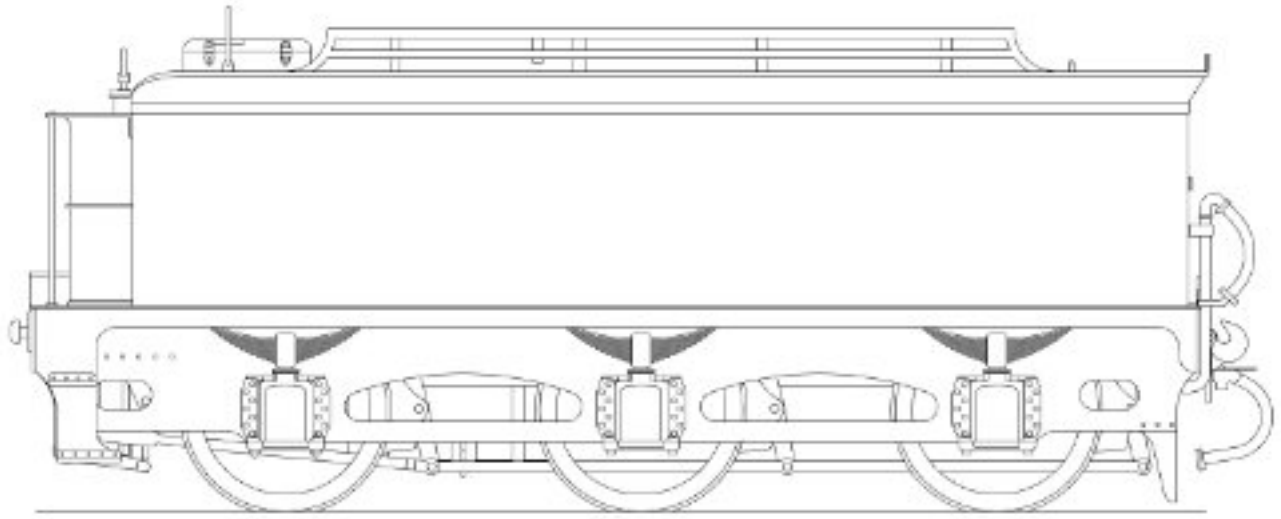
Finney7

LSWR DRUMMOND 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

The subjects of this kit are the 101 Drummond six wheel 3500 gallon tenders built as follows:

Class	Number	Date Built	Builder	Wheel Base	Front Handrail Stanchion Spacing
700 Goods	687-716	3/1897 - 8/1897	Dubs	13Ft	Narrow
C8 4-4-0	290-299	6/1898 - 11/1898	Nine Elms	14Ft	Narrow
T9 4-4-0	702-719	1/1899 - 12/1899	Dubs	14Ft	Narrow
	721 - 732				
T9 4-4-0	773	11/1901	Dubs	14Ft	Narrow
T9 4-4-0	113-122	6/1899 - 9/1899	Nine Elms	14Ft	Narrow
T9 4-4-0	280-289	10/1899 - 12/1899	Nine Elms	14Ft	Narrow
K10 4-4-0	329/340	11/1901 - 4/1902	Nine Elms	14Ft	Wide
	45/47/93/94				

Between April 1902 and June 1907 the 61 tenders built for the C8 and T9 4-4-0 were transferred to new K10 and L11 4-4-0s to be replaced by new 4000 gallon eight wheels bogie tenders. During the period 1925-28 a complex series of tender exchanges saw 3500 gallon tenders paired with all of the D15 class and some of both the T9 and L12 classes to enable them to work on the Eastern and Central Sections of the Southern Railway.

For a detailed history of these tenders, including all the exchanges, refer to the following books by the late D.L.Bradley:

Part two of The Locomotives of the LSWR published by the RCTS.

LSWR Locomotives - The Drummond Classes published by Wild Swan.

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

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

Drummond Locomotives, Brian Haresnape & Peter Rowledge, Ian Allan

Locomotives Illustrated No. 44 - The Drummond 4-4-0s and Double singles of the LSWR, Ian Allan

Southern Steam Locomotive Survey, The Drummond Classes, Bradford Barton

VARIATIONS/MODIFICATIONS INCORPORATED INTO THE KIT

Wheelbase. The first 30 tenders built for the 700 Goods had a 13 foot wheelbase whereas the remainder were built with an extended wheelbase of 14 feet.

Toolboxes. When built two Adams type toolboxes were carried at the rear of the coal space. After the turn of the century these were replaced with steel toolboxes mounted on brackets over the front of the coal space.

Footplate height. The height varied according to the height of the locomotive footplate.

Front handrail stanchions. Similarly the front handrail stanchions were placed to match the width of the locomotive cab stanchions.

Steam heating pipes. These were added from about 1902.

Front side plates. From 1913 plates were added underneath the front handrail stanchion supports. On the tenders with narrow spaced stanchions the lower edge of these plates was on top of the sandboxes whereas on the tenders with wide spaced stanchions the plates went outside the sandboxes down to the front platform.

Springs. From Circa 1913 the original curved springs were replaced with straight springs with a revised hanger arrangement.

Frame stretchers. At some time after 1923 additional stretchers were added between the lower edges of the frames. Their presence is usually obvious from the rows of snap headed rivets that attach the stretchers to the frames; this is not so obvious when flush rivets were used.

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

Pipes. From circa 1925 the vacuum pipe was relocated to the outside of the left side hanging plate. Similarly the steam heating pipe was relocated on the right hand side.

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

Widening of front platform. After 1923 the front of the platform was widened to 8' 1" to match the platform of the wide cab locomotives. Probably at the same time the front stanchions were moved out to match the stanchions on the locomotive.

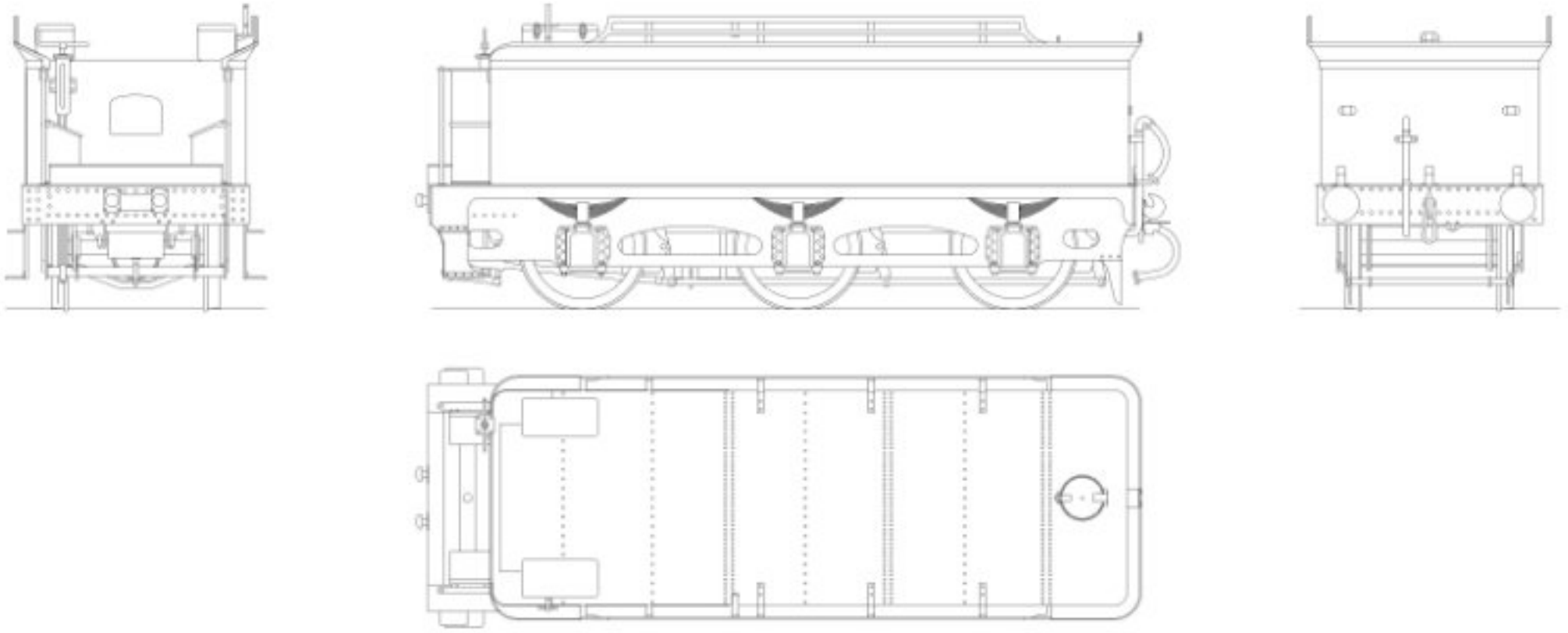
Coal shovelling plate. This was added from an unknown date; certainly by WW2.

Coal Rails. From circa 1936 the coal rails were backed by metal sheeting to stop the loss of small coal.

COMPONENTS NOT PROVIDED

Wheels. Wheels 4’0”, 12 Spokes with 5/32” axles Slater’s Ref 7848MF

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



Drummond 3500 Gallon Tender in Early Condition

CHASSIS 1

Part Numbers and Etch Numbers. These are all displayed in the text as part number/etch number as in (B1/1). Parts on this page are on Etch 2 unless detailed.

Having decided on the appropriate wheelbase for your model open up the holes in the chassis frames (C1 & C2 or C3 & C4) as follows

1/16" to fit the compensation beam pivots
0.8 mm to fit the wire for the brake hanger pivots
The axle holes to fit the top hat bearings for the front axle.

Fold over the axle slot reinforcing plates, on the chassis frames, through 180° with the half etched line on the outside of the fold. Widen the slots so that the axles are a sliding fit. Solder the front bearings in place.

Select the appropriate front and rear stretchers for the gauge (C5 & C6); for 0 Fine use the middle width and for S7 use the widest. Open up the holes in the front stretcher to accept the wire for the loco/tender flexible pipe connections. Fold up the stretchers with the fold lines on the inside. Solder the stretchers in place in the chassis slots checking that the chassis is straight and square.

Construct the compensation beam by soldering the two laminations (C7/3) together. Cut a piece of 3/32" brass tubing to fit between the sides of the chassis frames and solder the beam in place, centrally. Fit the beam using a piece of 1/16" brass wire as the pivot. Temporarily fit the wheel sets and check that the chassis is level and works correctly. Wheel side control is limited by using the washers, (C17/3).

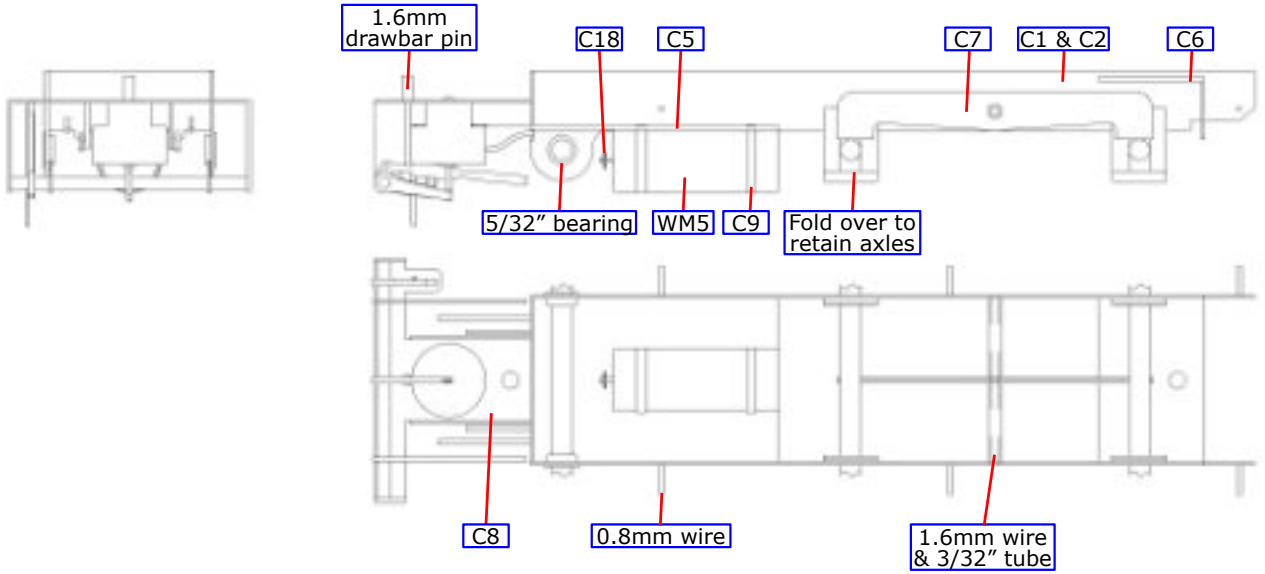
Open up the holes in the brake cylinder mounting plate (C8/3) as follows:

1.6mm for the brake cylinder and the drawbar pin
2mm for the brake cross shaft
0.8mm for the sand pipe.

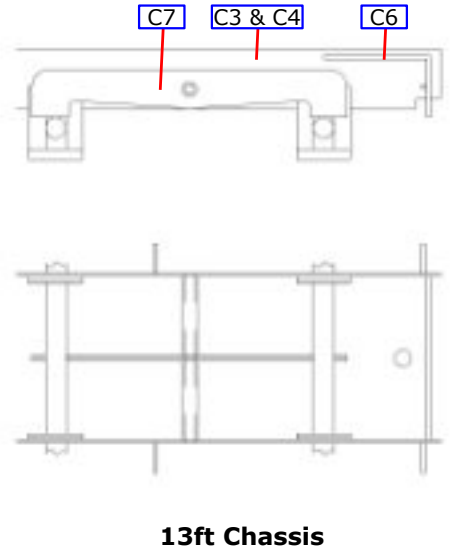
Emboss the rivets and fold the brake cylinder mounting plate along the half-etched lines. Reinforce the outer bends with a fillet of solder for added strength. Solder the plate into place making sure that it is square and horizontal. Solder the drawbar pin (1.6mm wire) in place in the plate.

Drill a 0.8mm hole in one end of the vacuum reservoir (WM5) and fix a short length of 0.8mm wire in place. Add the pipe flange detail (C18/1) to the wire as shown.

Form the vacuum reservoir straps (C9/3) and wrap them around the vacuum reservoir, feeding the ends through the etched slots in the front chassis stretcher (C5). Bend back the straps on top of the stretcher and solder in place.



14ft Chassis

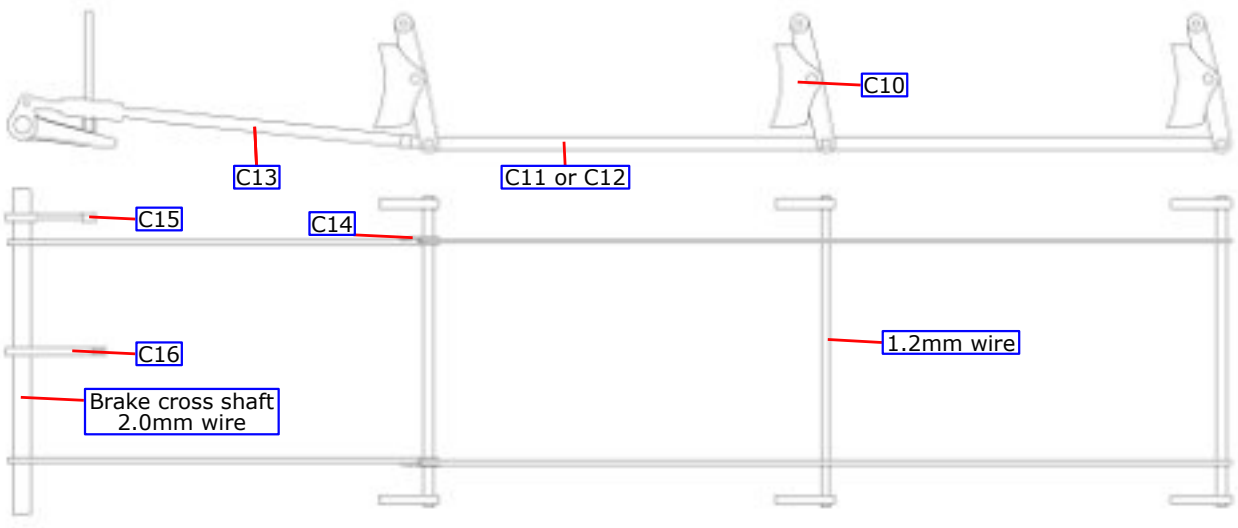


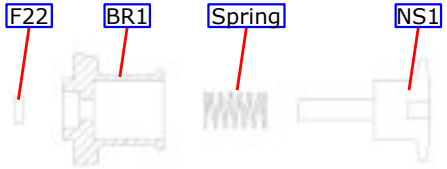
13ft Chassis

BRAKES

Solder the brake hanger pivots, from 0.8mm wire, in place. Refit the wheel sets and retain as shown on page 4. Open up the holes in the brake hanger laminations (C10/3), the upper 0.8mm and the lower 1.2mm. Emboss the rivet detail and solder together. Attach the hangers to the pivot wires. Check the clearance between the brake shoes and the wheels making any necessary adjustments.

Select the appropriate brake pull rods (C11/2 or C12/3). Open up the holes in the pull rods and the brake lever laminations. Emboss the rivet detail in the front pull rod (C13/3). Solder the front brake pull rod fork joint lamination (C14/1) in place to make the fork joint at the rear of the front pull rod. Laminate the brake cross shaft to hand brake lever (C15/3) and the brake cross shaft to vacuum cylinder lever (C16/3). Assemble the brake gear as shown below. Solder the sand pipe from 0.8mm wire in place.





Buffer Assembly

FRAMES 1

Parts on this page are on Etch 1 unless detailed. The following parts will need rivets embossing before fitting - F2, F3, F7/2, F8/2, F9/2, F10/2, F11, F12/2 & F19.

Fold down the brackets along the edges of the frame base (F1) and solder the hanging plates (F7/2) onto the brackets.

Solder the front buffer base plates (F11) to the front bufferbeam (F10), add the front buffers (BR1), before soldering the buffer beam in place. Solder the rear buffer beam (F12) in place.

If appropriate, drill 1.2 mm holes for the vacuum and steam heat pipes in the outside frames (F2 or F3). Solder the guard irons (F19) in position on the inside of the frames and bend to shape. Solder the frames in place checking that they are at right angles to the base.

Solder together the coupling hook laminations (F14/3) and attach to the rear buffer beam.

If appropriate, form the vacuum and the steam heat pipes from 1.2 mm wire and insert through the holes drilled in the frames. Add the pipe brackets (F13).

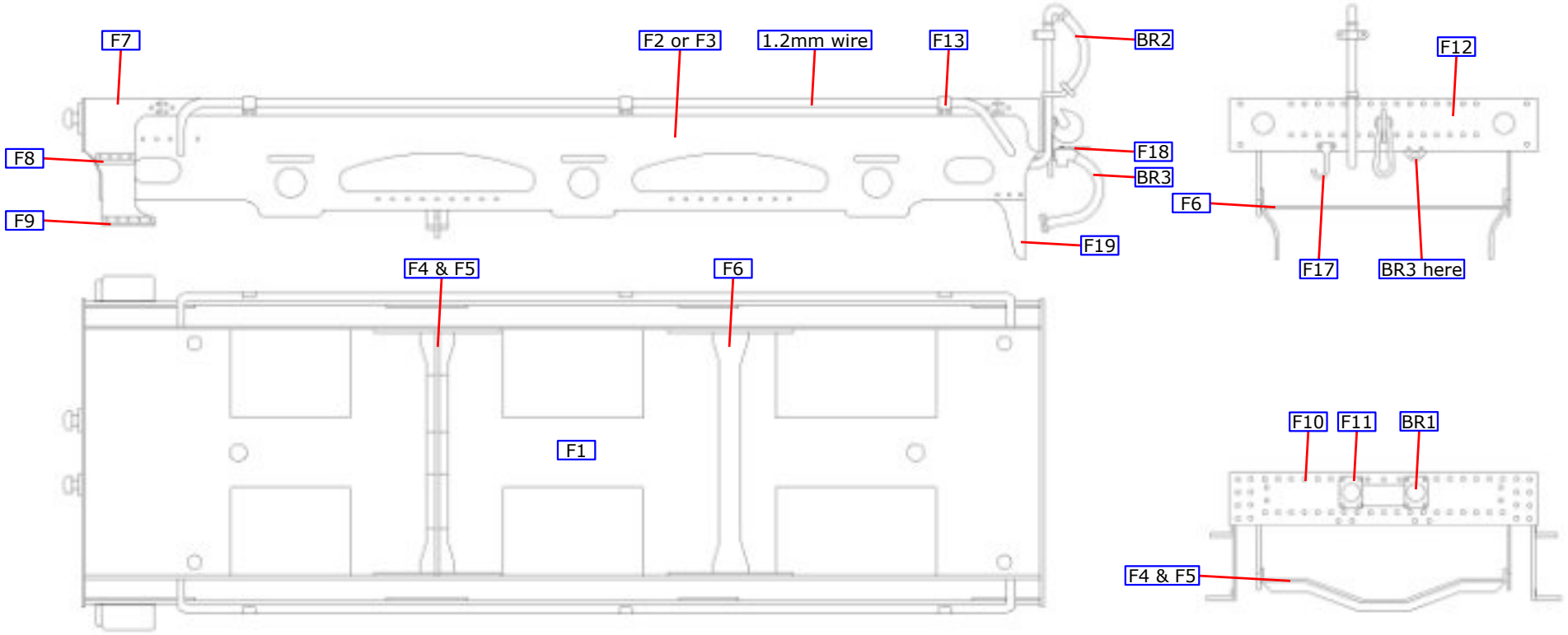
Fold up the steps (F8/2 & F9/2) and solder in position.

Fit the axleboxes (WM1) and either the original spring (WM2) or the later spring (WM3).

Emboss the locating rivets on the transverse stays (F4/2 & F6/2) and fold up along the half etched lines. Solder the transverse stay angle (F5/3) in place in the slots in the front transverse stay. It may be better to finally fit the stays after painting, which will allow the tank, outside frames and chassis assemblies to be painted separately. The stays can be threaded beneath the brake pull rods before the chassis is finally screwed into place. The dimples at the outer edges of the stays are designed to locate in the rivet holes on the inside of the outer frames.

Fit the vacuum pipe (BR2) and the steam heating pipe (BR3) to the rear buffer beam. Fit the steam pipe valve handle (F18) to the steam heating pipe. Fit the buffer housings (BR8) and assemble the buffers after painting is complete.

The couplings can be assembled from parts F14/3, F15/3, F16 and F17.



CONSTRUCTING THE TANK IN ORIGINAL CONDITION 1

Parts on this page are on Etch 2 unless detailed. These pages describe the tank in original condition with narrow front handrail stanchions, Drummond lamp brackets, Adams type tool boxes and a narrow footplate either 3" or 8" high.

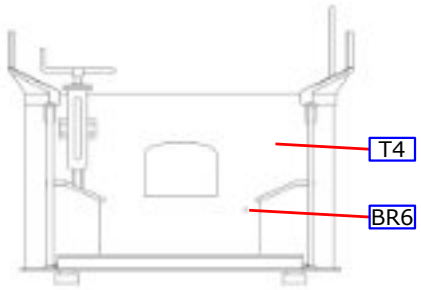
File off the platform (T1/1) front side extensions. Solder the four 8BA nuts over the four holes near the corners of the platform. Check that the hanging plate assembly can now be screwed under the platform. Similarly solder the two 6BA nuts over the holes for the chassis fixing screws.

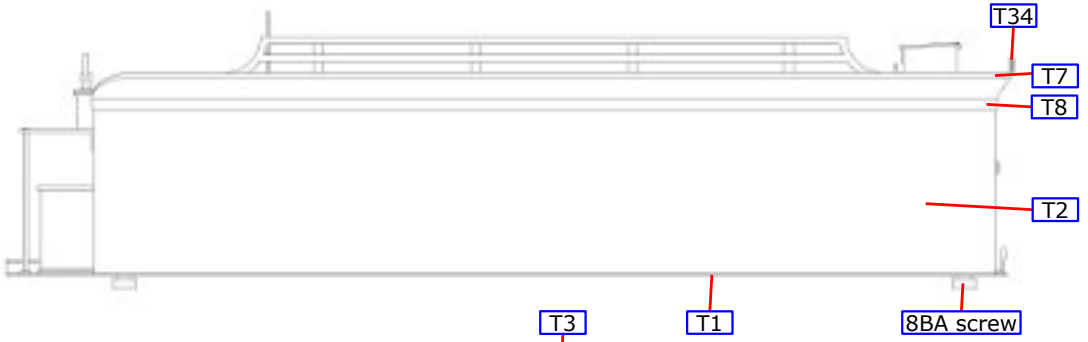
Form the corners of the tank sides and back (T2) over a 7/32" (5.5 mm) rod or drill. Locate the tabs along the lower edge of the tank sides and back into the slots in the platform and solder in place.

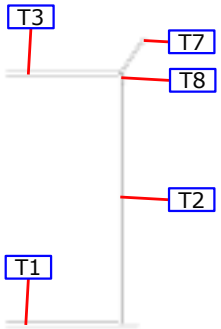
To fit the Adams type toolboxes drill out the four locating holes in the tank top (T3) to accept the locating dowels. Emboss the rivets in the tank top before forming the bends over a 1½" rod. The edge of the tank top has a small rebate, which sits on the top of the tank sides as shown. Fit the tank top over and between the sides and carefully solder in place. The top should be retained in the slots in the sides at the front, without the need for soldering.

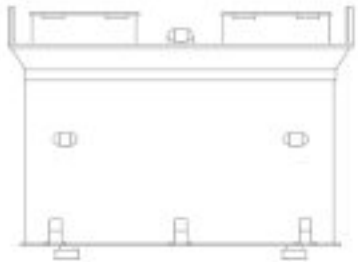
Solder the front division plate (T4) in place between the front edges of the tank sides. Solder the bucket cock (BR6) in place on the front division plate. Modify the shape of the toolbox support plate (T6/3) as shown below. Emboss the rivets in the brackets attached to the tool box support plate and fold them down. Now solder the support plate in place with the brackets fitting in the etched slots on the inside of the tank sides.

Form the corners in the coping plates (T7) over a 7/32" (5.5 mm) rod or drill. Solder the coping plates into the rebate between the tank side and tank top, as shown. Use the jigs (T9) to determine the correct angle for the coping plate. The two halves are joined at the rear with the aid of the LSWR lamp bracket tank top mounting plate (T34/1). The lower part of the coping plate is represented by the coping plate vertical section (T8). Again this is joined at the rear and an even height above the platform can be achieved with the aid of the jigs.











CONSTRUCTING THE TANK IN ORIGINAL CONDITION 2

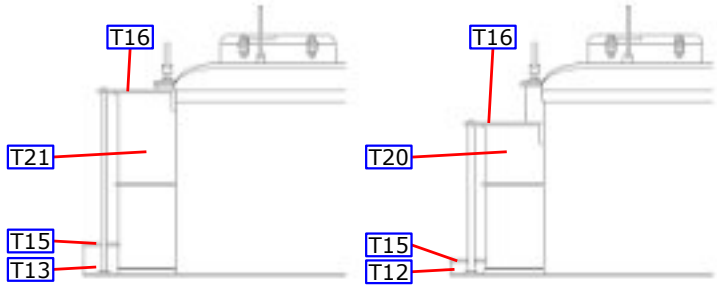
Parts on this page are on Etch 2 unless detailed. If appropriate, emboss the rivets on the coal rails (T10/3), fold over the stanchions through 180° and solder to the back of the coal rails. Be sure to strengthen all the bends in the stanchions with a small fillet of solder. Solder the stanchions in place in the etched slots in the tank top.

3" Footplate. Fit the sandbox/toolbox (WM6) in place followed by the narrow footplate support 3" high (T12/3). Reduce the width of the footplate (T15/3) to the half etched lines. Solder the footplate into place. Fold down the bracket of the narrow handrail stanchion bracket (T16/1) and then solder in place on the narrow front side plate 39½" (T20/2). Solder this assembly in place on the footplate and tank.

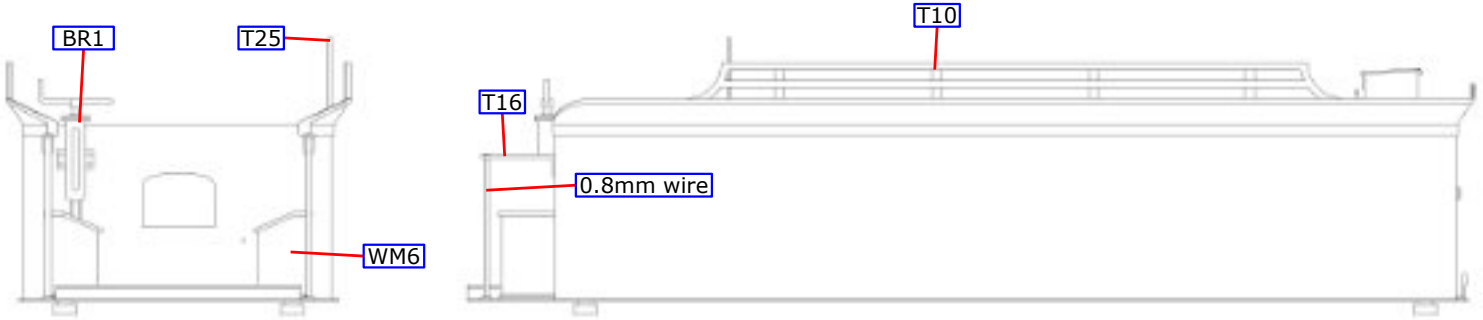
8" Footplate. Fit the sandbox/toolbox (WM6) in place followed by the narrow footplate support 8" high (T13/3). Reduce the width of the footplate (T15/3) to the half etched lines. Solder the footplate into place. Fold down the bracket of the narrow handrail stanchion bracket (T16/1) and then solder in place on the narrow front side plate 48" (T21/2). Solder this assembly in place on the footplate and tank.

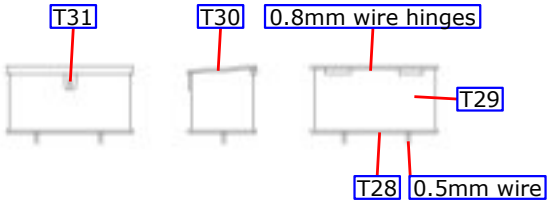
Construct the Adams tool boxes. Drill holes through the tool box base (T28) into a piece of wood and solder short lengths of 0.5mm wire into the base. Assemble the tool boxes from the base and the tool box sides (T29/3), tool box lid (T30), tool box hasp (T31/1). Secure in place on the tank top. Fit the water filler (BR5) to the tank top.

Solder the three LSWR Lamp brackets, rear platform (T32/1) to the platform as shown. Solder the LSWR Lamp bracket, tank rear/tank top (T33/1) to the lamp bracket mounting plate. Solder the front fire iron bracket, original condition (T25/1) to the tank top as shown below.

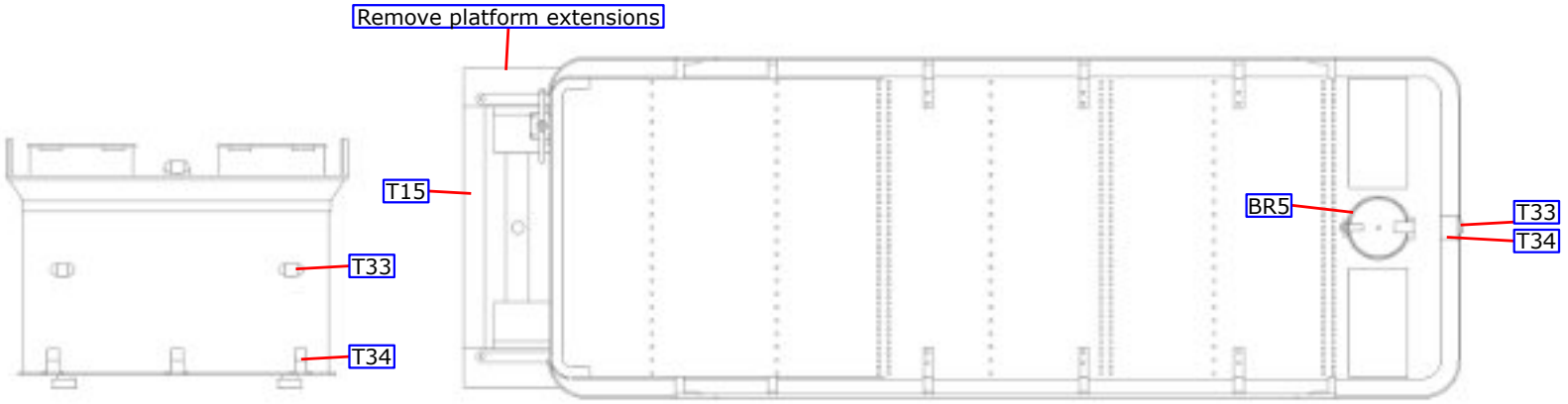


8" Footplate, 48" handrail **3" Footplate, 39½ handrail**





Adams Toolbox



CONSTRUCTING THE TANK IN LATER CONDITION 1

Parts on this page are on Etch 2 unless detailed. These pages describes the tank in later condition with wide front handrail stanchions and a widened front platform, the coal plates sheeted in, a coal shovelling plate and cab weather sheet brackets.

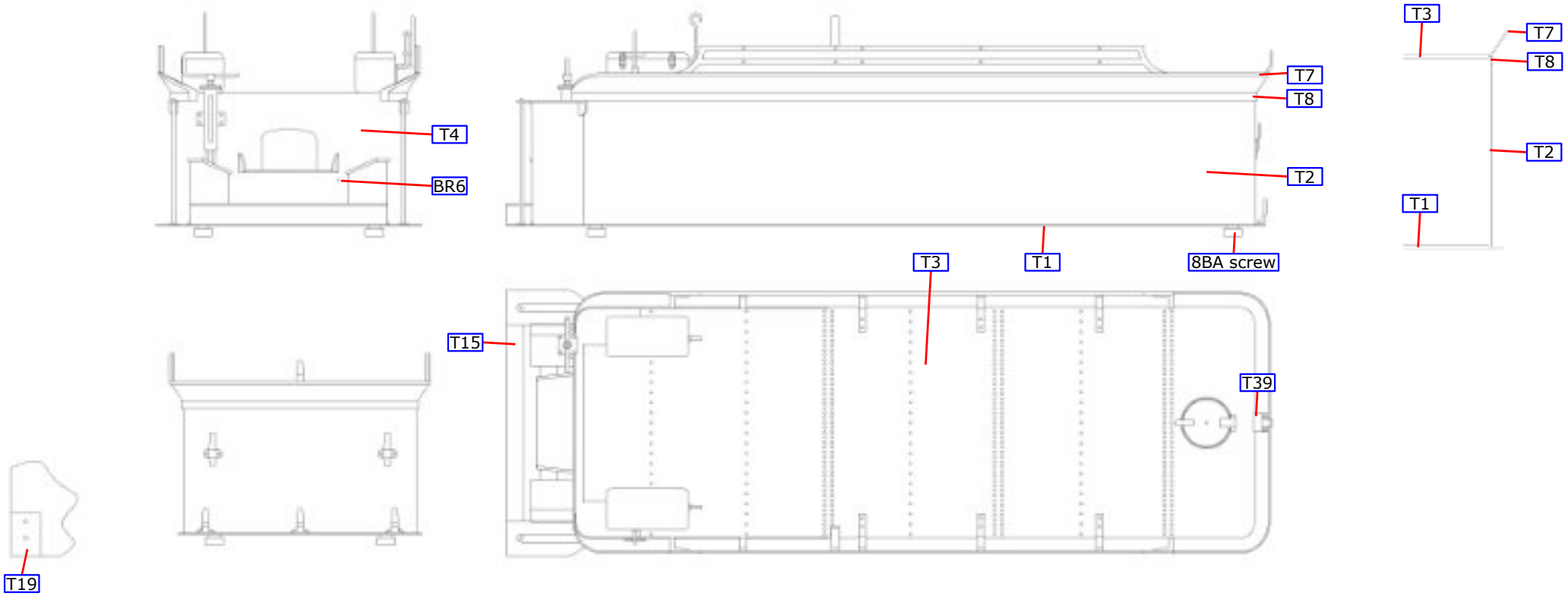
Solder the four 8BA nuts over the four holes near the corners of the platform (T1/1). Check that the hanging plate assembly can now be screwed under the platform. Similarly solder the two 6BA nuts over the holes for the chassis fixing screws. Drill new 0.8mm holes in the front platform using drilling jig (T19) as shown. Solder the wide handrail stanchion flanges (T18) over these holes.

Form the corners of the tank sides and back (T2) over a 7/32" (5.5 mm) rod or drill. Locate the tabs along the lower edge of the tank sides and back into the slots in the platform and solder in place.

Emboss the rivets in the tank top before forming the bends over a 1½" rod. The edge of the tank top has a small rebate, which sits on the top of the tank sides as shown. Fit the tank top over and between the sides and carefully solder in place. The top should be retained in the slots in the sides at the front, without the need for soldering.

Fold up the edges of the shovelling plate (T5) and solder in place below the coal hole in the front division plate (T4). Solder the bucket cock (BR6) in place on the front division plate. Solder the front division plate in place between the front edges of the tank sides.

Form the corners in the coping plates (T7) over a 7/32" (5.5 mm) rod or drill. S older the coping plates into the rebate between the tank side and tank top, as shown. Use the jigs (T9) to determine the correct angle for the coping plate. The two halves are joined at the rear with the aid of the SR Lamp bracket, tank top (T39/1). The lower part of the coping plate is represented by the coping plate vertical section (T8). Again this is joined at the rear and an even height above the platform can be attained with the aid of the jigs.



CONSTRUCTING THE TANK IN LATER CONDITION 2

Parts on this page are on Etch 1 unless detailed.

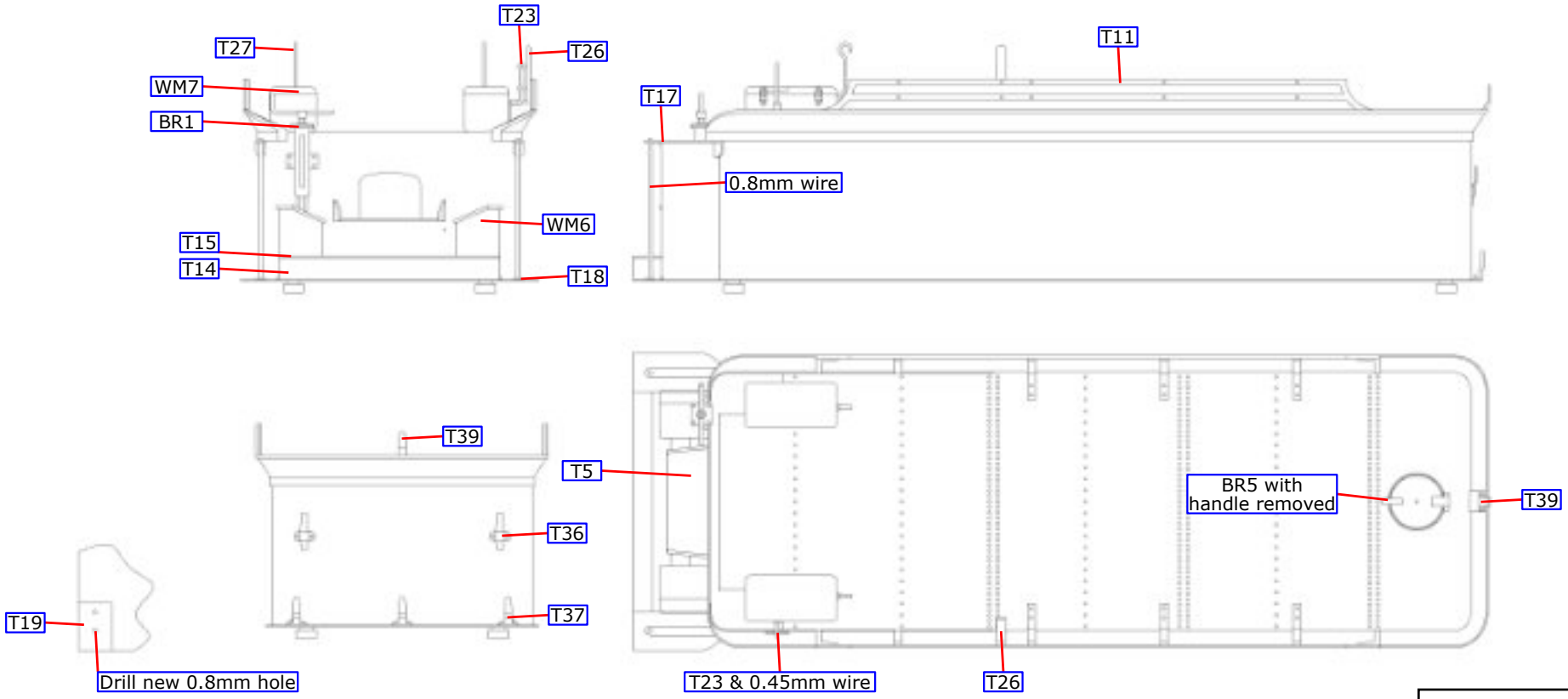
If appropriate, emboss the rivets on the coal rails (T11/3), fold over the stanchions through 180° and solder to the back of the coal rails. Be sure to strengthen all the bends in the stanchions with a small fillet of solder. Solder the stanchions in place in the etched slots in the tank top.

Fit the the wide footplate support (T14/3) and then solder the footplate (T15/3) into place. Fold down the bracket of the wide handrail stanchion bracket (T17) and then solder in place on the wide front side plate (T22/3). Solder this assembly in place on the footplate and tank. Fit the sandbox/toolbox (WM6) in place. Fit the front handrails from 0.8 mm wire and the wide handrail stanchion flanges (T18).

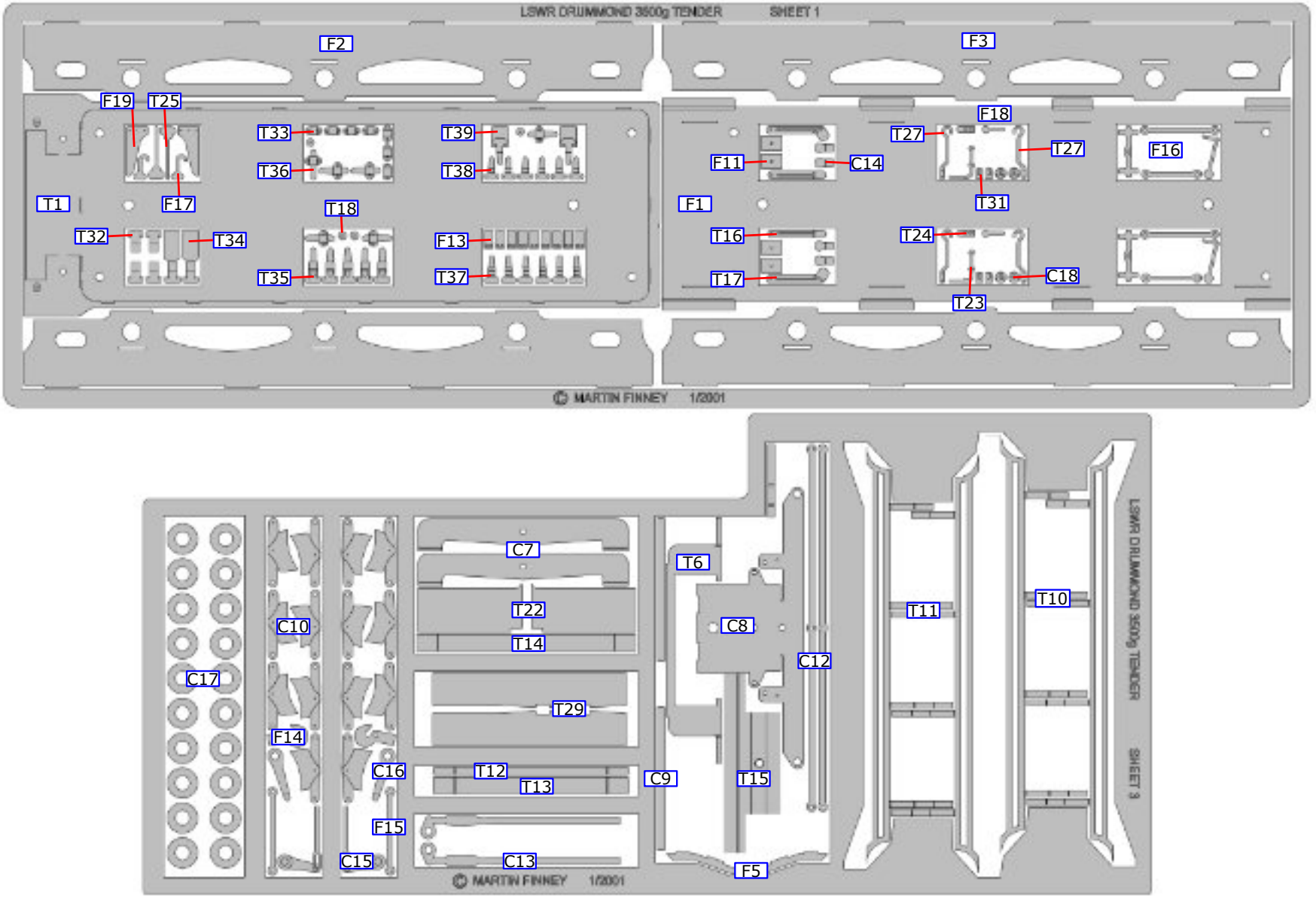
Remove the handle from the water filler (BR5) and then fit to the tank top.

Solder the three SR lamp brackets, rear platform (T37) to the platform as shown. Solder the LSWR/SR Lamp bracket tank rear & tank top (T36) in place. Fit the SR lamp bracket, tank top (T39).

Fit short lengths of 0.45mm wire to the fire iron cruciform (T23) and then fit the cruciform and the fire iron cruciform bracket (T24). Fit the rear fire iron bracket (T26) and the cab weather sheet brackets (T27).



ETCH SHEET 1 & 3



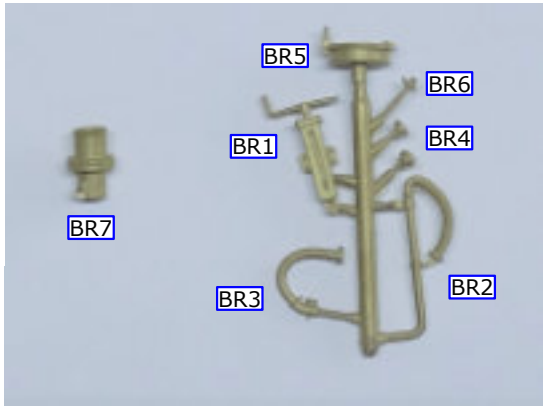
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ETCH SHEET 2



BRASS CASTINGS

BR1 Brake column
BR2 Vacuum pipe
BR3 Steam heating pipe
BR4 Front buffer (2)
BR5 Water filler
BR6 Bucket cock
BR7 Buffer housing (2)



OTHER COMPONENTS

5/32" bearing (2)
6BA screw (2)
6BA nut (2)
8BA x 5/32" screw (4)
8BA nut (4)
3/32" OD Brass tube for compensation beam pivot
0.45 mm Brass wire for fire iron cruciform
0.8 mm Brass wire for vacuum tank pipe, handrails & sand pipe
1.2 mm Brass wire for pipe work & brake cross shafts
1.6 mm Brass wire for compensation beam pivot & drawbar pin
2.0 mm Brass wire for brake cross shaft
Buffer casting, buffer, spring and nut (2)

WHITE METAL CASTINGS

WM1 Axlebox (6)
WM2 Original spring (6)
WM3 Later spring (6)
WM4 Brake cylinder
WM5 Vacuum reservoir
WM6 Sandbox/Toolbox (2)
WM7 Toolbox (2)

