Train Case for N Scale

By Ken Lass

One of the most efficient ways of storing and transporting N scale model railroad equipment is in a set of stacking and interlocking trays. While cars and engines vary greatly in length and height, they are quite consistent in width. By laying them on their sides on soft foam and having a second piece of foam to lay on top, or glued to the bottom of the next tray, they will be held securely. By not using the original plastic boxes, the cars are easily picked up and placed on the layout, and just as easily and quickly put away at the end of an operating session. The depth of the stacking trays will depend on the thickness of the foam that you use. Putting a 1/16” to 1/8” squeeze on the cars will hold them very well, but cause no damage.

This data sheet describes a method of building these stacking trays with the aid of a table saw. Adjust the depth (dimension “A”) to suit the foam that you use. For 1/4” foam, “A” = 3/4”; for 3/8” foam, “A” = 1”; for 1/2” foam, “A” = 1-1/4”. If you prefer to keep your cars in their original plastic boxes, then dimension “A” and the overall size of the trays will need to be tailored to the size of your plastic boxes. For Kadee boxes, without their lids, the “A” dimension would be 7/8” with 1/4” foam on just the top.

To begin, you must decide what size you wish to make your trays. The typical 50’ box car (including couplers) is 4-1/2” long (40’ is 3-3/8”) by 1-1/8” high by 13/16” thick. The inside dimension of a tray is 1-1/2” less than the outside dimension. The decision is up to you. A workable size is a 10” by 20” (outside) box which will hold 24 cars (50’) per section with ease. With regular Kadee boxes, a 10-3/8” by 21” size will hold 24 boxes.

Blade conventions used in this set of instructions are ‘far side’ - distance measured from the side of the rip fence nearest to the blade to the outside of the blade, and includes the thickness of the blade. The ‘near side’ convention is from the face of the blade to the closest side of the rip fence - it does not include any thickness for either the blade of the rip fence.

Fir or pine will work well for this project. Since the finished pieces are either about 11” or 21” long, with care you could use scraps of lumber or cheaper knotty pine and cut around the knots. Nominal 1” thick lumber stock is comes finished 3/4” thick, so the instructions give the 3/4” finish size.
Step 1a: Rip one piece of 3/4" stock - 1" high - 60" long - this is labeled ‘L’ (lid) pieces and is longer than the ‘P’ (developed perimeter) dimension.

Step 1b: Rip one piece of 3/4" stock - “A” +1/4" high - 60" long - this is labeled ‘B’ (bottom) pieces.

Step 1c: Rip three pieces of 3/4" stock - “A” + 7/8" high (1-5/8" for 1/4" foam) - 60” long - these are labeled ‘S’ (section) pieces.

Step 1d: Cut ‘L’, ‘S’ and ‘B’ pieces into ‘X’ and ‘Y’ lengths.

Step 2: These cuts (1 & 2), (3 & 4) & (5 & 6) are made so that you are sawing material to be removed. If the cut is not deep enough, all one has to do is run the piece through the saw again.

Step 2a: Set the blade 1/2” (far side) from the rip fence and 1/4” above the table. Make the saw cuts (1) on both top and bottom of all ‘S’ (section) pieces and ‘B’ (bottom) pieces. Remember that the cuts on the ‘S’ (section) pieces and ‘B’ (section) pieces are diagonally opposed.

Step 2b: Make saw cut (1) on both top and bottom of all ‘L’ (lid) pieces. Remember that the cuts on the ‘L’ (lid) pieces are on the same side.

Step 2c: Raise the saw blade to 1/2” above the table. Change the distance to 1/4” (far side) from the rip fence. Make saw cuts (2) on all pieces 90˚ to the cuts in step 2a and 2b. At this point you should have one male groove and one female groove on each ‘B’ and ‘S’ piece and two female grooves on the ‘L’ pieces.

Step 3: Lay out the pieces on the work bench with the outside facing toward you and the top facing away from you. Mark the outside of each piece with the appropriate ‘L’, ‘S’, or ‘B’. Mark with a line under each letter to indicate the bottom of the piece. From this point on, you will always need to know where the outside face/bottom edge of each piece is located.

Step 4: Set the blade 3/8” above the saw table and 7/8” (far side) from the rip fence. Make cuts (3) on all ‘S’ pieces only. Check the width of the slot for 0.13”. If the slot is not wide enough, move the rip fence in to 3/4” (near side) and make another cut (4). Make sure the bottom is snug against the rip fence.

Step 5: The corner joint requires that 1/2” of material be removed from the end of the ‘Y’ part. Adjust the saw blade (far side) by 3/4” from the rip fence and 1/2” up from the table. Make cuts (5) in all the ‘Y’ parts only. Change the rip fence to 1/2” (near side) and 3/4” above the table. Holding the pieces vertically, make cut (6) in the end.

Step 6: Cut the 1/8” section panels ‘X’ - 7/8” by ‘Y’ - 7/8” (9-1/8” by 19-1/8”).

Step 7: Cut the Lid and Bottom from 1/4” plywood to be ‘X’ - 1/2” by ‘Y’ - 1/2” (9-1/2” by 19-1/2”)

Step 8: Assemble each corner with wood glue and nail them together to hold alignment. Make sure that the section panels on ‘S’ pieces are in their slots before gluing and nailing. The ‘S’ section panels are cut undersize and float in the slot. Check for squareness (90° plus or minus 0.00000) for each and all assemblies. Assemble ‘L’ and ‘B’ pieces, also.

Step 9: Sand and Paint

Step 10: Cut and fit foam as bottom support pad and top holding pad in each section. Secure foam with spots of contact cement, rubber cement, or spray adhesive.

Step 11: Lay out for hardware and punch for starting. Paint all pieces before completing hardware installation. Install foam in top and bottom of all ‘S’ section, the bottom of the ‘L’ lid and top of the ‘B’ bottom.

Step 12: Connecting the various sections can be done with 2” swivel hooks and eyes, 2” hooks and screws, snap catches (Brainerd Mfg. - 9868), or a good strong strap. A strap and tensioner (Band Clamp by Pony #2115) for gluing furniture and picture frames makes a good strap.

Step 13: (Lucky Step) Load with rolling stock, go to Train Meet and have fun.
For 1/4" foam “A” = 3/4"

For 1/2" foam “A” = 1-1/4

For 3/8" foam “A” = 1"

For MicroTrains® boxes & 1/4" foam on top only, “A” = 7/8"