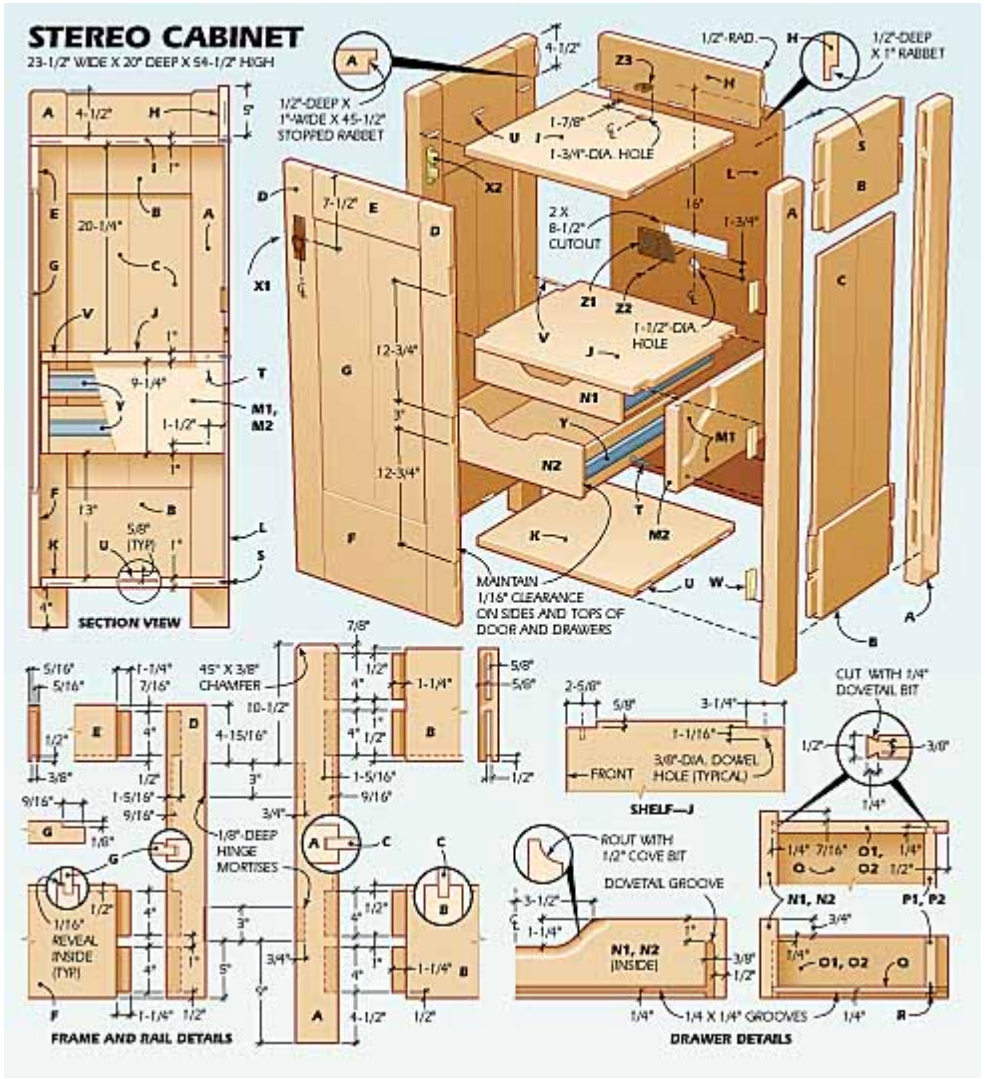
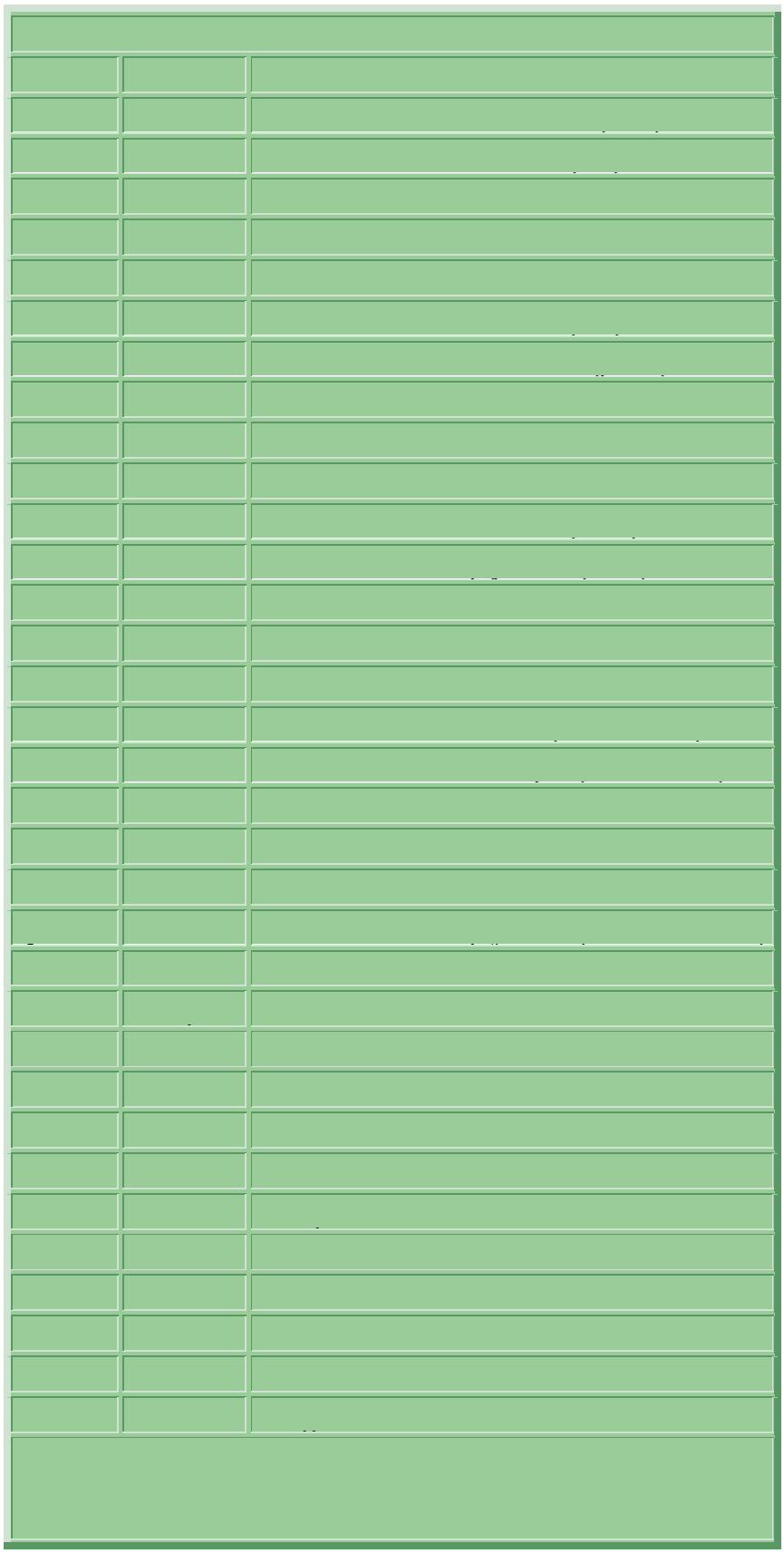
Stereo Cabinet

Furniture for your stereo.

This cabinet stores modern stereo components neatly out of sight. With the door shut, it looks like a traditional Arts & Crafts hutch.

This Arts & Crafts style cabinet is a perfect home for a basic stereo system. It easily accommodates a receiver, CD and tape players. And although high-technology audio components are the preferred means for many people to play music today, we kept in mind that many others are loathe to give up their vinyl collections. For that reason we have provided space for a turntable on top and a shelf for a modest LP collection as well. There are also two drawers, one for tapes and one for CDs. In keeping with traditional Arts & Crafts pieces, we used quarter-sawn white oak for the cabinet.


STEREO CABINET
23-1/2" WIDE X 20" DEEP X 54-1/2" HIGH
SECTION VIEW
FRAME AND RAIL DETAILS
SHELF—J
DRAWER DETAILS
MAINTAIN 1/16" CLEARANCE ON SIDES AND TOPS OF DOOR AND DRAWERS
1/2"-DEEP X 1"-WIDE X 45-1/2" STOPPED RABBET
1/2"-RAD.
1/2"-DEEP X 1" RABBET
1-3/4"-DIA. HOLE
2 X 8-1/2" CUTOUT
1-1/2"-DIA. HOLE
1/8"-DEEP HINGE MORTISES
1/16" REVEAL INSIDE (TYP.)
45° X 3/8" CHAMFER
3/8"-DIA. DOWEL HOLE (TYPICAL)
FRONT
ROUT WITH 1/2" COVE BIT
DOVETAIL GROOVE
1/4 X 1/4" GROOVES
CUT WITH 1/4" DOVETAIL BIT



Note: All plywood to be veneer- or MDF-core with oak face veneers.

Building The Case

Rip and crosscut stock for the case rails and shelves, but leave each workpiece a bit oversize, so you can trim the glued-together panels to finished dimension after the glue has set. Joint the edge of each workpiece straight and square, and lay out the joining-plate slots spaced approximately 6 in. on center. Hold the plate joiner and the workpiece tightly to the surface of the workbench, and cut the slots **(Photo 1).**

Cut joining-plate slots in the boards' edges. The plates keep the boards aligned while they are being glued and clamped.

Spread glue in the slots, along the edges of the workpieces and on the joining plates **(Photo 2).** Position the plates and assemble a panel. Clamp the panel to pull the joints tight, then check that the panel is flat. Next, glue up the 1/2-in.-thick stock for the side and door panels. It's not a good idea to use joining plates to align the joints on these thinner panels because the plate joint may be visible after the panel is finished.

To ensure a properly bonded joint, apply glue to the joining-plate slots, the board edges and the joining plates.

Prepare the rest of the stock for the case parts. Rip, crosscut and joint all parts to finished dimension, including the previously glued-up panels. Label each part to indicate the face side and orientation in the case. Lay out the mortises in the case side stiles by clamping the stiles together, then mark across their edges **(Photo 3).**

Lay out the mortises in the case stiles by clamping the workpieces together, and mark across them using a square.

Use a plunge router with a 1/2-in.-dia. up-cutting bit and an edge guide to cut the mortises **(Photo 4).** Clamp two stiles together before routing to provide a stable surface for the router, and cut the mortise in two or three passes.

Clamp two stiles together to form a base for a plunge router, and cut the stile mortises using a spiral up-cutting bit.

While you have the router out, readjust its depth of cut, and cut the panel grooves in the stile edges. Readjust the router again to cut the panel grooves in the side rails, and then chop the ends of the mortises square using a chisel **(Photo 5).**

With a stile held securely to the bench, use a chisel and mallet to cut the rounded ends of each mortise square.

Install dado blades in the table saw and cut the tenons on the side rails. Since the rails are quite wide, the tenons are divided into two separate pieces. Begin by cutting one wide tenon on each end of the rails **(Photo 6).** Cut the tenons slightly oversize, and then pare them smooth with a razor-sharp chisel. Divide each tenon into two sections by making a rectangular cutout in the center using a handsaw and chisel.

With a clamp on the miter gauge serving as a workpiece stop, cut the side rail tenons with dado blades in the table saw.

Next, set the table saw blade to cut a 45-degree bevel, and cut the chamfered ends on the side stiles **(Photo 7).** Use the miter gauge to guide the work. Test fit the joints for each case side and make adjustments as necessary. Sand the side panels with 120-, 150-, 180- and 220-grit sandpaper before assembly.

Set the table saw blade to 45 degrees, place a stile against the miter gauge, and cut the chamfer on each edge of the stile.

To assemble a cabinet side, spread glue in the stile mortises and on the rail tenons, then join the rails to one stile. Slide the panel into position **(Photo 8)**, but be sure not to get any glue on the panel's edge or its groove. Now you can place the second stile in position and clamp the assembly.

Assemble the case sides by applying glue only to the mortises and tenons, not in the panel groove or on the panel edge.

Cut the rounded top corners on the back rail using a sabre saw. Mark the locations of the joining-plate slots in the rail and top shelf, and then cut the slots. Dry assemble the two pieces **(Photo 9).** Next, spread glue in the slots, on the plates and on the edge of the glue joint, and clamp the two parts together.

After you have cut the joining-plate slots in the top shelf and back rail, test fit the pieces, then glue and clamp them together.

Cut out the notches in the middle shelf, mark the position of the shelf dowel holes, and then use a doweling jig to bore the holes **(Photo 10).** When you've completed this, bore matching holes in the case side stiles. Finish laying out the joining-plate slots in the bottom shelf and case sides, then cut the slots. Clamp a straightedge to the sides to position the plate joiner.

Make the center case shelf, cut the notches in its ends, and bore the holes in the notches using a doweling jig.

Next, use the router and edge guide to cut the rabbet along the back edge of the top rail/shelf assembly **(Photo 11)** and along the back edges of the case sides. Use a chisel to square the rabbet ends. Mark the hinge mortise outlines on the case, and cut the outline using a chisel and a marking gauge. Pare the mortise to depth with a chisel. If you plan to set a turntable on the top shelf of the case, you should bore a hole through the shelf for a wire grommet. (See the materials list for grommet information.) The grommet we used requires a 1 3/4-in.-dia. hole.

Using the router with an edge guide, make two or three passes, and cut the rabbet on the top rail/shelf assembly.

To assemble the case, spread glue in the plate slots, dowel holes and on the dowels and plates, then join the shelves to one of the case sides **(Photo 12).** Take care not to get any glue on the portion of the middle shelf that abuts the side panels. The panels must be free to expand and contract seasonally, and a glue bond will cause a panel to crack when this happens. With a helper, position the other side over the ends of the shelves, and then clamp the assembly. Compare opposite diagonal measurements on the case to check for square, then let the glue cure.

Apply glue to the slots, dowel holes, joining plates and dowels, then assemble the shelves to one case side.

Glue together two pieces of 3/4-in.-thick plywood to form the drawer blocking, then glue a solid oak strip to the block as a facing. Note that the grain on the facing should run horizontally to match the drawer faces. Screw the blocking to the case side **(Photo 13).**

The drawer blocking is made from two pieces of plywood with solid oak facing. Screw the blocking to the case side.

Cut a piece of 1/2-in.-thick oak plywood to size for the case back, then lay out the position of the vent-grille cutout. Drill clearance holes at the corners of the cutout, and use a sabre saw to remove the waste. Fasten the grille to the back with escutcheon pins, and remember to bore a 1 1/2-in.-dia. hole in the back for power cord access. Finally, screw the back to the case.

Making Drawers

Rip and crosscut the drawer parts. Install a dovetail bit in the router, and set the router to make a 1/4-in.-deep cut. Cut the dovetail dado in the drawer sides and the stopped dado in the drawer face **(Photo 14).**

Clamp each drawer front to the workbench, and then use a router and dovetail bit to cut the dovetail dadoes.

Clamp a tall fence to the router table, and clamp a backup block to each drawer side and back when you cut the dovetail on these parts **(Photo 15).** The backup block--rather than the workpiece--tears out when it exits the bit.

Next, use a router and edge guide to cut the drawer bottom grooves in the drawer sides and the stopped groove in the drawer face.

Cut the drawer side's dovetail in the router table. Clamp a backup block to the side, then move the side over the bit.

After marking the curved cutout on the drawer faces, make the cuts with a sabre saw. Use a router and cove bit to shape the edge of the cutout **(Photo 16).**

Next, apply glue to the mating parts of the drawer joints, and then slide the parts together--you should not need to clamp the assembly. Now rip and crosscut the plywood bottom panels and screw each bottom to the drawer back.

Install drawer slides in the case and drawer rails on the drawers, using screws only in the slides' positioning slots. Adjust the slides so the drawers move smoothly and the drawer faces have a 1/16-in.-wide margin on all edges. Install the remaining screws.

Cut out the profile on the top edge of each drawer front. Next, use the router to cut the cove along the edge.

The cabinet door is built in essentially the same way as the rest of the cabinet. Keep in mind, however, that the panel groove is only 3/8 in. wide, so you must cut a shallow rabbet around the inside edge of the panel. To do this, use a straight bit in the router table, and push the panel slowly over the bit **(Photo 17).** Cut the cross-grain rabbets first, then cut the rabbets along the grain. Any small amount of grain that is torn out while cutting across the grain will then be removed.

Like the drawers, the door is installed on the case with a 1/16-in.-wide space on all four sides. Transfer the locations of hinge mortises to the door edge, and then cut the mortises using the same techniques you used on the case. Mount the door pull and catch. The pull shown in the photo has been discontinued, however, a pull that looks similar to it is specified in the materials list.

Install a straight bit in the router table, and then slide the door panel over the bit to cut the rabbet on the inside panel edges.

For staining, remove the door, drawers, back and all hardware. Sand all parts as you did the side panels. We stained our cabinet with water-soluble aniline dye-based

This water-soluble stain is more resistant to sunlight fading than other aniline stains, but it will raise the grain--the water in the stain makes wood fibers on the surface stand up, giving the surface a fuzzy texture. To prevent this, wipe the wood surfaces with a lightly dampened sponge, and let all the pieces dry--this will raise the surface fibers. Next, gently sand off the raised fibers using 220-grit sandpaper, and then apply the stain.

To finish the cabinet, apply three coats of Waterlox Transparent according to the manufacturer's directions. When the last coat is dry, burnish the surface with 4/0 steel wool, and polish it with a soft cloth. Complete the project by reassembling all the pieces and installing the cabinet hardware.