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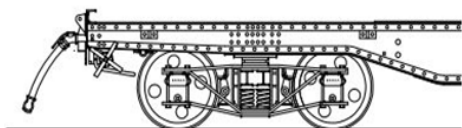


NSWGR 75ft TURNTABLE KIT Nickel Silver Etch - Cast Hydrocal Pit

Cast Brass and 3D printed details. Ball raced for smooth operation.
Motor mount to suit various drive motors and indexing systems.

ASSEMBLY INSTRUCTIONS

V 1.01



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Assembly Instructions

This instruction sheet describes how to assemble the 75' turntable kit. There are two sections to the instructions, The bridge assembly, and the pit and drive mechanism. The two main components are the etched nickel silver sheet, and the cast Hydrocal pit. There are also several bags of cast polyurethane castings, cast brass parts, 3D printed parts, fixing hardware and bearings, scale timber and motor mount assembly. Included are several jigs required to assemble the kit. I have tried to include EVERY item needed to complete the assembly less paint and solder and the modeller should check through these parts against the provided parts list to ensure the kit is complete.

An indexing system is required for proper operation of the turntable. Our motor mount system can accept three variations of drive motors (usually the stepper motor type) but can be adopted for use with other commercially available systems. My primary recommendation is the NYRS (New York Railway Systems) indexing system from the USA. This system features a keypad control, indexing of up to 99 tracks, Indexes both ends of the bridge, very fine 0.025 degree indexing resolution. Simple programming, select from 14, 400 possible stopping locations, High torque stepper motor with internal gearing for quiet slow smooth operation.

Other options are detailed on our website.

Prototype Info:

The first 75' turntables in NSW appear to have been those installed at Enfield locomotive depot in 1916. Three sheds at Enfield were fitted with manually operated 75' turntables to enable them to turn larger locos in years to come. At around 1923 and after the reclassification from the NN2 Class to the 36 class, the 36 could not be balanced on the more common 60' turntables of the time and could only be turned on these tables by separating the tender from the loco. To accommodate the larger loco, 75' Turntables were installed at the appropriate depots from 1922 on. When the 4-6-2 38 class loco entered service in 1943 its wheelbase of 65'6" enabled it to be turned on a 75' turntable manually without any difficulty.

The standard NSW 75' turntable was of a single span type. It was fabricated from steel and was either electrically powered or manually operated, depending on how busy the location was. The only NSW locos that could not be turned were the D57 and 58 class and the AD60 Beyer Garratt's. Information at hand shows there were a total of twenty 75' turntables on the NSWGR system.

Tools and techniques:

The kit can be assembled with basic tools. I did find however that a wide jaw flat set of pliers are handy to help fold some of the etch parts but is not essential. A good soldering iron is required for the etched nickel silver parts plus a number of files for clean up. The etched parts should be removed from the fret by placing the etch on a firm flat surface (such as a block of wood) with the half-etched fold line facing upwards. Using a sturdy knife, slice through each tab. The aim is to slice through each tab in one cut without distorting the surrounding metal.

When soldering, some parts need to be laminated to each other. Short lengths of solder, cut using a scalpel, and picked up with a cleaned iron tip is a good way to minimise excess solder being transferred to the parts and plenty of flux should also be used to help wick the solder under the parts. Please refer to **Diagram 1** for components of the large etch sheet.

Included are several jigs to assemble the kit. These should be used as per the instruction sheet. There are a number of small M2 grub screws. Included is an Allen wrench to suit. These grub screws are tiny and do not need to be ridiculously tight when fitting. I have pre tapped all the threads in the parts for these grub screws so no taps are required.

The etch assembly and all urethane parts should be washed during and after construction. Soapy water is good to remove residue from urethane parts and I have found 'Pine O Clean' surface cleaner is good for the nickel silver. I do this regularly during construction to keep everything clean and free from flux residue.

75' TURNTABLE COMPONENTS LIST

Bulk Items.

1	Nickel silver etch sheet			
1	Pit casting			
1	Ring Rail			
1	3mm acrylic motor mount disk			
3	Conduit standoffs			
1	10mm acrylic assembly jig			
1	6mm MDF assembly jig			

Brass Parts

1	Brass main shaft			
1	5mm x 70mm pickup braid			
1	2mm x 70mm copper tube			
1	1mm x 70mm brass wire			
2	brass pickup rings			
26	Cast brass handrail staunsons			
2	0.4mm x 300mm brass wire			

Urethane Parts

1	Pickup Bush			
1	Bearing retainer plate			
1	Handrail assembly jig (PAIR)			
1	Rail strips. (PAIR)			
2	Drain grate details			
8	Lock plate details			
2	pickup support brackets			

Hardware

1	Printed Circuit board			
14	Self tapping Screws			
2	M2 X 6mm machine screw			
2	M2 X 12mm machine screws			
4	M2 hex nut			
3	M2 x 6mm grub screw			
1	M2 x 3mm grub screw			
1	allen wrench			
2	springs			
1	2 pin male conector			
1	2 pin female conector			
2	large flanged bearing			
4	small bearing			
2	black wire 100mm			
2	red wire 100mm			
1	heat shrink tube 20mm			
3	Timber screws xxmm			
1	3D Printed deck block			
2	3D Printed lock pawl detail			
2	6x8 scale timber			
4 1/2	3x8 scale timber			
1	12x12 scale timber jig 100mm			

ANDIAN MODELS - 75' TURNTABLE ETCH SHEET PART NUMBERS

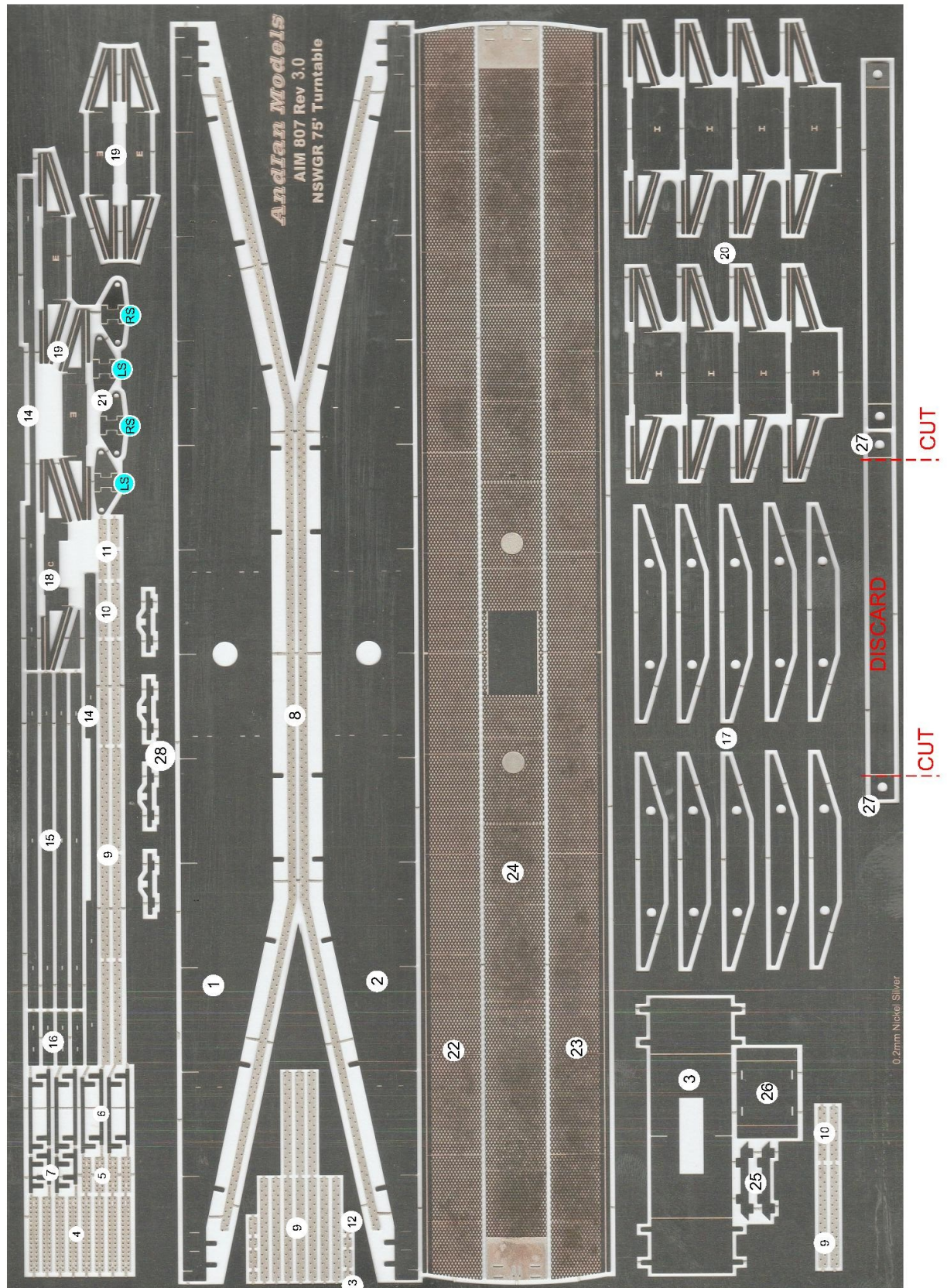
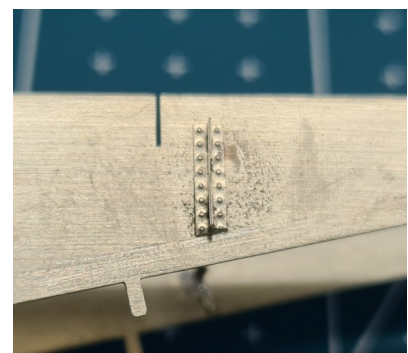
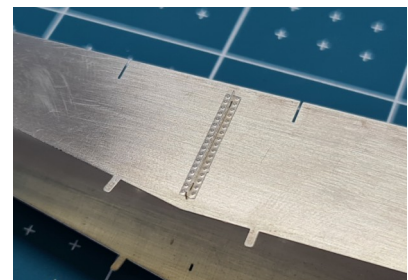
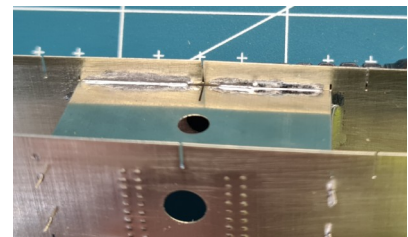
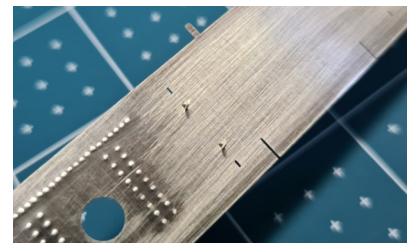
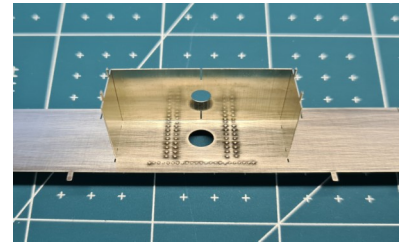
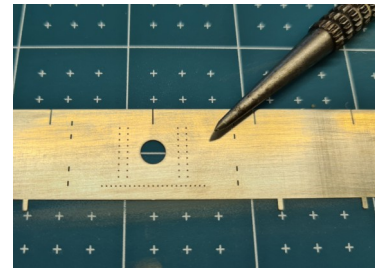


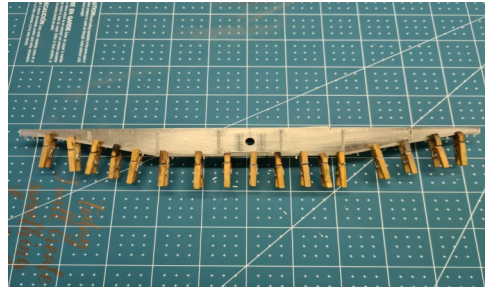
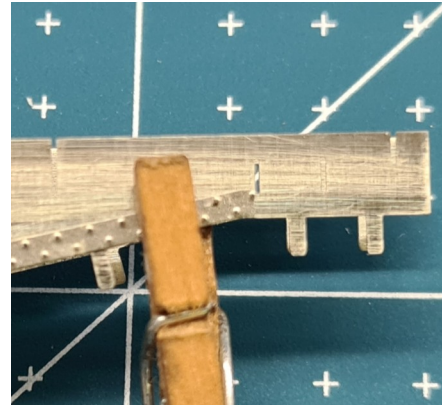
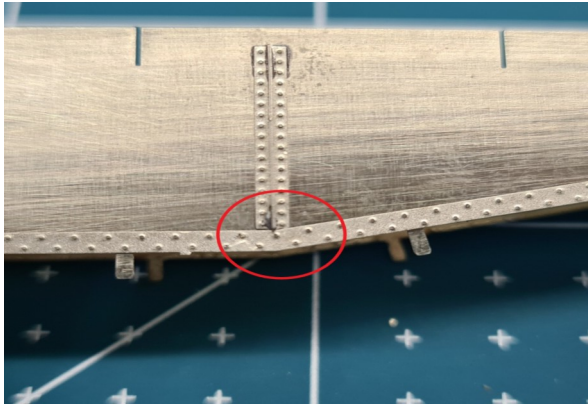
Diagram 1

1. Remove the left and right sides of the turntable bridge (1 & 2) from the etched sheet. There are a number half etched holes on the inside face that need to be punched to create rivet heads on the outer surface. With the etch laid flat on a piece of dressed pine or rubber work matt (avoid anything too hard), apply a light tap with a small hammer using either a steel pin punch ground to a slightly blunt point or an old steel HO scale axle. This will cause the sheet to distort slightly however it can be massaged flat using either a soft plastic object or a small stick of balsa wood will also work.
2. Remove the bridge centre box section (3) and fold at 90° along the two half etched lines. The tabs of the box pass through the slots from the back side of the bridge sides (the same side as the half etched holes as in step 1) and are twisted to approximately 45°. These tabs will hold it in place while soldering. Laying the assembly top down on a piece of glass before soldering is a good idea to ensure that its square.
3. Solder ONLY around the outside of the box and avoid getting solder in the slot at the top of the box as shown as this will prevent the cross beam angles to be inserted at a later stage. Remove the protruding tabs and file flat.
4. The angled rivet details (4, 5, 6 & 7) on the outside face of the bridge beams are also attached by passing the tabs of the vertical section through the slots in the rivet detail overlay then through the slots in the beam. They are held in place with the twist tabs. Just a small amount of solder applied to the tabs from the inside is all that is needed to hold them in place. Too much solder can wick through the slot and onto the rivet detail.

NOTE: It is important to remove and file flat ALL the protruding tabs especially the two inner most ones closest to the box. They are at the bottom of the box and can prevent the shaft block from sliding in.



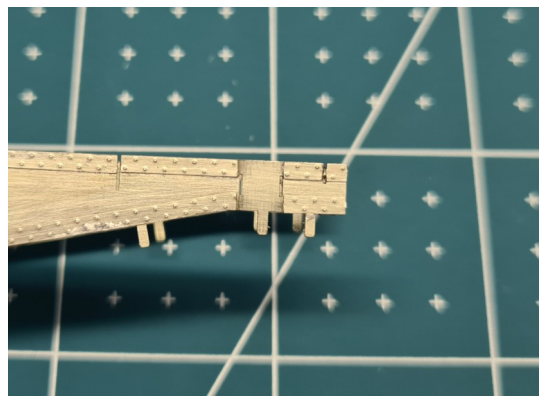
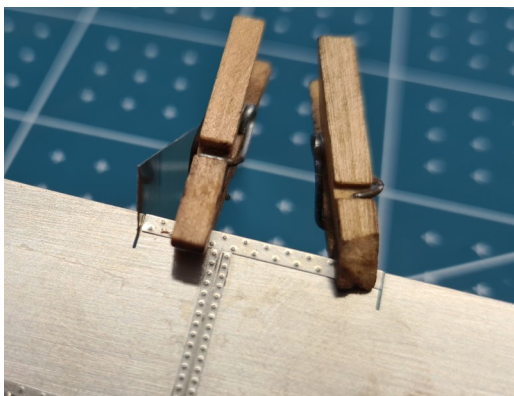
5. The rivet overlays (8) that run along the lower edge of the bridge beams need to be laminated in place. They can be held in position using small miniature timber cloths pegs, standard sized ones will also work but may need to be modified to suit. Be sure that the small rivets line up with the vertical braces, as pictured below and the ends finish just short of the inner slots for the outrigger. Working from the middle out when soldering will prevent the overlay from bulging from heat expansion.



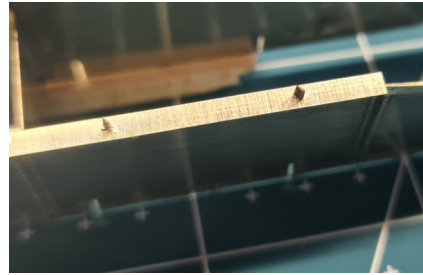
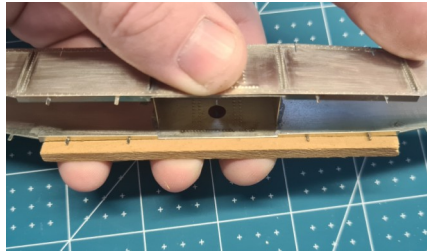
6. Solder along the bottom edge running the iron at 45° to the beam. Plenty of flux and VERY small amounts of solder will allow the solder to wick underneath the rivet overlay. De soldering braid can be used to remove any solder that happens to find its way onto the rivet overlay surface. DO NOT USE THE PIECE INCLUDED IN THE KIT!



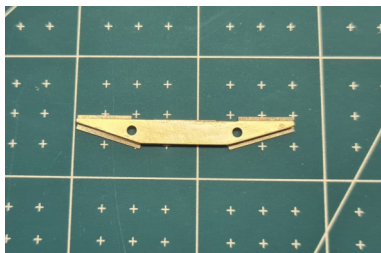
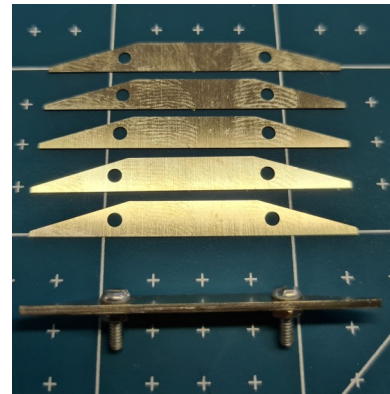
7. The rivet overlays (9, 10, 11, 12 and 13) for both the ends and along the top of the beam are attached using the same method. Be sure that they are level with the top edge and that a small off cut of the etched fret can pass down into the slots.



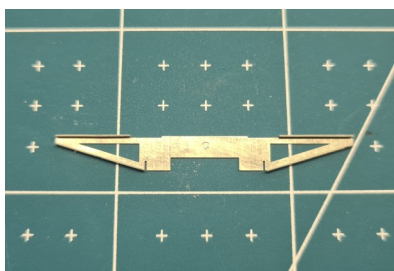
8. Attach the lower flanges (14) to the bridge beam using the twist tab method. The cut out section goes to the inside to create an open square box.



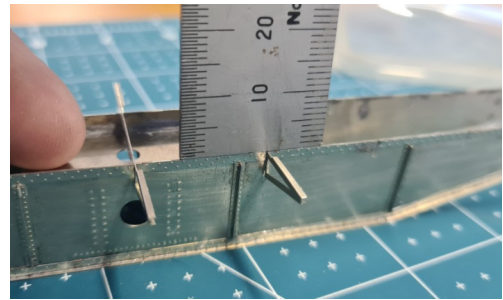
9. As in the picture above, use the supplied 12x12 scale timber to hold the flanges flat while soldering. Ensure that the flange is at 90° to the beam and again, soldering from the centre out will keep it from bulging. Just a fine fillet along the inside corner is all that's needed to hold it. Remove the twist tabs and file flat. File the cut outs of the box so they are flush with the inside surface. Attach the remaining lower flanges (15 and 16) to the ends of the beam.
10. A jig is needed to aid in folding the cross brace angle pieces for the top of the beam. Remove all 10 of the jig pieces (17) and using the supplied M2 x 12mm cheese head screws and nuts, bolt 5 pieces together through the holes and solder around the edges to laminate them together. File the edges flat. Repeat for the remaining five pieces.
11. Sandwich one of the cross brace pieces (18, 19, 20) one at a time between the two jig pieces and bolt them together. Make sure the half etched fold lines are visible on the four sides to be folded.



12. Using a steel ruler or similar, fold the protruding areas to 90°.

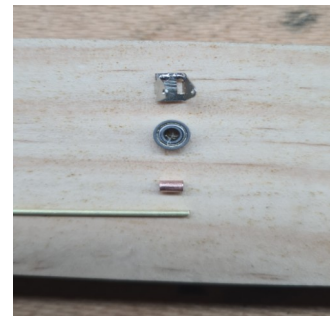
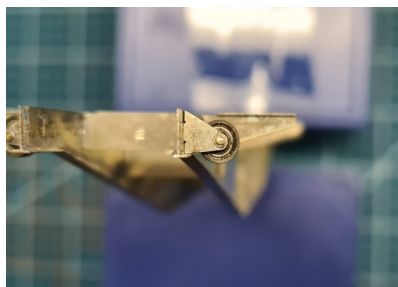
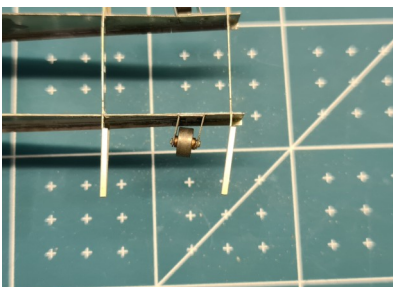
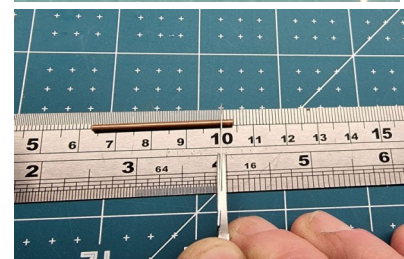
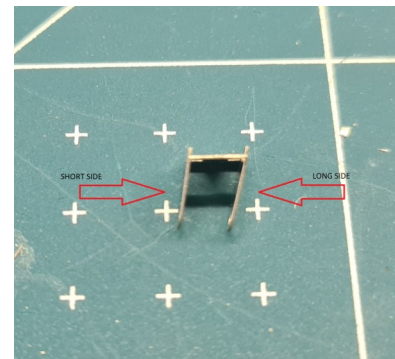


13. The fabricated cross brace pieces insert into the slots in the top of the Beam. Note that there is one marked 'C' for the centre that crosses over and inserts into the centre box. There are two for each end marked 'E' and the remainder marked 'I' are for the intermediate ones. These braces should also be orientated so the open side of the braces face the ends of the beam. Yes, it's a big decision which way round the centre one should be. Before soldering in place ensure that they are sitting level with the top of the beam section. A steel ruler is a good visual guide.



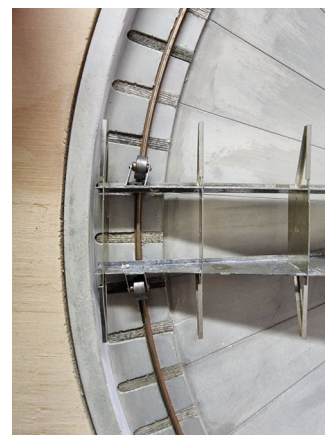
I would advise leaving the (E) outer two (one each end) off until after the outriggers have been fitted. This will allow easy access to file back the protruding tabs from the outriggers on the inside of the beam which is an important step.

14. Remove the four outriggers (21) from the fret. Note that these are handed left and right. They are numbered in the etch sheet diagram as LS and RS. It is easy to mess up which way round they go so its best to mark them with a permanent marker. The arms of the outriggers have a long arm and a short arm. The longer arms face the ends of the beam. This allows the bearing to run square on the ring rail. The outriggers also slope down from the beam when installed. They should be folded along the half etch fold line, one slightly over 90° and the other slightly under, and both should be parallel as shown to the right. Before soldering, check that each outrigger will sit in the correct orientation as shown. A fine solder fillet along the inner edge is all that is needed.
15. Locate the four smaller bearings, the copper tube and the short length of 1.0mm brass wire. A bush needs to be made to accept the brass wire that runs through the holes in the outrigger to retain the bearing. Cut four lengths of the copper tube to 3.5mm or so they fit in-between the outrigger arms. This is easily done by rolling the tube back and forth under a knife blade. I did this over a steel ruler accurately measuring out the correct length. Clean up the tube with a file and/or drill.

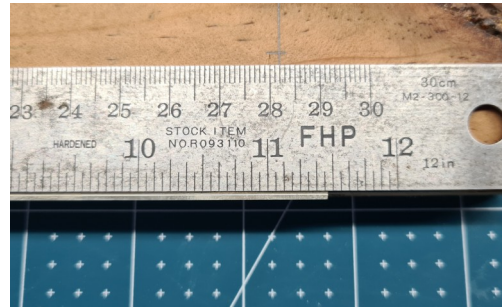


16. Insert the short length of tube in the bearing then pass the brass wire through the holes in the outrigger arms with the bearing and bush between the arms. The brass wire only needs to protrude 0.3mm each side. Solder one side in place then trim the other end to match and solder. The finished assembly can now be fitted to the beam.

The bearings needs to be fixed to the tube so that they cant move side to side and potentially fall off the ring rail. They need to be positioned central over the ring rail of the pit. This can be done with the smallest drop of Loctite on the end of a needle placed on the tube. It is advised at this stage to move onto assembly of the pit (page 14 of this instruction sheet) so accurate positioning of these bearings can be achieved.

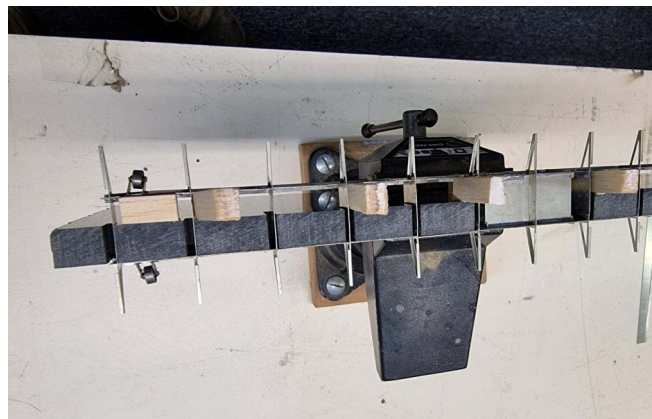
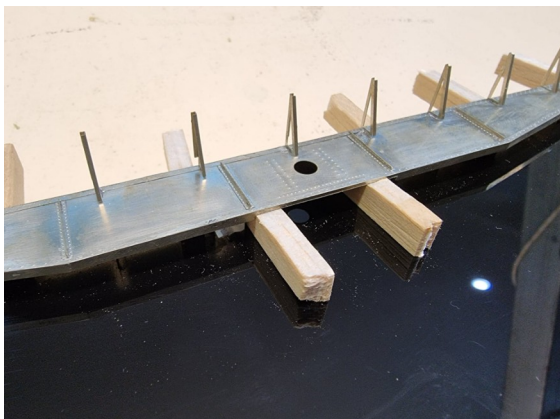
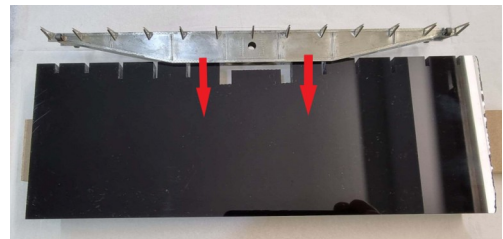


17. Now that the outriggers have been fitted and bearings adjusted to suit the ring rail, the remaining two end (E) cross braces can be fitted. The arms should be angled inwards slightly or so its even to the radius of the pit wall.
18. Remove the two outer checker plate deck panels (22, 23) from the etch sheet. There is a half etched fold line down one side that needs to be folded to 90°. I found it best to clamp the piece between two steel rulers on top of a length of 19mm pine and with the half etch line just visible. This assembly can then be clamped in a vise to add extra clamping pressure to the middle. A third steel rule or similar can then be used to fold the piece over to 90°.



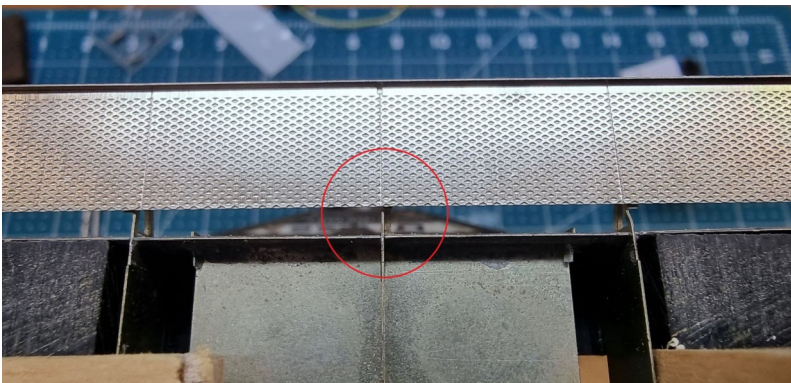
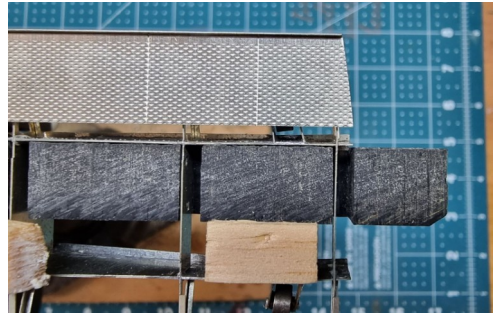
NOTE: It is imperative that both ends of the bridge are straight and square to the central mounting block. This ensures that the track will align when a through track is modelled and the bridge is turned 180 degrees. I have included a special 10mm acrylic jig so the bridge beam can be clamped straight and square.

19. Mount the bridge assembly to the 10mm acrylic jig as shown so the bottom flange of one of the bridge sides sits in the groove in the jig. Wedge in from the top, and in the opening at the bottom, several blocks to hold it flat and straight to the jig. I found that small balsa wood pieces approx 7.5mm thick works well. The Balsa is soft enough to apply slight pressure. Make sure that the wedges do not push the beam sides out of place. The jig can be fixed to a vise while these next steps are completed.

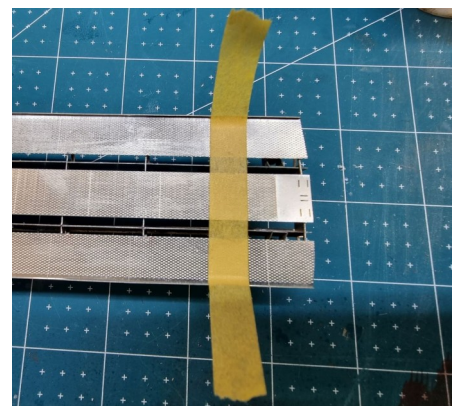


20. Position one of the outer chequer plate deck panels (22 or 23) so its central over the length of the bridge. The centre half etched panel line should line up with the centre cross brace. It should also be aligned up to the edge of the shallow steps that are in the cross braces, as shown circled in red in the image below.

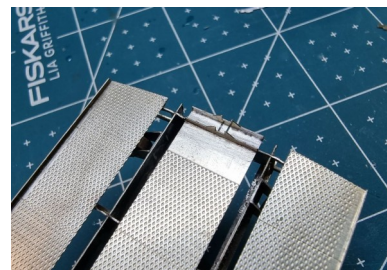
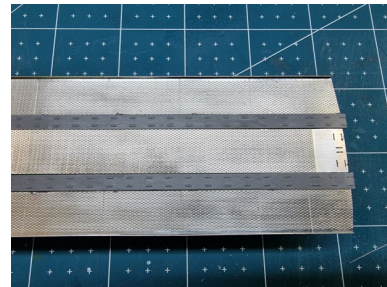
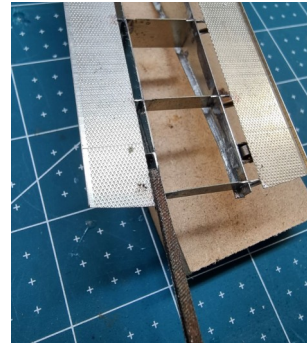
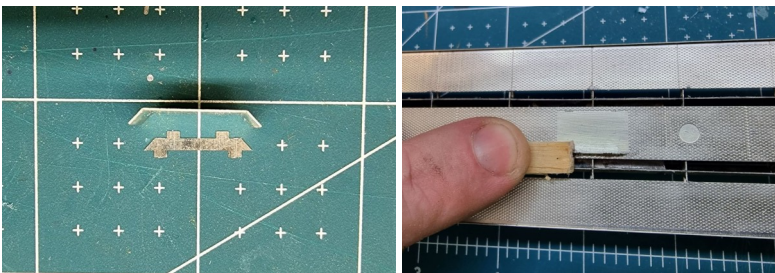
When your happy its aligned in the centre and at both ends, tack solder the outer most braces to the plate as indicated in the picture. Do the same for centre brace. Continue to work along tacking the deck to the cross bracing at the inner location. Don't force the cross braces if they are slightly misaligned as this can cause misalignment of the bridge. A square file can fix any misalignment when your finished attaching the panels. With the assembly still fixed in the jig, repeat the process for the other side outer deck panel.



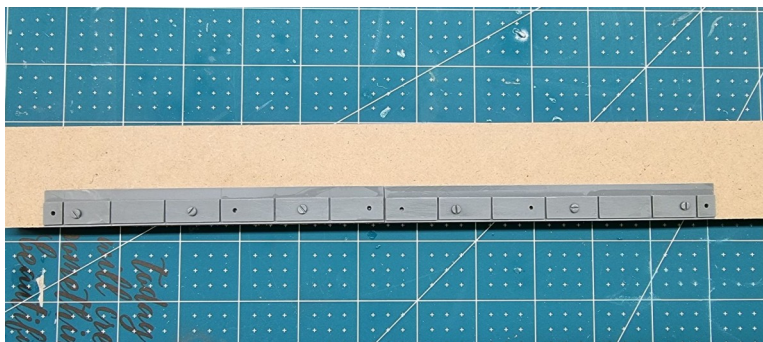
21. Remove the bridge assembly from the jig and flip the bridge assembly over laying it flat along a piece of timber with the folded edge laying over the side. Apply a nice solder fillet along each of the cross braces to secure them to the bottom of the plates. Applying downward pressure to the bridge beam and running the iron back and forth along the angle will pick up the excess solder, from step 20, and will ensure a nice joint.
22. Remove the assembly from the jig and fit the centre chequer plate piece (24) down the centre of the bridge. Again, these should line up with the steps in the cross braces and be evenly centred over the length. When happy, secure it in several places with some strips of masking tape.
23. Once again flip the assembly over onto the timber and solder the strip to the cross braces.



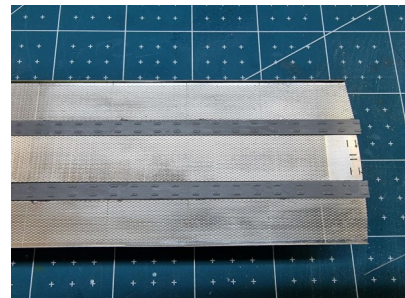
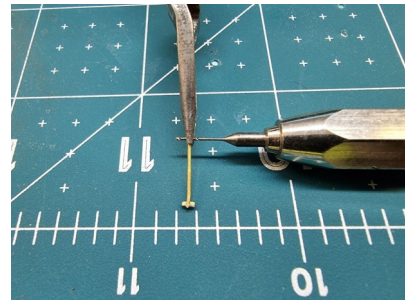
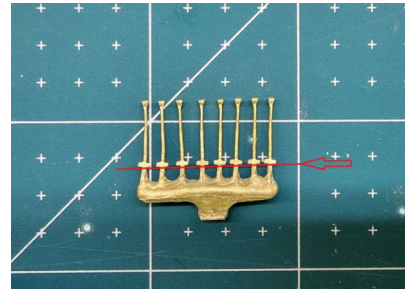
24. Run a square file down along the recess to ensure there is no visible sign of excess material protruding into the recess. It needs to be flat and square all the way along the recess.
25. The long polyurethane rail detail strips can be trial fitted. Some careful sanding of the sides may be needed to get them to fit snugly down in the groove. Once you are happy, set them aside until all remaining soldering has been completed.
26. Locate the inspection cover parts (25, 26). Fold the top cover to match the angle on the side supports. I found it best to fit the supports to the bridge first. This can be achieved by holding the piece in place using a small piece of the balsa with a small slot cut into it as shown below. Saves a few burning fingers! Solder along the inside edges. Repeat for the other support.
27. Fit the cover (26) to the supports and solder at the four protruding tabs. Once complete file away the tabs and sand flat and smooth.



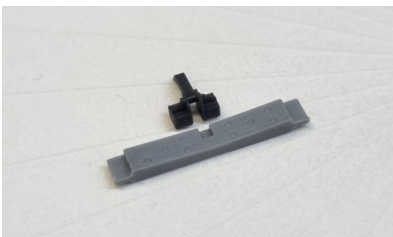
28. Fit the four lock pawl brackets (27) to the bridge ends. Again these can be held using the balsa wood. Try to avoid excess solder on the inside as this will prevent the lock pawl detail from being fitted.
29. Polyurethane jigs are provided to ease assembly of the handrails. These jigs are fixed to the provide MDF timber strip. Prepare the jig by fixing the two jig pieces orientated as shown below using the self tapping screws. While holding one of the jig piece in place, run a 1.5mm drill down through the holes and into the timber. Open out the holes in the urethane with a 2mm drill and fix the piece to the timber ensuring it is straight and square to the edge of the timber. Repeat for the 2nd piece.



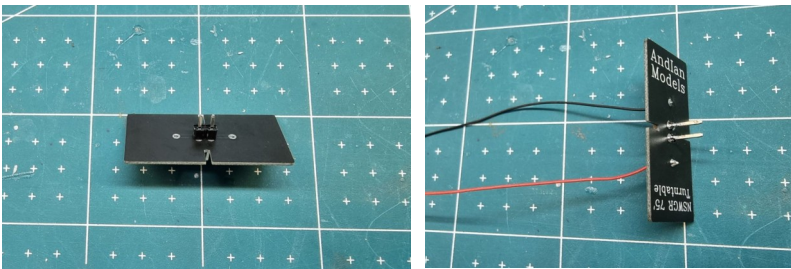
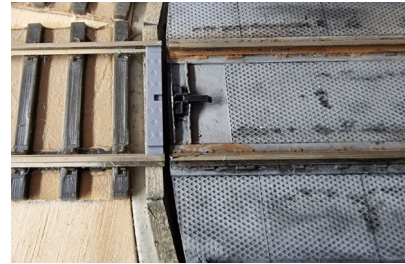
30. Prepare the handrail stanchions. Carefully remove each one from the sprue just below the flat mounting plate as indicated to the right. Hold the top of the handrail in the jaws of long nose pliers and clear the hole in the top using a 0.4mm drill. Be careful not to clamp too tight and squash the tube.
31. Insert 13 of these onto a length of 0.4mm brass wire then fit them into the slots in the jig as shown below. They should sit square to the bottom edge. Holding several of them with masking tape so they don't move.
32. Lay the bridge assembly down over the side of the timber so the folded flange of the deck panel sits on top of each of the handrail brackets. Solder where the handrail meets the flange. Plenty of flux and slight pressure inwards ensures a nice neat joint. Repeat the process for the other side.



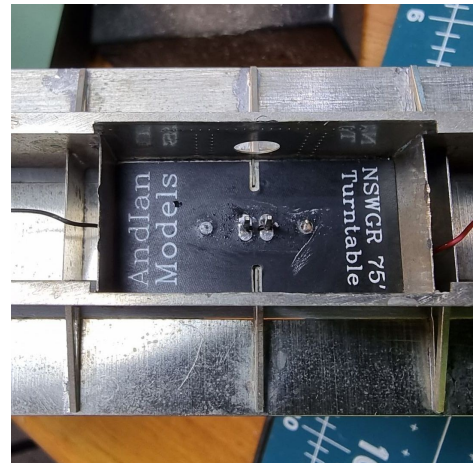
33. Thoroughly wash the bridge assembly to remove any flux residue before adding the rail strips. Be sure to add lubricant to the outrigger bearings. Ensure the strips are seated flat all the way along and hold them in place with strips of masking tape. They may overhang the bridge slightly however they can be trimmed back once the strips are fixed. The strips can be glued from the underside using either 5 minute or 24 hour Araldite.
34. Fit the 3D printed lock pawl detail down into the slot at each end of the bridge. Lock plate details are also provided for the roads of the turntable. Should you require more than what is provided please contact us and we can arrange some more castings for you.



35. I have not included rail for the bridge with the kit as modellers tend to use varying sizes for their layouts. Its been designed for use with Code 70 rail however other sizes can be used. Cut two lengths of rail the length of the bridge and glue these down between the details of the urethane strips. I used Pliobond for this but thick Superglue (green zap-a-gap) could also be used.
36. Locate the printed circuit board and fit the male two pin connector so the longer side of the pins pass through the board as shown. Solder it in place from the top (the side with the printed writing). Only a very small amount of solder is needed.

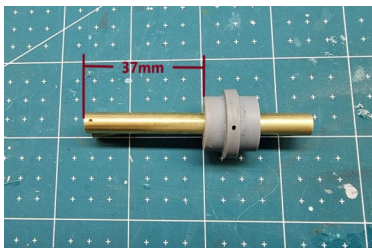


37. Solder two wires to the board in the outer two holes, again from the underside, and solder on the top side. Remove the plastic sleeve of the pins and trim the excess pins from the back side of the board. Also trim back the wires protruding through the top of the board.
38. This assembly is glued into the open box on the underside of the bridge. Pass the wires up through the slot ensuring that its seated right down flat to the base of the box. It can be glued using the Araldite. Solder the wires neatly to the base of the rails on the bridge. Two small holes can be drilled through the urethane strips right next to the rail so they are neatly hidden.

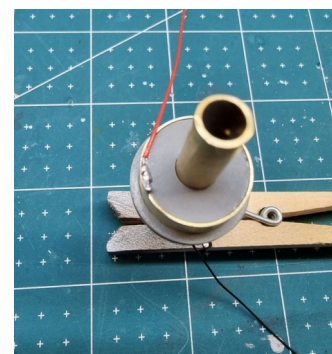
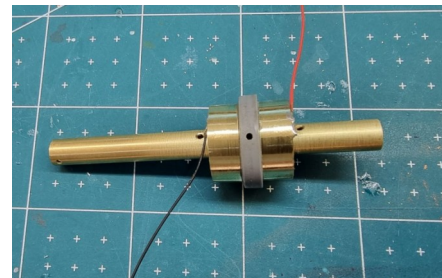


This completes the assembly of the bridge. It can now be painted and weathered ready for installation to the pit.

1. Lay the turntable pit upside down on the white foam packaging that it was wrapped in. This will help protect it from possible scratches or damage. Fit one of the flanged bearings into the hole in the centre of the base. Using the self tapping screws provided, fix the urethane bearing retainer down to the base so it covers the bearing. You may need to open out the holes to accept the screws. Ensure that the inner race of the bearing is free to spin. Enlarging the hole in the retainer may be necessary.
2. Slide the urethane pickup bush onto the 6.35mm brass main shaft so the top of the bush sits 37mm from the top of the shaft. The top of the shaft has two pre drilled holes. Scratch a mark on the shaft at the top and bottom of the bush and remove the bush from the shaft. I highlighted these with a black sharpie to help make them visible. Drill two 1.5mm holes approximately 1mm out from the two marks. Clean the holes so there are no burrs or sharp edges. A few turns with a large drill works well for this.



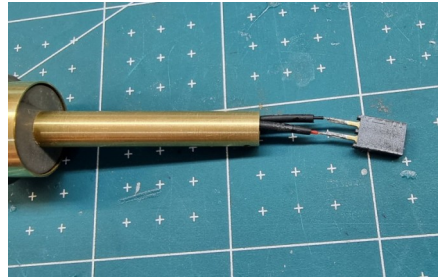
3. Re fit the bush to the shaft and align to your original marks. Secure the bush using one of the M2 x 6mm grub screws. I have included the correct Allen key for these and have pre tapped the thread in the hole. This does not need to be ridiculously tight. Just a nip up is all that is needed.
4. Using supa glue (green Zap-a-Gap works well) or Loctite, secure the two brass rings to the bush as shown. At this point I polished the two rings using a 3000 wet and dry foam sanding pad by spinning the assembly in a drill or similar. After the assembly is completed and prior to fitment, and light application of CRC 2-26 (electrical conductive spray) or similar will help with any tarnishing. It will also help with electrical pick of the wiper system.
5. Solder the two provided wires to the bottom of the brass rings. **Its important NOT to solder them to the outer surface as this will interfere with the pickup system.** File any excess solder from the face of the rings and re polish. Feed the wires into the holes and bring them out to the top of the shaft. Ensure that they are neat and tidy and are not tight against the brass shaft.



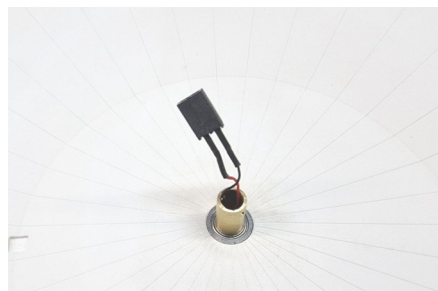
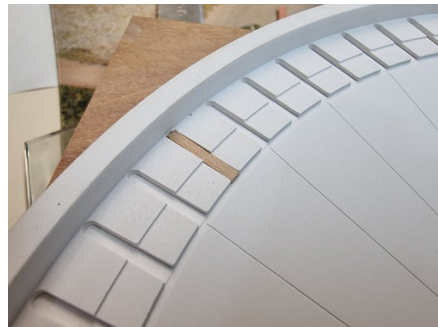
6. Trim the wires so they protrude about 15mm out from the top of the shaft. Fit the included heat shrink tube to the wires and solder the two wires to the female two pin connector. This connector needs to fit neatly into the slot in the top of the 3D printed deck block (see step 11). It may require some light sanding or filing to make it fit.

At this point I would suggest painting and weathering the pit itself. There are many tutorials on YouTube on painting to represent concrete. My sample pit was painted using Vallejo Acrylics applied as a wash, diluted with isopropyl alcohol. Tamiya or Testors paints could also be used. Concrete part lines can be highlighted using dark grey or black washes or even a sharpened black pencil. The use of prototype photos would greatly help here. You can use the outside of the pit walls to experiment as they won't be seen once installed in the layout.

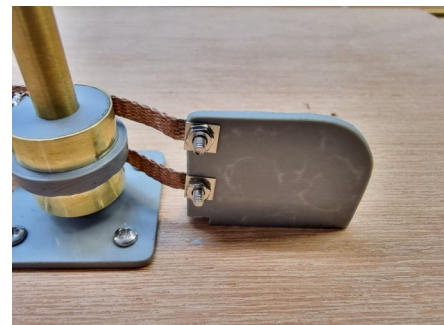
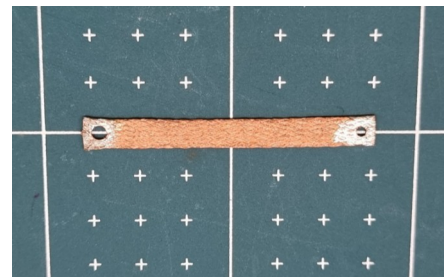
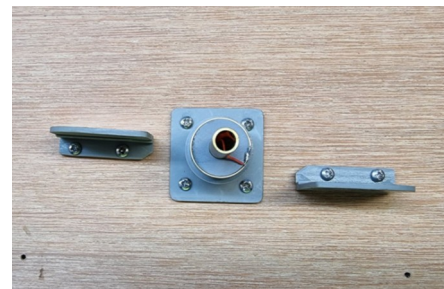
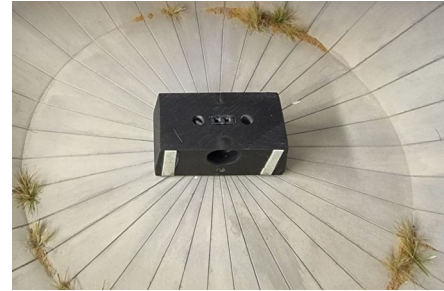
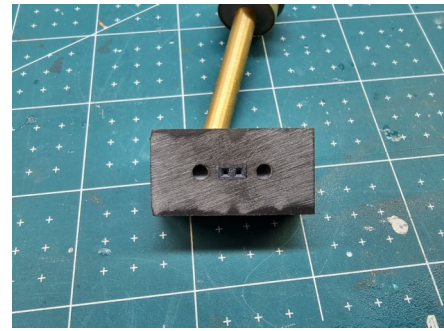
On the prototype turntable at Muswellbrook, short timber sleepers for the ring rail were filled with concrete between each one. The ring rail is then dog spiked to the timber to hold it in place. Included are several lengths of scale timber to represent this. You can of course get creative here and distress the timbers or even leave some out for better visual affect.



7. Cut 72 short lengths of the scale 3x8 timber 15mm long and fit these in the slots around the pit (A North West Short Line chopper tool makes light work of this). They should sit level with the concrete bases. They should be fixed in place using PVA glue. Pre staining and weathering these before cutting them up is a good idea.
8. The ring rail has been pre bent but still needs to be trimmed. Carefully lay the rail so it sits against the raised edge of the concrete pads. Mark where it needs to be cut. I'd advise cutting this long and filing it back a bit at a time. A gap in the rail can cause issues when the bridge is turning. Paint the rail a rust colour prior to fitting but remove any traces of paint from the underside of the rail so it has a better chance of sticking to the base.
9. Fix the rail to the pit. This is not the easiest job to do. I found that Pliobond general purpose adhesive works the best. You could also use a slow setting super glue or if your really mad, like myself, you can hand spike the rail in place with micro spikes from micro engineering or the really nice ones from P87 Stores in the USA. An extra set of hands is handy if gluing the rail down starting at the join and working your way around.
10. Insert the mainshaft assembly up through bottom bearing and into the detailed side of the pit. Fit the second flanged bearing over the shaft and seat it in the recess at the base of the pit. This bearing can simply sit in place as it will be held by the deck block assembly.

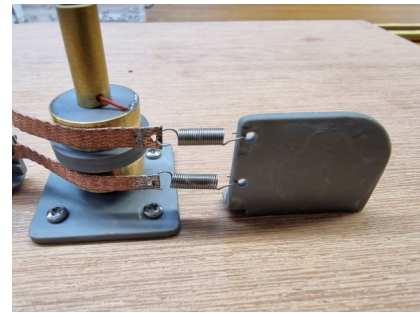


11. Remove the 3D printed deck block from its supports and clean up any support residue. This block needs to be a nice sliding fit into the square hole on the bottom of the turntable bridge. It may be necessary to add 0.005" or 0.010" styrene shims to one or both sides of the block to take up any slack. This is most important as it can affect the indexing accuracy of the turntable. It should not be too tight either as it needs to be able to be removable so the bridge and pit can be cleaned and serviced if needed.
12. The block has been pre tapped with M2 threads. Locate one of the smaller M2 grub screws and fit it in the hole that's in the centre of the circular recess. It holds the 2 pin connector in place that is inserted from the bottom of the block. The connector should be flush with the top of the block.
13. Carefully push the wires down into the tube of the mainshaft fitting the block to the shaft and ensure that the bottom two holes in the block will align with the pre drilled holes in the top of the main shaft. Fit the two longer 6mm M2 grub screws (one each side) into the holes in the bottom of the block. These screws need to locate into the holes in the top of the mainshaft preventing the block from moving on the shaft. You may need to file away any of the protruding screw from the outer face as this will prevent the bridge from being fitted over the block.
14. Lay the pit upside down on the foam sheet. Using four self tapping screws fit the two polyurethane power feed wiper brackets to the base so the curved side is facing outward from the main shaft.
15. Prepare the pickup wiper system. Cut two lengths of the braided wire to 40mm in length. Tin with solder approximately 5.0mm of each end to keep it from fraying. Drill a 1.5mm hole 2mm in from one end, then a 2.0mm hole 3mm in from the other.
16. Fix these two strips to the brackets as shown using the M2 x 6mm machine screws and nuts. There are two redundant strips (27) on the etch and when cut at the half etched fold line, the two squares can be used for washers. These washers make it easy for attaching track power to the wiper system. Cut them from the strips as shown on the etch parts diagram.



17. Fit the two springs to the ends of the braid then onto the other bracket. You may need to open out the ends of the springs and adjust their length to achieve light spring tension on the braid. I found this method to be very reliable especially when sound equipped locomotives are being turned with their sound and light functions active.

There are three short lengths of electrical conduit included with this kit. They are cut to a length to suit the motor indexing system you have specified. If you have opted to fit an alternate indexing/motor system these may not be at a correct length. You can simply measure and cut your own to suit. In addition, a fixed coupling is also included to suit the motor and shaft sizes. As above, different sized shaft couplings can be sourced through EBay etc. if you have opted for an alternate motor.



18. Locate the 3mm acrylic disk and mount the motor from your indexing system to the disk. Fit the shaft coupling to the motor and secure. Fit the other end of the coupling to the main shaft. Leave the grub screws loose for now.

Pass the long timber tek screws through the outer holes in the acrylic disk, through the tube and into the pre drilled holes in the timber base, The conduit acting as spacers.

Ensure that the deck block is sitting down flat against the bearing in the base of the pit and tighten the grub screws on the shaft coupling.



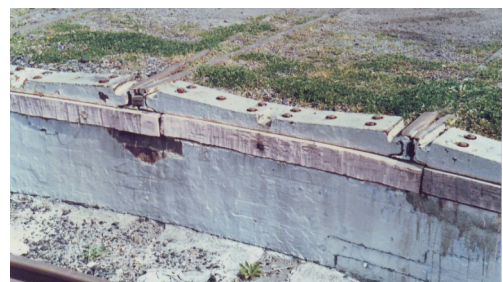
19. Prepare the pit for installation to the layout. You will need a 276mm round hole cut into the base of your layout roadbed and a 300mm square area is also needed to clear the base.

The aim is to have the top of the rails of both the bridge and projecting roads dead level with each other. The rails should also sit level with the top of the timber sleepers as mentioned below.

Spacers will be needed between the turntable base and your layout roadbed. The size of these spacers can vary depending on baseboard thickness, sleeper height, whether you have track underlay etc. I used some scrap benchwork material, and a length of track to mock up the assembly so I could measure the correct thickness for the spacers.

Timber spacers can be cut from scraps of dressed pine or plywood. You can also adjust with styrene shims to get it accurate on all four corners.

The prototype turntable at Muswellbrook has sleepers laid around the top of the pit walls so the rails could be supported. It also aided in fixing the locking plate between the rails and retains any ballast etc. I have included two lengths of scale 6x8 timber to replicate this. The model pit has been designed to use this method. See pictures to the right.



20. Add the finishing touches to your pit. The drain grate details should be painted rust colour prior to fitting and adding static grass tufts and dirt adds great visual affect to the pit. Refer to your indexing system for programming or operating procedure.

We hope you enjoyed building this kit and have many years of operating enjoyment.

Ian and Alan
AndIan Models

