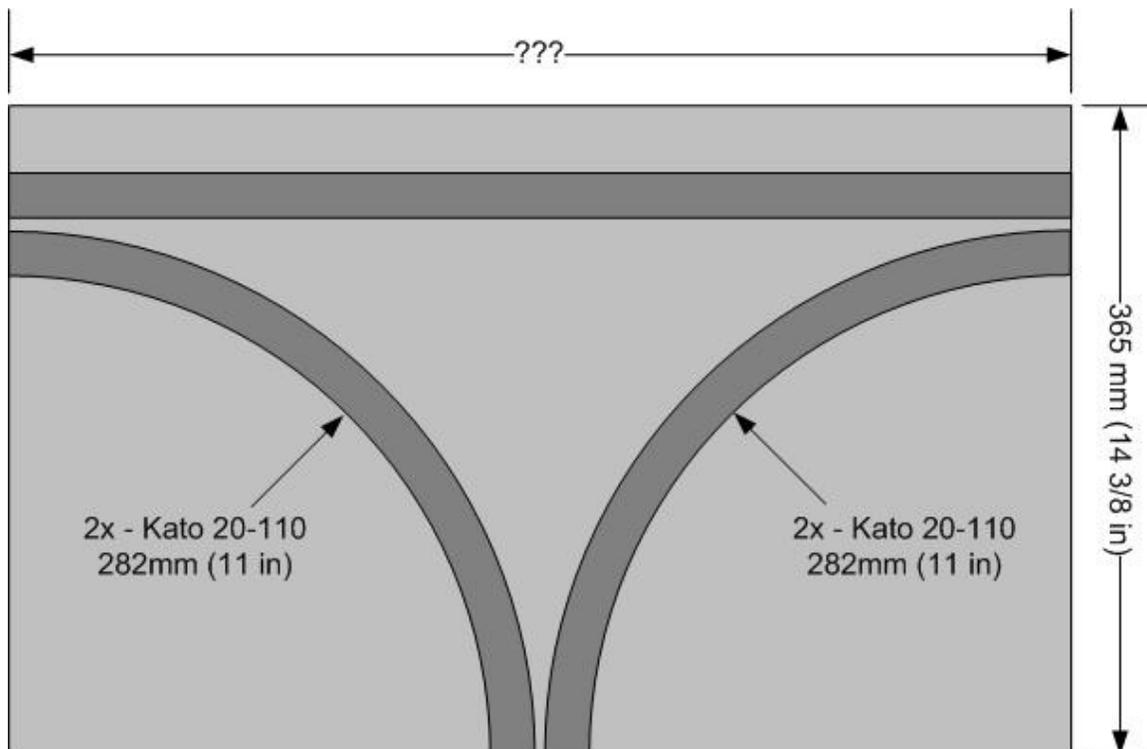


## T-TRAK Junction module

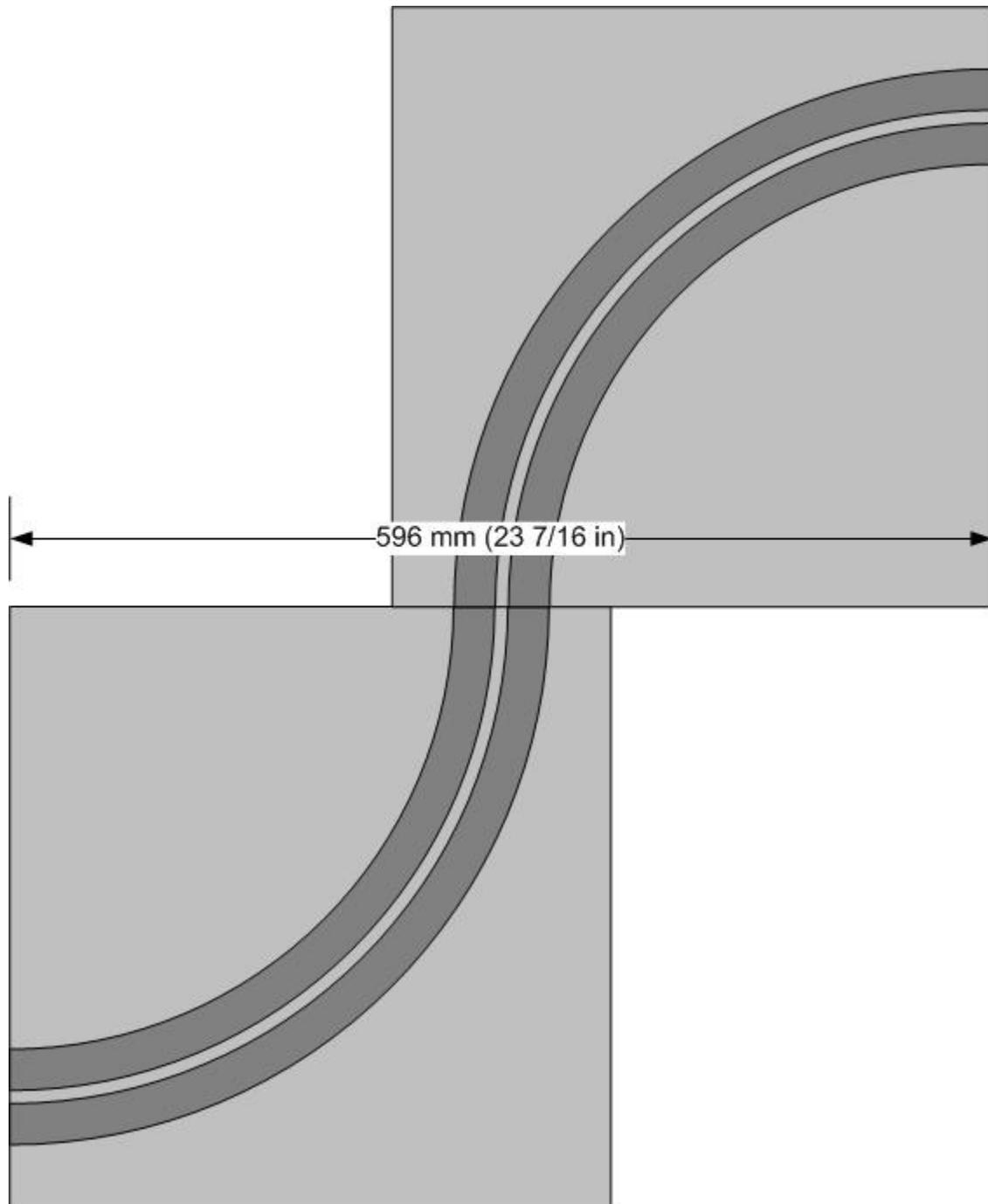
*Steve Jackson*

Prior to the Capitol Limited 2004, I was getting interested in the T-TRAK concept. Since I was on the planning committee and was the draftsman for the NTRAK layout planner, they were all shocked when I said that I wanted to set up with the T-TRAK layout. I really liked the idea of using Kato Unitrack and the reliability that the product provides. I also liked the portability of the modules. The only thing that I didn't like about the T-TRAK standard was that I had only seen pictures of layouts that were simple loops. I have spent too many evenings at Matt and Georgia Schaeffer's house talking about ways to build modules that torture layout planners for NTRAK. When I saw the T-TRAK modules and all of the great pluses of the concept, I thought that the idea is screaming for something like the NTRAK junction module that will allow multiple loops to be interconnected.

Unfortunately, even the alternate corner has pretty limited real estate, so I did not want to try to fit the turnouts that exist on NTRAK junction modules deciding to stick with the simplest design. Also, I didn't want there to be a left or right junction module, so I needed a design that would be reversible. I could get the depth of the module from the alternate corner, and I knew I needed to use the smaller radius twice, since that is how it worked for NTRAK. Here is what I knew and I what I thought it would look like.



The next obstacle was to figure out how long the base would be. I knew that I could use two of my existing corner modules to help this design, so I pulled them out and started monkeying with them until I got this idea.



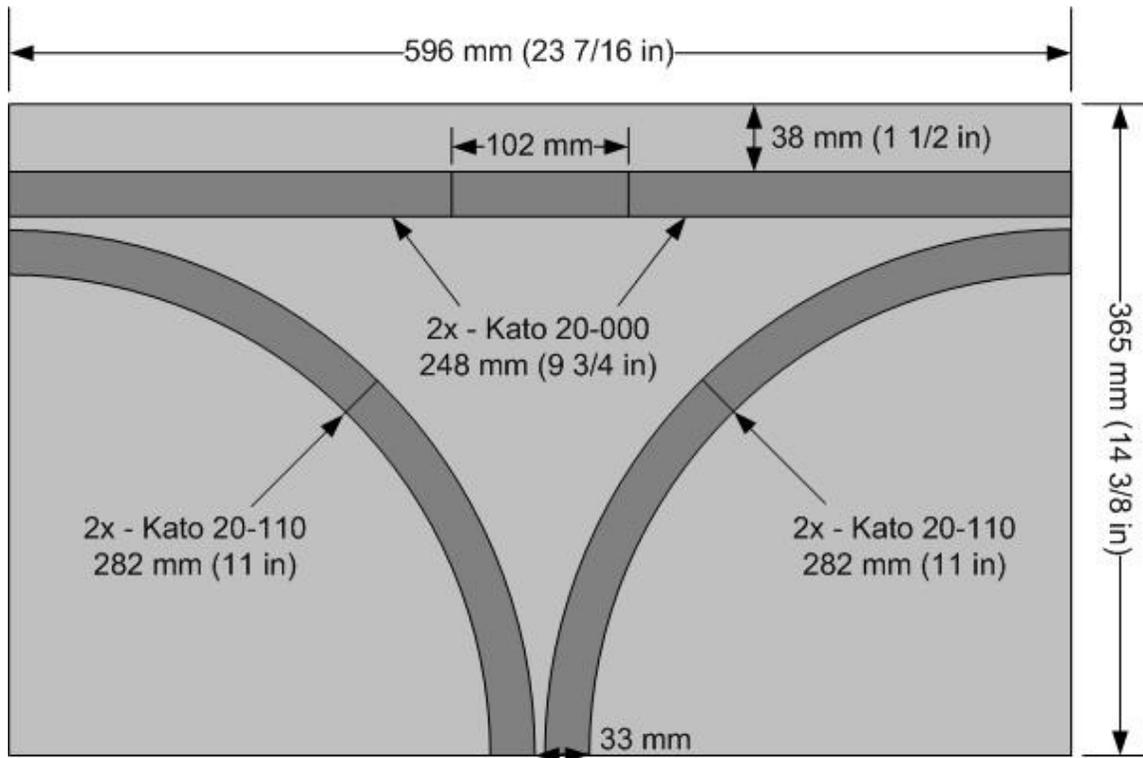
By setting the modules opposite each other, I was able to get a measurement for the length of the base; not the track since it hangs over, just the base. With this information in hand, I was ready to get out the saw.

I cut a piece of 1/4 inch plywood for the top and started placing sections of track to see how it fit. I was able to use two sections of Kato 20-000 248mm (9 3/4 in) track sections to

fill most of the gap, but including a 1 mm overhang on each end of the module I still needed a 102mm section of track.

I toyed with the idea of using a Kato 20-050 Expansion Track to fill the void, but I feared their reliability since I had not previously used one. So, I sent a message out on the Internet to see what others thought. I ended up emailing with Paul Musselman who recommended that I just cut the piece to fit. It seemed insane to chop up a perfectly good piece of Unitrack, but it made sense given the fact that I would be permanently attaching the track to the module. He gave me email pointers on the best way to do it and it worked like a champ. Since then, another member of my club, Glenn McLain, used the Expansion Track and we have not seen any problems from them. Jim Nealand, on the T-TRAK yahoo list, has used track from the assortment pack (29mm + 29mm + 45.5mm = 103.5mm) and reported that it worked out very well. How did I miss this? You can build 2 junctions with one assortment set.

Here is the arrangement that I ended up with:

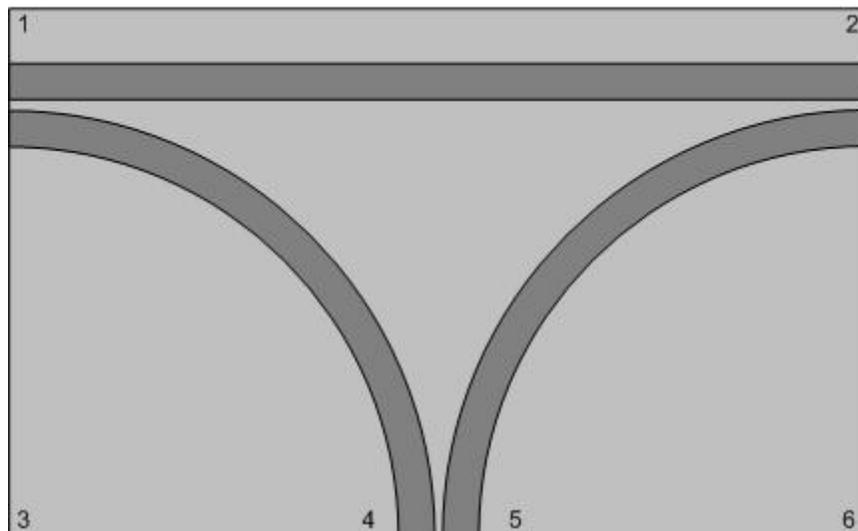


If you do the math, you will discover that 248mm + 248mm + 102mm does not equal 596 mm as reported above. The **frame of the junction is indeed 596mm by 365mm.** However, the track must be a little big longer to ensure that the tracks click with the neighboring modules.

## Lessons learned

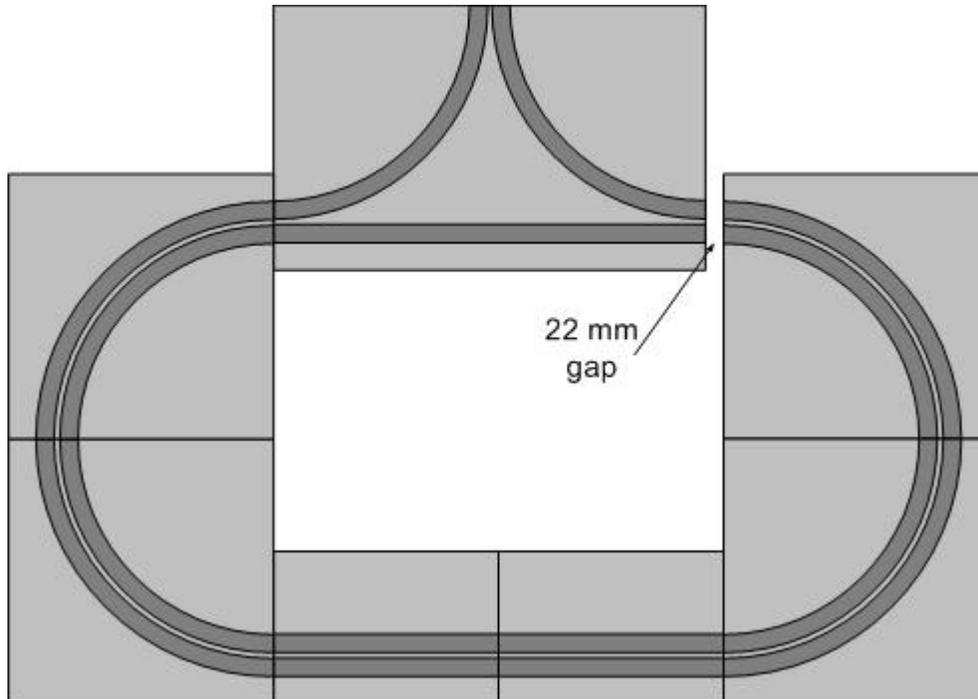
After using these junctions in countless shows, the members of the club that I am in have also build 2 more pairs of them. All of these differ a little bit. Here are some of the things that we have modified from the original design.

- The initial module frames included corner blocks for the leveling bolts. However, they were difficult to reach since I used 1x3 side pieces for the frame so the corner blocks were removed and threaded inserts were installed directly into the 1x3 side pieces.
- It became quickly apparent that the junctions were a nice place to add power to the layout since it serves as a junction point for large layouts. As a result, Glenn McLain added feeder wires to all 3 tracks of the junction and mine have been modified to include this feature as well. It works out to be very handy to feed a loop from the two legs of the junction.
- The 4 corner leg positions worked well at first, but eventually the layout designs dictated that the junctions be cantilevered off the table. Paul Musselman posted the idea of a 5-legged junction that features a leg in all 4 corners as well as one centered under the long face where the two tracks leave the middle of the face (between 4 and 5 in the figure below). I took this one step further adding a 6<sup>th</sup> leg so that the cantilevered junction can have more of it's mass supported by the table. (My civil engineering background reared its head here). The following diagram illustrates where I placed the holes.

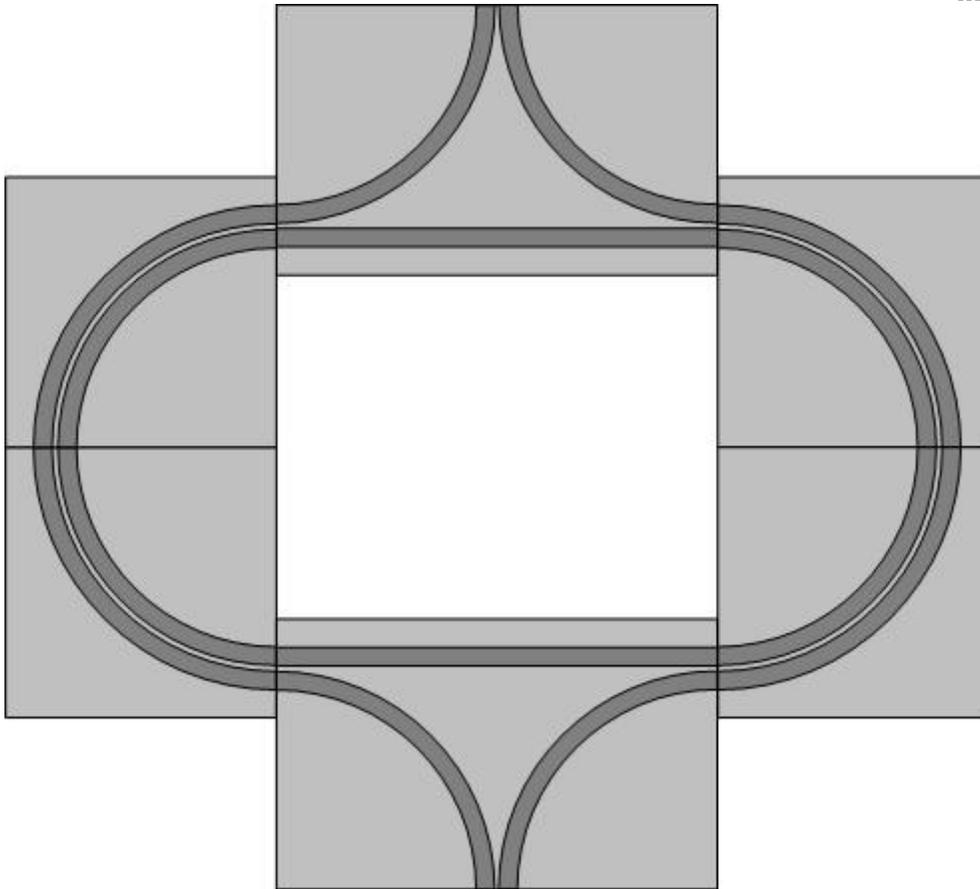


The exact locations for leg 4 and 5 I determined to be something less than 1.5 in from the face of the Unitrack so that it falls within the footprint of an adjacent standard module. In a nutshell, the lesson here is that a leg in all 4 corners is not really needed on this module. 5, or even 3 (positions 1, 2 and middle between 4-5) will work fine and might even be preferred. The key finding is that having a leg near the location of the tracks provides the maximum adjustment for the module.

- The junction modules end up being short of a double by only about 22 mm. This is a problem if you want to use the module in the following way:

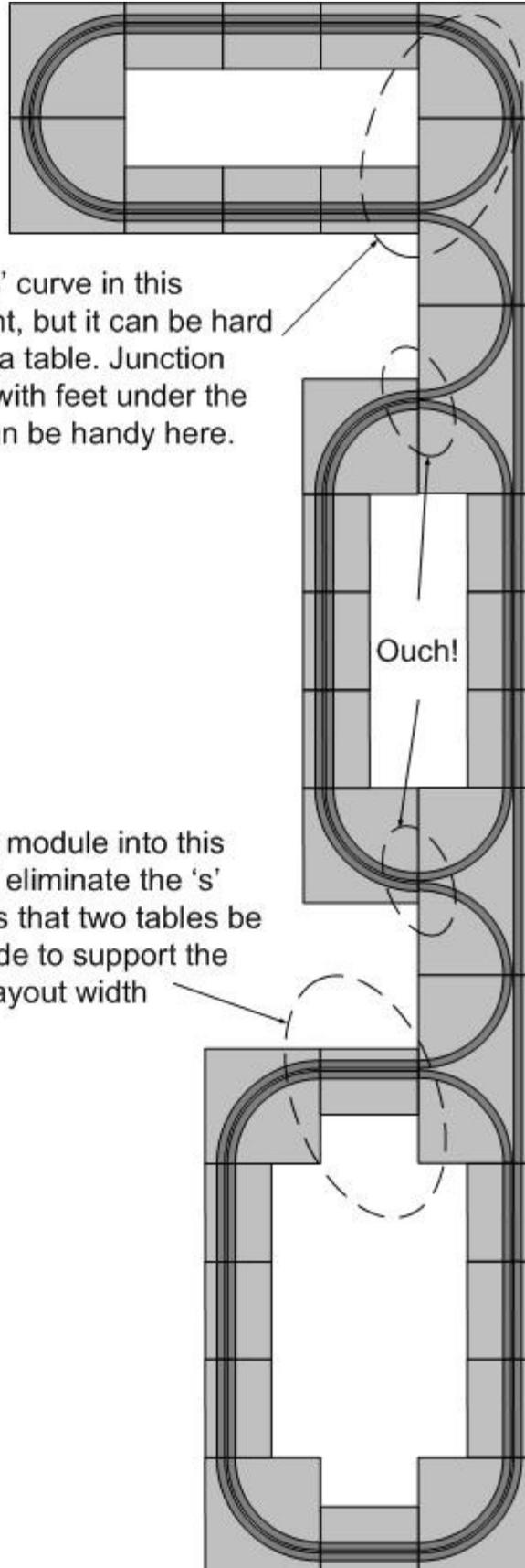


Granted, you could probably just fudge the 22mm (about an inch) if you wanted to crunch the other modules together, but that seems so anti-the precision of T-TRAK. Another way around this is to set up the layout with another junction opposite the first junction as shown below.



A third option beyond scrunching, and adding another junction is to build a module sliver. That is just what one of our members, Nick Sklias, did for his junctions. He build a module sliver 22mm wide by cutting track to the 22mm length that he uses to make up the size difference. This may well be the world's smallest module!! You could also use the 29mm sections that come in the Kato 20-091 Short Track Assortment and only have to scrunch up 7mm instead of 22mm.

- Using the junction modules will always lead to the possibility of introducing s-curves to your layout. These won't be a problem for shorter locos and cars, but it can cause big trouble for steam engines and passenger cars. There are a couple of things you can do to avoid the s-curves, you just have to be aware to watch for them when building a layout with junctions. The following illustrates the standard s-curve problem and the basic schema for eliminating that problem.



No 's' curve in this arrangement, but it can be hard to fit on a table. Junction modules with feet under the tracks can be handy here.

Ouch!

Adding a straight module into this arrangement will eliminate the 's' curve, but it requires that two tables be placed side-by-side to support the additional layout width