

## Finetrax 2FS Diamond Crossing Kit - Assembly Instructions

Please read through these instructions thoroughly, prior to beginning, ensuring that all components of the kit are present and that you have the appropriate tools.

### Parts Included:

- Diamond Crossing Base
- 8x Crossing 'V's (frog) Point and Splice Rails
- Code 40 Bullhead Rail for Stock Rails, Closure and Wing Rails

### Tools and Materials Required:

Although the components are largely preformed and gauges are not required, a few simple tools and materials will aid construction:

- Super Glue
- Track Cutters, Fine Razor Saw or Hobby Drill with disc cutter
- Flat Nose Pliers
- File
- Tweezers
- A suitably sized flat surface.
- A soldering iron with a small tip and suitable solder/flux
- Electrical Feed wires

### Anatomy of a Turnout:

Diamond Crossings share many components with a standard turnout. To aid assembly, please familiarise yourself with the names of the key parts that make up a turnout by watching the YouTube video below:

[www.youtube.com/watch?v=e-lkBI7QmfQ](http://www.youtube.com/watch?v=e-lkBI7QmfQ)

### Rail Orientation:

The bullhead rail used in this kit has a top and a bottom which differs in thickness/width (the top is wider).

It is VERY important to insert the rail into the chairs in the correct orientation, otherwise difficulty will be experienced in sliding the stock, check and crossing V rails into the chairs and doing so may cause damage to the chairs of the track base. Please familiarise yourself with the rail orientation and, if necessary, mark the top of the rail with a felt tip pen to aid correct assembly. The switch blades have a lug on the bottom which is located into the tie bar so incorrect orientation should be obvious.



### Diamond Crossing Templates:

To aid layout construction, full size PDF templates for Finetrax 2FS turnouts can be accessed from the shop listing. A drawing for each item is linked.

## Assembly

### Filing and Cleaning Rail Ends:

Once the rails are cut to the required length, it is VERY important that the rail ends are cleaned up with a small file (a needle file is ideal for this). Both the foot and web of the rail must be slightly chamfered to allow free and easy insertion of the rail into the chairs. Failure to properly clean and chamfer the rail may result in difficulty threading the rail into the chairs, causing breakage of the chairs.

### Cutting and Bending Check Rails:

Check rails must be cut to length and two small bends (flares) put on each end. The bends can be easily put onto the check rail using a pair of small pliers. The appropriate full size template for your kit should be downloaded, printed, and used to ensure correct length and bends for the check rails.

### Cutting and Bending Wing Rails:

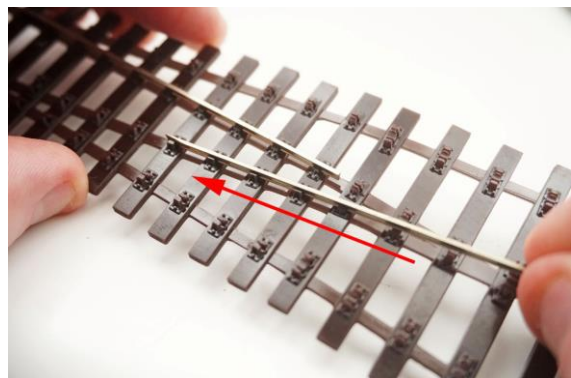
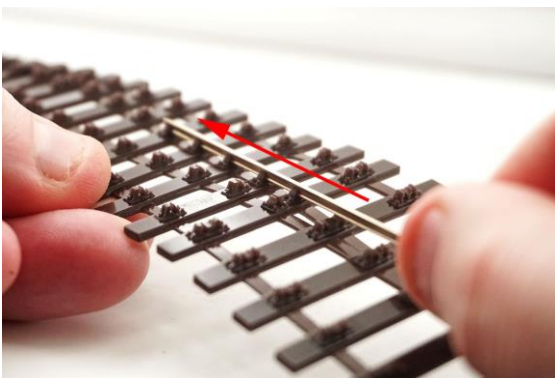
Wing Rails must be cut to length and a small bend (flare) put in each. The bends can be easily put onto the wing rails using a pair of small pliers. The appropriate full size template for your kit should be downloaded, printed, and used to ensure correct length and bends for the wing rails.

### Cutting and Fitting the Diamond V Rails:

Diamond 'V' Rails must be cut to length using the appropriate full size template for your kit. There are eight 'V' rails in the kit, and they have the ends of the rail pre machined to a point at the correct angle. Four of the 'V' rails are for the diamond, the other four are for the crossing 'V' (frogs) at either end of the diamond. These are 'handed' one left and one right; please ensure you instead them in the correct orientation (see 'Rail Orientation').

Thread the V Rails in from the crossing 'V' (frog) 'knuckle' (see downloadable template) and towards the middle of the diamond. You will need to bend the plastic turnout base slightly and carefully in order to make clearance for the rail, otherwise the chairs around the Crossing 'V' (frog) will be in the way of the rail. This is easily done on the edge of the desk/work-top you are assembling on.

**WARNING – DO NOT** over-bend the plastic turnout base, otherwise there is a risk of snapping the base! Only bend just enough to allow the rail to slide in.



Push the V rails in until the V wedges in and cannot be pushed any further. The other end of the rail must end where shown on the downloadable template.



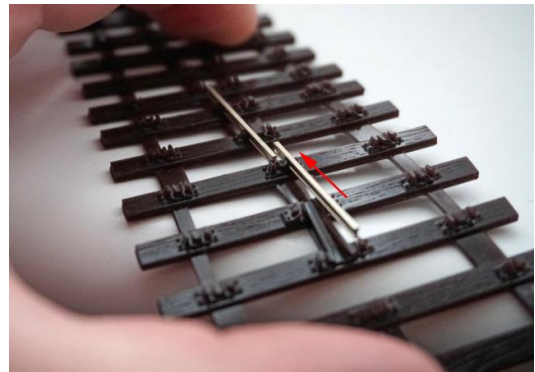
The same can be repeated for the opposite side.

### **Cutting and Fitting Closure Rails**

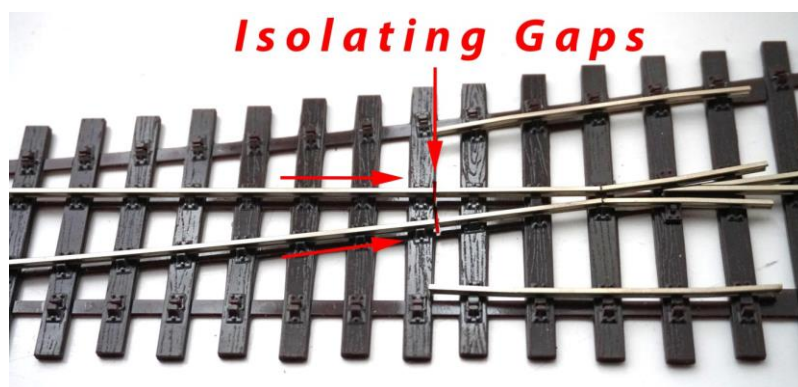
Closure Rails must be cut to length using the appropriate full size template for your kit. Thread the Closure Rails in from the 'knuckle' (see downloadable template) and towards the middle of the diamond.

You will need to bend the plastic turnout base slightly and carefully in order to make clearance for the rail, otherwise the chairs around the Crossing 'V' (frog) will be in the way of the rail. This is easily done on the edge of the desk/work-top you are assembling on.

**WARNING – DO NOT** over-bend the plastic turnout base, otherwise there is a risk of snapping the base! Only bend just enough to allow the rail to slide in. Repeat for the opposite side of the diamond.

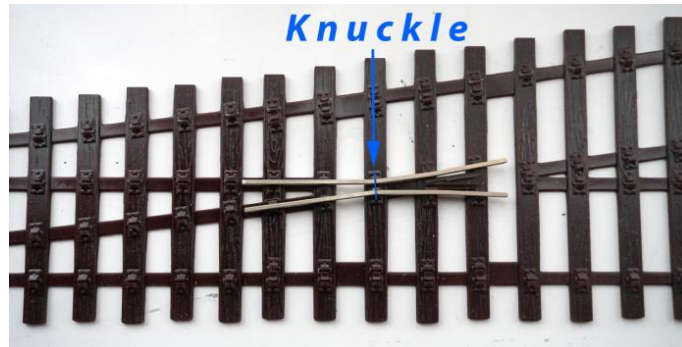
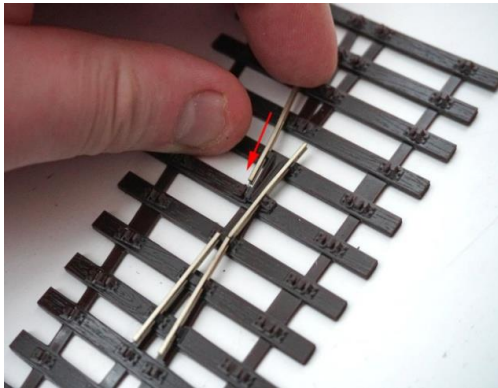


Note: There should be an isolating gap between the closure rails and the diamond V rails that were previously inserted.



### Fitting Wing Rails

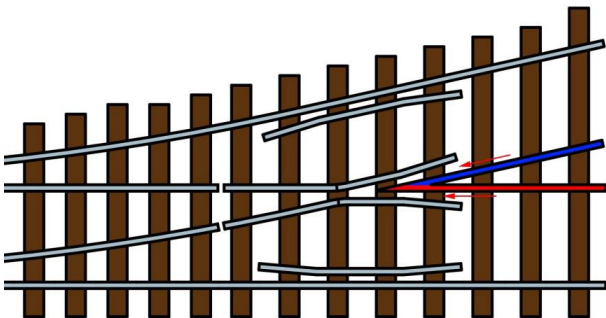
Wing Rails can be threaded in towards the Closure Rails as shown below.



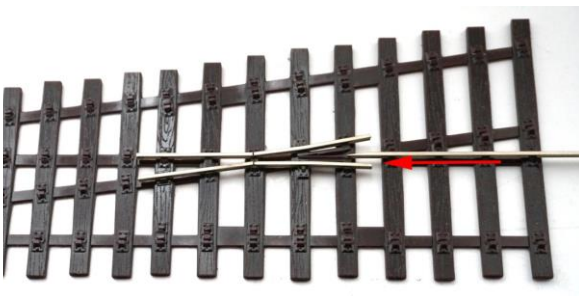
**IMPORTANT!** The join between the Wing Rails and the Closure Rails **MUST** be located exactly at the 'Knuckle' position. This position will be different for each kit, so you **MUST** refer to your kit's downloadable template which will show the exact position of the knuckle. There is also a small indentation on the plastic base indicating the precise position of the 'Knuckle' join. Repeat for the opposite side of the diamond.

### Fitting Crossing V Point and Splice Rails:

The crossing V is made up of two pieces of rail called the Point and Splice rails. These have the ends of the rail machined to a point at the correct angle, and come included, pre machined, in the kit. These are handed, one left and one right, please ensure you insert them in the correct orientation.

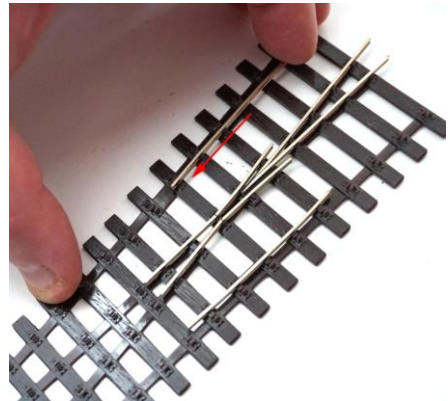
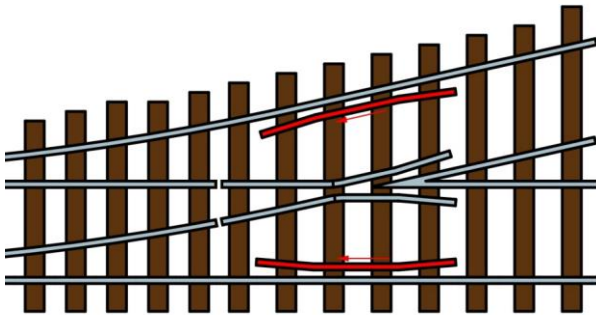


The Point Rail location is shown on the downloadable template and is inserted first and pushed all the way until it stops (it will wedge in). You should find the point of the V on 2 thirds over that sleeper/timber. The Splice Rail is then inserted and pushed-in until it butts up to the first Point Rail. Repeat for the opposite side of the diamond.

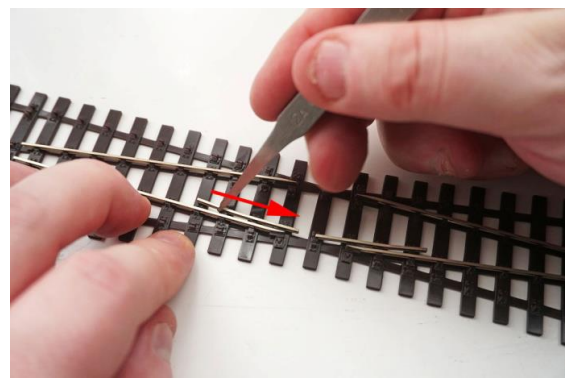
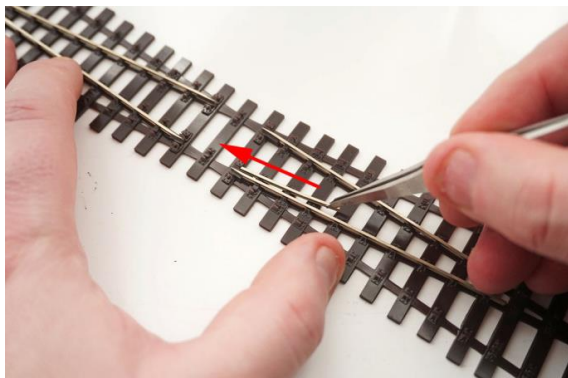


### Fitting Check Rails:

The Check Rails can be threaded in one at a time taking care to guide the end of the Check Rails through the slots in the chairs. Check against the downloadable template for correct alignment.

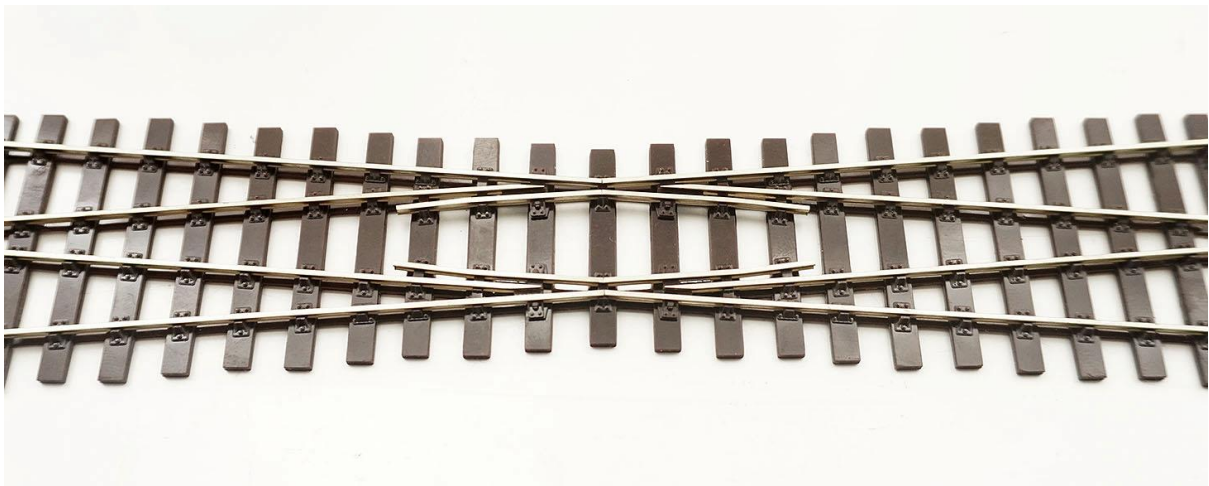
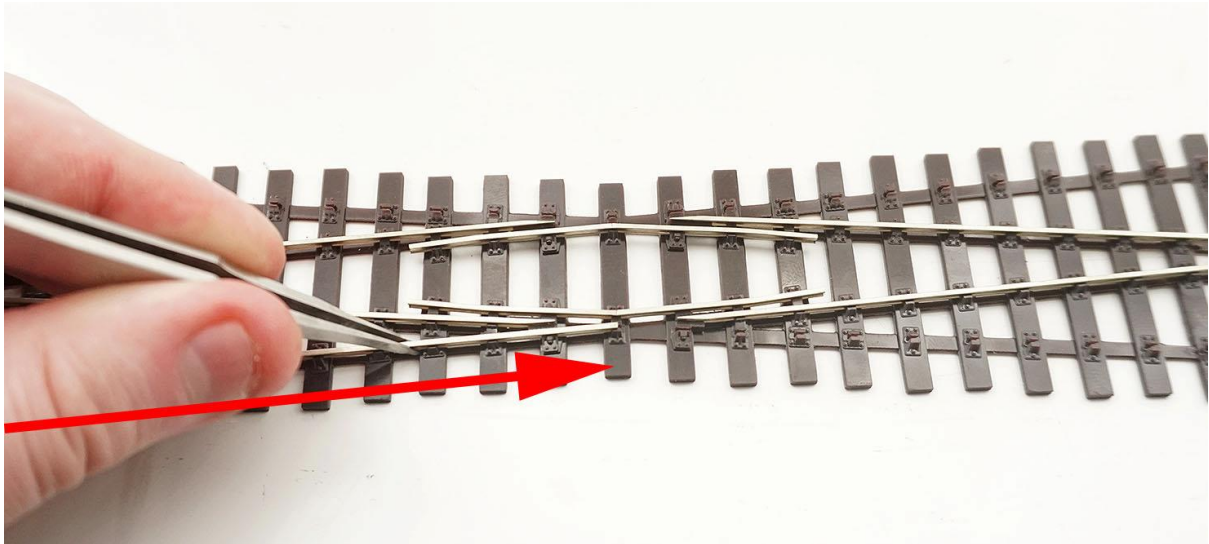


The four Check Rails located in the middle of the diamond can then be inserted. They must meet EXACTLY in the middle of the sleeper at the 'Knuckle' location.



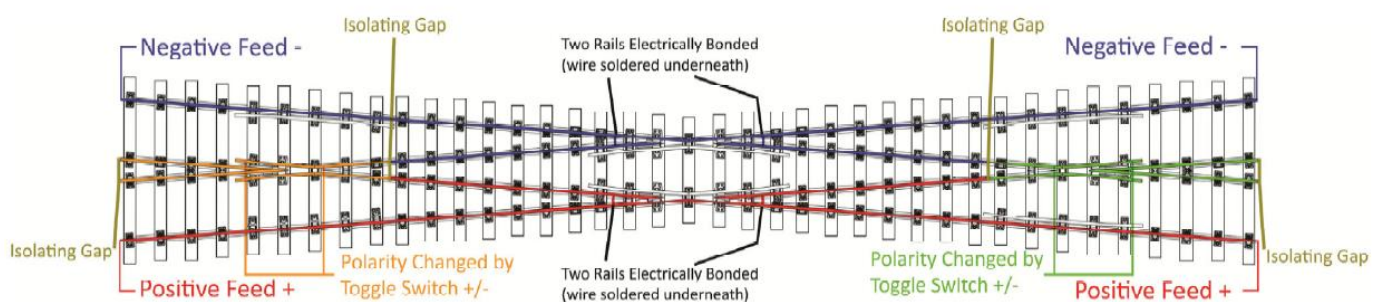
### Fitting Stock Rails:

All four stock rails can now be slid into the chairs from the end of the base towards the middle of the diamond. They must meet EXACTLY in the middle of the sleeper at the 'Knuckle' location.



### Electrical Wiring:

Please refer to the diagram for suggested electrical connection. A positive feed wire should be soldered to the bottom two Stock Rails and negative feed wire to the top two Stock Rails.



Each V Rail that runs to the middle of the diamond should be electrically bonded to its adjacent Stock Rail by soldering a small piece of wire between them under the rails at the point shown in the diagram.

One wire should also be soldered to the bottom of the Crossing V 'Frog' Rails and Wing Rails and another wire soldered to the bottom of the Closure Rails, as indicated below in green and orange in the diagram above.

**Fixing the Rails in Place:**

Once happy with all of the rail positions (checking especially the knuckle location), the rails can be permanently fixed in place using a small amount of super glue on one or 2 chairs for each piece of rail.

**Laying the completed Diamond:**

The completed diamond can be installed onto the layout and fixed into place using PVA or Easitrac glue.

**Ensuring the Plastic Base is Flat:**

Depending on environmental temperature, slight curving of the plastic base may be experienced. It is important to ensure that the completed diamond lay absolutely flat on the baseboard surface to guarantee smooth running of trains. This can be accomplished by use of weights or temporary pins to ensure flatness while the turnout is being glued in position. This is especially important around the crossings to ensure the height rail tops of the frog align with tops of the adjoining rail, otherwise, a bump can occur as stock rides over the join.

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