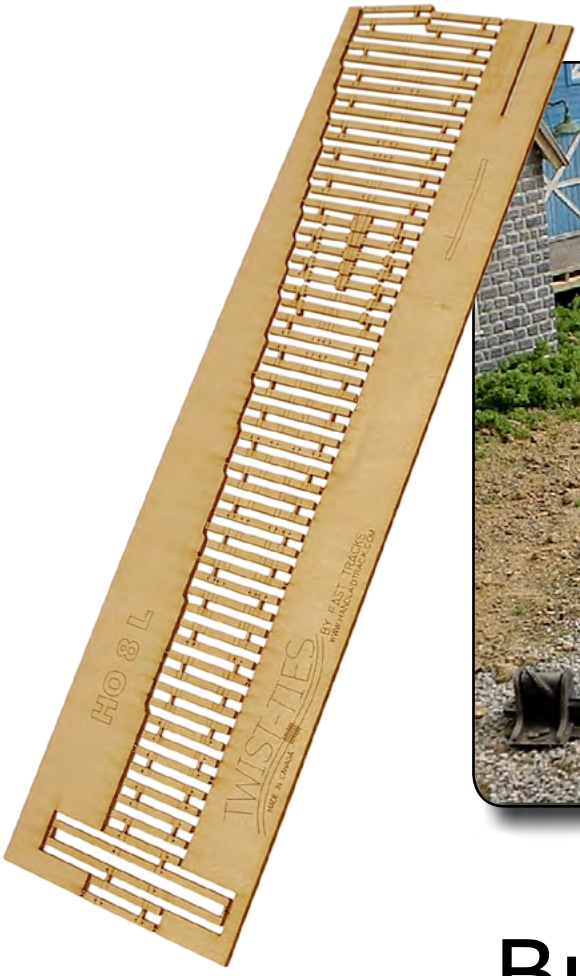
Building Curved(or Straight) Turnouts with Fast Tracks Laser Cut TwistTies



Builders' Guide

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Fast Tracks Builders Guide UG16

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Thank You For Buying Fast Tracks Products!

Fast Tracks was born out of my frustration with building accurate and reliable turnouts by hand. I just felt that there had to be a better way. So after a lot of experimenting and trial and error I came up with a solution that worked so well, that I decided to offer track assembly fixtures for sale to other model railroaders.

I have spent a lot of time 'sweating the details' and have worked hard to produce the highest quality product possible. If you are not 100% satisfied with your Fast Tracks product, or are not getting the results that you expected, then please contact me directly at service@fast-tracks.net and I will try and help you out, or arrange to refund your money.

If you are happy with your Fast Tracks product, then please tell your friends! Despite our hyper-linked and over-connected society, I still rely mostly on satisfied customers and word of mouth to promote my products.

You will always find the latest version of these instructions on the Fast Tracks website at www.handlaidtrack.com/documents . I would suggest that you bookmark this address in your browser so that if you ever misplace or wear out these instructions you will be able to download another copy from our website.

We also maintain an online discussion forum about Fast Tracks products on our website at www.handlaidtrack.com/forums. There you will find a host of information & advice from myself and other customers. Why not drop by and tell us how you are making out with your hand laid track project?

Also, Fast Tracks is on Facebook! If you are a Facebook user, join our Fast Tracks page as I frequently update it with what is going on here during the day.

Again, thank you for your purchase. And please do not hesitate to contact me if you have any questions or problems with your product. I will do my best to reply within one business day.

Tim Warris & the staff at Fast Tracks
service@fast-tracks.net
www.fast-track.net

Building Turnouts with Fast Tracks TwistTies

This illustrated how-to guide details each step required to construct a curved turnout using Fast Tracks TwistTies. Straight turnouts can also be built using these same steps – just skip the parts that cover pre-curving the rail.

These instructions can be used to construct any hand laid turnout, even if you are not using Fast Tracks TwistTies or tools! Of course using TwistTies and our track tools will make the construction of a reliable, smoothly functioning turnout much easier.

Using curved turnouts in curved sections of track can save a great deal of space on a layout. However curved turnouts also have a reputation of being notoriously difficult to construct and have long been a stumbling block for many modelers. Commercially built turnouts are available, but are not known for their reliability, and are only available in a limited number of sizes, forcing the modeler to make compromises with their design.

Fast Tracks TwistTies overcomes all of these limitations enabling you to construct a turnout of any desired radius right in place, allowing it to "flow" with your trackwork. With TwistTies a #8 turnout can be built with a 30 inch, or a 100 inch radius, and still be a #8 turnout! And with our PointForm filing jig and Frog Helper soldering jig you will be able to build a frog point that is curved over the entire turnout, ensuring silky smooth operation.

TwistTies are pre-drilled with spiking holes that will ensure the rail is precisely located and held in gauge throughout the entire turnout - even without a track gauge!

The turnout shown in these instructions was built on a Homosote® roadbed. The spikes will pass through the plywood ties into the Homosote ensuring that they will stay in place permanently. TwistTies are cut from 3 ply baltic birch plywood, which provides a much tighter hold on the spike over the more commonly used basswood or sugar pine. Because of this, a softer roadbed can be used. We have successfully used cork under trackwork built with TwistTies and have had no problems with spikes working loose over time. However cork is a bit "spongy" and will flex a bit when placing the spikes, so extra care needs to be taken if you are using a cork roadbed.

Ensuring that your roadbed is a smooth as possible will directly reflect on how well your finished trackwork performs. So take some time to ensure that the roadbed is flat, smooth and level before you begin.

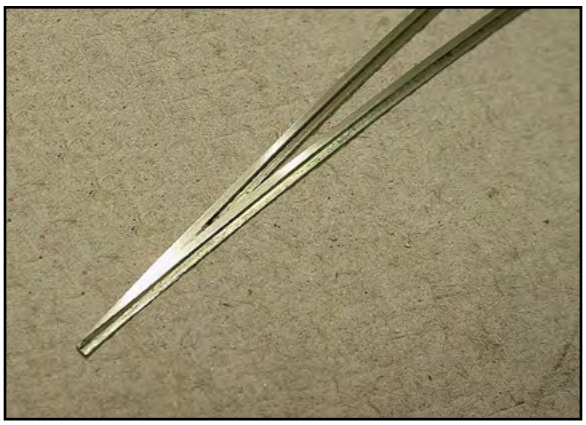
Important Notes For Experienced Track Layers

There are as many techniques, preferences and opinions about building turnouts by hand as there are railroads that use them, and I would not be so bold to state that the method outlined below is the only way to do it. This is however the approach that I have been using for several years with excellent results. Our TwistTies and tools are adaptable to just about any technique you prefer so feel free to experiment, and don't hesitate to let us see the results!

- Tim Warris, Fast Tracks

Preventing Wheel Drop

The secret to preventing wheel drop at the frog is to ensure that the frog points are as long and as sharp as possible. Historically wheel drop was solved by filling the frog with solder and then cleaning out the flangeways with a hacksaw.



The techniques that we describe here offer a more elegant approach by focusing on building points with a geometry that has been proven to not only eliminate wheel drop but will produce a better looking and better performing turnout.

In addition to solving the wheel drop problem, this method of construction also guarantees that all wheel flanges will work through the turnout – regardless of the manufacturer.

Glue?

The turnout building technique that we describe here uses cyanoacrylate adhesive (more commonly known as "super glue" or "Krazy Glue") instead of solder to hold several key components in place. When properly used, cyanoacrylate will easily outperform and outlast solder, and will result in a better performing and better looking piece of trackwork.

If you do plan on soldering the frog solid, and cleaning out the flangeways with a hacksaw blade, DO NOT use any cyanoacrylate adhesive! The fumes from heated cyanoacrylate are toxic.

Always follow the usage instructions with any adhesive

Getting Started

We have broken down our method of turnout construction into 7 steps. They are:

- Step 1 – Prepare the ties
- Step 2 – Place the stock rails
- Step 3 – Form and place the frog points and rails
- Step 4 – Form and place the switch points and closure rails
- Step 5 – Add the throwbar
- Step 6 – Form and place the guard rails
- Step 7 – Cut the electrical isolation gaps

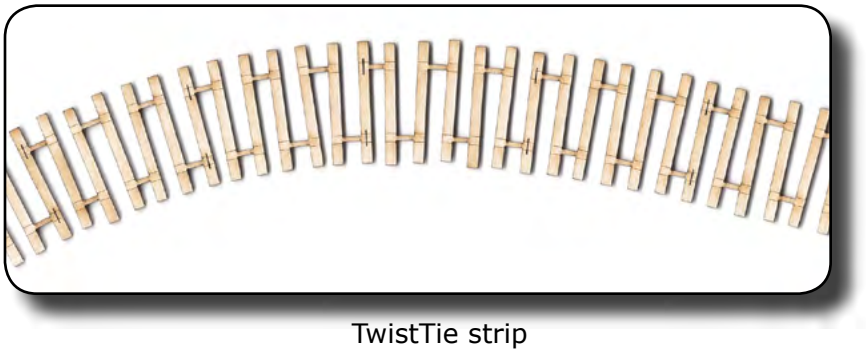
Expect to spend two to three hours to complete your first turnout. As you become more proficient you should be able to reduce the construction time to as little as an hour.

Close up of frog built on TwistTies

What You Will Need

In addition to rail you will need the following items to build a turnout:

- 35 watt soldering iron with pencil tip. (A Weller WP35 with ST7 tip is recommended.)
- Small diameter (.020”) solder (SP-0003)
- PointForm point filing tool (Optional, but highly recommended)
- StockAid Tool (Optional, but highly recommended)
- RailRoller rail bending tool (TL-0004)(Optional, but highly recommended)
- Soldering flux (SP-30)
- Microbrush applicator (TL-0025)
- NMRA track gauge
- Xuron Rail cutters (769-2175B)
- A sharp, 10” mill cut file (TL-0007)
- Small triangle needle file (TL-0002)
- Small Spikes (30-106)
- Brown or grey stain
- Small staining brush
- Dremel or small rotary grinding tool
- Dremel cut-off discs
- Xacto or razor knife
- Black marker
- Cyanoacrylate adhesive
- Wood glue
- Spiking pliers
- And a couple of hours....



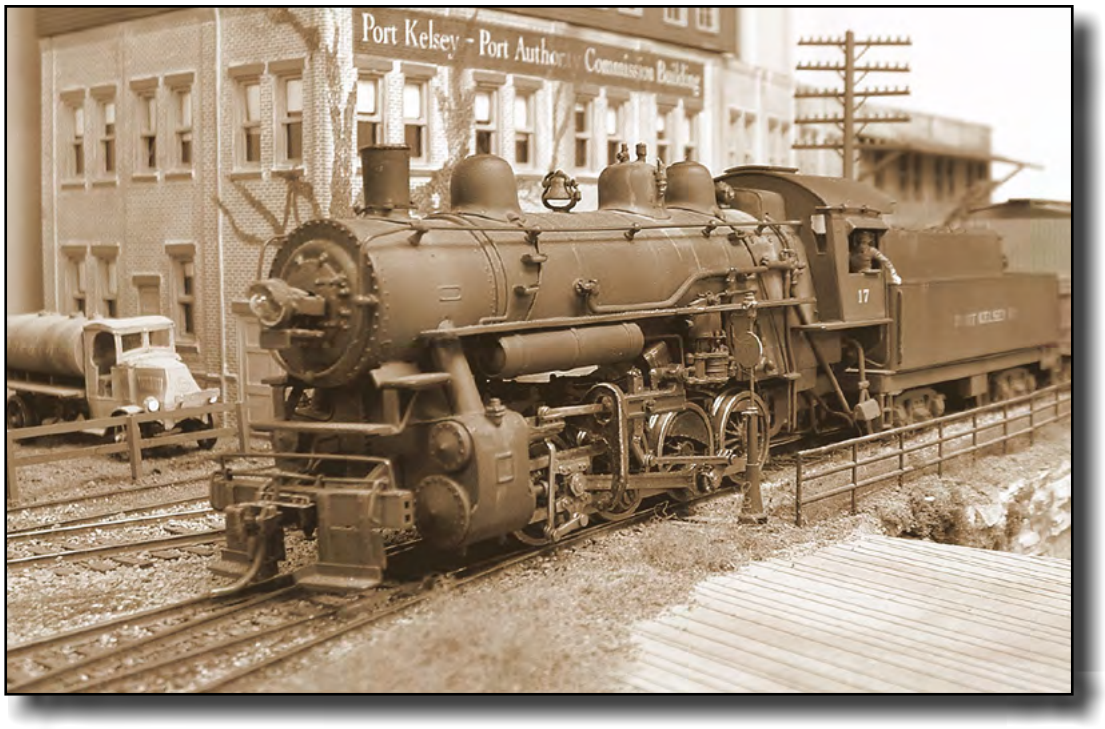
TwistTie strip

Related Documents

The following documents are referred to in this users guide and will be needed during construction. All of these documents will be on the CD that was included with your TwistTies order, or you can download the latest version from our web-site.

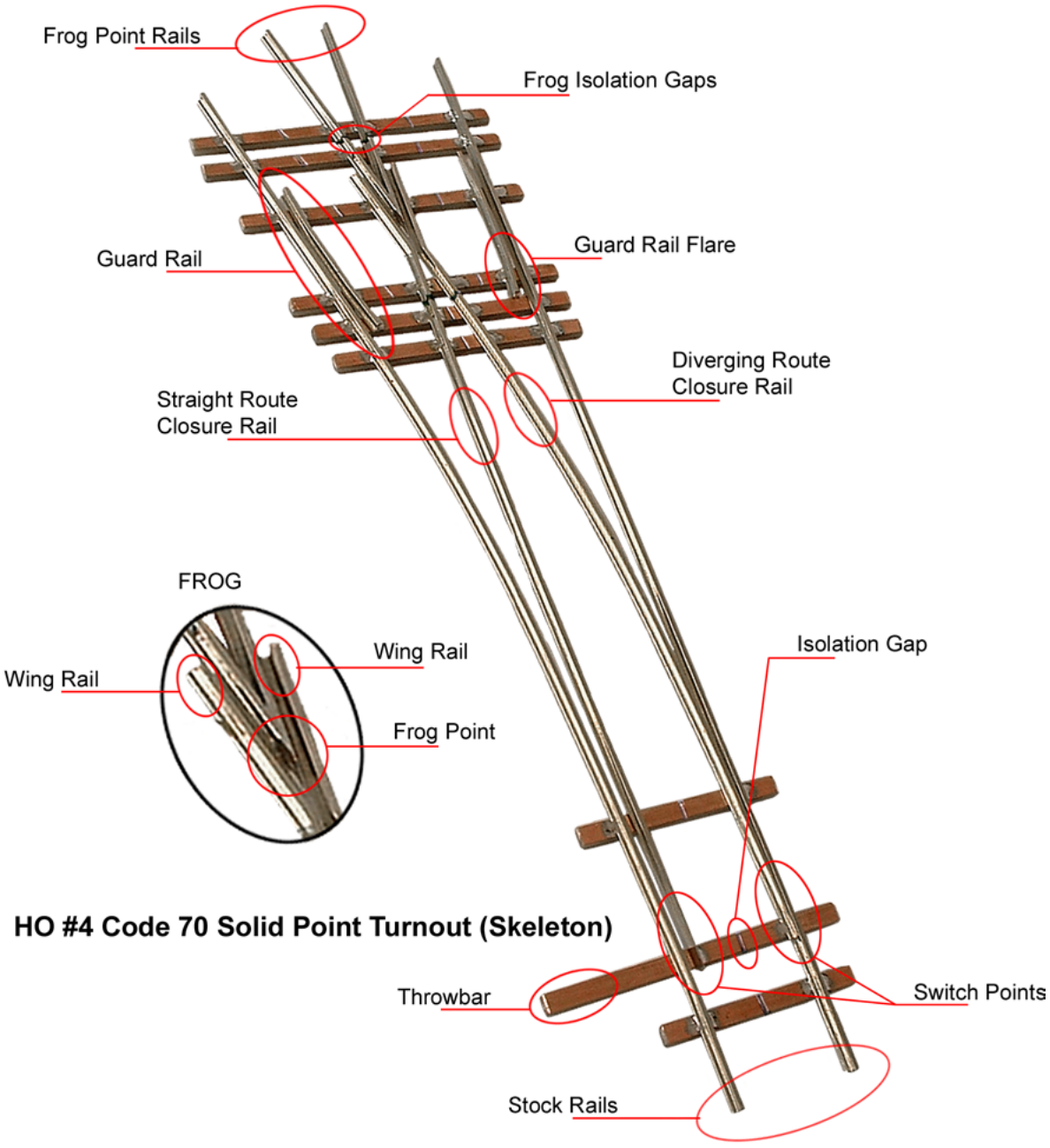
You may want to print out copies of these documents now.

Document ID	Document Name
UG09	Using Fast Tracks PC Board Ties
UG10	Using Fast Tracks Point Form Tool
UG12	Using the Fast Tracks Rail Roller
UG14	Using the Frog Helper For Straight Turnout Frogs
UG15	Using the Frog Helper For Curved Turnout Frogs
AN01	Developing Good Soldering Techniques For Trackwork
AN02	Zen and the Art of Spiking



Turnout Terminology

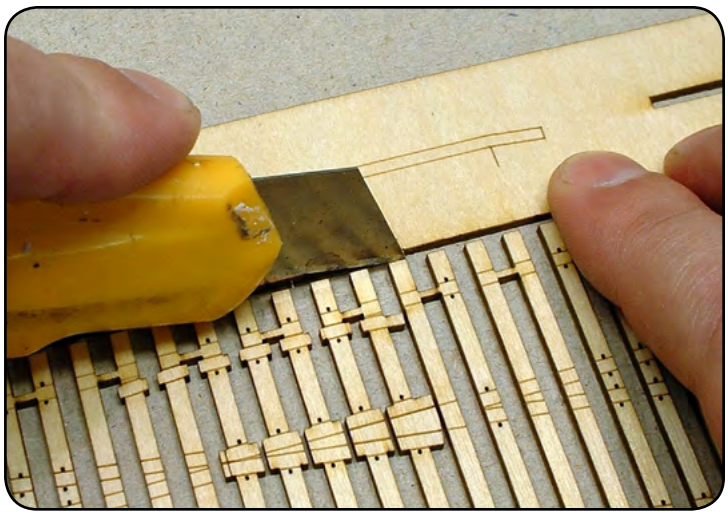
We will be using a number of technical terms to describe the various parts of a turnout. To help you identify and locate these parts we have prepared this reference drawing. All of the parts in this illustration are common to all turnout types and sizes. We highly recommend that you print out this page and keep it handy as you build your turnout.



HO #4 Code 70 Solid Point Turnout (Skeleton)

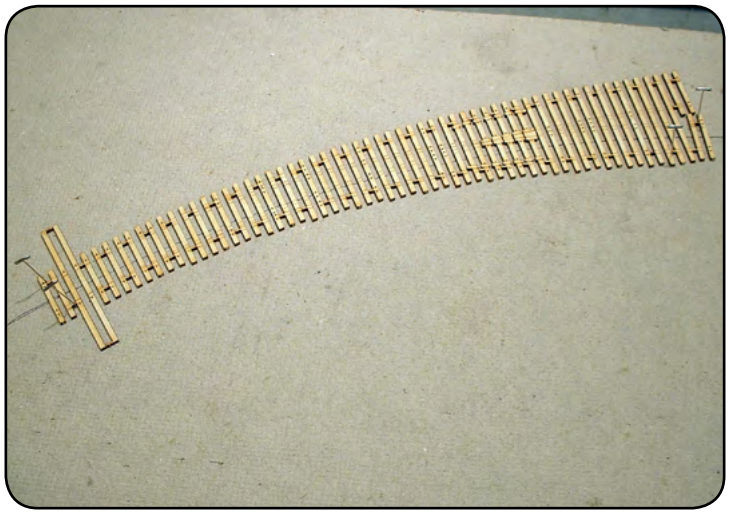
Step 1 - Preparing The Ties

Image 1



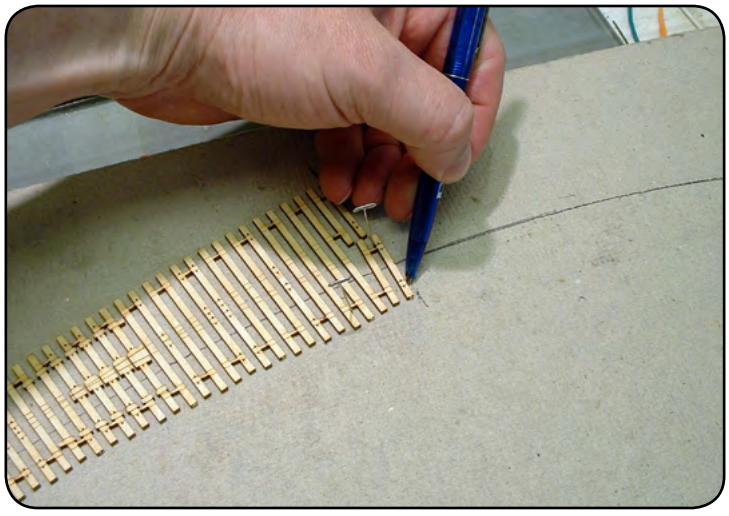
Using a sharp knife, carefully cut through the “tabs” that join the ties to the plywood base. Set aside the scrap pieces for now, you will need them later. If you plan on building a straight turn-out you may want to skip this step and keep the TwistTies as a solid piece until the ties are firmly glued to the roadbed. This will keep the turnout perfectly straight.

Image 2



Using push pins temporarily pin the turnout onto your roadbed using the track center lines you have previously drawn onto the roadbed. Image 2 shows a #8 curved turnout following a 24” radius along the inner route.

Image 3



To determine where to apply adhesive, mark the location of the end ties onto the roadbed.

Image 4

Apply a liberal amount of wood glue onto the roadbed.

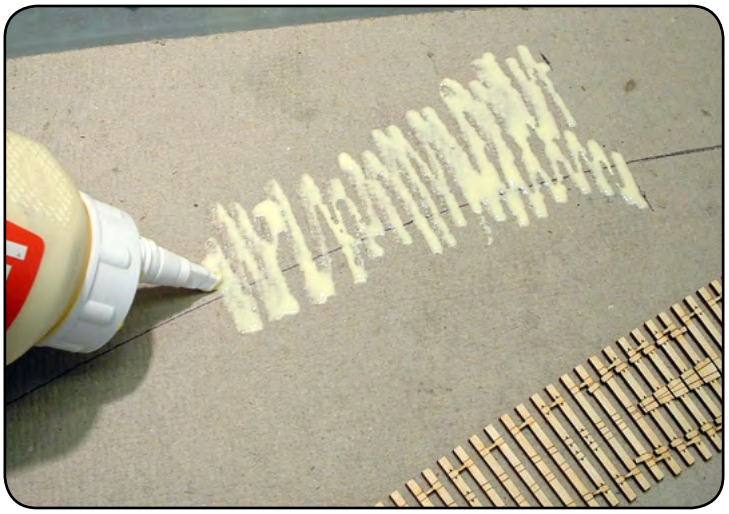


Image 5

Place the turnout onto the glue. Wood glue on Homosote® is very tacky and will easily hold the shape of the ties, but it might be necessary to pin the ends of the turnout while the glue sets up.

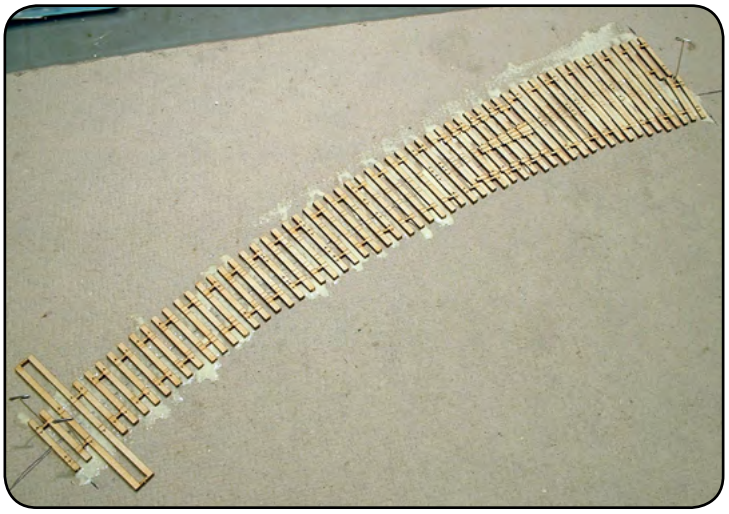


Image 6

While the glue is still pliable, sight down the turnout to ensure that the radius is smooth and consistent. Small adjustments can be easily made by moving the ties.

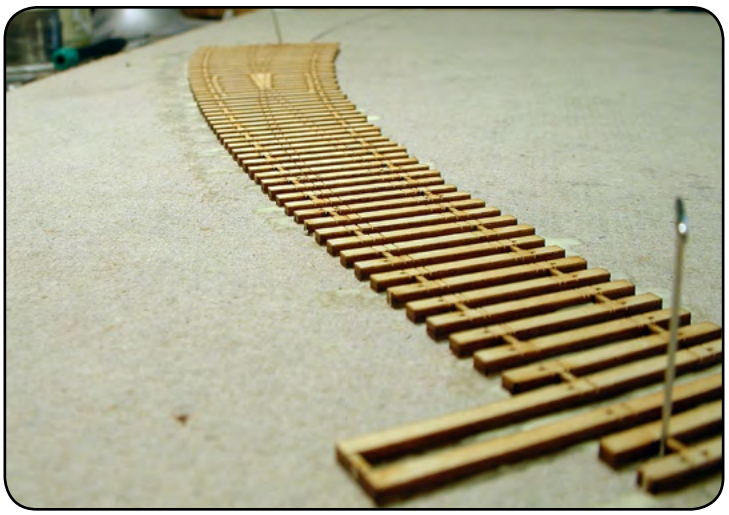


Image 7

Add the ties that go into and out of the turnout. You can use individual ties or Fast Tracks flexible TwistTie tie strips. Let the adhesive cure completely before moving on.

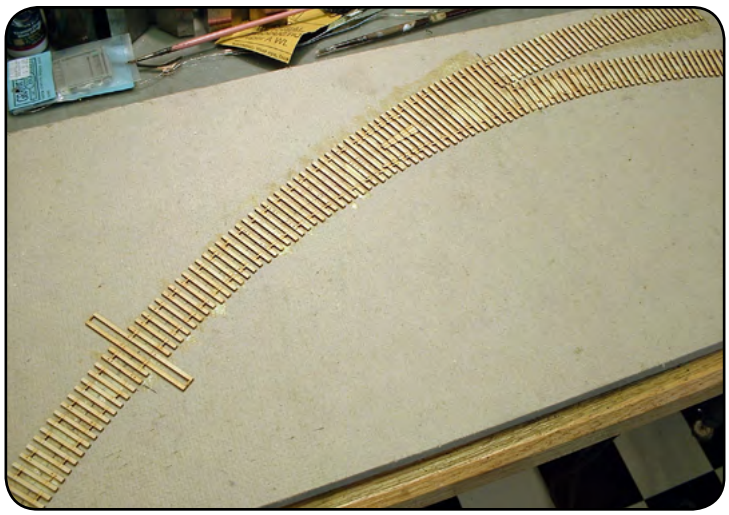


Image 8

If you plan on using an under-the-table switch machine such as our BullFrog Switch Machine, now is the time to pre-drill the hole for the wire that connects the switch machine to the throwbar. Using a power drill, drill three holes right next to each other using a 1/8” bit. Widen out the holes by tipping the drill from side to side in order to make a slot.

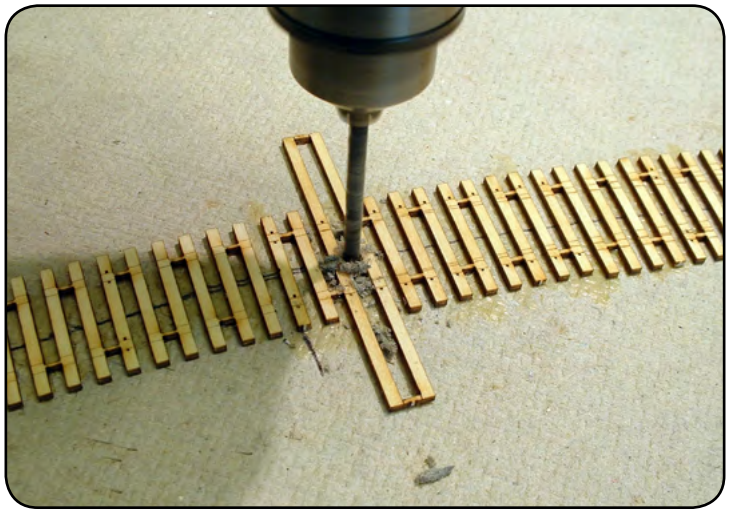


Image 9

Using a small, flat file, smooth out the sides of the slot to ensure ample clearance for the throwbar wire.

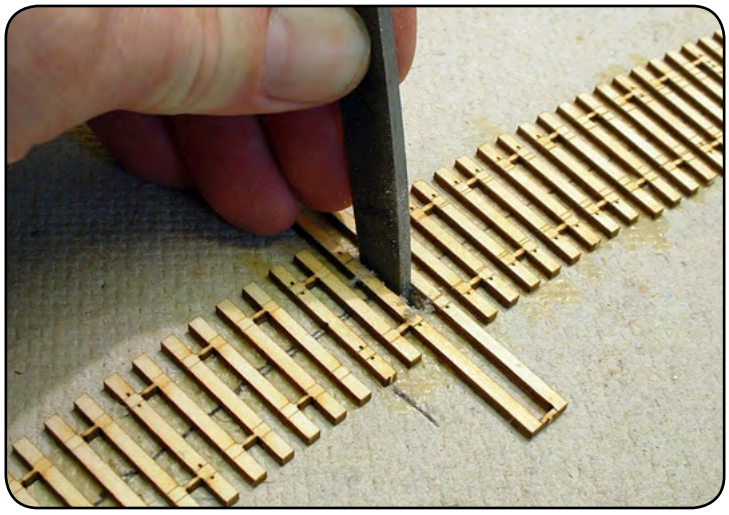


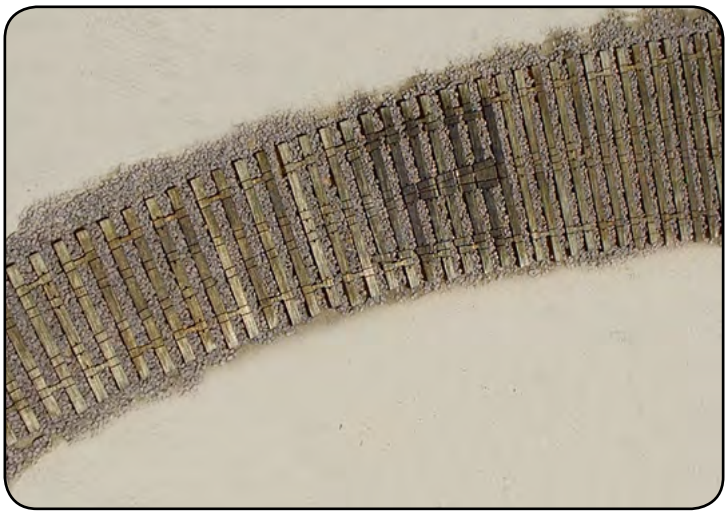
Image 10

At this point, stain or paint the wood ties. Here I am using a home made stain of leather dye and rubbing alcohol, no specific formula, just something brown or grey. I use some diluted black to darken the area around the frog and switch points.

Image 11

This is a good time to ballast the ties. Ballasting now will ensure that you do not accidentally glue the points in place later. It is also much easier to keep the ballast off the ties and off the sides of the rails if you ballast prior to spiking down the rails.

For clarity the remaining images do not show the ballast.



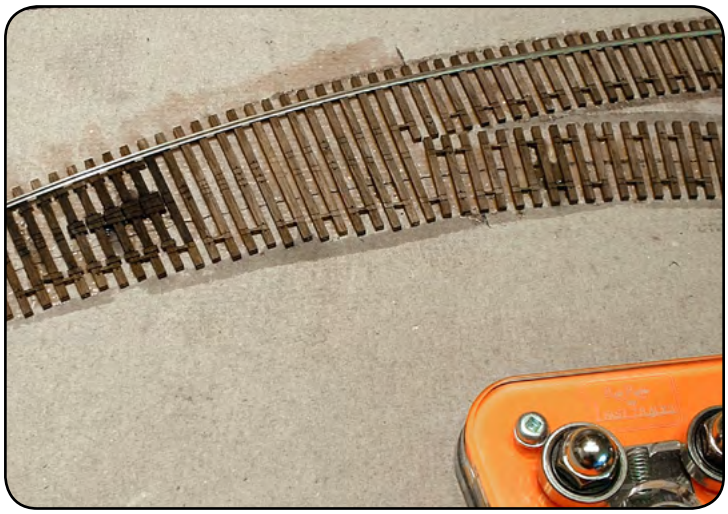
Step 2 - Placing the Stock Rail

Image 12

Pre-bending rails for curved turnouts is a must, otherwise you will be fighting the rail as you work. Using a Fast Tracks Rail Roller or whatever method you prefer, prebend a length of rail to approximately match the radius of one of the two stock rails. I am starting with the outer stock rail.

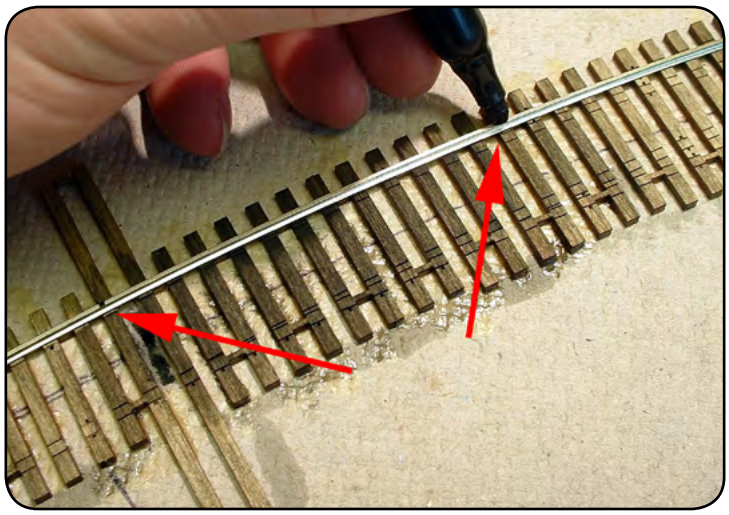
To learn more about how to use the Rail Roller, please refer to the "Using The Fast Tracks Rail Roller" document.

Image 13



Place the rail onto the ties and confirm that the rail is fairly close to the radius of the turnout. Don't worry about getting it 100% perfect, just close.

Image 14



Once you are happy with the radius, place the rail onto the ties and mark the area of the switch points. Some of the base of the stock rail needs to be removed to allow the switch points to accurately fit against the stock rail.

Using a marker, mark a spot about 1/2 the way down the lower throwbar tie, and another spot where the two rails diverge as shown by the engraved lines on the top of the TwistTies.

Image 15

The next step is to remove the base of the rail between the two marks. The goal is to just remove the base of the rail and none of the head.

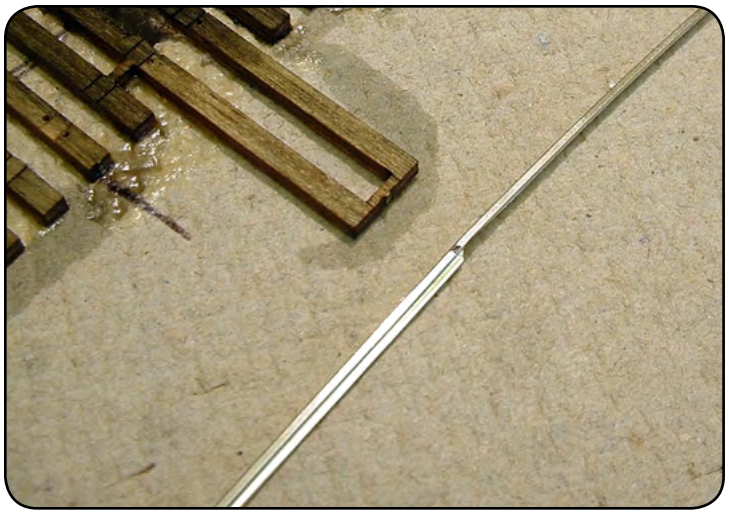


Image 16

When you remove the base of the rail you need to end up with a square cut on the switch point end and a taper on the opposite end.

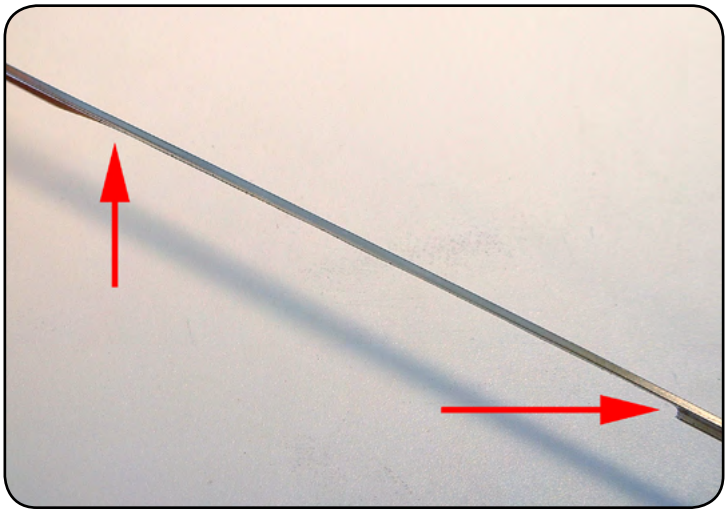
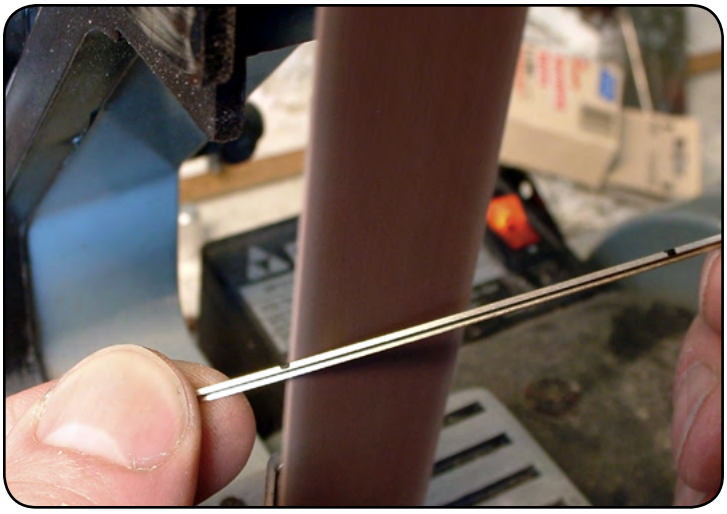


Image 17

The fastest & easiest way to remove the base of the rail is to use our StockAid tool. This tool was designed specifically for this purpose. Refer to the "Filing The Stock Rail With The StockAid Tool" document for details on how to use this tool.

If you do not have a StockAid tool, a good alternative is to use a small bench top sander

Image 18

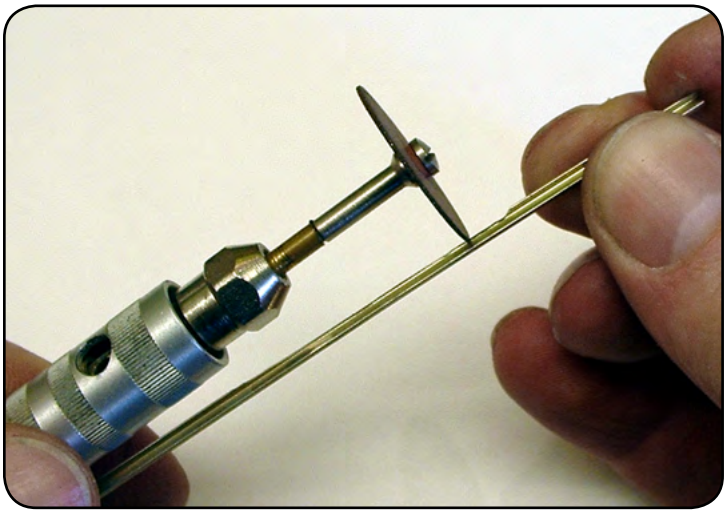


Another method is to use a Moto-Tool with a cut-off disk.

Alternatively you can use a vice and file to remove the base, but this will require a bit of skill.

After you have removed the base of the stock rail, place it back onto the ties and double check to be sure that it still matches the lines engraved onto the Twist-Ties.

Image 19



Removing some of the base of the rail will release internal stresses causing this area of the rail to straighten out a bit. Carefully re-form the curve by hand, and double check to be sure it matches the radius of the turnout.

Starting below the throwbar ties, drive a couple of spikes to secure the rail. To learn more about driving spikes, refer to our spiking document AN02.

Image 20

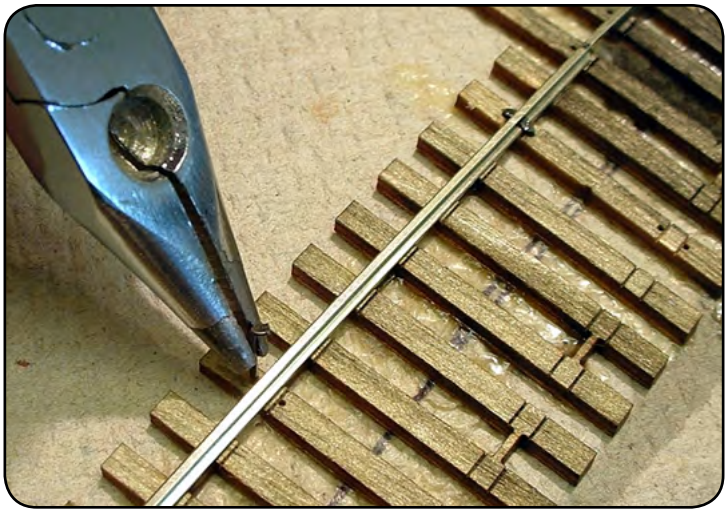


Image 21

Do not spike the area where the base was removed or the area next to the guard rail just yet. It will be easier to spike the rest of the rail first and then these areas later.

Image 22

Areas where you can only drive spikes on one side of the stock rail present a special challenge. When only one side of the rail is spiked there is no support for the opposite side, making it easy for the rail to move out of gauge when the spike is pressed into place.

Our solution to this problem is to apply a small amount of thin cyanoacrylate adhesive between the base of the rail and the Homosote using a Microbrush. (www.microbrush.com) These brushes are very nice for this sort of job as they can hold an ample amount of adhesive and will allow you to get the glue to wick under the rail.

Image 23

After applying the adhesive, carefully drive the spikes using the pre-drilled spike holes. Be careful not to apply too much pressure otherwise the rail might move out of gauge.

Angling the spike away from the rail will avoid putting to much pressure on the side of the rail.

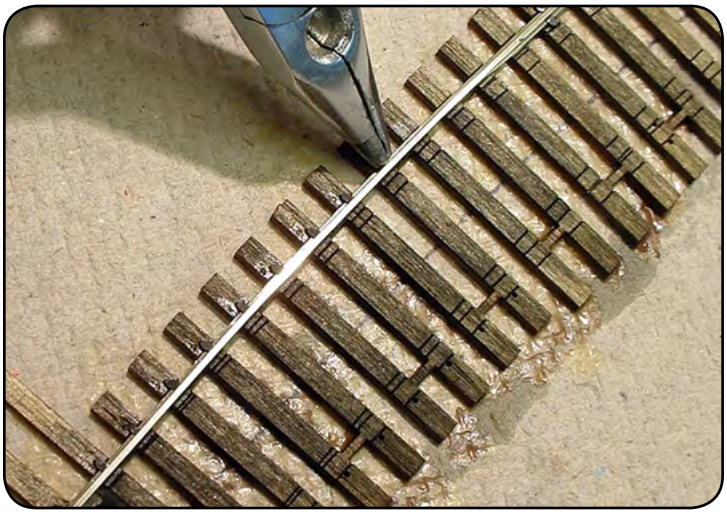


Image 24

Use the same gluing and spiking technique spike the stock rail opposite to the guard rail.

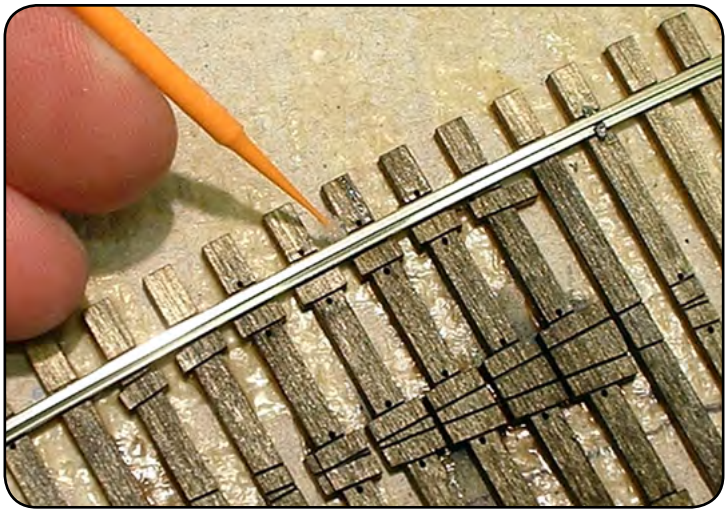


Image 25

Carefully place the spikes in this area, again angling the spike away from the rail to avoid moving it out of gauge.

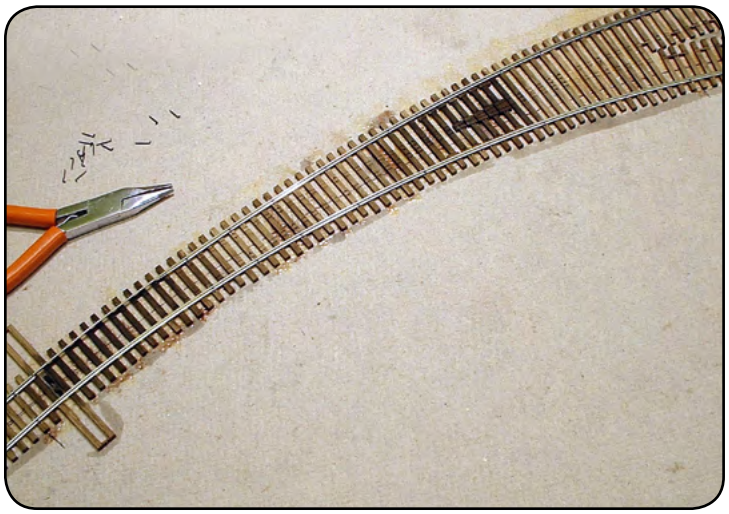
Repeat the procedure detailed in images 12 to 23 for the inner stock rail.

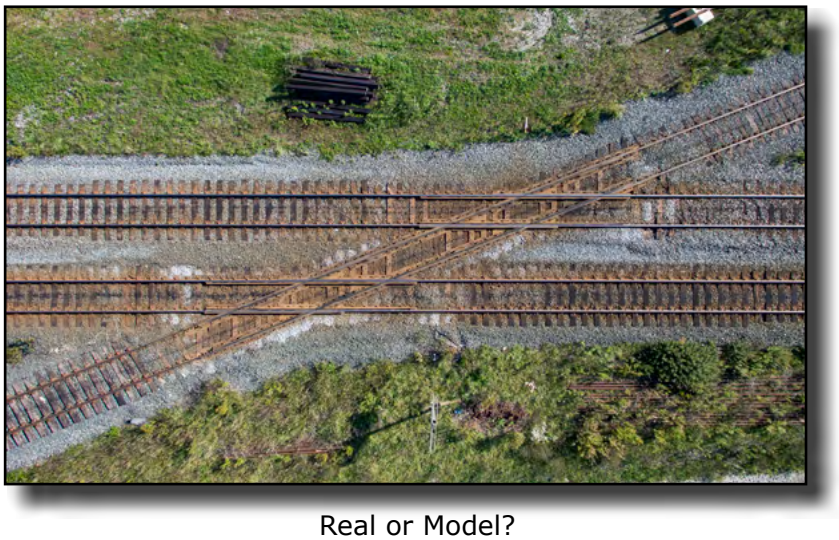
Image 26

The inner stock rail tends to be a bit more fiddly to get it to match the engraved rail lines on the TwistTies and some adjustment may be necessary to keep the area where the base was removed accurately placed. You may need to nudge the rail into place before you secure it with cyanoacrylate adhesive prior to spiking.

Image 27

The stock rails are now complete!





Real or Model?

Step 3 - Forming & Placing The Frog Points & Rails

If you are building a curved turnout pre-bend two lengths of rail for the frog point rails matching the radius etched on the Twist-Ties. Try to get this as close as possible and ensure that the entire length of the rail is curved right up to the end.

If you are using a Rail Roller you cannot reliably curve the rail right to the end, so it may be necessary to cut the ends off the rail to ensure that the curve extends over the full length of the rail.

The key to building smooth running turnouts is to produce long, sharp frog points. Filing frog points by hand is possible but challenging, which is why we highly recommend that you use our PointForm tool to create frog points.

When clamping curved rail into the PointForm tool, keep steady pressure on the rail while tightening the clamping screws. Do not over tighten.

To learn more about how to use the PointForm tool, please refer to the "Using Fast Tracks Point Form Tool" document.

Be sure that there is sufficient rail protruding from the side of the PointForm tool to ensure that the points are long and sharp.

File the rail flat to the side of the PointForm and then remove the rail.

Image 28

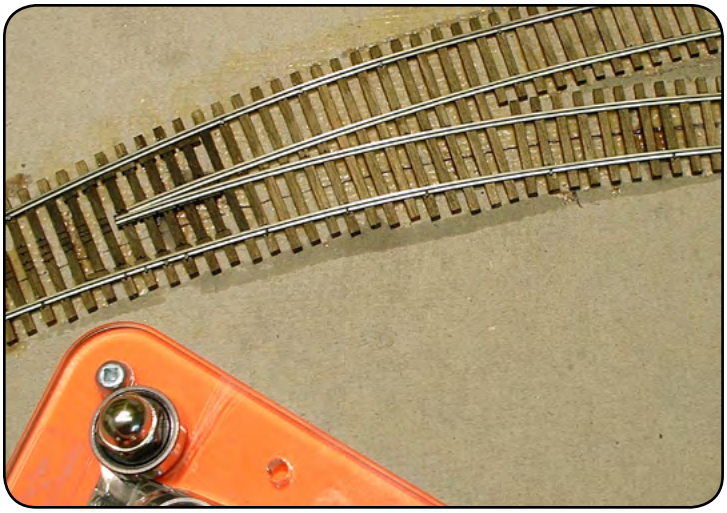


Image 29

Image 30

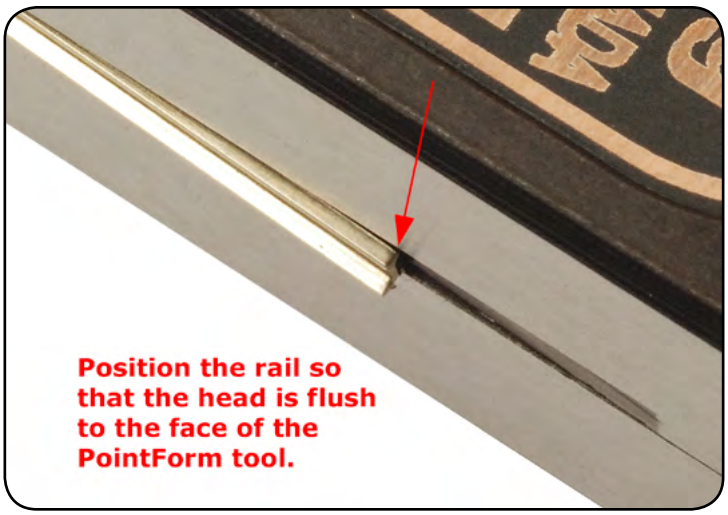


Image 31

Filing and shaping the rail will release internal stresses causing the rail to "spring" out of shape, as can be seen in the top rail in this image.

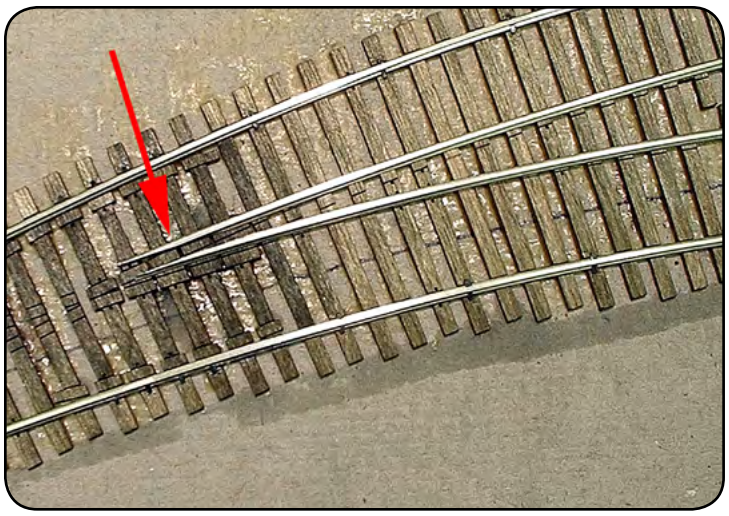
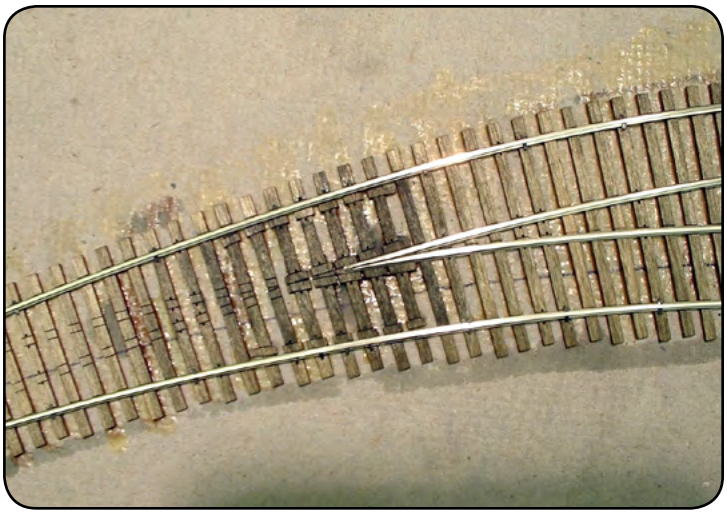


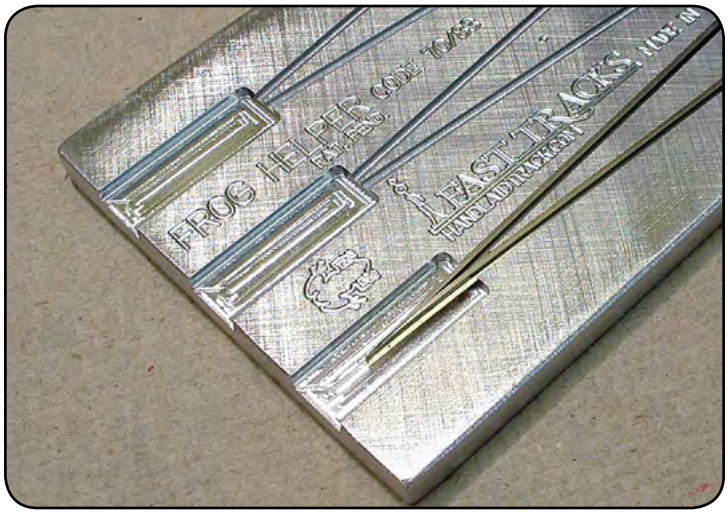
Image 32

To correct this problem carefully bend the frog point back into shape by hand using the ties to check the radius. Try to get as close a fit as possible.



Rochelle Crossing before installation. Rochelle, Illinois

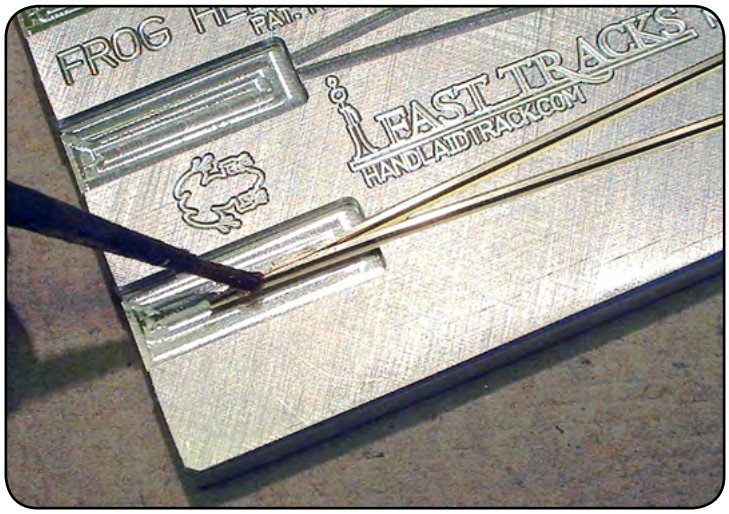
Image 33



Using the Fast Tracks Frog Helper, solder the two points together to form a frog point. Place the two halves of the prepared rail into the Frog Helper base side down. Slide the rails as far forward as possible, but not so far as to "tip" the pieces over.

Inserting pre-bent rails into the tool will force them straight. Don't worry, they will return to their original curved shape when you remove them from the jig. A weight can be placed onto the rails to keep them in place.

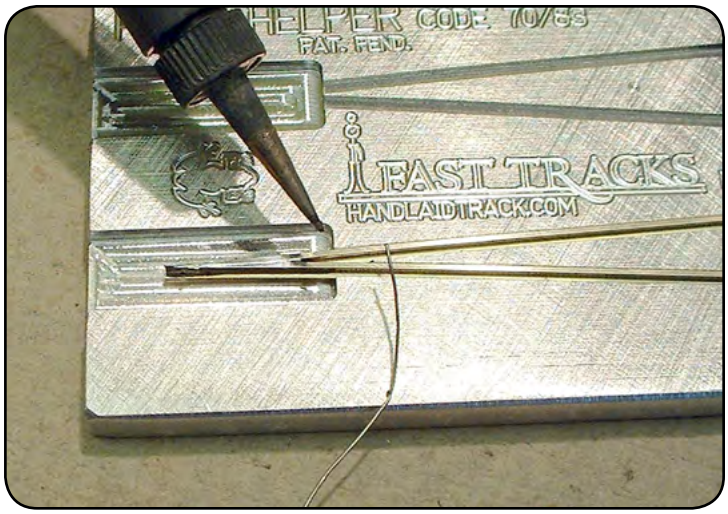
Image 34



The Frog Helper is another tool that will make it much easier to create precision points - an essential component to a smooth running turnout. To learn more about how to use the Frog Helper tool, please refer to the "Using the Frog Helper For Curved Turnout Frogs" document.

Using a microbrush, apply a bit of flux onto the top of the rails.

Image 35



Apply heat to the top of the rails and solder the two halves together. Keeping the iron at a slight angle will increase the contact area making soldering easier. Wipe away any excess solder while it is still hot.

New to soldering? Check out our "Developing Good Soldering Techniques For Trackwork" document for some helpful tips.

Image 36

Remove the completed points from the Frog Helper. They will spring back to their curved shape. (If you are building a curved turnout).

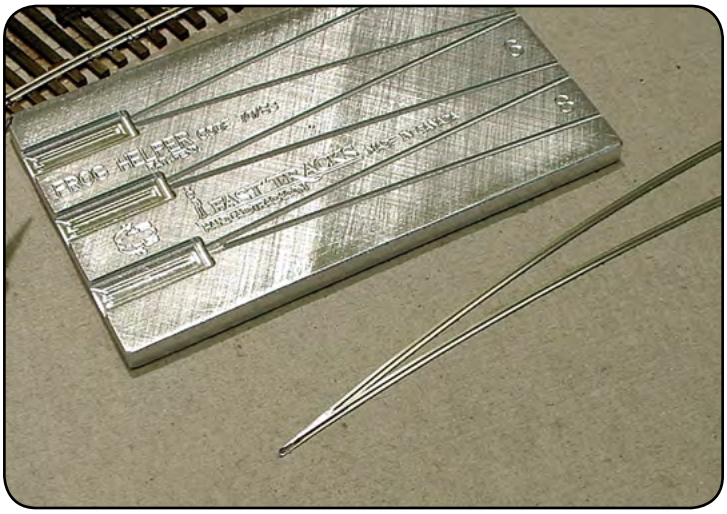
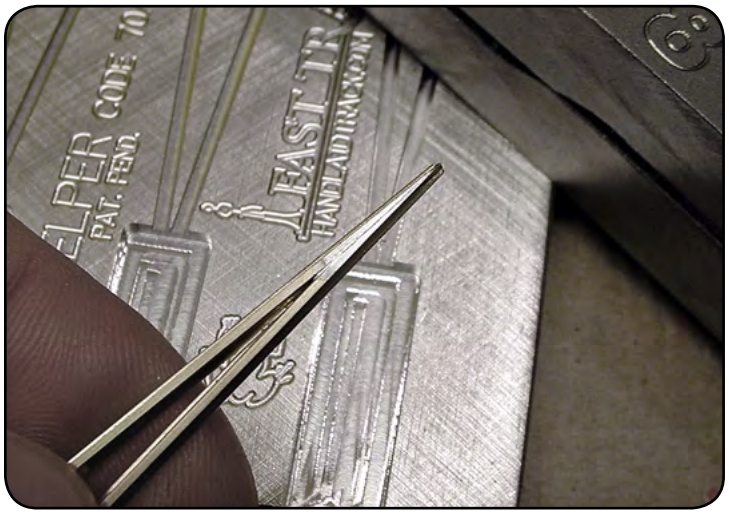


Image 37

If you are building a curved turnout, be sure that the curvature of the rails extends right to the end of the frog points. Notice how sharp the frog point is in this image.

If your finished points don't look like the ones in image 37, discard them and try again.



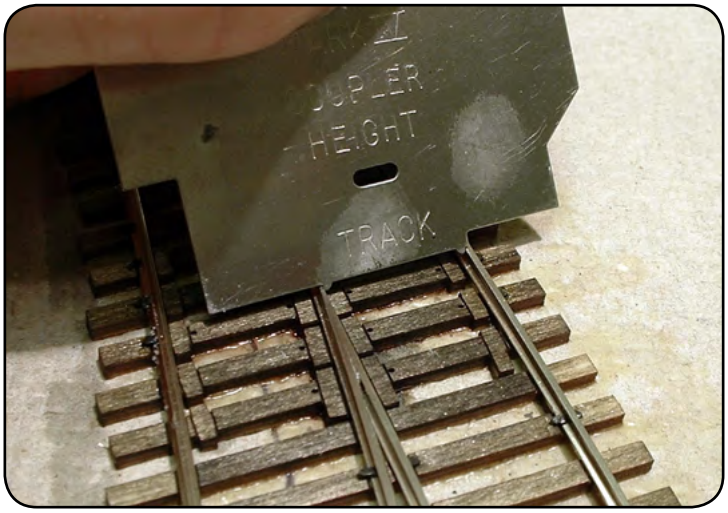
Long, sharp, cleanly formed frog points are critical to a smooth running turnout, so fuss with this part so that your finished points look like the ones in the image below.

Image 38

Place the completed frog point assembly onto the ties positioning it into place using the engraved lines and spike holes. Absolute accuracy isn't necessary yet, we will do some final adjustment later.

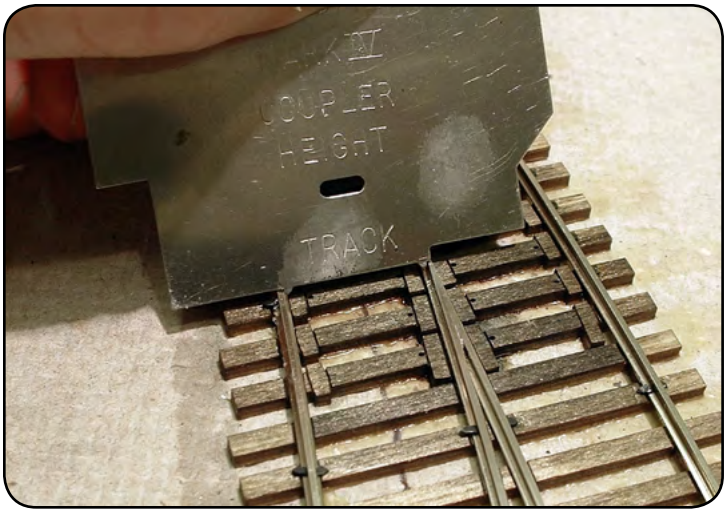
Drive in two spikes on the outside of the frog point to hold it in position. Don't press them in tight just yet. Just push them in far enough to hold the frog in place for the next step.

Image 39



Using an NMRA gauge, accurately position the frog point.

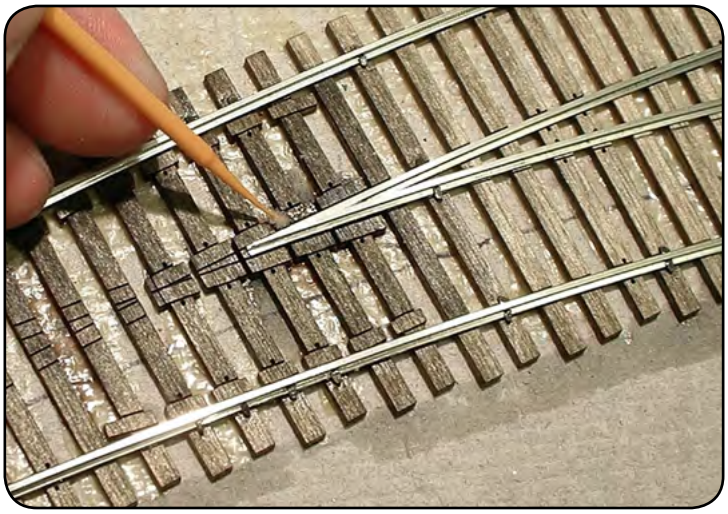
Image 40



Carefully slide the frog point assembly back and forth (not side to side!) until it is in perfect gauge on both sides as shown in images 39 and 40. Spend some time on this step as it is critical to the final performance of the turnout.

When you are confident that you have the frog accurately positioned, push the spikes in tight, double check the results with a track gauge and then carefully apply some cyanoacrylate adhesive to "lock" it into place.

Image 41



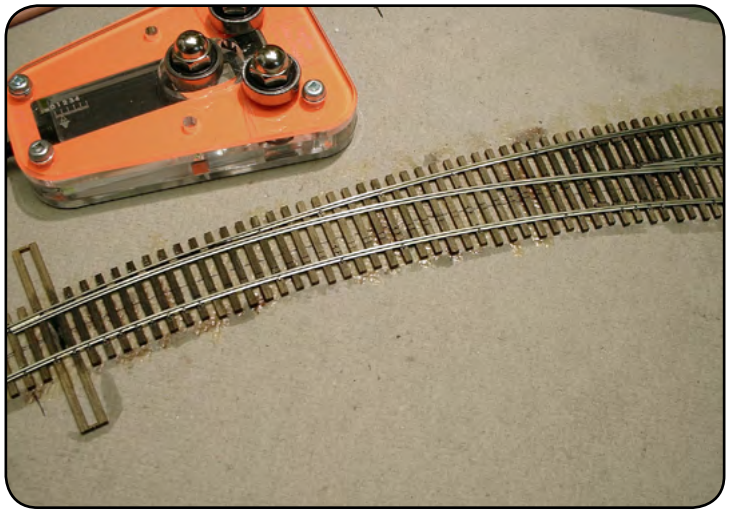
Starting at the frog point and working your way back to the tail end, spike the frog point rails into place.

Image 42

Triple Lapped Turnout built for the CNJ Bronx Terminal

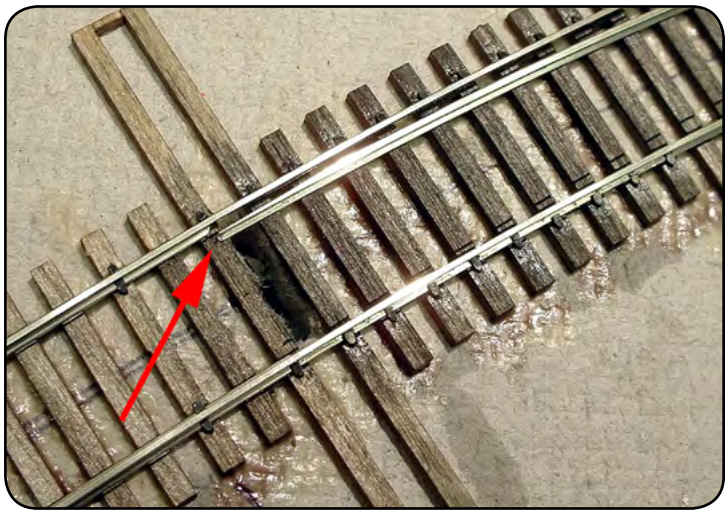
Step 4 - Forming & Placing The Switch Points and Closure Rail

Image 43



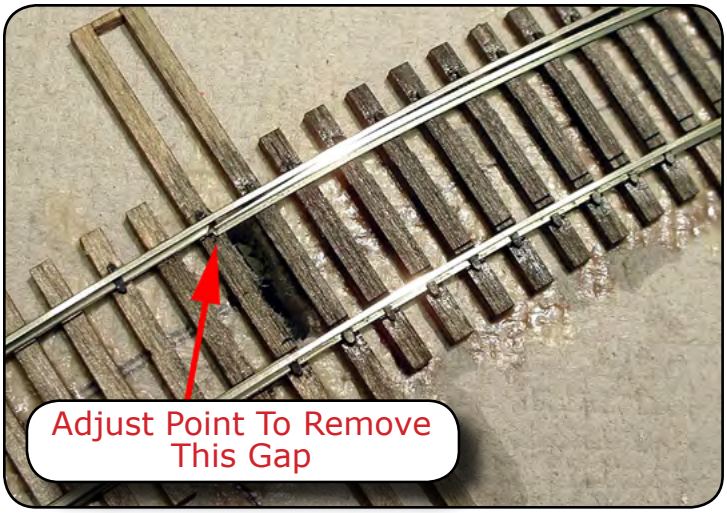
Pre-bend one length of rail to form one of the two closure rails. Be sure that radius extends along the entire length of the rail. If you are building a straight turnout, the diverging route closure rail needs to be pre-curved. Use the lines engraved on the TwistTies as a reference.

Image 44



Using the PointForm tool form the switch point on one end of the closure rail. Ideally the end of the point should be approximately half way onto the lower switch tie, as can be seen in the image.

Image 45



If you find that a switch point is not fitting as well as it should, don't be afraid to adjust it a bit by working the finished point.

Image 46

Working the finished point by bending it into shape.

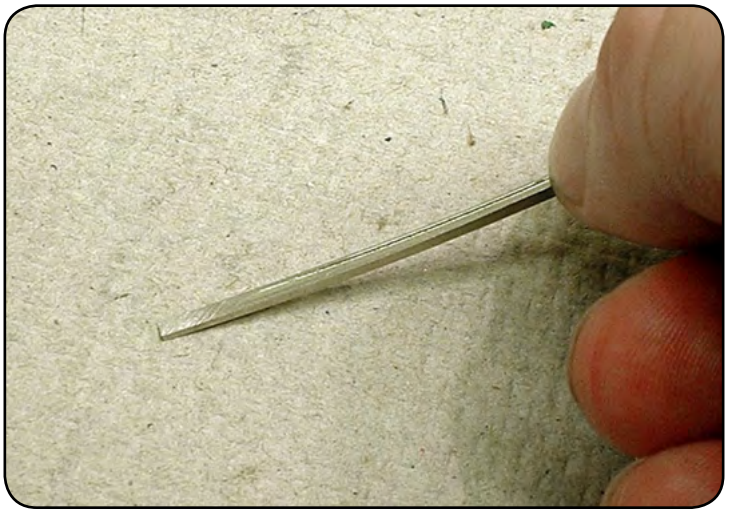
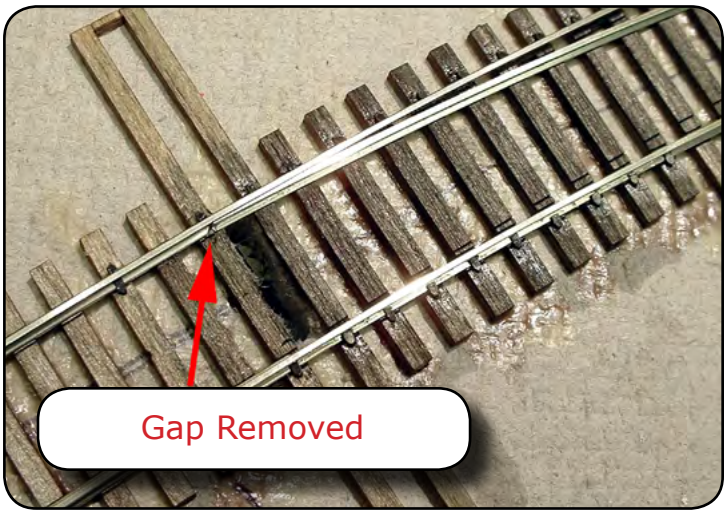


Image 47

Working the point a bit can create a better fit. Note the better fit between image 45 and image 47.



The opposite end of the switch point includes the wing rail. If you look closely at the TwistTies, there will be a mark engraved at the apex of the bend that needs to be formed on the length of this rail.

Using an ink marker, blacken a section of the base of the rail in this area. Then using a scribe, or knife, mark the location of the bend onto the rail. Be sure that the switch point end of the rail is in its final location.

In order to mark the location of the bend on the rail the rail has to be on the wrong side of the frog as shown in image 48.

Image 48

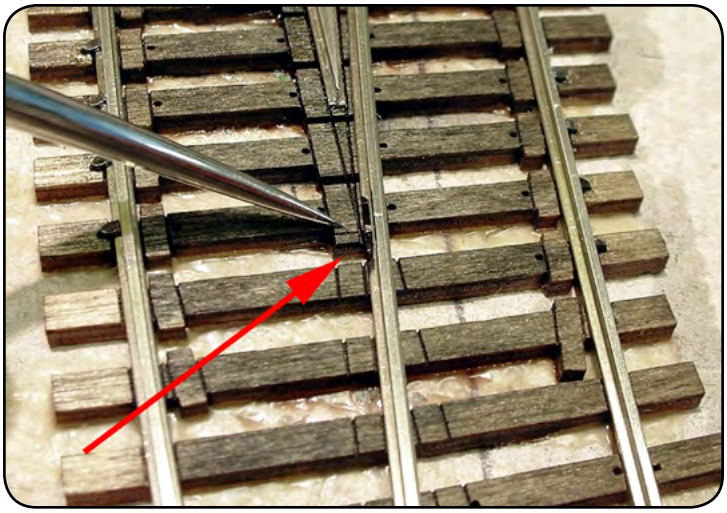


Image 49

Using a small triangle needle file, or the edge of a square file, cut a small notch that will allow the rail to bend with a sharp kink at the point that you scribed on the rail.

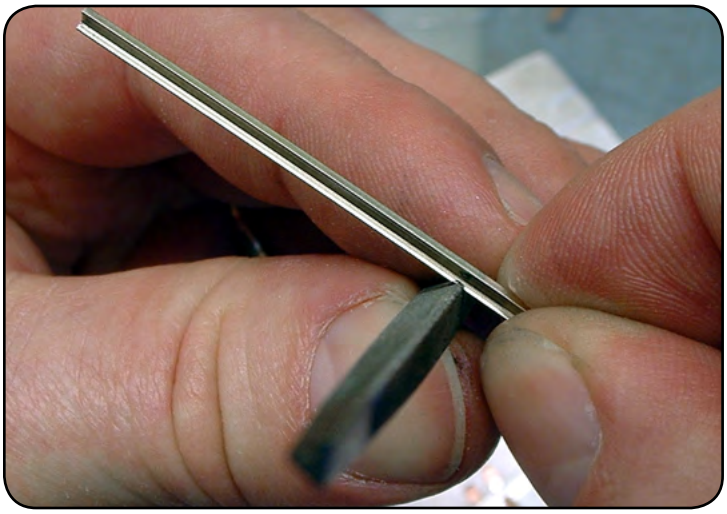


Image 50

Alternatively, Xuron rail cutters work very well for cutting out this notch, simply hold the cutters at a 45 degree angle to the length of the rail and make a cut, it will form a very nice nick in the base of the rail.

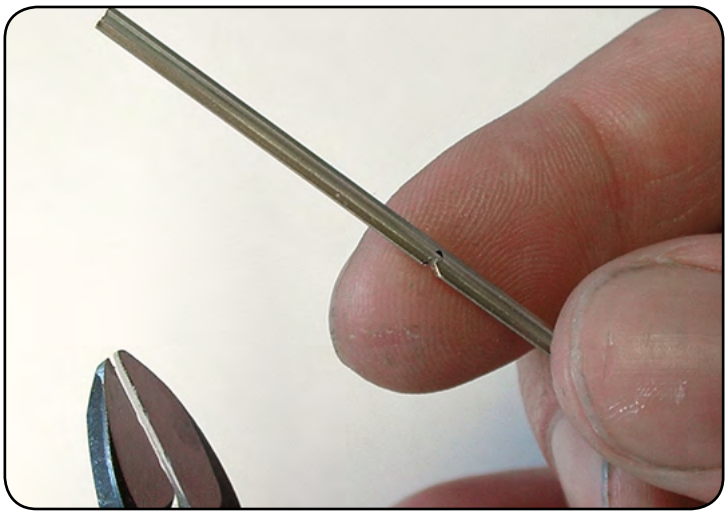


Image 51

Next you need to form a flangeway flare on the end of the wing rail with a flat file. This is a compound angle formed by holding the file 45 degrees to the top and side of the rail simultaneously.

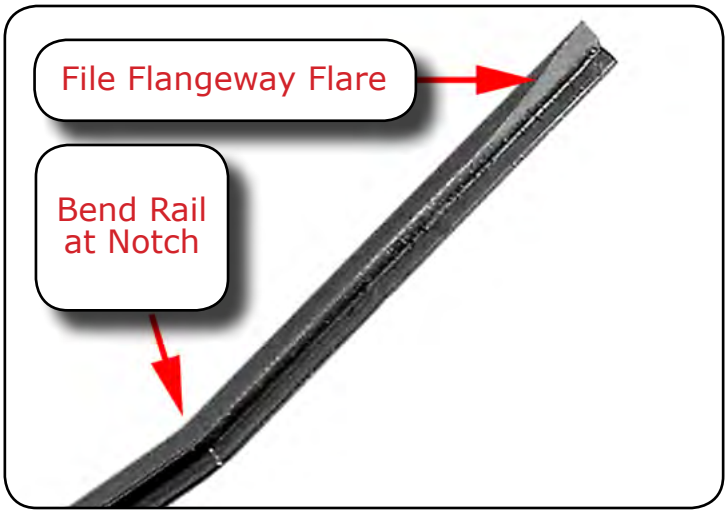
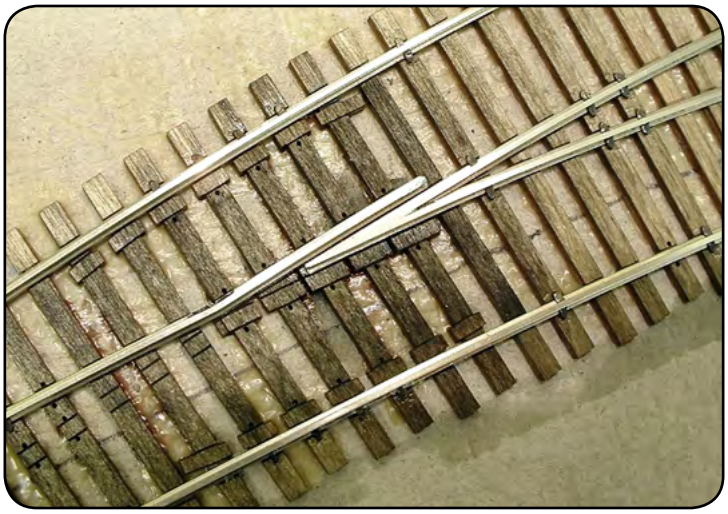


Image 52



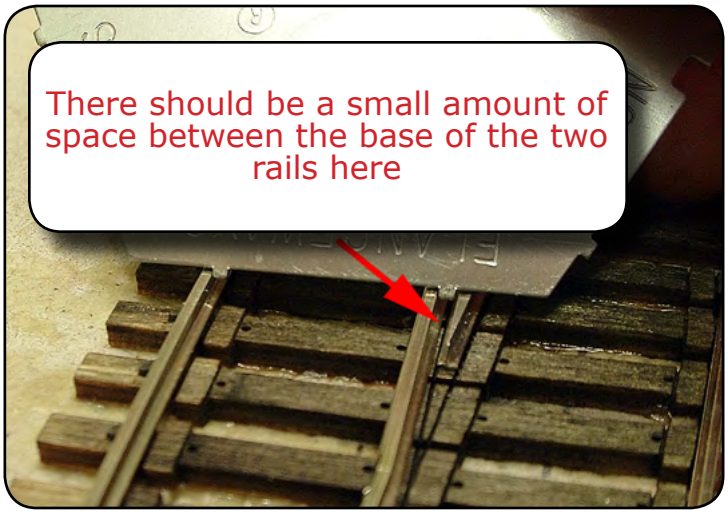
Bend the rail a few degrees in the direction of the notch. Place the rail onto the ties and adjust the bend to fit the wing rail outline engraved on the TwistTies.

Cut the wing rail to length using the outline.

Image 53

Locate the rail on the ties and drive a couple spikes at the mid point of the rail. Only spike two ties as you will need to make some final adjustments yet.

Image 54

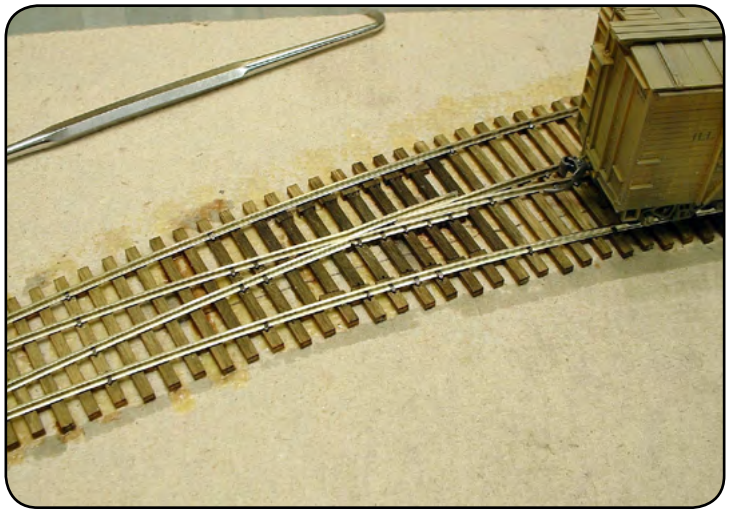


Using a track gauge, check the flangeway width and adjust it by moving the closure rail back and forth if necessary. Typically, there will be a slight amount of clearance between the bases of the two rails when this is properly positioned.

Apply a small amount of cyanoacrylate adhesive using a Microbrush and carefully spike the wing rail & closure rail into position.

Repeat all the previous steps for the other closure rail.

Image 55



The frog is now complete!

You can test the turnout by running a set of wheels through it. There should be no obvious bumps or clicks when the wheels pass over the frog.

The mark of a well crafted turnout is the ability to run a car through it without derailing – even without guard rails.

As all turnouts require guard rails, don't worry if the wheels do derail when you test your turnout. It can take a lot of practice and skill to build a curved turnout that will work without guard rails.

Step 5 - Adding The Throwbar

Image 56

The simplest and quickest method of adding a throwbar to a turnout is to simply solder a PC board tie to the switch points. If you will be using a ground throw, be sure that you cut the PC board long on one side to reach the throw.

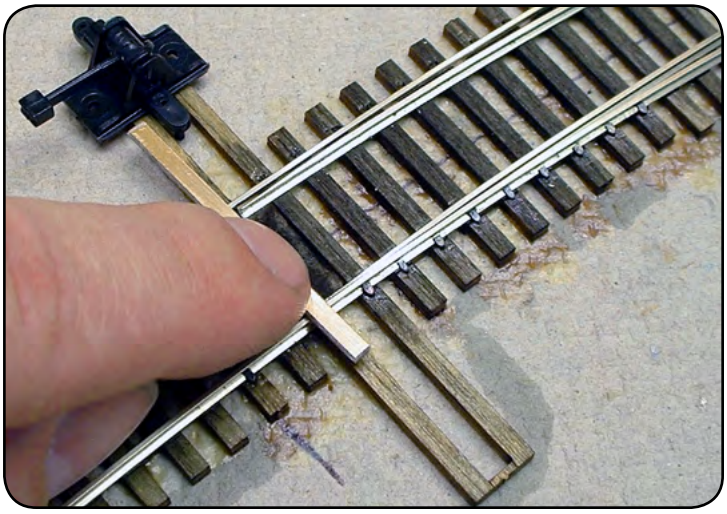


Image 57

To electrically isolate the two point rails, cut a small slot in the copper foil on the PC board throwbar using a small file. Be sure that the cut is clean and that there are no bits of copper left in the gap.

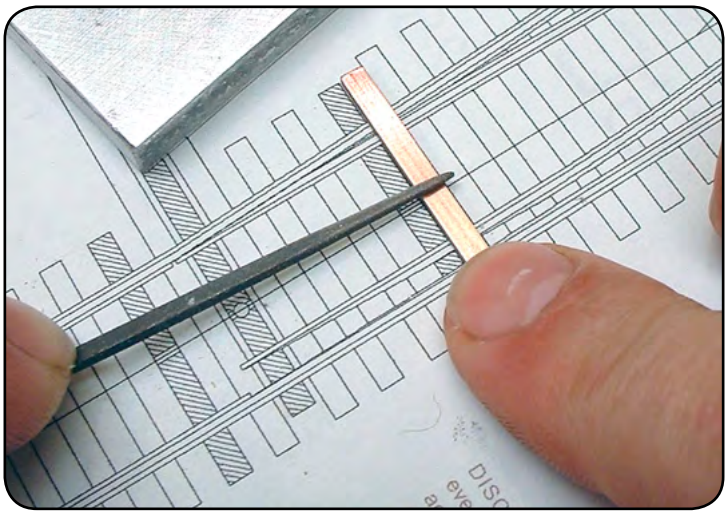


Image 58

Properly preparing the tie is the key to ensuring the solder joints will not fail over time. A poorly soldered joint will not last! Start by filing the top of the PC board tie by lightly rubbing it flat along the top of a file. Only one or two strokes is needed to produce a good shine on the tie. Do this step just prior to soldering, as copper oxidizes very quickly.

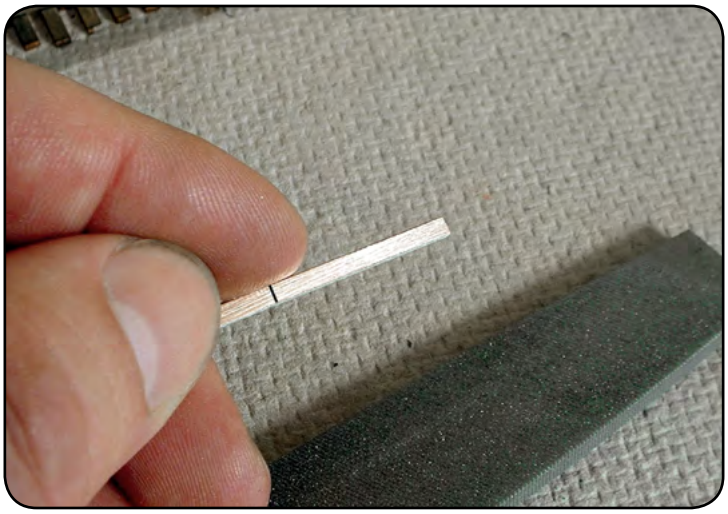
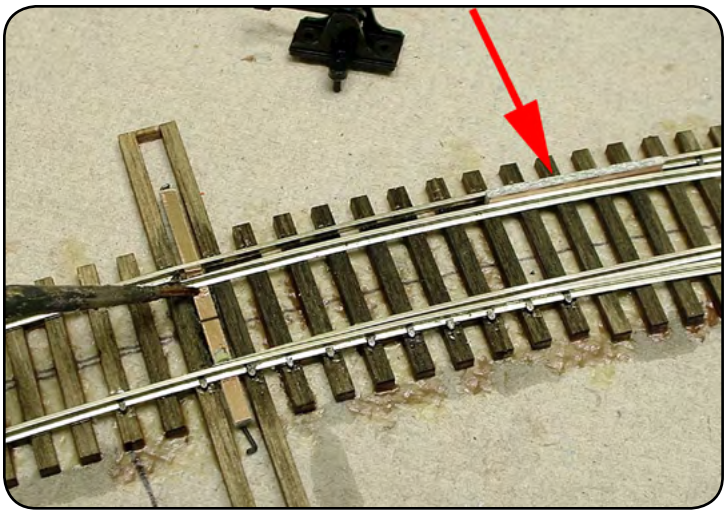
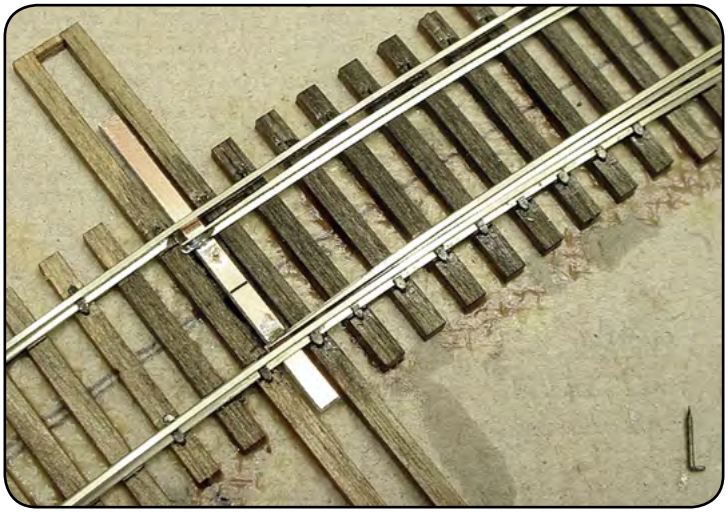


Image 59



Slide the tie under the rails shimming it up with a couple of spikes. PC board ties are slightly thinner than scale wood ties, and they will need to be shimmed to match the height of the wood ties to make soldering easier. Apply a small amount of flux to the tie and the base of the switch point rail. Once one side is soldered into place, use a piece of scrap PC board tie to hold the other rail open.

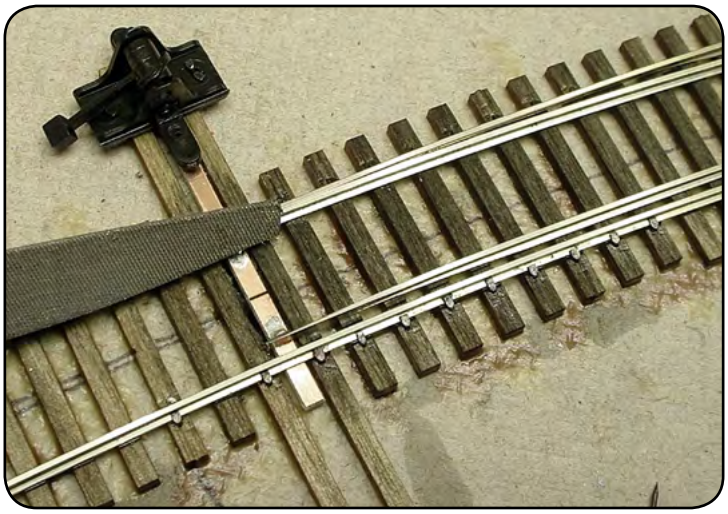
Image 60



Solder the second rail into place. When complete, remove the shims. The height difference between the PC board tie and the wood ties should allow the rails to move freely and smoothly flex with no interference.

Here, we have installed a Caboose Industries ground throw by spiking it into place. This will hold the rails firmly in place while you use a small file to "fit" the switch points.

Image 61

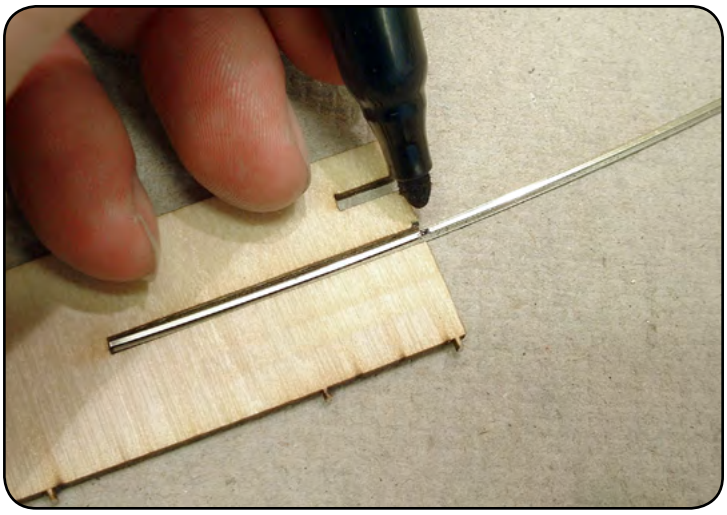


Fitting the points is done by filing the head of the switch point flush with the stock rail so that the inside point blends in with the stock rails.

Doing this will eliminate any edge protrusions and allow equipment to roll smoothly through the points of the turnout. Spending time fitting the points will ensure a nice running turnout.

Step 6 - Cutting And Placing The Guard Rails

Image 62



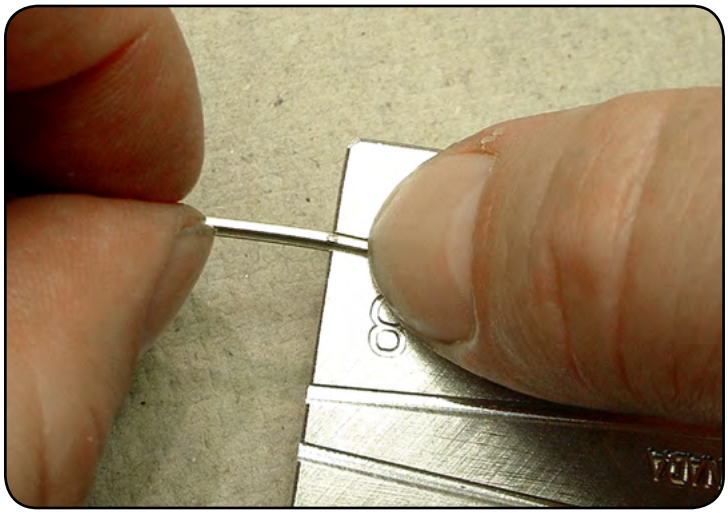
Find the scrap pieces that you cut away from the TwistTies in step one. One of those pieces will include a series of slots that are used to determine the length of the guard rails.

If you are building a curved turn-out the guard rails must be pre-bent to match the radius of the stock rails, so find some scrap pieces of pre-bent rail left over from the stock rails. Using the longest slot, measure and cut the rail to length using rail cutters.

Image 63

The shortest slot is the length of the "flair" on the end of the guard rail, insert the rail into this slot and mark this location on both ends of the rail using a marker.

Image 64



The Frog Helper tool can be used to bend the flairs. Simply slide the rail into one of the grooves up to the line you marked in the previous step and bend the rail just enough to ensure that the wheel flanges will be gently guided into the flangeway.

Image 65

An outline of the final shape of the guard rail is engraved onto the plywood, use this to check the geometry of the finished rail, don't worry is it is not a 100% precise fit. Close will work just fine.

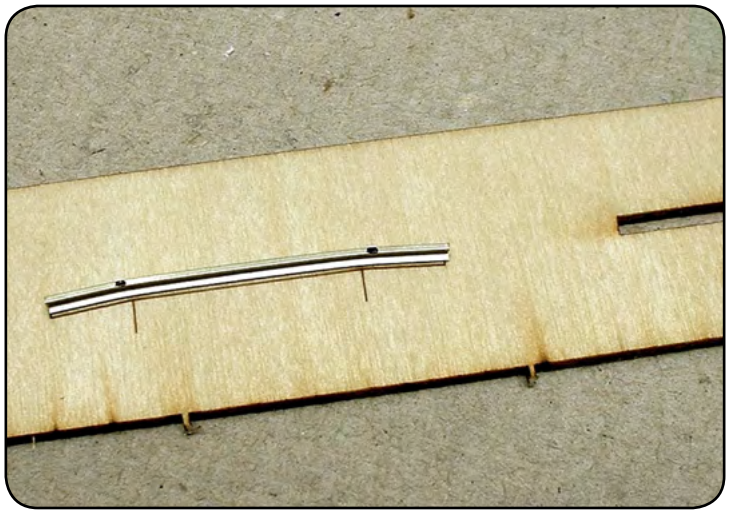
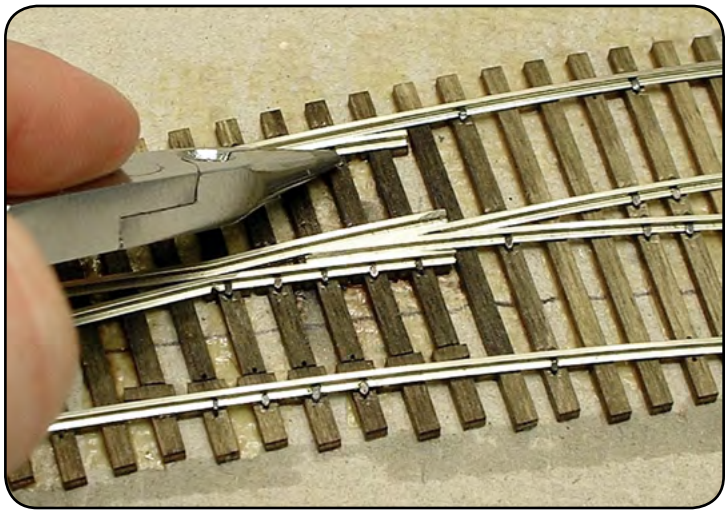


Image 66

Place the guard rail onto the ties and locate it using the guard rail outline cut into the TwistTies. Carefully insert the spikes into the pre-drilled holes and push them just snug enough so that you can still move the rail.



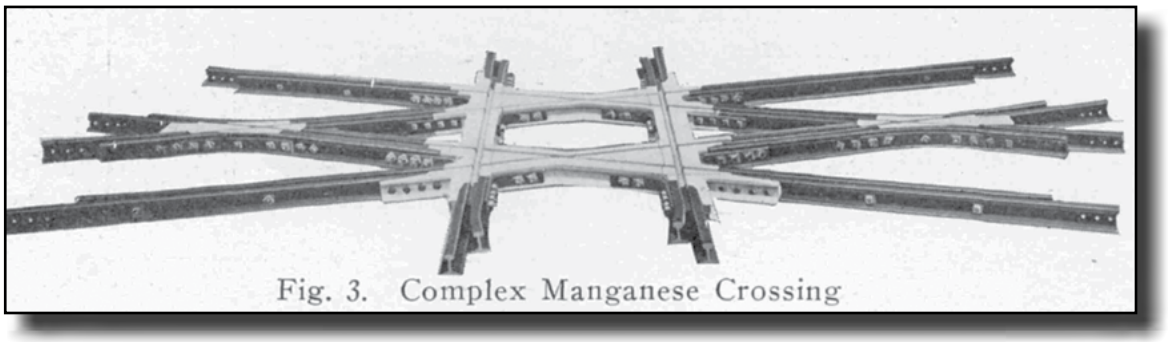
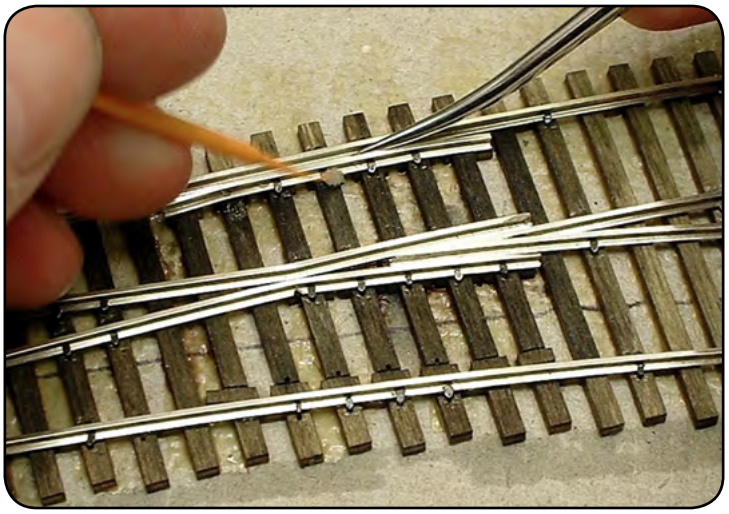


Fig. 3. Complex Manganese Crossing

Image 67



The area of the guard rail is another place where spikes can only be placed on one side of the rail.

Using a thin tool, (a dental pick is shown in the image), pull the guard rail away from the stock rail so it is securely against the spikes. The spikes will ensure that proper flangeway clearances are maintained.

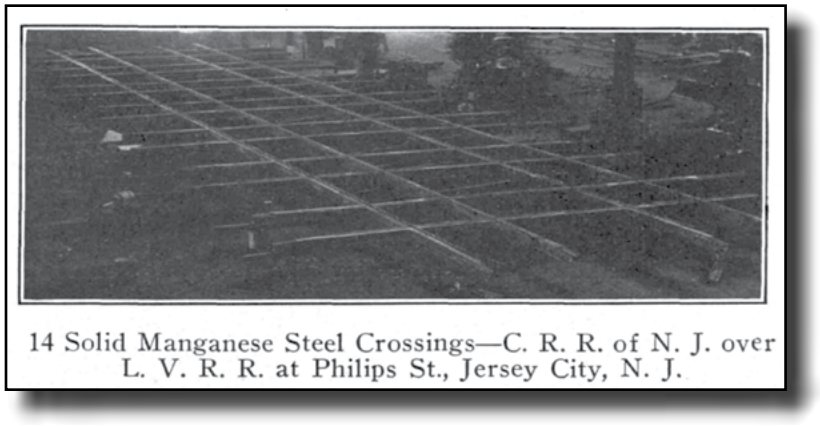
Be sure that the guard rail is sitting flat on the ties and has not tipped while being pulled toward the spikes. Apply some cyanoacrylate adhesive so that it "wicks" under the rail and then drive the spikes tight.

Repeat this process for the opposite guard rail.

Image 68

Confirm that the flangeway widths are correct with a track gauge.

Again notice the slight gap between the base of the right hand guard and stock rails



14 Solid Manganese Steel Crossings—C. R. R. of N. J. over L. V. R. R. at Philips St., Jersey City, N. J.

Step 7 - Cutting Gaps & Completing The Turnout

Image 69

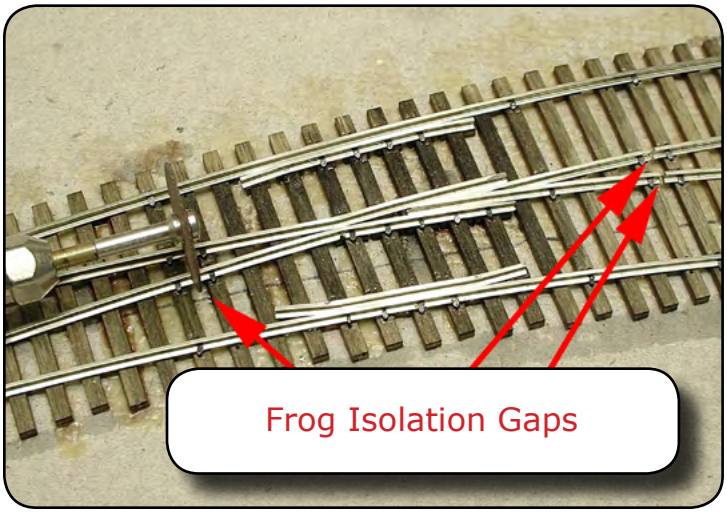
The following steps will complete the turnout so that it is both DC and DCC friendly, and completely stall and short proof.

Using a thin cut off wheel (Dremel cut-off wheel 409 is a good choice) in a Moto-Tool, cut gaps at either end of the frog. Care should be taken when using these cut off wheels as they can shatter if twisted.

Image 70

The gaps are cut in between the two adjacent ties with the spikes on either end of the frog.

Do Not cut the stock rails! Only cut the inner rails.



Eye protection is a must when using high speed cut off or grinding tools!

Image 71

Six laser cut "StopGaps" are included with your TwistTies. These are a one size fits all solution to the tedious task of filling isolation gaps. No fitting or unsightly gobs of epoxy is required. These are designed to extend completely down to the roadbed, so if they are ever do work loose, which is highly unlikely, they will still remain in place.

Image 72

Using a sturdy pair of tweezers, work the StopGap as far down as possible, keeping it aligned with the head of the rail.

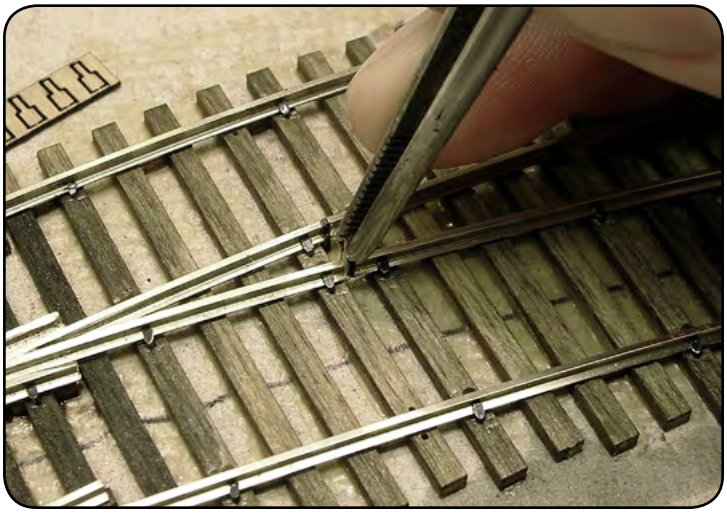


Image 73

These are longer than needed so they can be used with any size rail, so if they protrude above the top of the rail, trim them flush with a sharp knife.

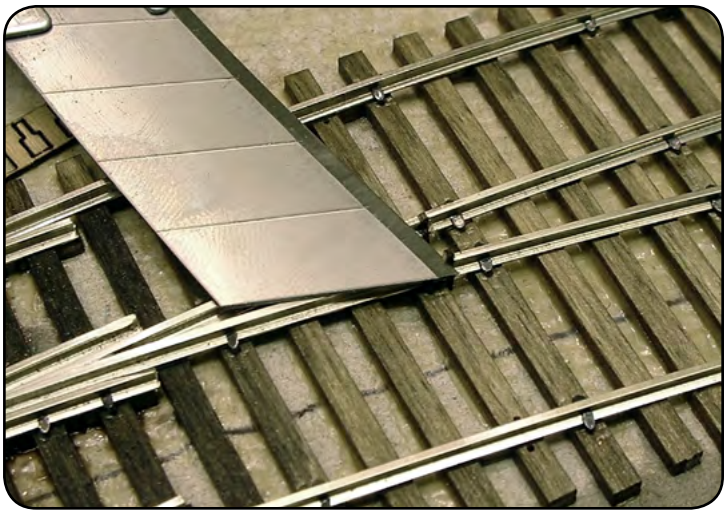


Image 74

Carefully smooth the StopGap with the top of the rail, be careful not to scratch the rail.

Image 75

Using a Microbrush and some cyanoacrylate adhesive, apply some adhesive to the side and base of the StopGap. Don't put any adhesive on top of the rail.

Image 76

When complete, the gap is securely filled and will have little chance of ever closing.

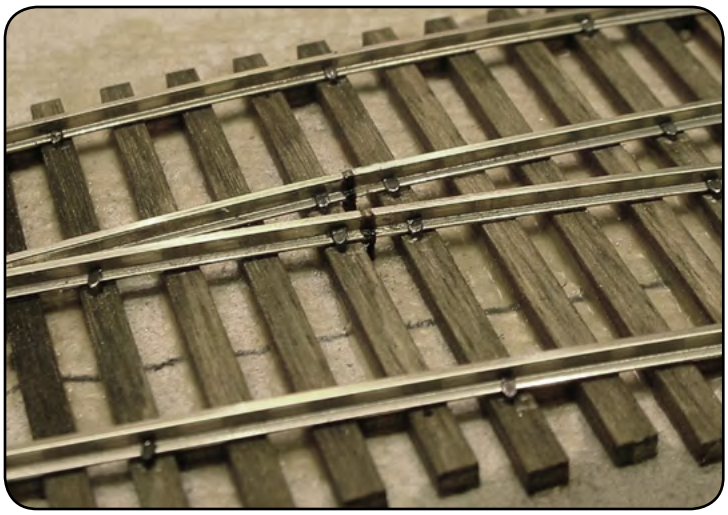
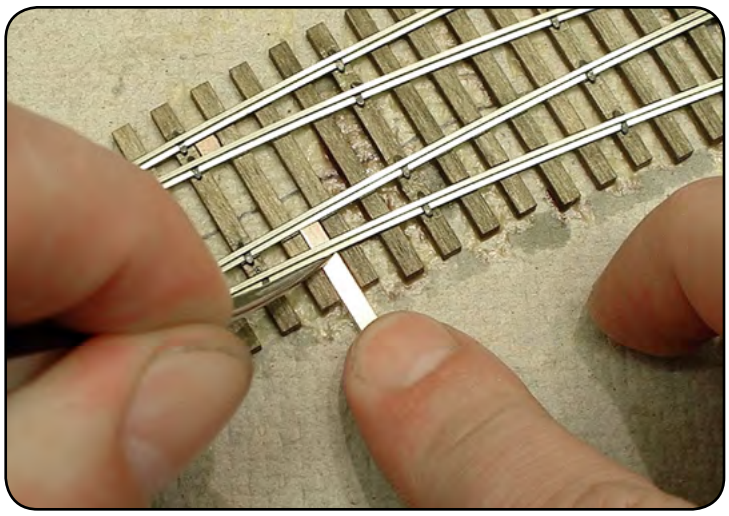


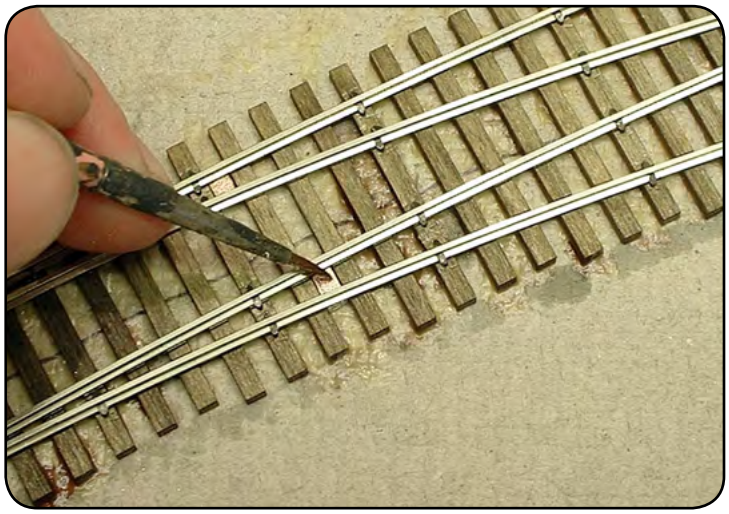
Image 77



Jumpers need to be added between the stock rails and the closure rails. This will serve two purposes. First, it will electrically connect the switch point to the stock rail, eliminating any chance of stalling or shorting. And second, it will significantly increase the strength of the turnout, eliminating any chance of the point rails moving when being cleaned.

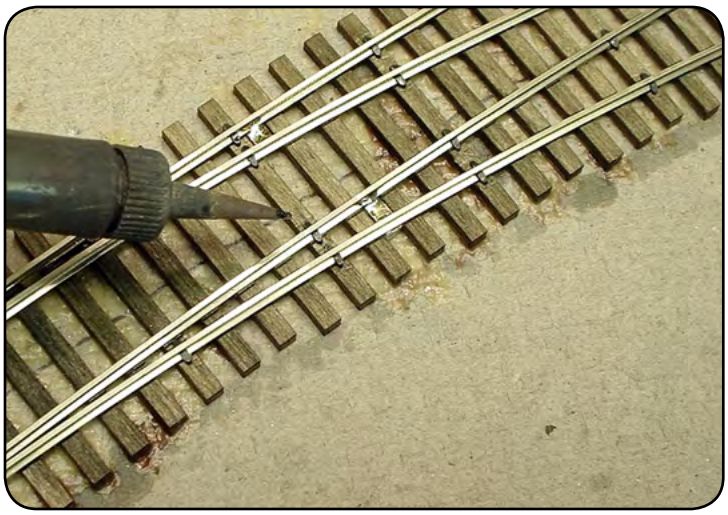
This can be done quickly and easily using some small pieces of PC board tie left over from the throwbar step. These strips need to be placed behind the spikes that form the hinge of the switch points (toward the frog). Slide the PC board under the rail and scribe a line to mark the length to cut.

Image 78



Apply flux onto the top of the PC board and the base of the rail.

Image 79



Keeping the tip of the soldering iron at a low angle on the base of the rail, flow solder onto the rail base and the tie, and draw it onto the opposite rail to form a solid joint.

Congratulations! You Are Finished!

Having problems?
Got a question?

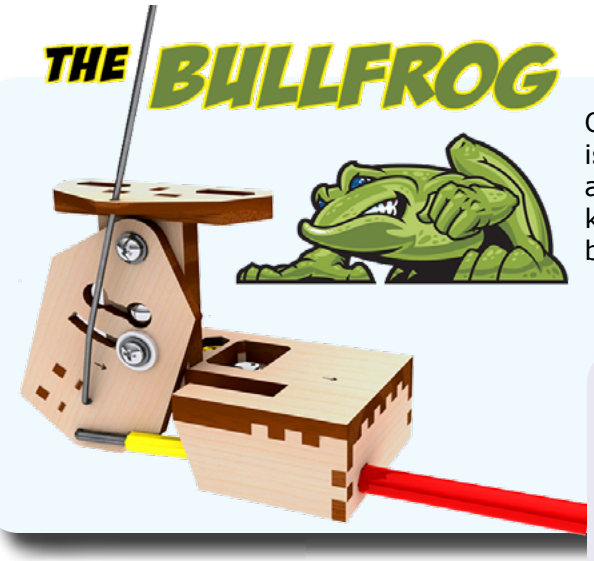
Visit our online forums at fast-tracks.net/forums
or send an email to service@fast-tracks.net.

We will be glad to help you out.

CHECK OUT THESE OTHER GREAT PRODUCTS FROM...

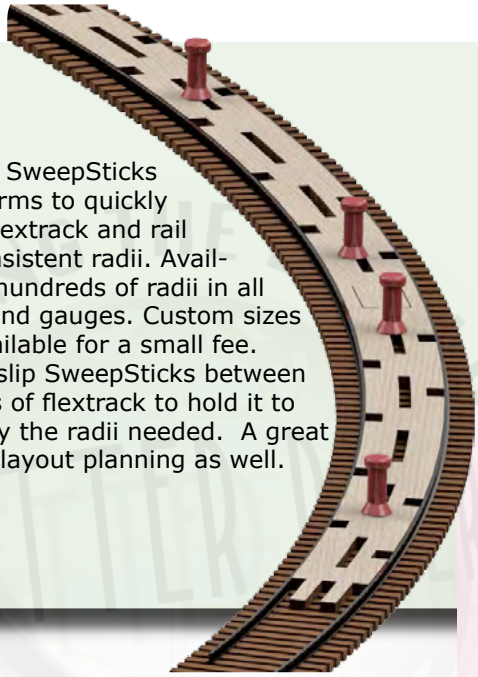
Fast Tracks Hobbyworks Inc.

THE BULLFROG

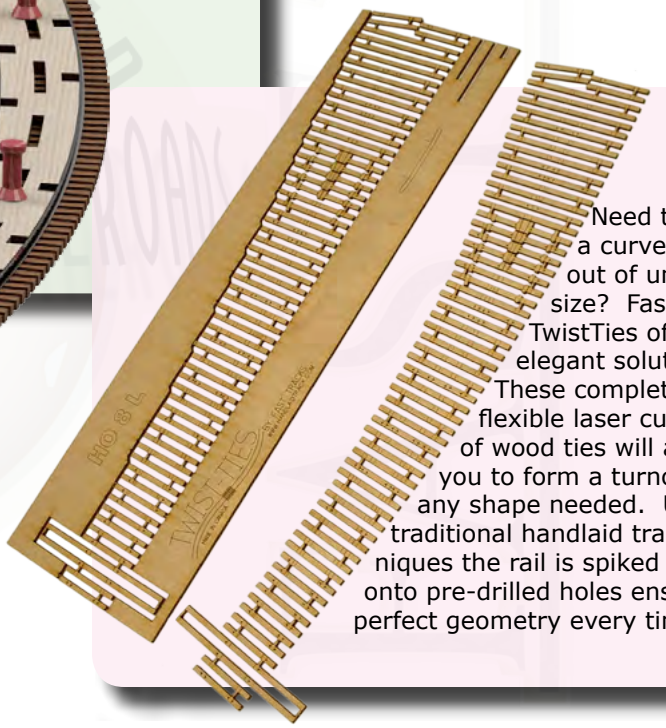


Our BullFrog Switch machine is an economical solution to operating any turnout manually. These kits assemble in minutes, are robust and will last a lifetime.

The TieBreaker tool makes cutting PC board ties to length a snap! Slide the ties into the tool and cut to length in one quick step. Available for all turnout sizes.



Use our SweepSticks track forms to quickly shape flextrack and rail to a consistent radii. Available in hundreds of radii in all scales and gauges. Custom sizes also available for a small fee. Simply slip SweepSticks between the rails of flextrack to hold it to precisely the radii needed. A great tool for layout planning as well.



Need to build a curved turnout of unknown size? Fast Tracks TwistTies offer an elegant solution! These completely flexible laser cut frets of wood ties will allow you to form a turnout to any shape needed. Using traditional handlaid track techniques the rail is spiked in place onto pre-drilled holes ensuring perfect geometry every time!

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FAST TRACKS

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