This Tutorial Guide shows an Alternative method of how to construct a Template for a Single or Double Slip– using Templot2

This Document is at level Version 1

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Where the user of Templot2 is familiar with the use of the 'shortcut keys' for certain functions in Templot2, these may be appropriately used, as required during the construction of the Single or Double Slip template.

Each of the individual operation instructions has been separately numbered in the left-hand margin for reference purposes.

In this tutorial, the Slip has been modelled in gauge P4 (4 mm to 1 foot), and any dimensions shown (in mm) in this tutorial are scaled as such.

STEP 1.

1.0001. The following procedures are all carried out in Normal Mode.

1.0002. Start off with two plain track curves which follow the direct through roads of the Slip of your background track plan, as shown in Figure 1.
Please note, it makes life a little easier, if you remove the timbers from these two curves for clarity.

Please Note: This method won't work for transition curves, it is for straights and fixed-radius curves only. Also it is very easy to have the tracks crossing at too short an angle.
Templot2 can't produce crossings shorter than 1: 1.5 RAM (i.e. not more than 33.7 degrees).

A handy Hint here is, you may find one or more of the curves which form the roads of the slip, has a transition in the area of the slip, it is worth investigating if you can overlay a constant radius curve over the original transition curve to use as a guide, in order to simplify construction in Templot.
If you carefully and accurately overlay the constant radius curve, using F6 curving and CTRL + F10 swell curving, so that is as near a match as possible, you can then make any linking and closure adjustments (transitions etc) with the track-work either side of the new curve.
The original transition curve can be split in two parts to achieve the linking and closure adjustments.
Remember, the overlay constant radius curve need only be long enough to reach a small distance just beyond, and outside of, the two crossing vee's of the slip.
If the overlay is very carefully and accurately done, it should not show any aesthetic difference to that of the original track-work pathway.

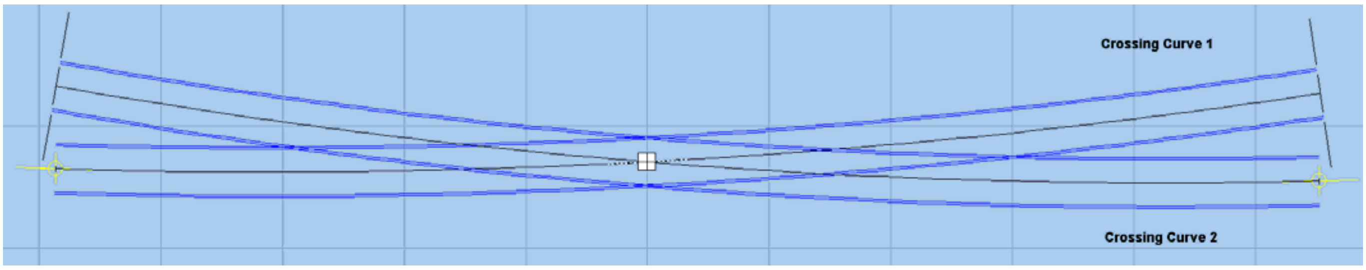
10003. Once you have correctly placed your two plain track start crossing rails, it is recommended that you remove or hide your background plan image, in order to avoid possible system crashes or blackouts whilst zooming in very close to achieve accurate positioning and adjustments of individual templates during the construction of the slip.

1.0004. Please ensure the timbers are removed from these two plain track templates.

1.0005. It is advisable at this stage, that you make a copy of both the initial Crossing Curves and store them, as these may be needed later in the construction, or if you make a mistake at any stage, this gives you backup starting point.

1.0006. The Start screen should look something like this, as shown in Figure 1:

Figure 1.



STEP 2.

2.0001. First make one of the Slip Crossing Curves the control template, the other Crossing Curve template should remain on the background.

A handy Hint here is, make the control template that Crossing Curve which you consider to be the main through road.

2.0002. Left Click on the **background** Crossing Curve template (in Quick-mode, right-click on it).

2.0003. On its dropdown menu,

2.0003.1. click < P peg/align tools >

↳ < D make diamond-crossing at intersection > menu item.

Or just press the 'D' key. Note, this shortcut can only be done with the dropdown menu open.

2.0003.2. If the notch first appears in the correct intersection then go to 2.0003.5.

2.0003.3. If the notch appears in space, not near the required intersection, then,

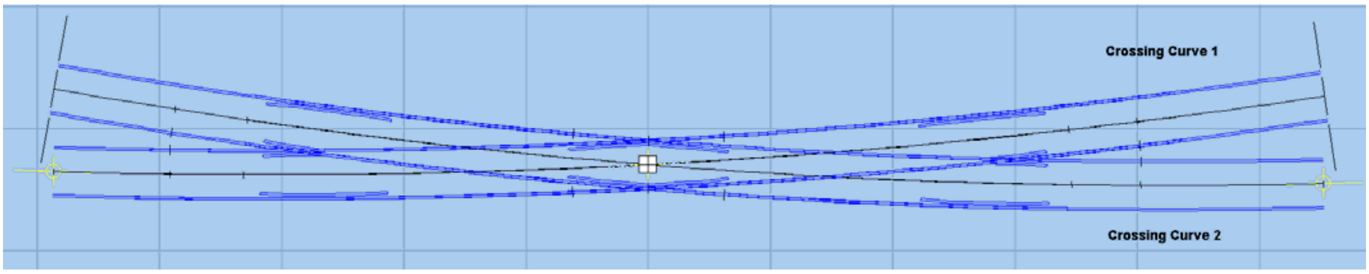
2.0003.4. click the blue box < try other intersection … [4] >, the notch should then appear at the crossing intersection of the two Crossing Curves.

2.0003.5. Click the green box < Yes – Continue – make diamond – crossing at notch [6] > .

2.0004. Now Store & Background the control half diamond.

2.0004.1. The diamond crossing will be aligned to the Crossing Curves. See Figure 2.

Figure 2.



2.0006. Rename both half diamonds, say LHS & RHS Half diamonds for convenience.

STEP 3.

Now To Construct a Single Slip.

We are about to start constructing the slip road, and at this point two distinct options are available depending on what is required by the user.

These options are:

1. if the user wants to use their own custom switch templates, then the appropriate switches should be directly copied from previously made templates in the storage box.
2. If the user wants only the standard range of switches as selected from the dropdown menu in Templot2, then the appropriate switches should be selected and used from the menu.

As you see from above, the only real difference, is the method of loading the switch onto the Trackplan.

3.0001. Load onto the Trackplan, using one of the two options above, a switch (turnout) template which has the appropriate required switch length.

Usually, this is one of the shorter length switches, such as a 9 foot or 12 foot old style switch, or an A or B switch in more modern style switches.

3.0002. Ensure that the peg is on the datum point of the newly loaded template, if not then put it there by doing the following:

3.0002.1. Select < geometry >
↳ < peg options >
↳ < reset peg on datum...(CTRL-0) >

3.0002.2. Then remove the timbers from this turnout template by doing the following:

3.0002.3. click < real >
↳ < timbering >
↳ < no timbering > menu item.

3.0003. At this point, the user should be aware as to where the pegs, and hence the datum points, are on the two Crossing Curve templates, as this will affect the way the switch template is, or needs to be, aligned.

In this tutorial, as an example, we will use the two upper angled crossing roads that require the single slip road to be added to form a link road between them.

3.0004. First, Left Click on the **background** Crossing Curve template 1: Crossing Curve 1 (not the Half Diamond template). (in Quick-mode, right-click on it).

3.0004.1. On its dropdown menu,

3.0004.2. click < P peg/align tools >
↳ < K align the control template over, and snake onto peg >
↳ < F facing – facing > OR < T facing - trailing > menu item as appropriate.

3.0004.3. If using the function < T facing – trailing > causes the turnout template to align, but with the wrong hand turnout side for the slip road, just repeat 3.0004.2. above, remembering to use the same < T facing – trailing > function.

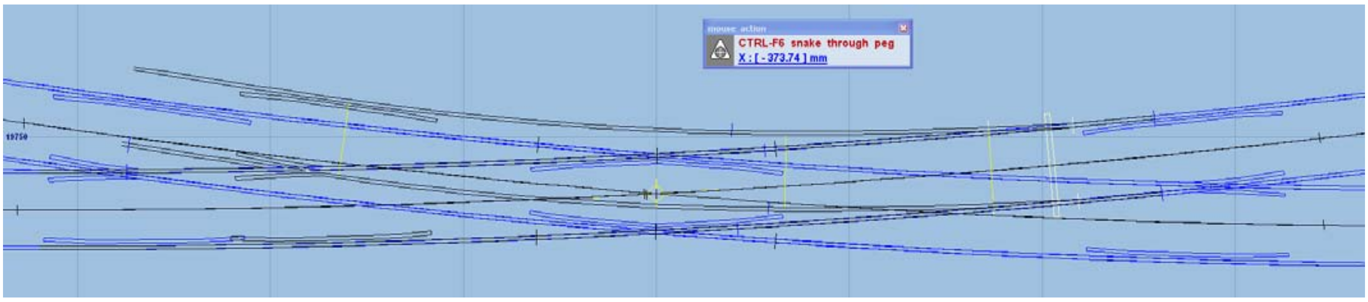
3.0004.4. If using the function < F facing – facing > you find the turnout template has the wrong hand turnout side for the slip road, do the following:

3.0004.5. Press < CTRL + H > , this will change the hand of the switch.

3.0004.6. Then just repeat 3.0004.2. above, and remember to use the same < F facing – facing > function.

3.0005. Now select key's < CTRL + F6 snake through peg > , and using the mouse, move the template along the Crossing Curve until the switch blade tips are aligned at the position required (this is usually just before the front (leading) part of the check rails of the Half Diamond are reached. See Figure 3. below

Figure 3.



3.0006. Now put peg on datum point of switch template.

3.0006.1. Select < geometry >

↳ < peg options >

↳ < reset peg on datum...(CTRL-0) >

3.0007. Check that you have sufficient (or the correct) clearances between the switch blade tips and any close by rails, as shown in Figure 4.

3.0008. If the clearances as indicated in Figure 4. are not correct or to your liking, first move the peg onto the switch datum point as shown in section 3.0002.1., then repeat instructions 3.0005. through 3.0007 above until the required clearances are achieved.

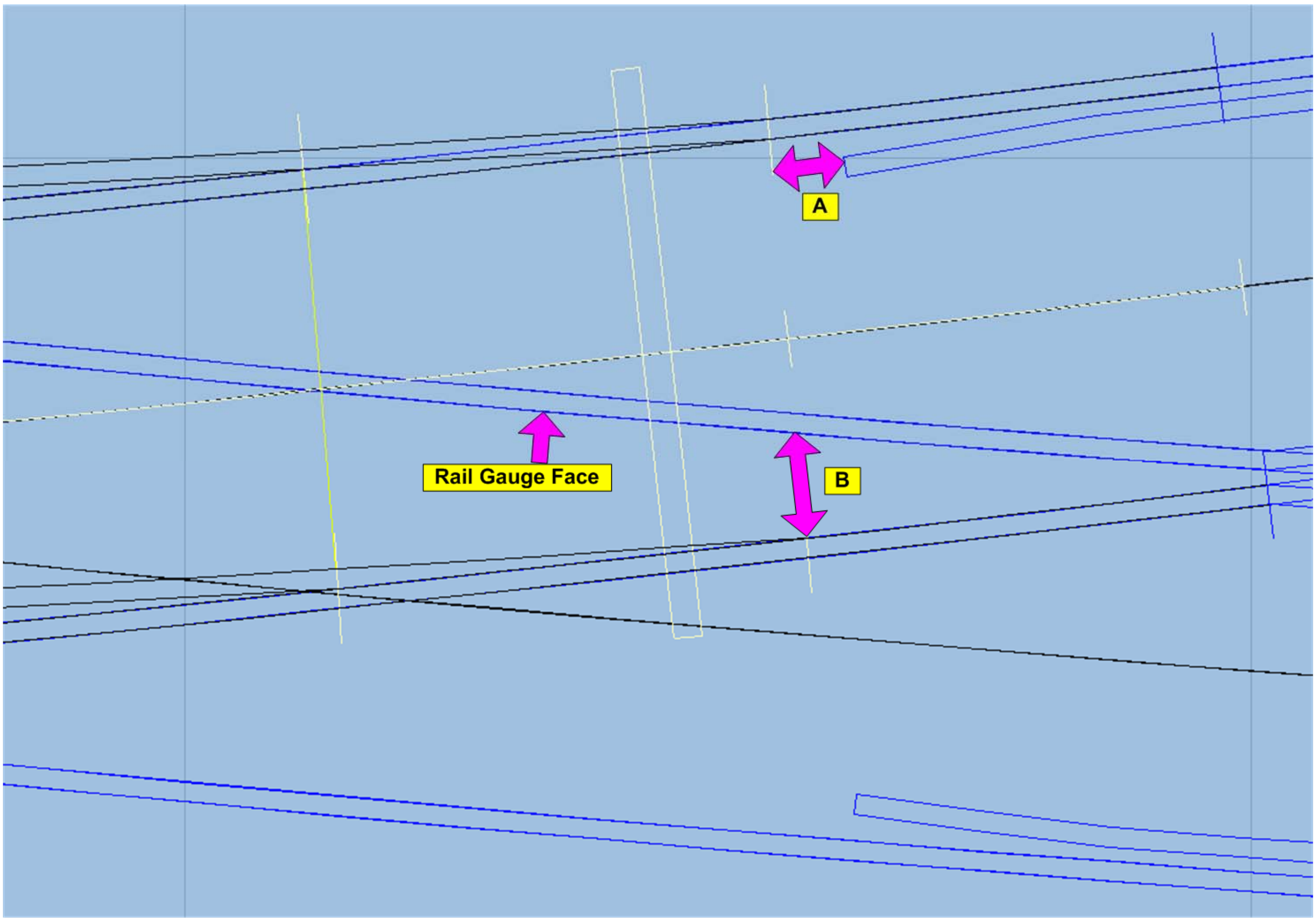
A handy Hint here is, the clearance at B shown in Figure 4 is critical, and since the nearby rail is presenting it's gauge face to the switch blade, there must be a minimum of 11 inches prototype clearance between the blade tip when closed and the nearby rail. This gap dimension must be there to allow sufficient clearance when the switch blade is fully open between both:

a). the switch stock rail, and the switch blade tip when open, which should a minimum of 4½ inches gap.

b). the switch blade tip when open and the nearby rail.

The clearance at A shown in Figure 4. is arbitrary, and the blade tip on that side, should not come into contact with the check rail end when opening.
If it is found that the switch needs to move further in towards, or beyond, the check rails ends, then the check rails can be carefully adjusted to be made smaller in length. However, it should be noted, that the check rails cannot be shortened beyond the point where they are no longer performing their full function.

Figure 4.

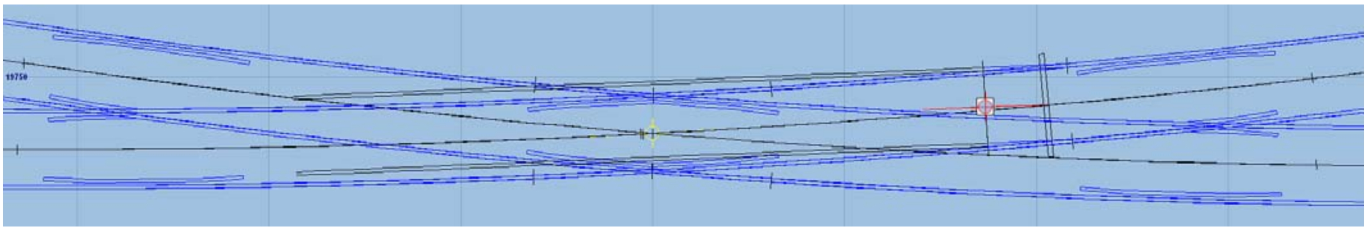


3.0009. When completely satisfied that that the clearances are as required, ensure that the peg is returned to the datum point on the switch template, then do the following:

3.0009.1. Select < tools >
↳ < make slip road >

3.0009.2. This will remove all unwanted parts of the original switch (turnout) template, up to but not including, the end of the blade planning, and will also add the slip road rails, though these will not yet be correctly positioned. The resulting formation should now look something like Figure 5.

Figure 5.



3.0010. Now Store & Background this Slip Road.

3.0011. Rename both the Switch, and the Slip Road for convenience.

STEP 4.

4.0001. Now for the other switch at the other end of the slip road.

4.0001.1. Copy to control the switch just made in section 3.

4.0002. Now set the peg onto the datum point.

4.0002.1. Select < geometry >
↳ < peg options >
↳ < reset peg on datum...(CTRL-0) >

4.0003. At this point, again the user should be aware as to where the peg, and hence the datum point, is located on the 2: Crossing Curve 2 templates.

4.0004. Now, Left Click on the **background** Crossing Curve template 2: Crossing Curve 2 (not the Half Diamond template). (in Quick-mode, right-click on it).

4.0004.1. On its dropdown menu,

4.0004.2. click < P peg/align tools >
↳ < K align the control template over, and snake onto peg >
↳ < F facing – facing > OR < T facing - trailing > menu item as appropriate.

4.0004.3. Again, if using the function < T facing – trailing > causes the turnout template to align, but with the wrong hand turnout side for the slip road, just repeat 4.0004.2. above, remembering to use the same < T facing – trailing > function.

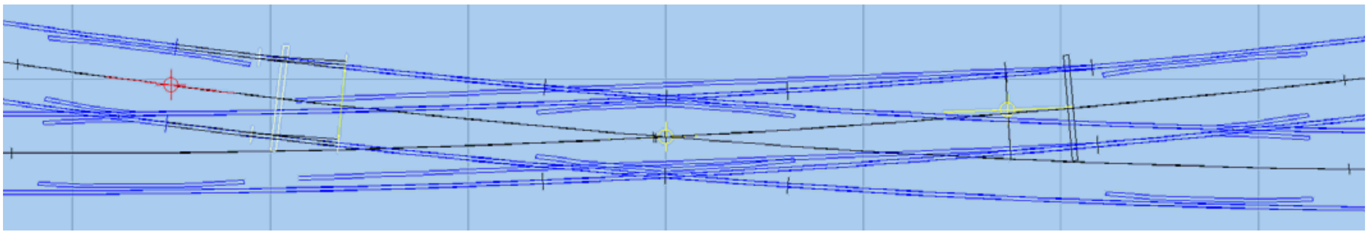
4.0004.4. If using the function < F facing – facing > you find the turnout template has the wrong hand turnout side for the slip road, do the following:

4.0004.5. Press < CTRL + H > , this will change the hand of the switch.

4.0004.6. Then just repeat 4.0004.2. above, and remember to use the same < F facing – facing > function.

4.0005. Now select key's < CTRL + F6 snake through peg > , and using the mouse, move the template along the Crossing Curve until the switch blade tips are aligned at the position required (this is usually just before the front (leading) part of the check rails of the Half Diamond are reached. This is basically the same position as shown in Figure 4. previously. The resulting formation should now look something like Figure 6.

Figure 6.



4.0006. Now put peg on datum point of switch template.

4.0006.1. Select < geometry >
↳ < peg options >
↳ < reset peg on datum...(CTRL-0) >

4.0007. Check that you have sufficient (or the correct) clearances between the switch blade tips and any close by rails, as shown in Figure 4 previously, and the dimension meet the requirement as specified in the Handy Hint at section 3.0008.

4.0008. When completely satisfied that that the clearances are as required, ensure that the peg is returned to the datum point on the switch template, then do the following:

4.0008.1. Select < CTRL + F3 blanking length >

4.0008.2. Using the mouse, blank off the lead rails from the front joint back to the switch blade tips (the Toe of the switch).

4.0009. Now Store & Background this second switch.

4.0010. Rename the Switch for convenience.

STEP 5.

5.0001. Now we must join the slip road rails to the second switch.

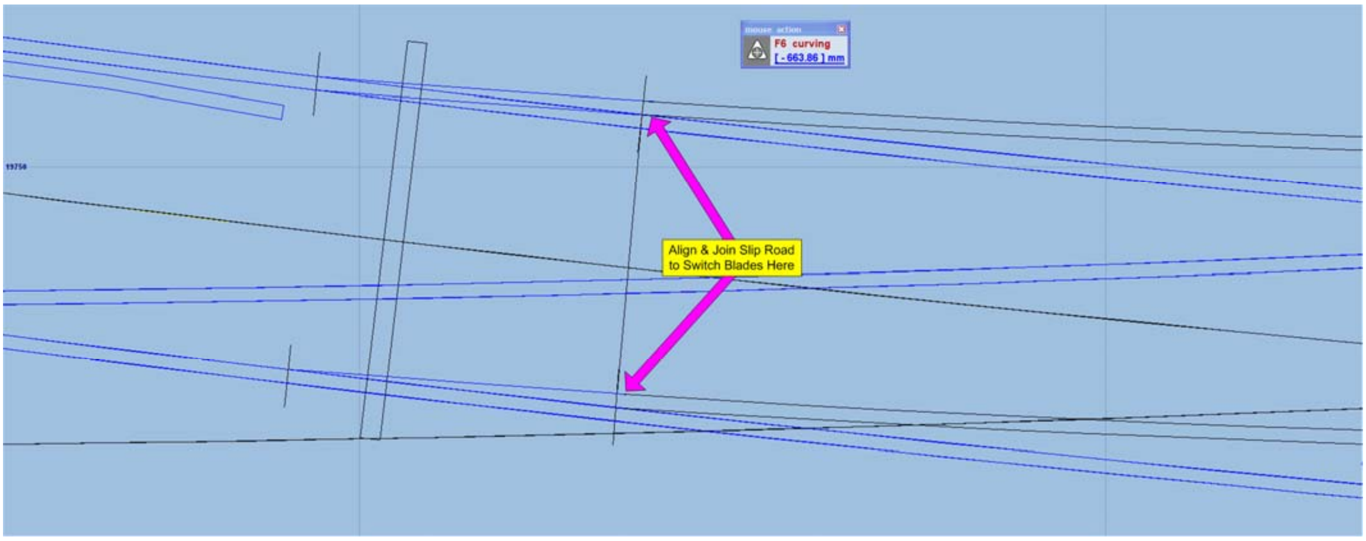
5.0001.1 Now, Left click on the previously made Slip Road template (in Quick-mode, right-click on it).

5.0002. From the drop down menu,

5.0002.1. Click < Y wipe to the control >

5.0003. Now select < F6 curving > , and adjust the curve of the slip road until it aligns and joins with the switch blade rails (at the end of planning). See Figure 7.

Figure 7.



5.0003.1. You may need to zoom in to get accurate an alignment as shown in Figure 8.

5.0003.2. If the slip road rails are either too long, and overlapping the switch blades, or too short, leaving a gap as shown in Figure 9, , then use < F3/F4 plain track length > to shorten or lengthen the slip road rails as required, such that it joins the slip road to the switch blades correctly.

5.0004. Next, once correctly aligned and joined, Store & Background the slip road.

Figure 8.

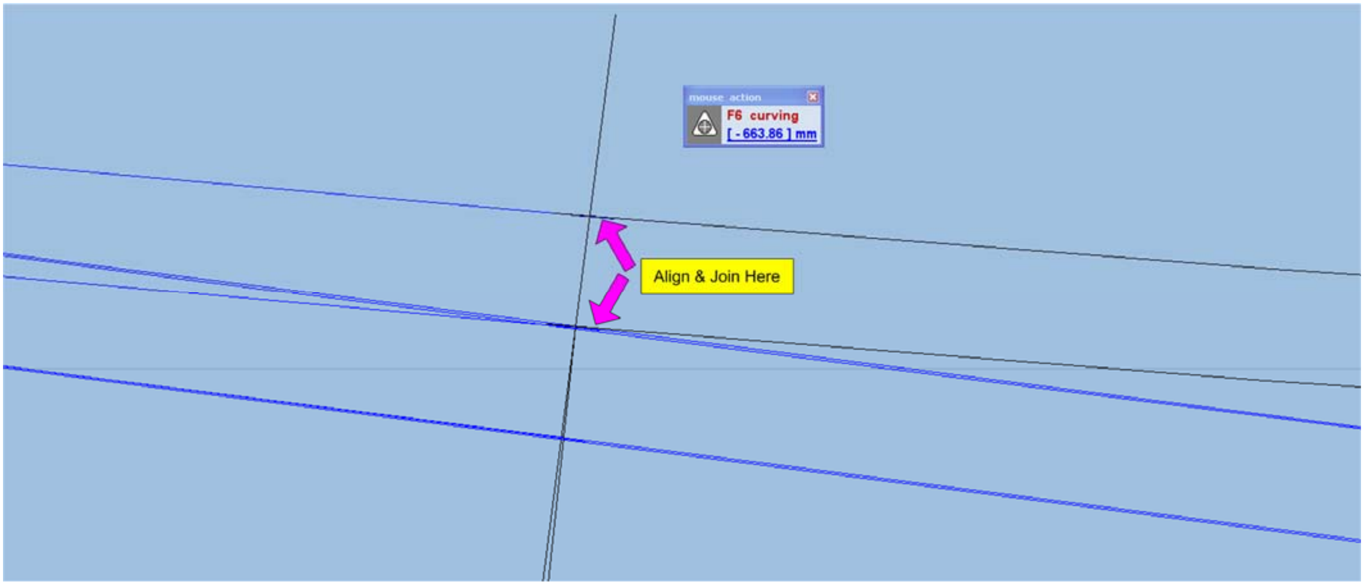
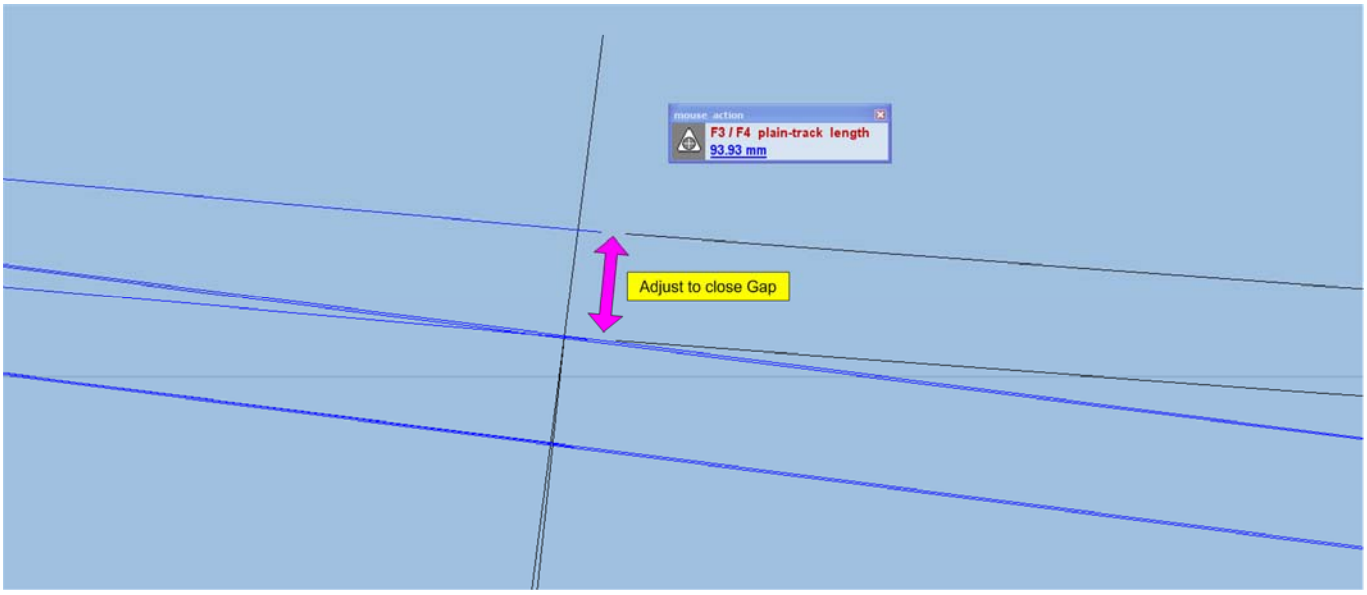
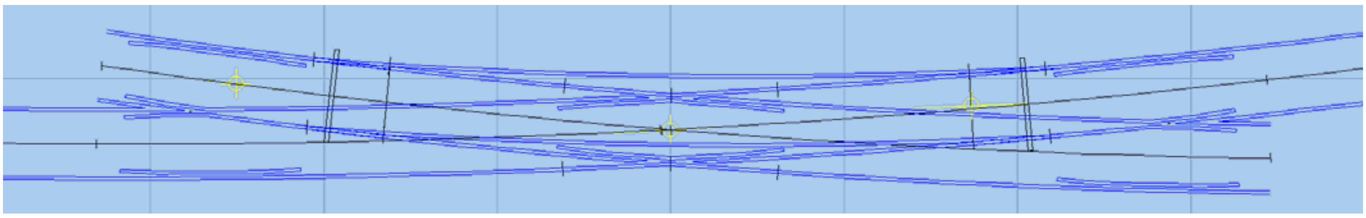


Figure 9.



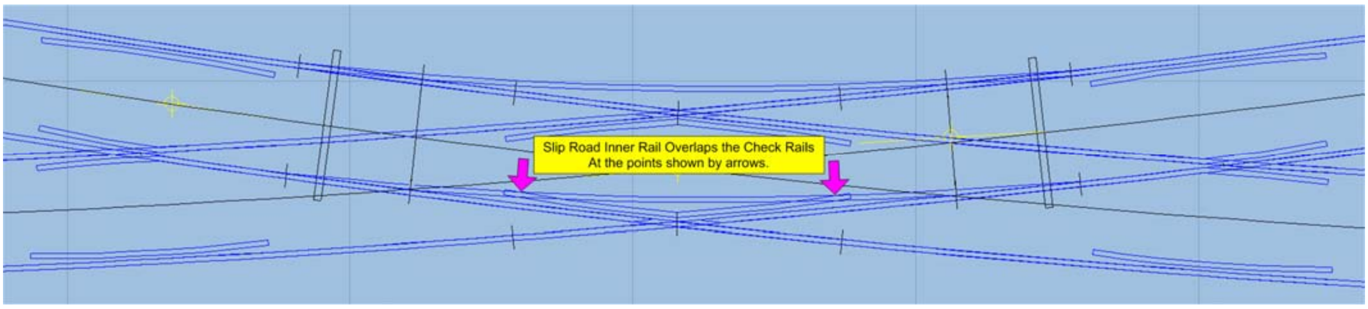
5.0005. The Single Slip should look something like that shown in Figure 10.

Figure 10.



5.0006. However, depending upon the angle of the diamond crossing, the Single Slip, may look like that shown in Figure 11.

Figure 11.



5.0006.1. In Figure 11. the inner Slip Road rail, overlaps the tips of the check rails of the two half diamonds, so it will be necessary to make adjustments to either,

a). to both half diamond check rails.

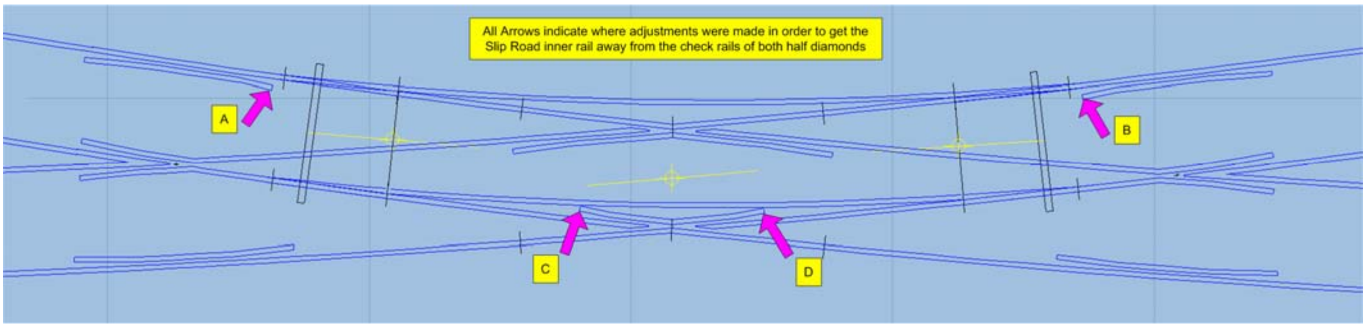
b). the switches may require moving slightly outwards.

c). a combination of both a). and b).

5.0007. From the initially constructed Single Slip as it appeared in Figure 11. above, Figure 12. below now shows the resulting Single Slip after adjustments. This resulting slip needed adjustments of both a). and b). as indicated above.

5.0007.1. All the adjusting points are shown in Figure 12. by magenta arrows marked A, B, C & D, and each adjustment needed at that point, is described briefly below.

Figure 12.



5.0008. In Figure 12. the adjustment points A & B, were necessary because both switches were moved slightly outwards towards the Vee crossings, and in doing so, the switch blades overlapped (interfered with) the upper check rails of the Vee's.

5.0008.1. Both of the Vee check rails needed shortening in order that the switch blade tips did not collide with the check rails.

5.0008.2. The shortening of the check rails was achieved by, shortening the length of the active part of the check rails, and also shortening the length of the flared (bent) part of the check rails, until clear of the Slip Road inner rail. Note, the gap at the tip of the end of flared part, was not changed, and remained at 3¾ inches prototype.

5.0008.3. Both of the half diamond check rails needed shortening in order that they did not overlap the Slip Road rail.

5.0008.4. The shortening of the half diamond check rails was achieved by, shortening the length of the active part of the check rails, and also shortening the length of the flared (bent) part of the check rails, until clear of the Slip Road inner rail. Note, again, the gap at the tip of the end of flared part, was not changed, and remained at 3¾ inches prototype.

5.0008.5. A full illustrated explanation of how to make the adjustments to the check rails has been purposely omitted in order to keep the content down of this help guide, but if it is requested that such explanations be included at a later date, then these can be added as and when.

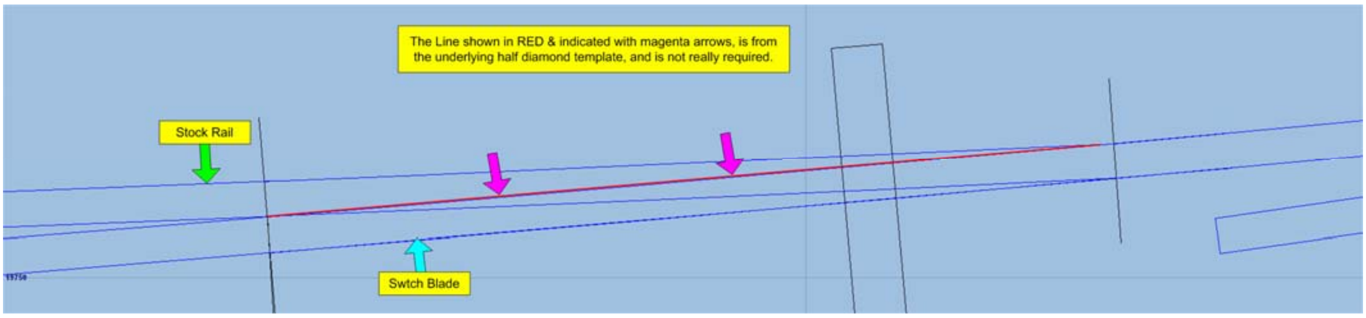
5.0009. The only remaining things left to do regarding this Single Slip is to tidy up.

5.0009.1. First you can remove all unwanted centre lines from each of the appropriate templates. This will remove the clutter of unnecessary lines remaining on those templates.

5.0009.2. Next is to remove any of the crossing curve guide templates that may still be present (it is best if these are kept as unused templates in the storage box, in case they are needed later for changes, or until you are really sure you do not need them any more)

5.0009.2. The final job, if deemed necessary, is to make some partial templates of both half diamonds, in order to clearly define the two switch templates. This is because the underlying half diamond templates leave an unwanted line the length of the switch blade planning, that may confuse one as to which is the actual switch blade machined (planed) edge. See Figure 13. below.

Figure 13.



STEP 6.

Now To make the Single Slip into a Double Slip.

6.0001. To make the Single Slip into a Double Slip, is really nothing more that repeating STEPS 3, 4 & 5, but this time putting the switches into the lower exit roads of the Single Slip formation detailed above.

It is therefore considered, that it is not necessary to further illustrate the same instructions as in STEPS 3, 4 & 5, to keep this document from getting too long.

A handy Hint here is, that generally, the pairs of switches of a Double Slip at the Vee end of each half diamond, are usually aligned with each other, and can then be operated as a moving pair if required. See Figure 14. and Figure 15. below.

It should be noted that, for the Double Slip, the minimum spacing gap between the inner blades of a pair of switches associated with each half diamond, must have a minimum of 11 inches prototype clearance between the blade tips when both switches are closed, this is necessary so that both switches can be fully opened at the same time, without interfering with each other. See Figure 15 below.

6.0002. Figure 16. below shows what the completed Double Slip may look like.

Figure 14.

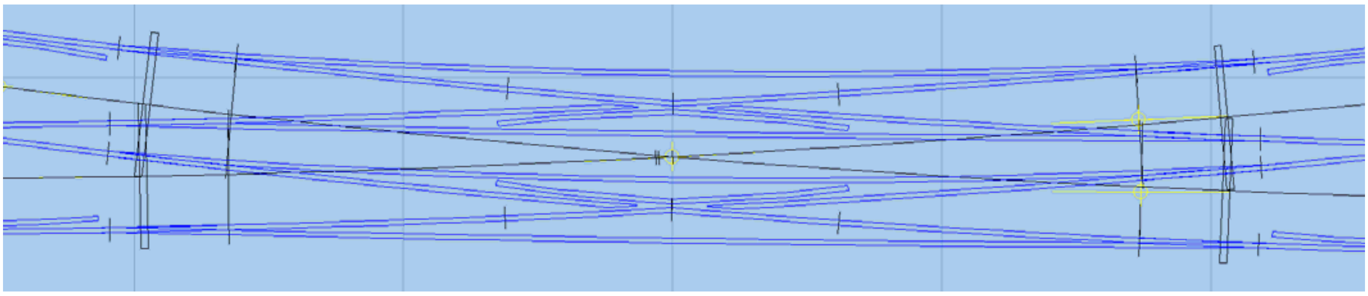


Figure 15.

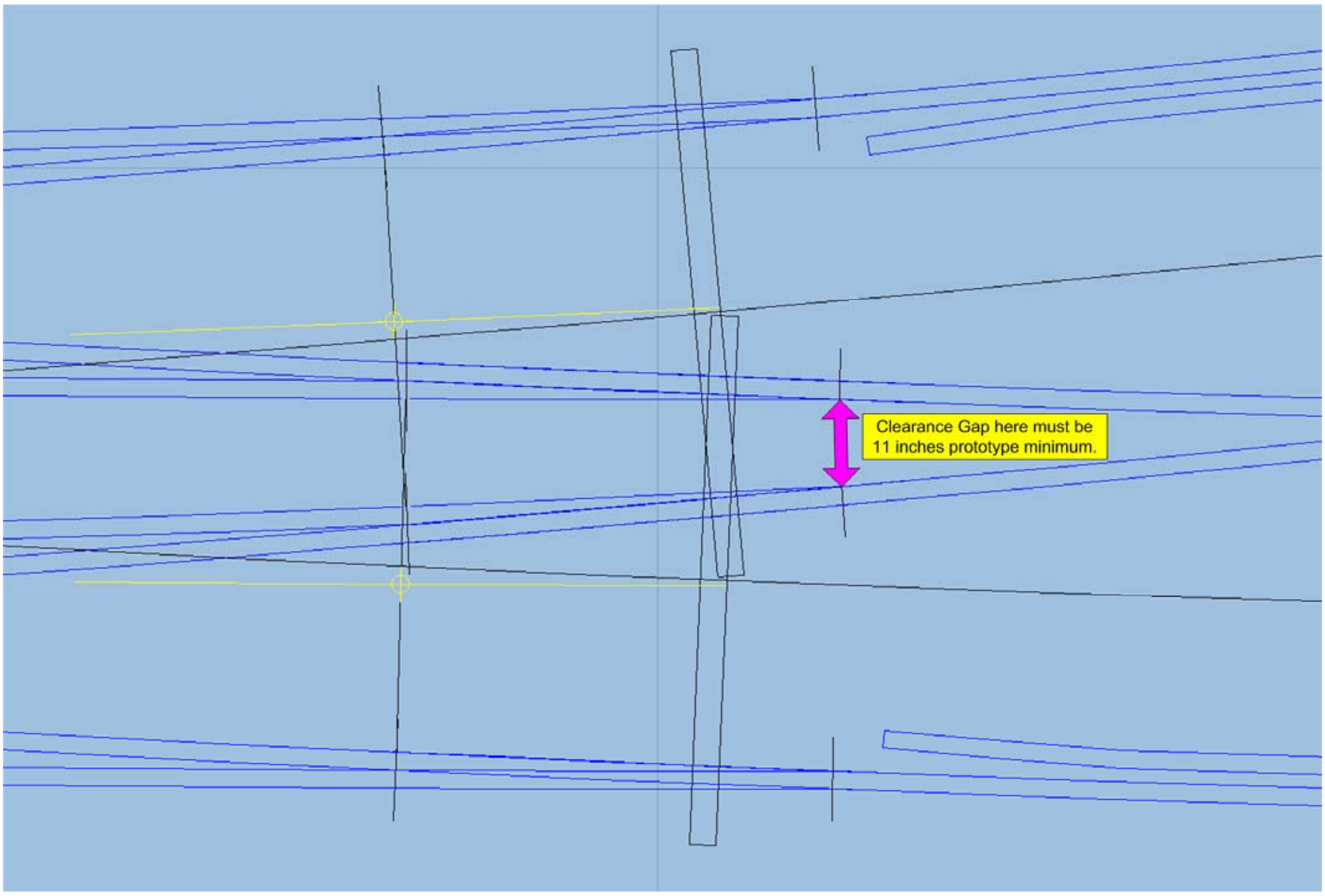


Figure 16.