MECHANICAL BRANCH MODELS

GENERAL INSTRUCTIONS

FOR

Assembly and Finishing

20,000/40,000 GALLON CAST IRON WATER TANK AND STEEL STAND KIT

FROM 1st MARCH, 2019
(And Until Further Notice)

Mechanical Branch Models take pride in the accuracy of their products. However, sometimes compromises have to be made to enable assembly. Parts are as thin as possible which means they are easily distorted and damaged. Always exercise care when handling and assembling parts.

It is recommended that soldering be used for assembly, unless otherwise noted. Drill holes prior to removing parts from the fret.

Remove etched parts from the fret only as they are required so that they can first be identified.

20,000 Gallon Tank at Telegraph Point

40,000 Gallon Tank at Orange

1. Prototype information

Water tanks were an essential component of any railway in the steam days. At their peak there were over 400 watering locations which employed tanks of different capacities and heights depending on operational considerations.

While the NSWGR eventually settled on standard components and construction methods, few tanks were identical. However, there were definitely similarities and tanks using the standard 4'-2" x 4' -2" cast-iron panel and rounded corners panels became very common from around 1910.

The tankstands also employed common parts and construction methods but also varied based on the tank size and height.

20,000 Gallon Tank and Tank Stand

The single-tier tanks of 20,000 gallon capacity was a standard design, examples of which were at Bargo, Beckom, Bourke, Gloucester, Griffith, Kempsey, Newcastle Yard, Telegraph Point, Valley Heights and West Maitland.

40,000 Gallon Tank and Tank Stand

The double-tier tanks of 40,000 gallon capacity was a standard design, examples of which were at Murrurrundi, Orange, Casino, Sydney (eastern), Somerset, Binnaway, Milvale, Muswellbrook and Wellington.

2. General guidelines

Solder assembly is recommended. Excellent results can be obtained with a 140 degree tin/lead solder and a solution of 10% Phosphoric acid as a flux.

Clean as you go and remove all flux residue by washing in CLR or soapy water to prevent corrosion.

A fibreglass brush is recommended for polishing.

Side or end-cutters are recommended for removing parts from the fret.

File any residual material off until the edge is flush and smooth.

3. List of parts

Tankstand

Description	Part number	Quantity
H Column - 8" x 6" short		20
Tension ring	incl w/ assy jig	32
Tension member	23mm wire, 0.3 dia	128
H-Beam 6" x 5"	1025	7
Assembly jig - 8" x 6"		2
Assembly jig - 6" x 5"		2
Tankstand soldering jig	1009	8

Tank

Description	Part number	Quantity
Tank side		4
Tank bottom, inner		1
Tank bottom, outer		1
Tank corner casting (vertical 2-tier/1-tier)	1045/1046	4
Tank corner casting (horizontal)	1048	12
Internal bracing (short)	1001	20
Internal bracing (long) 40,000 Gal tank only	1028	16
Tank top flange		1
Filling valve float		1
Inlet strainer/plug		1
Water level float		1
32’ Ladder	1004	1
Water level gauge	1005	1
Equilibrium Valve (2-tier/1-tier)	1043/1044	1
Equilibrium valve float	1042	1
Maker’s plate	1006/1007	1
Tank Assembly jig	1030	1

Footings and groundwork

Description	Part number	Quantity
Footing, small	1110	14
Footing, large	**1111**	**4**
12” Outlet valve	**1037**	**1**
12” Pipe length	**1039**	**1**

4. Assembly

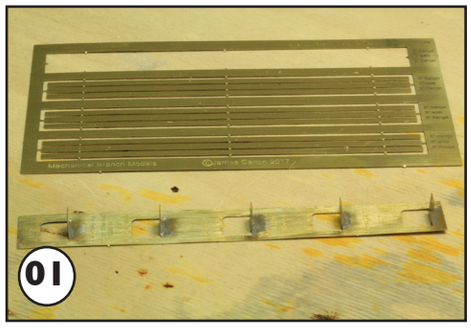
Part A: Tankstand

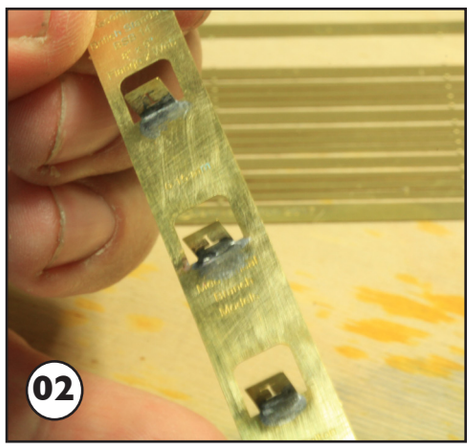
A1. Assembly of steel sections

A1.1 For scale accuracy, structural sections are soldered together using the jigs provided. Each 'I' beam joist is comprised of two flanges separated at a distance by a "web". They are assembed using the jigs provided (Figure 1). This can be a fiddly operation, but there are many joists required, so persevere and you will become proficient and fast.

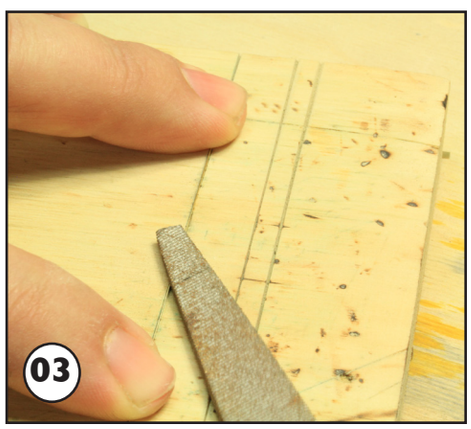
There is a small difference in size between the web and flanges of the joists and they must not be confused or they will not fit in the jig.

Fold the jig verticals up as shown in the figure and reinforce the bend with solder. (figure 2)

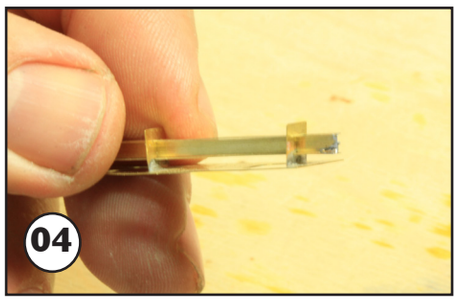




A1.2 Remove the flanges and web from the etch and remove the tabs. This is best acheived without bending the brass by placing the strip in a piece of 9mm ply which has had a groove cut in it with a razor saw, and filing across the edge of the strip to completely remove the tab. (figure 3)

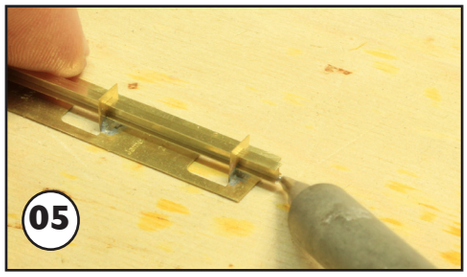


A1.3 Feed the bottom flange into the jig, through the vertical guides. Tweezers are useful for this. Feed the web through the vertical guides, followed by the top flange. If the top flange does not fit, the web may be too wide and require more filing (Figure 4).



A1.4 Align the ends of the flanges and web. The end should be protruding clear of the jig vertical by about 10mm. It is important not to contaminate the jig with flux or solder as it can make subsequent use impossible. (figure 5)

A1.5 Support the end of the beam with a piece of scrap balsawood. Apply flux to the joint and apply solder to the end of the beam. Hold the iron against the end of the beam - you should see solder flow along the joint towards the jig. Feed out some more of the beam and continue to solder. Frequently check that the a good joint has formed top and bottom. (figure 6)

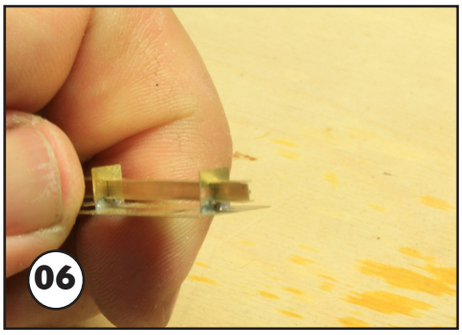


A1.6 Remove excessive solder with solder wick. Be careful to do this as you go, in the jig. Applying heat when the beam is not held by the jig risks distortion and collapse of the whole assembly (speaking from experience here). (figure 6).

A1.7 When the beam has been soldered from end to end, remove flux and wash in in CLR solution.

In total there are:

- 18 beams of 6" x 8" RSJ x 25'6" (89mm) long
- 7 beams of 6" x 5" RSJ x 25'6" (89 mm) long
- 2 beams of 8" x 6" RSJ x 37' (129.5 mm) long



It is suggested that you assemble all of these prior to moving on to Section A2.

A2. Assembly of box sections

A2.1 This tank is supported by four "boxes", one at each corner of the tank. Each "box" is a self supporting, braced structure . You will need to assemble four identical "boxes" using the 6" x 8" joists made in section A1 and the etched jigs provided.

For a two-tier panel, each side of the "box" is comprised of two panels, where a panel is formed by joining the cross-members to the 6" x 8"joists.

A2.2 The jigs are designed to construct the two cross-member assemblies and to join them to the columns so that they are square and parallel.

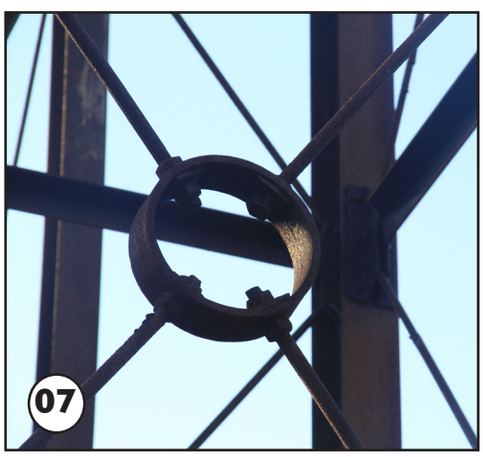
This kit is available in two variants of cross member centre fixing; a tension ring (figure 7); or a plate clamp (Figure 18). This kit is provided with only one style of centre fixing, which you chose when ordering. However, these instructions describe the two options of assembly.

A2.3 Assembly of cross-members

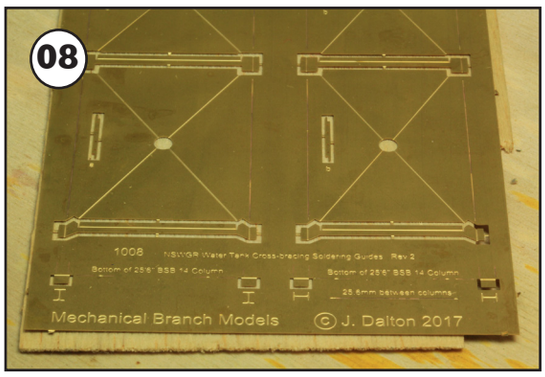
A2.3.1 FOR TENSION RING DESIGN

(Figure 7) The tension rings are a distinctive characteristic of this model and it is suggested that time and care be taken in their assembly. Jigs are provided to assist (Figure 8)

The rings are formed from straps, each with four holes for the tension rod cross-members. If the straps are bent into a ring they will fold at the location of the holes and a square shape will result every time. To avoid this, the following method is recommended.

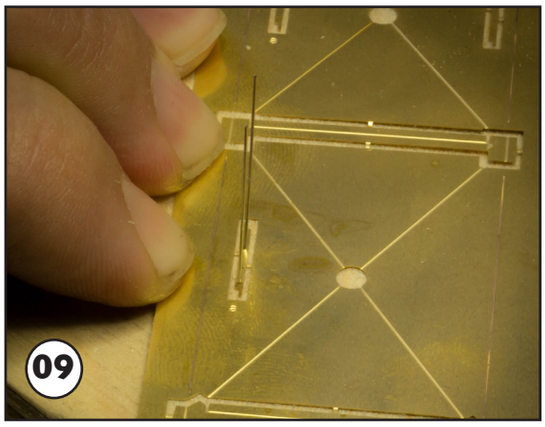


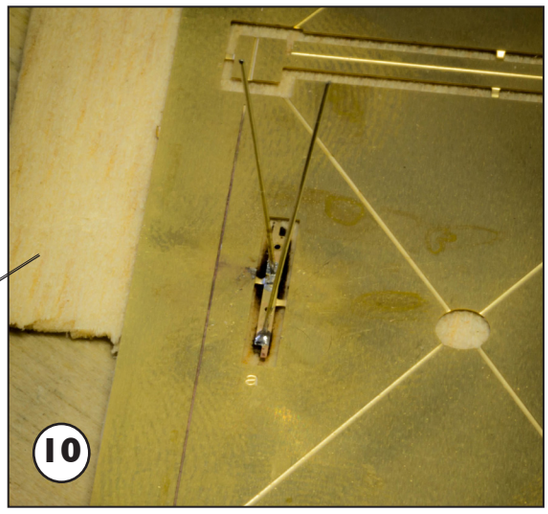
A2.3.1.1. Using the jig (figure 8), measure and cut four lengths of 0.3mm nickel silver wire, each approx 28 mm long.



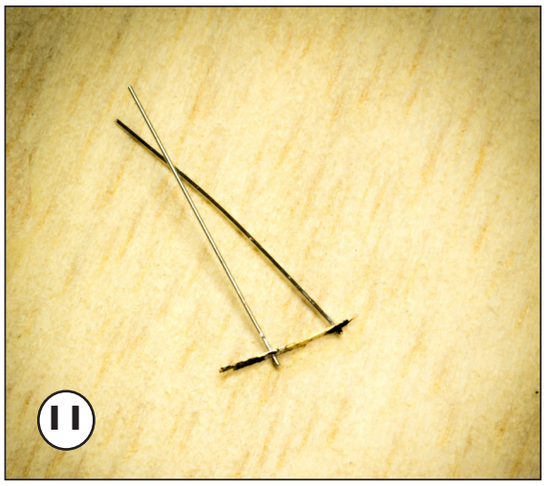
Jig used for the tension ring style cross-member. (Part number 1018).

A2.3.1.2 On a piece of 1mm balsawood, lay the jig. Insert the 1" dia wire (0.3mm) into holes 1 and 3 or 2 and 4 (Figure 9). Solder in position (Figure 10).





A2.3.1.3 Cut the strap out of the jig. Trim the wires so that 2" (0.6mm) protrudes past the inner surface of the strap. (figure 11).



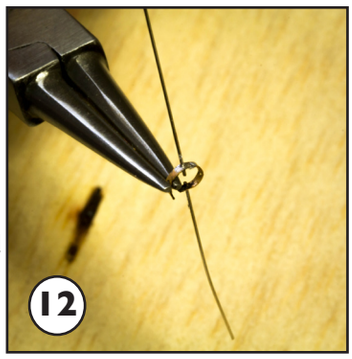
A2.3.1.4 Now the wire can be used to form the strap into a ring shape. Fine needle-nosed pliers are also indispensable in forming a smooth ring. (figures 12, 13)

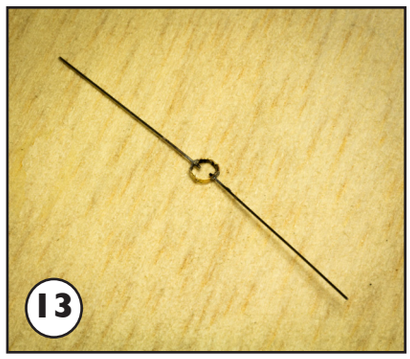
A2.3.1.5 Lay the ring into the centre of the jig. Insert the two remaining tension rods into the ring and carefully solder in place. Notice that the holes are not equally spaced. Ensure the holes are aligned with the tension rod positions marked on the jig. used. (figure 14)

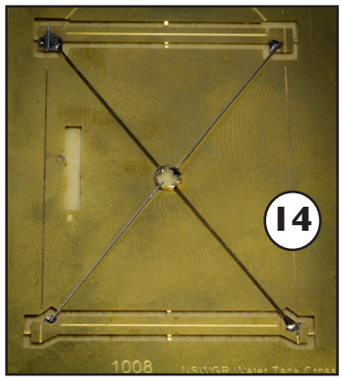
A2.3.1.6 The rods should protrude into the ring approx 2" (0.6mm). (figure 15)

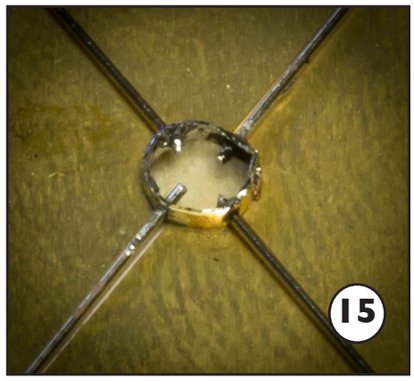
A2.3.1.7 Check that the ring is still an even circle and gently solder where the two ends of the strap join to form the ring. (figure 15)

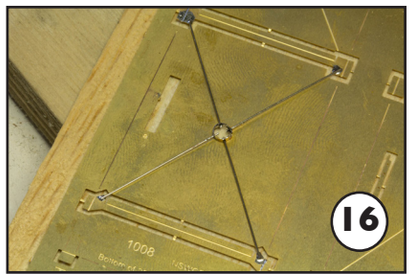
A2.3.1.8 You should now have a ring with four rods radiating outwards, and symmetrical on the horizontal and vertical axes. Each wire can be soldered to the brackets in each corner of the panel. Minimise the amount of solder used. (figure 16)







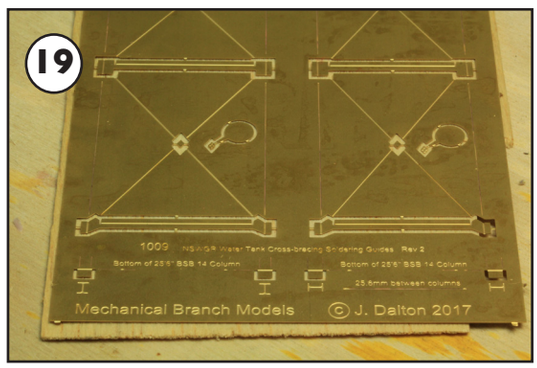




A2.3.2 FOR CLAMPED PLATE DESIGN

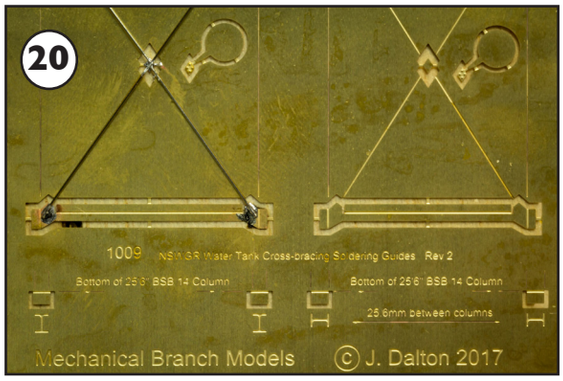
Many tankstands employed a clamp between the cross braces, which comprised two 4" x 4" diamond-shaped plates bolted together at their intersection. (figure 18)

A2.3.2.1 The jig used for assembling panels with clamped cross-members is part number 1009 (Figure 19). The inner clamp is part of the jig.



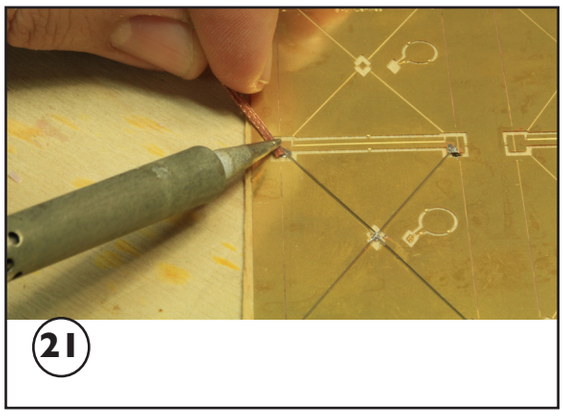
Jig used for the clamped-plate style cross-member. (Part number 1009).

A2.3.2.2 Cut four pieces of 1" (0.3mm) nickel silver wire approx Z mm long. Place these in the grooves of the jig where the cross braces are shown (figure 20).

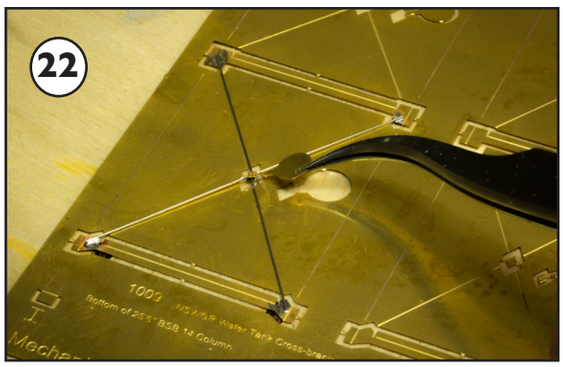


A2.3.2.3 Align the ends of the wires on the centre clamp plate and four brackets. Trim if necessary. Solder in place. Ensure the wire and solder is clear of fold lines. (Figure 20)

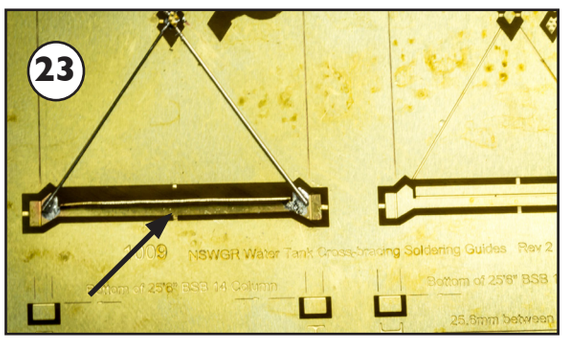
A2.3.2.4 Use solder sparingly and remove excess with solder wick if necessary. (Figure 21).



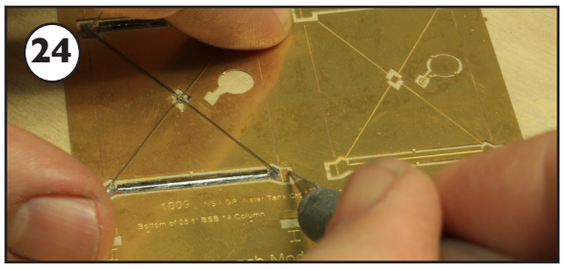
A2.3.2.5 Cut the top clamp out of the jig. There is a circular tab connected to the part to assist in handling this tiny part and positioning for soldering. Apply flux and sweat the top clamp into position (Figure 22).

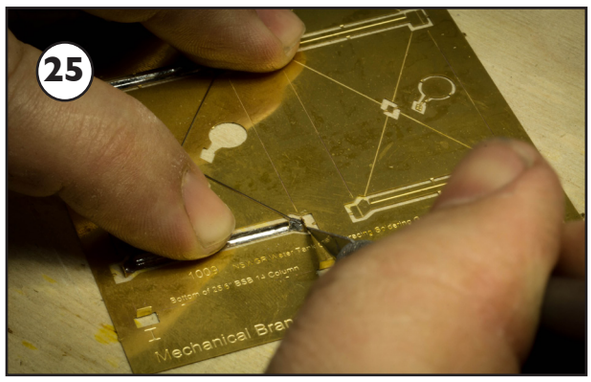


A2.3.2.6 Remove circular tab. Form the angle iron braces by folding as shown in Figure 23.

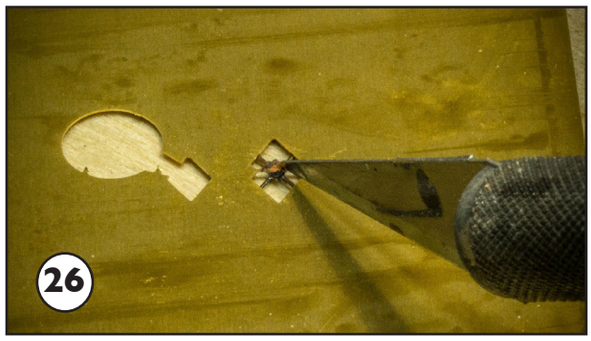


A2.3.2.7 Carefully cut the brackets out of the jig (Figure 24) Fold the tabs at the ends as shown (Figure 25). These represent the angle brackets that join the cross members to the columns. (Figure 14). Remove the cross-member assembly from the jig.

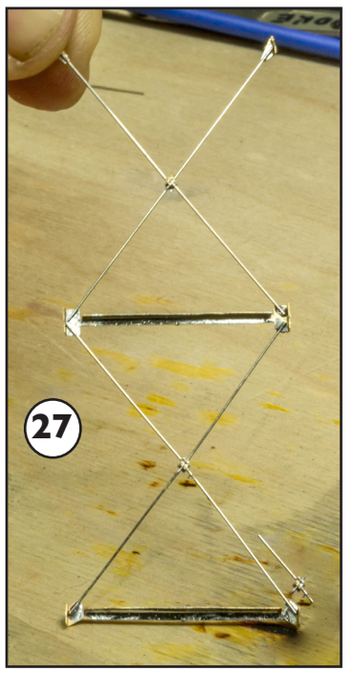




A2.3.2.8 After soldering all four brackets, Turn the jig over and cut the bottom clamps out. This should free the assembly from the jig (figure 26).



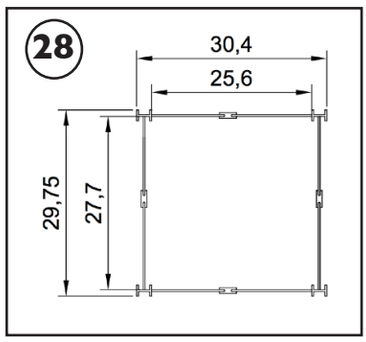
A2.3.2.9 Figure 27 shows a finished assembly. Wash carefully to remove flux.



A2.4 Panel Assembly

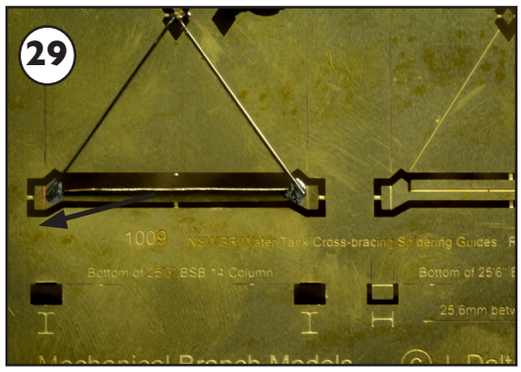
A2.4.1 See figure 28. Although the boxes are 8'-0" (28mm) square, connecting between flanges and webs requires two different jigs.

This is because the distance between flanges is 6'-6" (19.7 mm) and the distance between webs is 7'-6" (22.45mm).



IMPORTANT: Make sure you are using the correct jig when joining the cross-member assemblies to the joists.

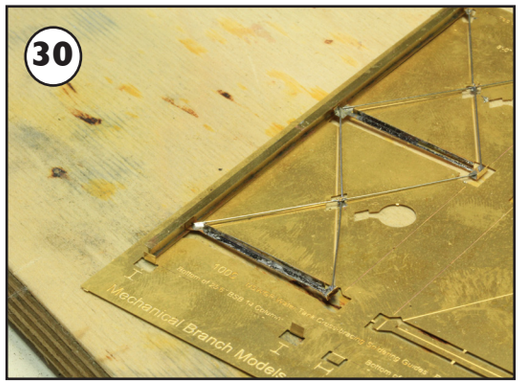
A2.4.2 See figure 29. Note that the orientation of the joist is etched into the jig. Bend up the locating tabs as shown.



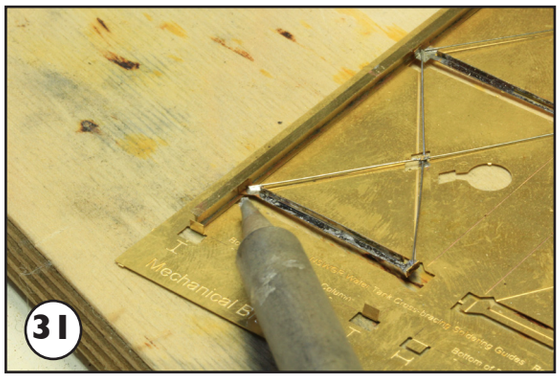
A2.4.3 Place a joist in the jig in the orientation shown on the jig, flush with the locating tabs (figure 29).

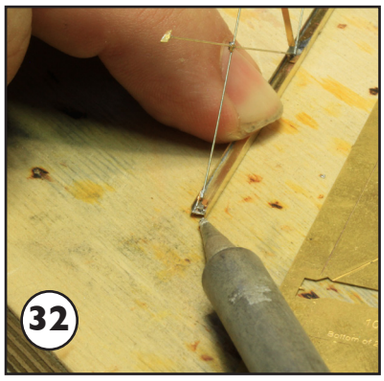
WARNING! Orientation is important. The two columns forming the side of the "box" should be in the same orientation; also the cross-member assemblies should be in the correct orientation. Once they are cut our of the jig, it is easy to mistakenly solder them upside-down!

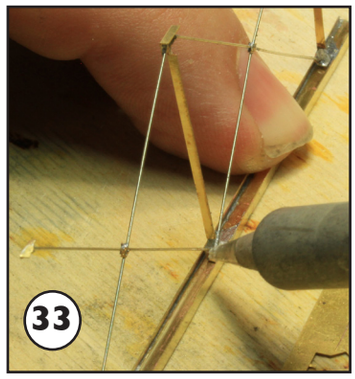
A2.4.4 Align the panel assembly with the marks on the jig (figure 30).



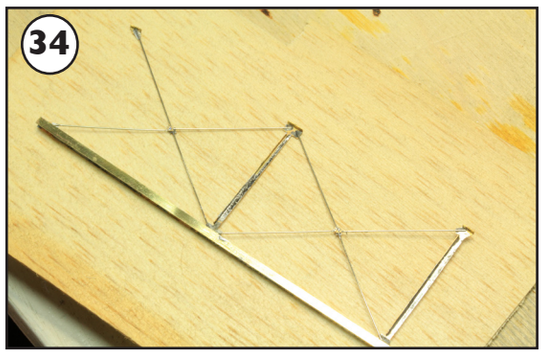
A2.4.5 Tin both the joist and the brace before applying flux to the joint. Quickly solder the bracket to the joist to avoid damaging the adjacent solder joints. Solder all three brackets to the joist. (figures 31, 32, 33).



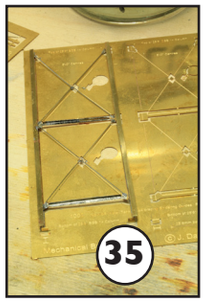


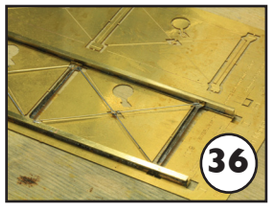


A2.4.9 You should now have a completed panel which looks like figure 34.

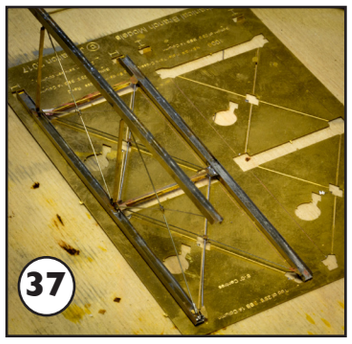


A2.4.10 Solder to the joist to complete the panel as shown in figures 35 and 36.

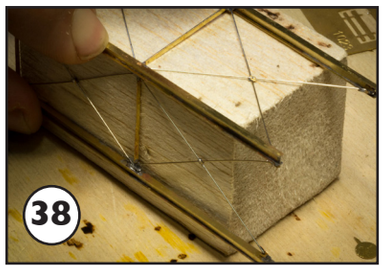




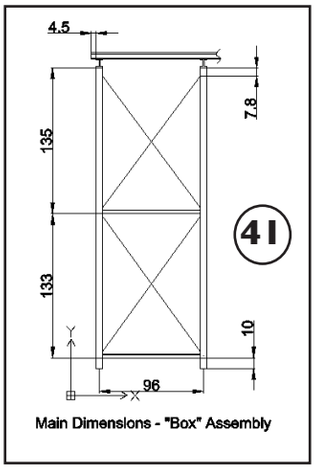
A2.4.10 Complete the adjacent panel in the box. Solder to the first panel using the jig, as shown in figure 37. It is easier to position and form one joint in the jig and then remove and form the two other jigs over a balsa former or similar. (Figure 38).

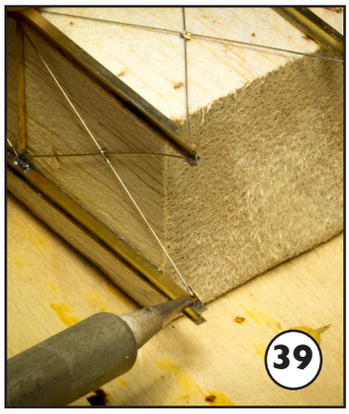


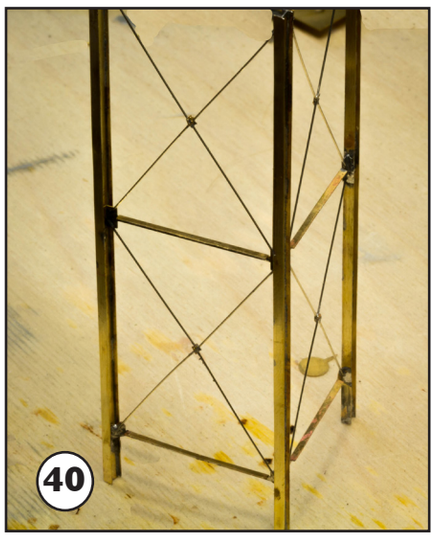
A2.4.12 Now the two opposite panels can be joined together to form the box. Ensure the brackets are soldered in the correct positions and that the box is square in cross-section and to the ground.



A2.4.13 Repeat Section A2 for the other three boxes so that you have four in total. The outline dimensions for the "box" assemblies are shown in Figure 41.



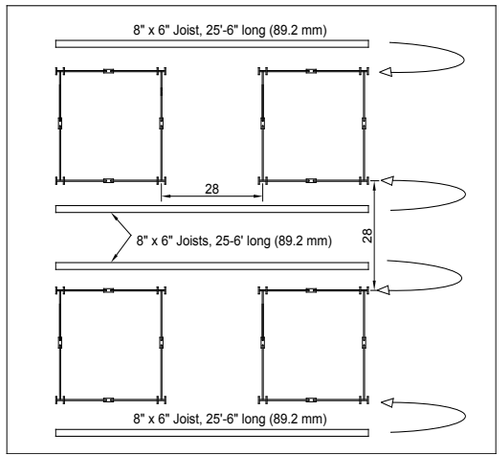




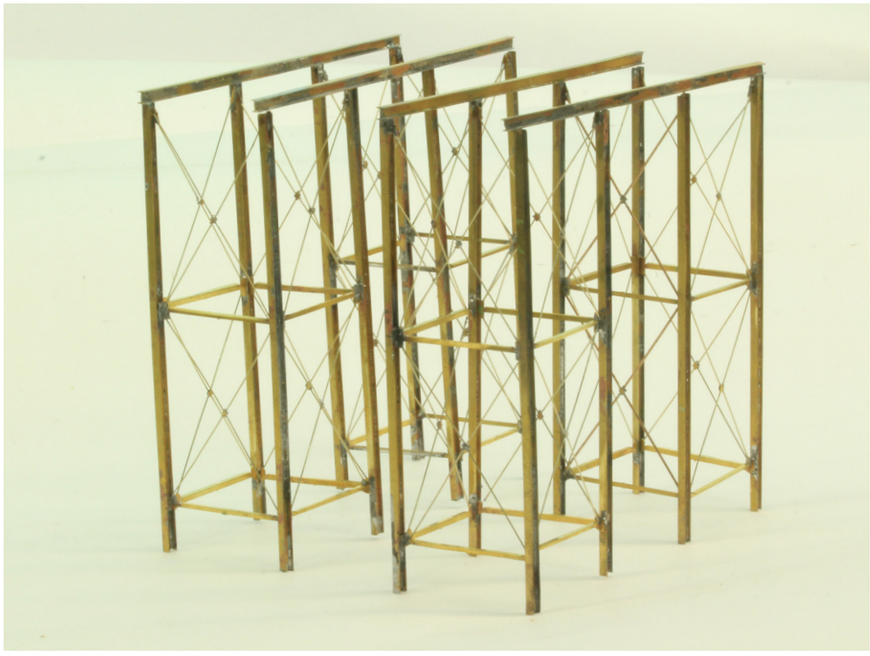
A3. Tankstand Assembly

A3.1 The four "box" assemblies are held in correct relationship to each other by four longitudinal 8"x6" beams and seven lateral 6"x5" bearers. Two of the 8"x6" beams are 37' long as they also support the alkalinity plant. The other two are 25'6" long. Assemble these four beams using the jigs provided and the method described previously.

A3.2 Solder the 8"x6" beams to the tops of the columns as shown in figure 41. Notice that the beams are oriented so that the web is vertical ("I" orientation). The relevant dimensions are shown in Figures 41 and 42.



42



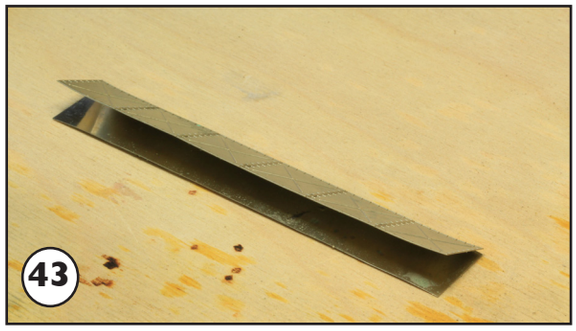
A3.3 If not already done, prepare the seven 6"x5" bearers using the jig provided. These will be used later in the assembly of the tank.

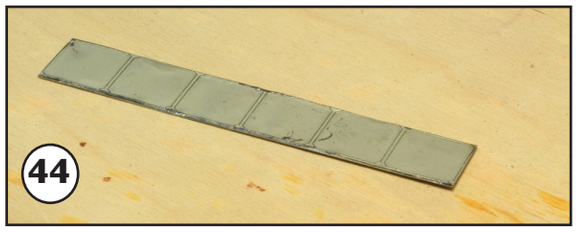
A3.4 Solder a length of scrap material to maintain the 8' spacing between the two tankstand assemblies. These will be removed later, so tack in place using a small amount of solder.

Part B: Tank

B1. Tank sides

B1.1 Fold the four tank sides along the fold-line shown. Tin the inner edge and join the inner and outer sides together. (figures 43 and 44)





Tank assembly relies on all joints being square to minimise gaps and poor fit-up. In particular, the corner edges need to be square to the sides and bottom. To assist with this, a perspex jig has been included in the kit. The following instructions explain how to use the jig.

Study figures 45-47 to be aware of some of the common pitfalls with assembly of the tank. Check regularly to ensure correct assembly and adjust as necessary before the glue dries.

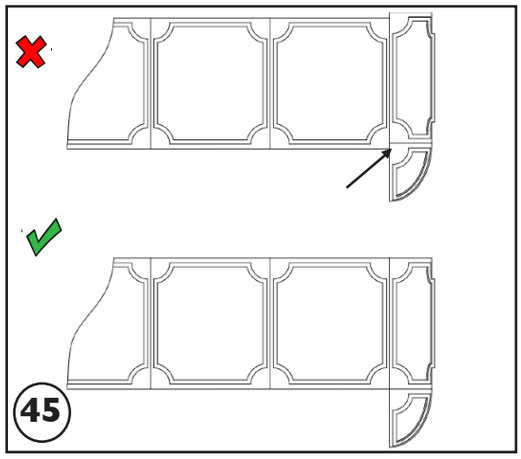
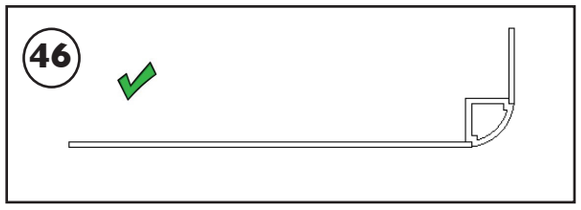
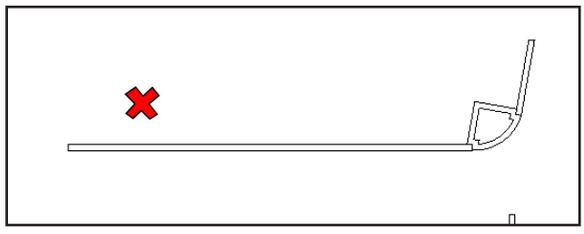


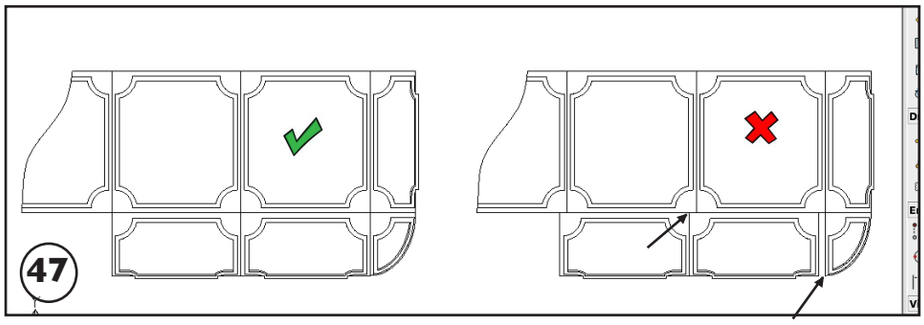
Figure 45 draws attention to the alignment of the edges with the sides. Ensure the top of the edge mouldings line-up with the top of the sides.

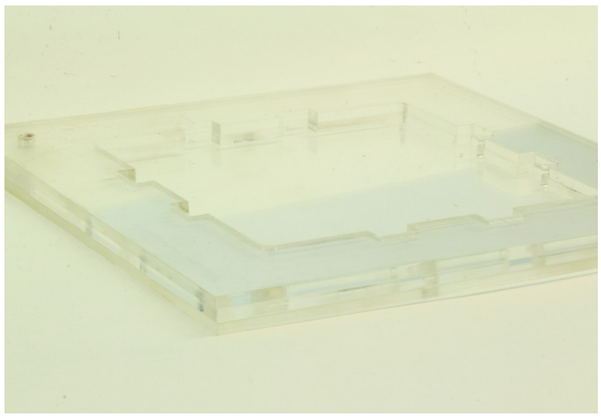
The corner edges need to be square to the sides and bottom, as Figure 46 shows.

Ensure the bottom edge mouldings sit hard-up against the perpendicular edge moulding. Check this by looking for gaps and alignment of the panels as Figure 47 indicates.

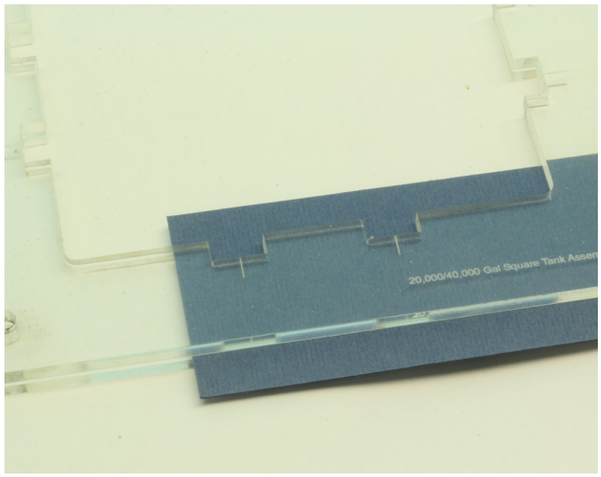




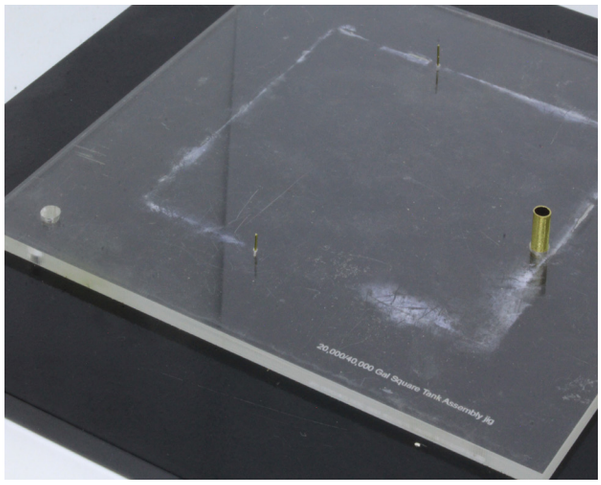




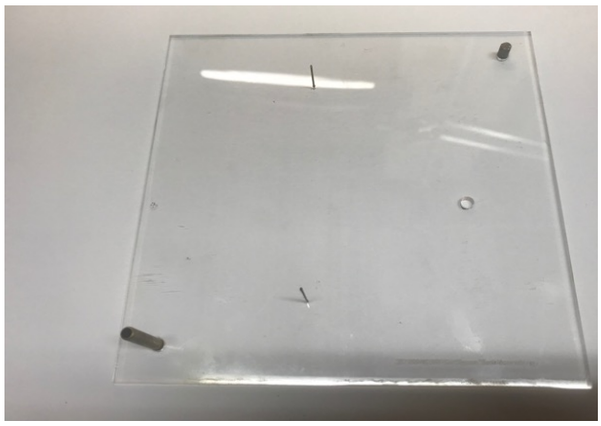
The jig for assembly of the tank comprises three acrylic pieces; a base and two identical pieces with a square cut out of the middle.



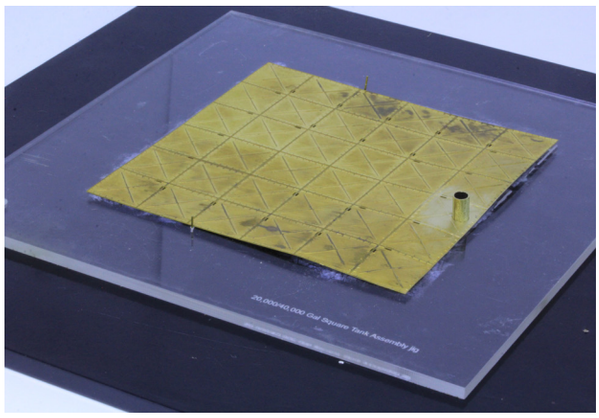
The jig is identified by labelling in the bottom right corner, which should read “20,000/40,000 Gal Square Tank Assembly Jig”.



Taking the base piece, insert a piece of 4mm tube or rod on the right as shown.

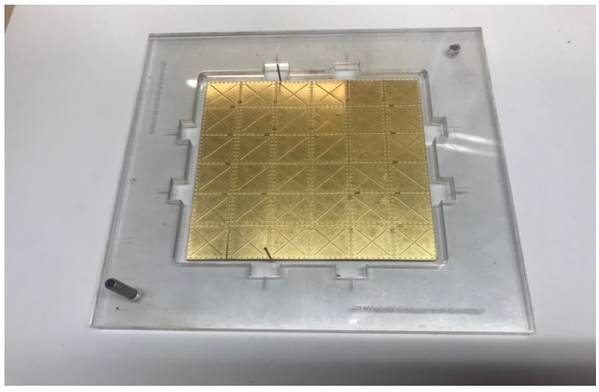


Insert two 4mm dowels for the opposite corners, and two short lengths of 0.5mm wire for the two smaller holes



Place the bottom of the tank on the base piece. Ensure the bottom etch is flat before proceeding.

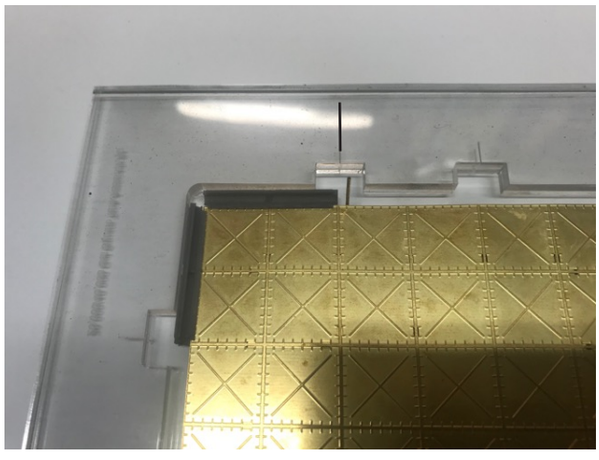
The 4mm dowel should provide one point of alignment with the base while the two 0.5mm wires fix the position of the tank bottom on the jig base.



Place the two Perspex sheets with the square cut-outs on the base sheet – the two corner dowels will align them.

Corner pieces can carefully be attached to the tank bottom. The ends of the corner pieces must align with the edge of the base and with the lines in the jig marked “A”.

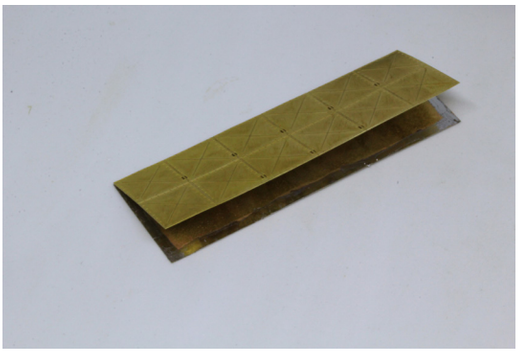
Ensure that the edge of the tank bottom etch are sitting in against the rebate in the corner pieces and that the corner pieces are sitting parallel and square. Dry fit before fixing in place with superglue. Avoid using too much glue and inadvertently gluing the workpiece to the jig.



This shows a second edge piece in position. Alignment of the edge of the piece with the tank bottom and the line on the jig is shown by the vertical black line.

Once some of the corner segments are glued in place, these will maintain the position of the tank base in the jig. Then the 0.5mm wires can be removed to place the corner pieces in those locations.

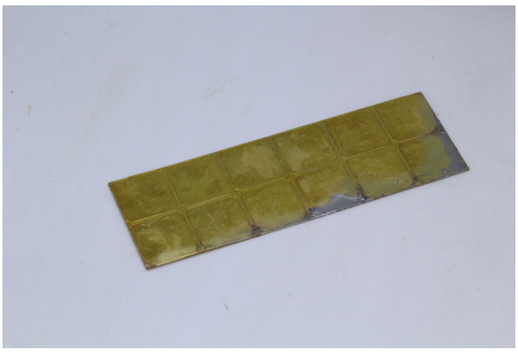
When all the corner pieces are in place, ensure the tank base is not attached to the jig, and allow to dry before moving on to the attachment of the side panels.



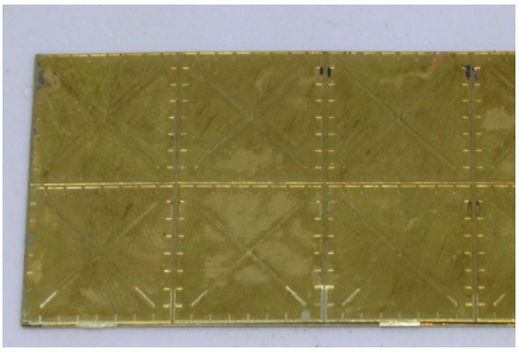
PREPARING THE SIDE PANELS

After removing the panel from the etch frame, cut and file off any remnants of the etch tabs. Don't cut the side panels into two, as this will complicate assembly.

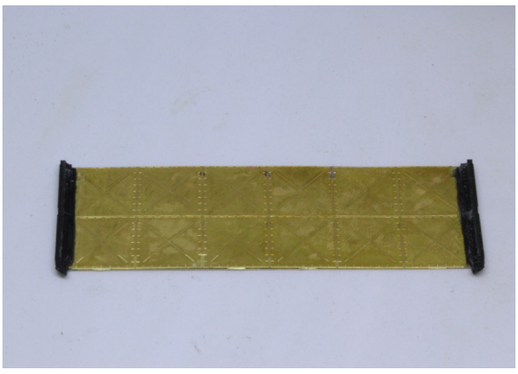
Fold the side panels and tin the inside edges with solder. Ensure any warping of the sides is minimised and apply solder to the edges to join the inside etch to the outside etch.



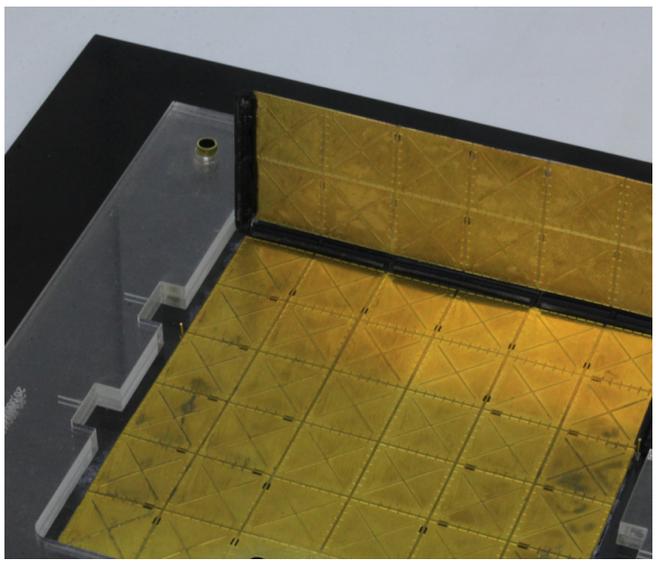
After soldering, clean up the faces and remove any excess flux or solder. Clean up well to remove flux.

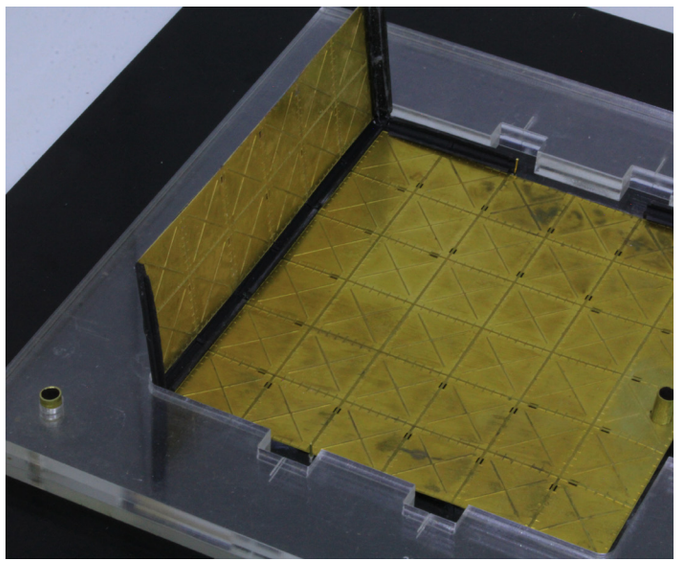


File down etch detail of the inner etch at the ends and along the bottom. This will provide a smoother surface for the corner mouldings to adhere to. Make sure the panel is the right orientation before filing. The openings for the bracing run just below the top edge and just below the middle.



Glue the corner mouldinegs at each end of the side panel, ensuring the side is in the rebate and that the corner is parallel to the edge of the panel. Also ensure that the corner moulding aligns with the top edge of the panel. Set aside to dry.



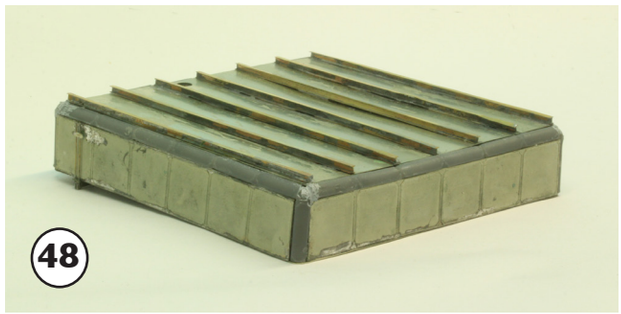


Place the side in the jig ensuring the corner mouldings fit in the corners and the edge of the panel is in the rebate along its full length. Ensure it's square before gluding into place. Continue working around the tank with the second, third and final sides.

B2. Tank bottom

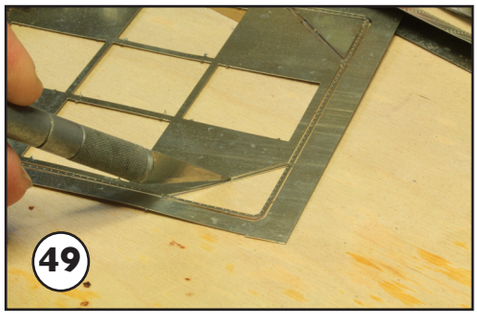
B2.1 Solder the seven 6” x 5” bearers into the half-etched grooves of the outer tank base. Be careful not to apply too much heat to avoid damaging the bearers. A safer alternative can be to use adhesive or a lower-melt solder. E

Glue the tank bottom to the inside tank bottom which is now part of the tank assembly.



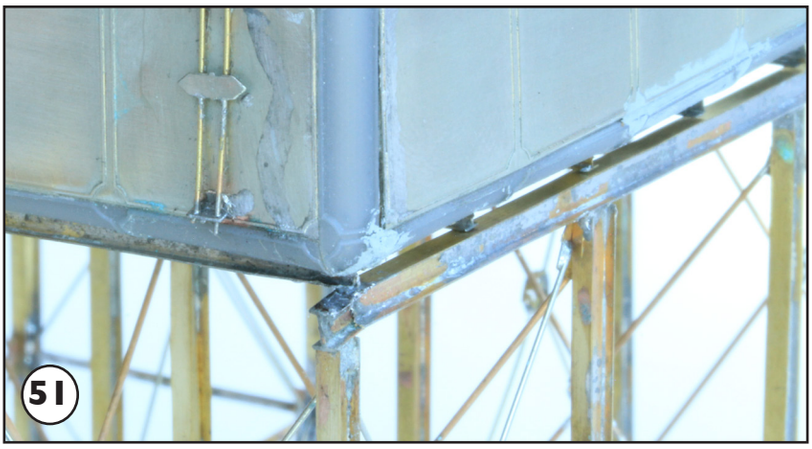
B3. Tank final assembly

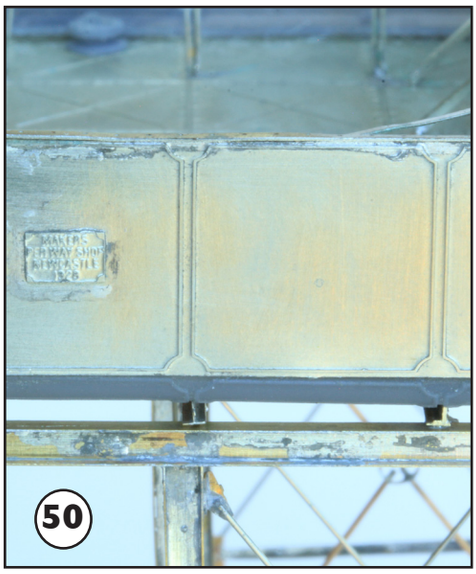
B3.2 Carefully remove the top edge of the tank - this is an etch which represents the edge of the cast-iron tank sides. Check for fit and adjust the sides if necessary. The outside edge of the part should be flush with the outside of the tank. (figure 49).



B3.4 Tack-solder to the top of the tank. When satisfied with the position, carefully solder the edge to the sides around the tank, filling gaps with solder. Figure 50.

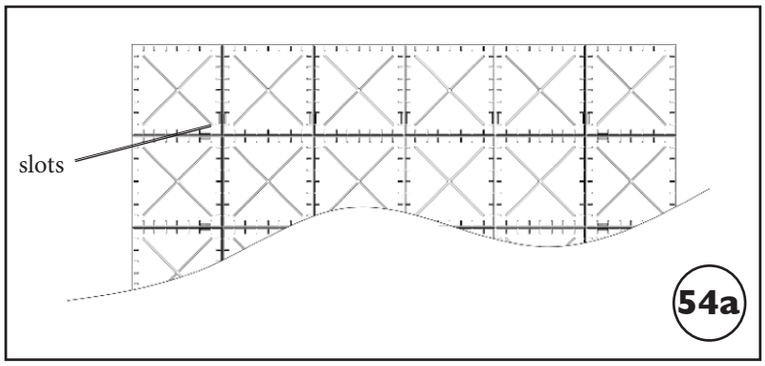
B 3.5 Larger gaps can be filled with putty. File and sand so that the join is invisible. Figure 51.

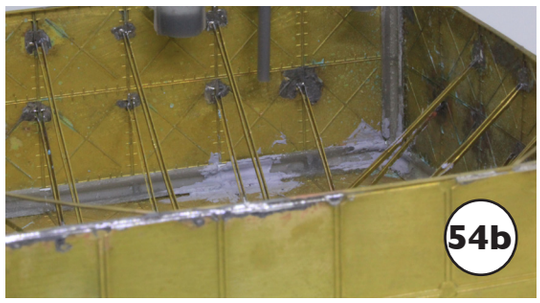




B3.6 Solder the maker’s plate to the side of the tank. It was usually in the centre of one of the centre panels (figure 52). Check photos of the prototype if you are modelling a specific tank. Plates with different years of manufacture are provided (Figure 53); other years are available if required.

B3.7 Form the internal braces and solder in place between the bottom and side of the tank. There are slots to indicate the postion in the inner sides and bottom. (see Figures 54 and 54a). Tanks that are 2-tiers high (such as the 40,000 gallon) have two lengths of brace - a longer one which connects the top tier to the base and a shorter one which supports the lower tier (See 54b). Make sure to fit the shorter braces first as access will be easier.

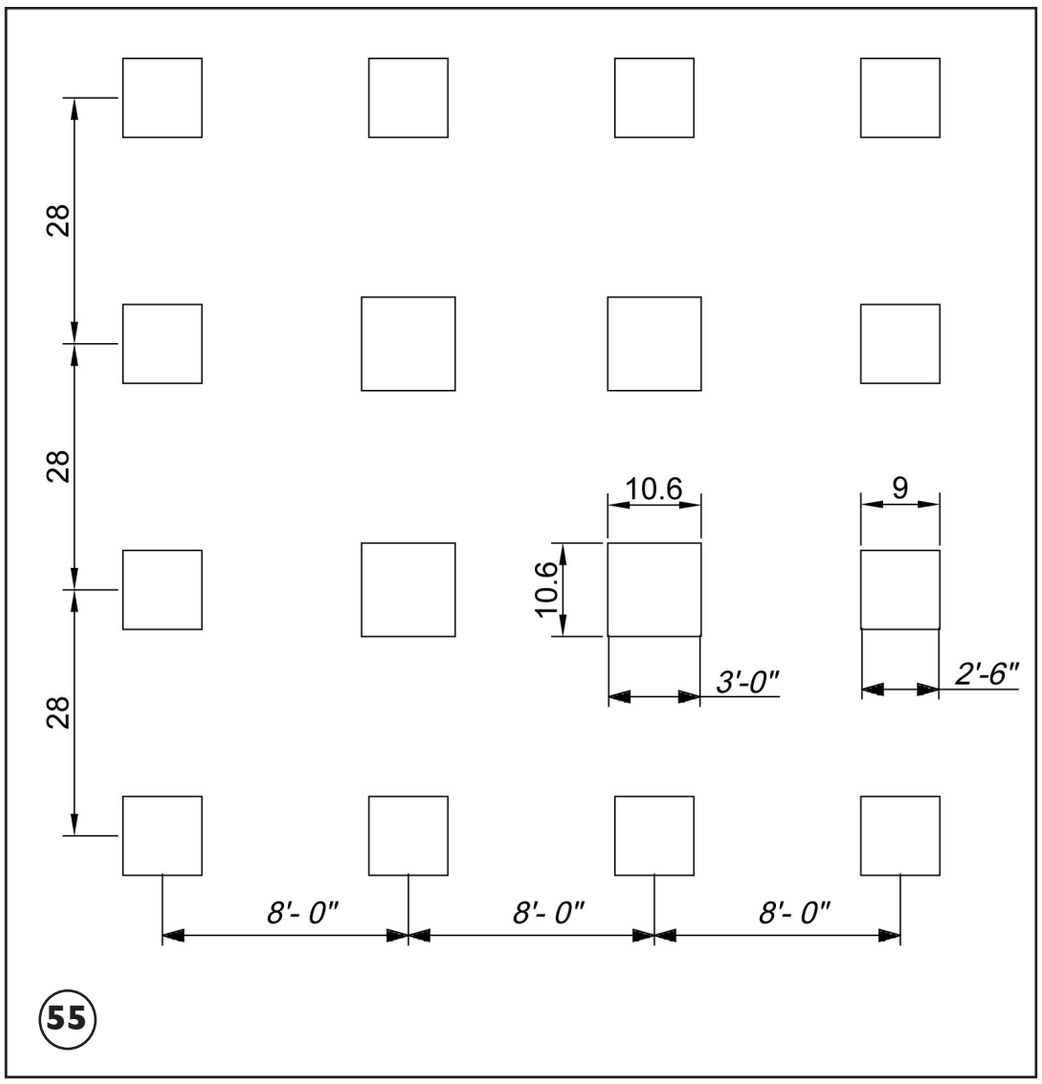


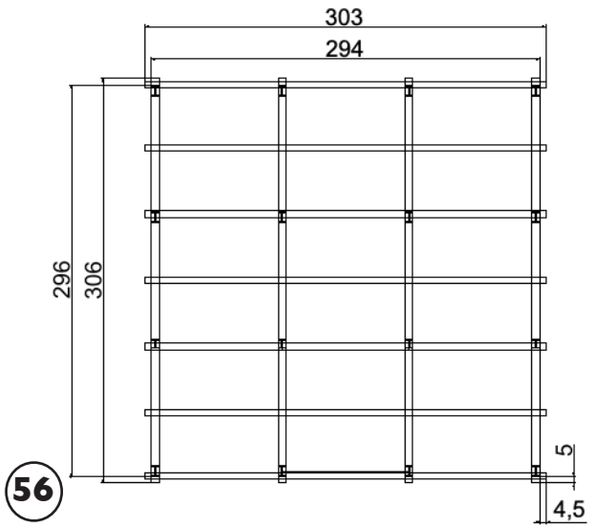


Part C: Assemble Tank to Stand

C1.1 Place the stand on a level surface marked out with at least the corners of the stand as shown in figure 55.

C1.2 Remove the temporary part used to join the two stand halves together (from step A3.4).





C1.3 Place the tank on the stand ensuring that the relationship of the 6”x5” tank bearers and the outer (shorter) 8”x6” beams on box assemblies is as per Figure 56. Also check the orientation - the maker’s plate should not be on the side of the water treatment plant or it will be obscured. When square, solder the bearers to the beams where indicated (it’s not necessary to solder at all points where the bearers intersect the beams - just enough to hold the stand in the correct relationship with the tank).

Part D: Installing details

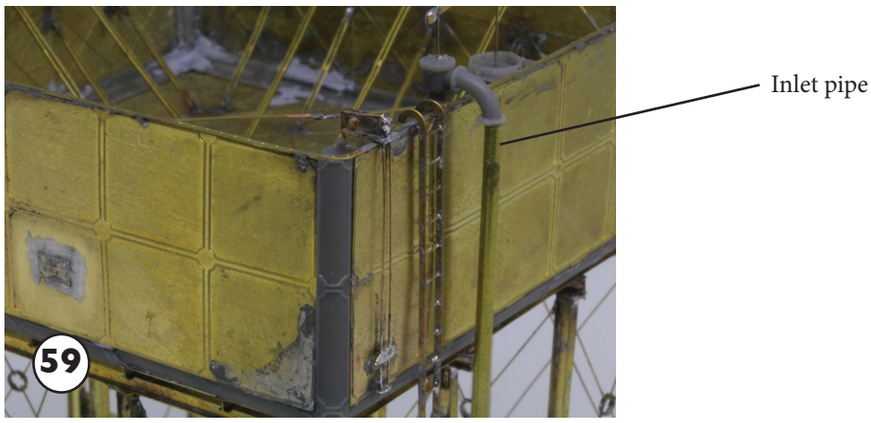
The purpose of the water tank was a storage reservoir to replenish steam locomotives via water columns placed adjacent to the tracks. The tank itself was filled from the town supply or often from a nearby river, creek or larger dam. A float in the tank, connected to a valve, shut off the inlet when the tank was filled to capacity.

A ladder, similar in construction to that used for signals, enabled access up to the tank for inspection and maintenance.

A second float was connected via a pulley to a dolly guided by tubular rails on the side of the tank. The height of the dolly indicated the amount of water in the tank. When the indicator was near the top of the tank, the tank was in fact close to empty.

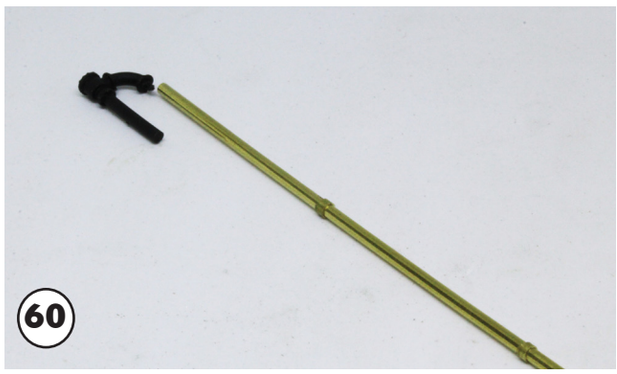
D1. Inlet pipe

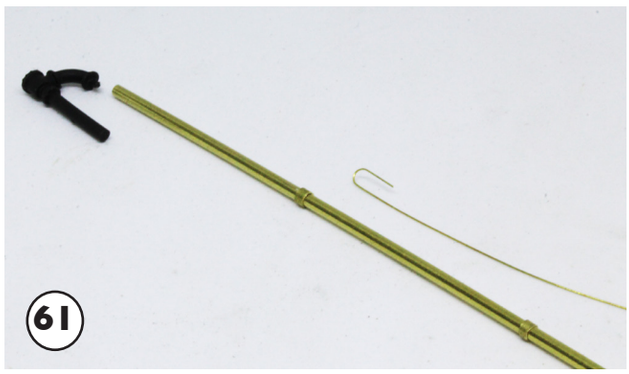
D1.1 The inlet pipe provides water to refill the tank. It is indicated in Figure 59. It is connected at the top to the Equilibrium Valve.

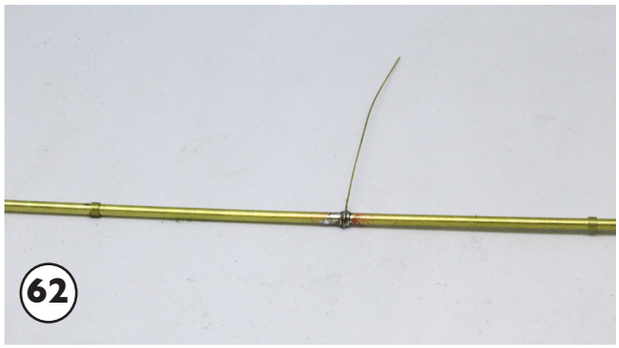


D1.2 The inlet pipe is a length of 2mm brass tube (outside diameter). It is approximately 140mm long (for a 2-tier tank) or 120mm long for a single-tier tank.

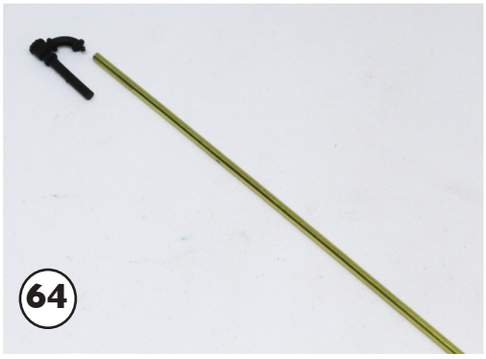
To represent separate lengths of 12' pipes, short pieces of 2.5mm tube (which have an internal diameter of 2mm) are cut on the bench and slid over the 2mm tube. See Figure 60.



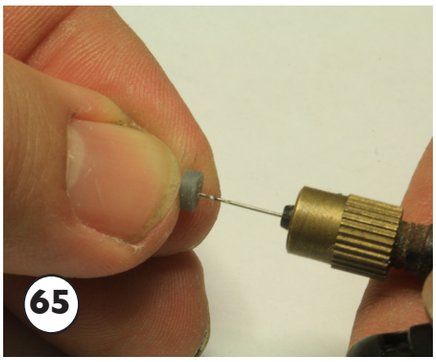




D2. Equilibrium Valve



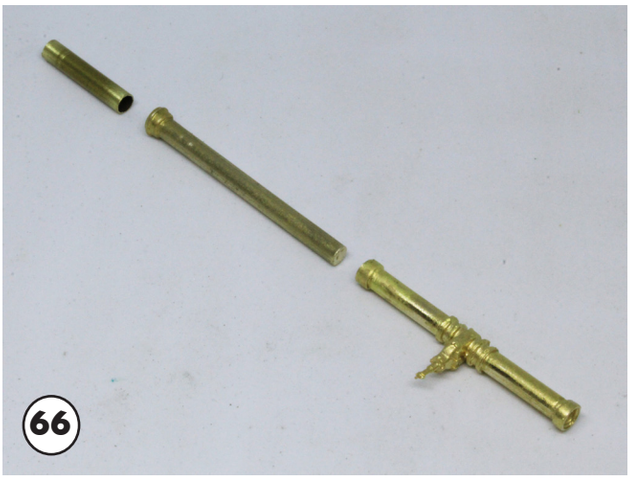
D2.1 Glue the equilbrium valve into the inlet pipe as shown in Figure 64.

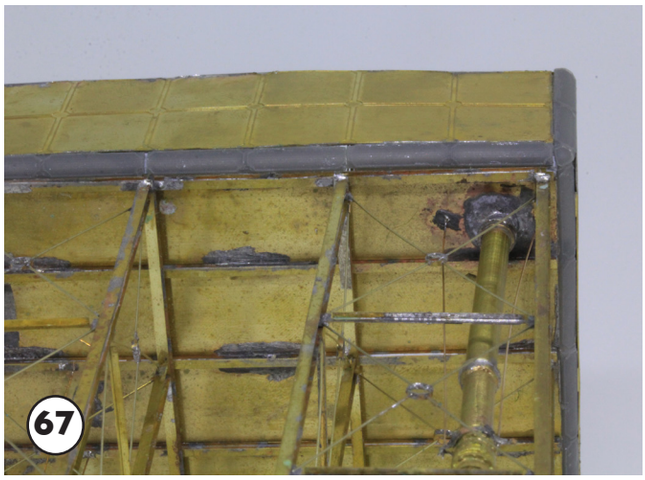


D2.2 Drill a 0.4mm dia hole in the top of the centre of the Equilibrium Valve 2mm deep, as shown in Figure 65.

D3. Outlet Pipe

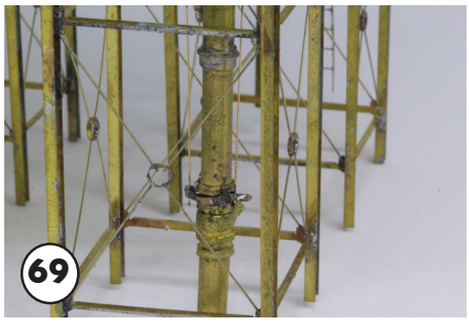
D3.1 The outlet pipe connects the tank supply to the various columns and standpipes in the yard. It is a large capacity (10" or 12" typically) so that the tender can be filled quickly. The outlet pipe is formed from two brass castings and a short length of brass tube. Solder together and ensure the three pieces are coaxial. See Figure 66.



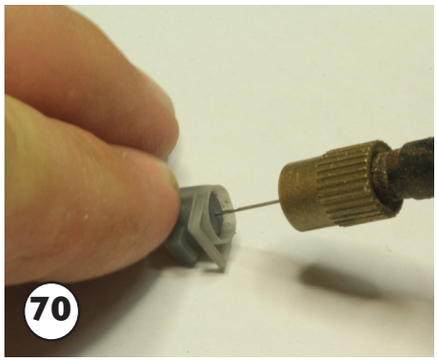


D3.2 The location of the outlet pipe varied depending on the local factors. This tank (based on Orange) has the outlet pipe near the corner of the tank and passing through one of the tankstand legs as Figure 67 shows.

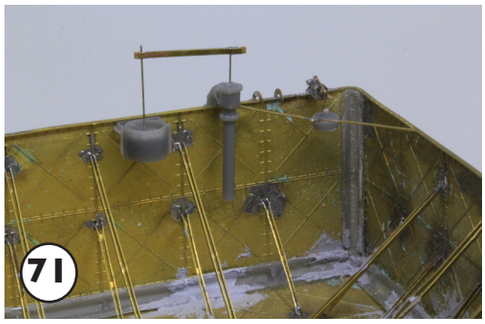
Figure 68 shows another example from Fish River of the flanged connection of the outlet pipe connecting on to the base of the tank. The 1/2" rod to the right is a stabilising member to support the outlet pipe.



D4. Float valve connection

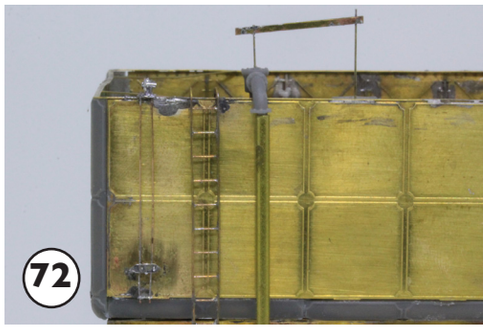


D4.1 Drill a 0.4mm dia hole in the top of the centre of the Float 2mm deep, as shown in Figure 70.



D4.2 Affix the float just beneath the top flange of the tank on the panel adjacent to the inlet pipe and equilibrium valve as shown in Figure 71.

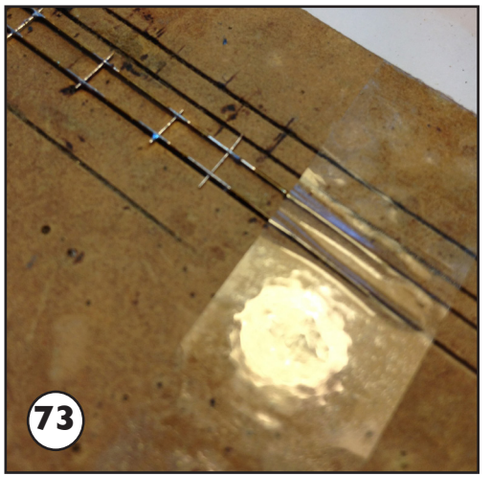
D4.3 Insert 0.35mm wire into the float and Equilibrium Valve as shown. Solder a length of 1mm flat strip between them, as shown. This is the linkage that connects the float to the Equilibrium valve, shutting off the supply when the tank is full. Figure 71.



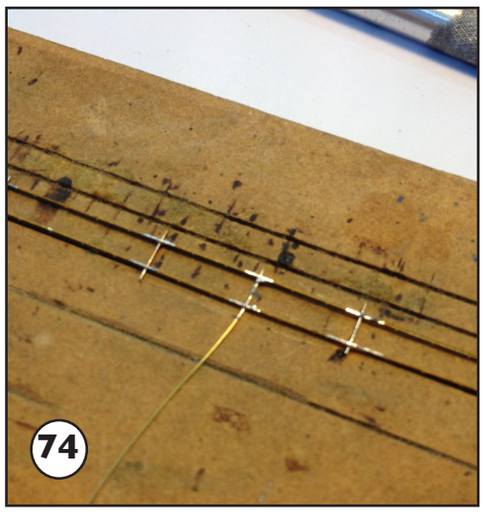
D4.3 The linkage should appear similar to Figure 72.

D5. Ladder

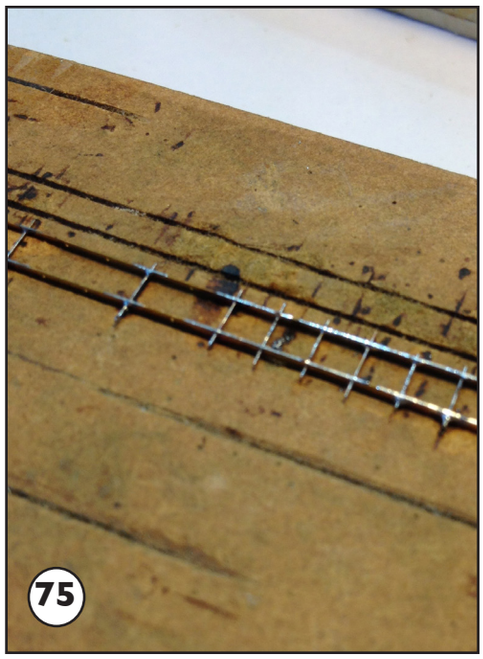
D5.1.1 Fabricate the ladder. It is recommended to use a small length of 12mm MDF with shallow parallel grooves cut into it with a razor saw. These grooves are 13.5" (4.4mm) apart which is the separation between the ladder stiles (note that this is wider than a standard signal ladder).



D5.1.2 Tape down the ends of the ladder stiles and pass some 0.18mm brass wire through opposing holes, at the top and bottom ends of the ladder and one or two at the middle. Check that the rungs are square to the stiles before adding the remaining rungs. Overheating the brass will cause distortion.



D5.1.3 Ensure that the solder joints are sound before trimming the excess wire either side of the stiles. Solder wick is useful for removing excess solder. Carefully file the stiles to remove excess wire and solder.



D6 Install ladder

D6.1 The ladder is are arranged as shown in Figures 76 and 77. It is almost vertical but it should be about 10mm out from the base of the stand. Often stays were employed to strengthen the ladder, as shown in Figure 76.

Method of fixing inlet pipe and ladder to the stand to bracing.

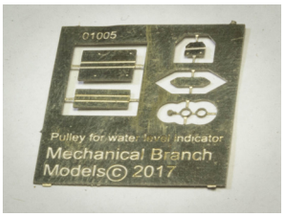
The ladder hooks over the top flange of the tank.

Method of fixing inlet pipe and ladder to the stand to bracing.

D7. Water level indicator

D7.1 Assemble pulley assembly and water level indicator

D7.1.1 The etch (figure 116) comprises a flat base, a second, narrower rectangle which is folded into a "U", and indicating plate and a slider.

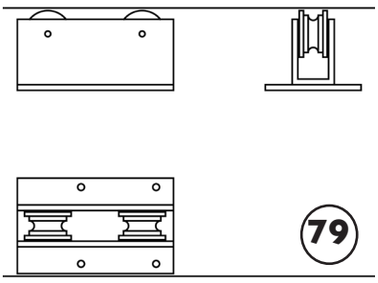


D7.1.2 Assembly of the pulley assembly is shown in Figure 117.

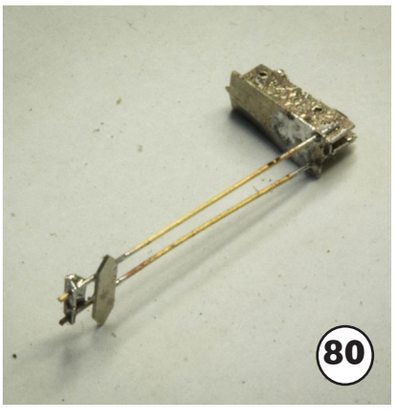
Drill out the four holes in the base and the two holes in the slider, to fit 0.3mm wire.

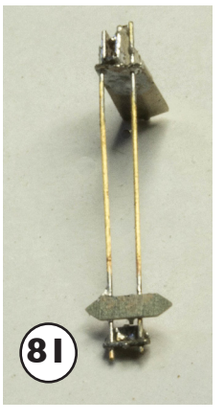
Fold up the channel and solder to the base.

Fitting pulleys is an optional detail.



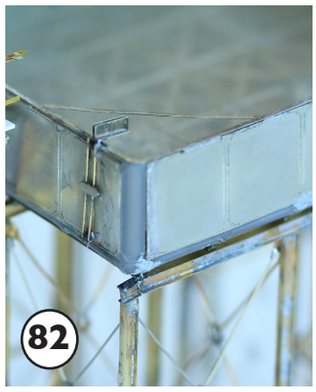
D7.1.3 Fold the slider into an "L" shape. Cut two 15mm lengths of 0.3mm wire and solder into the holes in the pulley base and slider as shown in Figures 118 and 119.



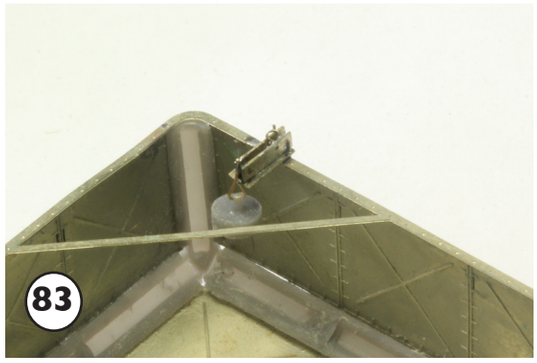


D7.1.4 Solder the pulley assembly to the top edge of the tank as shown in Figure 120.

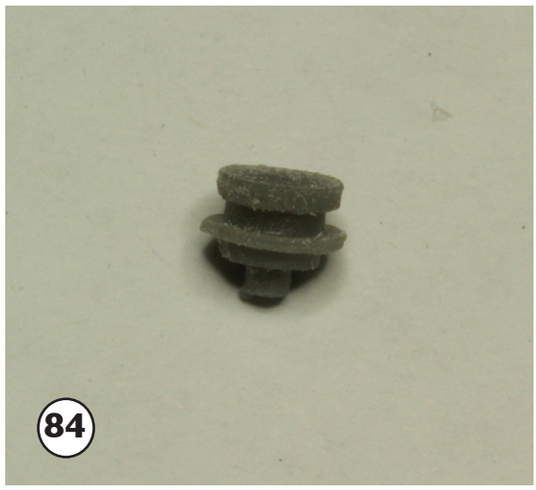
A full tank would be indicated by the indicator plate at the bottom of the tank. Figure 120 shows a tank approximately half full.



D7.1.5 Cut a length of 0.15 wire to the float so that it will sit at the desired water level in the tank. Glue the wire to the float. Glue or solder the wire to the pulley assembly. This is shown in Figure 83.



D7.1.6 Fit the main outlet pipe strainer to the hole in the floor of the tank and glue in place.



6. Painting and weathering

6.1. Ensure the tank is clean, free of loose material, grease and flux. Paint with a self etch primer.

6.2. The tank and steelwork were painted a mid grey. Refer to photographs to match the colour. Successful results have been obtained with Vallejo Model Air Acrylics, where Deep Sea Grey was used. Building up colour with several coats is more effective than one or two heavy coats.

6.3. Photographs from the 1940s and 50s show that tanks were often well maintained, however at that point many were less than ten years old. As would be expected with an outdoor structure holding untreated water, tanks became rusty and stained with salts. The cast iron panels were sealed to each other with a compound containing iron filings so that any leak would cause the formation of the oxide and seal up the leak. Therefore, rust and salt stains often formed along the joints between panels.

7. Final Assembly

7.1. After painting, paint and attach the concrete footings. Two sizes of footing were used, the larger on the four innermost columns.

7.2 Representing water in the tank

Prepare the inside of the tank by painting a mid-brown, with highlights to represent rust and silty water. Tide lines are common around the inside of the sides of the tank. If desired the tank can be filled with a clear resin. I recommend Barnes Products Epoxy-Glass ultra-clear resin. This product can be tinted if required. Ensure any holes or gaps in the tank are filled before pouring in the resin.

2-tier tank at Orange showing the 6” inlet pipe and indicator (note that this is a different style of pulley assembly)