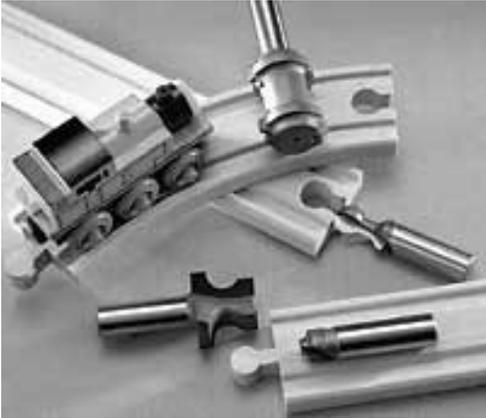


# Train Track Bits

Items #7309-7314

## Before You Leave the Station

- 1) Have a thorough understanding of how to operate your router and follow all safety procedures appropriate to the use of such machinery. These instructions only cover procedures specific to the making of the train track pieces.
- 2) Remember—**DO NOT** use the bits freehand. They are designed for router table use **ONLY**.
- 3) Keep joints fairly loose so young hands can easily assemble and disassemble the track.
- 4) If you are attempting to match already existing track, do not follow the measurements provided—make your own measurements from your existing track.
- 5) A right angle fixture, either handmade or store-bought, is needed to hold a work piece stable in a vertical position.
- 6) For best results, we suggest European Beech Stock. This project is not recommended for hard woods, such as cherry and oak, etc., due to the danger of burning.



## Making Straight Track

- 1) First, determine your track length. Many sizes will do, but common sizes found in stores are 4-1/4", 5-3/4" and 1-1/8". Remember: The overall length will be longer than the "track length" when you consider the male connector. So, add 11/16" to the length for the male connector.

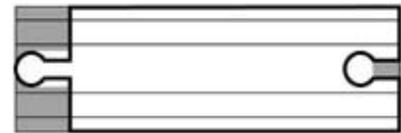
**HINT:** Cut several track pieces at a time to avoid the difficulty of repeating exact router setup.

- 2) Use 7/16" thick, 1-9/16" wide wood blanks for your straight track components. If duplicating store-bought track, use stock with identical measurements.

## THE FEMALE CONNECTOR CUT (MLCS Item #7310)

**HINT:** Precutting material around the joints allows you to work more effectively. (Precut the shaded areas as shown in **Figure 61**)

**Figure 61**



# Train Track Bits

1) Place the Female Connector Bit (MLCS Item #7310) into your router at a height of  $3/4$ ". The center of the bit should lie  $25/32$ " from the router fence. (See **Figure 62A**)

**HINT:** Cutting a small opening at one end of your work piece will reduce pressure and allow cleaner cutting. To avoid chip-out, we recommend using a backing board behind the pieces to be cut.

2) Using the right angle jig against the router fence, place your work piece perpendicular to your router table and flush against the fence and clamp in place.

3) Holding the right angle fixture firmly against the fence, push the fixture through the bit at a steady, moderate pace in **ONE PASS** only! **Remember:** You'll be using this cut as a guide for the male cut later on. Also, make all your female cuts first before moving on to the male cut.

## THE MALE CONNECTOR CUT (MLCS Item #7309)

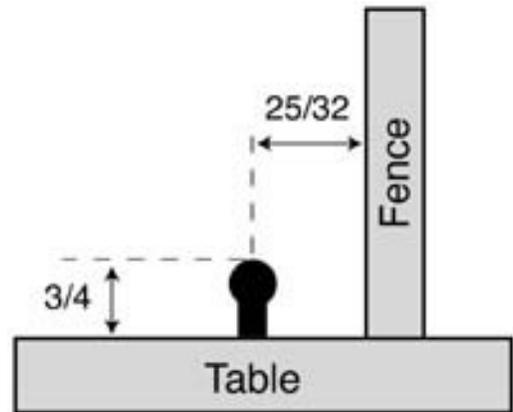
1) After precutting the opposite end, place the Male Connector Bit (MLCS Item #7309) in your router at a height setting of  $11/16$ ". The upper outside edge of the bit should lie  $5/8$ " from your fence. (See **Figure 62B**).

2) Again position the work piece in the right angle fixture perpendicular to the table, flush with the fence. Clamp in place and pass through the bit steadily to make your cut.

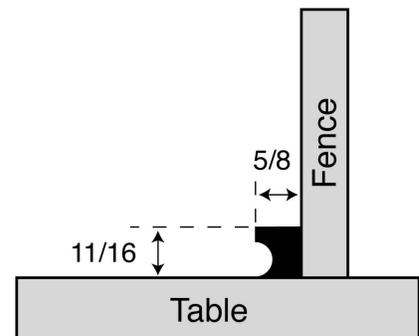
3) Flip stock and repeat the cutting process so the cut is centered on the work piece.

**HINT:** Make fine adjustments at this time by repositioning your fence in or out. Test with the female connector, remembering that you want a loose fit for easy disassembly.

**Figure 62A**



**Figure 62B**



1) Grooves measure  $1/4$ " wide,  $1/8$ " deep, and 1" on center.

## Train Track Bits

### CUTTING THE TRACK GROOVE (USING THE SINGLE GROOVE BIT #7311)

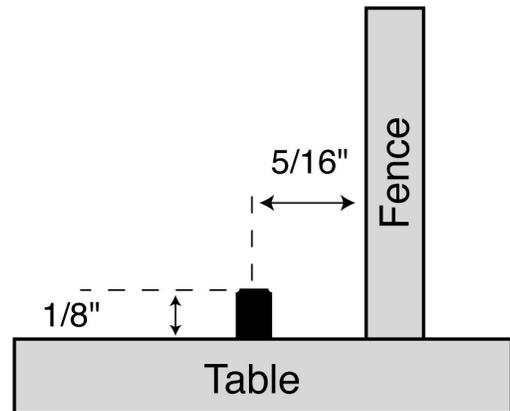
- 1) Grooves measure 1/4" wide, 1/8" deep, and 1" on center.
- 2) Use our custom Train track bit (**MLCS Item #7311**) set at 1/8" height and 5/16" distance from bit center to your router fence (when using single groove bit). (See **Figure 63**)
- 3) With a push block, push the track piece **HORIZONTALLY** (flat on the table) over the bit, holding tight and flush against the fence.
- 4) Flip stock end for end and repeat for second cut.
- 5) Smooth sharp inner edges by hand-sanding to avoid derailments. You can also soften the outer edges by sanding or chamfering with a small chamfer bit (1/16").

### CUTTING THE TRACK GROOVE (USING THE DOUBLE GROOVE BIT #7312)

This bit will cut both track grooves in a single pass.  
 NOTE: This bit can only be used for cutting STRAIGHT track.

- 1) Mount the bit in the router table and set the height to 1-9/16" and set the fence so that 1/8 of an inch of the bit is exposed.
- 2) Using a Push Stick, push the track blank against the fence and into the bit on its edge (**vertically**). This will produce both track grooves at the same time.
- 3) Smooth sharp inner edges by hand-sanding to avoid derailments.

Figure 63



# Train Track Bits

## Making the Curved Track

1) **Preparation:** You'll need a circle template. Construct one from scrap plywood about 11" x 13". Identify and label a lengthwise center line on the jig. About 2" from the edge on the center line, drill a 3/16" hole. This will be your pivot point. To identify the position of the wood blank on your template, mark a 90-degree guide line 6-11/16" from the center of the pivot hole. **(See Figure 64)**

2) Prepare wood blanks 7/16" thick, 3" wide, and 8" in length. **(See Figure 64)**

3) Set your wood blank on the jig at the guide line. Glue support blocks in place around the perimeter. Add another block the same thickness as the track near the pivot hole for support so the jig stays flat to the table.

4) Next, you must drill the centers of the arcs into your router table. Position the center of the first hole 8-1/4" from the center of the bit. Position the second hole 9-1/4" from the center of the bit. It is **extremely important** that these holes be accurately positioned!! A 3/16" drill bit can make the center holes AND serve as the pivot point of the jig.

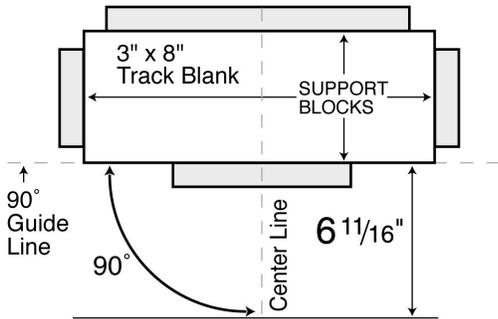
**HINT:** You may need to use a "false" table top if you can't drill directly into your router table. 3/4" plywood works well as a false top. Also, you can use a 3/16" drill bit to drill the center holes and then use the same bit as a pivot pin.

5) Place our Single Track Groove bit #7311 in your router at 1/8" above the table top and put your track blank into the jig. Place the jig on the table, aligning the pivot point through the jig and the first center hole. Turn on your router and slowly move the jig through the bit clockwise.

6) Move the pivot point to the second center hole and repeat the process.

7) Flip the track blank over and repeat step 5 and 6 to create track on both sides of your blank, so the curves can be used for either right or left-hand turns.

Figure 64

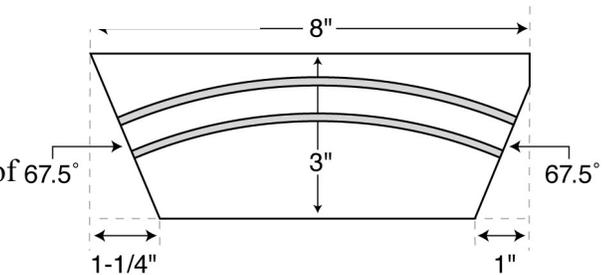


# Train Track Bits

## ANGLING THE GROOVE TRACK BLANK

Using a table saw and miter guide, cut the grooved blanks at an angle according to the dimensions shown in **Figure 65A**. NOTE: The male cut will be made on the right side of the track and the female cut on the left. Mark your blank accordingly.

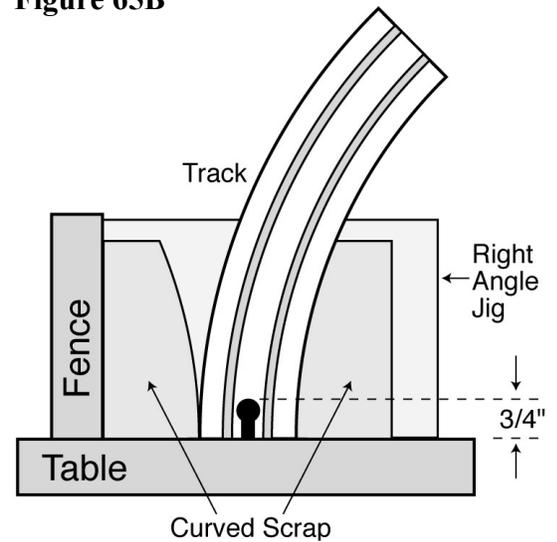
Figure 65A



## CUTTING THE TRACK EDGES

Mark a guide line for the inner and outer edges of the track piece 3/16" from the track grooves. Cut on a band saw and sand. **HINT:** Exact width is essential at the ends to match the straight track at 1-9/16" wide, in order to allow for smooth fitting track assembly.

Figure 65B



## USING THE RIGHT ANGLE FIXTURE

**1) PREPARATION:** Adjust the right angle jig to support the curved track for machining of the male and female connectors. Copy the inside radius of the curved track on 2 plywood scraps and cut the plywood along the lines. Attach the cut plywood pieces to your right angle jig 1-9/16" apart. See **Figure 65B**. **HINT:** You may want to use a curved track piece to position the plywood.

2) Precutting the ends to be routed is a good idea.

3) The procedure for cutting the connectors is similar to that for straight track and the bit height doesn't change. However, the distance from the fence to the bit depends on where you placed your curved support plywood on your right angle fixture. **This is a trial and error process!!** The key is that the ball end cutter is centered on the track. The male cutter sits closer to the fence and the cut is made in 2 passes, flipping the stock. Adjust the male cutter by moving the fence in and out until the cut fits the connecting track piece. (See **Figure 65C**)

Figure 65C

