place. The coal rails extensions, left and right (U53 & U54) are used for these later tenders without the drop in the sides at the front. Modify the coal rails (U52) by removing the rails in front of the end stanchion and replace with the extensions. Attach the coal rails (U52).

**Toolboxes.** Fit the symmetric toolboxes (WM3) as shown below. Fold and fit the toolbox to tank top brackets (U66) to the front face of the toolbox. The toolbox padlocks (U67) can be fitted now or glued on after painting to keep the brass finish.

**Brake and Water Standards.** The taller standards are for the later tenders with the raised footplate. Drill out the top of the brake and water scoop standards (BR5) to accept the top piece (BR7); solder the top piece in place. Attach the handles for the standards from 0.6mm wire. Fix the assembled standards in place.

**Handrails.** On the handrail brackets (U55) drill the 0.8mm holes for the handrail wire at the half etched dimple; note the brackets are handed. Fold along the half etched line and strengthen the fold with a fillet of solder. Modify the brackets as in Fig 11. Fix the brackets over the standard and attach inside the sides. Fit the front handrails using 0.8mm wire; the handrail is fixed in the half etch slot inside the coal rail extensions. Fit the rear handrails from 0.8mm wire with two handrail knobs as shown.

**Combined Water Filler and Scoop Fountain.** Emboss the rivets on the combined water filler and scoop fountain sides (U58) and form to shape. Solder to the base (U57). Emboss the rivets on the top (U59). Make the handle from 0.6mm wire. Attach the top to the sides and then solder in place on the tank top. Fit the tank vents (WM8) behind the coal plates.

**Lamp Brackets.** Emboss the rivets on lamp brackets (U63, U64 & U65) before folding to shape. The lower brackets are attached to the bufferbeam.

**Final Details.** Fit the sand box lid (BR8) to the top of the sandbox. Fit the water feed valve lever (BR2) to the tank top as shown below. Align the vacuum pipe (BR1) with the notch in the rear of the footplate. Solder in place. The steam heating pipe (BR2) fits in the bracket under the buffer beam. The steam heating pipe tap handle (U68) fits on the lower spigot on the casting. Plastic pipe is supplied for both hoses and the steam heating pipe end piece (BR4) goes on the end of the pipe.

**Buffers.** Build the buffers as shown below and then fit to the buffer beam. Fit the front buffers (BR9).

No.	Description	Sheet	No.	Description	Sheet
U31	Left front quadrant plate	1	U54	Right coal rail extension	1
U32	Right front quadrant plate	1	U55	Front handrail bracket to front of side (2)	3
U35	Later sandbox side	3	U57	Combined water filler and scoop fountain base	2
U36	Later sandbox top	1	U58	Combined water filler and scoop fountain sides	3
U37	Casing side	3	U59	Combined water filler and scoop top	2
U38	Casing top	1	U62	Tank rear step (2)	1
U40	Raised footplate	2	U63	Upper lamp bracket	2
U41	Raised footplate rear support	1	U64	Lower outer lamp bracket	2
U42	Raised footplate front and sides support	2	U65	Lower centre lamp bracket	2
U43	Original division plate lamination (2)	3	U66	Toolbox to tank top bracket (2)	1
U45	Original front coal plate (2)	3	U67	Toolbox padlock (2)	2
U52	Coal rail	1	U68	Steam heating pipe tap handle	2
U53	Left coal rail extension	1			

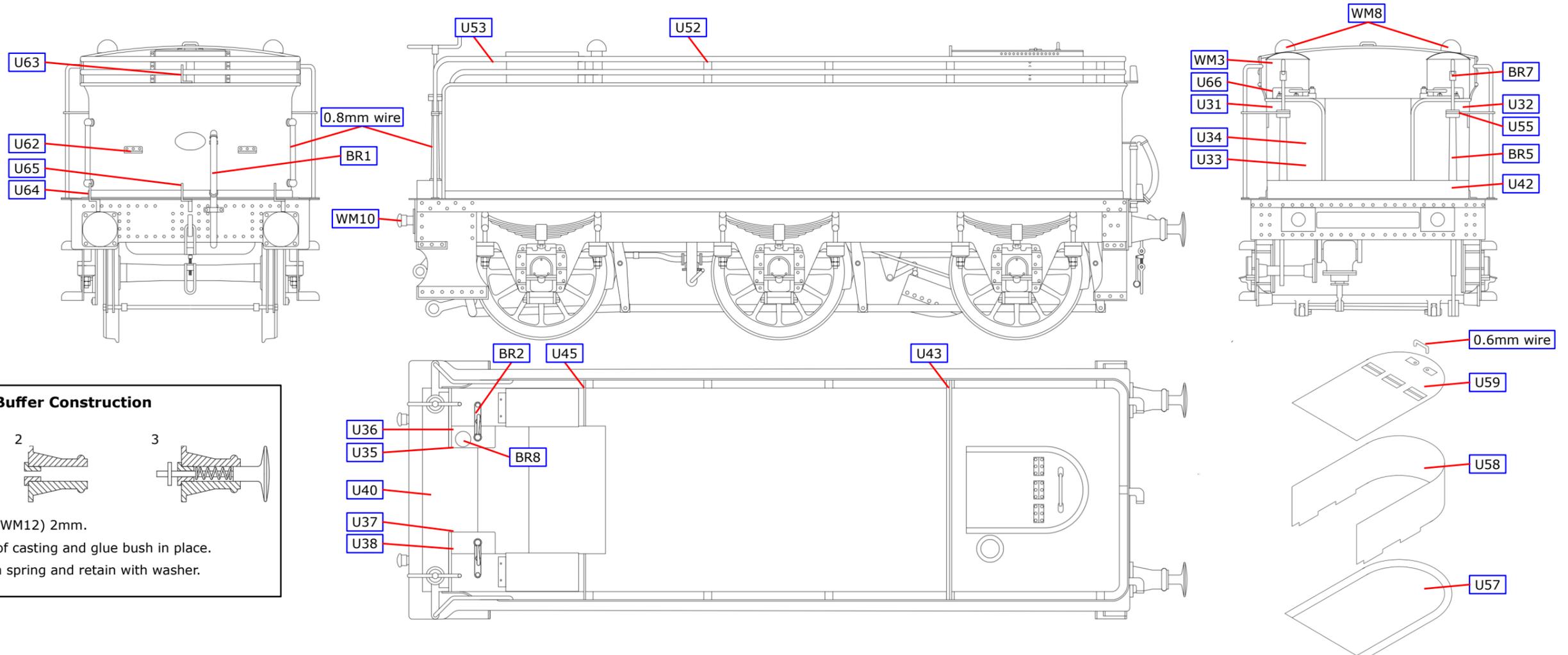


Fig 11. Detail 3.

## DETAIL 4

**Coal plates, wide footplate, raised footplate, combined water filler & scoop fountain, tank vents, repositioned sandboxes, identical toolboxes, curved front step, plate hornguide ties, extended handrails, fire iron bracket**

Fit the quadrant plates (U31 & U32) to the front of the tank and solder in place.

**Sandboxes.** Emboss all the rivets in the sandbox side and top (U35 & U36). Form the sandbox side to match the top, solder together and attach to the footplate on the left side behind the quadrant plate. Emboss the rivets in the casing side (U37), fold to shape and solder to the casing top (U38). Fit the casing to the right side of the coal hole behind the quadrant plate.

The raised footplate (U40) can be modified to accommodate the various sandbox and footplate height options using the half etched lines on the underside as a guide. Modify the footplate and fit using the supports (U41 & U42).

**Division & Coal Plates.** The alternate positions of the rear division plate and front coal plates are marked on the tank top overlay by small 'nicks' in the sides. Laminate the later division plate (U44) and then solder in place. The weather sheet supports (U60) are fixed to the front of the quadrant coal plates, left and right (U46 & U47). The coal plates can now be fixed in place.

**Toolboxes.** Fit the symmetric toolbox (WM3) to the right and the quadrant shaped toolbox (WM2) to the left as shown below. Fold and fit the toolbox to tank top brackets (U66) to the front face of the toolbox. The toolbox padlocks (U67) can be fitted now or glued on after painting to keep the brass finish.

**Brake and Water Standards.** The tall standards are for the later tenders with the raised footplate. Drill out the top of the brake and water scoop standards (BR6) to accept the top piece (BR7); solder the top piece in place. Attach the handles for the standards from 0.6mm wire. Fix the assembled standards in place.

**Fire Iron Tray & Bracket.** If appropriate emboss the rivets on the fire iron bracket base (U51) and solder in place as shown below. Drill the hole in the base through the tank and then solder the fire iron bracket (U50) in place from inside. Form the fire iron tray (U48) into a shallow 'U' section and fold the rear plate to 90°. Solder the spacers (U49) into the half etched slots and attach the complete tray as below.

**Handrails.** On the handrail brackets (U55) drill the 0.8mm holes for the handrail wire at the half etched dimple; note the brackets are handed. Fold along the half etched line and strengthen the fold with a fillet of solder. Fix the brackets over the standard and attach inside the sides. Fit the front handrails using 0.8mm wire. On the rebuilt tenders the wide mounted handrails use the brackets (U56) and attach them behind the coal plates. Fit the rear handrails from 0.8mm wire with two handrail knobs as shown.

**Combined Water Filler and Scoop Fountain.** Refer to Fig 11. Emboss the rivets on the combined water filler and scoop fountain sides (U58) and form to shape. Solder to the base (U57). Emboss the rivets on the top (U59). Make the handle from 0.6mm wire. Attach the top to the sides and then solder in place on the tank top. Fit the tank vents (WM8) behind the coal plates.

**Lamp Brackets.** Emboss the rivets on lamp brackets before folding to shape. The lower brackets are attached to the bufferbeam.

**Final Details.** Fit the sand box lid (BR8) to the top of the sandbox. Fit the water feed valve lever (BR2) to the tank top as shown below. Align the vacuum pipe (BR1) with the notch in the rear of the footplate. Solder in place. The steam heating pipe (BR3) fits in the bracket under buffer beam. The steam heating pipe tap handle (U68) fits on the lower spigot on the casting. Plastic pipe is supplied for both hoses and the steam heating pipe end piece (BR4) goes on the end of the pipe.

**Buffers.** Build the buffers as shown below and then fit to the buffer beam. Fit the front buffers (BR9).

No.	Description	Sheet	No.	Description	Sheet
U31	Left front quadrant plate	1	U51	Fire iron bracket base	2
U32	Right front quadrant plate	1	U55	Front handrail bracket to front of side (2)	3
U35	Later sandbox side	3	U56	Front handrail bracket to top of side (2)	2
U36	Later sandbox top	1	U57	Combined water filler and scoop fountain base	2
U37	Casing side	3	U58	Combined water filler and scoop fountain sides	3
U38	Casing top	1	U59	Combined water filler and scoop top	2
U40	Raised footplate	2	U60	Weather sheet support	1
U41	Raised footplate rear support	1	U62	Tank rear step (2)	1
U42	Raised footplate front and sides support	2	U63	Upper lamp bracket	2
U44	Later division plate lamination (2)	3	U64	Lower outer lamp bracket	2
U46	Later left quadrant coal plate	3	U65	Lower centre lamp bracket	2
U47	Later right quadrant coal plate	3	U66	Toolbox to tank top bracket (2)	1
U48	Fire iron tray	1	U67	Toolbox padlock (2)	2
U49	Fire iron tray spacers (2)	3	U68	Steam heating pipe tap handle	2
U50	Fire iron bracket	2			

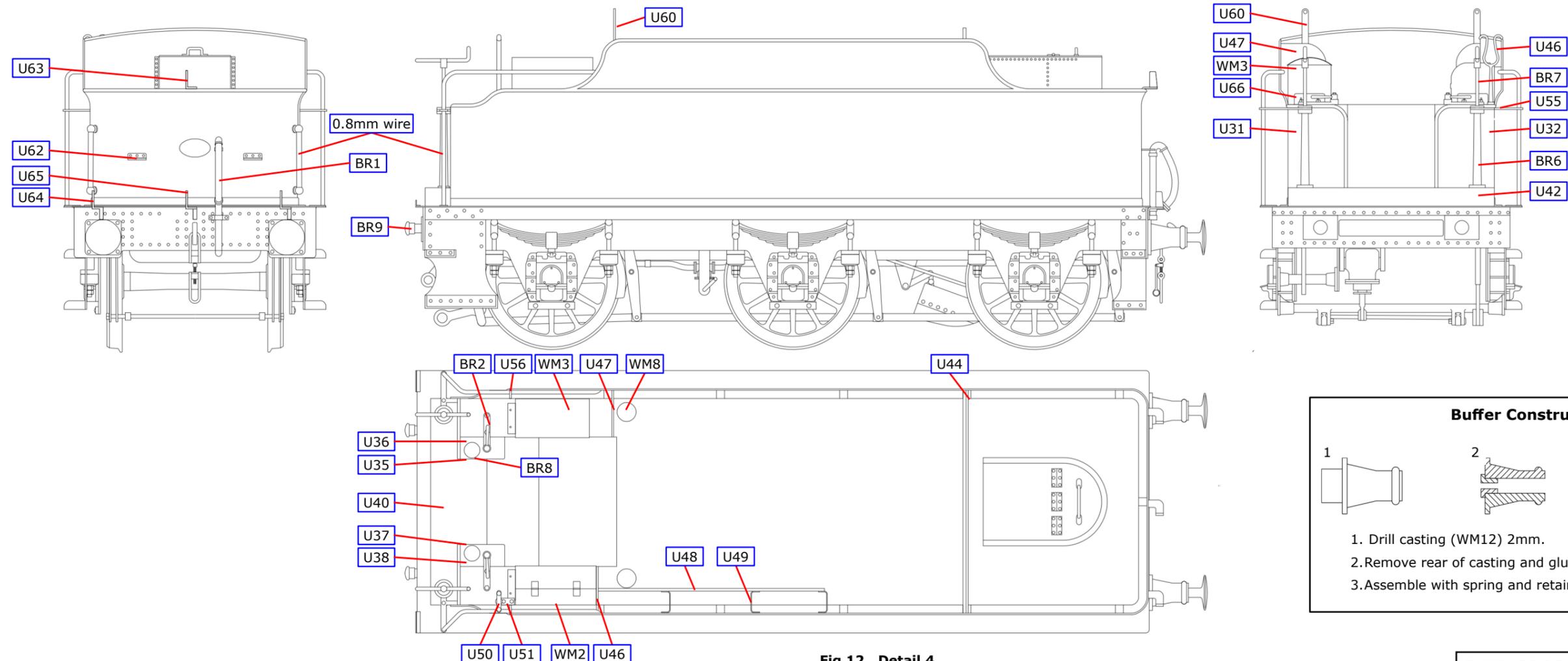


Fig 12. Detail 4

## DETAIL 5

Fit the quadrant plates (U31 & U32) to the front of the tank and solder in place.

**Sandboxes.** For the later sandboxes, first emboss all the rivets in the sandbox side and top (U35 & U36). Form the sandbox side to match the top, solder together and attach to the footplate on the left side behind the quadrant plate. Emboss the rivets in the casing side (U37), fold to shape and solder to the casing top (U38). Fit the casing to the right side of the coal hole behind the quadrant plate.

The raised footplate (U40) can be modified to accommodate the various sandbox and footplate height options using the half etched lines on the underside as a guide. Modify the footplate and fit using the supports (U41 & U42).

**Division & Coal Plates.** The alternate positions of the rear division plate and front coal plates are marked on the tank top overlay by small 'nicks' in the sides. Laminate the later division plate (U44) and then solder in place. The weather sheet supports (U60) are fixed to the front of the quadrant coal plates, left and right (U46 & U47). The coal plates can now be fixed in place.

**Toolboxes.** Fit the symmetric toolbox (WM3) to the right and the quadrant shaped toolbox (WM2) to the left as shown below. Fold and fit the toolbox to tank top brackets (U66) to the front face of the toolbox. The toolbox padlocks (U67) can be fitted now or glued on after painting to keep the brass finish.

**Brake and Water Standards.** The tall standards are for the later tenders with the raised footplate. Drill out the top of the brake and water scoop standards (B5) to accept the top piece (BR7); solder the top piece in place. Attach the handles for the standards from 0.6 mm wire. Fix the assembled standards in place.

**Fire Iron Tray & Bracket.** If appropriate emboss the rivets on the fire iron bracket base (U51) and solder in place as shown below. Drill the hole in the base through the tank and then solder the fire iron bracket (U62) in place from inside. Form the fire iron tray (U48) into a shallow 'U' section and fold the rear plate to 90°. Solder the spacers (U49) into the half etched slots and attach the complete tray as below.

**Handrails.** Fold the handrail brackets (U55), note they are handed, along the half etched line and strengthen the fold with a fillet of solder. Fix the brackets over the standards and attach inside the sides. Fit the front handrails using 0.8mm wire. If the coal rail extensions have been fitted the handrail is fixed to the extension on the small half etched recess. On the rebuilt tenders the wide mounted handrails use the brackets (U55) and attach them behind the coal plates. Fit the rear handrails from 0.8mm wire with two handrail knobs as shown.

**Water Pick-up Dome.** The water dome base (U61) should be soldered to the tank top centred over the pre-drilled hole. Fit the cast dome (WM5) through the hole. Fit the water filler casting (WM4).

**Lamp Brackets.** Emboss the rivets on lamp brackets (U65, U66 & U67) before folding to shape. The lower brackets are attached to the bufferbeam.

**Final Details.** Fit the sand box lid (BR8) to the top of the sandbox. Fit the water feed valve lever (BR2) to the tank top as shown below. Align the vacuum pipe (BR1) with the notch in the rear of the footplate. Solder in place. The steam heating pipe (BR3) fits in the bracket under the buffer beam. The steam heating pipe tap handle (U68) fits on the lower spigot on the casting. Plastic pipe is supplied for both hoses and the steam heating pipe end piece (BR4) goes on the end of the pipe.

**Buffers.** Build the buffers as shown below and then fit to the buffer beam. Fit the front buffers (BR9).

No.	Description	Sheet	No.	Description	Sheet
U31	Left front quadrant plate	1	U50	Fire iron bracket	2
U32	Right front quadrant plate	1	U51	Fire iron bracket base	2
U35	Later sandbox side	3	U55	Front handrail bracket to front of side (2)	3
U36	Later sandbox top	1	U56	Front handrail bracket to top of side (2)	2
U38	Casing side	3	U60	Weather sheet support	1
U39	Casing top	1	U61	Water dome base	3
U40	Raised footplate	2	U62	Tank rear step (2)	1
U41	Raised footplate rear support	1	U63	Upper lamp bracket	2
U42	Raised footplate front and sides support	2	U64	Lower outer lamp bracket	2
U44	Later division plate lamination (2)	3	U65	Lower centre lamp bracket	2
U46	Later left quadrant coal plate	3	U66	Toolbox to tank top bracket (2)	1
U47	Later right quadrant coal plate	3	U67	Toolbox padlock (2)	2
U48	Fire iron tray	1	U68	Steam heating pipe tap handle	2
U49	Fire iron tray spacers (2)	3			

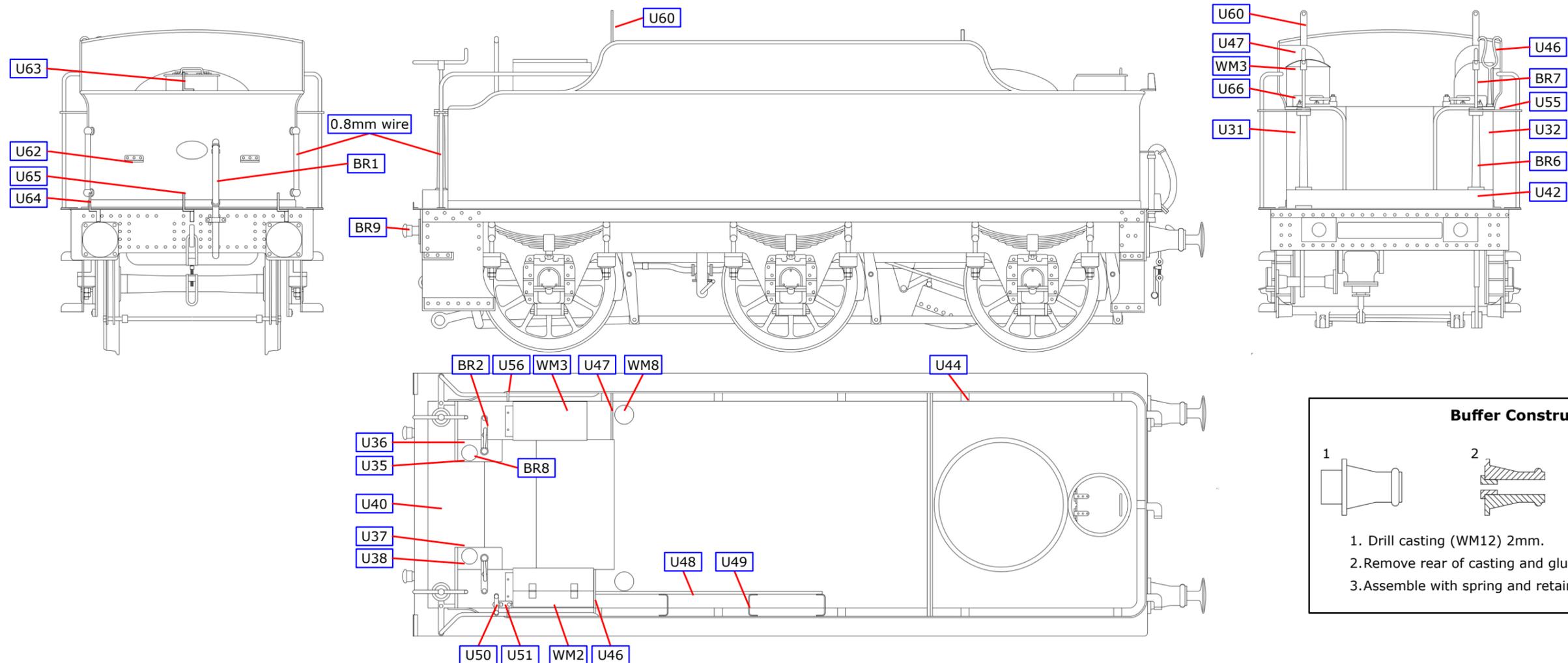


Fig 13. Detail 5

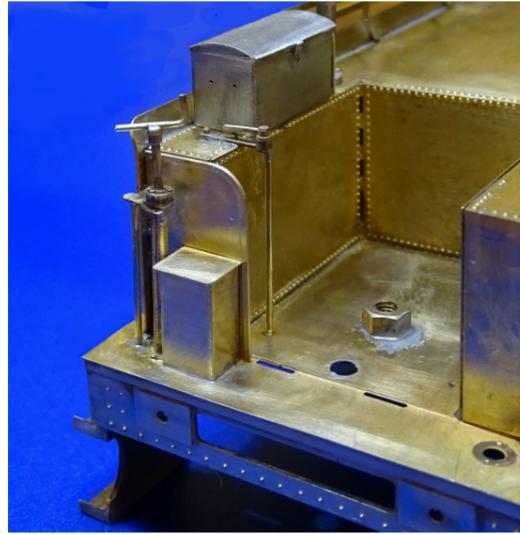


Fig 14. Detail of the early narrow footplate with front sandboxes.

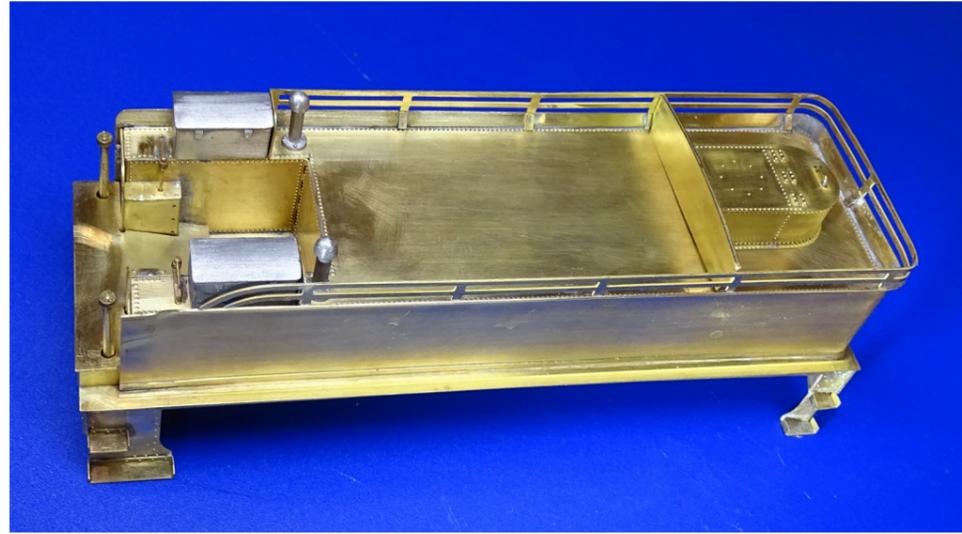


Fig 15 & 16. Narrow footplate tender with coal rails. The right side has the high front plate but is missing the coal rail extensions. Water scoop fitted with combined water scoop/water filler. Raised footplate. Identical toolboxes and repositioned sandboxes.

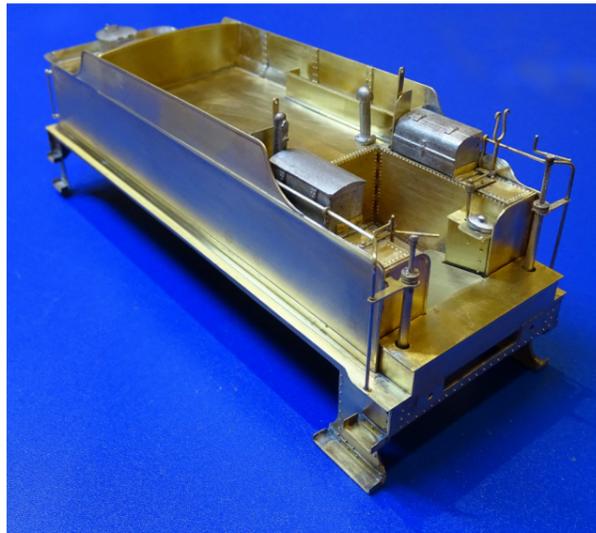
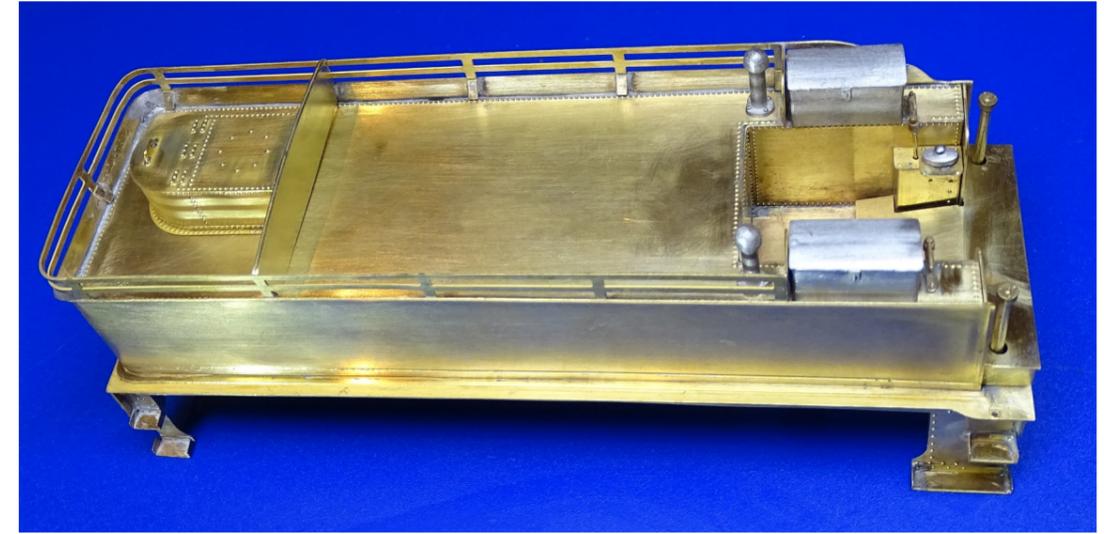


Fig 17, 18 & 19. Widened footplate tender with coal plates. Raised footplate with repositioned sandboxes. Separate scoop dome and water filler. Quadrant toolbox. Water gauge. Fire iron tunnel and fire iron bracket.

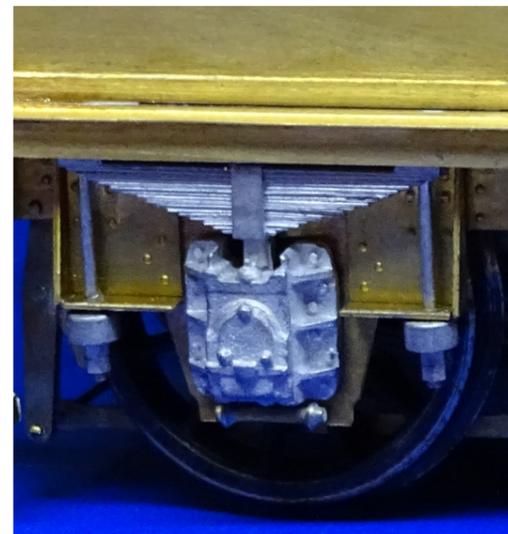
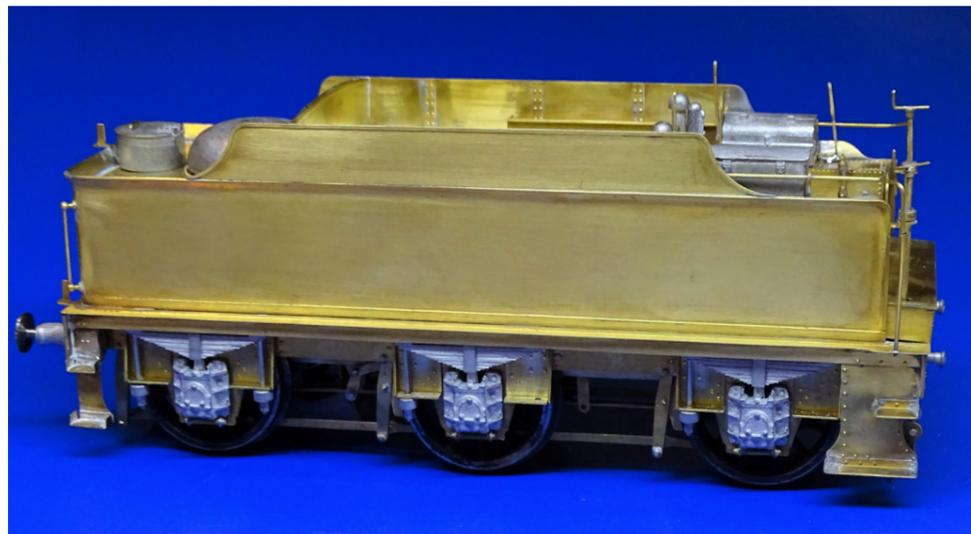
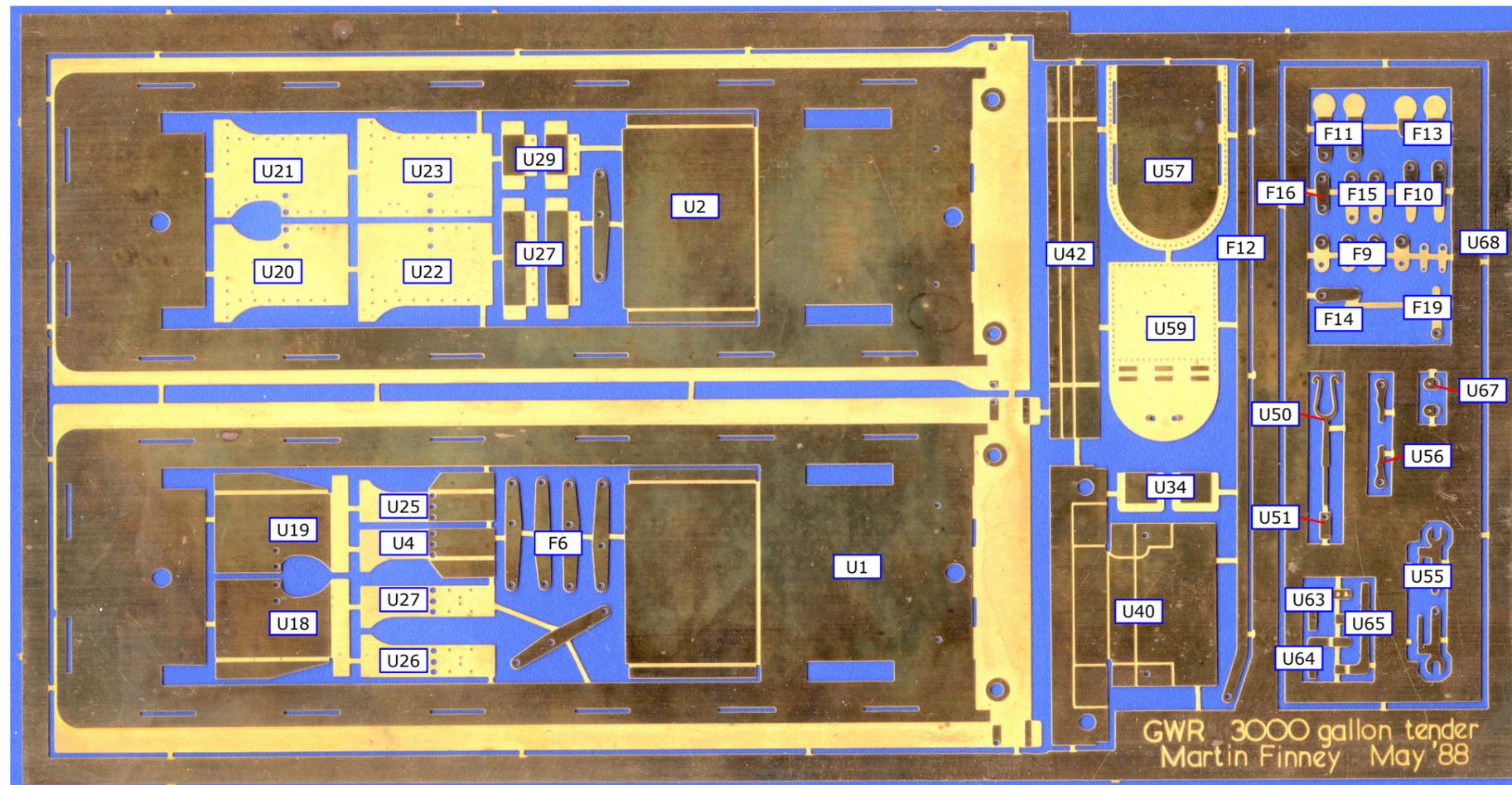
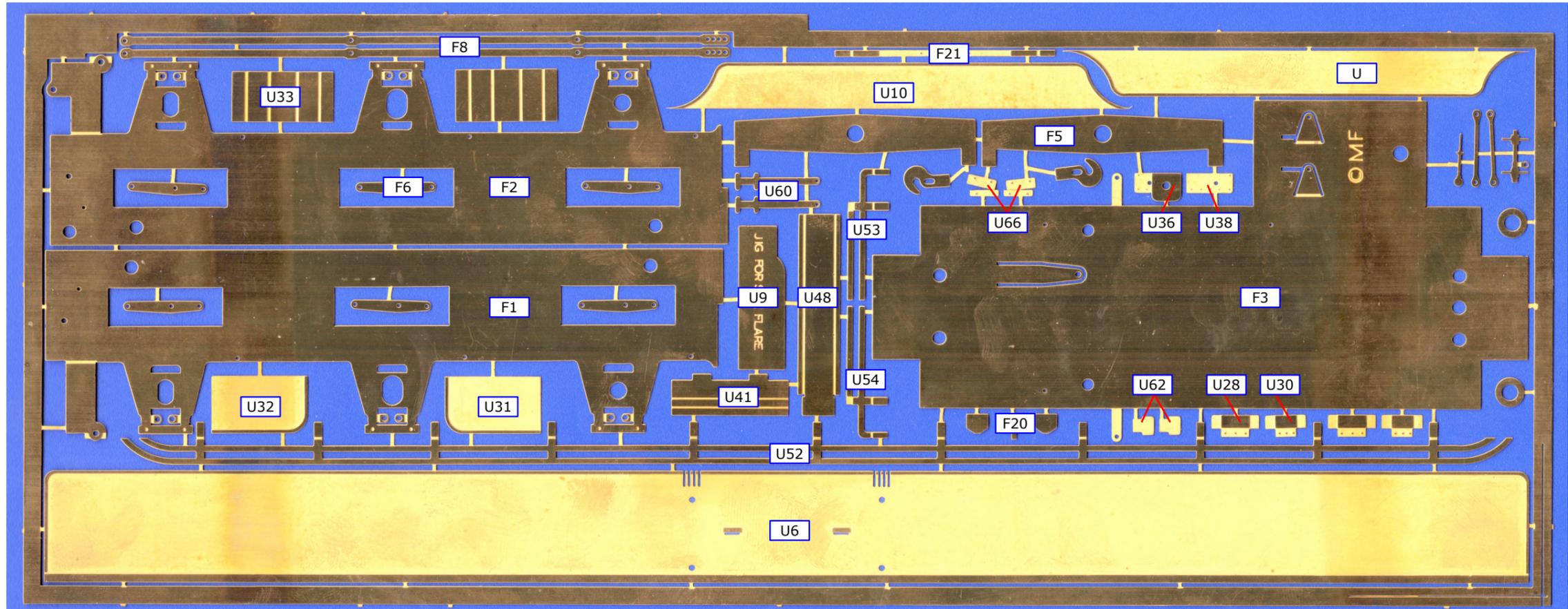


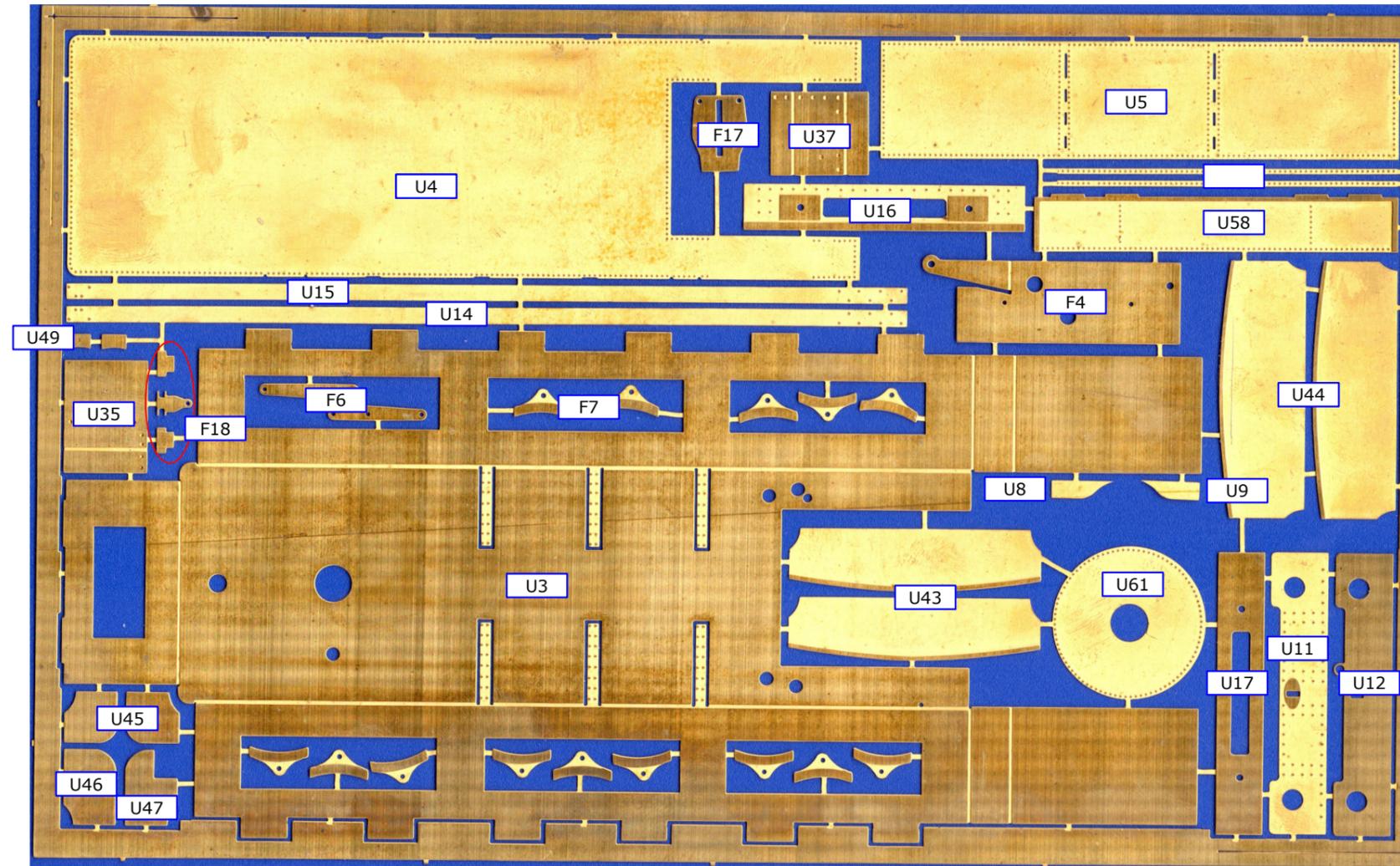
Fig 20, 21 & 22. Views of a complete late coal plate tender. The right hand side has been fitted with the long spring hangers mini kit. (Yes, a damper has fallen off!)

ETCH SHEET 1 & 2



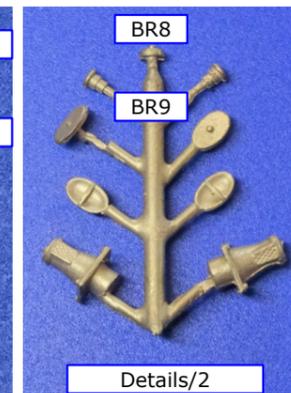
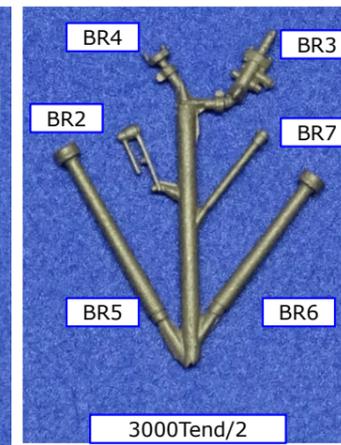
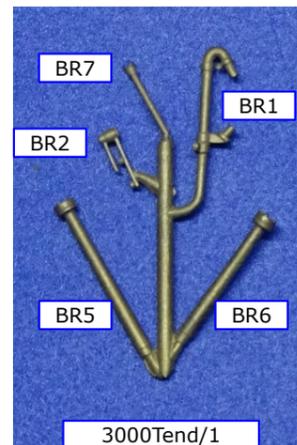
GWR 3000 gallon tender  
Martin Finney May '88

## ETCH SHEET 3 & CASTINGS



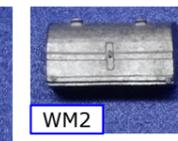
### BRASS CASTINGS

BR1	Vacuum pipe	3000Tend/1
BR2	Water feed valve lever (2)	3000Tend/1&2
BR3	Steam heating pipe	3000Tend/2
BR4	Steam heating pipe end piece	3000Tend/2
BR5	Tall brake and water standard (2)	3000Tend/1&2
BR6	Short brake and water standard (2)	3000Tend/1&2
BR7	Brake standard top section (2)	3000Tend/1&2
BR8	Sandbox lid	Details/2
BR9	Front buffer	Details/2



### WHITEMETAL CASTINGS

WM1	Axlebox & spring (6)
WM2	Quadrant shaped toolbox
WM3	Symmetric toolbox (2)
WM4	Water filler
WM5	Water pickup dome
WM6	Water pickup scoop, two parts
WM7	Water level gauge
WM8	Tank vent (2)
WM9	Brake shoe (6)
WM10	Steam brake cylinder
WM11	Overflow fountain
WM12	Dean taper buffers (2)



**DUE TO SUPPLY ISSUES, SOME PARTS MIGHT BE SUPPLIED AS WHITE METAL**

### OTHER COMPONENTS

- 2 mm bore small top hat bearing (4)
- 2 mm bore large top hat bearing (2)
- 6BA X 5/16" Brass screw (4)
- 6BA nut (4)
- Short handrail knob (4)
- Buffer, bush, washer & spring (2)
- Vacuum & steam pipe hose (2)

- 1/8" brass wire for compensation beam pivot
- 5/32" outside diameter brass tube for compensation beam
- 0.6mm brass wire
- 0.8mm brass wire
- 1.2mm brass wire for tie rods
- 1.6mm brass wire

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