

Easitrac Turnouts - User Guidance

Modellers in fine scale are generally resourceful individuals so these advisory notes should not to be regarded as a set of definitive instructions on how *Easitrac* turnouts should be made, more a set of guidelines. The methods and sequence of completing the various stages of construction described here are not necessarily the best or only way of doing them, simply the order in which they were done on this occasion. Model railway track and turnouts have been constructed by many people over a good number of years and in a variety of scales. To the knowledge of those most closely involved with its development *Easitrac* is the first complete system in 2mm fine scale to use plastic components. However there are many similarities between this and other methods of turnout construction in 2mm scale which employ soldering techniques and the jigs that have been specially developed for *Easitrac* can be used equally well for soldered turnout construction.

Since the introduction of plain track bases in 2mm fine scale the sponsors of *Easitrac* have been looking forward to the day when matching pointwork would be available. This is now the case and at the time of compiling this guidance (May 2009) three options are available as follows:-

1. Use of pre milled turnout bases to a set geometry of 1:5, 1:6, 1:7, 1:8 and 1:10 in both left and right hand.
2. Pre cut sleepers strip which have to be laid over a template or plan of some description in much the same manner as soldered track construction using PCB sleepers.
3. Custom made templates to order. This is exactly the same as method no 1 above except the milled bases are fabricated to special order.

All three methods are designed around use of code 40 bullhead rail, and jigs to form the various crossing angle 'vees' and the common crossing assemblies in addition to some other labour saving devices such as a metal jig for ensuring crisp bends to the rail in the area of the common crossing.

A turnout operating mechanism and jig to ensure its operating wires can be bent to consistently the same length have also been developed. Their use has not been covered here but may be separately or in later releases of this guidance.

There are no plans at this stage to introduce similar turnout construction using flat bottom rail although at the time of writing plain track bases accommodating flat bottom rail are in preparation.

This guidance shows the method one builder used during the construction a 1:7 left handed turnout using method 1 with a pre made template.

Suggested tools:-

Sharp scalpel
Side or end cutters for cutting rail
Selection of good quality files
A Fine paint brush or other means of dispensing
Butanone solvent, and of course the adhesive itself.

Always model in good light

The Foundation of the *Easitrac* Turnout Unit

Below - Fig 1 shows the starting point. In most cases this will be a firm flat base on which to construct the turnout. The chosen medium below is a piece of 1mm clear plastiglaze sheet obtainable from most model/hobby outlets. This has been chosen because it can be laid on a rigid flat surface and secured with pins but flexible enough to enable the builder to easily remove the finished article once removed from whatever rigid surface on which it sits during construction.

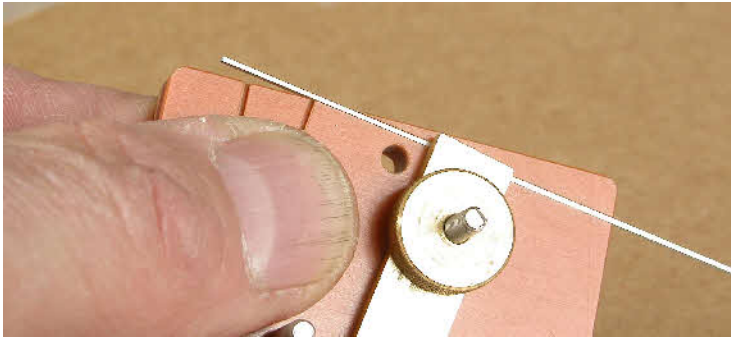


Left - Fig 2 shows the underside of the assembly where the method of securing the milled base to the sub-base by means of double sided adhesive tape can be seen. It was not felt necessary to use much more tape than is visible here for the aforementioned ease of removal.

Right - Fig 3 shows two sections of bullhead rail. The one on the left has been cut with side cutters but not filed smooth. The one on the right has been prepared by filing the burr, on top, bottom and both sides, smooth ensuring that no damage can occur to the chairs when the rail is inserted.

Always remember to prepare rail ends in this manner before attempting to insert the rail into chairs. It will avoid unnecessary damage and ensure the rail passes easily through.

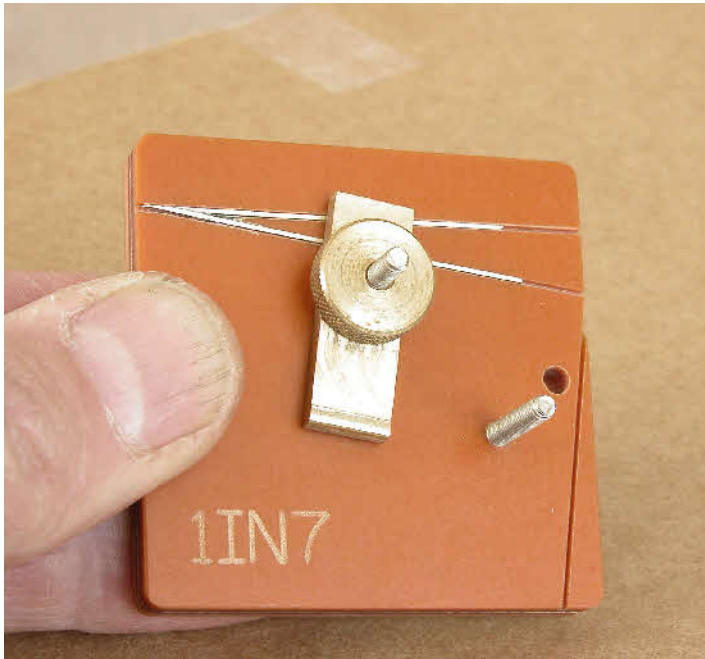


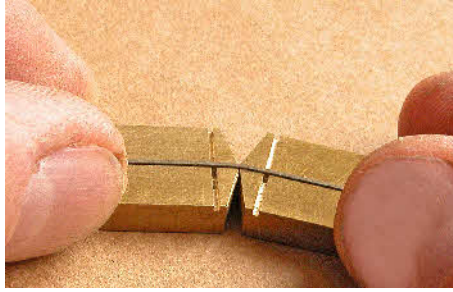


Fabrication of Common Crossing Assembly

Above - Fig 4 shows the one of the crossing nose rails being prepared for filing in the jig. This can be either the point or splice rail depending on which way up the rail is held in the jig. The thumb wheel tightens down on to the brass block thus trapping the rail for filing. Good quality files should always be used where possible to avoid over use of force which may result in damage to the jig

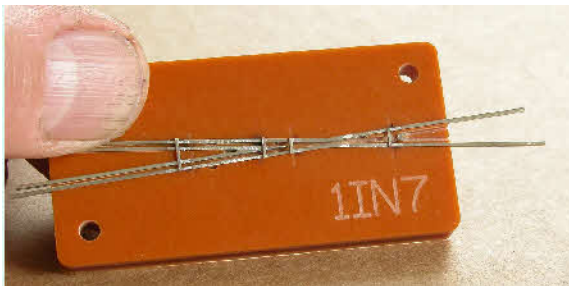
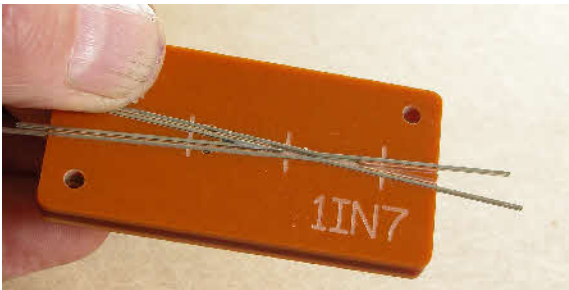
Below - Fig 5 illustrates the 'other end' of the same jig where the two crossing nose pieces are held for the soldering operation. The length of the tails is to personal preference.
(jig shop ref 1-165 to 1-169).





Above - Fig 6 shows the rail bending jig in use. It is probably best to very slightly over bend the angle and relieve it when inserting into the crossing assembly jig.

(jig shop ref 1:175)



Left top - Fig 7 shows the crossing nose and the remainder of the common crossing rails in place in the jig. These rails will have small pieces of wire or old etch material depending on choice and availability soldered transversely across the rails to:-

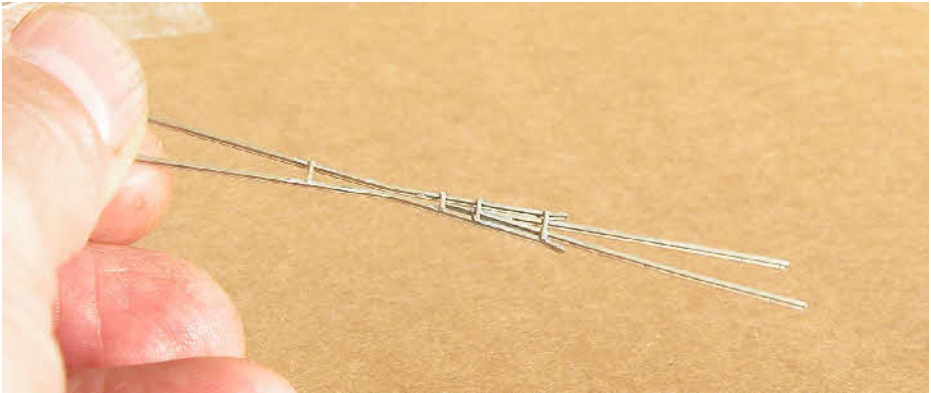
- a) keep them in place and
 - b) ensure electrical continuity throughout the common crossing.
- Vertical markers are just a suggestion - the builder has choice as to number and location of these.

Note* at this point the crossing rails are upside down so make sure the bullhead is in the bottom of the slots.

Left centre - Fig 6 Joining pieces have been soldered on in this view, cut off and the assembly returned to the jig for comparison with fig 6.

Left Bottom - Fig 9 shows common crossing assembly released from the jig and right way up. The flange-way rails need cutting and a slight bend at the left hand end to guide wheel-sets.

(jig shop ref 1:170 to 1:174)

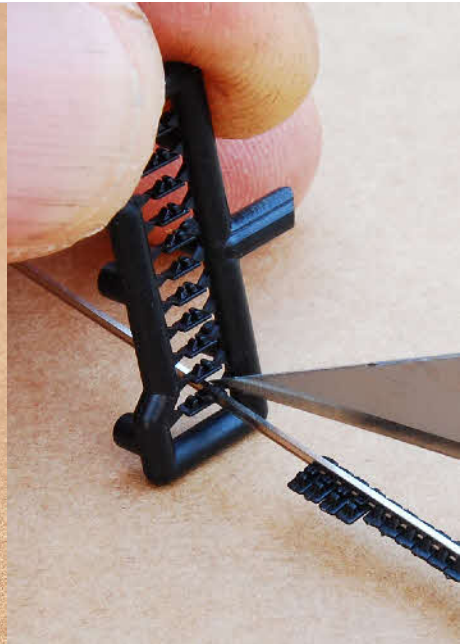


Above - Fig 10 is the common crossing assembly seen from beneath showing the soldered stretchers and the flange way rails cut back and bent using a pair of specially filed flat nosed pliers.

Threading the Chairs.

Below Left - Fig 11 is the chair sprue - from top the chairs are, 2 slide rail, 8 plain and 1 checkrail. These are small and are best retained on the sprue for the threading operation.

Below Right - Fig 12 suggests the technique for threading and removing the chairs prior to fixing.





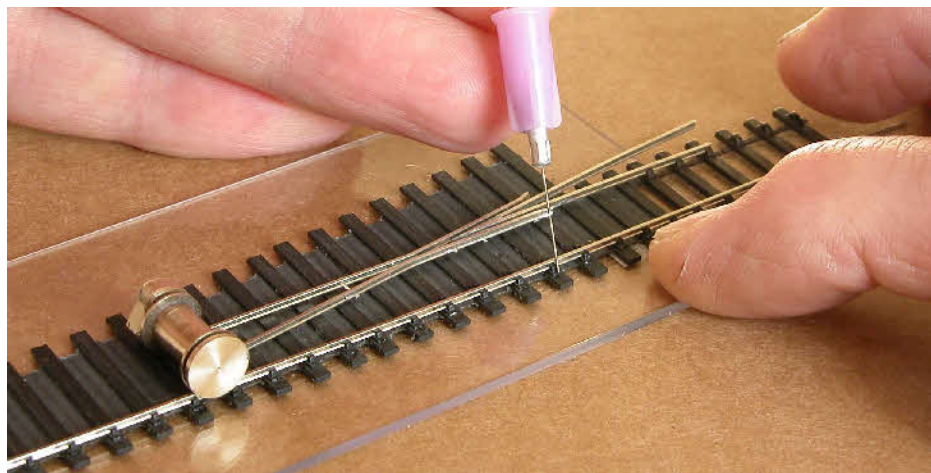
Left - Fig 13 shows the chairs required for the straight stock rail of this particular turnout. 3 plain, 5 check rail and 15 plain.

It is best to first calculate the number of chairs required to avoid having to 're-thread' them. This can easily be done by reference to to milled base or template in use at the time.

Laying the First Rail

Below - Fig 14 is a staged shot showing the technique for laying the straight stock rail. Note the use of the crossing assembly (which has no chairs and is not yet fixed) and a section of plain *Easitrac* at the crossing end of the turnout to create a degree of stability and enable the builder to easily check the alignment as work progresses.

The device being used to 'dispense' the Butanone solvent is the 'Pin Flow' solvent glue applicator obtainable from many model and hobbyist outlets. This piece of equipment is extremely useful and helps get the right amount of solvent in the right place just when it is needed.

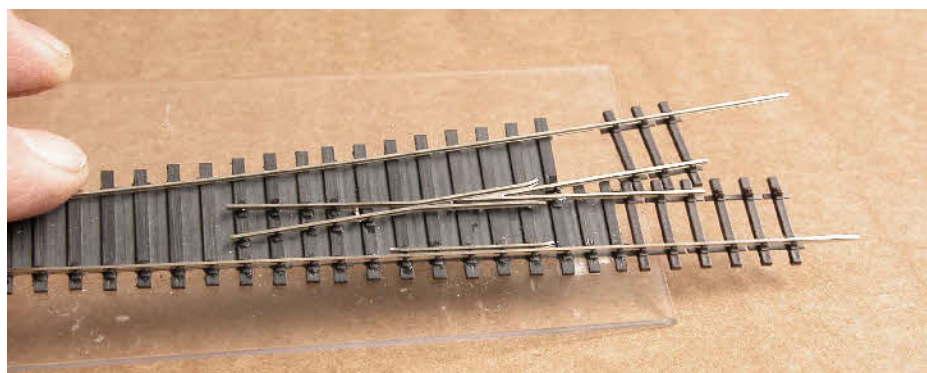




Crossing Nose and Closure Rails

Above - Fig 15 shows another view of the crossing assembly with *Easitrac* chairs threaded on the wing rails and a single chair each side of the crossing 'vee'. Only one chair has been added to the crossing 'vee' because plain *Easitrac* will be threaded on at all exits from the turnout. It can be seen that because of the depth of the chairs the soldered stretchers are not likely to come into contact with the milled base at any time.

Below - Fig 16 illustrates where we are with construction when the wing rail chairs parallel to the straight stock rail have been glued in place. The curved stock rail has been added here to assist overall alignment. Again this is not yet fixed, simply being retained by plain *Easitrac* at both ends of the turnout - the toe end (not visible in this view) and the crossing end. It is plain to see here the usefulness of the plain *Easitrac* in helping to get things aligned with the single chair at the crossing end not yet stuck down. The checkrail for the straight route has been added. This is easily threaded in. The builder of this turnout bent the checkrail, once installed, with the same pair of flat nosed pliers used to bend the wing rails seen earlier.

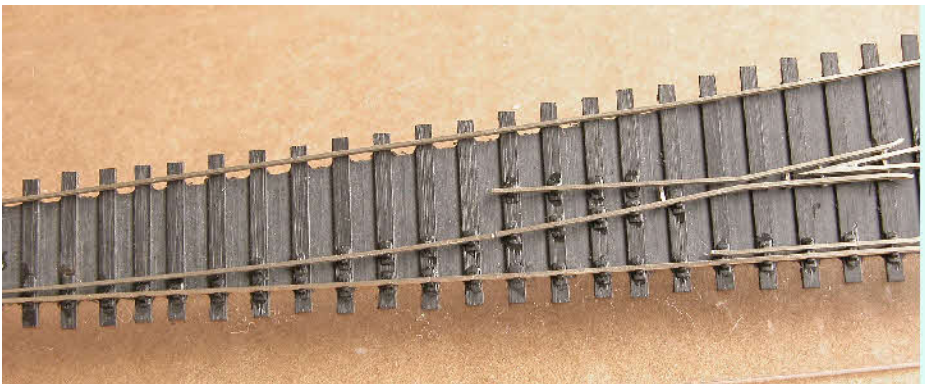


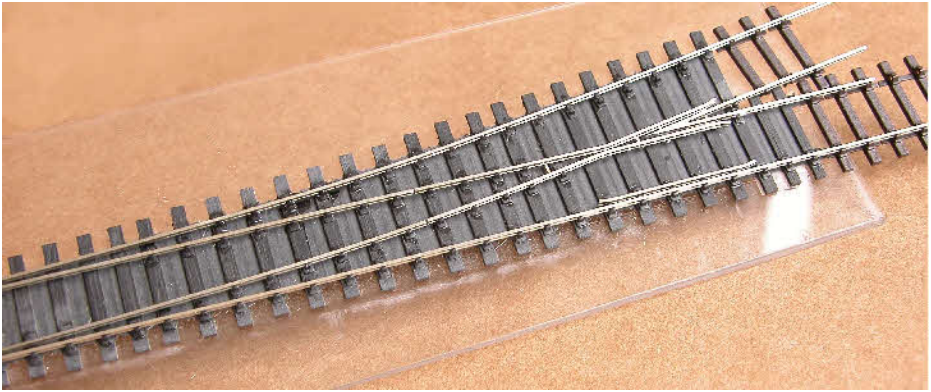


Switch Rails

Above - Fig 17. Unfortunately no jig yet exists to enable switch blades to be filed but since this is not too onerous a task they can generally be filed up in only a few minutes with decent 2nd cut files. Needle files do the job just about as well as any others. A popular way to do switch blades is to use good quality files and just to work the metal lightly relying upon the teeth to do the work. Too much force and 15 minutes work can be ruined and necessitate a new start. So the order of the day is go lightly and toward the conclusion of the operation file the blade longitudinally. The blades in these photographs were fashioned on a self healing cutting mat.

Below Fig 18 - shows the scene after the point blade has been fixed by securing with 6 chairs, the ones further away from the crossing were glued first and allowed a couple of minutes to set before those closer in were fixed, being glued whilst a roller gauge kept them in line at point where the two meet. The diverging stock rail has not been fixed in this view.



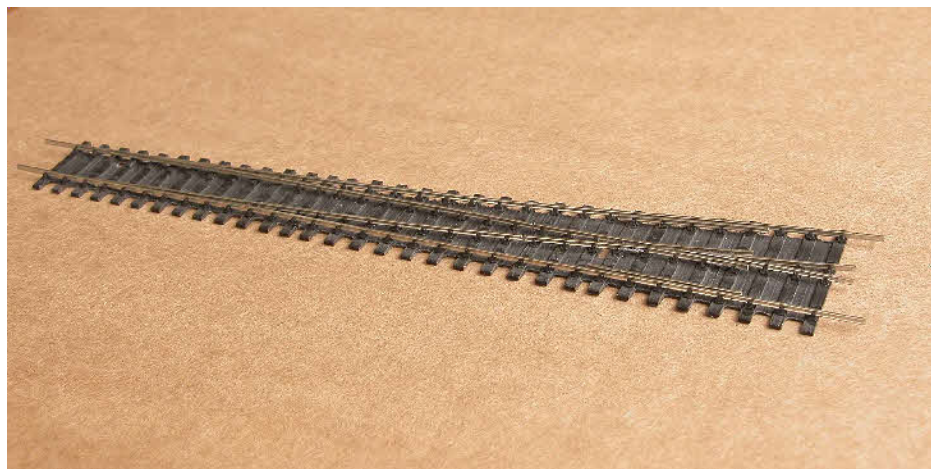


Above - Fig 19 shows the diverging stock rail has now been gauged in and fixed as has the point blade for the straight route. All that needs to be added is the checkrail for the diverging route.

Below - Fig 20 shows the final checkrail has been added and all that needs to be done is for the remainder of chairs to be added around the area of the common crossing and the switch rail toes. In both cases this will require some of the chairs being cut in half and pushed underneath the rails they support before adhesive is applied.

Now also we can see the support that plain *Easitrac* lends to this form of turnout construction with pieces visible at each exit from the unit. Note also there are no chairs on the extreme right of the turnout on the 'straight' route. Immediately below these is the piece of double sided tape keeping the assembly stuck to the clear sheet, visible at the extreme left hand side of Fig 2. In this example these two sleepers and their associated webbing will be cut off using a sharp scalpel allowing the unit to lift easily at the crossing end. The plain *Easitrac* will then be pushed right home to within one sleeper of the checkrail sleepers.





Above Fig 21 shows a completed turnout from a different builder.
Below - Fig 22 shows the same turnout photographed from the opposite side.

