

# Project #10928EZ: Full Length Curio Cabinet

*Since the design of this cabinet is neither traditional nor contemporary, falling somewhere in between, it should fit in well with most any room setting or style. Our cabinet is crafted of walnut, but oak, cherry, or mahogany will also look good. Use hardwood plywood parts that match the hardwood you select.*



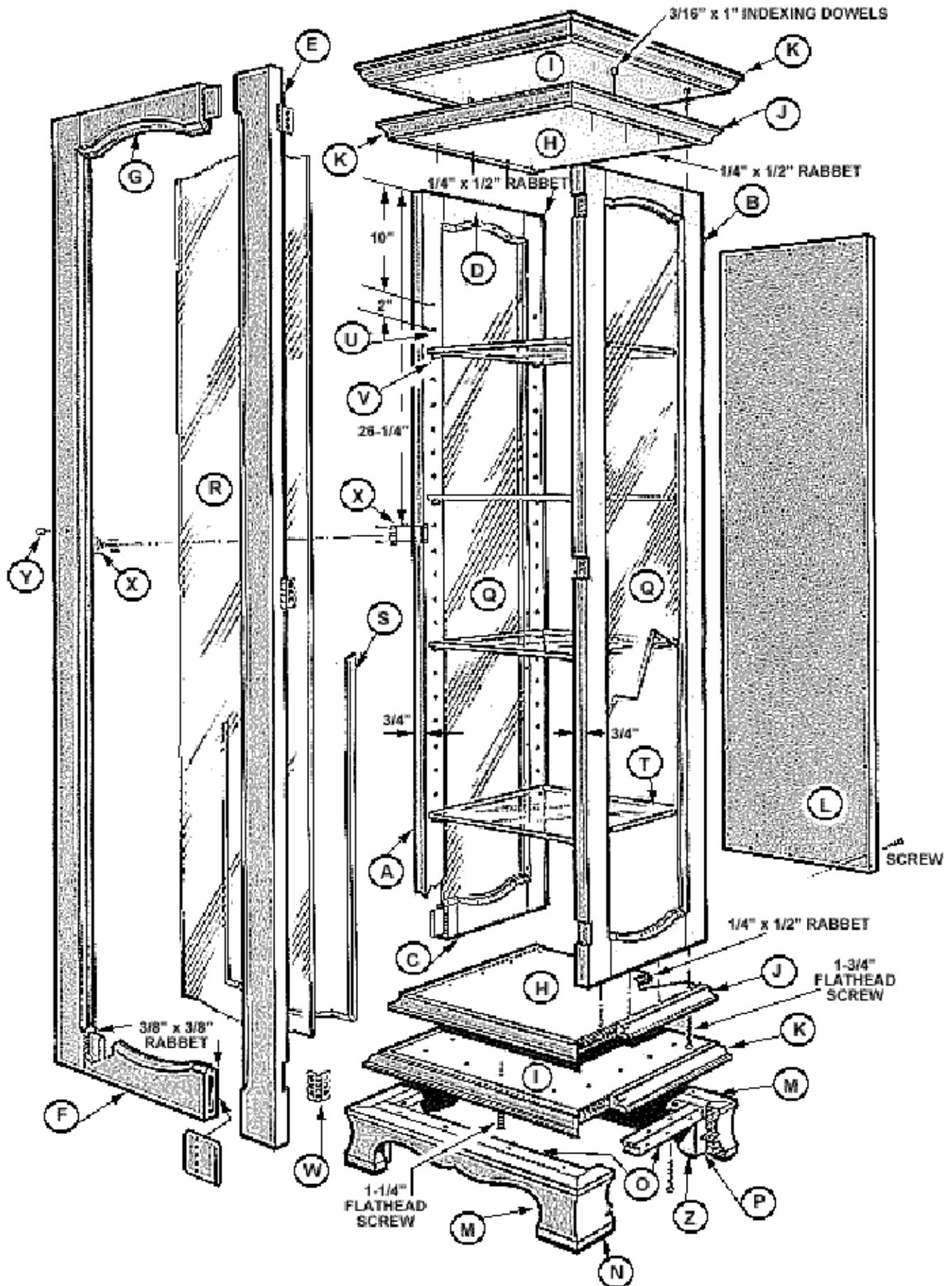
## Curio Cabinet Materials List

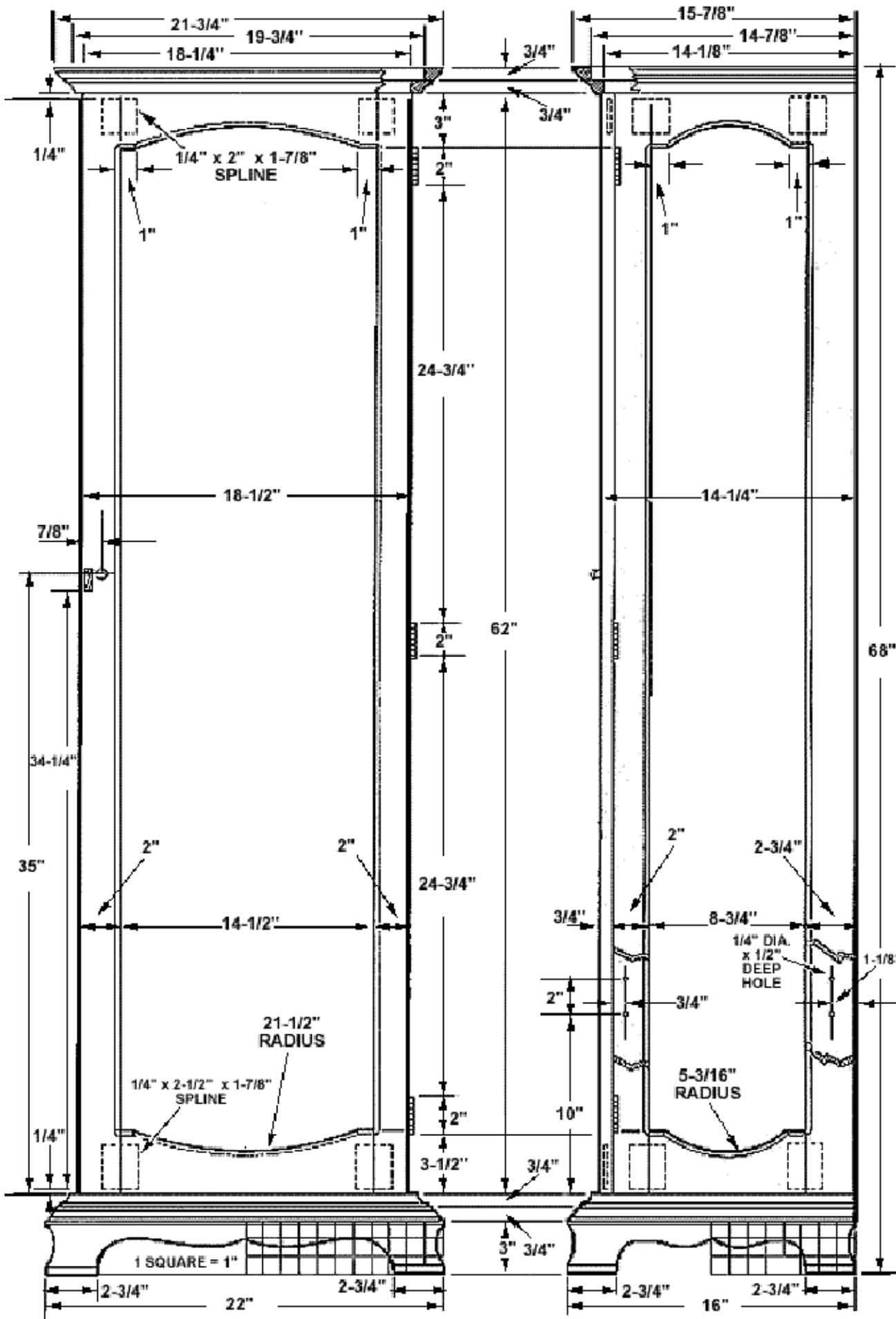
Part	Description	Size	No. Req'd.
A	Front Stile	3/4" x 2" x 62"	2
B	Rear Stile	3/4" x 2-3/4" x 62"	2
C	Lower Rail	3/4" x 3-1/2" x 8-3/4"	2
D	Upper Rail	3/4" x 3" x 62"	2
E	Door Stile	3/4" x 2" x 62"	2
F	Lower Door Rail	3/4" x 3-1/2" x 14-1/2"	1
G	Upper Door Rail	3/4" x 3" x 14-1/2"	1
H	Inner Top/Bottom	3/4" x 14-1/8" x 18-1/4"	2
I	Top/Bottom*	3/4" x 14-7/8" x 19-3/4"	2
J	Cove Edging**	3/4" x 1" stock	102"
K	Bead Edging**	3/4" x 1" stock	108"
L	Back	1/4" x 18" x 63"	1
M	Base Front/Back	3/4" x 3" x 22"	2
N	Base Side	3/4" x 3" x 16"	2
O	Cleat	3/4" x 3/4" stock	72"
P	Corner Block	1" x 1" x 2"	4
Q	Side Glass	size to fit	2
R	Door Glass	size to fit	1
S	Keeper Strip	1/4" round	35'
T	Shelf Glass	13" x 17"	as req'd.
U	Shelf Pin Sleeve	1/4" brass tube x 1/2" long	4'
V	Shelf Pin	3/16" brass rod x 1" long	as req'd.
W	Hinge	1-1/2" x 2" brass	3
X	Double Ball Catch	brass	1"
Y	Knob	5/8" dia. brass	
Z	Leveler		4

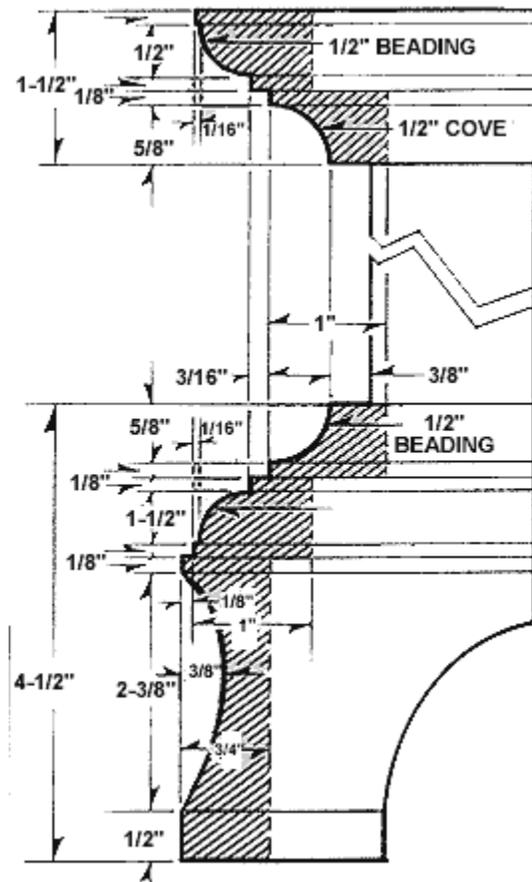
\* Bottom can be plain 3/4" plywood.

\*\* These edgings are plain 3/4" x 1" stock. The molded details are not cut until after the edging has been applied.

# Curio Cabinet Complete Schematic







## Curio Cabinet Instructions

### Step 1: Mill All Hardwood Parts

1. Mill sufficient stock for hardwood parts C and D, parts F through I, and parts M through O. **NOTE: All hardwood parts are 3/4" thick.**
2. Mill the edging (parts J and K). **NOTE: Because some plywoods are measured in millimeters, the edging must be milled equal to the actual thickness of the plywood.**
3. Joint and surface all stock.
4. Select the most clear, most straight grain for the stiles (parts A, B, and E), since it's important that these parts remain stable and do not bow, twist, cup, or warp.
5. Mill the stock you selected in sub-step 4 to create the stiles (parts A, B, and E).

### Step 2: Rip Stock for All Parts

1. Rip stock for all parts to final width **plus 1/32"**.
2. Use the jointer to take a single 1/32" pass to clean up the sawn edge on each part to bring to final width. **NOTE: With each piece, you must have one jointed edge to work off of.**

### Step 3: Cut Parts to Length

1. Use stops to cut similar length pieces, such as the side and door rails (parts C, D, F, and G), to maintain squareness when the side and door frames are glued up.
2. Cut the rest of the parts, **with the exception of mitered parts**, to length (leave the mitered parts long since you will be cutting them to final length when you cut the miters).

#### Step 4: Cut All the Spline Mortises

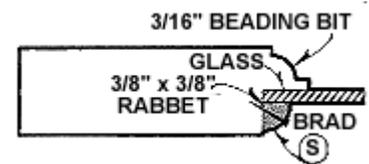
**NOTE: Spline construction provides maximum strength while simplifying assembly; however, you can also substitute with mortise and tenon construction if you prefer— simply add the tenon length to both ends of the various rails.**

#### Step 5: Cut Out the Rail Profiles

1. **NOTE** that the side rails have a 5-3/16" radius, while the door rails have a 21-1/2" radius.
2. Center the radii on the rails.
3. Start 1" from either end of the rails and use trammel points on a stick to scribe the radii.
4. Cut out the rail profiles.

#### Step 6: Assemble and Glue Up the Side and Door Frames

1. Leave the mortises on the side and door frames rounded on the ends.
2. Round the splines on the side and door frames to match the mortises. As shown in the front elevation view of the curio cabinet, both the upper and lower splines are 1-7/8" long, allowing about 1/16" on either end given the 2" deep mortises. **NOTE: Always size the spline length slightly less than the combined depth of the two mortises to avoid bottoming and hydraulic back pressure from the glue, which might prevent the pieces being joined from butting up tight.**
3. Drill out the mortises.
4. Assemble and glue up the side and door frames.
5. Allow the side and door frame assembly to dry.



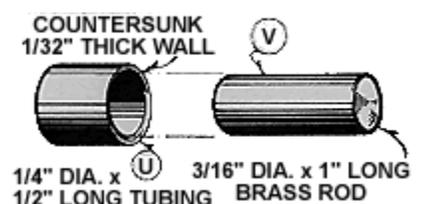
**Figure 1. Routing the Beaded Detail of the Door Frames**

#### Step 7: Rout, Chisel, and Rabbet the Side and Door Frame Assembly

1. Designate right and left hand and top and bottom for the side frame assemblies.
2. Use a 3/16" bearing-guided beading bit to rout the beaded detail all around the inner perimeter of both the side and door frames (see **Figure 1**).
3. Apply the 3/8" x 3/8" rabbet on the inside face of the door and side frames to accommodate the glass and keeper strip.
4. Chisel the corners square where the router bit doesn't reach.
5. Rabbet the back inside edges of both side frame assemblies to accept the plywood back panel.

#### Step 8: Add the Brass Shelf Pins

1. Lay out and drill the holes for the brass shelf pin sleeves (U) (see **Figure 2**).
2. Cut the 1/4" brass tube for the pin sleeves, adding 17/32" to each 1/2" length.
3. Epoxy the pin sleeves in place.
4. Sand the brass pin sleeves flush with the wood.



**Figure 2. Drilling the Brass Shelf Pin Sleeves**

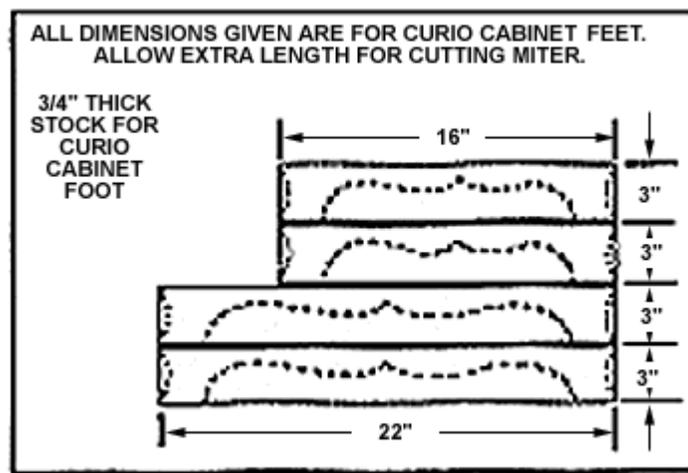
5. Use a countersink to apply the chamfer to the inside diameter of these sleeves.
6. Cut the brass shelf pins (V) to length from the 3/16" dia. brass rod.
7. Test the pins to see if they fit in the sleeves.
8. Sand slightly any pins that are too tight a fit to reduce their diameter.

### Step 9: Make the Top, Inner Top, Inner Bottom, and Bottom

1. Cut the inner top, top, bottom, and inner bottom hardwood plywood parts (H and I) to length and width.
2. Rip about 18' of 3/4" by 1" edging.
3. Use waxed clamps to flush the 3/4" by 1" edging (parts J and K) to the inner top, top, bottom, and inner bottom (parts H and I) hardwood plywood parts, letting the back ends of the side edgings overhang.
4. Miter the corners of the edging applied in sub-step 3.
5. Apply the various routed profile details as illustrated. **NOTE: The inner top, the top, and the inner bottom and the bottom profiles are perfect mirror images.**
6. Trim flush the back ends of the side edgings.

### Step 10: Make the Continuous Bracket Foot Base

1. Refer to **Figure 3** for a recap of the dimensions of M (Base Front/Back) and N (Base Sides). You should have already cut these parts in main Steps 1 and 2.



**Figure 3. Base Dimensions**

2. Miter each of the ends of parts M (Base Front/Back) and N (Base Sides) at 45 degrees (see **Figure 4**) to the correct length.
3. Lay out the bracket foot profile on the base front and sides (see **Figure 5**). **NOTE: There is no need to lay out or band saw the profile on the base back, since it will not be visible.**
4. Band saw, just outside of the pattern line as shown in **Figure 6**, the inner bracket foot profile on the base front and sides.
5. Use various size drum sanders in the drill press to smooth the profiles you just cut on the base front and sides (see **Figure 7**).

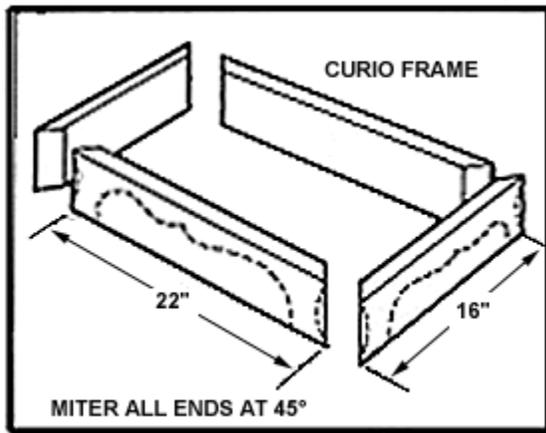


Figure 4. Mitering Parts M and N

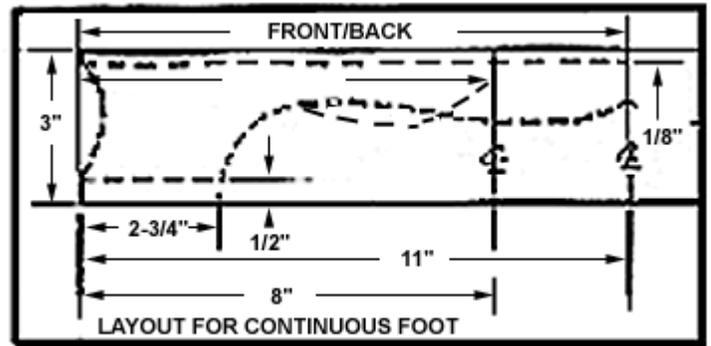


Figure 5. Bracket Foot Profile Layout

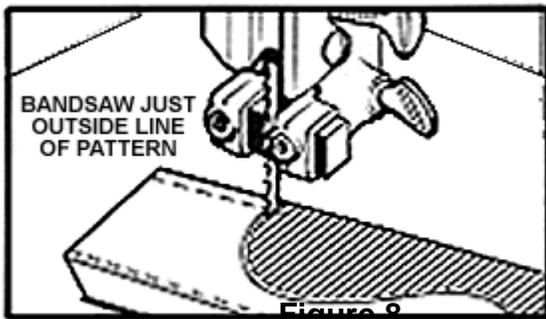


Figure 8.

Figure 6. Bandsawing the Bracket Foot Profile

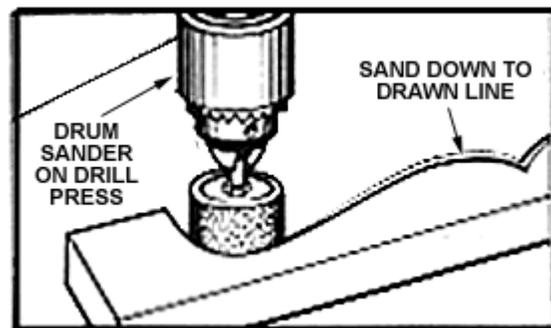


Figure 7. Smoothing the Bracket Foot Profiles with Drum Sanders

6. Use corner blocks and a band clamp to glue up the four pieces into a square frame (see **Figure 8**).
7. Add cleats as shown in **Figure 9**, gluing and screwing them in place. The cleats will be held flush with the top edge of the frame.

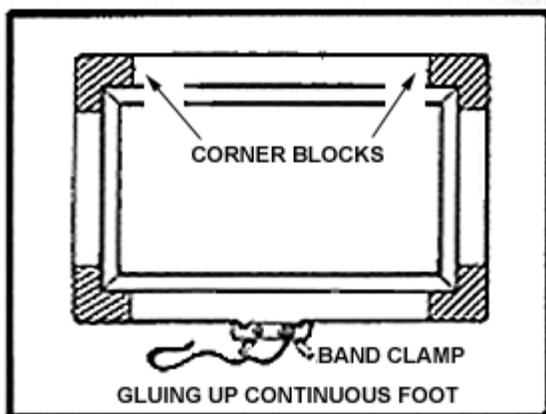


Figure 8. Clamping and Gluing the Bracket Foot Pieces in Square Frame

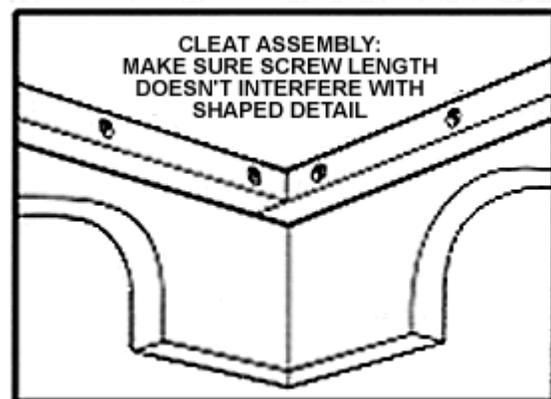
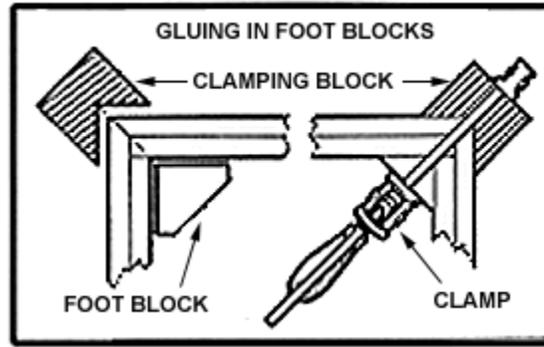


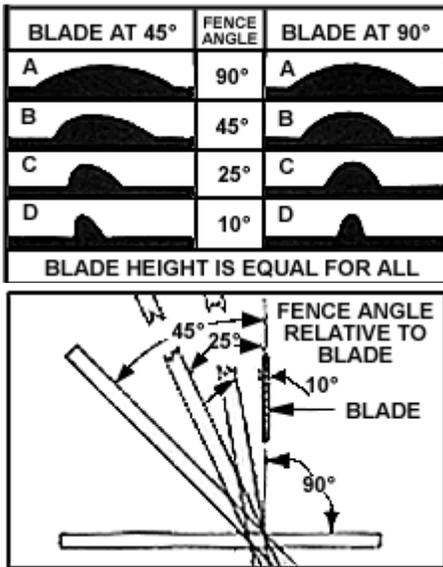
Figure 9. Bracket Foot Cleat Assembly

8. Add corner blocks by tucking them in flush under the cleats (see **Figure 10**).

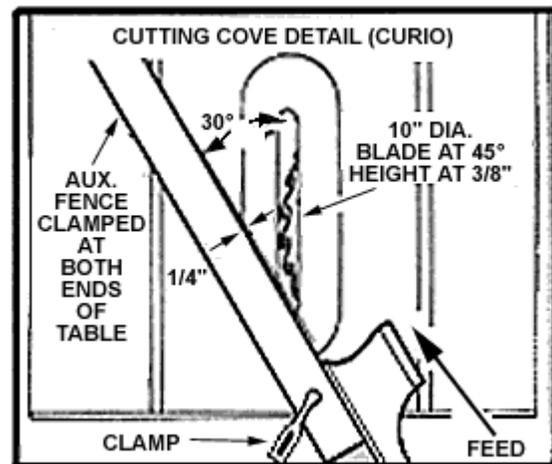


**Figure 10. Adding the Corner Blocks**

9. Refer to **Figure 11** to choose the table saw blade angle and the table saw fence angle required for cutting the coves as detailed in **Figure 12**.



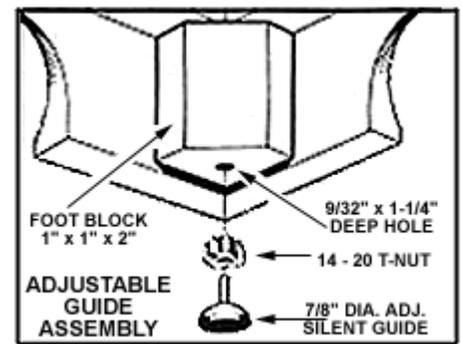
**Figure 11. Various Table Saw Blade and Fence Angles for Cove Cutting**



**Figure 11. Various Table Saw Blade and Fence Angles for Cove Cutting**

- Equip the table saw with a carbide rip blade for cutting the coves. **NOTE: You MUST cut the cove with a carbide rip blade; an 18-tooth one is most effective for quick removal of a maximum amount of stock.**
- Set the blade height to 3/8". **NOTE: The blade height will be the same for all coves in this project.**
- Select pieces of scrap stock to experiment with creating the cove profiles you chose in sub-step 9.
- NOTE** that the number of passes needed depends on the fence setting and the desired cove depth.
- Remove a little stock (1/16") from the experimental scrap with each pass and then increase the blade height. **NOTE: DO NOT attempt to remove all the stock out in a single pass.**

15. Make a final light pass to clean up the cut. This final pass, when applied to the actual project stock, will ready it nicely for sanding.
16. Repeat sub-steps 13 through 15 on the actual stock when you are satisfied with your experimenting. **NOTE: The coves MUST also be cut across the back, or the mitered corners will show end grain where the coves are supposed to be.**
17. Obtain T-nuts and glides (see **Figure 13**) from a hardware store.
18. Drill for and add the adjustable glides, as shown in **Figure 13**.



**Figure 13. T-nut and Glide Drilling Detail**

### **Step 11: Sand and Finish All Parts**

1. Final sand all parts and subassemblies (the top, bottom, inner top, inner bottom, side frames, door frame and base).
2. Apply two coats of aerosol spray Deft clear lacquer to final finish the top, bottom, inner top, inner bottom, side frames, and base. **NOTE: The back (L), which has not yet been cut, and the door frame are not finished until after they have been final sized and fit.**
3. Rub out the lacquered parts with 0000 steel wool.
4. Buff the parts with a soft cloth to bring up the shine.

### **Step 12: Assemble the Case**

1. Screw the inner top and bottom to the side frames. **NOTE: Be sure to allow the 8" lip at the sides, and keep the back edges flush.**
2. Add the top and bottom.
3. Use indexing dowels to glue the top into place and to prevent slippage as clamp pressure is applied.
4. Screw the bottom in place.
5. Screw the base assembly through the cleats in position on the bottom.
6. Cut the 1/4" x 1/2" rabbet into the back edge of the inner top and bottom to accept the plywood back.
7. Square the corners of the rabbets you just cut with a chisel, **OR** leave them as a radius and round the corners of the plywood back to match.

### **Step 13: Add the Back and Door**

1. Cut and size the plywood back, being sure that it is perfectly parallel and square. It is the back that, when applied, will ultimately determine how square the cabinet is.
2. Temporarily install the walnut plywood back with four screws.
3. Final size the door, allowing 1/16" on top and bottom to permit a clear, free swing.

4. Clamp a board as a straightedge across the top and bottom edges of the door, then use the router with a bearing-guided trimming bit to trim the 1/16" off each end.
5. Lay out and mortise for the hinges (W).
6. Install the hinges temporarily and locate for the double ball catch (X) and mortise for it as required.
7. Locate and drill for the pull knob (Y).
8. Remove the back and door and finish them as you finished the other assemblies in main Step 12.
9. Obtain quarter-round flexible rubber keeper strips with small brass brads for installing the door and side glass.
10. Use a utility knife to miter the keeper strip ends for a professional look.
11. Start the brads with a pair of needle-nosed pliers.
12. Use a large nail set with a cupped end to set the brads. The cupped end will prevent the nail set from slipping off the brads.
13. Reinstall the back and mount the door and all hardware.
14. Obtain the door glass, side glass, and 1/4" shelf glass from a glass shop.
15. Trace out paper templates of the door and side glass to make sure it fits the frames.
16. Install the door and side glass (Q, R).

#### **Step 14: Level**

1. Obtain the levelers (Z) from any hardware store.
2. Use the levelers (Z) to level the cabinet. A firm four-point stance is important, especially when the cabinet is filled.

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