

# Grand Prix Track Plans

**Please read through the entire plan before starting to better understand the big picture.**

## Track Size

The track size is 14.75" x 40'

Racing distance is 36' with the option to increase that to 44' with a race distance of 40'

## Cost of Track

Track should be able to be built for less than \$250 — includes paint and hardware. Buy the T-nuts and bolts at a fastener specialty store — much cheaper. Wood screws, washers are also much cheaper by the box instead of by the piece. Example: T-nuts from a fastener store are around \$0.05, and \$0.25 at a home improvement store.

## Number of Sections

There are 7 sections that make up this track. 8 if the optional section is made. Each section needs to be numbered with Number 1 being the start of the track. Even though most of the sections should be interchangeable, this insures that the lanes will be properly aligned. The numbers may be placed on the Joint Plates.

## Plywood

You will require 1 sheet of 3/4", 2 sheets of 3/8" or 1/2" and 1 sheet of 1/4" Plywood. Thickness of the base pieces may depend on supply, the only downside to 1/2" sheets, is it will add weight, and is harder to bend (transition piece). I used 4'x8' sheets available at a contractor supply. This plywood is also available in 5'x5' sheets in some locations, if this is what you are using I advise you contact me for a set of my friends plans that are based on these dimensions. It is strongly recommended that you use good plywood. If you are going to take the time to make a track, make sure that it will last. The recommended plywood is Birch. Birch plywood is solid hardwood in all of the plies and has more plies than normal plywood. The cost of Birch vs. any other good quality plywood is about the same.

## Finishing

It is criminal to paint pretty wood (personal opinion). However, for longevity, and easy cleaning a good finish is essential. Use a clear finish. The lanes may be painted. Make sure the colours are in the right order — Red, Blue, Green, Yellow. If you put a finish on the top it is mandatory to put a finish on the bottom (at least 2 coats) to prevent warping. For the racing surface use at least 5 coats of polyurethane. Polyurethane that is made for floors has a harder finish and is made to take abuse. This may only take 2 coats. The track should be in pieces to make the finishing process easier. Sand the lane strips using grits up to 600 sanding between coats of finish. You will need to select and have in hand the finish line before making the slot for the frame on the bottom of the track.

## Assembly

Put all the sections in order, flat on the floor. The joints should be butted up against each other.

Have one person put the bolt in the holes. No need for that person to screw them.

A second person comes along with an electric drill to screw in the bolts (preferably cordless).

Use a low torque setting. After the sections are bolted together, have 1 person lift the starting end and another person lift at the first joint. Lift just high enough for the legs to fold out. Put into place the leg cross bar support.

Install the finish line.

## Construction of the Track

Cut all pieces listed on the cut sheet (see last page) and mark pieces in pencil on the back to identify them or sort into piles. Sections 1 thru 6 are constructed basically the same with section 1 & 2 having different undersides. The optional 8<sup>th</sup> section herein referred to as 7a and the end section 7b are also similar but made 4' long instead of 6' and section 7b having extra lane strip pieces (34" long) installed under the end on the lane strips to create a braking section. Section 2 will have 1/8" saw kerfs cut into the underside every 2" up to 6" from the ends to allow this section to bend and create the curve more easily for the transition from section 1 to floor level.

### **Slot detail: 1/2" x 1 1/2"**

First drill a hole to accommodate the router bit. The router bit should be narrower than the final width of the slot. When routing out it is best to make a jig to control the length and width of the slot. The jig can be slid over for each individual slot. When cutting a slot do not try to cut the entire depth at one time, it will take several depth changes to cut the slots, or drill out the center of the slots and router the edges for a clean finish.

**Before routing make sure that lane strips are in place.** The slots go through the lane strips and the base of the track. Route both layers at the same time in order to get even slots.

## **Joint Plates**

The joints are one of the most critical parts of the entire track. If they are properly made they will greatly enhance the speed and accuracy of setting up the track.

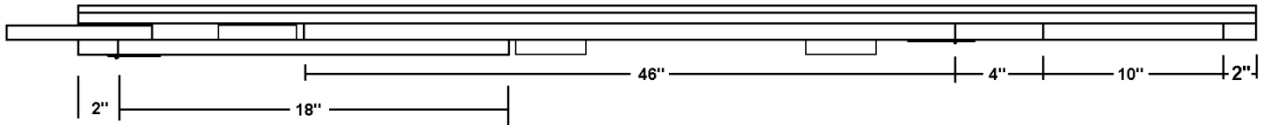
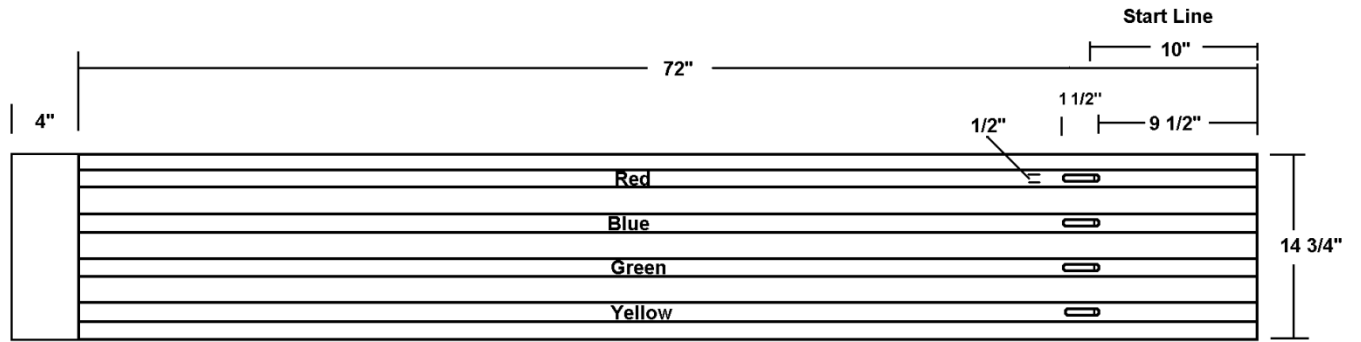
1. As much as possible make each of the plates identical. Ideally they should be interchangeable.
2. Make a jig or a master joint plate. This will be used to locate and drill all of the necessary holes in the plates.
3. You will want to number each joint plate according to which section they will be attached to.
4. Mark the center line of the joint plate, both ways.
5. At first only drill the 1/4" holes. When drilling these holes use a drill press for accuracy.
6. Using a spade bit or Forstner bit to countersink the flanges of the T-nuts in the base of the joint plate. You do not want the metal to be scrapping on the floor. Use a drill press.
7. Drill the holes for the barrels of the T-nuts. Some do not drill these holes all the way through. You want the top of the hole to still be 1/4", this will make things tighter. Use a drill press.
8. Glue then clamp a plate to the end of Section 1 using the center line for alignment, and screw the plate into place.
9. Butt the beginning of Section 2 to the end of Section 1, clamp into place.
10. Drill the 8 1/4" holes into the beginning of Section 2.
11. Unclamp Section 2, hammer in the 8 T-nuts into the plate. Use a scrap piece of wood to space the plate up off the floor for a firm surface and so the track surface is protected. Also drill the recesses in the lane strips with a forstner bit at this time, setting the depth to only drill the lane strips, not the track base.
12. Repeat steps 9 though 11 for all remaining sections.

**NOTE: Do NOT try to save time and money by reducing the number of T-nuts down from 8 to four. This has been tried. What happens is that with the flex in the track as it is being set up and later taken apart, the bolts will cross thread and cause major problems.**

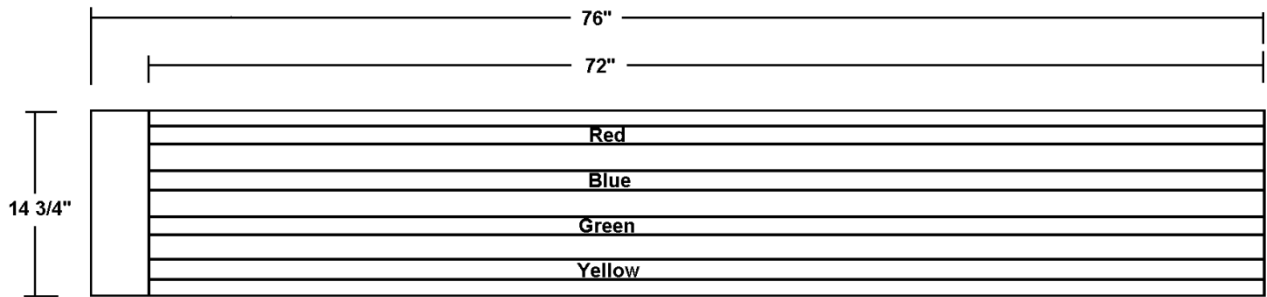
## **Legs**

You can either cut the legs out of the remaining 3/4" plywood or build them from 1" x 4". The Cross Brace can also be made from 1" x 4" or left over plywood (either 3/4" or two pieces of 1/2" glued together from the sheet used for the base sections).

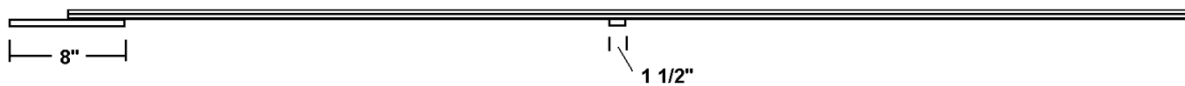
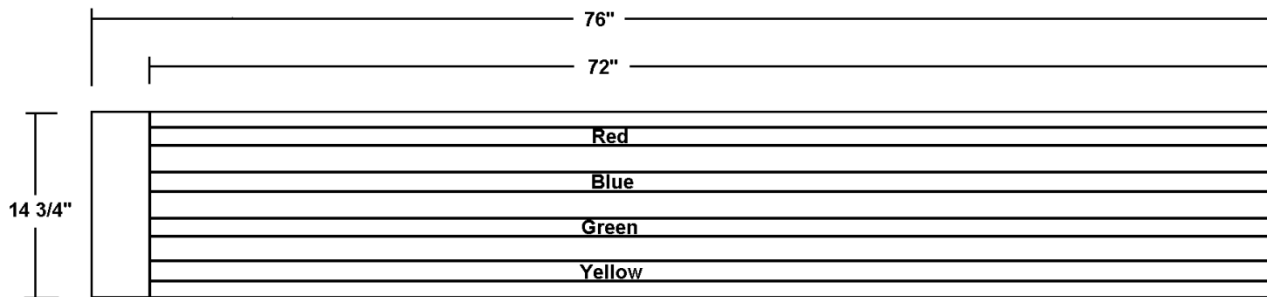
**NOTE: Please remember the images are not drawn to scale. Rely on the dimensions as noted not what it appears to be. Hardware measurements are to the center of the hole.**



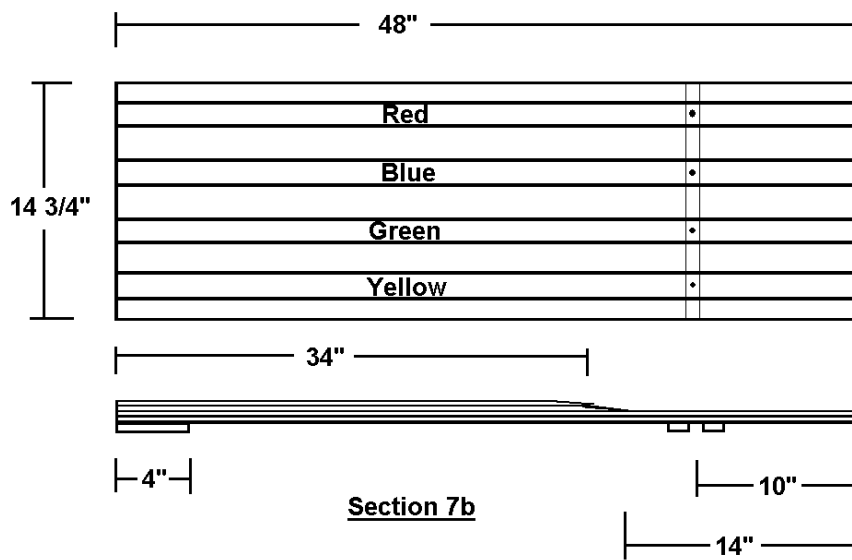
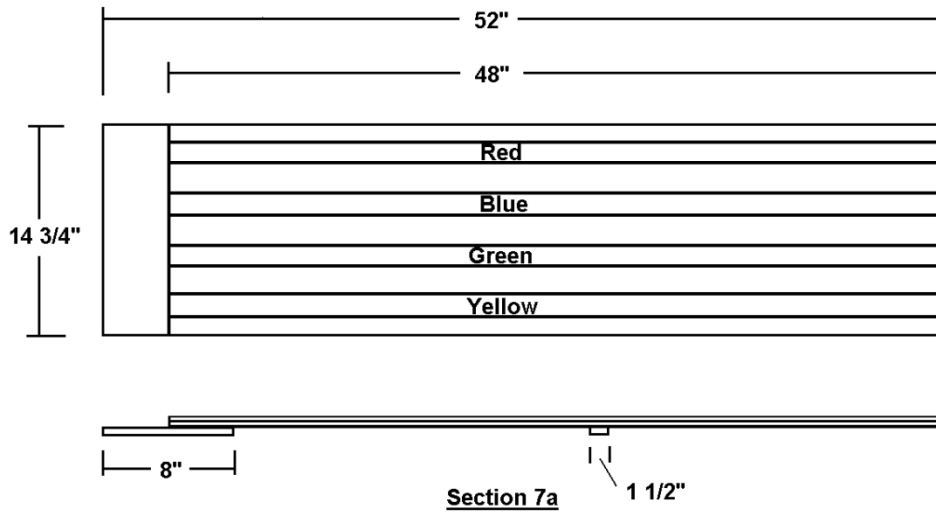
Section 1



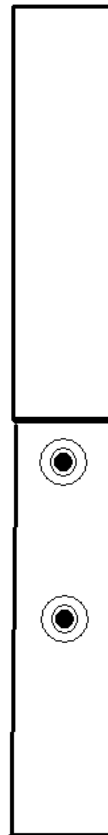
Section 2



Sections 3 thru 6

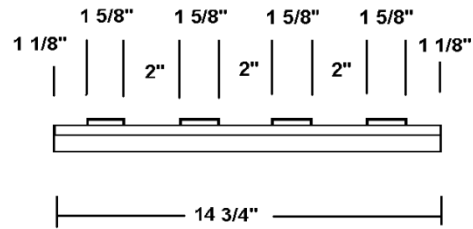


**Racing Direction**

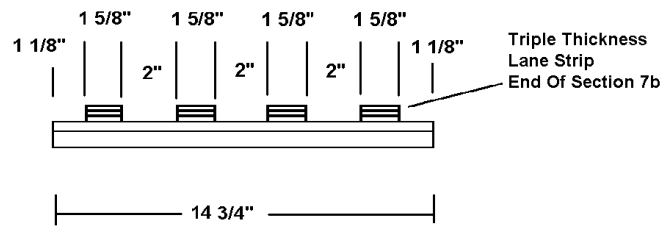


Note: The top of the following Lane Strip is sanded just a bit so that it is narrower than the preceding piece.

This Gives a little room for error as the cars go down the track.

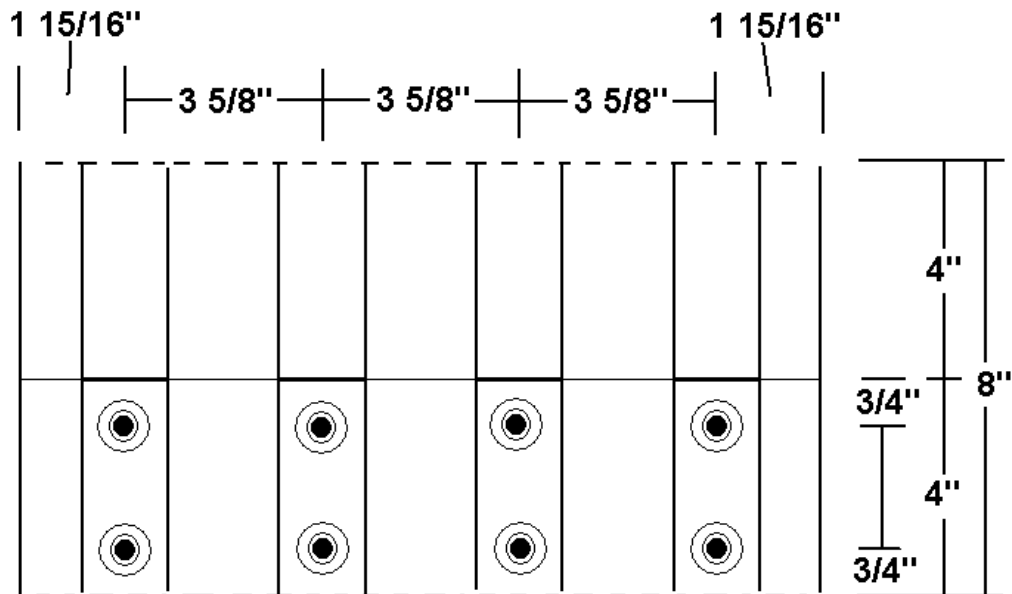


**Section End View**

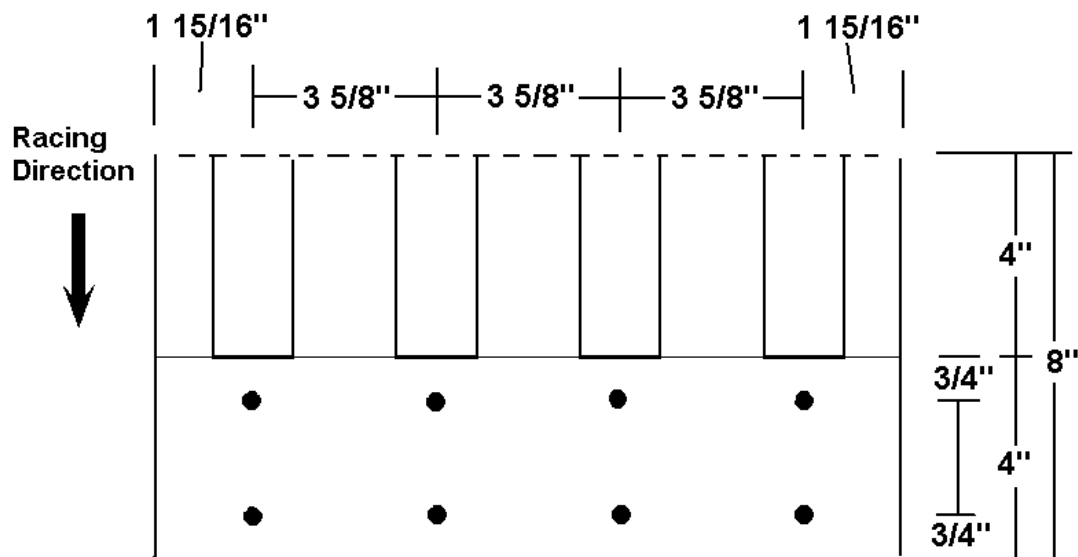


**Section 7b End View**

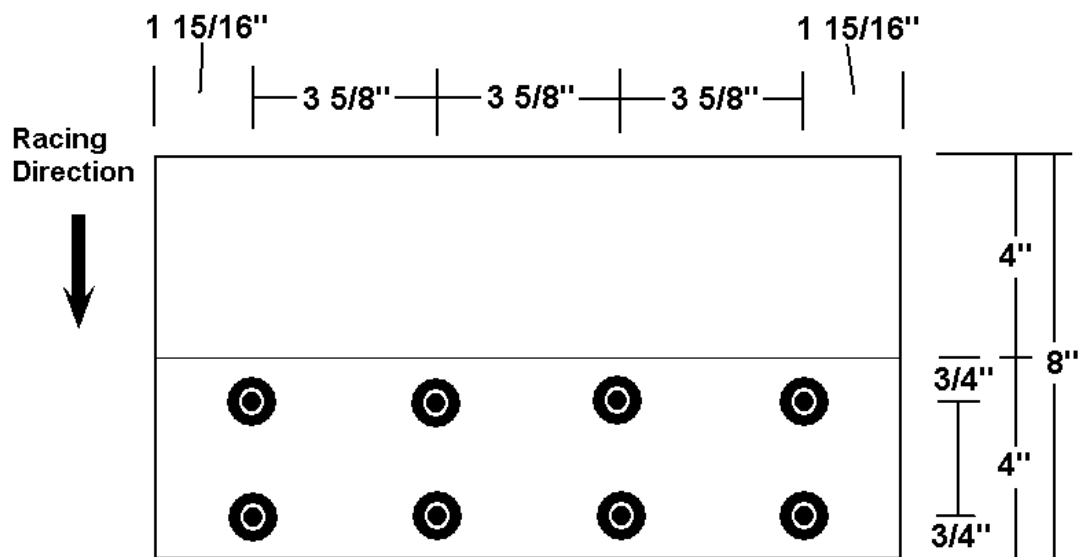
**Racing Direction**



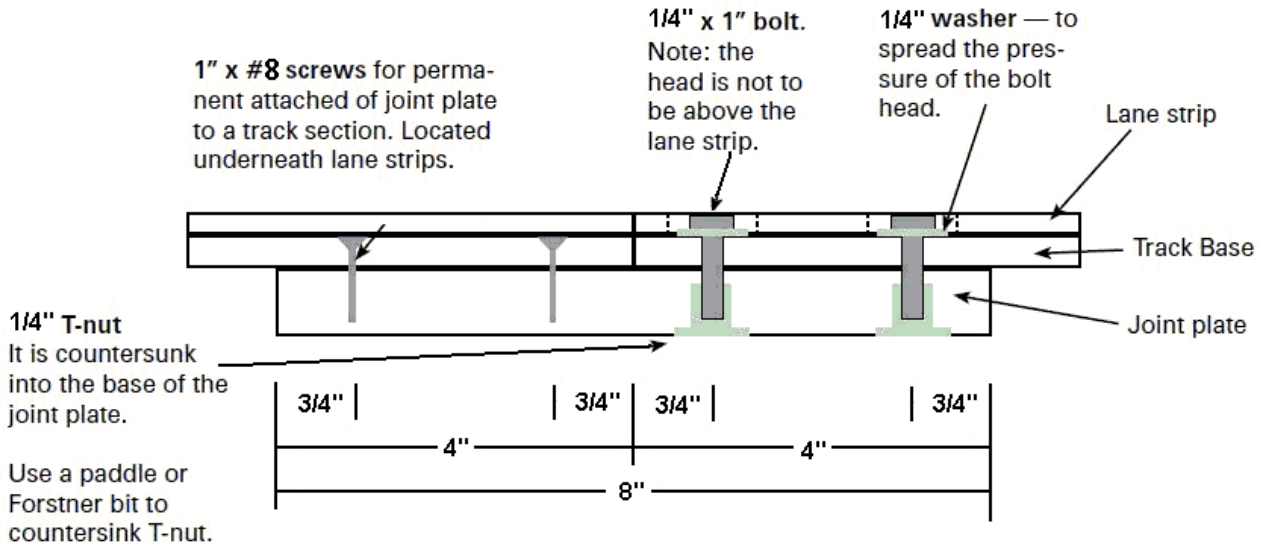
**Joint Plate Close Up**



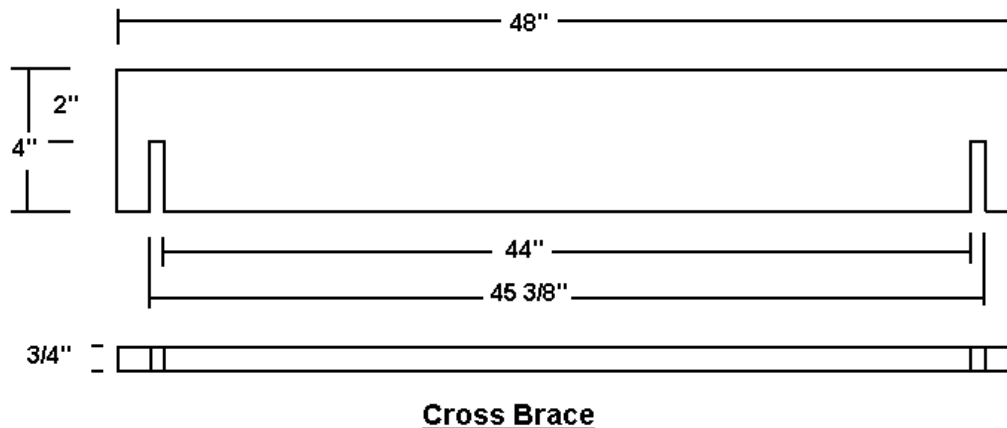
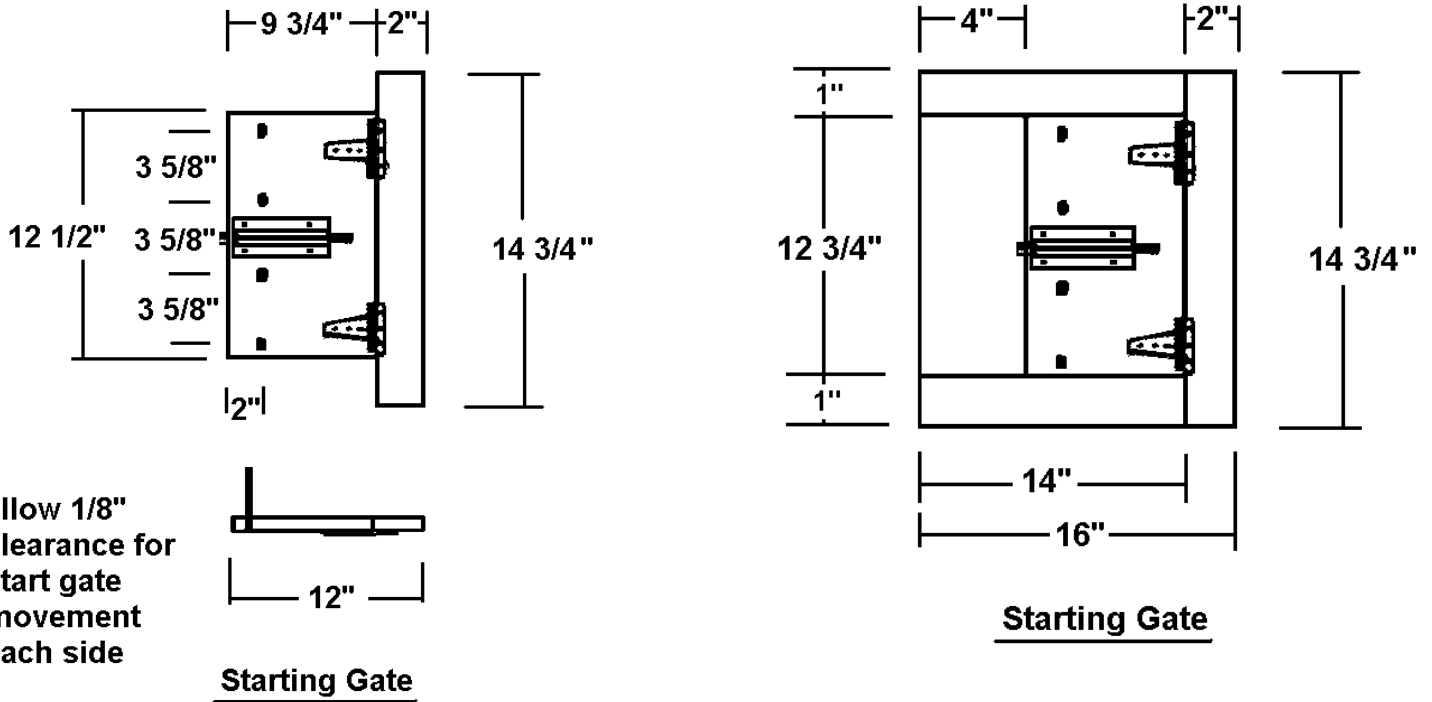
Joint Plate Close Up  
Without Adjoining Section

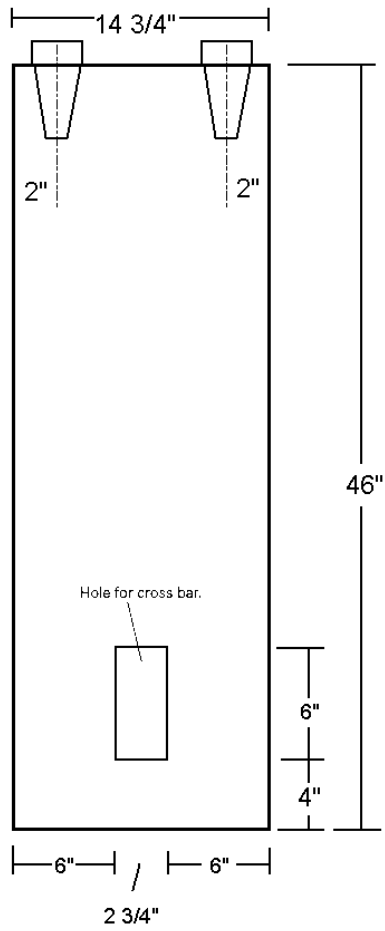


Joint Plate Close Up  
Bottom View of T-Nuts

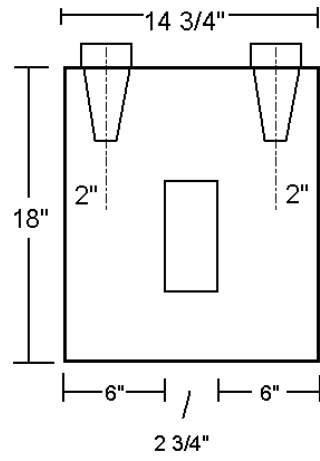


### Joint — side view

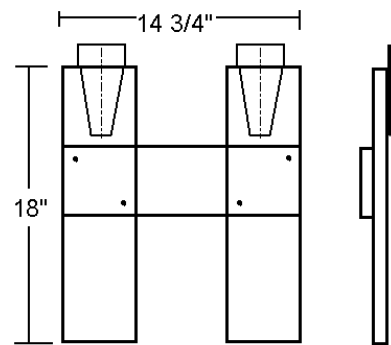
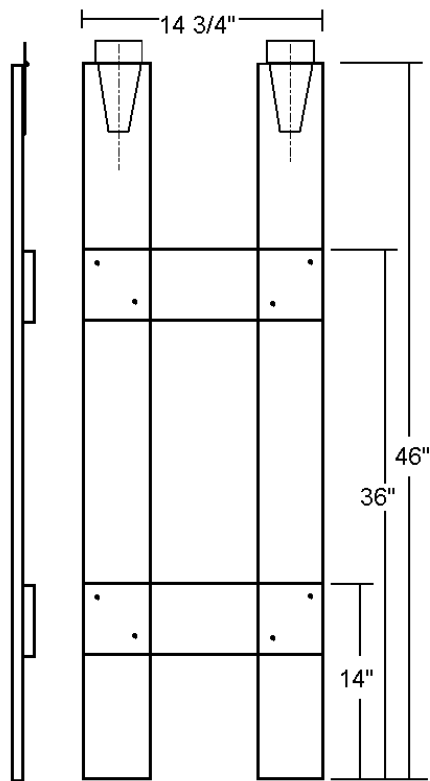




**Legs**  
 Made using 3/4" plywood



**Legs**  
 Made using 1x4





## Cut Sheet:

### Track Race Surface:

- 6 14 3/4" x 72" x 3/8" Plywood (Base Sections 1 thru 6)
- 2 14 3/4" x 48" x 3/8" Plywood (Base Sections 7a & b)
- 24 1 5/8" x 72" x 1/4" Plywood (Lane Strips Sections 1 thru 6)
- 8 1 5/8" x 48" x 1/4" Plywood (Lane Strips Sections 7a & b)
- 4 1 5/8" x 34" x 1/4" Plywood (Lane Strip pieces for Breaking Section)
- 4 1 5/8" x 32" x 1/4" Plywood (Lane Strip pieces for Breaking Section)
- 8 8" x 14 3/4" x 3/4" Plywood (Joint Plates) (1 for 7b)
- 6 1 1/2" x 14 3/4" x 3/4" Plywood (Spacers)
- 1 4" x 14 3/4" x 3/4" Plywood (Spacer at end of track)
- 1 14 3/4" x 2" x 3/4" Plywood (Support for Front Leg)

### Starting Gate:

- 1 14 3/4" x 2" x 3/4" Plywood (Gate Hinge Support)
- 1 12 3/4" x 4" x 3/4" Plywood (Leg Hinge Support)
- 2 2" x 14" x 3/4" Plywood (Start Gate Side Pieces)
- 1 9 3/4" x 12 1/2" x 3/4" Plywood (Start Gate)

### Legs (option 1):

- 1 14 3/4" x 46" x 3/4" Plywood (Rear Leg With cut out as per Detail)
- 1 14 3/4" x 18" x 3/4" Plywood (Front Leg With cut out as per Detail)

### Legs (option 2):

- 2 46" pieces of 1" x 4" (Rear Legs)
- 2 18" pieces of 1" x 4" (Front Legs)
- 3 14 3/4" pieces of 1" x 4" (Cross pieces assembled as per Detail)

### Cross Brace:

- 2 3" x 48" x 1/2" Plywood (Glued/Screwed Together)(Left over from base cuts)  
or
- 1 48" piece of 1" x 4"  
or
- 1 48" x 4" x 3/4"