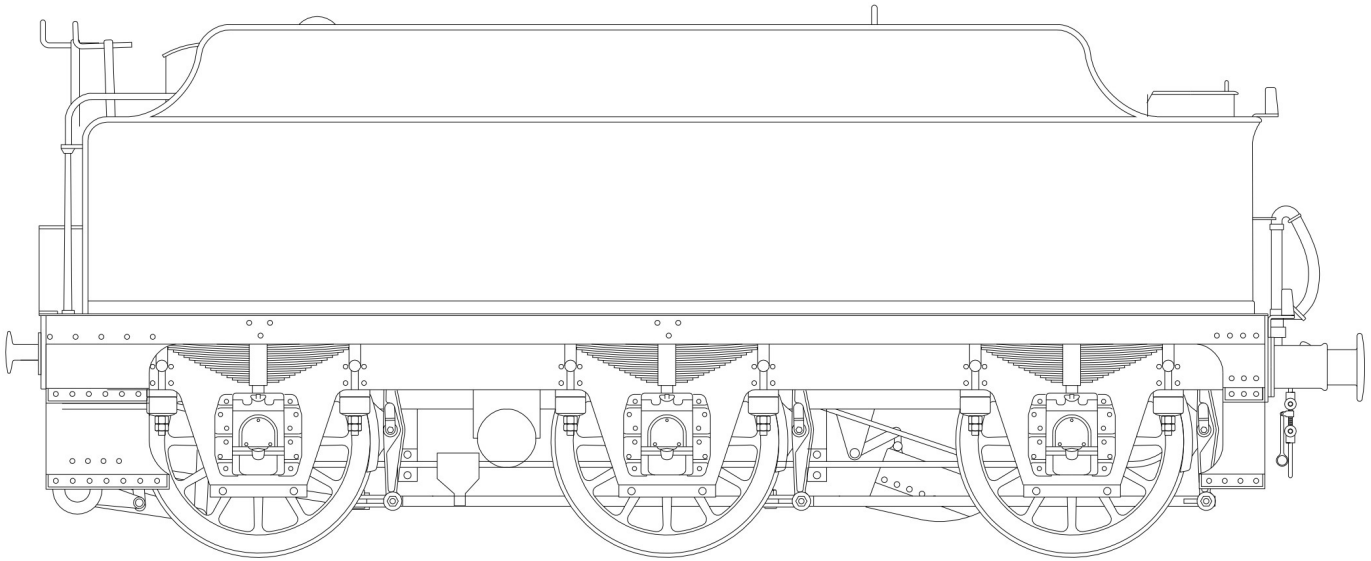
GWR 3500G TENDER



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

Between 1905 and 1926 the GWR built 649 tenders with a water capacity of 3500 gallons, all to basically the same design. They had a coal capacity of 7 tons, a wheelbase of 15 feet, and weighed 40T 0C full and 18T 5C empty, and were built under 45 lots as follows:

Lot	Numbers	Dates	A79	1786-1795	11/10-3/11	A91	1931-1940	5/14-6/14	A103	2157-2180	4/21-12/22
A65	1632-1641	6/05-10/05	A80	1796-1800	4/11-6/11	A92	1941-1960	7/14-5/15	A104	2181	7/19
A66	1642-1643	10/05	A81	1801-1820	6/11-11/11	A93	1961-1980	7/15-7/16	A106	2202-2221	3/23-12/23
A67	1644-1653	3/06-4/0	A82	1821-1830	12/11-2/12	A94	1981-2000	6/16-12/16	A107	2230-2241	5/22-3/23
A68	1654	5/06	A83	1831-1840	12/11	A95	2001-2010	12/16-6/17	A108	2312-2346	4/21-1/22
A70	1670-1684	7/06-9/06	A84	1841-1850	11/12	A96	2011-2030	6/17-11/17	A109	2366-2373	4/22-9/23
A72	1695-1704	11/06-12/06	A85	1851-1870	7/12-11/13	A97	2031-2050	12/17-6/18	A110	2347-2361	12/21-4/22
A73	1705-1724	12/06-1/07	A86	1871-1880	5/12-7/12	A98	2051-2070	3/19-8/19	A111	2222-2229	
A74	1725-1734	1/07-4/07	A87	1881-1900	11/13-4/14	A99	2071-2090	8/19-10/20		2362-2363	12/23-4/25
A75	1735-1754	6/07-10/07	A88	1901-1910	1/13-3/13	A100	2091-2118	7/18-3/19	A112	2374-2383	7/25-1/26
A77	1756-1765	2/08	A89	1911-1920	3/13-7/13	A101	2119-2128	11/20-1/21			
A78	1766-1785	4/08-8/08	A90	1921-1930	7/13-9/13	A102	2129-2156	11/20-4/21			

Except for Lot A112, these were Standard Churchward tenders and were attached to all Churchward's standard tender engines and to some engines of all the inside cylinder 4-4-O classes. Later Collett used them for his Castles, Halls, Granges and Manors and much later the 2251 class.

The kit is based on Swindon drawings 72342 (8/24) and 27459 (5/10). Great Western Engines (Vol. 2) by J.H.Russell contains many useful photographs.

MODIFICATION/VARIATIONS POSSIBLE FROM THE KIT.

There were many modifications made to the basic design during the 21 years over which the tenders were in production and many more subsequent changes as they were rebuilt.

The early Lots were similar to the contemporary 3000 gallon tenders. They had a short, large diameter transverse vacuum tank, short coal plates, small toolboxes, short vents, the combined water filler/scoop fountain and a tall water level gauge. (Figs. 3,4,5 & 13)

From about Lot A78 the hybrid water filler/scoop dome was introduced. From about Lot A82 tenders were built with a short, large diameter longitudinal vacuum tank, longer coal plates, larger toolboxes, larger vents, the hybrid water filler/scoop dome and a shorter water level gauge. (Figs. 6,7 & 14). Later the separate dome/filler was introduced (Fig 15).

Subsequent modifications included: Swapping the vacuum and steam heating pipes to opposite sides on the rear buffer beam with a characteristic cross-over of the pipes under the footplate at the rear. This may have been done at the same time as long, small diameter transverse vacuum tanks were fitted from the middle 1920's. (Figs 8 & 9).

Rebuilding early tenders with long coal plates etc. All of these variations/modifications are allowed for in the kit. Before starting construction we urge you to identify, as far as possible, from photographs, all the features your model will have.

MODIFICATIONS/VARIATIONS NOT POSSIBLE INCLUDE:

From around Lot A97 the tank rivets changed from flush to snap head. (unless you emboss over 500 rivets!)
Lot A112 - Intermediate tenders. Variations in spring and spring hanger arrangements. Tenders fitted with new frames to Collett's design.

COMPONENTS NOT PROVIDED

Wheel 4′ 1½" diameter, 12 spoke, axle with 2 mm diameter extensions (3) Slater's Ref 7849MF

CONSTRUCTING THE CHASSIS

Start by embossing the rivets on the side frames then fold the side frames (F1 & F2) at 90° along the half etched lines. If you are using the small vacuum tank remove the half etched brackets (for the large tank) which are on the lower edge of each frame. Check that the bearings fit in appropriate slots (Fig 1). carefully opening the slots with a needle file if necessary and then solder the rear pinpoint bearings in place. Emboss the rivets in the hornguide ties before folding them over with the fold lines on the outside. 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. Do not fold over the plate for attaching the small vacuum tank yet.

Construct the compensation beam by soldering the two halves (F4) together. The height of the beam needs increasing by adding a small 'foot' of scrap .018" brass (from the fret) to each end of the beam. Cut the piece of 5/32" brass tubing to fit between the sides of the well tank and solder the beam on it, centrally. Fit the beam inside the well tank using the piece of 1/8" brass wire as the pivot.

If you are fitting the small vacuum tank attach it now using the straps (F5), before folding over the mounting plate and soldering it in position.

No.	Description	Sheet
F1	Left frame	1
F2	Right frame	1
F3	Well tank	3
F4	Compensation beams (2)	2
F5	Vacuum tank strap (2)	3
F6	Wheel side play washer	3
F7	Front plate	3

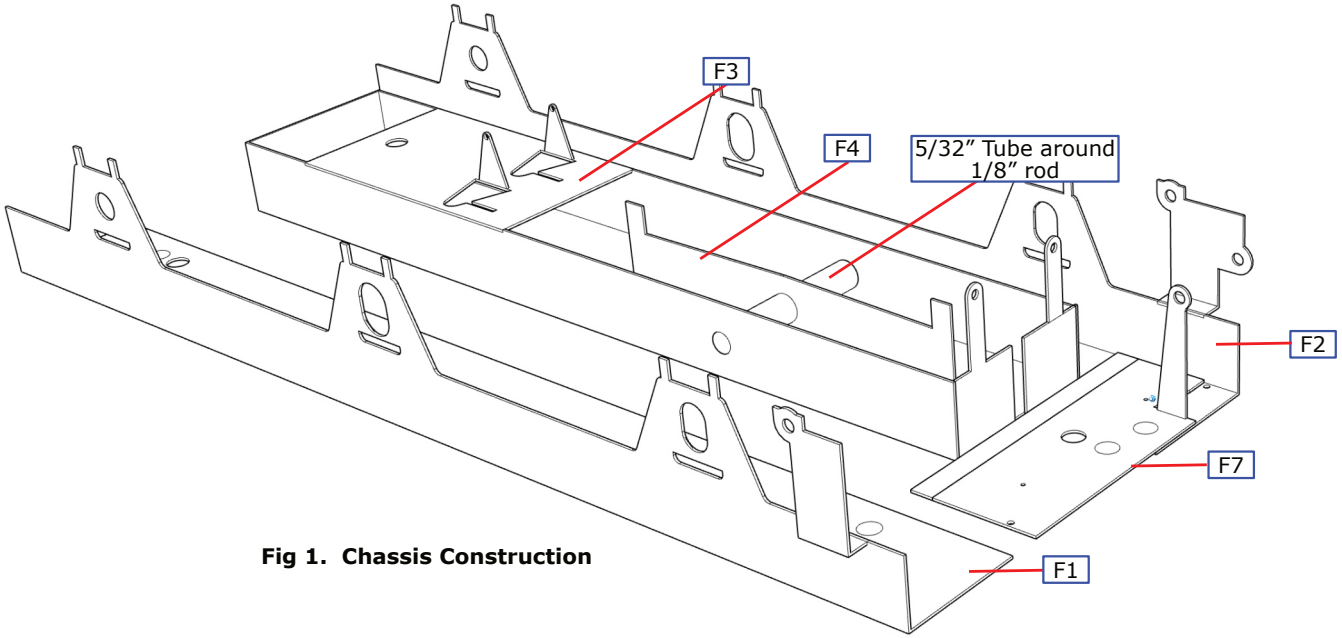


Fig 1. Chassis Construction

Assemble the side frames and well tank bolting them together with 6BA 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 the side play on the centre axle can be limited by using the wheel side play washers (F6).

When you are satisfied with the mechanical performance of the chassis carefully solder the frames to the well tank, avoiding soldering the bolts, then remove the bolts and complete the soldering.

WATER SCOOP

Water Scoop. (Fig 2.) Attach the water scoop front plate (F8) to the front of the water scoop casting (WM7), first bending it through approximately 10° along the half etched line. Make a hinge from a piece of wire. Fold down the brackets for the rear scoop cross shaft and solder in place the water scoop bracket overlay (F9). Now attach the water scoop to the well tank and 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 attaching 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 (F10) at the same time.

No.	Description	Sheet
F8	Water scoop front plate	2
F9	Water scoop bracket overlay	1
F10	Scoop rear cross shaft to scoop lever	1
F11	Scoop standard to cross shaft lever (2)	1
F12	Scoop actuating rod lever (2)	1
F13	Scoop rear cross shaft lever	1
F14	Water scoop actuating rod	3

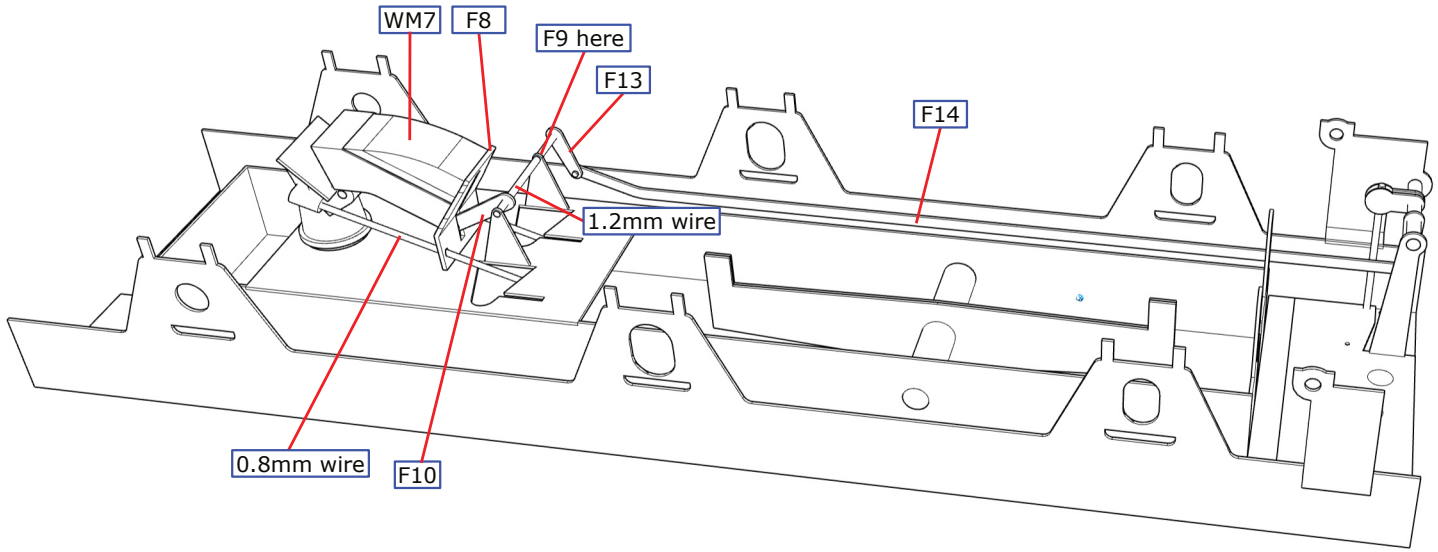


Fig 2. Scoop Mechanism

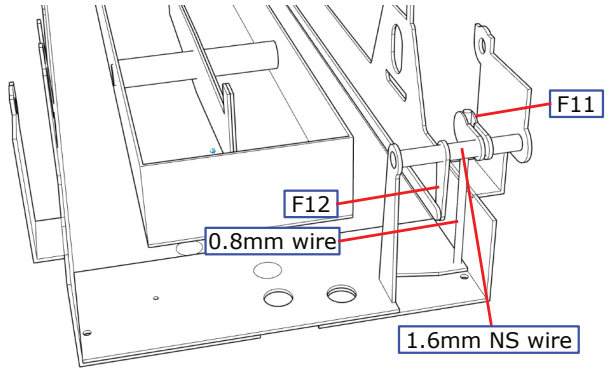


Fig 3. Scoop Actuators

Scoop Operating Mechanism. Refer to Fig 2 & 3. The front cross shaft is a 14mm piece of 1.6mm nickel silver wire. Assemble the scoop standard to cross shaft levers (F11) and the front cross shaft actuating rod lever (F12) 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.

Slide the scoop rear cross shaft lever onto the cross shaft. 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 (F13). 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 on page 7.

BRAKES

Brake Operating Mechanism. (Fig 4). The brake shaft is made from 1.6mm wire and should be cut to just longer than the width over the frames. Thread the two sets of brake pull rod lever laminations (F15), the brake cylinder to cross shaft lever laminations (F16) and the brake standard to cross shaft lever laminations (F17) 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 brake standard to cross shaft levers to the wire and to the shaft. Place a length of 1.2mm wire into the hole in the chassis to represent the brake piston rod. Solder the two brake cylinder to cross shaft levers either side of the wire and then solder them to the shaft. Don't solder the pull rod levers (F15) to the cross shaft yet.

Solder the brake shoes (F19) together, back to back, (or use the castings part WM14) and solder them between the hangers (F20) 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 (F21 & F22) with the front pull rods inside the rear pull rods and attach them to the brake pull rod levers using pieces of 0.8mm wire as pins.

No.	Description	Sheet
F15	Brake pull rod levers (4)	1
F16	Brake cylinder to cross shaft lever (2)	1
F17	Brake standard to cross shaft lever (2)	1
F18	Vacuum pipe drip trap - (3 pieces)	3
F19	Brake shoes (12)	1 & 3
F20	Brake hangers (12)	3
F21	Brake rear pull rods (2)	2
F22	Brake front pull rods (2)	2

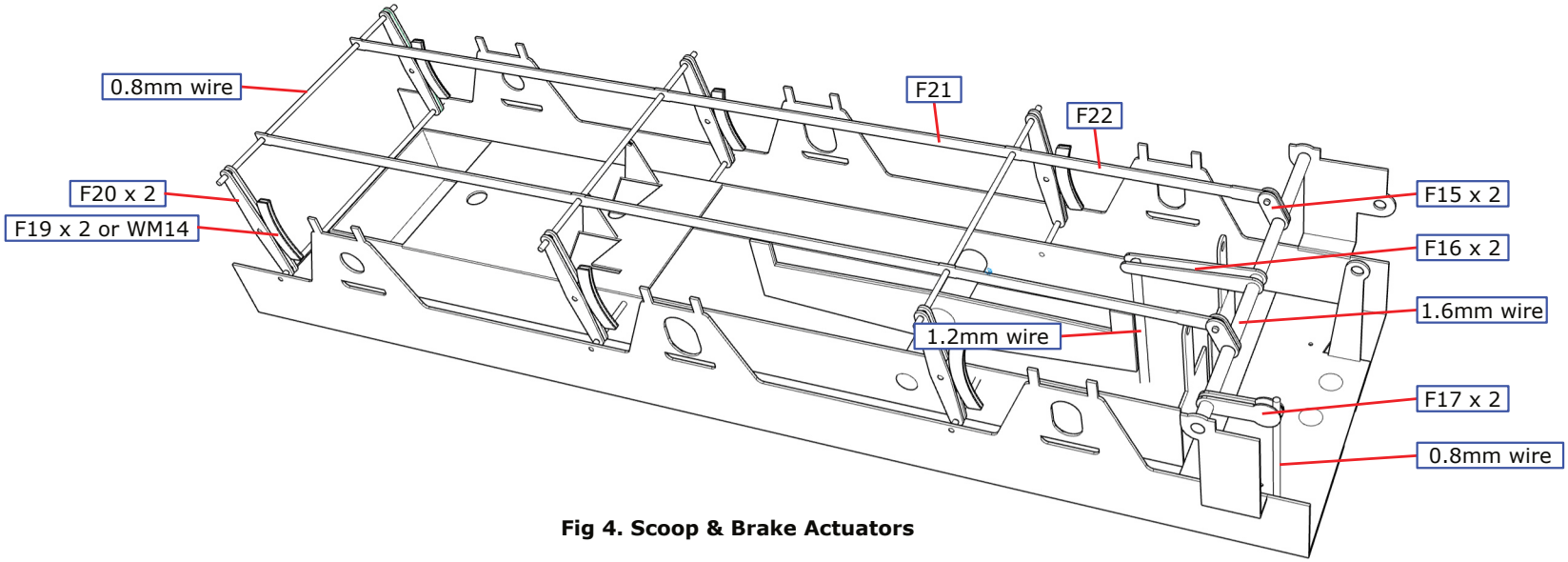


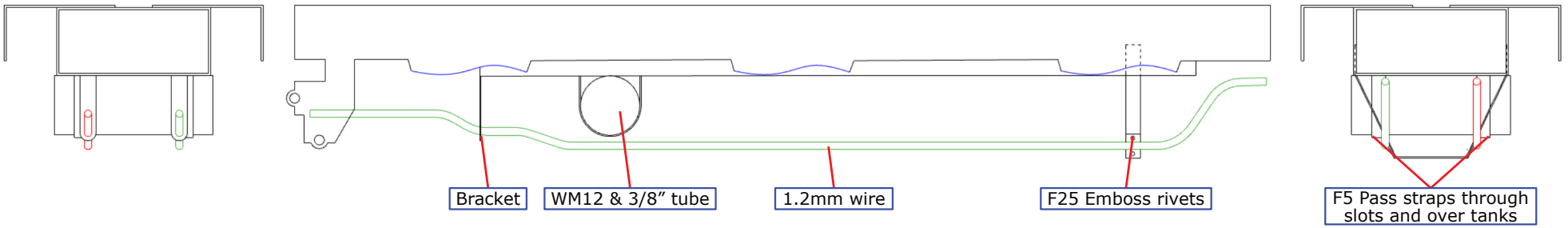
Fig 4. Scoop & Brake Actuators

PIPES

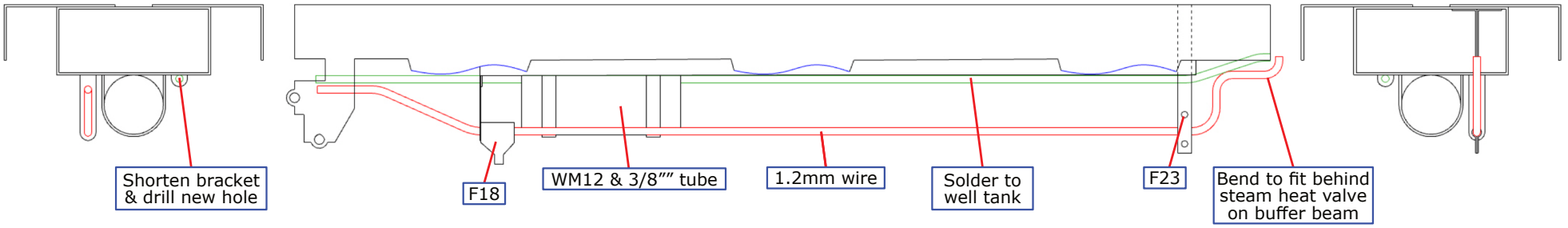
Form the sand pipes from 1.2mm wire and attach them through the hole in the front plate. Attach the axlebox castings (WM1).

If required, solder together the 3 pieces (F18) to make the vacuum pipe drip trap. Drill out the small holes on either side to fit 1.2 mm wire. Construct the vacuum and steam heating pipes as shown in Fig 5.

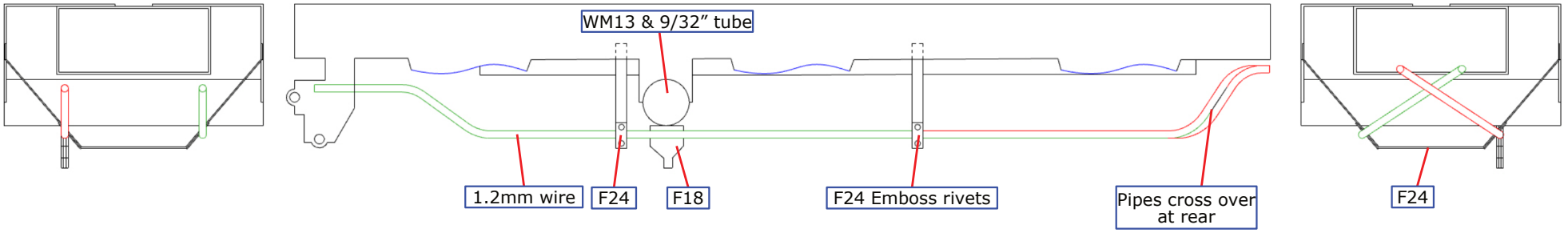
No.	Description	Sheet
F23	Vacuum pipe rear bracket	3
F24	Frame pipe bracket (2)	3
F25	Well tank pipe bracket	3



Early Transverse Vacuum Tank



Longitudinal Vacuum Tank



Late Transverse Vacuum Tank

Fig 5. Steam Heat & Vacuum Pipes

CONSTRUCTING THE BODY 1

Fold up the sides of the front step treads on the footplate (U1), as below. Now fold, at right angles, the two tabs on either side of the coal space. Solder a 6BA nut above the body fixing holes at the front and back of the footplate.

No.	Description	Sheet
U1	Footplate	2
U2	Tank former	3
U3	Tank top overlay	2
U4	Sides and back wrapper	3
U5	Jig for side plate flare	1

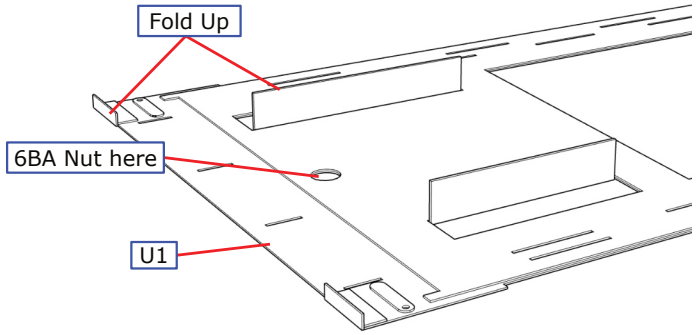


Fig 6. Footplate Preparation

If your tender is to have the original, short, coal plates then remove the coal plate brackets from the tank former (U2). 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 (U3) to the tank former. Drill out holes from inside the tank for water filler, dome, vents, water level gauge and fire iron bracket having first determined from the appropriate GA which holes are needed and using the holes in the former as a guide.

Fit the tank former to the footplate, fitting the tabs through the appropriate slots. Check that the assembly is square and that the footplate is flat before soldering it together. Bend down the sloping rear of the coal space (the bend should be curved not sharp) and solder to the footplate and the coal space sides.

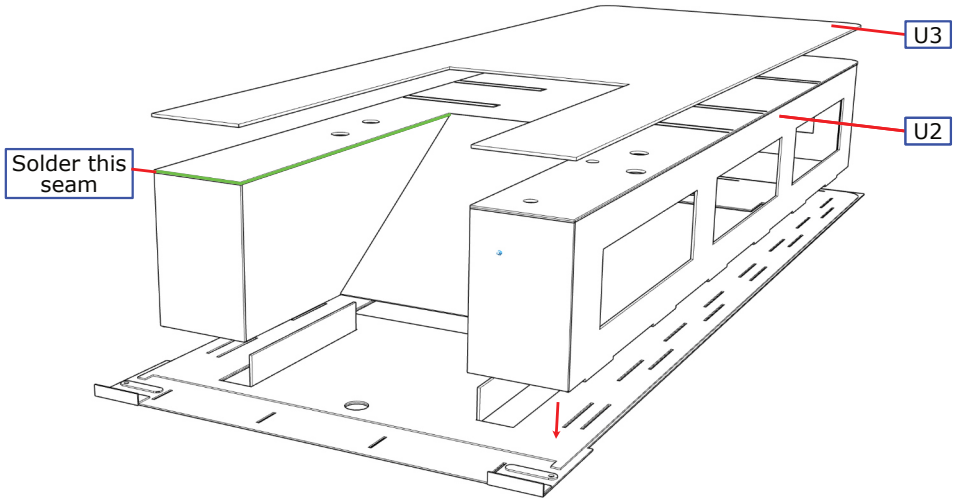


Fig 7. Basic Construction

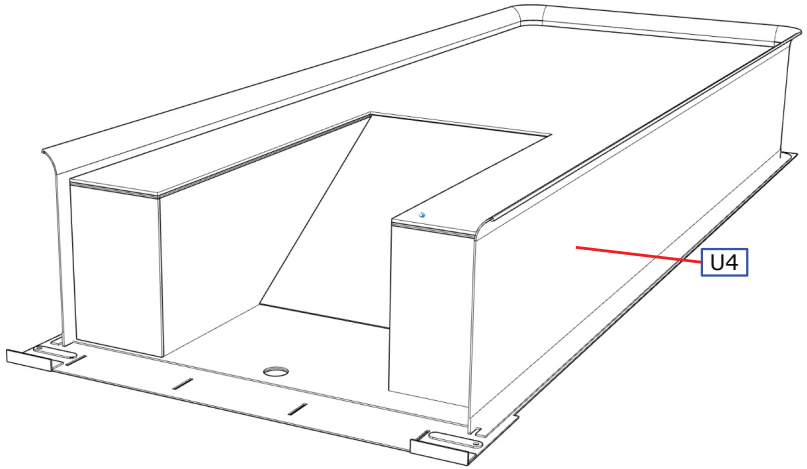


Fig 8. Tank Wrapper

Emboss the rivets for the rear step brackets on the sides and back wrapper (U4). Carefully form the flare in the sides and back wrapper by bending around a rod of suitable diameter (5mm), checking with the jig (U5). 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.

CONSTRUCTING THE BODY 2

Early Coal Plates. If the early side coal plates (U8) are being used then fit three coal plate brackets (U7) on each. Now fit the coal plates.

Later Coal Plates. If the later side coal plates (U6) are to be fitted, shape the coal plate brackets and solder them to the flare and add the three forward coal plate brackets (U7) locating them in the small notches in the tank top overlay. Now fit the coal plates.

Emboss the rivets in the sandbox (U9) and fold to shape. Solder in place on the footplate level with the front of the tank. Add the sandbox top (U10). Emboss the rivets in the casing side (U11) and fold to shape. Solder in place on the footplate level with the front of the tank. Add the casing top (U12). Solder in place the front quadrant plates (U13 & U14)), locating them in the slots in the footplate. Fit the water feed valve handles, left and right (BR4 & BR5). See Fig 15, 17, or 19.

Fit the raised footplate supports (U16) locating them in the slots in the footplate. Depending on the height of footplate chosen the raised footplate (U15) will need shortening along its back edge until it fits in place with the rearmost section horizontal and lower than the front.

No.	Description	Sheet
U6	Later side coal plate (long) (2)	2
U7	Coal plate brackets (8)	3
U8	Early side coal plate (short) (2)	1
U9	Sandbox side	1
U10	Sandbox top	3
U11	Casing side	1
U12	Casing top	3
U13	Left front quadrant plate	2
U14	Right front quadrant plate	2
U15	Raised footplate	1
U16	Raised footplate supports, 3 heights (4)	2

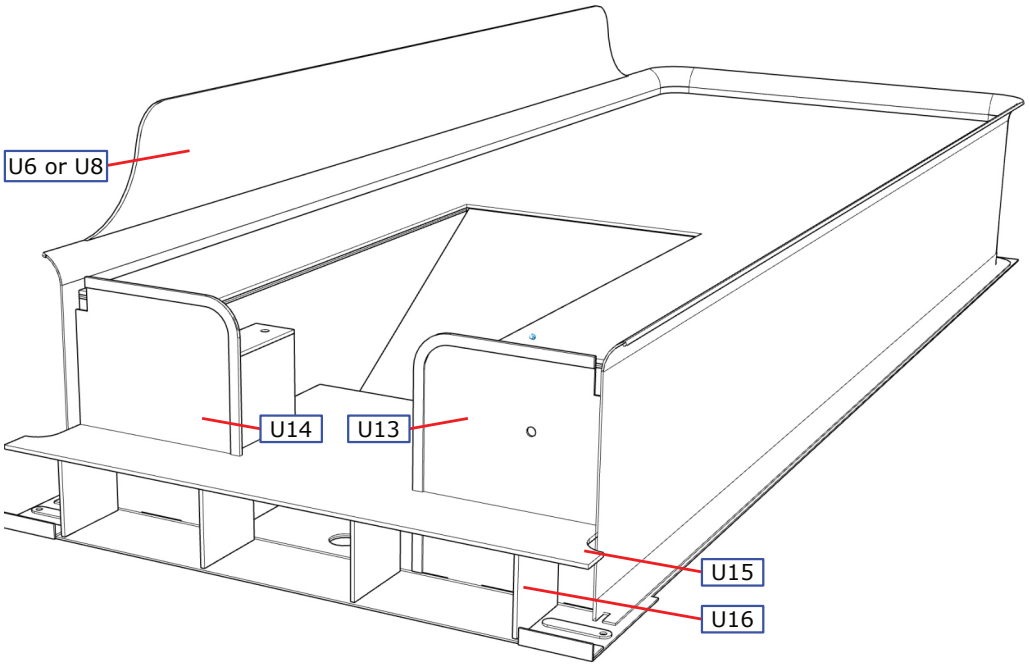


Fig 9. Raised Footplate Construction

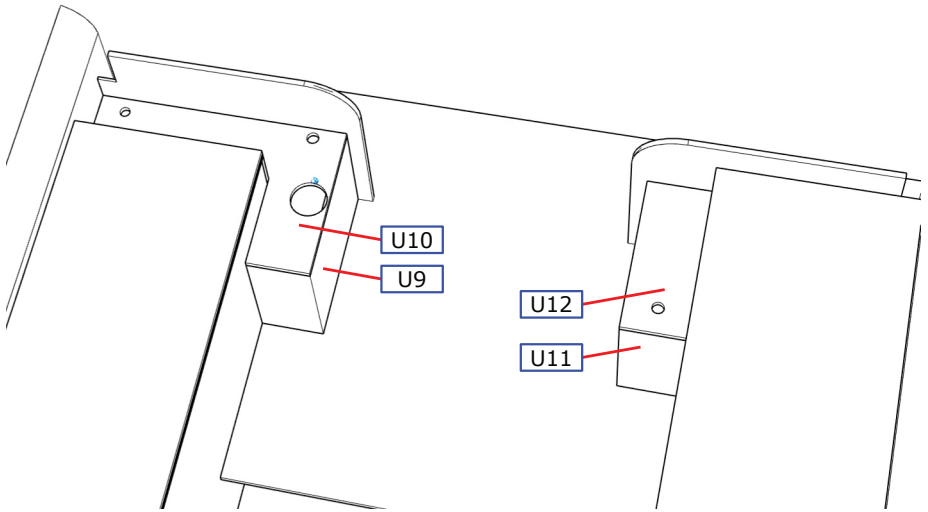


Fig 10. Sandbox and Casing Construction

STEPS & SIDE SHEETS

File flush any projecting tabs on the underside of the footplate. Emboss the two rivets on the coupling hook base on the rear buffer beam overlay (U18) and then solder it to the rear buffer beam (U17). Solder together the two coupling hook laminations (U19 and attach to the rear bufferbeam. Solder the rear bufferbeam in place allowing the footplate to overhang very slightly. Emboss the rivets on the front buffer beam overlay (U21) and then solder the overlay to the front buffer beam (U20). Solder the complete front bufferbeam in place.

Fold the valences, left and right (U22 & U23) to make an angle section and solder on the valence overlays, left and right (U24 & U25); the overlays are handed, see the rivet pattern. Now solder the valences in place locating the tabs in the slots in the footplate.

No.	Description	Sheet
U17	Rear buffer beam	2
U18	Rear buffer beam overlay	2
U19	Coupling hook laminations (2)	1
U20	Front buffer beam	2
U21	Front buffer beam overlay	2
U22	Left footplate valance	1
U23	Right footplate valance	1
U24	Left valance overlay	2
U25	Right valance overlay	2
U26	Left front step	3
U27	Right front step	3
U28	Left front step overlay	3
U29	Right front step overlay	3
U30	Left rear step	2
U31	Right rear step	2
U32	Left rear step overlay	3
U33	Right rear step overlay	3
U34	Front lower step tread (2)	2
U35	Front upper step tread (2)	2
U36	Rear lower step tread (2)	2
U37	Rear upper step tread (2)	2
U38	Tank rear step (2)	1

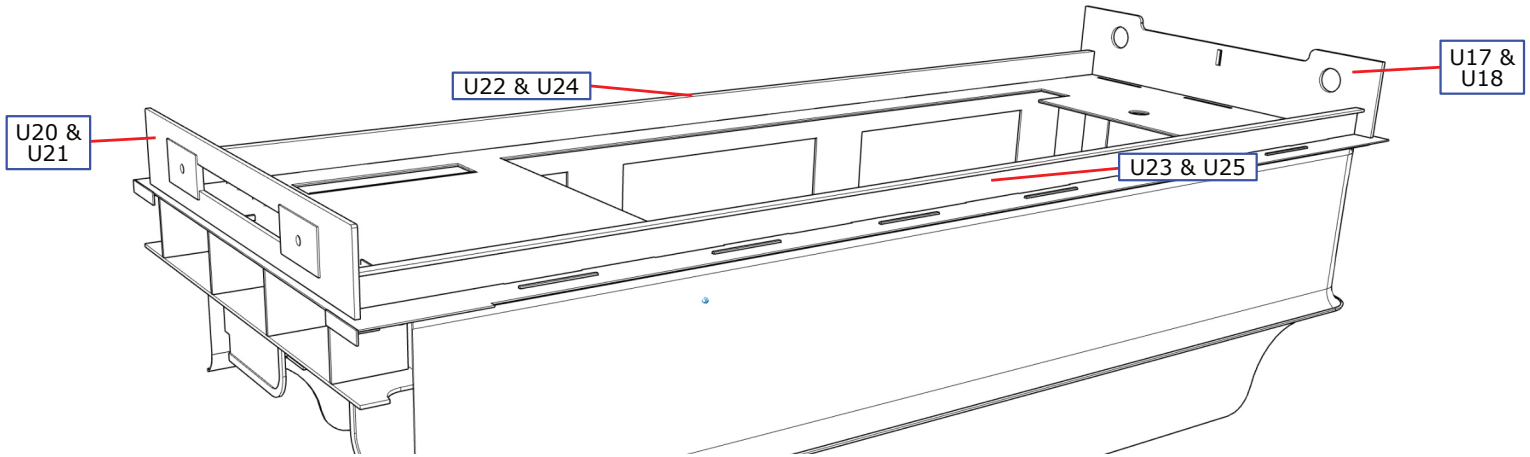


Fig 11. Buffer Beams and Valances

Bend at 90° the sides of the front steps, left and right (U26 & U27). Solder the front step overlays, left and right (U28 & U29) to the steps and attach the steps behind the valence.

Bend at 90° the sides of the rear steps, left and right (U30 & U31). Solder the rear step overlays, left and right (U32 & U33) to the steps and attach the steps behind the valence.

Check the fit of the body with the chassis and the alignment of the fixing holes.

Form the step treads (U34, U35, U36, U37) and solder in position.

Fit the tank rear steps (U38) to the rear face of the tank. See Fig 15, 17, or 19.

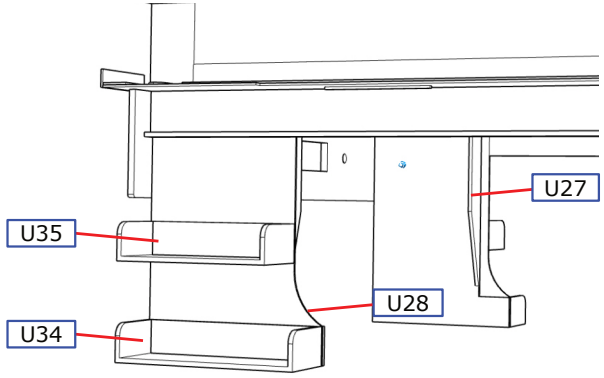


Fig 12. Front Foot Steps

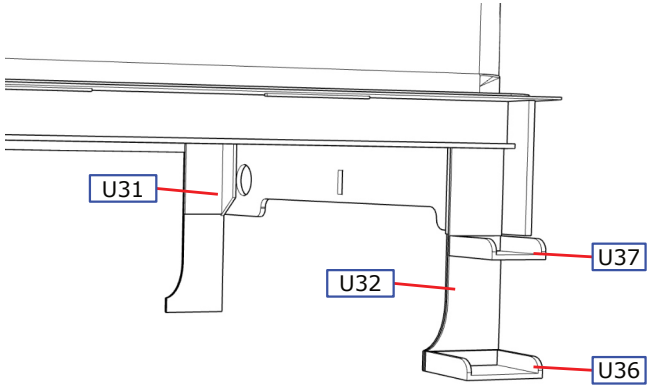


Fig 13. Rear Foot Steps

EARLY TENDER BODYWORK & DETAILS 1

Short coal plates, combined water filler and scoop fountain, small vents, small toolboxes, tall water level gauge, short fire irons tray.

Laminate the low division plate, front and back (U39 & U40) together. Align the division plate to the rear pair of nicks in the edge of the tank top and solder in place with the riveted face to the rear. The positions of the early front coal plates, left and right (U43 & U44) are marked in the same way; solder in place. Add the toolboxes, left (WM2) and right (WM3). The toolbox padlocks (U66) can be fitted now or after painting.

Form the short fire iron tray (U47) into a shallow 'U' section and fold the rear plate to 90°. Solder the fire iron tray spacers (U49) into the half etched slots in the tray and attach the complete tray as shown below.

Emboss the rivets on the combined water filler and scoop fountain sides (U56) and form to shape. Solder to the base (U55). Emboss the rivets on the top (U57). Make the handle from 0.6mm wire. Attach the top to the sides and then solder in place on the tank top.

Pilot holes in the tank former need drilling through the tank top before attaching the following castings. Add the small vents (WM10) to the tank top. The tall water level gauge (WM8) fits behind the right toolbox.

Emboss the rivets on the fire iron bracket base (U61) 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.

Drill out the top of the brake and water scoop standards (BR6) to accept brake and scoop standard, top piece (BR7). Fix the brake and water scoop standards in place. Attach the handles for the standards from 0.6mm wire. Emboss the rivets on the standard brackets (U50 & U51) and solder in place. Emboss the rivets on the handrail brackets (U52 & U53), fold along the half etched line and strengthen the fold with a fillet of solder. If appropriate use the front handrail to top of the side brackets (U54). Attach handrails from 0.8mm wire. Fit the rear handrails from 0.8 mm wire and the handrail knobs.

Emboss the rivets on the lamp brackets (U68, U69 & U70) before folding to shape. The lower brackets are attached to the bufferbeam. Fit the sand box lid (WM18) to the top of the sandbox. Fit the vacuum release valve (BR8)to the front left quadrant plate.

Align the vacuum pipe (BR1) with the notch in the rear of the footplate. For later 'crossed' vacuum and steam pipes file a similar notch on left side. Solder in place. The steam heating pipe (BR2) fits in the bracket under buffer beam. Remove the unwanted bracket. The steam heating pipe tap handle (U71) fits on the lower spigot on the casting. Plastic pipe is supplied for both hoses and the steam heating pipe end piece (BR3) goes on the end of the pipe.

Build the buffers (WM15 or WM16) by drilling the casting 2mm [1]. Glue the bush in place. Assemble with spring and retain with washer [2]. Fit to the buffer beam.

No.	Description	Sheet
U39	Low division plate front	2
U40	Low division plate back	2
U43	Early left front coal plate	3
U44	Early right front coal plate	1
U47	Short fire iron tray	2
U49	Fire iron tray spacers (2)	3
U50	Scoop standard to tank bracket	1
U51	Brake standard to tank bracket	1
U52	Left front handrail side bracket	1
U53	Right front handrail bracket	1
U54	Front handrail to top of side bracket	1
U55	Combined water filler and scoop fountain base	3
U56	Combined water filler and scoop fountain sides	3
U57	Combined water filler and scoop top	1
U60	Toolbox brackets (3)	1
U61	Fire iron bracket base	1
U62	Fire iron bracket	1
U66	Toolbox padlock	1
U68	Upper lamp bracket	1
U69	Lower outer lamp bracket (2)	1
U70	Lower centre lamp bracket	1
U71	Steam heating pipe handle	1

Fig 14. Buffer Construction

EARLY TENDER BODYWORK & DETAILS 2

Short coal plates, combined water filler and scoop fountain, small vents, small toolboxes, tall water level gauge, short fire irons tray.

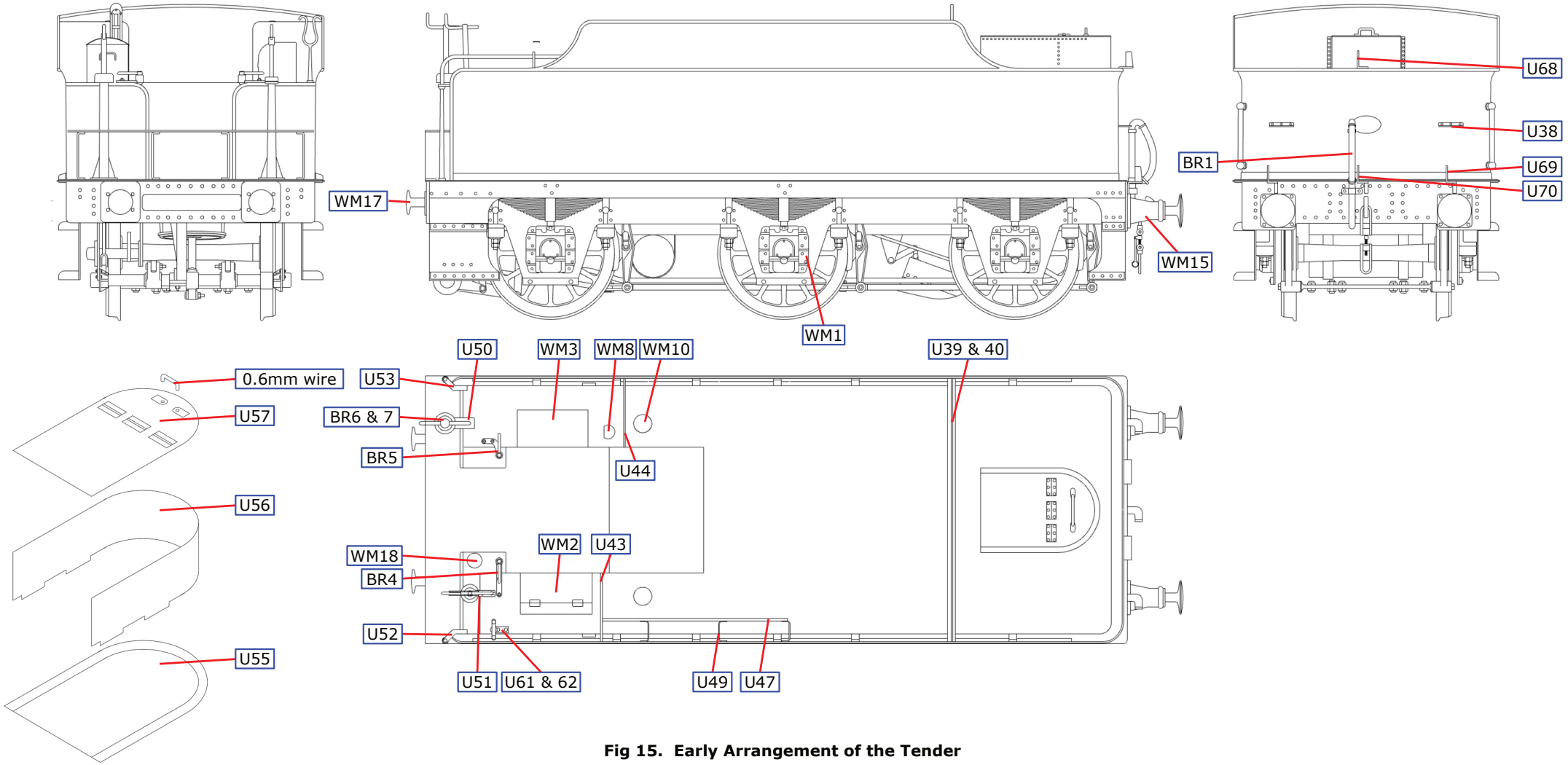


Fig 15. Early Arrangement of the Tender

INTERMEDIATE TENDER BODYWORK

Long coal plates, hybrid filler/dome, large vents, large toolboxes, short water level gauge, long fire irons tray.

Laminate the high division plate, front and back (U41 & U42) together. Align the division plate to the front pair of nicks in the edge of the tank top and solder in place with the riveted face to the rear. The toolbox coal plates (U45 & U46) are attached to the rear of the toolboxes (WM4). First emboss the rivets, then fold the plates to shape, each fold being through 30° and finally attach to the toolbox. Add the toolboxes to the tank top. Fold the tool box brackets (U60) and solder in place aligned to the outer edge of the toolbox. If required fold up the coal board brackets (U63 & U64). Solder the two coal boards (U65) together and then solder the brackets to the board. Glue this assembly to the tool boxes. The toolbox padlocks (U66) can be fitted now or after painting.

Emboss the rivets on the long fire iron tray (U48). Form the fire iron tray into a shallow 'U' section and fold the rear plate to 90°. Solder the fire iron tray spacers (U49) into the half etched slots in the tray and attach the complete tray as shown below.

Emboss the rivets on the combined water filler and scoop fountain wrapper (U56) and form to shape. The base is made by modifying the water dome base (U58) to fit around the combined base (U55) as shown below. Solder to the base (U55). Emboss the rivets on the top (U57). Make the handle from 0.6mm wire. Attach the top the the combined filler and scoop and then solder in place on the tank top.

Pilot holes in the tank former need drilling through the tank top before attaching the following castings. Add the large vents (WM11) to the tank top; the right large vent needs a flat filing on its base so that it fits against the side. The short water level gauge (WM9) fits in front of the right toolbox.

Emboss the rivets on the fire iron bracket base (U61) and solder in place as shown below. Drill a the hole in the base through the tank and then solder the fire iron bracket (U62) in place.

Drill out the top of the brake and water scoop standards (BR6) to accept brake and scoop standard, top piece (BR7). Fix the brake and water scoop standards in place. Attach the handles for the standards from 0.6mm wire. Emboss the rivets on the standard brackets (U50 & U51) and solder in place. Emboss the rivets on the handrail brackets (U52 & U53), fold along the half etched line and strengthen the fold with a fillet of solder. If appropriate use the front handrail to top of the side brackets (U54). Attach handrails from 0.8mm wire. Fit the rear handrails from 0.8mm wire and the handrail knobs.

Emboss the rivets on the lamp brackets (U68, U69 & U70) before folding to shape. The lower brackets are attached to the bufferbeam. Fit the sand box lid (WM18) to the top of the sandbox. Fit the vacuum release valve (BR8) to the front left quadrant plate.

Align the vacuum pipe (BR1) with the notch in the rear of the footplate. For later 'crossed' vacuum and steam pipes file similar notch on left side. Solder in place. The steam heating pipe (BR2) fits in the bracket under buffer beam. Remove the unwanted bracket. The steam heating pipe tap handle (U71) fits on the lower spigot on the casting. Plastic pipe is supplied for both hoses and the steam heating pipe end piece (BR3) goes on the end of the pipe.

Build the buffers (WM15 or WM16) by drilling the casting 2mm [1]. Glue the bush in place. Assemble with spring and retain with washer [2]. Fit to the buffer beam.

No.	Description	Sheet
U41	High division plate front	2
U42	High division plate rear	2
U45	Left toolbox coal plate	3
U46	Right toolbox coal plate	3
U48	Long fire iron tray	1
U49	Fire iron tray spacers (2)	3
U50	Scoop standard to tank bracket	1
U51	Brake standard to tank bracket	1
U52	Left front handrail side bracket	1
U53	Right front handrail bracket	1
U54	Front handrail to top of side bracket	1
U55	Combined water filler and scoop fountain base	3
U56	Combined water filler and scoop fountain sides	3
U57	Combined water filler and scoop top	1
U58	Water dome base	3
U60	Toolbox brackets (2)	1
U61	Fire iron bracket base	1
U62	Fire iron bracket	1
U63	Left toolbox coal board bracket	1
U64	Right toolbox coal board bracket	1
U65	Coal board	3
U66	Toolbox padlock	1
U68	Upper lamp bracket	1
U69	Lower outer lamp bracket (2)	1
U70	Lower centre lamp bracket	1
U71	Steam heating pipe handle	1

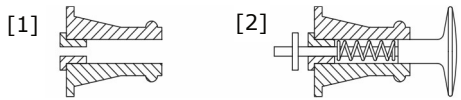


Fig 16. Buffer Construction

INTERMEDIATE TENDER BODYWORK

Long coal plates, hybrid filler/dome, large vents, large toolboxes, short water level gauge, long fire irons tray.

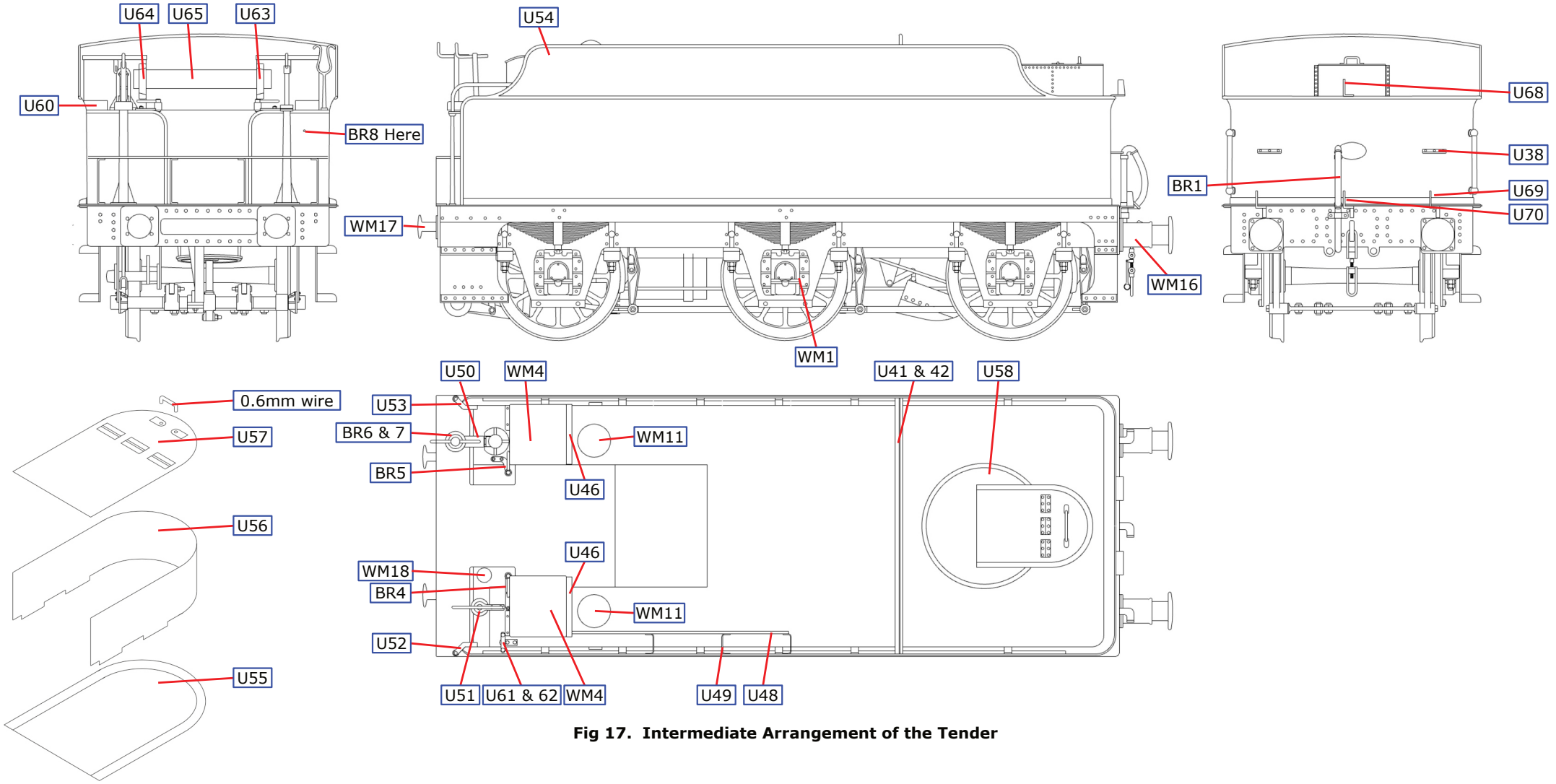


Fig 17. Intermediate Arrangement of the Tender

LATER TENDER BODYWORK

Long coal plates, separate dome and filler, large vents, large toolboxes, short water level gauge, long fire irons tray, weather sheet supports

Fit the weather sheet supports (U67) inside the coal plates in line with the tank vents. Laminate the high division plate, front and back (U41 & U42) together. Align the division plate to the front pair of nicks in the edge of the tank top and solder in place with the riveted face to the rear. The toolbox coal plates (U45 & U46) are attached to the rear of the toolboxes (WM4). First emboss the rivets, then fold the plates to shape, each fold being through 30° and finally attach to the toolbox.

Add the toolboxes to the tank top. Fold the tool box brackets (U60) and solder in place aligned to the outer edge of the toolbox. If required fold up the coal board brackets (U63 & U64). Solder the two coal boards (U65) together and then solder the brackets to the board. Glue this assembly to the tool boxes. The toolbox padlocks (U66) can be fitted now or after painting.

Emboss the rivets on the long fire iron tray (U48). Form the fire iron tray into a shallow 'U' section and fold the rear plate to 90°. Solder the fire iron tray spacers (U49) into the half etched slots in the tray and attach the complete tray as below.

Solder the water pick up dome base (U58) in position on the tank top. Attach the water pick up dome (WM6). The water filler handle is made from 0.6mm wire and two spots mark where holes should be drilled for the handle on the water filler casting (WM5). Attach the water filler to the tank top.

Pilot holes in the tank former need drilling through the tank top before attaching the following castings. Add the large vents (WM11) to the tank top; the right large vent needs a flat filing on its base so that it fits against the side. The short water level gauge (WM9) fits in front of the right toolbox.

Emboss the rivets on the fire iron bracket base (U61) and solder in place as shown below. Drill a the hole in the base through the tank and then solder the fire iron bracket (U62) in place.

Drill out the top of the brake and water scoop standards (BR6) to accept brake and scoop standard, top piece (BR7). Fix the brake and water scoop standards in place. Attach the handles for the standards from 0.6mm wire. Emboss the rivets on the standard brackets (U50 & U51) and solder in place. Emboss the rivets on the handrail brackets (U52 & U53), fold along the half etched line and strengthen the fold with a fillet of solder. Attach handrails from 0.8mm wire. Fit the rear handrails from 0.8mm wire and the handrail knobs.

Emboss the rivets on the lamp brackets (U68, U69 & U70) before folding to shape. The lower brackets are attached to the bufferbeam. Fit the sand box lid (WM18) to the top of the sandbox. Fit the vacuum release valve (BR8) to the front left quadrant plate.

Align the vacuum pipe (BR1) with the notch in the rear of the footplate. For later 'crossed' vacuum and steam pipes file similar notch on left side. Solder in place. The steam heating pipe (BR2) fits in the bracket under buffer beam. Remove the unwanted bracket. The steam heating pipe tap handle (U71) fits on the lower spigot on the casting. Plastic pipe is supplied for both hoses and the steam heating pipe end piece (BR3) goes on the end of the pipe.

Build the buffers (WM15 or WM16) by drilling the casting 2mm [1]. Glue the bush in place. Assemble with spring and retain with washer [2]. Fit to the buffer beam.

No.	Description	Sheet
U41	High division plate front	2
U42	High division plate rear	2
U45	Left toolbox coal plate	3
U46	Right toolbox coal plate	3
U48	Long fire iron tray	1
U49	Fire iron tray spacers (2)	3
U50	Scoop standard to tank bracket	1
U51	Brake standard to tank bracket	1
U52	Left front handrail side bracket	1
U53	Right front handrail bracket	1
U54	Front handrail to top of side bracket	1
U58	Water dome base	3
U60	Toolbox brackets (2)	1
U61	Fire iron bracket base	1
U62	Fire iron bracket	1
U63	Left toolbox coal board bracket	1
U64	Right toolbox coal board bracket	1
U65	Coal board	3
U66	Toolbox padlock	1
U68	Upper lamp bracket	1
U69	Lower outer lamp bracket (2)	1
U70	Lower centre lamp bracket	1
U71	Steam heating pipe handle	1

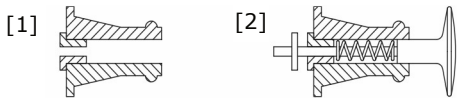


Fig 18. Buffer Construction

LATER TENDER BODYWORK

Long coal plates, separate dome and filler, large vents, large toolboxes, short water level gauge, long fire irons tray, weather sheet supports

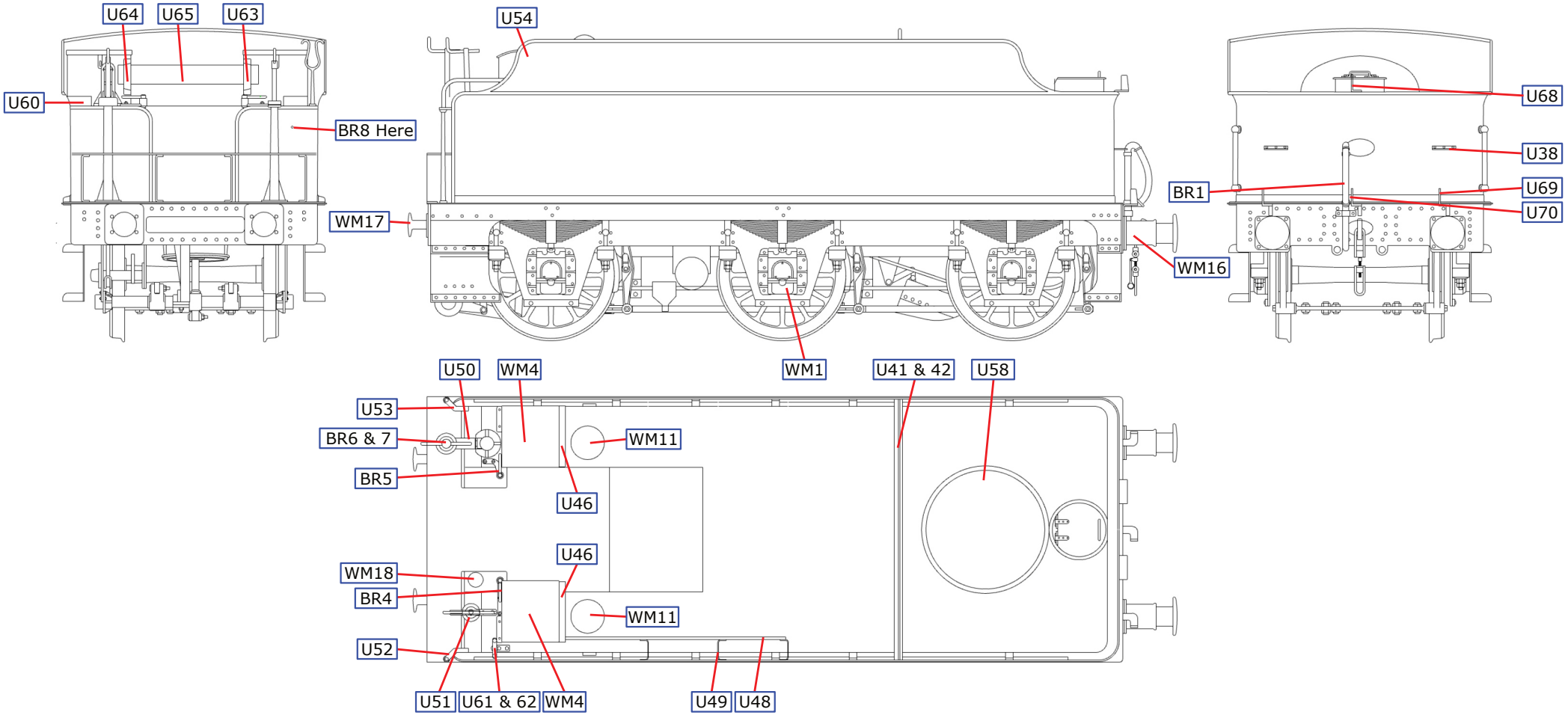
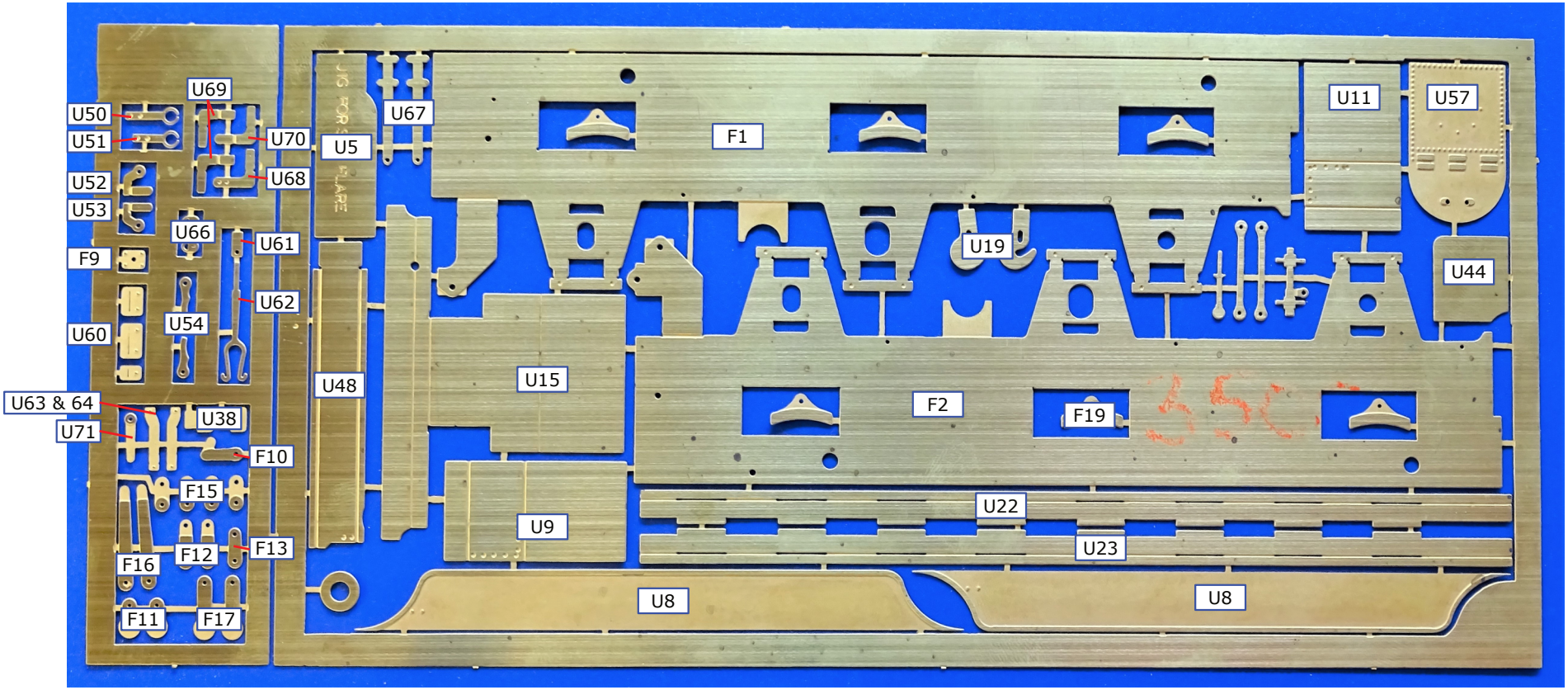
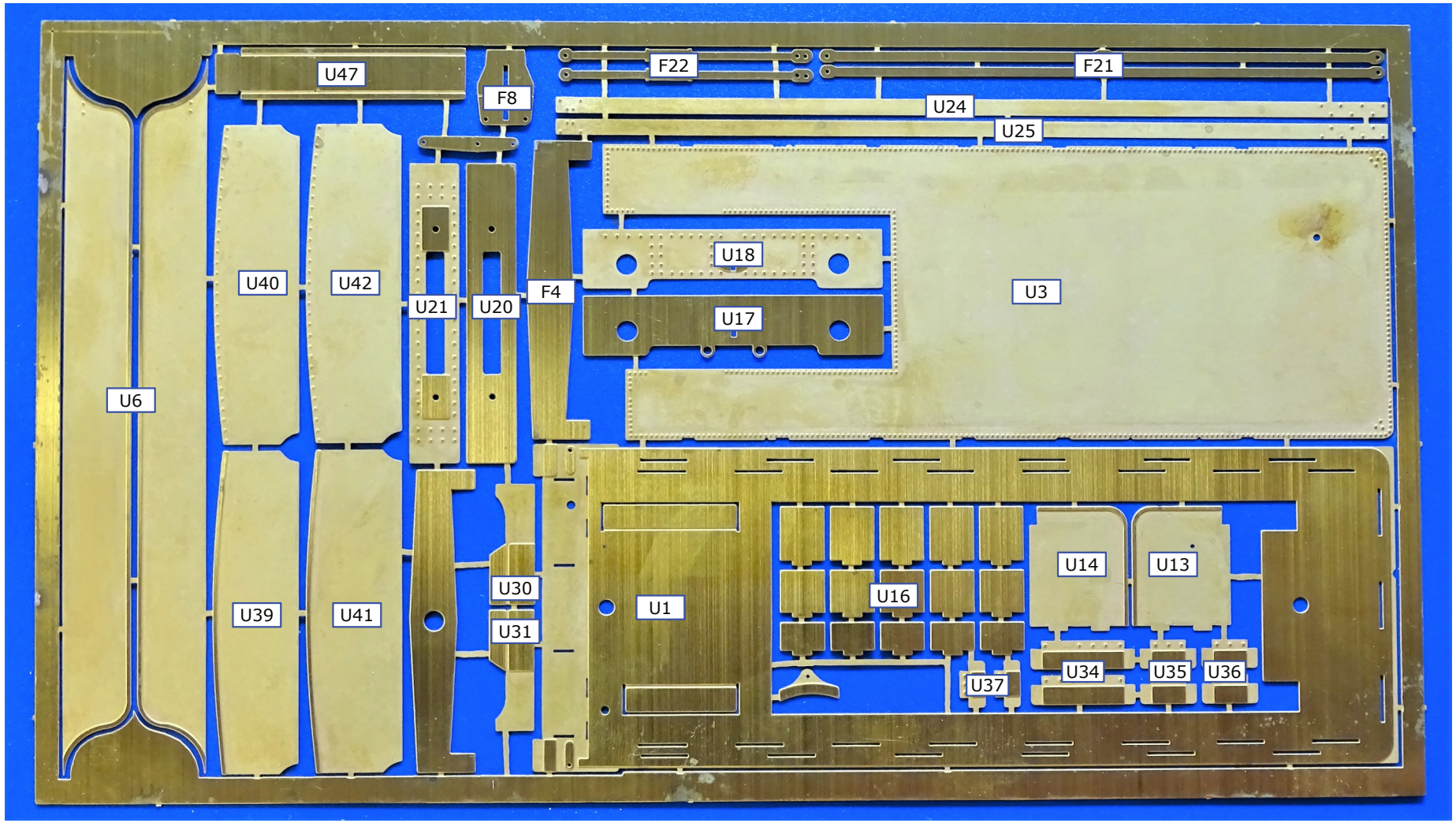


Fig 19. Later Arrangement of the Tender

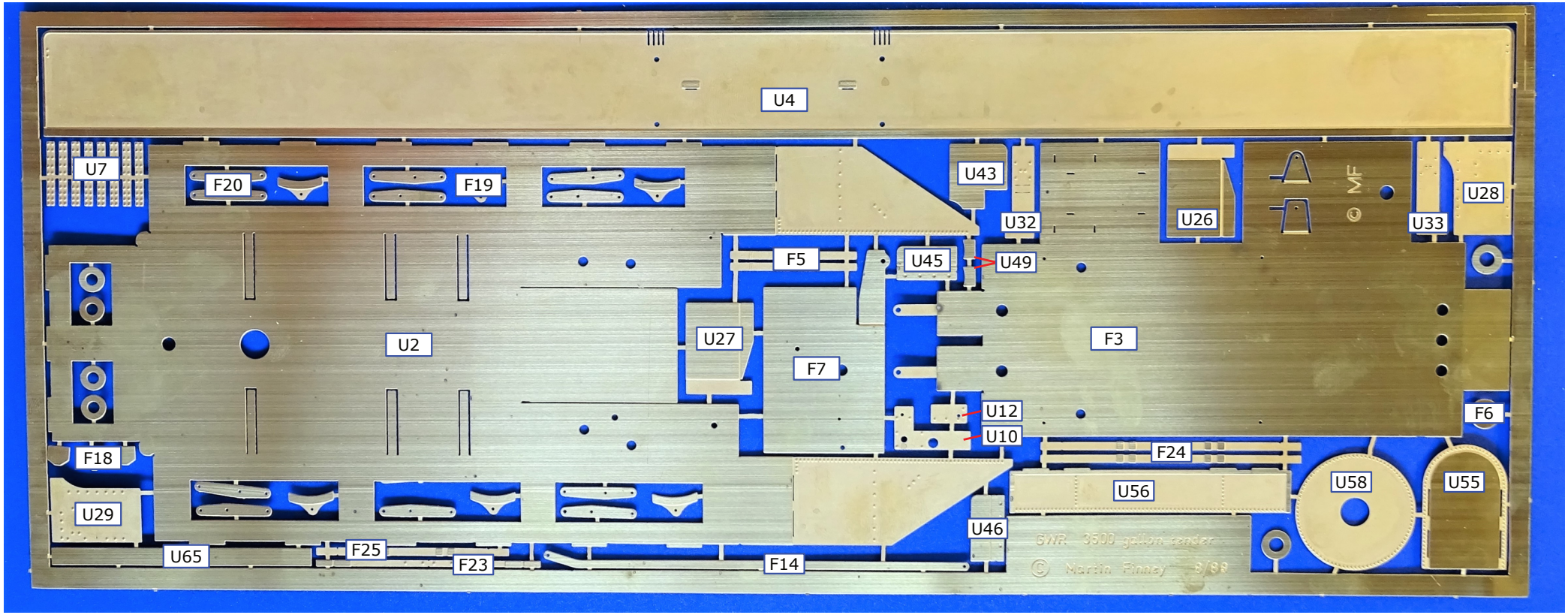
ETCH SHEET 1


U69
U50
U51
U70
U67
U5
U52
U68
U53
U66
U61
F9
U62
U54
U60
U48
U15
U63 & 64
U38
U71
F10
F15
F13
F12
F16
F11
F17
U9
U8
F1
U19
U11
U57
U44
F2
F19
U22
U23
U8

ETCH SHEET 2


U47
F8
F22
F21
U24
U25
U18
U3
U40
U42
U21
U20
F4
U17
U6
U30
U1
U16
U14
U13
U39
U41
U31
U34
U35
U36
U37

ETCH SHEET 3


U4
U7
F20
F19
U43
U32
U26
U28
U33
F5
U45
U49
U27
U2
F7
F3
U12
U10
F6
F18
F24
U56
U58
U55
U29
U46
U65
F25
F23
F14
GWR 3500 gallon tender
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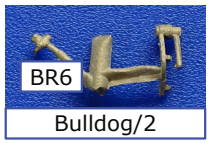
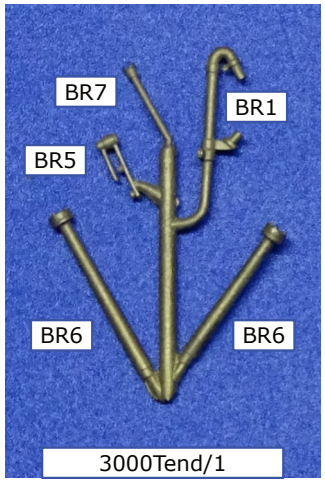
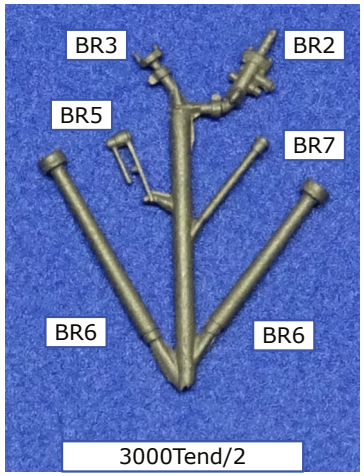
CASTINGS

BRASS CASTINGS

BR1	Vacuum pipe	3000Tend/1
BR2	Steam heating pipe	3000Tend/2
BR3	Steam heating pipe end piece	3000Tend/2
BR4	Left, knifed, water feed valve handle	Bulldog/2
BR5	Right water feed valve handle	3000Tend/1&2
BR6	Brake and scoop standard (2)	3000Tend/1&2
BR7	Brake and scoop standard, top piece (2)	3000Tend/1&2
BR8	Vacuum release valve	Bulldog/2







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

OTHER COMPONENTS

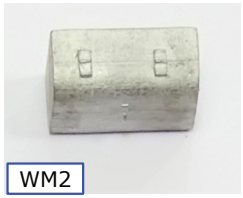
2 mm bore small top hat bearing (4)
2 mm bore large top hat bearing (2)
6BA X 5/16” Brass screw (4)
6BA nut (4)
Short handrail knob (4)
Buffer, bush, washer & spring (2)
Vacuum & steam pipe hose (2)

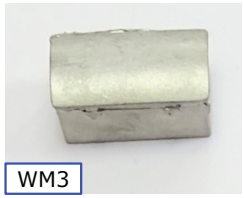
1/8" Brass wire for compensation beam pivot
5/32" OD Brass tube for compensation beam
3/8” Tube for vacuum tank
9/32” Tube for vacuum tank
0.6mm Brass wire for brake & scoop standard handles
0.8mm Brass wire for brake hanger pivots, handrails & scoop stays
1.2mm Brass wire vacuum pipe, steam heating pipe & rear scoop shaft
1.6mm Brass wire for front brake and scoop shafts

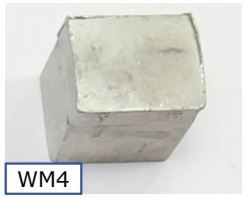
Note. Screws may be supplied over-length and may require cutting to length.

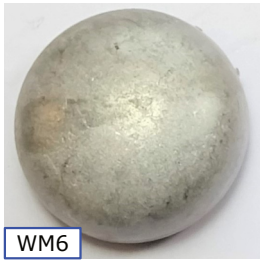
WHITEMETAL CASTINGS

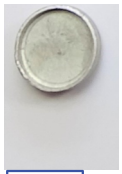
WM1	6	Axlebox & spring
WM2	1	Symmetric toolbox
WM3	1	Quadrant shaped toolbox
WM4	2	Large toolbox, later type
WM5	1	Water filler
WM6	1	Water pickup dome
WM7	1	Water pickup scoop, two parts
WM8	1	Tall water level gauge
WM9	1	Short water level gauge
WM10	2	Small tank vent
WM11	2	Large tank vent
WM12	2	Large diameter vacuum tank end
WM13	2	Small diameter vacuum tank end
WM14	6	Brake shoe
WM15	2	Dean taper buffer
WM16	2	Collett taper buffer
WM17	12	3000G Spring Hangers
WM18	2	Sandbox lid
WM19	2	Front buffer











3500G TENDER PACKING LIST

ETCHES

1 All 30007 PT 78763

SPRUES

1 MF7/3000Tend/1

1 MF7/3000Tend/2

1 F7/GW/Details/2

WHITEMETAL

WM1 6 Axlebox & spring

WM2 1 Quadrant shaped toolbox

WM3 2 Symmetric toolbox

WM4 1 Water filler

WM5 1 Water pickup dome

WM6 1 Water pickup scoop, two parts

WM7 1 Water level gauge

WM8 2 Tank vent

WM9 6 Brake shoe

WM10 1 Steam brake cylinder

WM11 1 Overflow pipe fountain

WM12 2 Dean taper buffers

WM13 1 Sandbox lid

WM14 2 Front buffer

WM15 12 3000G Spring Hangers

OTHER COMPONENTS

4 2 mm bore small top hat bearing

2 2 mm bore large top hat bearing

4 6BA X 5/16” Brass screw

4 6BA nut

4 Short handrail knob

2 Buffer, bush, washer & spring

2 Vacuum & steam pipe hose

WIRE

28mm 1/8" Brass wire

28mm 5/32" OD brass tube

60mm 0.6mm Brass wire

150mm & 300mm 0.8mm Brass wire

300mm 1.2mm Brass wire

70mm 1.6mm Brass wire

INSTRUCTIONS