

# TRAIN TRACK BITS

**NOTE:** All bits are designed for use in a router table only. Because there are numerous brands and varieties of toy trains on the market, the actual set-up measurements you use will be determined by the brand of train and track that you are trying to duplicate. Remember that all joints should fit loosely together to allow for easy assembly and disassembly. For best results, we suggest that you pre-cut most of the waste using a bandsaw or router bit. Read and understand all instructions carefully before making any cuts. As with most projects, the key to your success will be in your making many test cuts. Plan for this ahead of time by having extra stock and time available. Due to the vertical cutting operation required to make the tracks, you will need to make or purchase a right angle support fixture for your router table fence. It should be high enough to securely hold the tracks in place.

## A- MAKING STRAIGHT TRACKS

Straight track can be made in any length provided that you have enough support from your right angle fixture above to support the piece and cut it safely. Keep in mind that the male connector end adds approximately 11/16" to the overall length of the track.

After making a few test cuts, and achieved the final setup that you want, we suggest you make all the female cuts first. Then make all the male cuts.

### Step #1 - Making the Female Connectors

Using the Female Connector Bit (special ball end) in your router table, set the cutting height to approximately 11/16". Center the stock to the bit center and adjust the fence accordingly.

Helpful Hint: A quick way to find center is to mark the stock center where you want to cut with a pencil mark and line it up to the center of shank portion of the bit or pencil mark drawn out from the center of your router mounting plate. This is easier than trying to find the center of the profile cut.

Using the right angle fixture securely fastened against the fence, position the track material over a backer board at 90 degrees to the table and secure in place with a clamp. The backer board will give you added support and will eliminate any chance of chip out. Make your cut in one pass by moving the fixture completely into the bit until it cuts through the material and into the backer board. Once the bit has made the cut, turn the router off, and allow the bit to come to a complete stop before removing the track. Caution: Do not back cut as this may cause kickback! Once you achieved the desired final setup, cut all your straight blanks at this time using this setup.

### Step #2 - Making the Male Connectors

Using a pencil, layout and trace the Male Connector profile you need onto your track material using one of the Female Connector cuts as a template you just made above. Now pre-cut the waste from the male connector ends on the track as mentioned above.

Using the Male Connector Bit (special bull nose) in your router table, set the cutting height to matching height, approximately 11/16". Using the right angle fixture securely fastened against the fence, position the track material over a backer board at 90 degrees to the table and secure in place with a clamp. The backer board will give you added support and will eliminate any chance of chip out. Make your cut in one pass by moving the fixture completely onto the bit until it cuts through the material and into the backer board. Once the bit has made the cut, turn the router off, and allow the bit to come to a complete stop before removing the track. Caution: Do not back cut as this may cause kickback! Adjust fence positioning in or out if necessary. Rotate or flip the stock over on the fixture and repeat this process cutting the other half of the male connector. Once you achieved the desired final setup, cut all your straight blanks at this time using this setup.

### Step #3 Making the Train Track Grooves

Depending on the track you wish to duplicate, you will find that most grooves are approximately 1/4" wide, 1/8" deep and have a 1" center span between grooves. Simple grooves can be made with a 1/4" straight router bit. However, our special Track Groover Bit has the extra added feature of providing you with a soft rounded upper edge which not only helps prevent the trains from jumping the tracks but keeps the kids from getting splinters. You will find that this profile matches those of the most expensive store bought tracks.

Using the Single Track Groover Bit (special plunge roundover) in your router table, set the cutting height to achieve the desired track depth. Adjust your fence for the correct cutting distance desired. Make a test cut by using a push block and moving the track over the bit at an even and steady pace. Flip the stock around and repeat this process to create the second groove. Adjust your fence if necessary and make final cuts.

**Note:** Use the *Single Groover* bit to make grooves in flat straight or curved tracks. The *Double Groover* bit with center bearing allows you to make flat straight sections in one pass or curved upward sections to create bridges, overpasses or mountains.

A finishing touch: Using a very small roundover or chamfer bit in your router table, run all the tracks against the bit to break the outside edges of your track. It will not only prevent splinters but it will give it that extra touch of class.

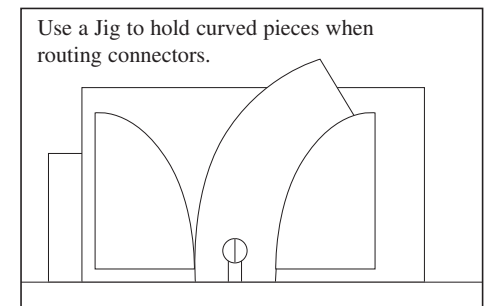
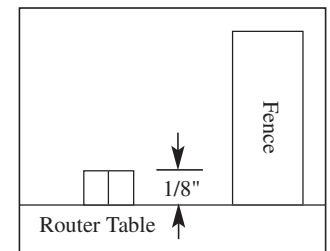
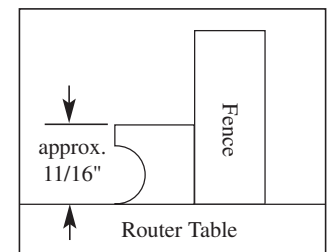
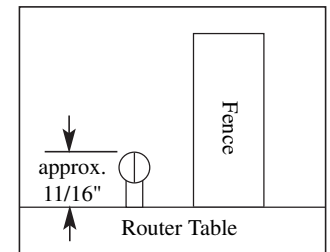
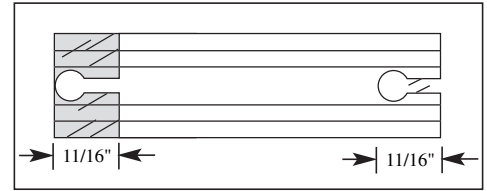
## B - MAKING CURVED TRACK:

The Male and Female connectors are produced the same way as you do with a straight track as described above. The only difference is in how you make the track and the grooves.

To make curved track, you start by making the curved track grooves first. This can be accomplished in either of two ways. First, is the freehand router method. To do this, you need to use or make a circle cutting jig. Second, is the router table method. Here you would use a pivot point pin set in your router table from which you would rotate your stock across the cutter to make the first groove. Then reposition the pin approximately 1" away from the cutter to make the second groove. Using either method requires you to make four cutting passes to create each track.

Helpful Hint: On curved tracks, flip the stock over and cut grooves on both sides. This will allow you to take the finished track and have either a right hand or left hand curve using the same piece of track.

By adjusting the cutting radius, you would first score the track grooves into the stock and then cut out the track using either a template and flush trim bit or bandsaw. After the track has been cut out of the stock, you then make the connector ends. Be sure to design your curved track so that it will clear your fence height when cutting the connector ends, or you may have to modify the fence for this operation. Making curved supports that attach to your right angle fixture would also be recommended.



# FULL SIZE TRAIN TRACK PLANS

Curved sections are based on a  $8\frac{13}{16}$ " outside radius. We suggest making a circle cutting jig to accomplish this. By adjusting the pivot point, both rail cuts and inside radius are achieved.

