



## Lighted display cabinet

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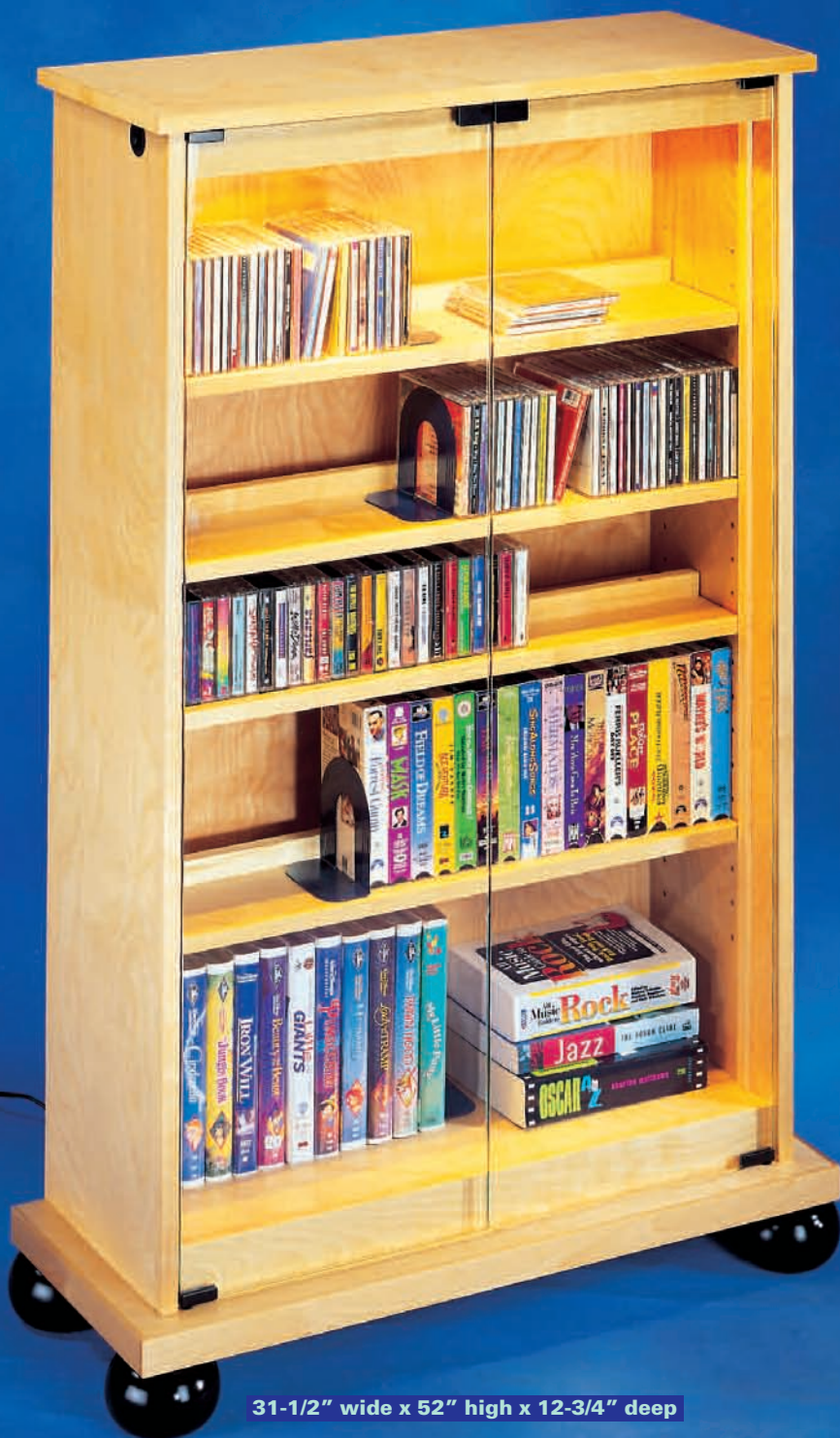
# Lighted display cabinet



Halogen lights and glass doors let your collection shine.

by **Bruce Kieffer**  
and **David Radtke**

Whether you're looking to store your CDs or show off your collectibles, here's a great-looking display cabinet you can build. The version with wood shelves is an entertainment library for CDs and videocassettes. With glass shelves, it's a curio cabinet (see next page). Either way, the halogen lights you install in the top of the cabinet do a beautiful job of highlighting your collection.



31-1/2" wide x 52" high x 12-3/4" deep



# Lighted display cabinet

Best of all, you won't have to run around looking for specialty hardware. We beat the pavement for you and put the specialty hardware and lights into a kit you can order by mail (see Shopping List below). The kit even includes the "bun" feet, so you don't have to worry about turning them on a wood lathe. The only things you need to get locally are the wood, glass and screws.

The glass door hardware doesn't require drilling into the glass. The hinges clamp to the glass with set screws, and they pivot in small holes drilled in the top and bottom of the cabinet. The doors are held shut with small

magnetic touch latches. The latch strike plates are friction-fit over the edges of the doors. To open or close a door, you just gently press in on the strike plate.

Have your local glass company cut your 1/4-in. thick glass doors (look in the Yellow Pages under "Glass") and glass shelves (for curio version only) and have them polish the glass edges smooth. Quarter-inch glass is tough, but if you have small children, you may want to use laminated safety glass or tempered glass. *Do not use plain single- or double-strength glass.* Make sure to tell them that the doors must

be exactly 14-1/16 in. x 46-5/8 in., and check the dimensions before you accept delivery.

Either version of the cabinet will take you about 24 hours to build. The curio version will cost about \$340 (more if you opt for safety glass), the entertainment library version, about \$240.

## BEFORE YOU START

Order the Display Cabinet Hardware Kit and buy the other materials you'll need (see the Shopping List).

Gather all the tools shown in the Tool List on p. 62, plus your standard carpentry tools. The Tool

List shows three special cutting tools: a 14mm brad point bit for drilling the holes for the touch latches, a 2-1/8 in. dia. hole saw for drilling the holes for the lights, and a 23/32-in. dia. router bit for cutting the dados for the 3/4-in. thick plywood. If you don't own these tools, you

To save you time, we've put all of the specialty hardware, lights and "bun" feet into a kit you can mail order for \$129.99, which includes shipping.



## Shopping List

| ITEM                                               | QTY.     |
|----------------------------------------------------|----------|
| 1x6 x 8' birch                                     | 2 pieces |
| 3/4" x 48" x 96" birch plywood                     | 1 sheet  |
| 1/4" x 29" x 44" birch plywood                     | 1 piece  |
| Display Cabinet Hardware Kit*                      | 1        |
| No. 10 x 2" pan head screws                        | 8        |
| No. 8 x 2-1/2" drywall screws                      | 6        |
| No. 6 x 1-1/4" drywall screws                      | 8        |
| No. 6 x 1-1/4" drywall screwst                     | 12       |
| 1/4" x 14-1/16" x 46-5/8" clear glass for doors    | 2        |
| 1/4" x 9-3/4" x 28-7/16" clear glass for shelves†† | 4        |
| Spray primer, 12-oz. can                           | 1        |
| Black spray enamel, 12-oz. can                     | 1        |
| Danish oil finish                                  | 1 quart  |

\*Available from The Woodworkers' Store, Dept. TFH, 4365 Willow Drive, Medina, MN 55340; (800) 279-4441. TFH Display Cabinet Hardware Kit, No. 10059, \$129.99. Kit includes two 20-watt halogen lights, 12-volt transformer, junction box for the lights, recessed on/off flip switch, two pairs of glass door pivot hinges, two door strike plates, two magnetic touch latches, 20 brass pin-style shelf supports and four 2-3/4" x 4-3/4" dia. bun feet. Kit price includes shipping cost.

†Add these for the entertainment library version.

††Add these for the curio version.

can order them from the same source and at the same time you order the Display Cabinet Hardware Kit (see the Shopping List).

Getting the cabinet parts to go together properly requires precise layout of the 23/32-in.

wide dado

grooves for the nominal 3/4-in. plywood. Closely follow the dimensions given in **Fig. B** on p. 60. Your layouts must match those dimensions exactly. To ensure that you don't make any mistakes, double-check all of your layouts, and test your router setups on scrap wood before making your final cuts. All right, let's build it. Here's how it's done.

## STEP-BY-STEP INSTRUCTIONS

**1.** Cut all the pieces A through P to the dimensions given in the Cutting List on p. 62. Cut the 1/4-in. thick bottom edging (K) from the edge of a 3/4-in. thick piece (**Photo 1**).

**2.** Glue and clamp together the two bottom pieces (A). After the glue is dry, cut the bottom to 13-1/4 in. x 32-1/2 in. long.

**3.** Glue and clamp the side edging pieces (H) to the sides (C), as shown in **Photo 2**. Also glue and clamp the top rail (F) to the inside top (D), and the bottom rail (F) to the bottom shelf (D).

**4.** Glue the shelf edging pieces (N) to the front edges of the shelves (E). Hold them in place with masking tape as the glue dries (**Photo 3**). Once the glue is dry, remove the masking tape and trim off the overhanging ends.

**5.** Cut the bottom edging piece (K) into three pieces (slightly longer than needed to cover the edges of the bottom). Glue and clamp (with

To make the best use of the overhead

halogen lighting in the entertainment library version,

the wood shelves

stop a good 2 in.

short of the front of

the cabinet. The light reaches every corner,

so all of your titles

are easy to find.

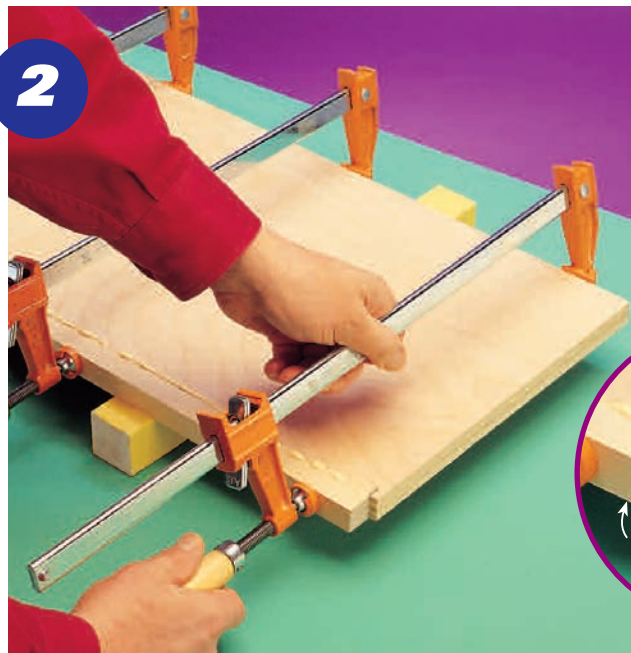
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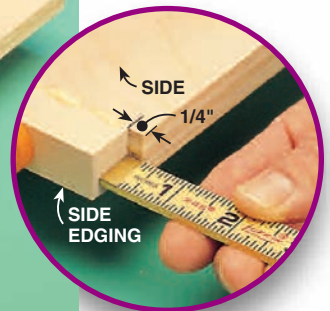
**WARNING: GUARD REMOVED FOR PHOTO—USE YOURS!**

**CUT** the 1/4-in. thick bottom edging piece off a solid 3/4-in. thick piece. If your saw has a small motor, set the blade to cut halfway through, and make two cuts.

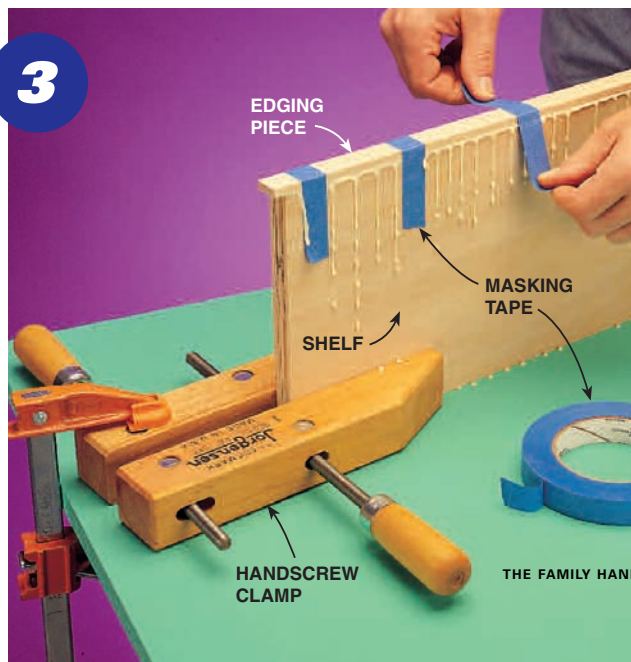
2



**GLUE** and clamp the side edging pieces to the sides. Align the edging so it's 1/4 in. in on both ends, and so it slightly overhangs both plywood faces.

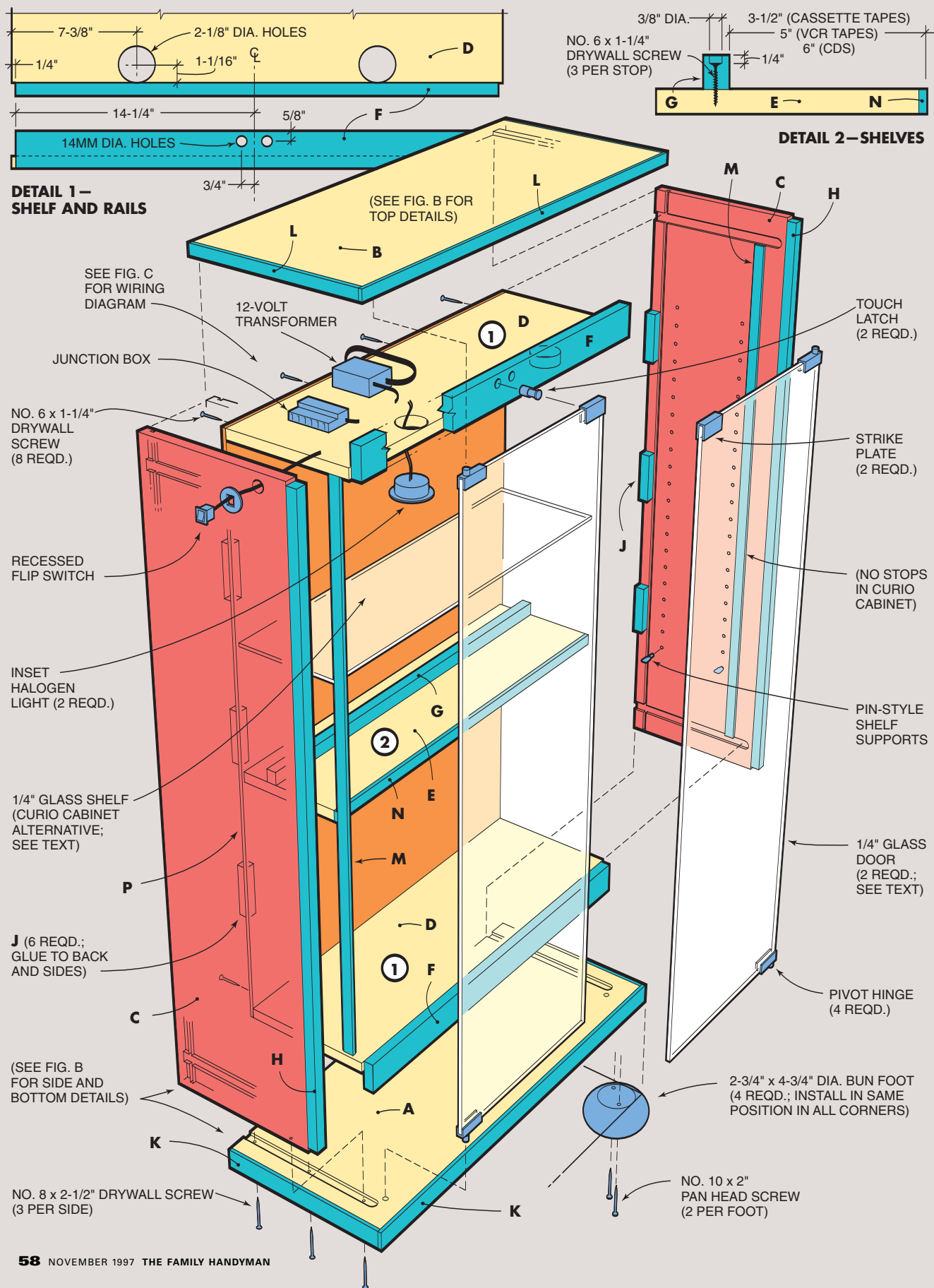


3



**USE** masking tape to hold the 1/4-in. thick edging pieces while the glue dries. Start at one end and work to the other end, placing the tape at 3-in. intervals.

**Fig. A Display Cabinet Details**





masking tape) the bottom side edging pieces to the bottom. Trim off the overhanging ends, then attach the front edging piece, and trim its ends. Do the same for the top (B and L).

**6.** Use a belt sander with a 120-grit sanding belt to sand the edging pieces and rails flush with the plywood pieces. **TIP:** To avoid sanding through the plywood veneer, draw a zigzag pencil line over the joints, and sand just until the line disappears.

**7.** Lay out and drill the holes for the halogen light fixtures (**Photo 4**), the touch latches (**Fig. A, Detail 1**) and the shelf support pins in the sides. Then drill the 7/8-in. dia. hole in the left side for the recessed flip switch, and the holes for the glass door pivot hinges in the top and bottom (**Fig. B**). **TIP:** For more accurate drilling, use a scratch awl to punch a point in the wood to center the drill bit.

**8.** Lay out and rout the dadoes in the sides, top and bottom (**Photo 5** and **Fig. B**).

**9.** Cut the dado grooves in the sides for the back (**Photo 6** and **Fig. B**).

**10.** Lay out, countersink and drill the screw holes in the bottom (A), back (P), and shelf depth stops (G).

**11.** Finish-sand all the parts using an orbital sander. Start with 150-grit sandpaper, then use 180-grit. Do the bun feet too. Then ease all the exposed sharp edges with 150-grit sandpaper.

**12.** Glue and clamp the sides to the inside top and bottom shelf (D), as shown in **Photo 7**.

**13.** Glue and clamp the top (B) to the sides (**Photo 8**).

**14.** Slide the back in place, insert the screws at the top and bottom, and glue

To get tight-fitting dadoes in the cabinet sides and bottom, use a 23/32-in. dia. router bit. This bit is designed for use with 3/4-in. plywood, which is slightly thinner than 3/4 in.

4



**DRILL** the holes for the halogen lights using a 2-1/8 in. hole saw. The lights are pressure-fit in the holes. Don't insert them until the finishing is

5



**ROUT** the dado grooves using a 23/32-in. dia. router bit (see the Tool List) and an edge guide. This bit cuts perfect-width dadoes for 3/4-in. thick plywood.

6



**CUT** the back dado grooves by making two saw cuts. Make the first cut at 1 in. to the outside of the blade. Make the second cut so the back fits in the groove.

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**GLUE** and clamp the sides to the inside top and bottom shelf. Place scraps of 1/4-in. plywood in the back dadoes to align the back edges of the top and bottom.



**GLUE** and clamp the top to the sides. If you don't have long pipe clamps, then use a clamping setup like this to distribute the pressure over the joint.

the back cleats (J) in place. Then glue and screw the bottom (A) to the sides. If you're making the entertainment library version, glue the shelf stops (M) to the sides. Use the shelves as guides to align the shelf stops.

**15.** Apply three coats of Danish oil to

all the wood surfaces except the bun feet. Apply light coats of spray primer to the bun feet until the wood stops absorbing the primer. Then lightly sand the primer and apply a few coats of black spray enamel.

**16.** When the finish is dry, align and

screw the bun feet to the bottom corners of the cabinet.

**17.** Align and insert the halogen lights (Photo 4 inset) and the flip switch. The lights and switch are pressure-fit in their holes. Once the lights are in, they're in for good. Next, hammer in the touch latch sleeves into their holes, and then thread the latches into the sleeves.

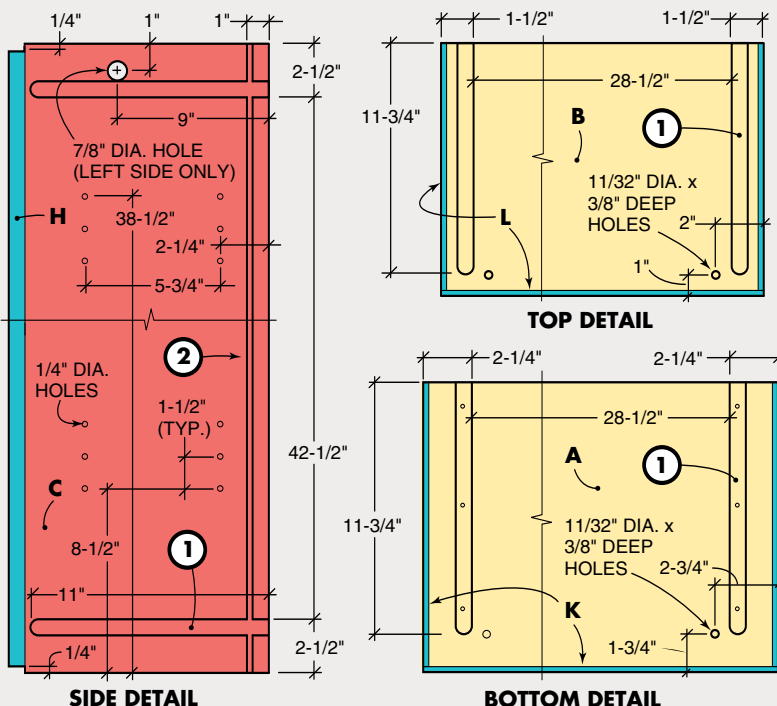
**18.** Attach the small plastic wire connectors, and make the wire connections by following the directions included with the switch, lights and our Fig. C on p. 62.

**NOTE:** Take a close look at the small metal pins on the ends of the wires before you insert them into the small plastic wire connectors. Some are male, others female. Male pins go into female pins. It's easy to get them mixed up, so figure out all the connections before you insert the metal pins in plastic connectors.

**19.** Clean the glass doors, and the glass shelves if you made the curio version.

If you're building the entertainment library version, glue the wood stops (M) to the sides. The stops keep the shelves secure to the back of the cabinet.

**Fig. B Dado and Shelf Pin Detail**



- 1.** CUT DADOES WITH ROUTER AND A 23/32" ROUTER BIT TO 1/4" DEPTH
- 2.** CUT DADO ON TABLE SAW TO PLYWOOD THICKNESS AND 1/4" DEPTH

## Cutting List

| KEY | PCS. | SIZE & DESCRIPTION                                              |
|-----|------|-----------------------------------------------------------------|
| A   | 2    | 3/4" x 13-3/4" x 33-1/2" birch plywood (bottom)*                |
| B   | 1    | 3/4" x 12-1/2" x 31" birch plywood (top)                        |
| C   | 2    | 3/4" x 11-1/4" x 47-1/2" birch plywood (sides)                  |
| D   | 2    | 3/4" x 9-1/2" x 29" birch plywood (inside top and bottom shelf) |
| E   | 4    | 3/4" x 7-1/2" x 28-7/16" birch plywood (shelves)†               |
| F   | 2    | 3/4" x 2-1/4" x 28-1/2" birch (top and bottom rails)            |
| G   | 4    | 3/4" x 1" x 28-7/16" birch (shelf depth stops)†                 |
| H   | 2    | 3/4" x 3/4" x 47" birch (side edging)                           |
| J   | 6    | 3/4" x 3/4" x 4" birch (back cleats)                            |
| K   | 1    | 1/4" x 1-1/2" x 63" birch (bottom edging)*                      |
| L   | 1    | 1/4" x 3/4" x 60" birch (top edging)*                           |
| M   | 2    | 1/4" x 3/4" x 42-1/2" birch (shelf stops)†                      |
| N   | 4    | 1/4" x 3/4" x 29-1/2" birch (shelf edging)*†                    |
| P   | 1    | 1/4" x 29" x 44" birch plywood (back)                           |

\*Cut to finish dimensions during assembly; see the step-by-step instructions.

†Include these pieces when making the entertainment library version.

## Tool List

Table saw with miter gauge

Router with:

edge guide  
23/32" dia. straight bit\*

Cordless or electric drill

No. 2 Phillips screwdriver or hex-shanked bit

Drill bits:

7/16" twist bit  
5/32" twist bit  
1/4" brad point bit  
11/32" twist bit  
3/8" brad point bit  
14mm brad point bit\*  
7/8" spade or power bore bit  
2-1/8" hole saw\*  
countersink bit

Belt sander

Orbital sander

Clamps:

four 36" long pipe clamps  
six 18" long bar clamps

1" wide masking tape

Paint scraper

Thickness planer—optional

Jointer—optional

Drill press—optional

\*If you don't have these cutting tools, you can order them at the same time you order the TFH Display Cabinet Hardware Kit from The Woodworkers' Store; see the Shopping List. 14mm brad point drill bit, No. 46813, \$4.49; 2-1/8" hole saw, No. 90295, \$10.99; arbor (3/8" shank) for 2-1/8" hole saw, No. 90301, \$12.99; 23/32" dia. (1/4" shank) straight router bit, No. 90264, \$13.99.

## Handling and replacing the halogen light bulbs

**CAUTION:** Halogen light bulbs can be extremely hot after being on only a few minutes. Be careful not to touch the protective glass bulb covers of the light fixtures when the lights are turned on, or have been turned on.

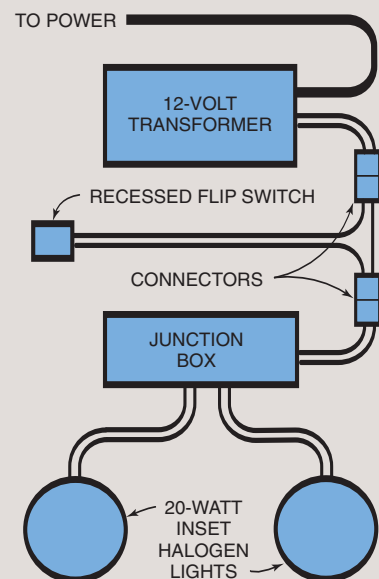
Don't set wax objects close to the bulbs, and maintain at least 2 in. of clearance for any object placed on the top shelf.

**Never touch the halogen light bulbs with your bare fingers. The oil from your fingers can cause the bulbs to burn out prematurely. Handled properly, a new halogen bulb should last for 2,000 hours.**

When the time comes to replace a burned-out bulb, first make sure the bulb has cooled completely. Then twist the black rim on the fixture to remove the glass bulb cover; pull out the old bulb; hold the new bulb with a glove, paper towel or tissue; insert it in the bulb socket; and then replace the glass bulb cover.

**NOTE:** Our cabinet is designed to accommodate the extra heat generated by the halogen lights. If you use halogen lights in other projects, be sure you provide ventilation space above the lights.

Fig. C Wiring Detail



Place the plastic hinge pivot bushings in the holes in the top and bottom of the cabinet. Peel the protective covers off the small metal plates that come with the pivot hinges and stick the plates to the backsides of the doors in the corners. The screws of the pivot hinges are tightened against these plates. Align and screw a pivot hinge to the bottom of each door. Tighten the screws just enough to secure the hinges. *Overtightening the screws may break the glass.* Insert a door in the bottom hinge bushing so the hinge screws face inward. Insert the top pivot hinge in the top bushing, slide the top of the door in the hinge, and tighten the screws. Do the other door, and make any necessary adjustments.

20. Remove the protective coverings

from the small foam pieces that came with the door strike plates. Stick the foam pieces over the top inside corners of the doors, then push the strike plates over them. If you made the entertainment library version, align and screw the shelf depth stops (G) to the shelves (E). Insert the shelf support pins and the shelves, and you're done.

**NOTE:** If you set the cabinet on thick carpet, and it seems tippy when you open the doors, screw a 3/4-in. x 27-in. x 44-in. piece of particleboard to the back so it's recessed in the void. The added heft of the 3/4-in. particleboard will offset the weight of the open doors. This should help stabilize the cabinet.

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Photography • MIKE KRIVIT and BILL ZUEHLKE

Technical Art • GENE THOMPSON